GW - 30

GENERAL CORRESPONDENCE

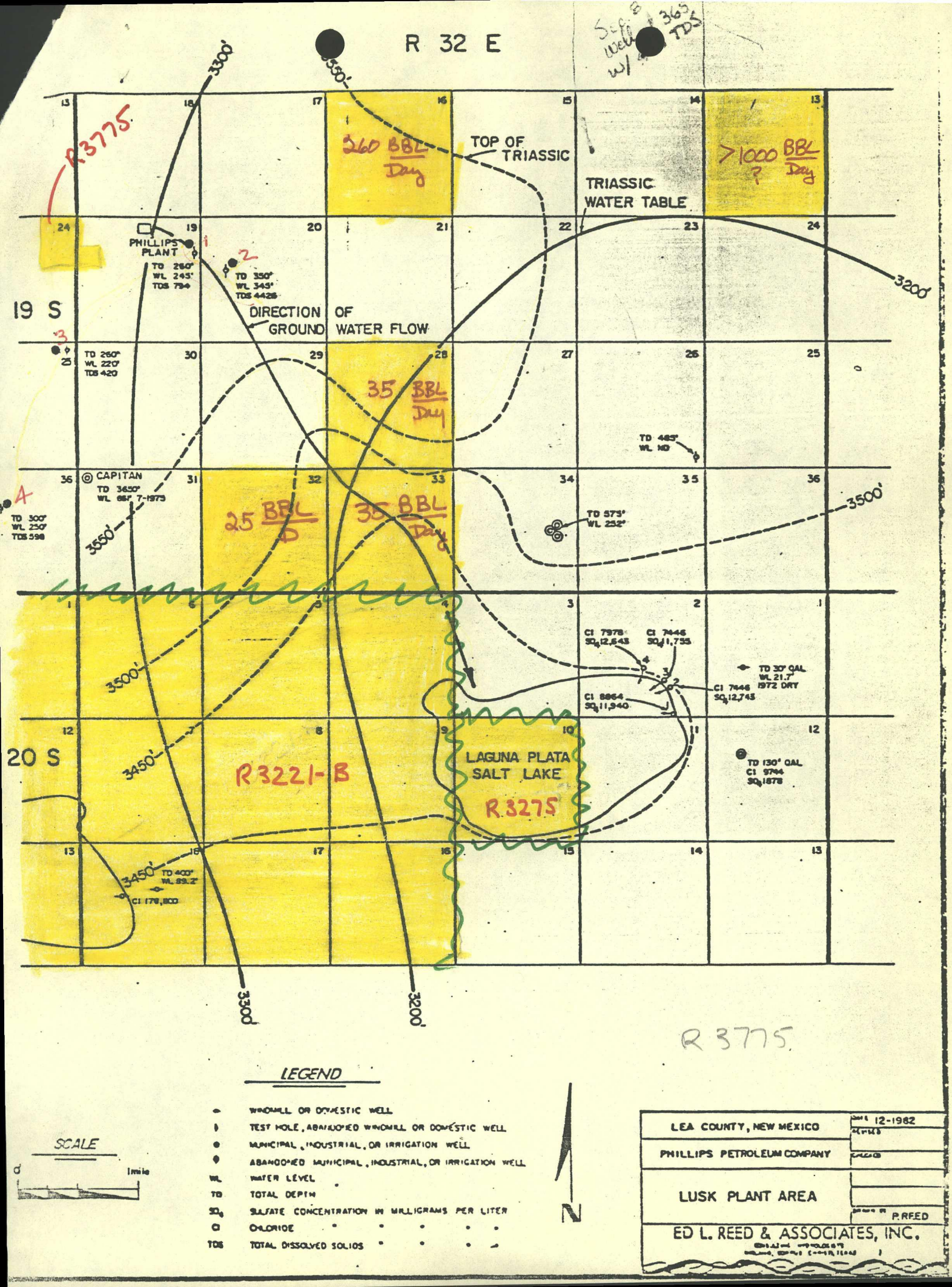
YEAR(S):

1989 - 1981

Order #	Exceptions to no pit ordinance in T19S R32E
R3686	Section 32 → 25 bbls/day - Case 4046
R3788	Sec. 28 & 33 → 35 bbls/day - Case 4155
R5355	Sec. 16 → 260 bbls/day - Case 5812
~~R7348~~	~~Sec. 19 & 24 - Case 7836~~
R3554	Sec. 13 - Case 3892

MIKE FORD (915) 367-1316

Ramon Vasquez 885-4270
Frank Bohns



LEGEND

- WINDMILL OR DOMESTIC WELL
- TEST HOLE, ABANDONED WINDMILL OR DOMESTIC WELL
- MUNICIPAL, INDUSTRIAL, OR IRRIGATION WELL
- ABANDONED MUNICIPAL, INDUSTRIAL, OR IRRIGATION WELL
- WL WATER LEVEL
- TD TOTAL DEPTH
- SO_4 SULFATE CONCENTRATION IN MILLIGRAMS PER LITER
- Cl CHLORIDE
- TDS TOTAL DISSOLVED SOLIDS

SCALE

0 1 mile

N

LEA COUNTY, NEW MEXICO

PHILLIPS PETROLEUM COMPANY

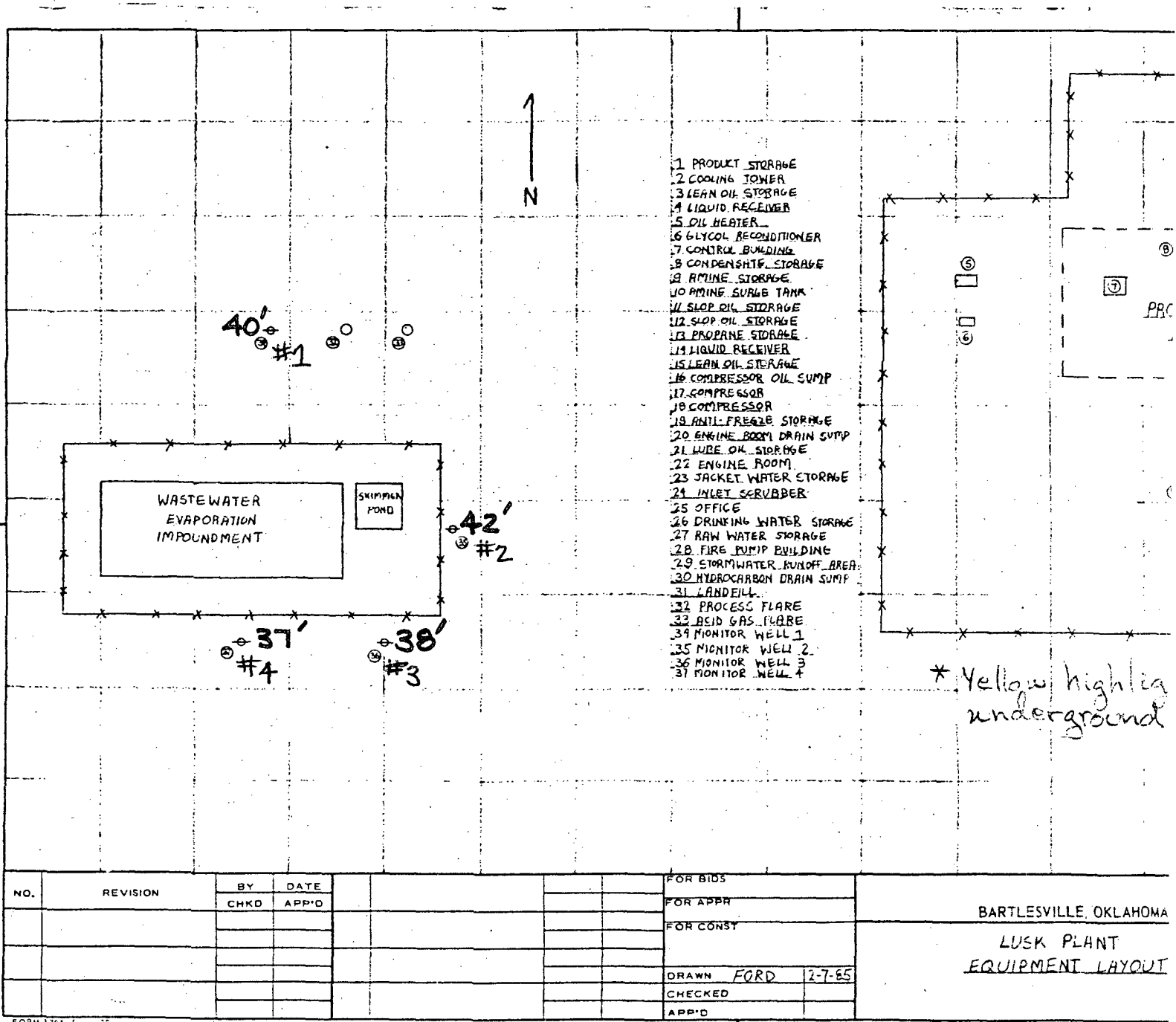
LUSK PLANT AREA

DATE 12-1982

DRAWN P.REED

ED L. REED & ASSOCIATES, INC.

GREEN - TOP OF WATER



* Yellow highlig underground

NO.	REVISION	BY	DATE
		CHKD	APP'D

FOR BIDS
FOR APPR
FOR CONST

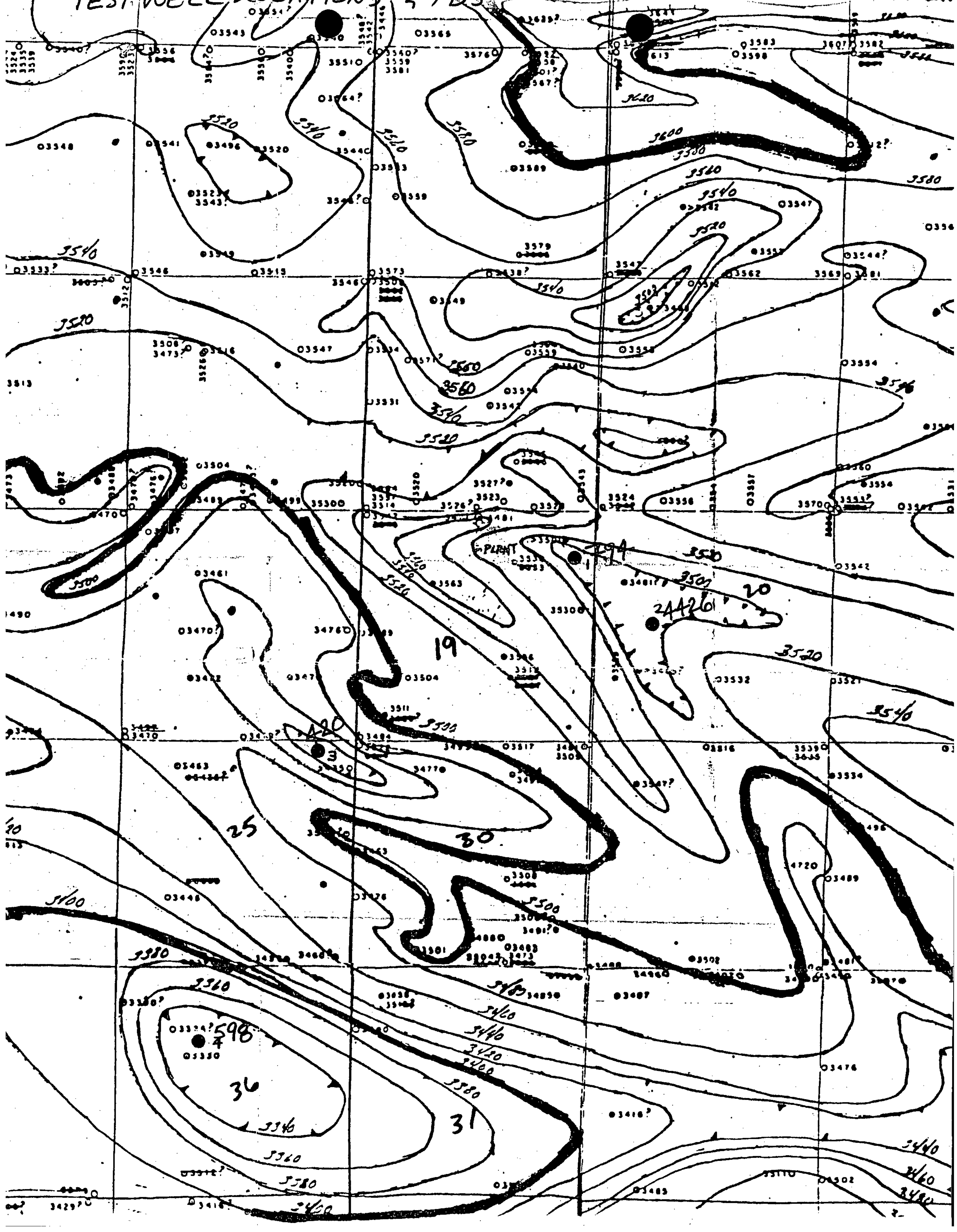
DRAWN FORD 2-7-65
CHECKED
APP'D

BARTLESVILLE, OKLAHOMA

LUSK PLANT
EQUIPMENT LAYOUT

FORM 1761-S

TEST WELL LOCATIONS & TDS



Phillips Lusk Plant

A. Three buried tanks. If we allow the unlined pond, do we have to require periodic pressure testing for leaks. Also #20 and #16 may fall under LUST Program. Plant Design Specs dated '67 Lines & buried tanks Checks for Renewal in 1991

B. See Attach II

C. Attach III indicates the presence of buried pipelines. Same questions apply as in (A) above. Is truck loading done with open or valved hoses? If pond is allowed does it matter? Check on residence time for 1st Slop Tank. Is valve from Sump Tank to Slop Tank Norm. Open and to skimmer Norm. Closed. What are the acid gas & flare line drip tanks cap. and flow to skimmer pond.

Tank to replace Skimmer Pond - All lines to tank.

D. O.K.

OK
E. Look at 5-22-84 submittal to investigate sidestream filter basin. If we inspect plant, check water level in this basin to assess overflow risk. D.P. says no risk.

F. Daily inspection for leaks done visually. No mention made of underground vessels or buried piping.

OK
G. O.K. (So-So no mention of burning - probably not necessary).

Surface drainage in common ~35'/mi

H. Bore Holes #1, 3, 2, & 4 have TDS < 1000. Should really check these values out. OCD samples?

I. OK – Do they have an SPCC Plan Filed?

J. Double Check Flow rates to verify validity of this contingency plan.

K. OK – We may wish to use as part of an OCD monitoring plan.

L. OK

M. OK

N. Check w/ State Emgcy. Office on This?

New Mexico Health and Environment Department

GARREY CARRUTHERS
Governor

DENNIS BOYD
Secretary

MICHAEL J. BURKHART
Deputy Secretary

RICHARD MITZELFELT
Director

October 25, 1989

Mr. Dave Boyer
Oil Conservation Division
State Land Office Bldg.
P.O. Box 2088
Santa Fe, NM 87504

Dear Mr. Boyer:

Enclosed for your information are copies of EPA's Comprehensive Groundwater Monitoring Reports for the four Phillips Gas Plants - Artisia, Eunice, Lee and Lusk. These reports have not been reviewed by the Hazardous Waste Program and are to be considered as draft reports. At this time no further action is expected on the reports to finalize them.

If you have any questions, or need additional information please call me at 827-0170.

Sincerely,

V. Suzanne Moore-Mayne

Suzanne Moore-Mayne
Water Resource Specialist II
Hazardous Waste Program

SMM/vga

Encl.

— ENVIRONMENTAL IMPROVEMENT DIVISION —
Harold Runnels Building
1190 St. Francis Dr.
Santa Fe, New Mexico 87503

New Mexico Health and Environment Department

Dennis Boyd
Secretary

MICHAEL J. BURKHART
Deputy Secretary

RICHARD MITZELFELT
Director

September 13, 1989

William F. Ballard, Manager
Phillips Petroleum Company
12 A4 Phillips Bldg.
Bartlesville, OK 74004

RE: RCRA status Artesia, Eunice, Lee and Lusk Plants-
NMD000709667, NMD000709634, NMD000709675, NMD000709659

Dear Mr. Ballard:

The New Mexico Environmental Improvement Division (NMEID), accepts Phillips Petroleum Company's (Phillips') position presented in their May 17, 1989 correspondence that the four Phillips facilities in New Mexico, Artesia, Eunice, Lee and Lusk are exempt from RCRA regulation based upon EPA's Regulatory Determination of July 6, 1988 Federal Register. NMEID also accepts Phillips' Certificate of No Hazardous Waste Activity included in the May 17, 1989 correspondence.

NMEID's acceptance of Phillips' position does not remove Phillips from regulation under the Hazardous Waste Management Regulations, (HWMR-5, as amended 1989) and the New Mexico Hazardous Waste Act, New Mexico Statutes Annotated 1978, (1989, Supp.), if Phillips transports, treats, stores or disposes of hazardous wastes in the future. To the extent that Phillips generates hazardous wastes, Phillips is subject to the generator requirements of HWMR-5.

If NMEID receives any new information that indicates that Phillips has been or may be regulated under RCRA, enforcement actions will be initiated. With NMEID's acceptance of Phillips' position, compliance with the April 19, 1988 Compliance Order/Schedule is determined to be resolved. However, Phillips may still be subject to EPA enforcement actions.

– ENVIRONMENTAL IMPROVEMENT DIVISION –
Harold Runnels Building
1190 St. Francis Dr.
Santa Fe, New Mexico 87503

A copy of EPA's response to NMEID's request to provide an interpretation of the oil and gas exemption in the July 6, 1988 Federal Register is enclosed for Phillips' information.

If you have any questions or need additional information, please call me at (505) 827-2926.

Sincerely,

Boyd Hamilton
Program Manager
Hazardous Waste Program

BH/SMM/smm

Encl.

cc: Lynn Prince, EPA Region 6
Tracy Hughes, Office of General Counsel, EID
Knut Am, Phillips Petroleum Company
Reese B. Copeland, Phillips Petroleum Company

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TEXAS 75202

July, 18, 1989

Mr. Boyd Hamilton
Program Manager
Hazardous Waste Program
New Mexico Health and Environment Department
Harold Runnels Building
1190 St. Francis Drive
Santa Fe, New Mexico 87503

Dear Mr. Hamilton:

On June 8, 1989, you requested that the Environmental Protection Agency (EPA) provide an interpretation of the so called oil and gas exemption to the Resource Conservation and Recovery Act (RCRA) as delineated in the Regulatory Determination in the July 6, 1988, Federal Register (FR). Specifically, you asked if the exemption applied to four gas plants operated by Phillips Petroleum Company (Phillips) in eastern New Mexico. This request was prompted by Phillips' assertion, in a letter dated May 17, 1989, that the surface impoundments in question are not RCRA regulated units based on that regulatory determination. Phillips supported this position with a certificate of no hazardous waste activity for the four plants.

In EPA's regulatory determination, on Page 25454, cooling tower blowdown is specifically included in the wastes exempted from RCRA regulation. However, gas plant cooling tower cleaning wastes are specifically excluded from the exemption. These determinations are based on the three criteria included as an attachment to the June 6, 1989, letter from Dan Derkics, (Chief, Large Volume Waste Section EPA Headquarters) to Julie Wanslow, a copy of which was included in your letter to me of June 15, 1989. Mr. Derkics letter states that cooling tower blowdown "... is comprised only of water, scale or other wastes generated by the actual operation of the cooling tower ... included as part of the functional operation of the cooling tower." The Region interprets this to mean that corrosion inhibitors and biological control agents are included in cooling tower blowdown.

Mr. Derkics also clarifies the meaning of cooling tower cleaning wastes as those wastes which, may be generated by any cooling tower and includes "...solvents, scrubbing agents or other cleaning materials introduced

into the process solely to remove buildup or otherwise clean the equipment, and are not included as part of the functional operation of the cooling tower." Such wastes are not intrinsically derived from primary field operations for natural gas production. The Region interprets this to mean that the wastes generated during the periodic cleaning are not exempt.

In their No Hazardous Waste Activity Certificate, Phillips states that both chromate and non-chromate chemicals have been used in the cooling towers since November 19, 1980, as corrosion inhibitors at these sites. They further state that cooling towers must be cleaned on a periodic basis (approximately once every five years) and that this cleaning consists of removing the sludge by vacuum truck from the basin and removing scale from the cooling coil heads and laterals by sandblasting. Phillips also asserts that these materials have been tested and are not hazardous wastes.

One of the reasons that cleaning waste from a cooling tower may be RCRA hazardous waste is due to the chemicals added to the system for corrosion inhibition or control of biological agents. Chromate compounds have been widely used in this application as they have at the Phillips gas plants. Discarded materials generated in the cooling tower would be hazardous waste, as that term is defined in 40 CFR §261.3, when the chromium concentration reaches 5.0 mg/l when tested using the procedures for EP toxicity.

If the waste generated during the periodic cleaning exceeds a concentration of 5.0 mg/l for chromium, then the waste is hazardous waste. Phillips claims the waste is tested in their certificate but they do not provide enough information for a determination of the adequacy of the testing. Should this waste be EP Toxic and should it be placed in the same surface impoundments as the cooling tower blowdown, then the units are RCRA regulated regardless of the exemption for cooling tower blowdown. If on the other hand these conditions are not met, then the material is not hazardous waste. At the very least, the coil heads and laterals have the potential of having significant levels of chromium waste/scale which must be sandblasted off. It is this cooling tower cleaning waste that may make the units regulated, however, such a determination is not possible from the information provided in the certificate.

Some discussion is necessary about a mixture of an exempted waste and a non-exempted waste. EPA has in the past exempted some such mixtures as in the case of ash waste and flue gas emission control waste generated primarily from the combustion of coal and fossil fuels. [40 CFR 261.4(b)(4)] However, the wastes which are co-disposed and also exempt are those materials generated in conjunction with the exempted wastes. The waste materials are not segregated from the combustion wastes. Wastes which

are segregated and disposed of or treated separately from combustion wastes and otherwise meet the definition of a hazardous waste are regulated under RCRA. This determination was made in 1981 in response to the Utility Solid Waste Activities Group.

The clearest exposition of EPA's stand regarding the applicability of the mixture rule when an exempted waste is mixed with a hazardous waste is found in the proposed rule published in the Federal Register on April 17, 1989, for mining waste.

> "EPA has decided, however, that it is appropriate to revise the proposed regulatory status of some mixtures of non-excluded 'characteristic' wastes and Bevill wastes. In these instances, the mixture will be considered a hazardous waste if it exhibits one or more of the same hazardous characterisitcs that are exhibited by the non-excluded waste. If the mixture exhibits one or more hazardous characteristics that are exhibited by the Bevill waste but not by the non-excluded characteristic waste, then the mixture is not hazardous waste.
>
> EPA wishes to make clear, however that in any case, mixing a characteristic hazardous waste with a Bevill waste would require a RCRA treatment, storage or disposal permit.... "

Although this interpretation applies to a proposed mining waste rule, EPA's Office of General Counsel has assured the Region that the same idea applies in the petroleum exclusion.

Clearly, if at any time the cooling tower cleaning waste meets the definition of hazardous waste and it is mixed with the exempted waste, the unit where mixing takes place is a regulated unit.

The interpretations of the exemption contained in this letter are consistent with those of EPA's Office of General Counsel.

I would suggest that EID review Phillip's analysis and all available information to determine if the cooling tower cleaning waste is EP-toxic for chromium or is not. You should also determine what quantity of waste is generated and if this waste is/was placed in the surface impoundments after 1980.

Although further investigation/evidence is required to conclusively determine the regulatory status of these sites, I hope the information provided above will prove useful to your staff. If your staff has any questions, please have them call Court Fesmire at (214) 655-6775.

Sincerely,

Randall E. Brown, Chief
RCRA Enforcement Branch

cc: Tracy Huges
Office of General Counsel
NMEID

PHILLIPS 66 NATURAL GAS COMPANY
A SUBSIDIARY OF PHILLIPS PETROLEUM COMPANY

ODESSA, TEXAS 79762
4001 PENBROOK

May 8, 1986

Monitor Well Analyses
Lee and Lusk Gasoline Plants

Mr. Roger C. Anderson
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Roger:

Attached please find copies of the chemical analyses performed on water samples from the monitoring wells at Lee and Lusk Gasoline Plants.

If you have any questions regarding these results, please contact me at (915) 367-1316.

Yours truly,

Michael D. Ford

Michael D. Ford
Environmental Analyst

MDF:ggp

Attachments

4-15-86
copied for:
R.D. Skinner
W.C. Stoltz
R.B. Copeland
M.D. Ford
Files 218, 320, 388, 391
FPC

TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

8 April 1986

B.F. Ballard
Director, Environmental Control
10 D4 Phillips Building
Phillips Petroleum Company
Bartlesville, Oklahoma 74004

Dear Mr. Ballard:

Enclosed please find the results of analyses on the samples EID split with Phillips at your plants in Artesia, Eunice, Lee and Lusk, New Mexico.

If you have any questions regarding these results, please contact me at (505) 827-2931.

Sincerely,

Ann Claassen

Ann Claassen
Water Resource Specialist
Hazardous Waste Section

RESULTS OF SAMPLING

PHILLIPS PETROLEUM GAS REFINERIES

ARTESIA, EUNICE, LEE AND LUSK

Attached are the results for the New Mexico Environmental Improvement Division's samples taken at the Phillips plants in August 1986. At each plant, samples were taken from each of the RCRA wells (4 wells per plant). At Lusk and Artesia, samples were also taken from surface impoundments. Table 1 identifies each sample.

All samples were collectd by Alice Barr with the assistance of Kelley Crossman. The samples were appropriately preserved and shipped under chain-of-custody to the State Laboratory in Albuquerque for analysis. Table 2 gives the analytical procedure for each parameter. Note that calcium and magnesium are reported under both General Chemistry and Metals. The Gen. Chem results were obtained by the Water Chemistry Section using wet analytical techniques; the Metals results were obtained by the Metals Section using ICAP.

All results are in milligrams per liter (mg/l), except as follows:

pH	pH units
conductivity	micromhos/cm (lab cond. at 25 °C)
temperature	degrees Celcius
organics	parts per billion

Abbreviations and symbols used to report the results are as follows:

Cond.	conductivity
GEN. CHEM.	general chemistry
ND	not detected (see below)
NR	not reported
PPB	parts per billion
Temp.	temperature (in Celcius)
TDS	total dissolved solids (total filterable residue)
TOC	total organic carbon
<	less than
>	greater than
~	approximately
[ ]	tentative identification

The value of many metals is reported as ND (none detected). The detection limits, in mg/l, were as follows:

Arsenic	0.005
Mercury	0.0005
Selenium	0.005
Manganese	0.05
All others	0.1

TABLE 1. SAMPLE IDENTIFICATION, PHILLIPS PETROLEUM PLANTS

NOTE: The designation of a well as upgradient or downgradient is Phillip's designation.

Phillips Petroleum -- Artesia

MW-1	monitoring well 1, downgradient
MW-3	monitoring well 3, upgradient
MW-6	monitoring well 6, downgradient
PND-1,w	first RCRA pond, surface water
PND-4,s	first RCRA pond, sediment
PND-2,s	second pond (middle), sediment
PND-3,,w	third pond, surface water
Blank	Field blank using deionized water

Phillips Petroleum -- Eunice

MW-1	monitoring well 1, upgradient
MW-2	monitoring well 2, downgradient
MW-3	monitoring well 3, downgradient
MW-4	monitoring well 4, downgradient

Phillips Petroleum -- Lee

MW-1	monitoring well 1, upgradient
MW-2	monitoring well 2, downgradient
MW-3	monitoring well 3, downgradient
MW-4	monitoring well 4, downgradient
Blank	Field blank using deionized water

Phillips Petroleum -- Lusk

MW-1	monitoring well 1, upgradient
MW-2	monitoring well 2, downgradient
MW-3	monitoring well 3, downgradient
MW-4	monitoring well 4, downgradient
R-PND,w	RCRA pond, surface water
R-PND,s	RCRA pond, sediment
O-PND,s	Oily pond next to RCRA pond, sludge

TABLE 2. ANALYTICAL METHODS

PARAMETER	PRESERVATION	ANALYTICAL METHOD
Gen. Chem.		
Field pH	none	Hach Mini pH Meter
Field Cond.	none	Yellow Springs S-C-T Meter
Calcium	ice	EPA Method 215.2
Magnesium	ice	EPA Methods 130.2 and 215.2
Sodium	ice	Std. Methods 325(b)
Potassium	ice	Std. Methods 325(b)
Bicarbonate	ice	EPA Method 310.1
Chloride	ice	EPA Method 325.2
Sulfate	ice	EPA Method 375.2
TDS	ice	EPA Method 160.1
Fluoride	ice	EPA Method 340.2
Nitrate-N	ice, H_2SO_4	EPA Method 352.2
TOC	ice, H_2SO_4	EPA Method 415.1
Metals		
Arsenic	HNO_3	EPA Method 206.2
Mercury	HNO_3	EPA Method 245.1
Selenium	HNO_3	EPA Method 270.2
All others (ICAP Scan)	HNO_3	EPA Method 207
Organics		
GC/MS Purgeables	Ice	EPA Method 624

PHILLIPS PETROLEUM -- LUSK

	MW-1	MW-2	MW-3	MW-4
GEN CHEM..				
Field pH	7.0	7.0	7.0	6.9
Field Cond.	1800	2050	2950	2850
Field Temp.	25	23	23	22
Lab pH	7.93	8.12	8.21	7.84
Lab Cond.	1829	2188	2879	3455
Calcium	212.0	132.0	120.0	280.0
Magnesium	112.2	148.8	268.4	143.9
Sodium	103.5	142.6	225.4	308.2
Potassium	5.07	2.73	1.95	3.51
Bicarbonate	206.9	418.9	675	237.6
Chloride	150.2	377.4	607.4	549.6
Sulfate	714.9	246.3	485.8	1057
TDS	1825	1578	2358	3033
Fluoride	1.31	2.09	2.18	2.14
Nitrate-N	20.87	0.17	0.21	1.12
TOC	3.13	8.58	27.6	7.1
METALS				
Arsenic	0.010	0.060	0.078	0.020
Mercury	ND	ND	ND	ND
Selenium	0.009	ND	ND	ND
Aluminum	ND	0.9	0.4	0.4
Barium	ND	0.3	0.7	ND
Beryllium	ND	ND	ND	ND
Boron	0.2	0.5	0.5	0.4
Cadmium	ND	ND	ND	ND
Calcium	210	134	125	275
Chromium	ND	ND	ND	ND
Cobalt	ND	ND	ND	ND
Copper	ND	ND	ND	ND
Iron	0.2	5.8	13	4.6
Lead	ND	ND	ND	ND
Magnesium	94	160	275	160
Manganese	ND	0.6	0.9	2.0
Molybdenum	ND	ND	ND	ND
Nickel	ND	ND	ND	ND
Silicon	36	23	20	22
Silver	ND	ND	ND	ND
Strontium	3.3	2.5	4.4	4.1
Tin	ND	ND	ND	ND
Vanadium	ND	ND	ND	ND
Ytrrium	NR	ND	ND	ND
Zinc	ND	ND	ND	ND

PHILLIPS PETROLEUM -- LUSK, cont.

	R-PND,w	R-PND,s	O-PND,s
METALS			
Arsenic	0.019	0.078	0.15
Mercury	ND	0.0036	0.0011
Selenium	ND	0.018	ND
Aluminum	ND	6.4	0.6
Barium	0.3	0.5	0.4
Beryllium	ND	ND	ND
Boron	0.2	ND	0.1
Cadmium	ND	ND	ND
Calcium	240	110	9.7
Chromium	ND	17	ND
Cobalt	ND	ND	ND
Copper	ND	ND	ND
Iron	ND	11	5.4
Lead	ND	ND	ND
Magnesium	25	11	0.8
Manganese	ND	0.17	ND
Molybdenum	ND	ND	ND
Nickel	ND	ND	ND
Silicon	33	2.8	0.8
Silver	ND	ND	ND
Strontium	2.4	0.6	ND
Tin	ND	ND	ND
Vanadium	ND	0.2	ND
Ytrrium	NR	ND	ND
Zinc	ND	6.4	0.6

PHILLIPS PETROLEUM -- LUSK

Gas Chromatograph/Mass Spectrometer Purgeable Screen

Results in [brackets] are tentative (unconfirmed) results.

SAMPLE	ORGANICS DETECTED	PPB
MW-1	None Detected	
MW-2	Benzene	44
	Ethylbenzene	7
	[Tetrahydrofuran]	[>30]
	[Butanone]	[>5]
	C3 substituted benzenes	~5
	C4 substituted benzene	~2
MW-3	Benzene	68
	Toluene	1500
	Ethylbenzene	900
	p-Xylene	900
	m-Xylene	470
	o-Xylene	320
	Napthalene	[present]
	C3 substituted benzenes	20-300
	C4 substituted benzenes	~20
MW-4	Trichloromethane	2
R-PND,w	[Thiobismethane]	[1]
R-PND,s	None Detected	
O-PND,s*	Methylcyclohexane	present
	Heptane	present
	Toluene	present
	Nonane	present
	Dimethylcyclohexanes (2)	present
	Octane	present
	m-Xylene	present
	Ethylbenzene	present
	o-Xylene	present
	p-Xylene	present
	Decane	present
	Ethylcyclohexane	present
	Benzene	present
	Aliphatic Hydrocarbons	present

*Oil and water phases in the sample made quantitation impossible. High concentrations of aliphatic and aromatic hydrocarbons were indicated by the analysis.

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

Client No. 3355796

File No. C-1950-W

Report No. 36769

Report Date 9-23-85

Report of tests on: Water

Date Received 8-29-85

Client: Phillips Petroleum Company

Delivered By A. Hubble

Identification: Lusk Plant, MW-1

		mg/L
Arsenic	Less than	0.05
Barium		1.9
Cadmium	Less than	0.01
Chromium	Less than	0.05
Lead	Less than	0.05
Mercury	Less than	0.002
Selenium	Less than	0.01
Silver	Less than	0.05
Nickel	Less than	0.2
Cyanide		0.001

Technician: JDN, GMB, LT, MT

ıies 3cc Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

119904

Client No. 3355796

File No. C-1950-W

Report No. 36770

Report Date 9-23-85

Report of tests on: Water

Date Received 8-29-85

Client: Phillips Petroleum Company

Delivered By A. Hubble

Identification: Lusk Plant, MW-2

		mg/L
Arsenic		0.08
Barium	Less than	1
Cadmium	Less than	0.01
Chromium	Less than	0.05
Lead		0.24
Mercury	Less than	0.002
Selenium	Less than	0.01
Silver	Less than	0.05
Nickel	Less than	0.2
Cyanide	Less than	0.001

Technician: JDN, GMB, LT, MT

Copies 3cc Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burnett

119904

SWL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

Client No. 3355796

File No C-1950-W

Report No 36771

Report Date 9-23-85

Report of tests on: Water

Date Received 8-29-85

Client: Phillips Petroleum Company

Delivered By A. Hubble

Identification: Lusk Plant, MW-3

		mg/L
Arsenic		0.05
Barium		1.1
Cadmium		0.01
Chromium	Less than	0.05
Lead		0.16
Mercury	Less than	0.002
Selenium	Less than	0.01
Silver	Less than	0.05
Nickel	Less than	0.2
Cyanide	Less than	0.001

Technician: JDN, GMB, LT, MT

Copies 3cc Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

Client No. 3355796

File No. C-1950-W

Report No. 36772

Report Date 9-23-85

Report of tests on: Water

Date Received 8-29-85

Client: Phillips Petroleum Company

Delivered By A. Hubble

Identification: Lusk Plant, MW-4

		mg/L
Arsenic	Less than	0.05
Barium	Less than	1
Cadmium	Less than	0.01
Chromium	Less than	0.05
Lead		0.12
Mercury	Less than	0.002
Selenium	Less than	0.01
Silver	Less than	0.05
Nickel	Less than	0.2
Cyanide		0.003

Technician: JDN, GMB, LT, MT

Copies 3cc Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

119904

SWL **SOUTHWESTERN LABORATORIES**

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue [915 - 683-3348] • P.O. Box 2150 • Midland, Texas 79701

Client No. 3355796

File No. C-1950-W

Report No. 36773

Report Date 9-23-85

Date Received 8-29-85

Delivered By A. Hubble

Report of tests on: Water

Client: Phillips Petroleum Company

Identification: Lusk Plant, Surface Impoundment

		mg/L
Arsenic	Less than	0.05
Barium	Less than	1
Cadmium	Less than	0.01
Chromium	Less than	0.05
Lead		0.15
Mercury	Less than	0.002
Selenium	Less than	0.01
Silver	Less than	0.05
Nickel	Less than	0.2
Cyanide	Less than	0.001

Technician: JDN, GMB, LT, MT

Copies 3cc Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

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Client No. 3355796

File No C-1950-X

Report No. 27905

Report Date 10-23-85

Date Received 9-3-85

Delivered By Phillips

Report of tests on: Sludge

Client: Phillips Petroleum Company

Identification: Lusk Plant Impoundment Sludge

SW-846, Total Metals, Method 3050

		p.p.m.
Arsenic	Less than	0.5
Barium		230
Cadmium	Less than	3
Chromium		9410
Lead	Less than	5
Mercury		1.5
Nickel		20
Selenium	Less than	0.1
Silver	Less than	3

Technician: MAW, GMB

Copies 3cc Phillips Petroleum
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

Attachment to 01b-15-86

TABLE I

VOLATILE ORGANIC ANALYSES OF LUSK PLANT WATER SAMPLES AND SURFACE SAMPLES

Sample received: September 3, 1985

Analysis	Concentration, ppb					
					Surface Impoundment	
	M.W.#1	M.W.#2	M.W.#3	M.W.#4	Water	Sludge
Chloromethane	2.2	1.7	<1	2.3	<1	7.9
Vinyl Chloride	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	<1	1.4	<1	<1	<1	<1
Methylene Chloride	8.0	8.1	5.7	4.1	4.6	2.4
trans-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	<1	<1	<1	<1	<1	<1
Chloroform	1.5	1.6	1.3	2.5	1.6	1.5
1,2-dichloroethane	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	38	4.9	<1	2.4
Carbontetrachloride	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
Trichloroethylene	<1	<1	<1	<1	<1	<1
2-chloroethylvinyl Ether	<1	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1
Toluene	4.4	<1	66	25	<1	10.7
Dibromochloromethane	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethylene	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	34	1.7	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1
31509-38-	1	2	3	4	5	6

Attachment to Olb-21-86

TABLE I

SEMIVOLATILE ORGANIC ANALYSES OF LUSK MONITORING WELL WATERS

Sample received: September 3, 1985

Analysis	Concentration, ppb			
	M.W. #1	M.W. #2	M.W. #3	M.W. #4
Bis(2-chloroethyl)ether	<20	<20	<20	<20
1,3-dichlorobenzene	<20	<20	<20	<20
1,4-dichlorobenzene	<20	<20	<20	<20
1,2-dichlorobenzene	<20	<20	<20	<20
Bis(2-chloroisopropyl)ether	<20	<20	<20	<20
N-nitorsodi-n-propylamine	<20	<20	<20	<20
Nitrobenzene	<20	<20	<20	<20
Hexachloroethane	<20	<20	<20	<20
Isophorone	<20	<20	<20	<20
n-nitrosodimethylamine	<20	<20	<20	<20
Bis-(2-chloroethoxy)methane	<20	<20	<20	<20
1,2,4-trichlorobenzene	<20	<20	<20	<20
Naphthalene	<20	<20	<20	<20
Hexachlorobutadiene	<20	<20	<20	<20
Hexachlorocyclopentadiene	<20	<20	<20	<20
2-chloronaphthalene	<20	<20	<20	<20
2,6-dinitrotoluene	<20	<20	<20	<20
Dimethylphthalate	<20	<20	<20	<20
Acenaphthylene	<20	<20	<20	<20
Acenaphthene	<20	<20	<20	<20
2,4-dinitrotoluene	<20	<20	<20	<20
Diethylphthalate	<20	<20	<20	<20
Fluorene	<20	<20	<20	<20
4-chlorophenylphenylether	<20	<20	<20	<20
N-nitrosodiphenylamine	<20	<20	<20	<20
4-bromophenylphenylether	<20	<20	<20	<20
Hexachlorobenzene	<20	<20	<20	<20
Phenanthrene	<20	<20	<20	<20
Anthracene	<20	<20	<20	<20
Dibutyl phthalate	<20	<20	<20	<20
Fluoranthene	<20	<20	<20	<20
Pyrene	<20	<20	<20	<20
Benzylbutylphthalate	<20	<20	<20	<20
Bis(2-ethylhexyl)phthalate	<20	<20	<20	140
Benzidine	<20	<20	<20	<20
Di-n-octylphthalate	<20	<20	<20	<20
Benzo(b&k)fluoranthene	<20	<20	<20	<20
Benzo(a)pyrene	<20	<20	<20	<20
3-3'-dichlorobenzidine	<20	<20	<20	<20
Chrysene & benzo(a)anthracene	<20	<20	<20	<20
Indeno(1,2,3-c,d)pyrene	<20	<20	<20	<20
Dibenzo(a,h)anthracene	<20	<20	<20	<20
Benzo(g,h,i)perylene	<20	<20	<20	<20
Phenol	<20	<20	<20	<20
2-chlorophenol	<20	<20	<20	<20
2-nitrophenol	<20	<20	<20	<20
2,4-dimethylphenol	<20	<20	<20	<20
2,4-dichlorophenol	<20	<20	<20	<20
4-chloro-3-methylphenol	<20	<20	<20	<20
2,4,6-trichlorophenol	<20	<20	<20	<20
2,4-dinitrophenol	<20	<20	<20	<20
4-nitrophenol	<20	<20	<20	<20
2-methyl-4,6-dinitrophenol	<20	<20	<20	<20
Pentachlorophenol	<20	<20	<20	<20
31509-38-	1	2	3	4

Attachment to Olb-21-86

TABLE II

SEMIVOLATILE ORGANIC ANALYSES OF LUSK PLANT SURFACE IMPOUNDMENT SAMPLES

Samples received: September 3, 1985

Analysis	Concentration, ppb	
	Water	Sludge
Bis(2-chloroethyl)ether	<20	<100
1,3-dichlorobenzene	<20	<100
1,4-dichlorobenzene	<20	<100
1,2-dichlorobenzene	<20	<100
Bis(2-chloroisopropyl)ether	<20	<100
N-nitorsodi-n-propylamine	<20	<100
Nitrobenzene	<20	<100
Hexachloroethane	<20	<100
Isophorone	<20	<100
n-nitrosodimethylamine	<20	<100
Bis-(2-chloroethoxy)methane	<20	<100
1,2,4-trichlorobenzene	<20	<100
Naphthalene	<20	<100
Hexachlorobutadiene	<20	<100
Hexachlorocyclopentadiene	<20	<100
2-chloronaphthalene	<20	<100
2,6-dinitrotoluene	<20	<100
Dimethylphthalate	<20	<100
Acenaphthylene	<20	<100
Acenaphthene	<20	<100
2,4-dinitrotoluene	<20	<100
Diethylphthalate	<20	125
Fluorene	<20	<100
4-chlorophenylphenylether	<20	<100
N-nitrosodiphenylamine	<20	<100
4-bromophenylphenylether	<20	<100
Hexachlorobenzene	<20	<100
Phenanthrene	<20	<100
Anthracene	<20	<100
Dibutyl phthalate	<20	630
Fluoranthene	<20	<100
Pyrene	<20	<100
Benzylbutylphthalate	<20	<100
Bis(2-ethylhexyl)phthalate	<20	300
Benzidine	<20	<100
Di-n-octylphthalate	<20	<100
Benzo(b&k)fluoranthene	<20	<100
Benzo(a)pyrene	<20	<100
3-3'-dichlorobenzidine	<20	<100
Chrysene & benzo(a)anthracene	<20	<100
Indeno(1,2,3-c,d)pyrene	<20	<100
Dibenzo(a,h)anthracene	<20	<100
Benzo(g,h,i)perylene	<20	<100
Phenol	<20	<100
2-chlorophenol	<20	<100
2-nitrophenol	<20	<100
2,4-dimethylphenol	<20	<100
2,4-dichlorophenol	<20	<100
4-chloro-3-methylphenol	<20	<100
2,4,6-trichlorophenol	<20	<100
2,4-dinitrophenol	<20	<100
4-nitrophenol	<20	<100
2-methyl-4,6-dinitrophenol	<20	<100
Pentachlorophenol	<20	<100

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

GARREY CARRUTHERS
GOVERNOR

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

April 7, 1988

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Michael D. Ford
Environmental Analyst
Phillips 66 Natural Gas Co.
4001 Penbrook
Odessa, Texas 79762

RE: GW-30, Effluent Discharge Plan,
Lusk Gasoline Plant,
Lea County, New Mexico

Dear Mr. Ford:

Your letter of March 31, 1988 regarding shut-down of your Lusk Gasoline Plant has been received. Therefore, we have discontinued processing of the discharge plan for that facility. However, pursuant to Section 3-106.B. of the Water Quality Control Commission Regulations you will be required to notify this agency in advance if Phillips decides to reopen this facility in the future.

If you have any questions regarding this letter, please contact me at (505) 827-5812.

Sincerely,

David G. Boyer, Hydrogeologist
Environmental Bureau Chief

DGB:sl

cc: OCD - Hobbs
NMEID - Hazardous Waste Section

PHILLIPS 66 NATURAL GAS COMPANY
A SUBSIDIARY OF PHILLIPS PETROLEUM COMPANY

ODESSA, TEXAS 79762
4001 PENBROOK

March 31, 1988

Effluent Discharge Plan
Lusk Gasoline Plant
Lea County, New Mexico

CERTIFIED MAIL
RETURN RECEIPT NO. P-512 089 452

Mr. David G. Boyer
Environmental Bureau Chief
New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Boyer:

Pursuant to our phone conversation of March 28, 1988, this is to notify you we have no plans at this time to resume operating our Lusk Gasoline Plant, located in Lea County, New Mexico (plant was shut down in October of 1986). Therefore, as we agreed, your review of the effluent discharge plan submitted for this facility will no longer be required.

As you are aware, wastewater from the plant was disposed of in a skimmer pond and an evaporation pond while the plant was operating. The ponds have since dried up and will be backfilled upon final approval of the hazardous waste closure plan submitted to the New Mexico Environmental Improvement Division. Your office will be notified when the ponds have been backfilled.

If you should have any questions regarding this information, please contact me at (915) 367-1316.

Very truly yours,

Michael D. Ford

Michael D. Ford
Environmental Analyst

MDF

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal | Time 9:30AM | Date 6/17/86

Originating Party	Other Parties
Mike Ford-Phillips	DAVE Boyer-OCD

Subject: Closure of Phillips Lusk Skimmer (Oil) Pond

Discussion: Mike called to ask if we had any specific requirements for closure. They have rerouted the flare sumpline to the slop oil tanks. They plan to use a vacuum truck to remove fluids from the pond and ~~then~~ remove top sludge layer for drying. Then they will cover pond. I told him that was fine, and that no liquids should go to other wastewater pond. Our ~~review~~ review of SP is on back burner.

Conclusions or Agreements:

Distribution: Phillips Lusk Plant

Signed: D F Boyer

PUBLIC NOTICE

NEW MEXICO ENVIRONMENTAL IMPROVEMENT DIVISION
HAZARDOUS WASTE SECTION
P.O.Box 968
Santa Fe, New Mexico 87504

PUBLIC NOTICE NO. 8 March 28,1986

NOTICE OF INTENT TO TERMINATE INTERIM STATUS
AND TO CLOSE THE SURFACE IMPOUNDMENT USED FOR TREATMENT AND
DISPOSAL OF HAZARDOUS WASTE

The State of New Mexico is authorized to operate a hazardous waste management program in lieu of the Federal program for those portions of the Resource Conservation and Recovery Act (RCRA) in effect prior to the enactment of the Hazardous and Solid Waste Amendments of 1984 (HSWA). The HWSA imposes additional requirements on hazardous waste management facilities which will be administered and enforced by the U.S. Environmental Protection Agency (EPA) until the State of New Mexico receives additional authorization for these requirements. Therefore, both the EPA and the New Mexico Environmental Improvement Division (NMEID) of the State Health and Environment Department will determine whether to approve Phillip's Petroleum Lusk Natural Gasoline Plant (Phillip's Lusk Plant) request for termination of interim status and the proposed closure plan.

Under authority of the New Mexico Hazardous Waste Act (§ 74-4-1 et. seq. NMSA 1983 Repl. Pamp.) and the New Mexico Hazardous Waste Management Regulations (HWMR-2), the NMEID proposes to terminate the interim status of Phillip's Lusk Plant, EPA I.D. Number NMD000709634, located nine miles north of the intersection of highways 176 & 180, near Maljamar, New Mexico (32° 38'N, 103° 49'W) and to approve a closure plan for the surface impoundment used for the treatment and disposal of hazardous waste at that site. Phillip's Lusk Plant is involved in the production of natural gasoline and has conducted treatment and disposal of hazardous wastes associated with those processes.

The decision to terminate interim status is based on Phillip's Lusk Plant request to withdraw its Part A application for a hazardous waste treatment and disposal permit. As a result of changes in its waste management practices, the company will no longer be subject to the requirements of HWMR-2, Section 206.C. for the treatment and disposal of hazardous wastes in a surface impoundment. Termination of interim status is to be accomplished through permit denial as required by EID. The cause for this permit denial is a request by the Company and does not suggest any wrongdoing on the part of the Company.

The proposed closure plan describes the procedures to be used to demonstrate that none of the standing liquids, waste and waste residues, the liner (if any) and underlying and surrounding contaminated soil remaining are hazardous waste. If that demonstration can be made then the surface impoundment is no longer subject to the requirements of HWMR-2 as provided for in Section 206.C.6.f.(2).

Persons wishing to comment upon the proposed termination of interim status or upon the proposed closure plan, or who wish to request a public hearing, should submit, in writing, comments and requests, along with the requestor's name and address to the New Mexico Health and Environment Department, Environmental Improvement Division, 1190 St. Francis Drive, P.O.Box 968, Santa Fe, New Mexico 87504-0968, ATTENTION: Peter H. Pache. Requests for a public hearing shall state the nature of the issues proposed to be raised in the hearing. These comments and/or requests must be received no later than May 19,1986 to be considered.

The administrative record for these decisions consist of a permit application (Part A), a "notice of intent to terminate interim status", a fact sheet, a closure plan, and related correspondence. The administrative record may be reviewed at either the EID District Office, 200 E. 5th Street, Roswell, New Mexico, or the EID Central Office, Harold Runnels Building, 1190 St. Francis Drive, Santa Fe, New Mexico.

To obtain a copy of the administrative record or any part thereof, please contact:

Peter H. Pache, Program Manager
Hazardous Waste Section
New Mexico Environmental Improvement Division
1190 St. Francis Drive, P.O.Box 968
Santa Fe, New Mexico 87504-0968
(505) 827-2924

All written comments submitted on the proposed termination of interim status and/or the proposed closure plan will be considered in formulating a final decision. The EID will notify Phillip's Lusk Plant and each person who submitted a written comment during the public comment period of the final decisions or of any public hearing which may be scheduled.

If, after consideration of all written comments, these proposed actions become EID's final decisions, EID will issue to Phillip's Lusk Plant a Notice of Termination, immediately terminating the interim status of the Company's facility. The Notice of Termination will require that the Company's closure activities be performed in conformity with applicable State law, as well as within the terms of the Company's closure plan.

FACT SHEET

Intent to Terminate Interim Status and to Close Under the New Mexico Hazardous Waste Act

Activity: Termination of Phillips Petroleum Company's Lusk Natural Gas Plant Interim Status and closure of it's surface impoundment.

Facility Name: Lusk Natural Gas Plant

EPA I.D. Number: NMD000709634

Location: The plant is located approximately nine miles North of the intersection of Highways 176 and 180 near Maljamar, New Mexico.

Landowner: Phillips Petroleum Company

Facility Operator: Phillips Petroleum Company

Comment Period:

Any person, including the applicant, who wishes to comment on the tentative decisions to terminate the facility's interim status and to approve the proposed closure plan may do so by submitting written comments to the New Mexico Environmental Improvement Division (NMEID), Harold Runnels Building, 1190 St. Francis Drive, P. O. Box 968, Santa Fe, New Mexico 87504-0968, ATTENTION: Peter H. Pache, (505) 827-2924. All such comments must be received by May 19, 1986 to be considered. Note that the termination of interim status is achieved through permit denial, as required by EID regulations; however, no wrongdoing on the part of the facility is to be inferred.

Procedures for Requesting a Hearing:

Any person, including the applicant, who wishes to request a public hearing concerning the proposed actions may do so by submitting a written request to the New Mexico Environmental Improvement Division (NMEID), P. O. Box 968, Harold Runnels Building, 1190 St. Francis Drive, Santa Fe, New Mexico, 87504-0968, ATTENTION: Peter H. Pache. Any request for a hearing shall be submitted in writing and shall state the nature of the issues proposed to be raised in the hearing. All requests must include the requestor's name and address. Requests for a hearing must be received by April 30, 1986 to be considered.

Interim Status Activities:

Since November 19, 1980, Phillips Petroleum Company's Lusk Natural Gas Plant has been operating under interim status (defined in N.M. Hazardous Waste Management Regulations) as a hazardous waste disposal facility. Primary industrial activities conducted at the facility include processing raw natural gas for liquid hydrocarbon recovery. These activities require use of a cooling tower; chemicals containing chromium, a corrosion inhibitor and characteristic toxic waste, were used in the cooling tower until December 7, 1982. On December 7, 1982, the use of chromium at the facility was discontinued. All wastes have been disposed of in an unlined surface impoundment on site.

Reasons Supporting Decision to Terminate Interim Status:

On February 10, 1984, Phillips Petroleum Company submitted a revised closure and post-closure plan for the Lusk Natural Gas Plant surface impoundment which was used for disposal of cooling tower blowdown water containing chromium. In the closure plan Phillips states that the use of chromium contained in cooling tower blowdown water has been discontinued and requests that the interim status authorization to operate be withdrawn. NMEID's review of the closure and post-closure plan indicated that the company's request to withdraw interim status and retain their EPA I.D. Number was justified. Therefore NMEID is hereby formally proposing to terminate Lusk Natural Gas Plant's interim status by denying a permit.

Closure of the Facility:

The facility is currently operating under interim status. If this tentative decision becomes the final administrative disposition of the permit application, interim status will terminate and closure will begin immediately. Phillip's Lusk Natural Gas Plant closure plan has been previously submitted and reviewed by NMEID. A copy is available for public review at the NMEID Central Office, Harold Runnels Building, 1190 St. Francis Drive, Santa Fe, New Mexico and the NMEID District IV Office at 200 East Fifth Street, Roswell, New Mexico. The public notice and this fact sheet include the proposed approval of the closure plan for this facility's surface impoundment. The public is provided an opportunity to submit written comments on the plan, or request a public hearing as previously described elsewhere in this fact sheet. The owner/operator must implement the approved closure plan in accordance with its stipulated time schedule.

If the groundwater has been or will be impacted by a release of hazardous constituents from the surface impoundment, closure of the impoundment shall not relieve Phillips Petroleum Company of remedial liability.

Final Decisions:

All written comments submitted on the proposed termination of interim status and/or the proposed closure plan will be considered in formulating a final decision. The NMEID will notify Phillips Petroleum Company and each person who submitted a written comment during the public comment period of the final decisions made, or of any public hearing which may be scheduled.

G.W. File: Phillips Plants

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA 74004
PHONE: 918 661-6600 CABLE CODE: PHILPETROL TELEX: 49-2455

ENGINEERING AND SERVICES

MAR 2 1986

HAZARDOUS WASTE SECTION

March 21, 1986

Lusk, Lee, Eunice and Artesia Plants
~~Supplemental~~ Sampling Results

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Jack Ellvinger, Environmental Supervisor
Hazardous Waste Section
New Mexico Environmental Improvement Division
P. O. Box 968
Harold-Runnels Building
Santa Fe, NM 87501-0968

Dear Mr. Ellvinger:

Samples were procured from the Lusk, Lee, Eunice and Artesia Plants' water sampling wells and surface impoundments in the Fall of 1985 during a joint sampling effort by Phillips and the New Mexico Environmental Improvement Division (EID). Each sample that was procured was split between Phillips and the EID. Results of the analysis of Phillips' samples are attached.

Referring to the attached data, please note that for the Lusk, Lee and Eunice Plants, "well #1" corresponds to the "upgradient" well; in the case of the Artesia Plant, "well #3" is the upgradient well. Samples from monitoring wells #1 and #2 at the Eunice Plant were lost because the containers holding these samples froze and broke while being stored in a laboratory refrigerator prior to analysis. Analyses of the samples for metals were performed by Southwestern Laboratories of Midland, Texas. Analyses of the samples for volatile and semivolatile compounds were performed by the Phillips Research Center, located in Bartlesville, Oklahoma.

Phillips requests that EID provide Phillips a copy of all analytical results from the analysis of EID's split samples from the Lusk, Lee, Eunice and Artesia Plants.

It is Phillips' understanding that EID is currently preparing a public notice which, when published by EID in a local newspaper (or broadcast via radio or television), will extend to the public and to Phillips the opportunity to submit comments on the closure plans previously submitted by Phillips for the Lusk, Lee, Eunice and Artesia Plants. The Lusk plan is dated January 23, 1984; the other three plans are dated July 27, 1984. Following the comment period and after any questions are adequately addressed, EID will proceed with the administrative actions necessary to RCRA-close the Lusk, Lee, Eunice and Artesia Plants.

If you have any questions regarding the Lusk, Lee, Eunice or Artesia Plants, please contact either Frank Collis at (918) 661-1063 or W. C. Stoltz at (918) 661-5613.

Very truly yours,

B. F. Ballard

B. F. Ballard, Director
Environment Control
10 D4 Phillips Building

BFB:FPC:tsv/B:002
Enclosure

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue [915 - 683-3348] • P.O. Box 2150 • Midland, Texas 79701

Client No. 3355796

File No. C-1950-W

Report No. 36769

Report Date 9-23-85

Report of tests on: Water

Date Received 8-29-85

Client: Phillips Petroleum Company

Delivered By A. Hubble

Identification: Lusk Plant, MW-1

		mg/L
Arsenic	Less than	0.05
Barium		1.9
Cadmium	Less than	0.01
Chromium	Less than	0.05
Lead	Less than	0.05
Mercury	Less than	0.002
Selenium	Less than	0.01
Silver	Less than	0.05
Nickel	Less than	0.2
Cyanide		0.001

Technician: JDN, GMB, LT, MT

cies 3cc Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

119904

SWL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

Client No. 3355796

File No. C-1950-W

Report No. 36770

Report Date 9-23-85

Report of tests on: Water

Date Received 8-29-85

Client: Phillips Petroleum Company

Delivered By A. Hubble

Identification: Lusk Plant, MW-2

		mg/L
Arsenic		0.08
Barium	Less than	1
Cadmium	Less than	0.01
Chromium	Less than	0.05
Lead		0.24
Mercury	Less than	0.002
Selenium	Less than	0.01
Silver	Less than	0.05
Nickel	Less than	0.2
Cyanide	Less than	0.001

Technician: JDN, GMB, LT, MT

Copies 3cc Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Jerry M. Burnett

119904

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue [915 - 683-3348] • P.O. Box 2150 • Midland, Texas 79701

Client No. 3355796

File No C-1950-W

Report No 36771

Report Date 9-23-85

Report of tests on: Water

Client: Phillips Petroleum Company

Identification: Lusk Plant, MW-3

Date Received 8-29-85

Delivered By A. Hubble

		mg/L
Arsenic		0.05
Barium		1.1
Cadmium		0.01
Chromium	Less than	0.05
Lead		0.16
Mercury	Less than	0.002
Selenium	Less than	0.01
Silver	Less than	0.05
Nickel	Less than	0.2
Cyanide	Less than	0.001

Technician: JDN, GMB, LT, MT

Copies 3cc Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

11990

Client No. 3355796

File No. C-1950-W

Report No. 36772

Report Date 9-23-85

Date Received 8-29-85

Delivered By A. Hubble

Report of tests on: Water

Client: Phillips Petroleum Company

Identification: Lusk Plant, MW-4

		mg/L
Arsenic	Less than	0.05
Barium	Less than	1
Cadmium	Less than	0.01
Chromium	Less than	0.05
Lead		0.12
Mercury	Less than	0.002
Selenium	Less than	0.01
Silver	Less than	0.05
Nickel	Less than	0.2
Cyanide		0.003

Technician: JDN, GMB, LT, MT

Copies 3cc Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burnett

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119904

Client No. 3355796

File No. C-1950-W

Report No. 36773

Report Date 9-23-85

Report of tests on: Water

Date Received 8-29-85

Client: Phillips Petroleum Company

Delivered By A. Hubble

Identification: Lusk Plant, Surface Impoundment

		mg/L
Arsenic	Less than	0.05
Barium	Less than	1
Cadmium	Less than	0.01
Chromium	Less than	0.05
Lead		0.15
Mercury	Less than	0.002
Selenium	Less than	0.01
Silver	Less than	0.05
Nickel	Less than	0.2
Cyanide	Less than	0.001

Technician: JDN, GMB, LT, MT

Copies 3cc Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

SwL SOUTHWESTERN LABORATORIES

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1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

Client No. 3355796

File No. C-1950-X

Report No. 27905

Report Date 10-23-85

Report of tests on: Sludge

Date Received 9-3-85

Client: Phillips Petroleum Company

Delivered By Phillips

Identification: Lusk Plant Impoundment Sludge

SW-846, Total Metals, Method 3050

	p.p.m.
Arsenic----------Less than	0.5
Barium----------	230
Cadmium----------Less than	3
Chromium----------	9410
Lead----------Less than	5
Mercury----------	1.5
Nickel----------	20
Selenium----------Less than	0.1
Silver----------Less than	3

Technician: MAW, GMB

Copies: 3cc Phillips Petroleum
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

Attachment to Olb-15-86

TABLE I

VOLATILE ORGANIC ANALYSES OF LUSK PLANT WATER SAMPLES AND SURFACE SAMPLES

Sample received: September 3, 1985

Analysis	Concentration, ppb					
					Surface Impoundment	
	M.W.#1	M.W.#2	M.W.#3	M.W.#4	Water	Sludge
Chloromethane	2.2	1.7	<1	2.3	<1	7.9
Vinyl Chloride	<1	<1	<1	<1	<1	<1
Chloroethane	<1	<1	<1	<1	<1	<1
Bromomethane	<1	<1	<1	<1	<1	<1
1,1-dichloroethylene	<1	1.4	<1	<1	<1	<1
Methylene Chloride	8.0	8.1	5.7	4.1	4.6	2.4
trans-1,2-dichloroethylene	<1	<1	<1	<1	<1	<1
1,1-dichloroethane	<1	<1	<1	<1	<1	<1
Chloroform	1.5	1.6	1.3	2.5	1.6	1.5
1,2-dichloroethane	<1	<1	<1	<1	<1	<1
1,1,1-trichloroethane	<1	<1	<1	<1	<1	<1
Benzene	<1	<1	38	4.9	<1	2.4
Carbontetrachloride	<1	<1	<1	<1	<1	<1
1,2-dichloropropane	<1	<1	<1	<1	<1	<1
Bromodichloromethane	<1	<1	<1	<1	<1	<1
Trichloroethylene	<1	<1	<1	<1	<1	<1
2-chloroethylvinyl Ether	<1	<1	<1	<1	<1	<1
trans-1,3-dichloropropene	<1	<1	<1	<1	<1	<1
cis-1,3-dichloropropene	<1	<1	<1	<1	<1	<1
1,1,2-trichloroethane	<1	<1	<1	<1	<1	<1
Toluene	4.4	<1	66	25	<1	10.7
Dibromochloromethane	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethylene	<1	<1	<1	<1	<1	<1
Chlorobenzene	<1	<1	<1	<1	<1	<1
Ethylbenzene	<1	<1	34	1.7	<1	<1
Bromoform	<1	<1	<1	<1	<1	<1
1,1,2,2-tetrachloroethane	<1	<1	<1	<1	<1	<1
31509-38-	1	2	3	4	5	6

Attachment to O1b-21-86

TABLE I

SEMIVOLATILE ORGANIC ANALYSES OF LUSK MONITORING WELL WATERS

Sample received: September 3, 1985

Analysis	Concentration, ppb			
	M.W. #1	M.W. #2	M.W. #3	M.W. #4
Bis(2-chloroethyl)ether	<20	<20	<20	<20
1,3-dichlorobenzene	<20	<20	<20	<20
1,4-dichlorobenzene	<20	<20	<20	<20
1,2-dichlorobenzene	<20	<20	<20	<20
Bis(2-chloroisopropyl)ether	<20	<20	<20	<20
N-nitorsodi-n-propylamine	<20	<20	<20	<20
Nitrobenzene	<20	<20	<20	<20
Hexachloroethane	<20	<20	<20	<20
Isophorone	<20	<20	<20	<20
n-nitrosodimethylamine	<20	<20	<20	<20
Bis-(2-chloroethoxy)methane	<20	<20	<20	<20
1,2,4-trichlorobenzene	<20	<20	<20	<20
Naphthalene	<20	<20	<20	<20
Hexachlorobutadiene	<20	<20	<20	<20
Hexachlorocyclopentadiene	<20	<20	<20	<20
2-chloronaphthalene	<20	<20	<20	<20
2,6-dinitrotoluene	<20	<20	<20	<20
Dimethylphthalate	<20	<20	<20	<20
Acenaphthylene	<20	<20	<20	<20
Acenaphthene	<20	<20	<20	<20
2,4-dinitrotoluene	<20	<20	<20	<20
Diethylphthalate	<20	<20	<20	<20
Fluorene	<20	<20	<20	<20
4-chlorophenylphenylether	<20	<20	<20	<20
N-nitrosodiphenylamine	<20	<20	<20	<20
4-bromophenylphenylether	<20	<20	<20	<20
Hexachlorobenzene	<20	<20	<20	<20
Phenanthrene	<20	<20	<20	<20
Anthracene	<20	<20	<20	<20
Dibutyl phthalate	<20	<20	<20	<20
Fluoranthene	<20	<20	<20	<20
Pyrene	<20	<20	<20	<20
Benzylbutylphthalate	<20	<20	<20	<20
Bis(2-ethylhexyl)phthalate	<20	<20	<20	140
Benzidine	<20	<20	<20	<20
Di-n-octylphthalate	<20	<20	<20	<20
Benzo(b&k)fluoranthene	<20	<20	<20	<20
Benzo(a)pyrene	<20	<20	<20	<20
3-3'-dichlorobenzidine	<20	<20	<20	<20
Chrysene & benzo(a)anthracene	<20	<20	<20	<20
Indeno(1,2,3-c,d)pyrene	<20	<20	<20	<20
Dibenzo(a,h)anthracene	<20	<20	<20	<20
Benzo(g,h,i)perylene	<20	<20	<20	<20
Phenol	<20	<20	<20	<20
2-chlorophenol	<20	<20	<20	<20
2-nitrophenol	<20	<20	<20	<20
2,4-dimethylphenol	<20	<20	<20	<20
2,4-dichlorophenol	<20	<20	<20	<20
4-chloro-3-methylphenol	<20	<20	<20	<20
2,4,6-trichlorophenol	<20	<20	<20	<20
2,4-dinitrophenol	<20	<20	<20	<20
4-nitrophenol	<20	<20	<20	<20
2-methyl-4,6-dinitrophenol	<20	<20	<20	<20
Pentachlorophenol	<20	<20	<20	<20
31509-38-	1	2	3	4

Attachment to O1b-21-86

TABLE II

SEMIVOLATILE ORGANIC ANALYSES OF LUSK PLANT SURFACE IMPOUNDMENT SAMPLES

Samples received: September 3, 1985

Analysis	Concentration, ppb	
	Water	Sludge
Bis(2-chloroethyl)ether	<20	<100
1,3-dichlorobenzene	<20	<100
1,4-dichlorobenzene	<20	<100
1,2-dichlorobenzene	<20	<100
Bis(2-chloroisopropyl)ether	<20	<100
N-nitorsodi-n-propylamine	<20	<100
Nitrobenzene	<20	<100
Hexachloroethane	<20	<100
Isophorone	<20	<100
n-nitrosodimethylamine	<20	<100
Bis-(2-chloroethoxy)methane	<20	<100
1,2,4-trichlorobenzene	<20	<100
Naphthalene	<20	<100
Hexachlorobutadiene	<20	<100
Hexachlorocyclopentadiene	<20	<100
2-chloronaphthalene	<20	<100
2,6-dinitrotoluene	<20	<100
Dimethylphthalate	<20	<100
Acenaphthylene	<20	<100
Acenaphthene	<20	<100
2,4-dinitrotoluene	<20	<100
Diethylphthalate	<20	125
Fluorene	<20	<100
4-chlorophenylphenylether	<20	<100
N-nitrosodiphenylamine	<20	<100
4-bromophenylphenylether	<20	<100
Hexachlorobenzene	<20	<100
Phenanthrene	<20	<100
Anthracene	<20	<100
Dibutyl phthalate	<20	630
Fluoranthene	<20	<100
Pyrene	<20	<100
Benzylbutylphthalate	<20	<100
Bis(2-ethylhexyl)phthalate	<20	300
Benzidine	<20	<100
Di-n-octylphthalate	<20	<100
Benzo(b&k)fluoranthene	<20	<100
Benzo(a)pyrene	<20	<100
3-3'-dichlorobenzidine	<20	<100
Chrysene & benzo(a)anthracene	<20	<100
Indeno(1,2,3-c,d)pyrene	<20	<100
Dibenzo(a,h)anthracene	<20	<100
Benzo(g,h,i)perylene	<20	<100
Phenol	<20	<100
2-chlorophenol	<20	<100
2-nitrophenol	<20	<100
2,4-dimethylphenol	<20	<100
2,4-dichlorophenol	<20	<100
4-chloro-3-methylphenol	<20	<100
2,4,6-trichlorophenol	<20	<100
2,4-dinitrophenol	<20	<100
4-nitrophenol	<20	<100
2-methyl-4,6-dinitrophenol	<20	<100
Pentachlorophenol	<20	<100

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP
Permian Basin Region

March 4, 1985

Effluent Discharge Plan
Lusk Gasoline Plant
Lea County, New Mexico

Mr. Philip L. Baca
New Mexico Oil Conservation Division
P. O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

Dear Mr. Baca:

The following descriptions and attachments are submitted in response to your November 28, 1984 letter requesting further information on the Wastewater Discharge Plan for our Lusk Plant.

A. A plant equipment layout is furnished in Attachment I. It should be noted that three of the plant storage tanks are buried. These three tanks are the engine room drain sump (No. 20 in Attachment I), the compressor oil sump (No. 16 in Attachment I), and the hydrocarbon drain sump (No. 30 in Attachment I).

B. The plant basically recovers the ethane and heavier hydrocarbons from field gas through a chilled oil absorbtion process. The natural gas liquids produced by the plant are sent by pipeline to a refinery. The residue gas is sold to a transmission company. A plant process flow sheet is furnished in Attachment II.

C. A schematic of the wastewater disposal system is furnished in Attachment III. The location of the sump tanks is shown in Attachment I. Construction details of the tanks are noted below:

Compressor Oil Sump (2' diam. x 6')	- constructed of 1/4" steel
Engine Room Drain Sump (3' diam. x 15')	- constructed of 1/4" steel
Hydrocarbon Drain Sump (5' diam. x 18')	- constructed of externally and internally coated 1/4" steel

D. Construction details of the evaporation pond are furnished in Attachment IV.

E. The sidestream filter basin (an extension of the cooling tower basin) is constructed of six inch thick concrete. The basin measures ten feet by ten feet and is four feet deep. The sidestream filter basin receives backwash water from the sidestream filter and cooling tower blowdown. There are no hydrocarbons present in this wastewater stream. The drain from the basin bypasses the skimming pond and goes directly into the evaporation pond. There is no danger of overflow from the basin because of its designed capacity and open drain arrangement.

Construction details of the skimming pond are furnished in Attachment IV. The waste fluid in the skimming pond is approximately ninety percent water and ten percent hydrocarbon fluids. The hydrocarbon fluid is vacuumed off on a periodic basis and taken to slop oil storage.

F. Piping and equipment is inspected daily by the plant operators. The operators are required to notify the plant superintendent of any leaks. If the leak is significant, the plant superintendent will notify the Oil Conservation Division.

G. Flood protection measures are not applicable to this site due to the arid climate and sandy soil conditions associated with this part of the state.

H. A table containing all of the past water analyses performed on the impoundment water, bore hole water, and monitoring well water is furnished in Attachment V.

I. Any spills from the plant process area would be NGL, liquid propane, or absorbtion oil. The NGL and liquid propane will vaporize when exposed to atmospheric temperature and pressure. Spills of absorbtion oil would be contained and cleaned up through use of a vacuum truck. Spills from storage vessels, depending on their fluid content, would be handled in the same manner.

J. In the event the evaporation pond had to be shut down, a vacuum truck would be connected to the four inch line which discharges wastewater into the pond. The vacuum truck would pump the wastewater into a tank truck so that it could be hauled to a permitted disposal well.

K. The monitoring wells are currently not required to be sampled on a frequent basis. The wells were installed as part of our RCRA Closure Plan for the plant. They were drilled with the intent to determine groundwater quality upgradient and downgradient in relation to the impoundment.

L. Solid waste generated at the plant consists of a small amount of office trash and spent construction materials. The waste is disposed of on-site in an excavated trench. The location of the "landfill" is shown in Attachment I (No. 31).

M. Material Safety Data Sheets for the treating chemicals used at the plant are furnished in Attachment VI.

N. There are no water wells (plugged or producing) within one mile of the facility.

O. To our knowledge, there were no discharges made (e.g., injection wells, produced water pits) in the Lusk Plant area prior to plant construction.

We would again like to state it is our opinion that we have clearly demonstrated our method of disposing of the plant wastewater does not adversely affect the quality of groundwater in the area. We, therefore, feel the Effluent Discharge Plan should be approved.

Questions regarding this information should be directed to Rodney Holsworth or Mike Ford of this office at (915) 367-1302.

Very truly yours,
PHILLIPS PETROLEUM COMPANY

E. E. Clark
Authorized Agent, Permian Basin Region

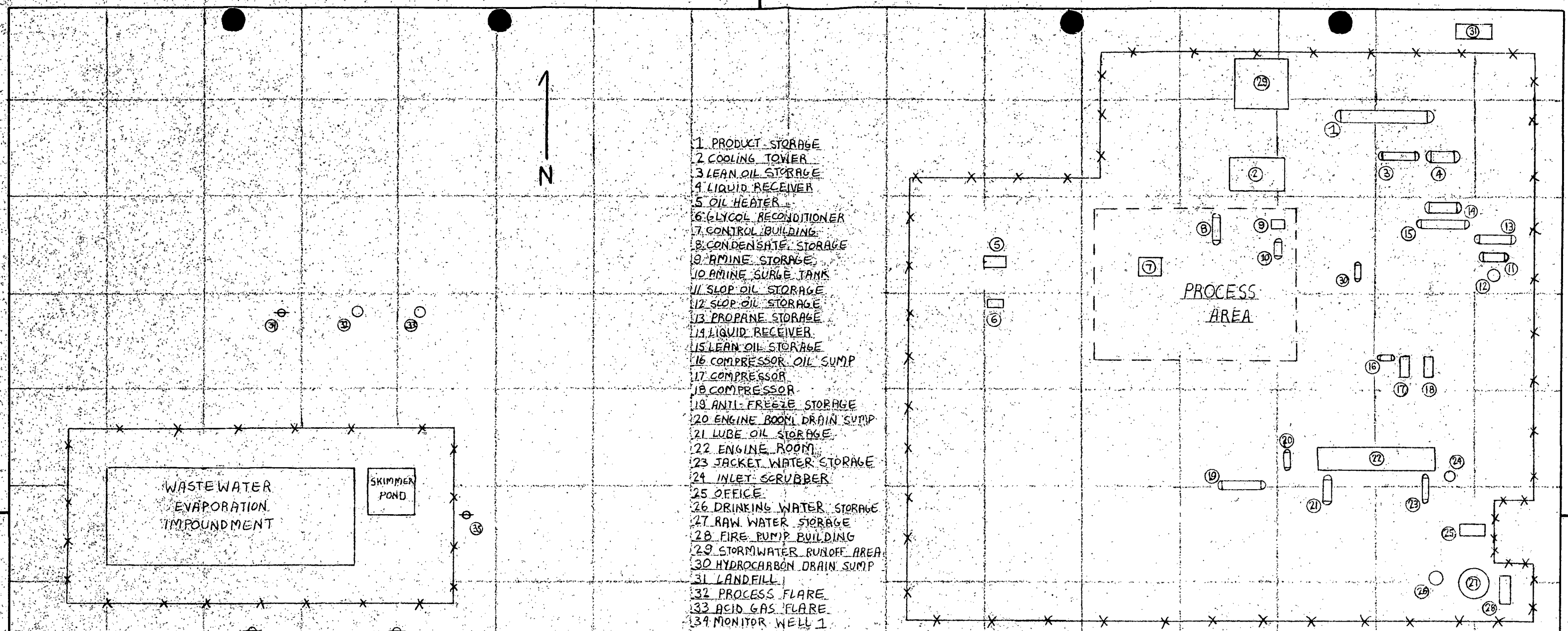
EEC:MDF:ms

Attachments

ATTACHMENT V

LUSK PLANT WATER ANALYSES (MG/L)

Parameter	N.M.Water Quality Regs. 3-103	Raw Water 2-12-82	Lusk Impound. Water 12-20-79	Lusk Impound. Water 12-7-81	Lusk Impound. Water 12-21-82	Bore Hole #1 2-10-82	Bore Hole #2 2-12-82	Bore Hole #3 2-10-82	Bore Hole #4 2-13-82	Lusk Impound Water 3-22-84	MW #1 4-3-84	MW #2 4-3-84	MW #3 4-3-84	MW #4 4-3-84	Laguna Plata Salt Lake
Arsenic	0.1	0	0	0	<.05	0	0	0	0	<.05					
Barium	1.0	0	0	0	0.2	0	0	0	0	<1.0					
Cadmium	0.01	0	0	0	0.01	0	0	[redacted]	0	<.01					
Chromium	0.05	0.02	5.02	16.2	3.1	0.04	0.04	0.04	0.02	.09	0.07	0.05	<0.05	<0.05	
Cyanide	0.2	0	0	0.7	<0.005	0	0	0	0	<.001					
Flouride	1.6	0.4	4.5	4.0	3.0	1.2	0.8	0.8	1.0	2.6					
Lead	0.05	0	0	1.0	<0.05	0	0	0	0	<.05					
Total Mercury	0.002	0	0	0	<0.002	0	0	0	0	<.002					
Nitrate	10.0	3.4	15.7	6.8	1.5	1.1	3.4	5.7	3.4	<.1					
Selenium	0.05	0	0	0	0.02	0	0	0	0	<.01					
Silver	0.05	0	0	0	0.1	0	0	0	0	<.05					
Chloride	250	57	373	522	553	45	75	34	51	489	284	454	723	596	8864
Copper	1.0	0	0	0	<0.01	0	0	0	0	<.1					
Iron	1.0	0.11	1.72	0.04	0.42	0.50	0.63	5.7	0.17	<.2					
Manganese	0.2	0	0	0	<0.05	0	0	0	0	<.05					
Phenols	0.005	0	0	0.5	0.016	0	0	0	0	<.001	<0.001	0.084	0.131	0.005	
Sulfate	600	26	1237	896	946	371	2588	61	157	820	947	84	87	1055	11940
Total Dissolved Solids	1000	348	2752	2840	2408	794	4426	[redacted] 420	[redacted] 598	2208	2108	1536	1949	2536	
Zinc	10.0	0	1.7	1.5	0.45	0	0	0	0	.14					
pH	6-9	8.19	7.0	7.9	8.11	7.96	7.99	7.82	7.54	7.45	10.67	11.38	9.35	10.45	
Aluminum	5.0	0	0	0	<1.0	0	0	0	0	<2					
Boron	0.75	0	0	0	0.4	0	0	0	0	0.4					
Cobalt	0.05	0	0	0	<0.01	0	0	0	0	<.1					
Molybdenum	1.0	0	0	0	<0.5	0	0	0	0	<1					
Nickel	0.2	0	0	0	<0.2	0	0	0	0	<0.5					



1 PRODUCT STORAGE
2 COOLING TOWER
3 LEAN OIL STORAGE
4 LIQUID RECEIVER
5 OIL HEATER
6 GLYCOL RECONDITIONER
7 CONTROL BUILDING
8 CONDENSATE STORAGE
9 AMINE STORAGE
10 AMINE SURGE TANK
11 SLOP OIL STORAGE
12 SLOP OIL STORAGE
13 PROPANE STORAGE
14 LIQUID RECEIVER
15 LEAN OIL STORAGE
16 COMPRESSOR OIL SUMP
17 COMPRESSOR
18 COMPRESSOR
19 ANTI-FREEZE STORAGE
20 ENGINE ROOM DRAIN SUMP
21 LUBE OIL STORAGE
22 ENGINE ROOM
23 JACKET WATER STORAGE
24 INLET SCRUBBER
25 OFFICE
26 DRINKING WATER STORAGE
27 RAW WATER STORAGE
28 FIRE PUMP BUILDING
29 STORMWATER RUNOFF AREA
30 HYDROCARBON DRAIN SUMP
31 LANDFILL
32 PROCESS FLARE
33 ACID GAS FLARE
34 MONITOR WELL 1
35 MONITOR WELL 2
36 MONITOR WELL 3
37 MONITOR WELL 4

NO.	REVISION	BY / CHKD	DATE / APP'D

FOR BIDS
FOR APPR
FOR CONST

DRAWN FORD 2-7-85
CHECKED
APP'D

BARTLESVILLE, OKLAHOMA

LUSK PLANT
EQUIPMENT LAYOUT

ATTACHMENT # 1

PHILLIPS 66

AFE NO.

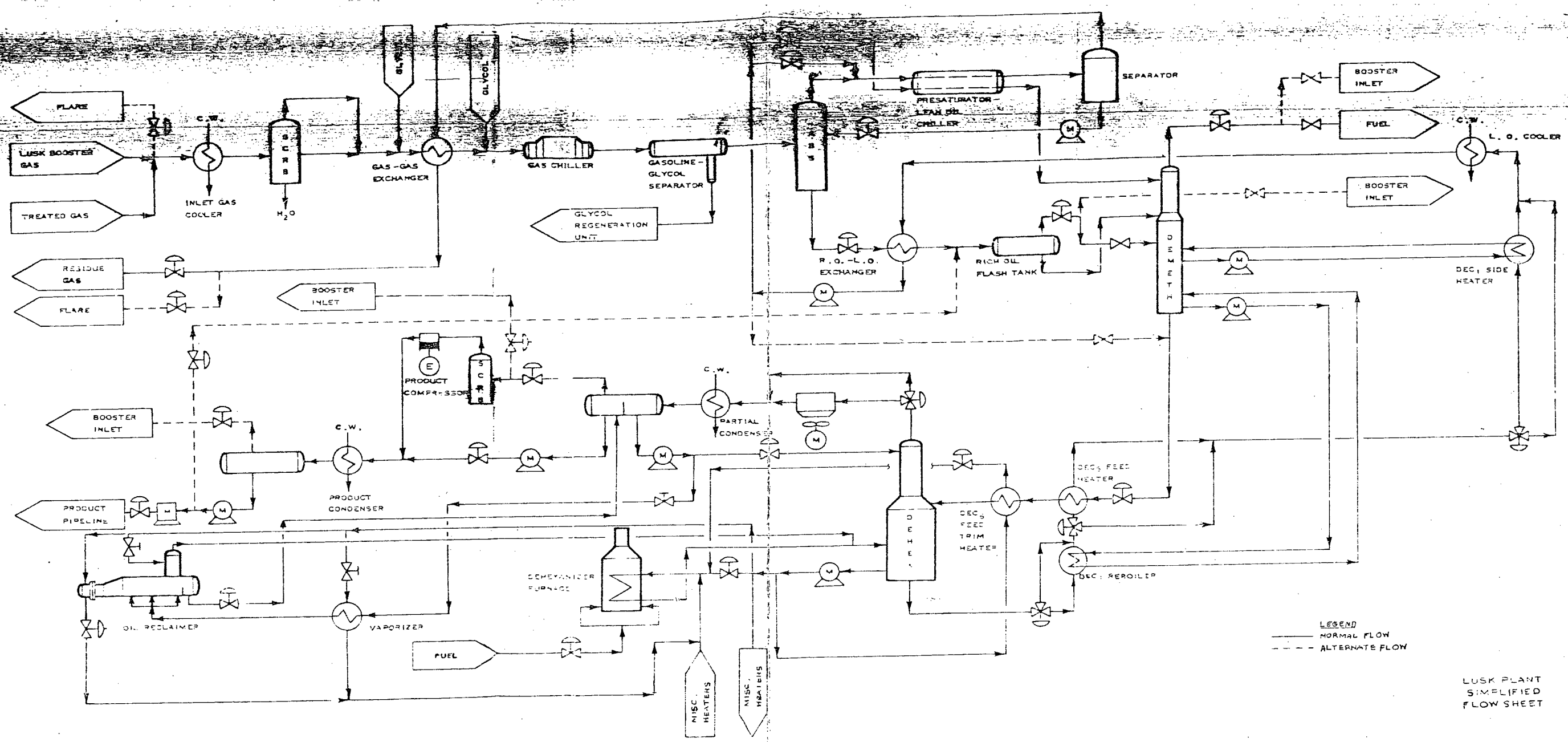
SCALE 1" = 125' UNLESS OTHERWISE NOTED

DWG NO.

SH NO.

FORM 1781-S 5-79

PRINTED IN U.S.A.



LUSK PLANT
SIMPLIFIED
FLOW SHEET

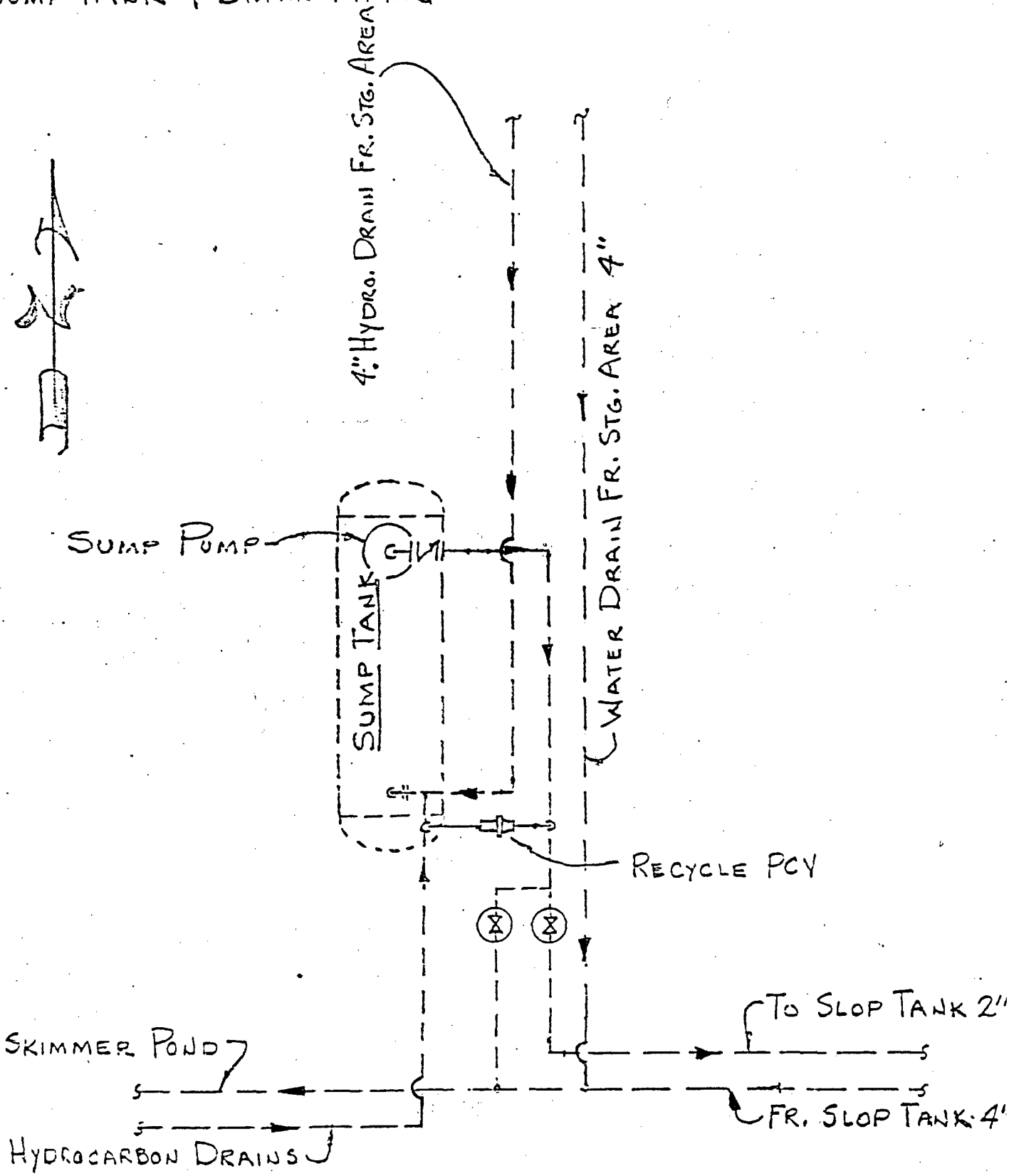
ATTACHMENT II
Lusk Plant
Process Flowsheet

ENGR.
LUSK GASO. PLANT

2/9/68

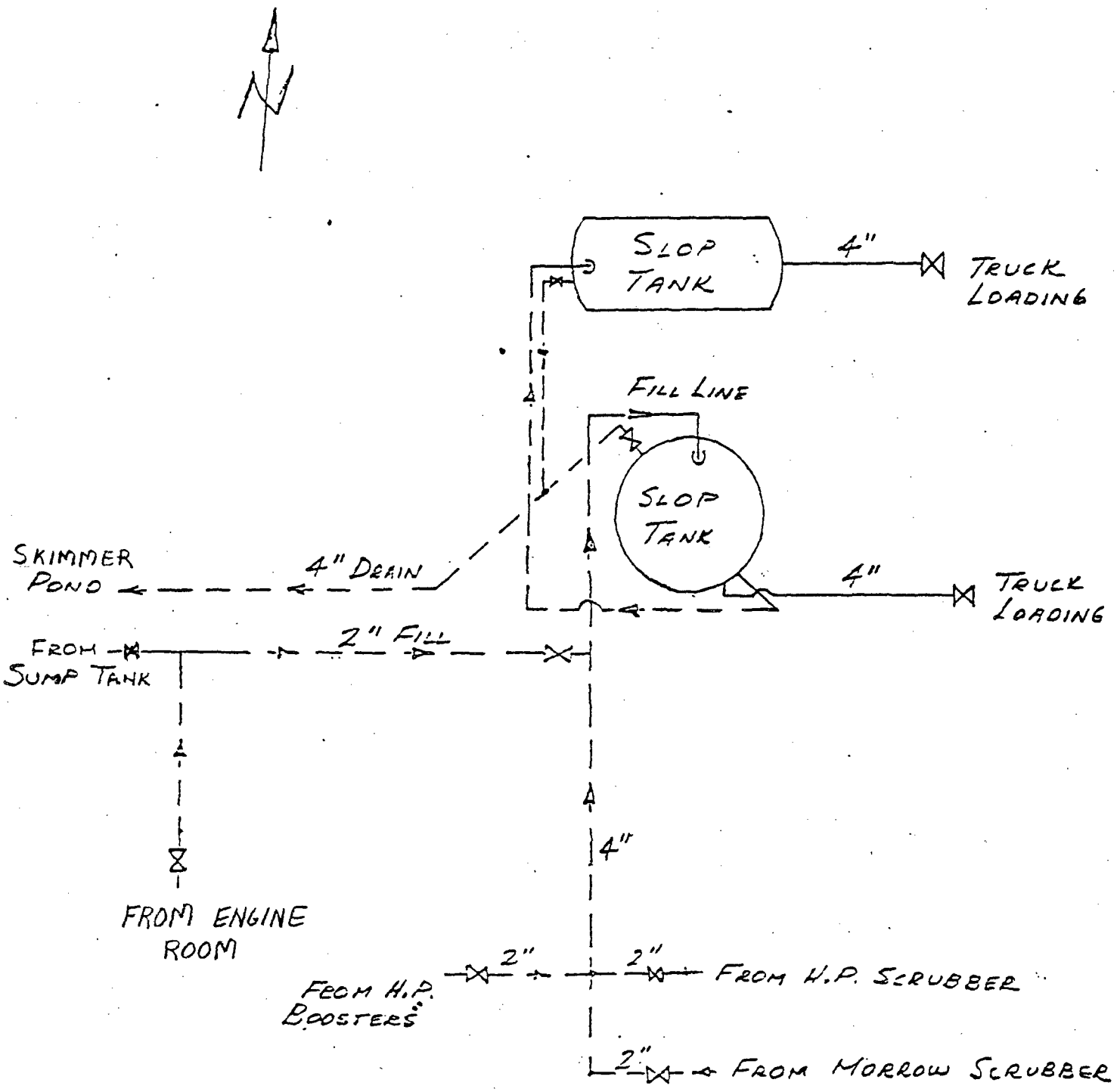
1 OF 1
G-2194
J.L. JYMAN

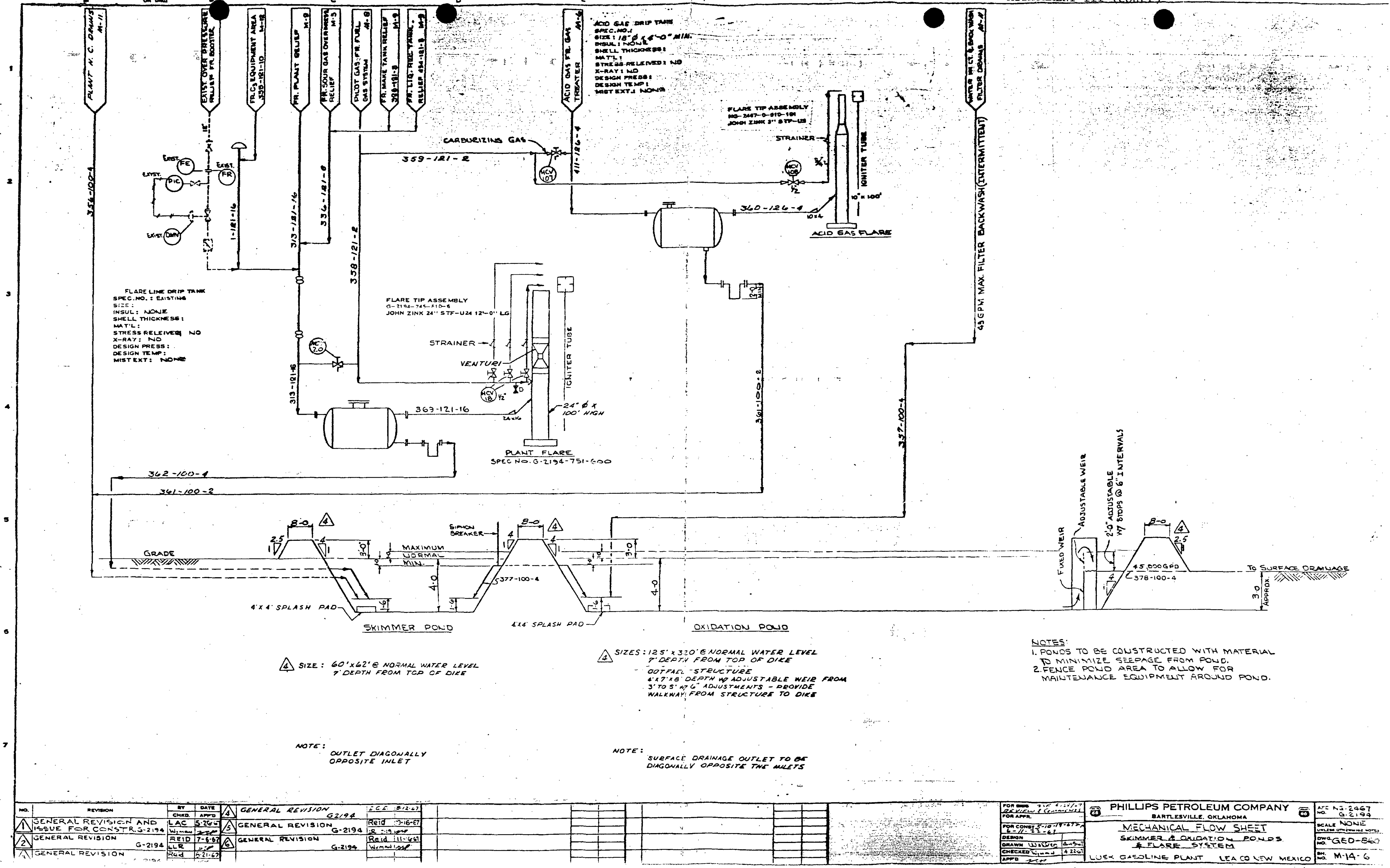
SUMP TANK & DRAIN PIPING

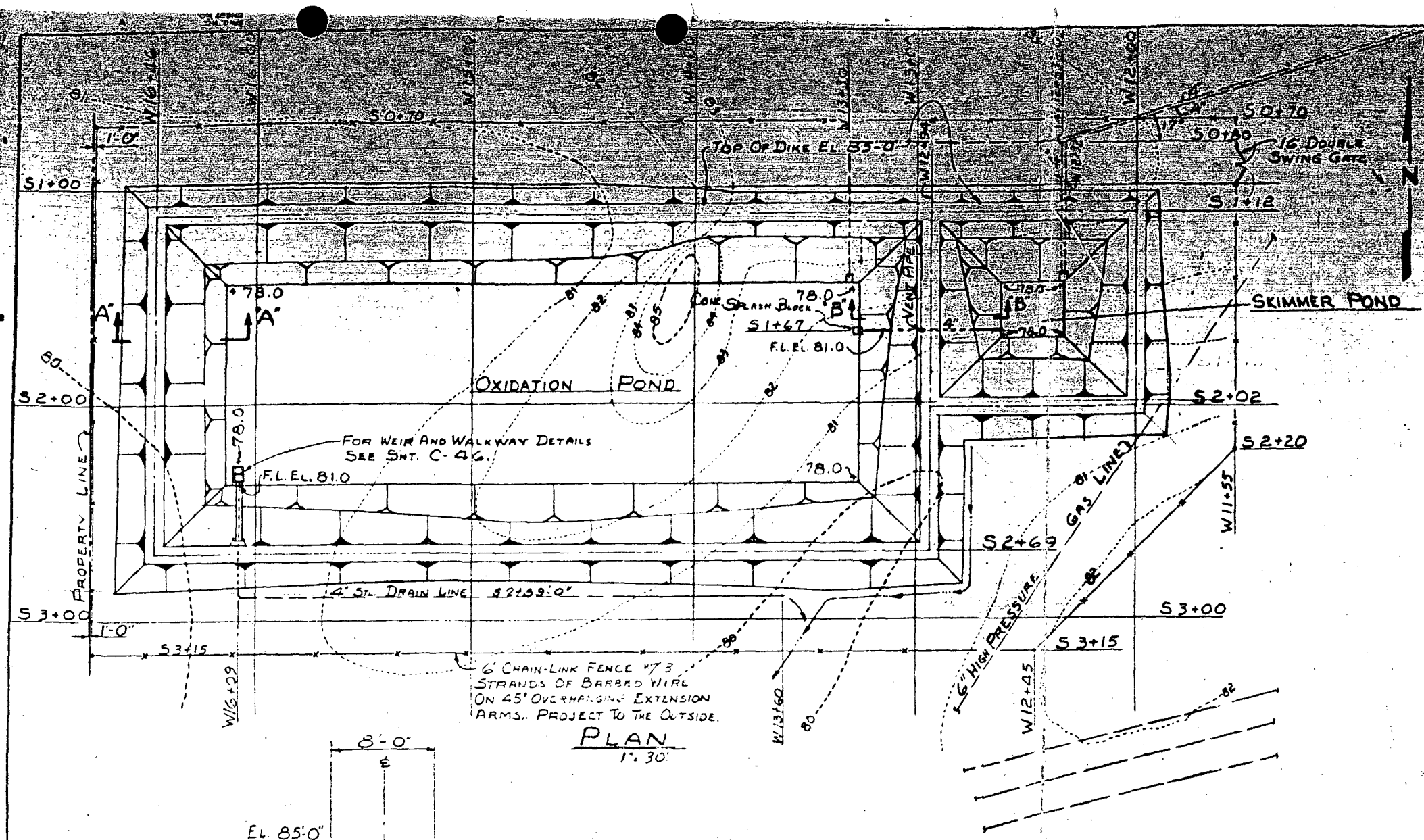


LUSK PLANT

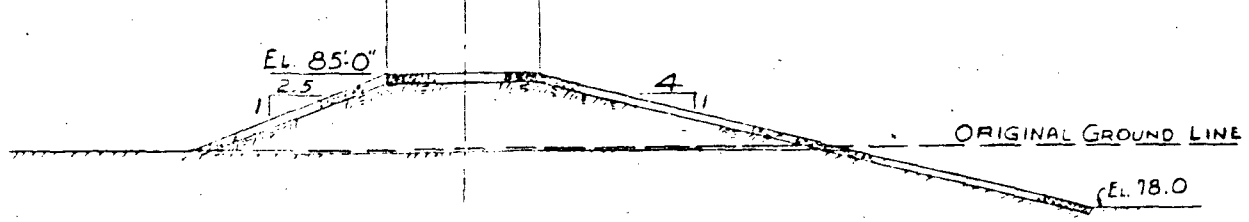
SLOP TANK SYSTEM



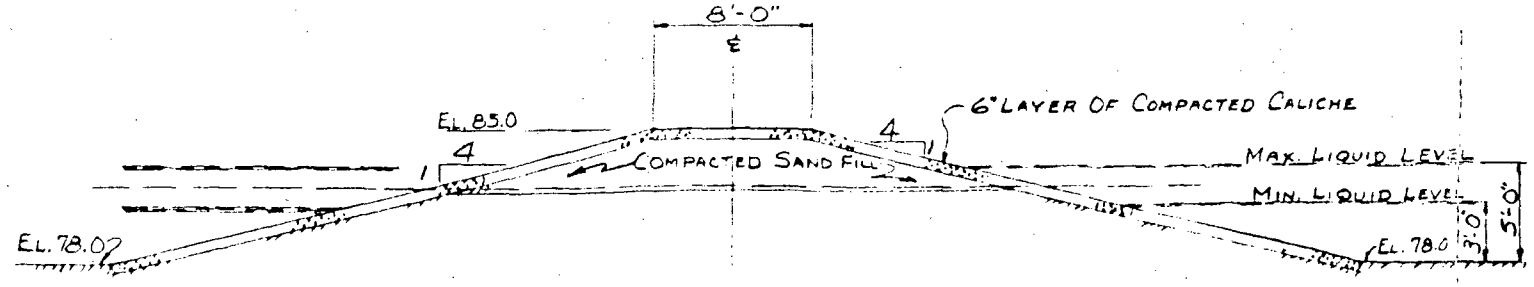

PLANT N. C. DRAINS M-11
EXIST. OVER PRESSURE RELIEF FR. BOOSTER
FR. C3 EQUIPMENT AREA 359-121-10 M-12
FR. PLANT RELIEF M-9
FR. SOUR GAS OVERHEAD RELIEF M-5
PILOT GAS: FR. FUEL GAS SYSTEM M-8
FR. MAKE TANK RELIEF 328-121-8 M-9
FR. LIQ. REC. TANK RELIEF 434-121-8 M-9
ACID GAS FR. GAS TREATER M-6
WATER FR. CT. & BACK WASH FILTER DRAINS M-11
ACID GAS DRIP TANK
SPEC. NO.:
SIZE: 18" ⌀ x 4'-0" MIN.
INSUL: NONE
SHELL THICKNESS:
MAT'L:
STRESS RELIEVED: NO
X-RAY: NO
DESIGN PRESS:
DESIGN TEMP:
MIST EXT.: NONE
FLARE TIP ASSEMBLY
NO-2467-0-810-101
JOHN ZINK 3" STF-U3
STRAINER
IGNITER TUBE
10" x 100'
ACID GAS FLARE
CARBURIZING GAS
359-121-2
411-126-4
360-126-4
10x4
FLARE LINE DRIP TANK
SPEC. NO.: EXISTING
SIZE:
INSUL: NONE
SHELL THICKNESS:
MAT'L:
STRESS RELIEVED: NO
X-RAY: NO
DESIGN PRESS:
DESIGN TEMP:
MIST EXT: NONE
FLARE TIP ASSEMBLY
G-2194-745-810-6
JOHN ZINK 24" STF-U24 12'-0" LG
STRAINER
VENTURI
IGNITER TUBE
24" ⌀ x 100' HIGH
PLANT FLARE
SPEC NO. G-2194-751-600
369-121-16
313-121-16
358-121-2
336-121-8
1-121-16
356-100-4
362-100-4
361-100-2
357-100-4
45 GPM MAX. FILTER BACKWASH (INTERMITTENT)
GRADE
MAXIMUM
NORMAL
MIN.
SIPHON BREAKER
4'x4' SPLASH PAD
SKIMMER POND
4'x4' SPLASH PAD
377-100-4
OXIDATION POND
FIXED WEIR
ADJUSTABLE WEIR
2'-0" ADJUSTABLE W/ STOPS @ 6" INTERVALS
45,000 GPD
378-100-4
TO SURFACE DRAINAGE
3.0 APPROX.
SIZE: 60'x62' @ NORMAL WATER LEVEL 7' DEPTH FROM TOP OF DIKE
SIZES: 125' x 320' @ NORMAL WATER LEVEL 7' DEPTH FROM TOP OF DIKE
OUTFALL STRUCTURE
4'x7'x8' DEPTH W/ ADJUSTABLE WEIR FROM 3' TO 5' W/ 6" ADJUSTMENTS - PROVIDE WALKWAY FROM STRUCTURE TO DIKE
NOTES:
1. PONDS TO BE CONSTRUCTED WITH MATERIAL TO MINIMIZE SEEPAGE FROM POND.
2. FENCE POND AREA TO ALLOW FOR MAINTENANCE EQUIPMENT AROUND POND.
NOTE: OUTLET DIAGONALLY OPPOSITE INLET
NOTE: SURFACE DRAINAGE OUTLET TO BE DIAGONALLY OPPOSITE THE INLETS
GENERAL REVISION AND ISSUE FOR CONSTR. G-2194
GENERAL REVISION G-2194
GENERAL REVISION G2194
GENERAL REVISION G-2194
PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA
MECHANICAL FLOW SHEET
SKIMMER & OXIDATION PONDS & FLARE SYSTEM
LUSK GASOLINE PLANT LEA CO NEW MEXICO
AFE NO. 3-2467 G-2194
SCALE NONE
DWG. NO. GED-860
SH. NO. M-14-6



PLAN
1" = 30'



SECTION "A-A"
SCALE: 1" = 5'-0"

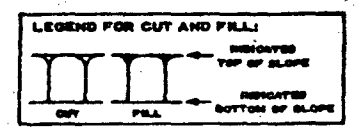


SECTION "B-B"
SCALE: 1" = 5'-0"

MATERIALS REQUIRED - ESTIMATED

QUANTITY	UNITS	ITEM
4,816	CU. YDS.	EXCAVATION
3,856	CU. YDS.	DIKE FILL
1,085	CU. YDS.	6" LAYER CALICHE ON DIKES
1.0	ACRES	DIKES TO BE STERILIZED

LEGEND FOR CUT AND FILL:



GENERAL NOTES:

1. THE AREA SHALL BE EXCAVATED OR FILLED AS REQUIRED TO MEET ELEVATIONS SHOWN ON THE DRAWING.
2. IT IS INTENDED THAT THE BOTTOM OF THE PONDS WILL CONSIST OF EXISTING CALICHE UNCOVERED BY THE EXCAVATION. IF THE TOP OF THE CALICHE IS FOUND TO BE LOWER THAN THE ELEVATION OF THE BOTTOM SHOWN ON THE DRAWING, EXCAVATION SHALL CONTINUE UNTIL THE CALICHE IS REACHED. REFILL TO THE ELEVATION SHOWN IS NOT REQUIRED, BUT THE BOTTOM SHOULD NOT BE MORE THAN ONE FOOT BELOW THE ELEVATION SHOWN.
3. EXCEPT WHERE CALICHE IS SPECIFIED, FILL MATERIAL SHALL BE THE SANDY SURFACE SOIL ON THE SITE. IF THE GRANULAR NATURE OF THE FILL PREVENTS SPECIFIED COMPACTED WITH REASONABLE EFFORT, CALICHE SHALL BE ADDED AS REQUIRED TO PROVIDE BINDER MATERIAL.
4. THE BOTTOM OF THE PONDS SHALL BE SCARIFIED TO A DEPTH OF SIX INCHES AND RECOMPACTED.
5. THE SIDE SLOPES BELOW THE ORIGINAL GROUND LINE AND THE GRADE BELOW THE DIKE FILL SHALL BE SCARIFIED TO A DEPTH OF SIX INCHES AND RECOMPACTED.
6. ALL COMPACTION SHALL BE IN ACCORDANCE WITH PHILLIPS PETROLEUM COMPANY STANDARD 1.05-1 ORDINARY COMPACTION.
7. SAND FILL QUANTITIES INCLUDE 25 PERCENT SHRINKAGE.
8. CALICHE FILL QUANTITIES INCLUDE 10 PERCENT SHRINKAGE.
9. ALL ELEVATIONS REFER TO FINISH GRADE.
10. THE TOP OF DIKES & INSIDE SLOPES OF THE DIKES ON THE OXIDATION POND AND SKIMMER POND SHALL BE STERILIZED WITH A SOLUTION OF 50 LBS. DUPONT "KARMEX" IN 200 TO 300 GALS. OF WATER PER ACRE.

REFERENCE DRAWINGS:

GED-860, SH. C-46 WEIR & WALKWAY DETAILS.
" , SH. M-14 MECHANICAL FLOW SHEET.
" , SH. M-16 UNDERGROUND & OFF PLOT PIPING PLAN.
" , SH. M-18 OFF PLOT PIPING PLAN.
" , SH. M-19 " " " "
PHILLIPS PETR. CO. ENG STD
1.04-1 FENCE - CHAIN LINK - SPECIFICATIONS FOR 4, 5, & 6 FOOT FENCE.
1.05-1 EARTH FILL SPECIFICATIONS

NO.	REVISION	BY CHKD.	DATE APP'D.

THIS IS A REDUCED PRINT

FOR BIDS	
FOR APPR	
FOR CONST	D. [illegible]
DESIGN	
DRAWN	G.E. Feagin 8-24-71
CHECKED	[illegible] 9-7-71
APP'D	[illegible]

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

GRADING PLAN & DETAILS FOR SKIMMER AND OXIDATION PONDS

LUSK PLANT — LEA CO. NEW MEXICO

APP'D NO.	G-2194
SCALE	1" = 30"
DWG. NO.	GED-860
SHT. NO.	M-26-0

BETZ LABORATORIES, INC.

Somerton Road
Trevose, PA 19047
Tel.: (215) 355-3300
Telex: 84-5159

ATTACHMENT VI

MATERIAL SAFETY DATA SHEET

EMERGENCY TELEPHONE NUMBER 215/355-3300

PRODUCT : BETZ 2020 EFFECTIVE DATE 1/84

NFPA	
HEALTH	1
FIRE	0
REACTIVITY	0
SPECIAL	-

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

OSHA INGREDIENT PERMISSIBLE EXPOSURE LIMIT:
NONE
ACGIH INGREDIENT TLV-TWA:
NONE

*** GENERIC DESCRIPTION ***
AN AQUEOUS SOLUTION OF AN ACRYLATE COPOLYMER.

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: AS IS (APPROX.) 5.3 B.PT.oF OR B.RANGE: ND
FL.PT.(DEG.F): >200 SETA(CC) SP.GR.(70/70oF)OR DENSITY: 1.125
VAPOR PRESSURE(mmHG): 20 VAPOR DENSITY(AIR=1): <1
VISC cps70oF: 19.5 %VOLATILES: ND
EVAP.RATE: <1 ETHER=1 %SOLUBILITY(WATER): 100
PHYSICAL STATE: LIQUID APPEARANCE: COLORLESS TO BROWN
ODOR: MILD FREEZE POINT(DEG.F): <-27

-----SECTION 3----------REACTIVITY DATA----------

THERMAL DECOMPOSITION YIELDS OXIDES OF C,N,S,OR P IF PRESENT,
STABLE

-----SECTION 4----------HEALTH HAZARD EFFECTS----------

ACUTE SKIN EFFECTS***
SLIGHTLY IRRITATING TO THE SKIN
ACUTE EYE EFFECTS***
SLIGHTLY IRRITATING TO THE EYES
ACUTE RESPIRATORY EFFECTS***
MISTS/AEROSOLS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT
CHRONIC EFFECTS***
CHRONIC EFFECTS OF THIS FORMULATION HAVE NOT YET BEEN FULLY EVALUATED

-----SECTION 5----------FIRST AID INSTRUCTIONS----------

SKIN CONTACT***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES
EYE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT
INHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY
INGESTION***
GENERAL-DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
SPECIFIC- DILUTE CONTENTS OF STOMACH.INDUCE VOMITING BY ONE OF THE STANDARD METHODS.IMMEDIATELY CONTACT A PHYSICIAN

-----SECTION 6---------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------

SPILL INSTRUCTIONS***

GENERAL-VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER. THE WASTE CHARACTERISTICS OF THE ABSORBED MATERIAL,OR ANY CONTAMINATED SOIL,SHOULD BE DETERMINED IN ACCORDANCE WITH RCRA REGULATIONS.

SPECIFIC- FLUSH AREA WITH WATER.WET AREA MAY BE SLIPPERY.IF SO,SPREAD SAND OR GRIT.

DISPOSAL INSTRUCTIONS***

GENERAL-WATER CONTAMINATED WITH THIS PRODUCT MAY BE SENT TO A SANITARY SEWER,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT

PRODUCT(AS IS)- INCINERATE OR BURY IN APPROVED LANDFILL

FIRE EXTINGUISHING INSTRUCTIONS***

GENERAL-FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).

DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER.FOAM OR WATER CREATE A SLIPPERY CONDITION.SPREAD SAND OR GRIT

-----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

VENTILATION PROTECTION***

ADEQUATE VENTILATION

RECOMMENDED RESPIRATORY PROTECTION***

IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY, USE A RESPIRATOR WITH ORGANIC VAPOR AND DUST/MIST/FUME CARTRIDGES

RECOMMENDED SKIN PROTECTION***

RUBBER GLOVES

REPLACE AS NECESSARY

RECOMMENDED EYE PROTECTION***

SPLASH PROOF CHEMICAL GOGGLES

-----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

STORAGE INSTRUCTIONS***

GENERAL-KEEP CONTAINER CLOSED

SPECIFIC- PROTECT FROM FREEZING

HANDLING INSTRUCTIONS***

GENERAL-IMMEDIATELY REMOVE CONTAMINATED CLOTHING,WASH BEFORE REUSE

SPECIFIC- NORMAL CHEMICAL HANDLING

-----SECTION 9----------FEDERAL REGULATIONS----------

FIFRA(40CFR):EPA REG.NO. NOT APPLICABLE

OSHA(29CFR)-FOR RESPIRATORY PROTECTION USE PROPERLY FITTED MSHA/NIOSH APPROVED RESPIRATORY EQUIPMENT WITHIN USE LIMITATIONS.OTHERWISE,USE SUPPLIED AIR APPARATUS.

CWA(40CFR)REPORTABLE QUANTITY: AS IS PRODUCT (HAZARDOUS SUBSTANCE)

NOT APPLICABLE

RCRA(40CFR): IF DISCARDED,THIS MATERIAL BEARS HWI# NOT APPLICABLE

DOT(49CFR)CLASSIFICATION: NOT APPLICABLE

USDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS- AUTHORIZATION: SEC.65,67

THIS FORM IS ESSENTIALLY EQUAL TO OSHA 20 FORM.WHILE THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN ARE BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF,BETZ LABORATORIES,INC.MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

HAROLD M. HERSH
ENVIRONMENTAL INFORMATION COORDINATOR

Somerton Road
Trevose, PA 19047
Tel.: (215) 355-3300
Telex: 84-5159

MATERIAL SAFETY DATA SHEET
EMERGENCY TELEPHONE NUMBER 215/355-3300

PRODUCT : BETZ 409 EFFECTIVE DATE 1/84

****
* NFPA
* HEALTH - 2
* FIRE - 0
* REACTIVITY-0
* SPECIAL - ALK
****

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

OSHA INGREDIENT PERMISSIBLE EXPOSURE LIMIT:
SODIUM HYDROXIDE-2MG/M3
ACGIH INGREDIENT TLV-TWA:
SODIUM HYDROXIDE-2MG/M3(CEILING),ETHYLENE GLYCOL-10MG/M3(STEL-20MG/M3)

*** GENERIC DESCRIPTION ***
A WATER SOLUTION OF AN ALKYLPHENOXYPOLYALKYLENE GLYCOL ETHER, ETHYLENE OXIDE-PROPYLENE OXIDE COPOLYMER,ALKYLENE GLYCOL, SILICONE EMULSION AND SODIUM HYDROXIDE.

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: AS IS (APPROX.) 12.4
FL.PT.(DEG.F): >200 SETA(CC)
VAPOR PRESSURE(mmHG): ND
VISC cps70oF: 9.4
EVAP.RATE: <1 ETHER=1
PHYSICAL STATE: LIQUID
ODOR: NONE
B.PT.oF OR B.RANGE: >200
SP.GR.(70/70oF)OR DENSITY: 1.020
VAPOR DENSITY(AIR=1): ND
%VOLATILES: ND
%SOLUBILITY(WATER): 100
APPEARANCE: COLORLESS
FREEZE POINT(DEG.F): 25

-----SECTION 3----------REACTIVITY DATA----------

THERMAL DECOMPOSITION YIELDS OXIDES OF C,N,S,OR P IF PRESENT, STABLE

-----SECTION 4----------HEALTH HAZARD EFFECTS----------

ACUTE SKIN EFFECTS***
SLIGHTLY IRRITATING TO THE SKIN
ACUTE EYE EFFECTS***
MODERATELY IRRITATING TO THE EYES
ACUTE RESPIRATORY EFFECTS***
MISTS/AEROSOLS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT
CHRONIC EFFECTS***
CHRONIC EFFECTS OF THIS FORMULATION HAVE NOT YET BEEN FULLY EVALUATED

-----SECTION 5----------FIRST AID INSTRUCTIONS----------

SKIN CONTACT***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES
EYE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT
INHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY
INGESTION***
GENERAL-DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
SPECIFIC- DO NOT INDUCE VOMITING.IMMED.CONTACT PHYSICIAN.DILUTE CONTENTS OF STOMACH USING 3-4 GLASSES MILK OR WATER

OVER

-----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------

SPILL INSTRUCTIONS***

GENERAL-VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER. THE WASTE CHARACTERISTICS OF THE ABSORBED MATERIAL,OR ANY CONTAMINATED SOIL,SHOULD BE DETERMINED IN ACCORDANCE WITH RCRA REGULATIONS.

SPECIFIC- FLUSH AREA WITH WATER.WET AREA MAY BE SLIPPERY.IF SO,SPREAD SAND OR GRIT.

DISPOSAL INSTRUCTIONS***

GENERAL-WATER CONTAMINATED WITH THIS PRODUCT MAY BE SENT TO A SANITARY SEWER,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT

PRODUCT(AS IS)- INCINERATE OR BURY IN APPROVED LANDFILL

FIRE EXTINGUISHING INSTRUCTIONS***

GENERAL-FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).

DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER.FOAM OR WATER CREATE A SLIPPERY CONDITION.SPREAD SAND OR GRIT

-----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

VENTILATION PROTECTION***

ADEQUATE VENTILATION TO MAINTAIN AIR CONTAMINANTS BELOW EXPOSURE LIMITS

RECOMMENDED RESPIRATORY PROTECTION***

IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY, USE A RESPIRATOR WITH ORGANIC VAPOR AND DUST/MIST/FUME CARTRIDGES

RECOMMENDED SKIN PROTECTION***

RUBBER GLOVES

REPLACE AS NECESSARY

RECOMMENDED EYE PROTECTION***

SPLASH PROOF CHEMICAL GOGGLES

-----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

STORAGE INSTRUCTIONS***

GENERAL-KEEP CONTAINER CLOSED

SPECIFIC- PROTECT FROM FREEZING

HANDLING INSTRUCTIONS***

GENERAL-IMMEDIATELY REMOVE CONTAMINATED CLOTHING,WASH BEFORE REUSE

SPECIFIC- ALKALINE.DO NOT MIX WITH ACIDIC MATERIAL.

-----SECTION 9----------FEDERAL REGULATIONS----------

FIFRA(40CFR):EPA REG.NO. NOT APPLICABLE

OSHA(29CFR)-FOR RESPIRATORY PROTECTION USE PROPERLY FITTED MSHA/NIOSH APPROVED RESPIRATORY EQUIPMENT WITHIN USE LIMITATIONS.OTHERWISE,USE SUPPLIED AIR APPARATUS.

CWA(40CFR)REPORTABLE QUANTITY: AS IS PRODUCT (HAZARDOUS SUBSTANCE) 94,177GAL (SODIUM HYDROXIDE)

RCRA(40CFR): IF DISCARDED,THIS MATERIAL BEARS HWI# D002

DOT(49CFR)CLASSIFICATION: NOT APPLICABLE

USDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS- AUTHORIZATION: SEC.65,67

THIS FORM IS ESSENTIALLY EQUAL TO OSHA 20 FORM.WHILE THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN ARE BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF,BETZ LABORATORIES,INC.MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

HAROLD M. HERSH
ENVIRONMENTAL INFORMATION COORDINATO

Somerton Road
Trevose, PA 19047
Tel.: (215) 355-3300
Telex: 84-5159

MATERIAL SAFETY DATA SHEET

EMERGENCY TELEPHONE NUMBER 215/355-3300

PRODUCT : BETZ 2040 EFFECTIVE DATE 1/84

FOR PROPOSAL USE ONLY

NFPA	
HEALTH	2
FIRE	0
REACTIVITY	0
SPECIAL	ALK

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

OSHA INGREDIENT PERMISSIBLE EXPOSURE LIMIT:
NONE
ACGIH INGREDIENT TLV-TWA:
POTASSIUM HYDROXIDE-2MG/M3(CEILING)

*** GENERIC DESCRIPTION ***
AN AQUEOUS SOLUTION CONTAINING POTASSIUM HYDROXIDE,MIXED PHOSPHATE SALTS,AN ORGANOPHOSPHONATE AND AN AROMATIC NITROGEN HETEROCYCLE.

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: AS IS (APPROX.) 12.1	B.PT.oF OR B.RANGE: ND
FL.PT.(DEG.F): >200 SETA(CC)	SP.GR.(70/70oF)OR DENSITY: 1.431
VAPOR PRESSURE(mmHG): ND	VAPOR DENSITY(AIR=1): ND
VISC cps70oF: 33.8	%VOLATILES: 61
EVAP.RATE: <1 ETHER=1	%SOLUBILITY(WATER): 100
PHYSICAL STATE: LIQUID	APPEARANCE: AMBER
ODOR: MILD	FREEZE POINT(DEG.F): 10

-----SECTION 3----------REACTIVITY DATA----------

THERMAL DECOMPOSITION YIELDS OXIDES OF C,N,S,OR P IF PRESENT,
STABLE

-----SECTION 4----------HEALTH HAZARD EFFECTS----------

ACUTE SKIN EFFECTS***
SLIGHTLY IRRITATING TO THE SKIN
ACUTE EYE EFFECTS***
SEVERE IRRITANT TO THE EYES, POSSIBLY CORROSIVE
ACUTE RESPIRATORY EFFECTS***
MISTS/AEROSOLS MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT
CHRONIC EFFECTS***
CHRONIC EFFECTS OF THIS FORMULATION HAVE NOT YET BEEN FULLY EVALUATED

-----SECTION 5----------FIRST AID INSTRUCTIONS----------

SKIN CONTACT***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES
EYE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT
INHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY
INGESTION***
GENERAL-DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
SPECIFIC- DO NOT INDUCE VOMITING.IMMED.CONTACT PHYSICIAN.DILUTE CONTENTS OF STOMACH USING 3-4 GLASSES MILK OR WATER

OVER

----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------
SPILL INSTRUCTIONS***
ENERAL-VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN
ND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER.
HE WASTE CHARACTERISTICS OF THE ABSORBED MATERIAL,OR ANY CONTAMINATED
OIL,SHOULD BE DETERMINED IN ACCORDANCE WITH RCRA REGULATIONS.
PECIFIC- FLUSH AREA WITH WATER.WET AREA MAY BE SLIPPERY.IF SO,SPREAD
SAND OR GRIT.
DISPOSAL INSTRUCTIONS***
ENERAL-WATER CONTAMINATED WITH THIS PRODUCT MAY BE SENT TO A SANITARY
EWER,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A TREATMENT FACILITY OR
ISCHARGED UNDER A NPDES PERMIT
RODUCT(AS IS)- INCINERATE OR BURY IN APPROVED LANDFILL
FIRE EXTINGUISHING INSTRUCTIONS***
ENERAL-FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED
REATHING APPARATUS(FULL FACE-PIECE TYPE).
RY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------
VENTILATION PROTECTION***
DEQUATE VENTILATION TO MAINTAIN AIR CONTAMINANTS BELOW EXPOSURE LIMITS
RECOMMENDED RESPIRATORY PROTECTION***
F VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY,
SE A RESPIRATOR WITH DUST/MIST/FUME CARTRIDGES
RECOMMENDED SKIN PROTECTION***
UBBER GLOVES
EPLACE AS NECESSARY
RECOMMENDED EYE PROTECTION***
PLASH PROOF CHEMICAL GOGGLES

----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------
STORAGE INSTRUCTIONS***
ENERAL-KEEP CONTAINER CLOSED
PECIFIC- PROTECT FROM FREEZING
HANDLING INSTRUCTIONS***
ENERAL-IMMEDIATELY REMOVE CONTAMINATED CLOTHING,WASH BEFORE REUSE
PECIFIC- ALKALINE.DO NOT MIX WITH ACIDIC MATERIAL.

----SECTION 9----------FEDERAL REGULATIONS----------
IFRA(40CFR):EPA REG.NO. NOT APPLICABLE
SHA(29CFR)-FOR RESPIRATORY PROTECTION USE PROPERLY FITTED MSHA/NIOSH
PPROVED RESPIRATORY EQUIPMENT WITHIN USE LIMITATIONS.OTHERWISE,USE SUPPLIED
IR APPARATUS.
WA(40CFR)REPORTABLE QUANTITY: AS IS PRODUCT (HAZARDOUS SUBSTANCE)
1901GAL (POTASSIUM HYDROXIDE)
CRA(40CFR): IF DISCARDED,THIS MATERIAL BEARS HWI# D002
OT(49CFR)CLASSIFICATION: NOT APPLICABLE
SDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS- AUTHORIZATION: NONE
HIS FORM IS ESSENTIALLY EQUAL TO OSHA 20 FORM.WHILE THE INFORMATION AND
ECOMMENDATIONS SET FORTH HEREIN ARE BELIEVED TO BE ACCURATE AS OF THE
ATE HEREOF,BETZ LABORATORIES,INC.MAKES NO WARRANTY WITH RESPECT THERETO
ND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

HAROLD M. HERSH
ENVIRONMENTAL INFORMATION COORDINATOR

Somerton Road
Trevose, PA 19047
Tel.: (215) 355-3300
Telex: 84-5159

MATERIAL SAFETY DATA SHEET
EMERGENCY TELEPHONE NUMBER 215/355-3300

PRODUCT : FOAM-TROL CT EFFECTIVE DATE 1/84

```
**********
*  NFPA
* HEALTH -  1
* FIRE   -  1
* REACTIVITY-0
* SPECIAL -  -
**********
```

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

OSHA INGREDIENT PERMISSIBLE EXPOSURE LIMIT:
NONE
ACGIH INGREDIENT TLV-TWA:
NONE

*** GENERIC DESCRIPTION ***

A SOLUTION OF A FATTY ACID MIXTURE,MIXED POLYALKYLENE GLYCOL FATTY ESTERS AND POLYALKYLENE GLYCOL IN MINERAL OIL.

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: 50% SOL. (APPROX.) 6.8	B.PT.oF OR B.RANGE: ND
FL.PT.(DEG.F): >200 SETA(CC)	SP.GR.(70/70oF)OR DENSITY: 0.841
VAPOR PRESSURE(mmHG): <10	VAPOR DENSITY(AIR=1): >1
VISC cps70oF: 18.0	%VOLATILES: 90
EVAP.RATE: <1 ETHER=1	%SOLUBILITY(WATER): 0
PHYSICAL STATE: LIQUID	APPEARANCE: OFF-WHITE TO AMBER
ODOR: MILD	FREEZE POINT(DEG.F): -20

-----SECTION 3----------REACTIVITY DATA----------

THERMAL DECOMPOSITION YIELDS OXIDES OF C,N,S,OR P IF PRESENT, STABLE

-----SECTION 4----------HEALTH HAZARD EFFECTS----------

ACUTE SKIN EFFECTS***
SLIGHTLY IRRITATING TO THE SKIN
ACUTE EYE EFFECTS***
SLIGHTLY IRRITATING TO THE EYES
ACUTE RESPIRATORY EFFECTS***
MISTS/AEROSOLS MAY CAUSE IRRITATION TO UPPER RESPIRATORY TRACT
CHRONIC EFFECTS***
CHRONIC EFFECTS OF THIS FORMULATION HAVE NOT YET BEEN FULLY EVALUATED

-----SECTION 5----------FIRST AID INSTRUCTIONS----------

SKIN CONTACT***
REMOVE CONTAMINATED CLOTHING.WASH EXPOSED AREA WITH A LARGE QUANTITY OF SOAP SOLUTION OR WATER FOR 15 MINUTES
EYE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT
INHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA TO FRESH AIR.APPLY APPROPRIATE FIRST AID TREATMENT AS NECESSARY
INGESTION***
GENERAL-DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
SPECIFIC- DO NOT INDUCE VOMITING.IMMED.CONTACT PHYSICIAN.DILUTE CONTENTS OF STOMACH USING 3-4 GLASSES MILK OR WATER

OVER

-----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------

SPILL INSTRUCTIONS***

GENERAL-VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.CONTAIN AND ABSORB ON ABSORBENT MATERIAL.PLACE IN WASTE DISPOSAL CONTAINER. THE WASTE CHARACTERISTICS OF THE ABSORBED MATERIAL,OR ANY CONTAMINATED SOIL,SHOULD BE DETERMINED IN ACCORDANCE WITH RCRA REGULATIONS.

SPECIFIC- FLUSH AREA WITH WATER.WET AREA MAY BE SLIPPERY.IF SO,SPREAD SAND OR GRIT.

DISPOSAL INSTRUCTIONS***

GENERAL-WATER CONTAMINATED WITH THIS PRODUCT MAY BE SENT TO A SANITARY SEWER,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT

PRODUCT(AS IS)- INCINERATE OR BURY IN APPROVED LANDFILL

FIRE EXTINGUISHING INSTRUCTIONS***

GENERAL-FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).

DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER.FOAM OR WATER CREATE A SLIPPERY CONDITION.SPREAD SAND OR GRIT

-----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

VENTILATION PROTECTION***

ADEQUATE VENTILATION

RECOMMENDED RESPIRATORY PROTECTION***

IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY, USE A RESPIRATOR WITH ORGANIC VAPOR CARTRIDGES

RECOMMENDED SKIN PROTECTION***

NEOPRENE GLOVES

REPLACE AS NECESSARY

RECOMMENDED EYE PROTECTION***

SPLASH PROOF CHEMICAL GOGGLES

-----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

STORAGE INSTRUCTIONS***

GENERAL-KEEP CONTAINER CLOSED

SPECIFIC- PROTECT FROM FREEZING

HANDLING INSTRUCTIONS***

GENERAL-IMMEDIATELY REMOVE CONTAMINATED CLOTHING,WASH BEFORE REUSE

SPECIFIC- NORMAL CHEMICAL HANDLING

-----SECTION 9----------FEDERAL REGULATIONS----------

FIFRA(40CFR):EPA REG.NO. NOT APPLICABLE

OSHA(29CFR)-FOR RESPIRATORY PROTECTION USE PROPERLY FITTED MSHA/NIOSH APPROVED RESPIRATORY EQUIPMENT WITHIN USE LIMITATIONS.OTHERWISE,USE SUPPLIED AIR APPARATUS.

CWA(40CFR)REPORTABLE QUANTITY: AS IS PRODUCT (HAZARDOUS SUBSTANCE) NOT APPLICABLE

RCRA(40CFR): IF DISCARDED,THIS MATERIAL BEARS HWI# NOT APPLICABLE

DOT(49CFR)CLASSIFICATION: NOT APPLICABLE

USDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS- AUTHORIZATION: NONE

THIS FORM IS ESSENTIALLY EQUAL TO OSHA 20 FORM.WHILE THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN ARE BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF,BETZ LABORATORIES,INC.MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

HAROLD M. HERSH
ENVIRONMENTAL INFORMATION COORDINATOR

Somerton Road
Trevose, PA 19047
Tel.: (215) 355-3300
Telex: 84-5159

MATERIAL SAFETY DATA SHEET
EMERGENCY TELEPHONE NUMBER 215/355-3300
PRODUCT : SLIMICIDE C-71P EFFECTIVE DATE 1/84

****
* NFPA
* HEALTH - 2
* FIRE - 1
* REACTIVITY-2
* SPECIAL - OXY
****

-----SECTION 1----------HAZARDOUS INGREDIENTS----------

OSHA INGREDIENT PERMISSIBLE EXPOSURE LIMIT:
NONE
ACGIH INGREDIENT TLV-TWA:
NONE

*** GENERIC DESCRIPTION ***
1-BROMO-3-CHLORO-5,5-DIMETHYL-HYDANTOIN AND INERT INGREDIENTS.

-----SECTION 2----------TYPICAL PHYSICAL DATA----------

PH: 5% SOL. (APPROX.) 4.7
FL.PT.(DEG.F): >200 SETA(CC)
VAPOR PRESSURE(mmHG): NA
VISC cps70oF: NA
EVAP.RATE: NA WATER=1
PHYSICAL STATE: SOLID
ODOR: HALOGEN
B.PT.oF OR B.RANGE: NA
SP.GR.(70/70oF)OR DENSITY: NA
VAPOR DENSITY(AIR=1): NA
%VOLATILES: NA
%SOLUBILITY(WATER): 1
APPEARANCE: WHITE STICKS
FREEZE POINT(DEG.F): NA

-----SECTION 3----------REACTIVITY DATA----------

THERMAL DECOMPOSITION YIELDS OXIDES OF C,N,S,OR P IF PRESENT,
OXIDIZING AGENT.DO NOT STORE OR MIX WITH REDUCING AGENTS

-----SECTION 4----------HEALTH HAZARD EFFECTS----------

ACUTE SKIN EFFECTS***
SLIGHTLY IRRITATING TO THE SKIN
ACUTE EYE EFFECTS***
SEVERE IRRITANT TO THE EYES
ACUTE RESPIRATORY EFFECTS***
MISTS/AEROSOLS CAUSE IRRITATION TO UPPER RESPIRATORY TRACT
CHRONIC EFFECTS***
CHRONIC EFFECTS OF THIS FORMULATION HAVE NOT YET BEEN FULLY EVALUATED

-----SECTION 5----------FIRST AID INSTRUCTIONS----------

SKIN CONTACT***
REMOVE CLOTHING.WASH AREA WITH LARGE AMOUNTS OF SOAP SOLUTION OR WATER FOR 15 MIN.IMMEDIATELY CONTACT PHYSICIAN
EYE CONTACT***
IMMEDIATELY FLUSH EYES WITH WATER FOR 15 MINUTES.IMMEDIATELY CONTACT A PHYSICIAN FOR ADDITIONAL TREATMENT
INHALATION EXPOSURE***
REMOVE VICTIM FROM CONTAMINATED AREA.APPLY NECESSARY FIRST AID TREATMENT.IMMEDIATELY CONTACT A PHYSICIAN.
INGESTION***
GENERAL-DO NOT FEED ANYTHING BY MOUTH TO AN UNCONSCIOUS OR CONVULSIVE VICTIM
SPECIFIC- DILUTE CONTENTS OF STOMACH.INDUCE VOMITING BY ONE OF THE STANDARD METHODS.IMMEDIATELY CONTACT A PHYSICIAN

OVER

-----SECTION 6----------SPILL,DISPOSAL AND FIRE INSTRUCTIONS---------

SPILL INSTRUCTIONS***

GENERAL-VENTILATE AREA,USE SPECIFIED PROTECTIVE EQUIPMENT.SPILLED MATERIAL WHICH CAN NOT BE RECOVERED FOR RE-USE,SHOULD BE PLACED IN A WASTE DISPOSAL CONTAINER AND DISPOSED OF IN AN APPROVED PESTICIDES LANDFILL OR INCINERATOR.

SPECIFIC- PRODUCT RELEASES CHLORINE WHEN WET.SPILL RESIDUE MAY BE NEUTRALIZED WITH 3% HYDROGEN PEROXIDE SOLUTION.

DISPOSAL INSTRUCTIONS***

GENERAL-WATER CONTAMINATED WITH THIS PRODUCT MAY BE SENT TO A SANITARY SEWER,IN ACCORDANCE WITH ANY LOCAL AGREEMENT,A TREATMENT FACILITY OR DISCHARGED UNDER A NPDES PERMIT

PRODUCT(AS IS)- INCINERATE OR BURY IN AN APPROVED PESTICIDE FACILITY

FIRE EXTINGUISHING INSTRUCTIONS***

GENERAL-FIREFIGHTERS SHOULD WEAR POSITIVE PRESSURE SELF-CONTAINED BREATHING APPARATUS(FULL FACE-PIECE TYPE).

DRY CHEMICAL,CARBON DIOXIDE,FOAM OR WATER

-----SECTION 7----------SPECIAL PROTECTIVE EQUIPMENT----------

VENTILATION PROTECTION***

ADEQUATE VENTILATION

RECOMMENDED RESPIRATORY PROTECTION***

IF VENTILATION IS INADEQUATE OR SIGNIFICANT PRODUCT EXPOSURE IS LIKELY, USE RESPIRATOR WITH ORGANIC VAPOR,ACID GASSES AND DUST/MIST/FUME CARTRIDGES

RECOMMENDED SKIN PROTECTION***

NEOPRENE GLOVES

REPLACE AS NECESSARY

RECOMMENDED EYE PROTECTION***

AIRTIGHT CHEMICAL GOGGLES

-----SECTION 8----------STORAGE AND HANDLING PRECAUTIONS----------

STORAGE INSTRUCTIONS***

GENERAL-KEEP CONTAINER CLOSED

SPECIFIC- DO NOT EXPOSE TO MOISTURE

HANDLING INSTRUCTIONS***

GENERAL-IMMEDIATELY REMOVE CONTAMINATED CLOTHING,WASH BEFORE REUSE

SPECIFIC- OXIDIZER.EMITS TOXIC FUMES WHEN WET.

-----SECTION 9----------FEDERAL REGULATIONS----------

FIFRA(40CFR):EPA REG.NO. 5785-57-3876

OSHA(29CFR)-FOR RESPIRATORY PROTECTION USE PROPERLY FITTED MSHA/NIOSH APPROVED RESPIRATORY EQUIPMENT WITHIN USE LIMITATIONS.OTHERWISE,USE SUPPLIED AIR APPARATUS.

CWA(40CFR)REPORTABLE QUANTITY: AS IS PRODUCT (HAZARDOUS SUBSTANCE)

NOT APPLICABLE

RCRA(40CFR): IF DISCARDED,THIS MATERIAL BEARS HWI# NOT APPLICABLE

DOT(49CFR)CLASSIFICATION: OXIDIZER

USDA FEDERALLY INSPECTED MEAT AND POULTRY PLANTS- AUTHORIZATION: NONE

THIS FORM IS ESSENTIALLY EQUAL TO OSHA 20 FORM.WHILE THE INFORMATION AND RECOMMENDATIONS SET FORTH HEREIN ARE BELIEVED TO BE ACCURATE AS OF THE DATE HEREOF,BETZ LABORATORIES,INC.MAKES NO WARRANTY WITH RESPECT THERETO AND DISCLAIMS ALL LIABILITY FROM RELIANCE THEREON.

HAROLD M. HERSH
ENVIRONMENTAL INFORMATION COORDINATOR

Attachment V

Water Analysis Summary

	Ground Water Sampling Well #1	Ground Water Sampling Well #2	Ground Water Sampling Well #3	Ground Water Sampling Well #4	Impoundment Water
Calcium	482	270	334	410	528
Magnesium	None	None	200	33	80
Sodium (Calc.)	225	417	117	399	331
Hydroxide	19	263	None	14	None
Carbonate	151	48	16	29	None
BiCarbonate	None	None	944	None	81
Sulfate	947	84	87	1055	1251
Chloride	284	454	723	596	709
Phenols	less than .001	.084	.131	.005	less than .001
Total Dissolved Solids (Calc.)	2108	1536	1949	2536	2939
Total Hardness (CaCo3)	1204	676	1660	1160	1650
pH	10.67	11.38	9.35	10.45	7.45

Attachment V

119904

SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue [915 - 683-3348] • P.O. Box 2150 • Midland, Texas 79701

File No. C-1950-W
Customer No. 3355796
Report No. 35463

Report Date 5-21-84

Report of tests on: Water

Date Received 5-10-84

Client: Phillips Petroleum Company

Identification: Lusk Plant Pit

	mg/L
Calcium	528
Magnesium	80
Sodium (Calc.)	331
Carbonate	None
Bicarbonate	81
Sulfate	1251
Chloride	709
Phenols	Less Than 0.001
Total Dissolved Solids (Calc.)	2939
Total Hardness (as $CaCO_3$)	1650
pH	7.45

Technician: KLH,SAM

Copies 3 cc: Phillips Petroleum Company
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue [915 - 683-3348] • P.O. Box 2150 • Midland, Texas 79701

119904

File No. C-1950-W
Customer No. 3355796
Report No. 35344
Report Date 4-9-84

Report of tests on: Water
Date Received 4-3-84

Client: Phillips Petroleum Company

Identification: Lusk Plant, Monitor Well No. 1 Composite, Sampled 4-2-84 by Mike Ford

		mg/L
Calcium		482
Magnesium		None
Sodium (Calc.)		225
Hydroxide		19
Carbonate		151
Bicarbonate		None
Sulfate		947
Chloride		284
Phenols	Less Than	0.001
Total Dissolved Solids (Calc.)		2108
Total Hardness (as $CaCO_3$)		1204
pH	10.67	

Technician: KLH, SAM

Copies 3 cc: Phillips Petroleum Company
Attn: Mike Ford

SOUTHWESTERN LABORATORIES
Gary M. Burch

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue [915 - 683-3348] • P.O. Box 2150 • Midland, Texas 79701

119904

File No. C-1950-W
Customer No. 3355796
Report No. 35345

Report Date 4-9-84

Report of tests on: Water

Date Received 4-3-84

Client: Phillips Petroleum Company

Identification: Lusk Plant, Monitor Well No. 2 Composite, Sampled 4-2-84 by Mike Ford

	mg/L
Calcium	270
Magnesium	None
Sodium (Calc.)	417
Hydroxide	263
Carbonate	48
Bicarbonate	None
Sulfate	84
Chloride	454
Phenols	0.084
Total Dissolved Solids (Calc.)	1536
Total Hardness (as $CaCO_3$)	676
pH	11.38

Technician: KLH,SAM

Copies 3 cc: Phillips Petroleum Company
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Bunch

SwL SOUTHWESTERN LABORATORIES

119904

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

File No. C-1950-W
Customer No. 3355796
Report No. 35346
Report Date 4-9-84

Report of tests on: Water
Date Received 4-3-84

Client: Phillips Petroleum Company

Identification: Lusk Plant, Monitor Well No. 3 Composite, Sampled 4-2-84 by Mike Ford

	mg/L
Calcium	334
Magnesium	200
Sodium (Calc.)	117
Hydroxide	None
Carbonate	16
Bicarbonate	944
Sulfate	87
Chloride	723
Phenols	0.131
Total Dissolved Solids (Calc.)	1949
Total Hardness (as $CaCO_3$)	1660
pH	9.35

Technician: KLH, SAM

Copies 3 cc: Phillips Petroleum Company
Attn: Mike Ford

SOUTHWESTERN LABORATORIES
Gary M. Bunch

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

119904

File No. C-1950-W
Customer No. 3355796
Report No. 35347

Report Date 4-9-84

Report of tests on: Water

Date Received 4-3-84

Client: Phillips Petroleum Company

Identification: Lusk Plant, Monitor Well No. 4 Composite, Sampled 4-2-84 by Mike Ford

	mg/L
Calcium	410
Magnesium	33
Sodium (Calc.)	399
Hydroxide	14
Carbonate	29
Bicarbonate	None
Sulfate	1055
Chloride	596
Phenols	0.005
Total Dissolved Solids (Calc.)	2536
Total Hardness (as $CaCO_3$)	1160
pH	10.45

Technician: KLH,SAM

Copies 3 cc: Phillips Petroleum Company
Attn: Mike Ford

SOUTHWESTERN LABORATORIES
Gary M. Burck

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP
Permian Basin Region

May 22, 1984

Effluent Discharge Plan
Lusk Gasoline Plant
Lea County, New Mexico

Mr. Joe D. Ramey, Director
New Mexico Oil Conservation Commission
P. O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

This report is in response to your letter, dated February 21, 1984, in which you requested additional information concerning our Effluent Discharge Plan application. Attached are the red bed map you requested (Attachment I), the most recent topographical map of the area around our Lusk Plant, which also details the location of any fresh water wells in the area (Attachment II), and a groundwater monitoring waiver statement, prepared by an Independent Hydrologist, which outlines the impact of our waste water on the surrounding groundwater (Attachment III). Attachment III also contains all of the other information you requested.

In your letter, you stated that even though there was only a small amount of groundwater present in our test holes, it still had to be protected for a "foreseeable" future use. You suggested we pursue the foreseeable future use aspect of the Water Quality Control Commission Rules in our plan. I would first like to state that it is still Phillips' position that, as groundwater is defined in 1-101-M of the Water Quality Cotrol Commission Rules, there is no "groundwater" present in the area and we therefore do not fall under the jurisdiction of these regulations, but, as it is Phillips' corporate philosophy to protect the environment at all times, we took the step of drilling four groundwater sampling wells to establish what the quality of the groundwater was in the area and what impact, if any, our impoundment water was having on it. Attachment IV is a report prepared by Ed Reed and Associates detailing where and how to drill the groundwater sampling wells. The analysis of the groundwater (Attachment V) and well logs plus completion drawings for the sampling wells (Attachment VI) are attached. As can be seen in Attachment V, the pH of the groundwater in the area (sampling well #1) is so high that it cannot be used for human or agricultural consumption. Also, as the pH of our wastewater is well below the pH of the area's groundwater, its effect on the area's groundwater is that of improving its quality as demonstrated by the pH of the water found in sampling well #3.

We have clearly demonstrated that our method of disposing of our wastewater does not adversely affect the quality of the groundwater in the area. We

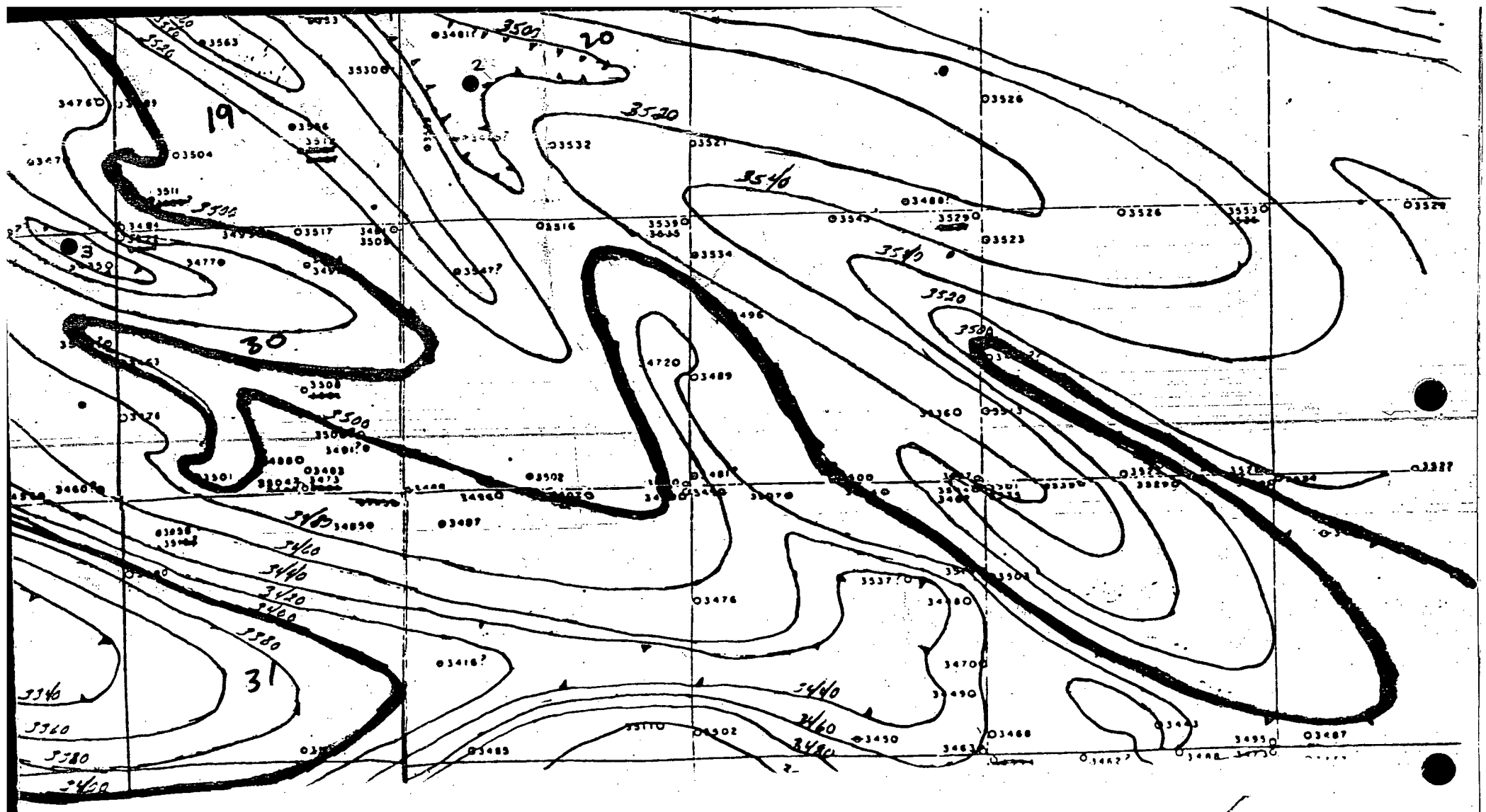
therefore feel that the Effluent Discharge Plan should be approved. Any questions concerning this matter should be directed to Robert Stubbs at (915) 367-1302.

Very truly yours,

E. E. Clark
Manager Permian Basin Region

EEC:RGS:ggp

Attachments

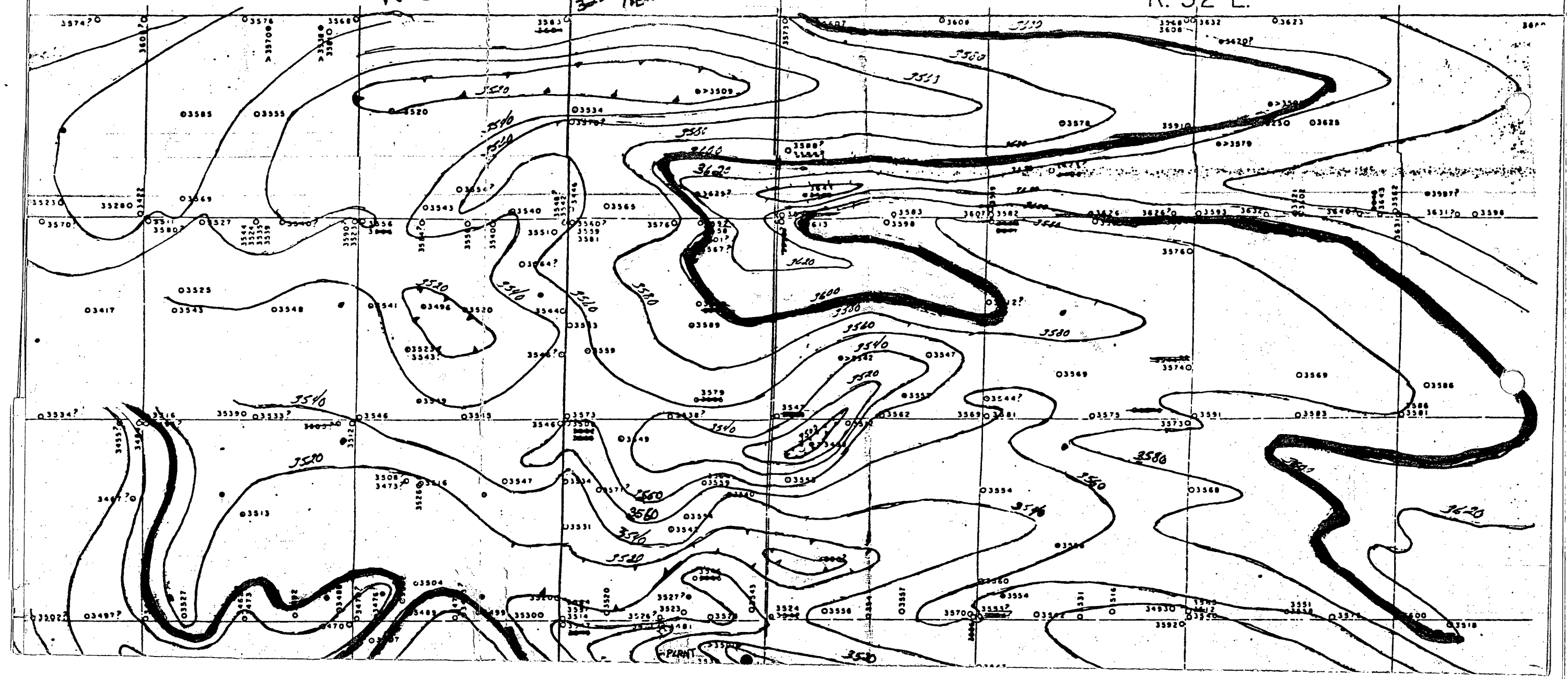


REDBED GEOLOGICAL CONTOUR MAP

EDDY COUNTY
R 31E

LEA COUNTY
32E NEW MEXICO

R. 32 E.



CLAYTON BASIN, N.
PHOTO MOSAIC (96
N3230—W10345/15
1942

SCALE 1:62500

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

ATTACHMENT II

Ed L. Reed and Associates, Inc.

Consulting Hydrologists

MIDLAND - CORPUS CHRISTI

TEXAS

ED L. REED, P.E.
CHAIRMAN OF THE BOARD
A. JOSEPH REED
PRESIDENT
CHESTER F. SKRABACZ
VICE PRESIDENT FIELD OPERATIONS
1109 N. BIG SPRING
MIDLAND, TEXAS 79701
915 682-0556

V. STEVE REED
EXECUTIVE VICE PRESIDENT
OIL INDUSTRIES BLDG.
SUITE 315
723 UPPER N. BROADWAY
CORPUS CHRISTI, TEXAS 78403
512-883-1353

December 30, 1982

Mr. J. W. Maharg
Engineering Director
Permian Basin Region
Phillips Petroleum Co.
Odessa, Texas

RE: Ground Water Monitoring Waiver
Lusk Gasoline Plant
Lea Co., New Mexico

Dear Mr. Maharg:

Submitted herewith is a discussion of the geology and ground water conditions in the vicinity of the Phillips Lusk gasoline plant to satisfy the U.S. EPA requirements for a groundwater monitoring waiver (Ref. 40CFR, Part 265.90 paragraph C). The plant is located near the north quarter corner of Section 19-19S-32E, Lea County, New Mexico.

The surface at the site and for several miles in all directions is covered with Quaternary to Recent alluvium (N. M. Bureau of Mines and Mineral Resources Ground Water Report 6, 1961, Plate 1). Near the site and to the southeast (down-gradient) this alluvial section ranges from 20 to about 50 feet in thickness (see logs of Test Holes 1 and 2 attached).

Underlying the Quaternary fill are red and gray clays and interbedded sands of Triassic age. Test Hole 2 at total depth of 350 is still in Triassic rocks. Based upon oil well data and a deep water well in the area it is believed that the Triassic sediments in the vicinity of the plant site are about 800 feet thick and rest unconformably upon the Rustler formation of upper Permian age.

Structurally the plant site is situated on the southwest flank of a broad regional northwest-southeast trending anticline. Locally, the eroded surface of the Triassic exhibits a southeast trending valley ending at Laguna Plata, a salt lake or playa with interior drainage both surface and subsurface. (See attached map.) The Triassic outcrops on the north side of Laguna Plata and salt water

springs with very high chlorides and sulfate discharge into the northeast side of the playa.

The Phillips Lusk plant generates a waste stream consisting primarily of cooling tower blow down water with minor amounts of salt water derived from stripper operations. An average 10,080 gallons of waste water are placed daily into an unlined surface pit covering 0.86 acres. At the normal water depth of 4 feet, the free board is 3 feet (see attached drawing).

The waste stream can be characterized as a brackish water containing moderately high chloride and sulfate levels (553 and 1011 mg/l respectively) and total dissolved solids under 3000 mg/l (see attached analyses). The only toxic element in the waste stream above toxicity limits is hexavalent chromium which is no longer being added to the cooling water. The sludge accumulated from past years of discharging cooling tower water treated with chromates has 0.5 ug/g soluble hexavalent chromium and the leachate extracted according to Appendix 11, EP Toxicity Test contains 0..025 mg/l hexavalent chromium. (See Key Laboratories report October 18, 1982 attached).

Ground water under and for several miles in all diretions from the Lusk plant site is contained in sandstones of the Dockum group, Triassic age. The Dockum is divided into the Chinle clays and shales underlain by the Santa Rosa formation, a sequence of red fine to medium grained sandstones. Minor amounts of water are found in the Chinle under water table conditions; the Santa Rosa generally contains producible water under artesian conditions.

A test hole drilled by Phillips about 0.4 mile southeast of the plant site was completed at total depth 260 feet (3316 MSL) apparently still in Chinle sediments. Fifteen feet of Chinle water was found in the bottom of this test hole. The top of the Santa Rosa is probably twenty feet below the bottom of this test hole based upon the log of a second test hole drilled by Phillips at a location 0.7 miles southeast of the plant site. This second test, drilled to 350 feet may have found Santa Rosa sandstones at 280 feet but since the water level in this test hole is at 345 feet, only 5 feet above total depth, the exposed portion of the Santa Rosa is very tight.

Ground water in the vicinity of the site moves southeasterly toward Laguna Plata a depression with interior drainage. The salt springs at the northeast side of the playa are probably issuing from thin sands in the Chinle formation. The Santa Rosa piezometric surface forms a south-trending depression indicating discharge. However, since the pressure surface at the group of playas Laguna Plata, Laguna Gatuna and two smaller ones is well below the lake beds, it is believed that the Santa Rosa is discharging downward into the Rustler formation of upper Permian Age in the area of the playas (N. M. Bureau Mines Report 6, p 57). The Chinle water however probably does discharge for the most part into the playas.

The uppermost aquifer in this area is the Santa Rosa sandstone. The potential for migration of hazardous waste from the Lusk plant site

to the Santa Rosa is considered to be negligible. Seepage from the pond is calculated to average about 4 gallons per minute based upon an input rate of 7 gpm, surface area of 0.86 acre and a net evaporation rate of 5.375 feet per year. It is expected that this seepage will be into the Quaternary alluvium above the Triassic exemplified by the upper 52 feet in Test Hole 1.

For the most part, it is expected that the waste water will move southeasterly along the contact between the alluvium and the Triassic Chinle clays. Assuming a permeability of 2×10^{-3} cm/sec (42.4 gpd/ft^2) for the alluvium and a gradient at the basal contact of 9.5×10^{-3} ft/ft (50 ft/mi) the average flow velocity would be 98.3 feet per year requiring more than 200 years to reach Laguna Plata (4 miles distant).

Based upon permeability data secured recently from core tests in Sec. 16-17S-30E, about 15 miles to the northwest, it is believed that the average vertical permeability of the Chinle clays and shales is 10^{-7} cm/sec. Assuming a depth of water in the pond to be 4 feet, that the 52 feet of alluvium is saturated and 192 feet of clays lie above the first permeable sand the vertical velocity becomes 0.67 feet per year. It would require almost 300 years for the waste water to reach a depth of 244 feet.

Finally, if by some means presently unknown the waste stream should reach the aquifer at about 250 feet below the land surface, the velocity in a horizontal direction would be 19.6 feet per year based upon a permeability of 1×10^{-3} cm/sec (21 gpd/ft^2) and a hydraulic gradient of 3.8×10^{-3} ft/ft (20 ft/mi). This permeability has been found to be about average for the Dockum in West Texas and New Mexico. The nearest known water well to the site based upon records in the New Mexico State Engineers' office is in Sec. 34-19S-32E about 4 miles southeast (not considering the Capitan Reef well in Sec. 31-19S-32E). It would require 1078 years for water to move through the Santa Rosa sandstone from the plant site to the nearest uppermost aquifer.

As further and final evidence that ground water will not be affected by this waste disposal operation it should be noted that since a water supply could not be located at the plant site for operational purposes, water is obtained via pipe line from Tertiary Ogallala wells located about 20 miles to the east. It is my opinion based upon the hydrologic and geologic conditions surrounding the plant site that ground water will not be affected by the operation of the waste disposal pit serving the Phillips Lusk gasoline plant.

If you need further information regarding the hydrogeology of this area please advise.

Very truly yours,

ED L. REED & ASSOCIATES, INC.

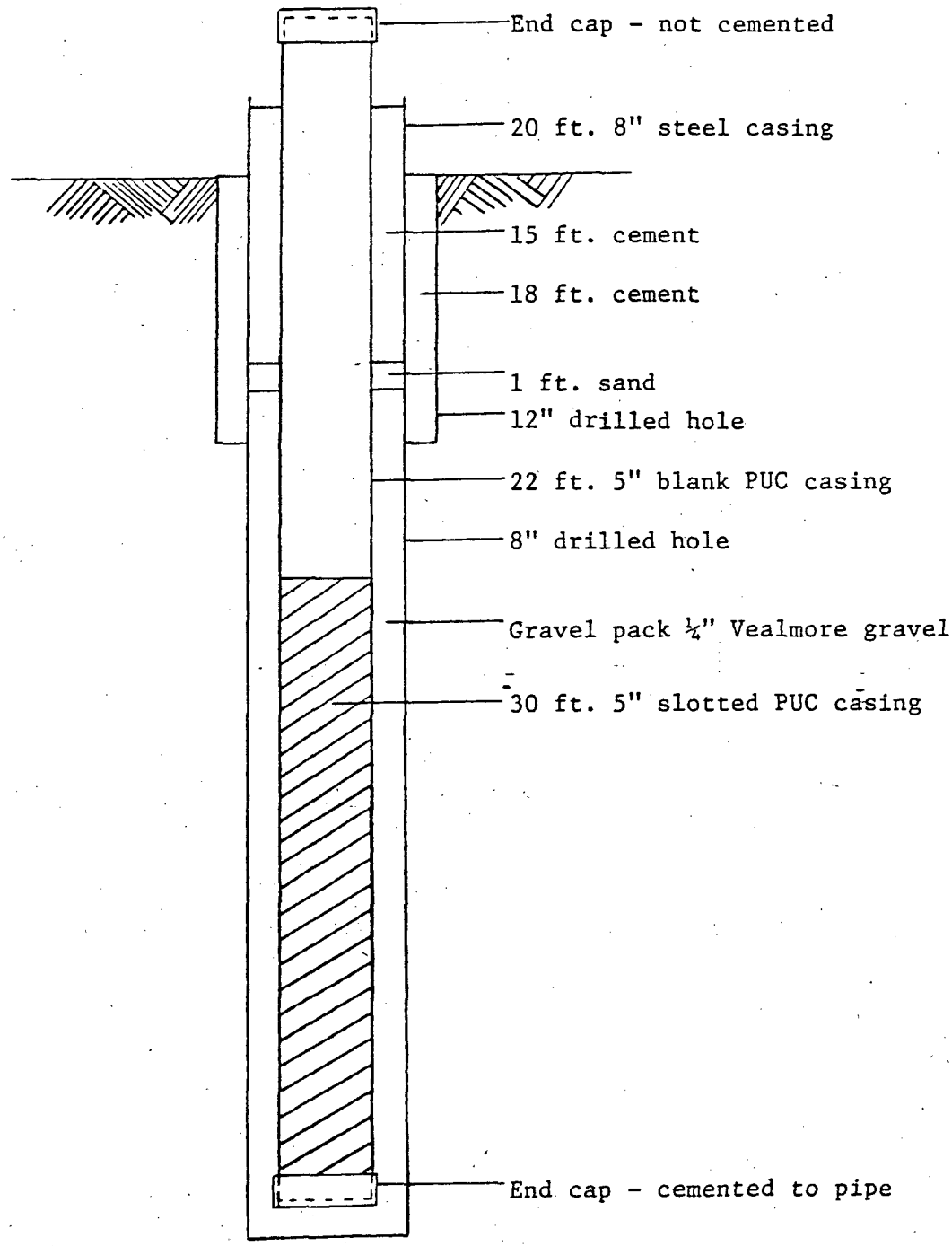
Ed L Reed

Ed L. Reed, P. E.

ELR:lb

Attachment VI

Lusk Gasoline Plant
Groundwater Sampling Well #1



THE LOFTIS COMPANY
P. O. BOX 7847
MIDLAND, TEXAS 79701

COMPANY: Phillips Oil Company

DATE March 30, 1984

ORDER NO. Contract No.0-415

LOCATION Lusk Gasoline Plant,

COUNTY: Lea STATE NM

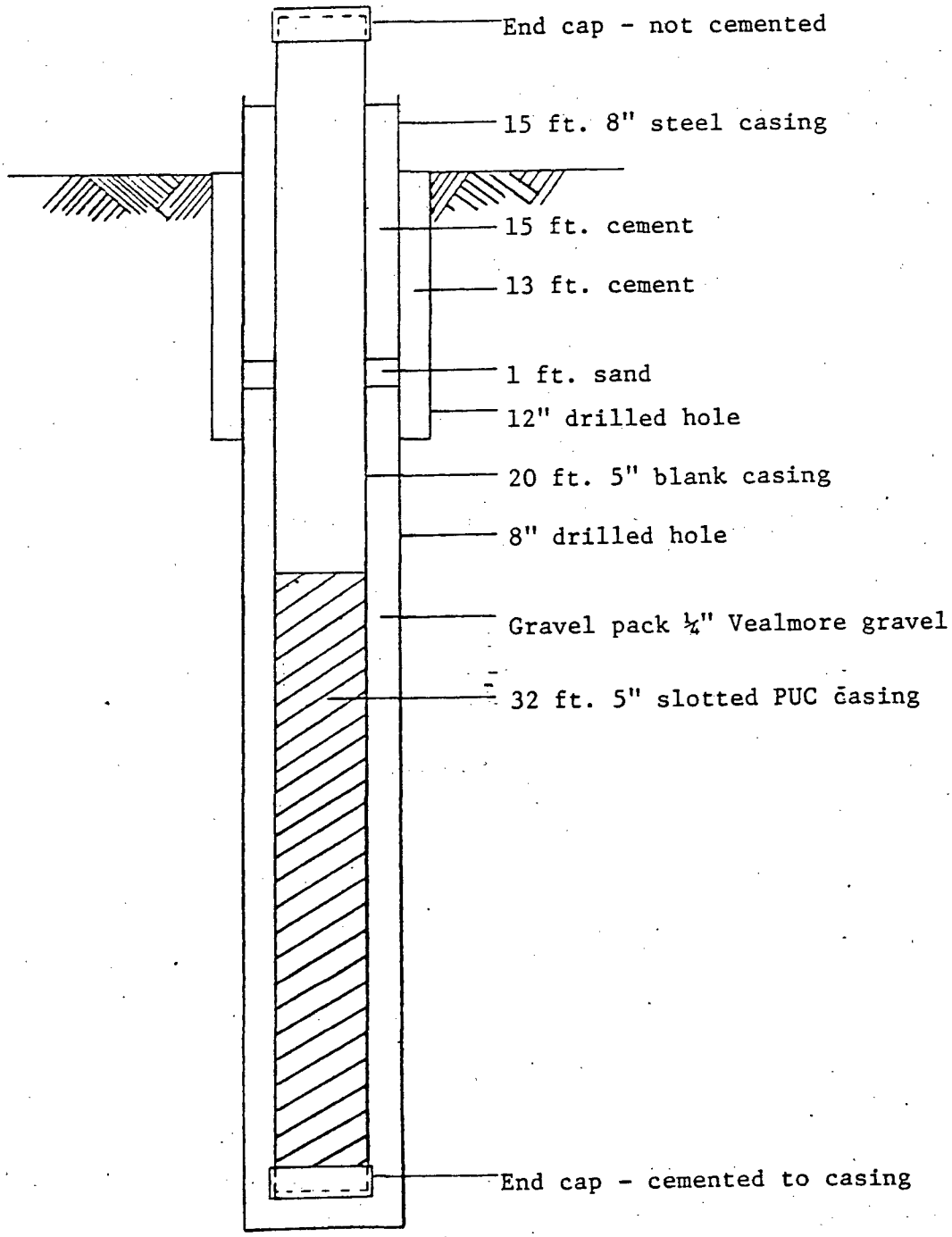
PROPOSED USE Monitor Well #1
DIAMETER 8"
DEPTH 50'

Top of water 40'

DRILLER Roger Smith
Roger Smith

DEPTH FT.	DRILLER'S LOG
10	surface sand
20	caliche
30	sand
40	water sand & clay
50	sandy clay
60	
70	
80	
90	
100	
110	
120	
130	
140	
150	
160	
170	
180	
190	
200	
210	
220	
230	
240	
250	
260	
270	
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	
380	
390	
400	

Lusk Gasoline Plant
Groundwater Sampling Well #2



THE LOFTIS COMPANY
P. O. BOX 7847
MIDLAND, TEXAS 79701

COMPANY: Phillips Oil Company

DATE March 30, 1984

ORDER NO. Contract No.0-415

LOCATION Lusk Gasoline Plant,

COUNTY: Lea STATE NM

PROPOSED USE Monitor Well #2

DIAMETER 8"

DEPTH 50'

Top of water 42'

DRILLER Roger Smith

Roger Smith

DEPTH FT.	DRILLER'S LOG
10	surface sand
20	caliche, & sand
30	clay, water sand
40	sand
50	sandy clay
60	
70	
80	
90	
100	
110	
120	
130	
140	
150	
160	
170	
180	
190	
200	
210	
220	
230	
240	
250	
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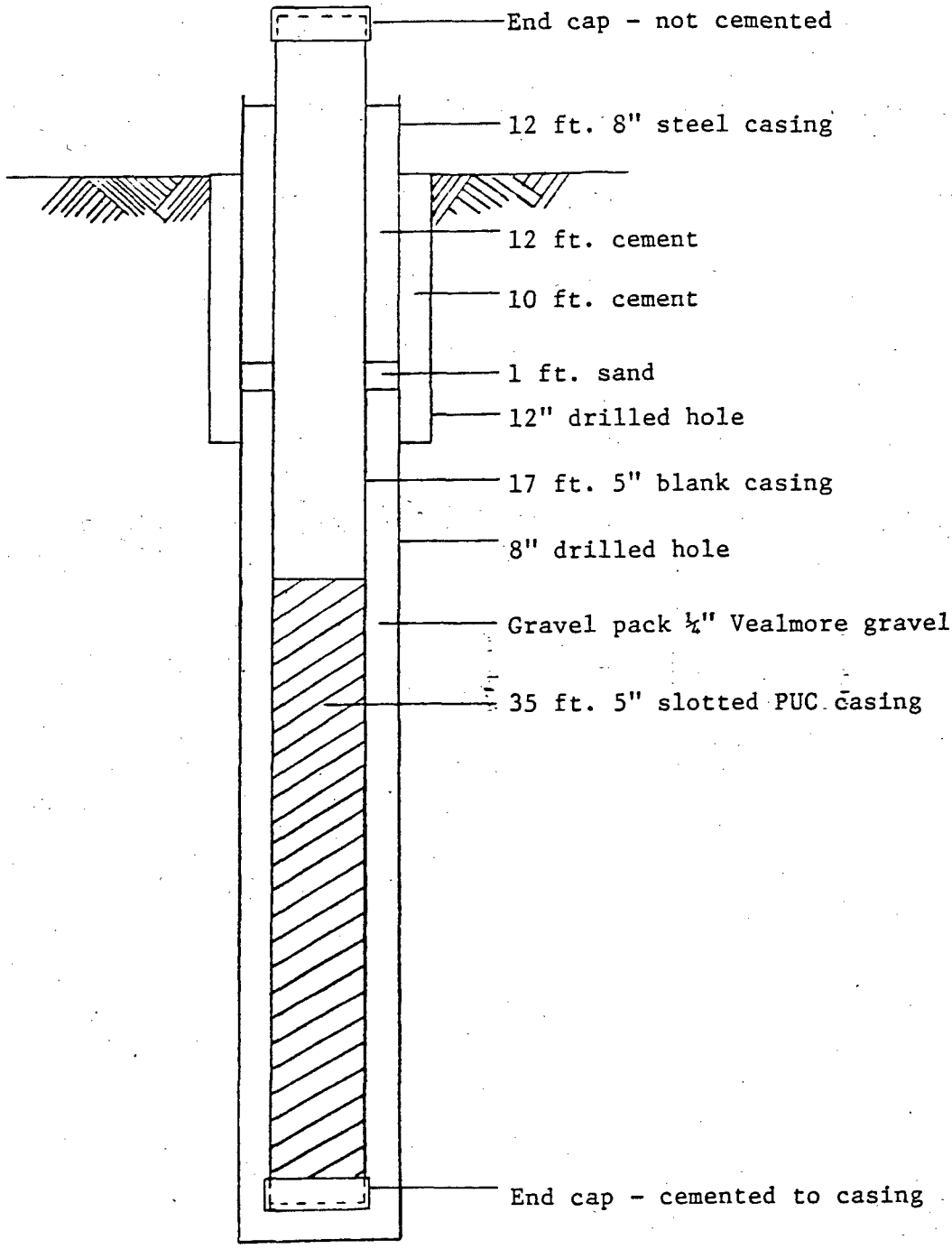
270	
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	
380	
390	
400	

Lusk Gasoline Plant
Groundwater Sampling Well #3



THE LOFTIS COMPANY
P. O. BOX 7847
MIDLAND, TEXAS 79701

COMPANY: Phillips Oil Company

DATE March 30, 1984

ORDER NO. Contract No.0-415

LOCATION Lusk Gasoline Plant,

COUNTY: Lea STATE NM

PROPOSED USE Monitor Well #3

DIAMETER 8"

DEPTH 50'

Top of water 38'

DEPTH FT.	DRILLER'S LOG
10	surface sand
20	caliche
30	water sand
40	clay
50	sand
60	
70	
80	
90	
100	
110	
120	
130	
140	
150	
160	
170	
180	
190	
200	
210	
220	
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270	
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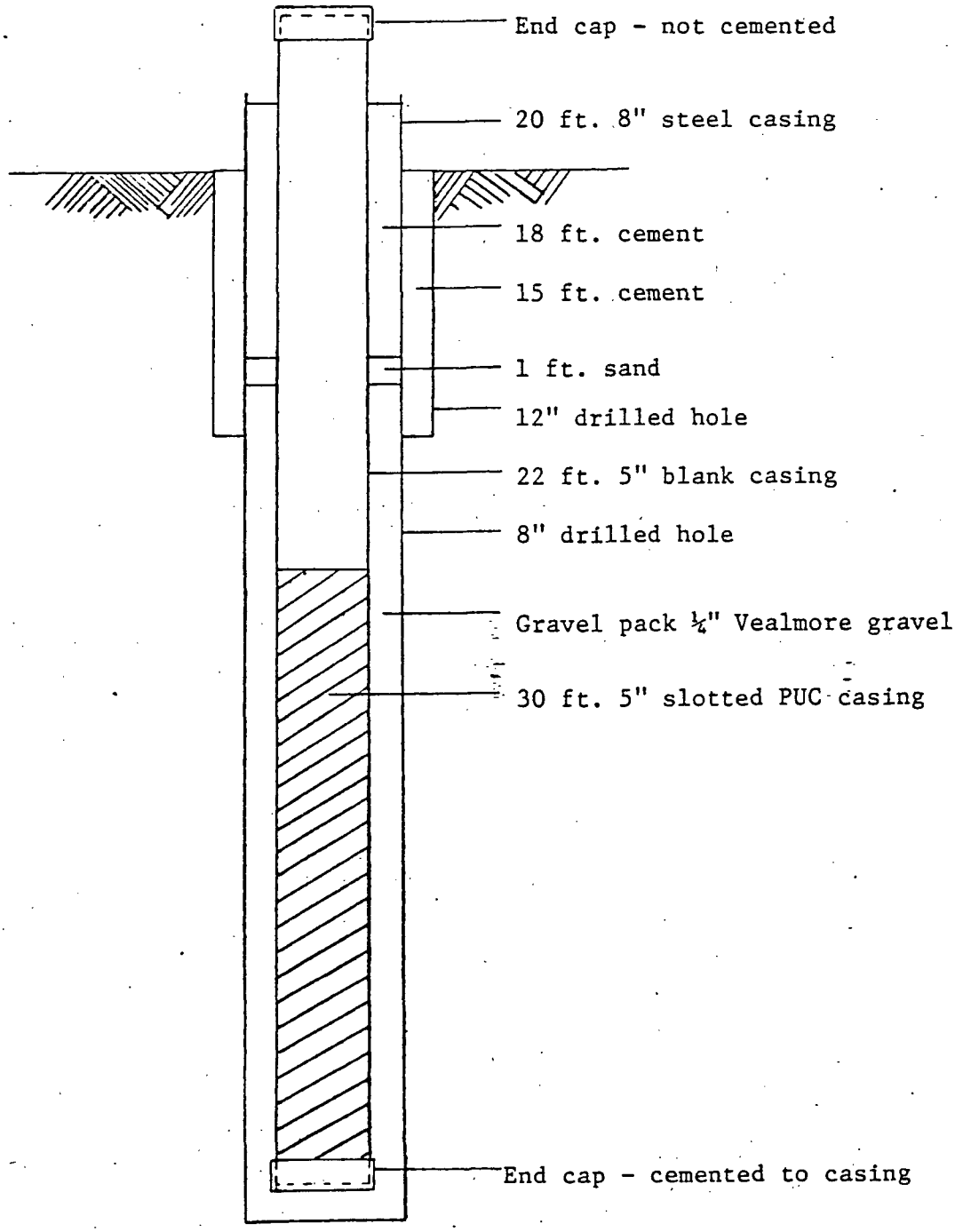
300	
310	
320	
330	
340	
350	
360	
370	
380	
390	
400	

DRILLER Roger Smith

Roger Smith

Lusk Gasoline Plant
Groundwater Sampling Well #4



THE LOFTIS COMPANY
P. O. BOX 7847
MIDLAND, TEXAS 79701

COMPANY: Phillips Oil Company

DATE March 30, 1984

ORDER NO. Contract No.0-415

LOCATION Lusk Gasoline Plant,

COUNTY: Lea STATE NM

PROPOSED USE Monitor Well #4

DIAMETER 8"

DEPTH 50'

Top of water 37'

DRILLER Roger Smith

Roger Smith

DEPTH FT.	DRILLER'S LOG
10	surface sand
20	caliche, sand
30	red clay
40	water sand
50	sandy clay
60	
70	
80	
90	
100	
110	
120	
130	
140	
150	
160	
170	
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330	
340	
350	
360	
370	
380	
390	
400	

Attachment IV

Ed L. Reed and Associates, Inc.

Consulting Hydrologists

MIDLAND · CORPUS CHRISTI

TEXAS

ED L. REED, P.E.
CHAIRMAN OF THE BOARD
A. JOSEPH REED
PRESIDENT
CHESTER F. SKRABACZ
VICE PRESIDENT FIELD OPERATIONS
1109 N. BIG SPRING
MIDLAND, TEXAS 79701
915 682-0556

V. STEVE REED
EXECUTIVE VICE PRESIDENT
OIL INDUSTRIES BLDG.
SUITE 315
723 UPPER N. BROADWAY
CORPUS CHRISTI, TEXAS 78403
512-883-1353

January 24, 1984

Mr. J. W. Maharg
Engineering Director
Permian Basin Region
Phillips Petroleum Company
Odessa, Texas 79762

Re: Ground Water Monitoring Program
Lusk Gasoline Plant Impoundment
Lea County, New Mexico

Dear Mr. Maharg:

This letter presents the information you requested in your letter of January 18, 1984 concerning development of a ground water sampling program for the Lusk Gasoline Plant Impoundment. The information needed are as follows:

a. Optimum monitor well placements.
b. Completion plans for monitor wells.
c. Sampling procedure.

Monitor Well Locations

The basic requirement for the placement of the monitor wells is the positioning of three wells down the hydraulic gradient from the impoundment and at least one well up-gradient from the impoundment. The down-gradient wells will enable sampling of contaminant that may be present in the uppermost aquifer as a result leaching from the impoundment. The up-gradient well will enable sampling of uncontaminated ground water.

The uppermost formation of water-bearing potential consists of Quaternary alluvium fill. This is underlain by red and gray clays of Triassic age.

Fluid movement in the alluvium may be controlled by the topography of the Triassic surface since the alluvium is apparently not saturated. In this area the Triassic surface dips to the southeast at a relatively steep slope of 50 feet per mile.

The proposed locations for the monitor wells are shown on the

attached map. These are based on the anticipated direction of fluid movement which is southeast and on the need to drill the down-gradient wells as close as possible to the impoundment.

Construction Plans

The attached well profile diagram shows the design that is proposed for construction of the monitor wells. We recommend that a 12-inch hole be drilled to a depth of about 15 feet (base of caliche cap) and 8-inch steel casing cemented in place. After the cement has solidified a 6-3/4-inch hole should be air-drilled to the Triassic surface (approximately 50 feet) then the well cased with 4-inch PVC pipe and gravel packed. About 2 feet of clean sand should be placed above the gravel pack and the remainder of the hole cemented to the surface (about 13 feet of cement).

Although we anticipate that the alluvium is mostly unsaturated, care should be taken during the drilling of the 6-inch hole to sample any fluid encountered at regular intervals if possible.

Sampling Procedure

Once the well is constructed it should be developed by pumping or jetting depending on whether enough water is present. Development is complete when the pumped or bailed water is free of mud and sand. At this point a water sample should be collected and properly labeled.

Subsequent sampling of the monitor wells should be done on a regular basis; every three months would be adequate. Before collecting a sample the well should be pumped or bailed so that at least three casing volumes of water are removed. This will ensure that a representative ground water sample is obtained.

If you have any questions concerning this matter please call on us.

Very truly yours,

ED L. REED & ASSOCIATES, INC.

Ed L Reed

Ed L. Reed, P. E.

ELR:lb

E F G

LUSK PLANT

PROCESS AREA

CENTER LINE OF SECT. 19

1320'

330'

666.2'

1 2 3 4 5

FOR BIDS	PHILLIPS PETROLEUM COMPANY BARTLESVILLE, OKLAHOMA	PHILLIPS 66	AFE NO. / FILE CODE
FOR APPR			SCALE 1" = 100.0' UNLESS OTHERWISE NOTED
FOR CONST	LUSK PLANT PROPERTY AND FENCE LINES SECT 19, T-19-S, R-32-E LEA CO, NEW MEXICO		DWG NO.
DESIGN			SH NO.
DRAWN FORD 1-19-84			
CHECKED			
APP'D			

PRINTED IN U.S.A.

E F G

A B C

NORTH LINE OF SECT. 19

1

2

990'

HYDRAULIC GRADIENT

MW-1

3

OXIDATION POND 125'x300'

SKIMMER PIT 50'x70'

MW-2

MW-4

MW-3

4

1308.9'

5

NO	REVISION	BY	DATE				
		CHKD	APP'D				

FORM 1818-S 6-72

A B C

Attachment III

GROUND WATER MONITORING WAIVER
LUSK GASOLINE PLANT
LEA COUNTY, NEW MEXICO

Prepared For
PHILLIPS PETROLEUM CO.

12/82

Ed L. Reed and Associates, Inc.

Consulting Hydrologists

MIDLAND · CORPUS CHRISTI

TEXAS

ED L. REED, P.E.
CHAIRMAN OF THE BOARD
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MIDLAND, TEXAS 79701
915 682-0556

V. STEVE REED
EXECUTIVE VICE PRESIDENT
OIL INDUSTRIES BLDG.
SUITE 315
723 UPPER N. BROADWAY
CORPUS CHRISTI, TEXAS 78403
512-883-1353

December 30, 1982

Mr. J. W. Maharg
Engineering Director
Permian Basin Region
Phillips Petroleum Co.
Odessa, Texas

RE: Ground Water Monitoring Waiver
Lusk Gasoline Plant
Lea Co., New Mexico

Dear Mr. Maharg:

Submitted herewith is a discussion of the geology and ground water conditions in the vicinity of the Phillips Lusk gasoline plant to satisfy the U.S. EPA requirements for a groundwater monitoring waiver (Ref. 40CFR, Part 265.90 paragraph C). The plant is located near the north quarter corner of Section 19-19S-32E, Lea County, New Mexico.

The surface at the site and for several miles in all directions is covered with Quaternary to Recent alluvium (N. M. Bureau of Mines and Mineral Resources Ground Water Report 6, 1961, Plate 1). Near the site and to the southeast (down-gradient) this alluvial section ranges from 20 to about 50 feet in thickness (see logs of Test Holes 1 and 2 attached).

Underlying the Quaternary fill are red and gray clays and interbedded sands of Triassic age. Test Hole 2 at total depth of 350 is still in Triassic rocks. Based upon oil well data and a deep water well in the area it is believed that the Triassic sediments in the vicinity of the plant site are about 800 feet thick and rest unconformably upon the Rustler formation of upper Permian age.

Structurally the plant site is situated on the southwest flank of a broad regional northwest-southeast trending anticline. Locally, the eroded surface of the Triassic exhibits a southeast trending valley ending at Laguna Plata, a salt lake or playa with interior drainage both surface and subsurface. (See attached map.) The Triassic outcrops on the north side of Laguna Plata and salt water

springs with very high chlorides and sulfates discharge into the northeast side of the playa.

The Phillips Lusk plant generates a waste stream consisting primarily of cooling tower blow down water with minor amounts of salt water derived from stripper operations. An average 10,080 gallons of waste water are placed daily into an unlined surface pit covering 0.86 acres. At the normal water depth of 4 feet, the free board is 3 feet (see attached drawing).

The waste stream can be characterized as a brackish water containing moderately high chloride and sulfate levels (553 and 1011 mg/l respectively) and total dissolved solids under 3000 mg/l (see attached analyses). The only toxic element in the waste stream above toxicity limits is hexavalent chromium which is no longer being added to the cooling water. The sludge accumulated from past years of discharging cooling tower water treated with chromates has 0.5 ug/g soluble hexavalent chromium and the leachate extracted according to Appendix 11, EP Toxicity Test contains 0.025 mg/l hexavalent chromium. (See Key Laboratories report October 18, 1982 attached).

Ground water under and for several miles in all diretions from the Lusk plant site is contained in sandstones of the Dockum group, Triassic age. The Dockum is divided into the Chinle clays and shales underlain by the Santa Rosa formation, a sequence of red fine to medium grained sandstones. Minor amounts of water are found in the Chinle under water table conditions; the Santa Rosa generally contains producible water under artesian conditions.

A test hole drilled by Phillips about 0.4 mile southeast of the plant site was completed at total depth 260 feet (3316 MSL) apparently still in Chinle sediments. Fifteen feet of Chinle water was found in the bottom of this test hole. The top of the Santa Rosa is probably twenty feet below the bottom of this test hole based upon the log of a second test hole drilled by Phillips at a location 0.7 miles southeast of the plant site. This second test, drilled to 350 feet may have found Santa Rosa sandstones at 280 feet but since the water level in this test hole is at 345 feet, only 5 feet above total depth, the exposed portion of the Santa Rosa is very tight.

Ground water in the vicinity of the site moves southeasterly toward Laguna Plata a depression with interior drainage. The salt springs at the northeast side of the playa are probably issuing from thin sands in the Chinle formation. The Santa Rosa piezometric surface forms a south-trending depression indicating discharge. However, since the pressure surface at the group of playas Laguna Plata, Laguna Gatuna and two smaller ones is well below the lake beds, it is believed that the Santa Rosa is discharging downward into the Rustler formation of upper Permian Age in the area of the playas (N. M. Bureau Mines Report 6, p 57). The Chinle water however probably does discharge for the most part into the playas.

The uppermost aquifer in this area is the Santa Rosa sandstone. The potential for migration of hazardous waste from the Lusk plant site

to the Santa Rosa is considered to be negligible. Seepage from the pond is calculated to average about 4 gallons per minute based upon an input rate of 7 gpm, surface area of 0.86 acre and a net evaporation rate of 5.375 feet per year. It is expected that this seepage will be into the Quaternary alluvium above the Triassic exemplified by the upper 52 feet in Test Hole 1.

For the most part, it is expected that the waste water will move southeasterly along the contact between the alluvium and the Triassic Chinle clays. Assuming a permeability of 2×10^{-3} cm/sec (42.4 gpd/ft^2) for the alluvium and a gradient at the basal contact of 9.5×10^{-3} ft/ft (50 ft/mi) the average flow velocity would be 98.3 feet per year requiring more than 200 years to reach Laguna Plata (4 miles distant).

Based upon permeability data secured recently from core tests in Sec. 16-17S-30E, about 15 miles to the northwest, it is believed that the average vertical permeability of the Chinle clays and shales is 10^{-7} cm/sec. Assuming a depth of water in the pond to be 4 feet, that the 52 feet of alluvium is saturated and 192 feet of clays lie above the first permeable sand the vertical velocity becomes 0.67 feet per year. It would require almost 300 years for the waste water to reach a depth of 244 feet.

Finally, if by some means presently unknown the waste stream should reach the aquifer at about 250 feet below the land surface, the velocity in a horizontal direction would be 19.6 feet per year based upon a permeability of 1×10^{-3} cm/sec (21 gpd/ft^2) and a hydraulic gradient of 3.8×10^{-3} ft/ft (20 ft/mi). This permeability has been found to be about average for the Dockum in West Texas and New Mexico. The nearest known water well to the site based upon records in the New Mexico State Engineers' office is in Sec. 34-19S-32E about 4 miles southeast (not considering the Capitan Reef well in Sec. 31-19S-32E). It would require 1078 years for water to move through the Santa Rosa sandstone from the plant site to the nearest uppermost aquifer.

As further and final evidence that ground water will not be affected by this waste disposal operation it should be noted that since a water supply could not be located at the plant site for operational purposes, water is obtained via pipe line from Tertiary Ogallala wells located about 20 miles to the east. It is my opinion based upon the hydrologic and geologic conditions surrounding the plant site that ground water will not be affected by the operation of the waste disposal pit serving the Phillips Lusk gasoline plant.

If you need further information regarding the hydrogeology of this area please advise.

Very truly yours,

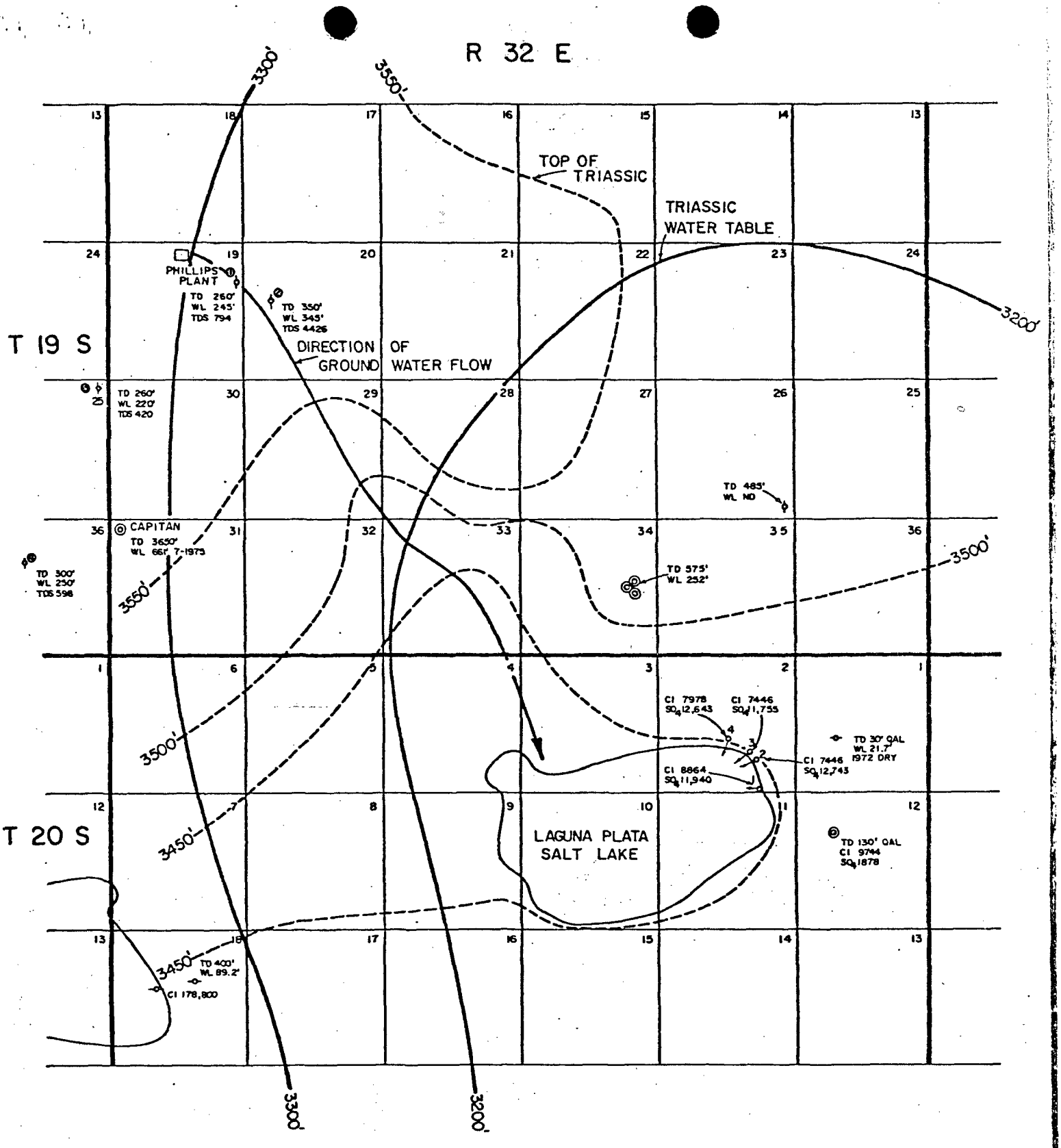
ED L. REED & ASSOCIATES, INC.

Ed L Reed

Ed L. Reed, P. E.

ELR:lb

MAP



LEGEND

- WINDMILL OR DOMESTIC WELL
- TEST HOLE, ABANDONED WINDMILL OR DOMESTIC WELL
- MUNICIPAL, INDUSTRIAL, OR IRRIGATION WELL
- ABANDONED MUNICIPAL, INDUSTRIAL, OR IRRIGATION WELL
- WL WATER LEVEL
- TD TOTAL DEPTH
- SO_4 SULFATE CONCENTRATION IN MILLIGRAMS PER LITER
- Cl CHLORIDE
- TDS TOTAL DISSOLVED SOLIDS

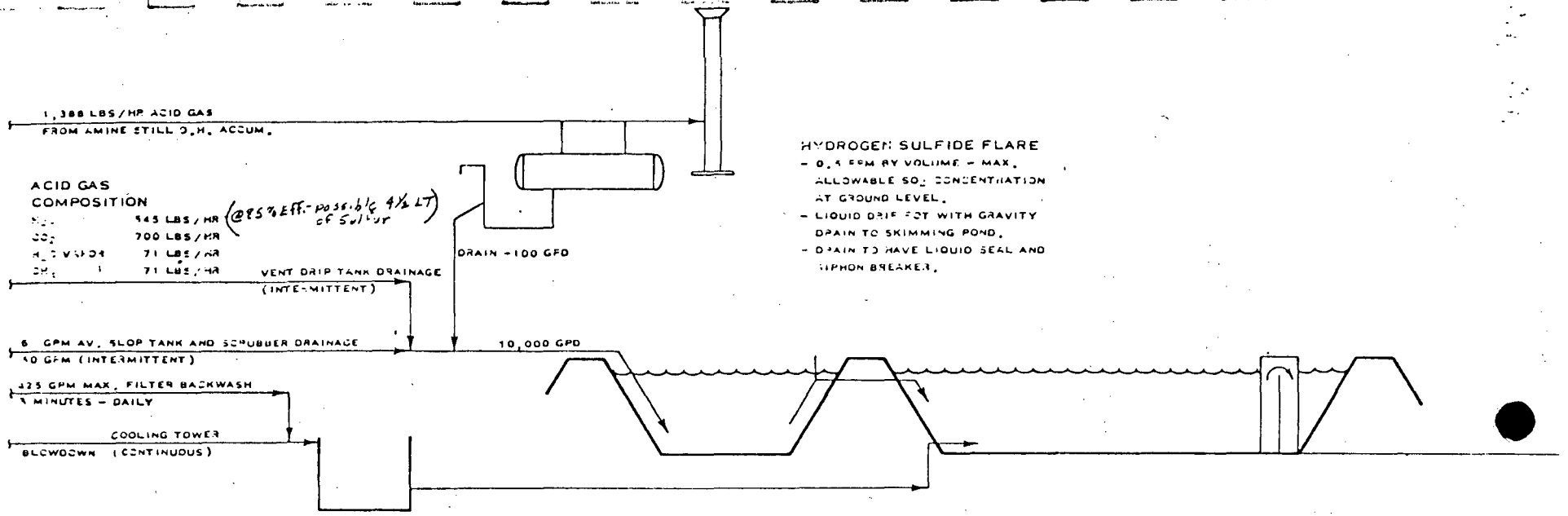
SCALE

0 1 mile

N

LEA COUNTY, NEW MEXICO	Date 12-1982
PHILLIPS PETROLEUM COMPANY	
LUSK PLANT AREA	Drawn By P.REED

ED L. REED & ASSOCIATES, INC.



SIDESTREAM FILTER SURGE BASIN
(SHOWN ON DWG. EPM 354 SH. NO. M-5-0)

SKIMMING POND
50' X 70' X 7' TOTAL DEPTH
INLET - SUBMERGED - 18" ABOVE BOTTOM AT A CORNER OF POND.
OUTLET - SUBSURFACE TAKE-OFF 2' ABOVE POND BOTTOM WITH SIPHON BREAKER.
- AT CORNER OF POND DIAGONALLY ACROSS FROM INLET.
DIKE SLOPE - 3:1 INSIDE AND OUTSIDE
WATER LEVEL - SAME AS OXIDATION POND

OXIDATION POND
125' X 300'
WATER DEPTH - 4' NORMAL
5' MAXIMUM
FREEBOARD - 3' (AT NORMAL DEPTH)
DIKE TOP WIDTH - 5' MINIMUM
DIKE SLOPE - 3:1 INSIDE AND OUTSIDE
NOTES - PONDS TO BE CONSTRUCTED WITH MATERIAL TO MINIMIZE SEEPAGE FROM POND.
- FENCE TO ALLOW FOR MAINTENANCE EQUIPMENT AROUND POND.

POND OUTFALL STRUCTURE
4' X 7' X 8' DEEP
WEIR - ADJUSTABLE - 3' TO 5' IN 6" INCREMENTS.
WALKWAY - FROM STRUCTURE TO DIKE.

NOTES:
1. PER REVISED PREMISES TO RECOVER APPROXIMATELY 35% OF THE AVAILABLE ETHANE WHEN PROCESSING 60,000 MSCFD.
4. PLANT ELEVATION - 3590 FEET ABOVE MEAN SEA LEVEL

JA[illegible]7-9[illegible]

NO.	REVISION	BY CHK'D	DATE APP'D

DESIGN O.R. CURRIE	4-67	
DRAWN BEAVER	4-67	
CHECKED		
APP'D.		

PHILLIPS PETROLEUM COMPANY
BARTLESVILLE, OKLAHOMA

WASTE DISPOSAL SYSTEM
PROCESS FLOW SHEET
LUSK PLANT

AFE NO.	[illegible]-219
SCALE	UNLESS NOTED OTH
DWG. NO.	EPB-3[illegible]
SH. NO.	M-1-0

CROSS-SECTIONS

CHEMICAL ANALYSES

SOUTHWESTERN LABORATORIES

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 12-30-82 File No.

Report of tests on Water

To Phillips Petroleum Company Date Rec'd. 12-21-82

Received from Mike Ford - Phillips Petroleum

Identification Marks Lusk Plant, Lea Co., New Mexico, sampled by Mike Ford, 12-21-82

	mg/L	
	Total Chromium	Chromium, +6
Sample Point 1 ----------	2.9	2.92
Sample Point 2 ----------	3.4	3.35
Sample Point 3 ----------	3.3	3.34

3 cc: Phillips Petroleum
2 cc: Ed L. Reed & Associates

SOUTHWESTERN LABORATORIES
Jack H Barker

Lab. No. 33899

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 12-29-82 File No.

Report of tests on Water

To Phillips Petroleum Company Date Rec'd. 12-21-82

Received from Mike Ford, Phillips Petroleum Company

Identification Marks Lusk Plant, Lea Co., New Mexico, sampled by Mike Ford, 12-21-82

	mg/L
Calcium	277
Magnesium	68
Sodium (calc.)	372
Potassium	29
Carbonate	-0-
Bicarbonate	65
Sulfate	946
Chloride	553
Fluoride	3.0
Nitrate	1.5
TOTAL Dissolved Solids @ 180°C	2,408
Aluminum	less than 1.0
Arsenic	less than 0.05
Barium	0.2

SOUTHWESTERN LABORATORIES

Jack H Barton

Lab. No. 33896

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 12-29-82 File No.

Report of tests on Water

To Phillips Petroleum Company Date Rec'd. 12-21-82

Received from Mike Ford, Phillips Petroleum Company

Identification Marks Lusk Plant, Lea Co., New Mexico sampled by Mike Ford, 12-21-82

		mg/L
Boron		0.4
Cadimum	less than	0.01
Chromium, Total		3.1
Chromium, + 6		3.05
Cobalt	less than	0.1
Copper	less than	0.1
Iron		0.42
Lead	less than	0.05
Magnanese	less than	0.05
Mercury	less than	0.002
Molybdenum	less than	0.5
Nickel	less than	0.2
Selenium		0.02
Silver	less than	0.1
Zinc		0.45

SOUTHWESTERN LABORATORIES

Jack H Barker

Lab. No. 33896

SOUTHWESTERN LABORATORIES

FORT WORTH - DALLAS - HOUSTON - MIDLAND - BEAUMONT - TEXARKANA

CONSULTING, ANALYTICAL CHEMISTS
AND TESTING ENGINEERS

Midland Texas 12-29-82 File No.

Report of tests on Water

To Phillips Petroleum Company Date Rec'd. 12-21-82

Received from Mike Ford, Phillips Petroleum Company

Identification Marks Lusk Plant, Lea Co., New Mexico, sampled by Mike Ford, 12-21-82

	mg/L
Cyanide	less than 0.005
Phenol	0.016
Endrin	less than 0.002
pH	8.11

Tech: K.H., B.S.
Chemist: G.M.B., R.Y., J.A., P.B.

3 cc: Phillips Petroleum
2 cc: Ed L. Reed & Assoc.

SOUTHWESTERN LABORATORIES

Jack H Bartley

Lab. No. 33896

CHEMICAL ANALYSES

KEY LABORATORIES

KEY LABORATORIES
Division of Production Profits
2636 WALNUT HILL LANE SUITE 275
DALLAS, TEX. 75229 214/350-5841

October 18, 1982

REPORT OF ANALYSIS

NUMBER: K-1204

CLIENT: Rice-White Associates
P.O. Box 12897
Fort Worth, Texas 76116

DESCRIPTION: The client submitted a semi-solid sample for analysis in accordance with the "Federal Register, Vol. 45, No. 98, Monday, May 19, 1980" and EPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," May, 1980. The sample's leachate was to be analyzed for chromium, hexavalent chromium, mercury, phosphate and sulfite. The sample as received was to be analyzed for oil and grease.

PROCEDURES: The sample was prepared for extraction and extracted in accordance with "Appendix II, EP Toxicity Test" found on pages 7.1-3 through 7.1-6 of the above referenced method. The solid and extract were separated in accordance with the "Separation Procedure" on pages 7.1-6 through 7.1-8. Millipore filters, as specified in the literature, were used for the filtration step.

The filtrate was analyzed in accordance with procedures specified in Standard Methods for the Examination of Water and Wastewater, 15th edition.

The oil and grease was determined by the chloroform extraction procedure.

RESULTS: See attached sheet.

Submitted by:

KEY LABORATORIES

Cynthia Placko

Cynthia A. Placko, Senior Analyst

CAP/rsd

KEY LABORATORIES
Division of Production Profits
2636 WALNUT HILL LANE SUITE 275
DALLAS, TEX. 75229 214/350-5841

DATA SHEET

Analyte	Leachate, mg/l	Semi-Solid*
Chromium	1.5	30
Hexavalent Chromium	.025	0.5
Mercury	<.05	<1
Phosphate	55	110
Sulfite	3.2	160
Oil and Grease, %	N/A	21.2

*The values reported are in ug/g and reflect the amount soluble in the EP-Toxicity leachate not the amount possibly found in the sample as received. The value reported for oil and grease is in percent as noted above.

CHEMICAL ANALYSES

MARTIN LABORATORIES

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

P. O. BOX 1468
ONAHANS, TEXAS 79756
943-3234 OR 563-1040

709 W. INDIAN
MIDLAND, TEXAS 79
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, TExas

Laboratory No. 282215
Sample received 2-10-82
Results reported 2-18-82

Company: Phillips Petroleum Company

County: Lea, NM

Lease: Lusk Gas Plant

Subject: To make determinations listed on water from test hole #1. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. on 2-10-82

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadium, as Cd	0.00
Chromium, as Cr	0.04
Cyanide, as CN	0.0
Fluoride, as F	1.2
Lead, Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	1.1
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	45
Copper, as Cu	0.00
Iron, as Fe	0.50
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	371

DETERMINATION	MG/L
Total Dissolved Solids	794
Zinc, as Zn	0.00
pH	7.96

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

P. O. BOX 1468
ONAHANS, TEXAS 79756
I. 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

WATER CONSULTANTS SINCE 1953

BACTERIAL AND CHEMICAL ANALYSES

709 W. INDIANA
MIDLAND, TEXAS 79
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282219
Sample received 2-12-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea, NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water from test hole #2. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. 2-12-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.04
Cyanide, as CN	0.0
Fluoride, as F	0.8
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	3.4
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	75
Copper, as Cu	0.00
Iron, as Fe	0.63
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	2,588

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	4,426
Zinc, as Zn	0.00
pH	7.99

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

P. O. BOX 1468
INAHANS, TEXAS 79756
43-3234 OR 563-1040

709 W. INDIANA
MIDLAND, TEXAS 79
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282218
Sample received 2-10-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea, NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water from test hole #3. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. 2-10-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.04
Cyanide, as CN	0.0
Fluoride, as F	0.8
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	5.7
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	34
Copper, as Cu	0.00
Iron, as Fe	5.7
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	61

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	420
Zinc, as Zn	0.00
pH	7.82

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

P. O. BOX 1468
ONAHANS. TEXAS 79756
943-3234 OR 563-1040

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

709 W. INDIANA
MIDLAND. TEXAS 79
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282217
Sample received 2-13-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea,NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water form test hole #4. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. on 2-13-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.02
Cyanide, as CN	0.0
Fluoride, as F	1.0
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	3.4
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	51
Copper, as Cu	0.00
Iron, as Fe	0.17
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	157

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	598
Zinc, as Zn	0.00
pH	7.54

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

P. O. BOX 1468
INAHANS, TEXAS 79756
943-3234 OR 563-1040

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

709 W. INDIANA
MIDLAND, TEXAS 79
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282220
Sample received 2-12-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea, NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water from storage tank @ plant (used to drill test hole #4). Sample taken by Robert C. Middleton, Martin Water Labs., Inc. on 2-12-82.

Ogallala Water E&R

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.02
Cyanide, as CN	0.0
Fluoride, as F	0.4
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	3.4
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	57
Copper, as Cu	0.00
Iron, as Fe	0.11
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	26

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	348
Zinc, as Zn	0.00
pH	8.19

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

TEST HOLE LOGS

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	4	4	blow sand
4	10	6	caliche
10	30	20	sand
30	52	22	sand & gravel
52	60	8	redbed
60	61	1	clay gray
61	105	44	redbed
105	115	10	gray clay & rock
115	117	2	sand, black rock
117	152	35	gray clay & rock
152	162	10	red clay
162	230	68	red clay, layers of gray and brown dry clay
230	240	10	red clay
240	244	4	gray green clay
244	260	16	redbed

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Jerry Jackson Jr.
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Owner's Well No. _____

Street or Post Office Address P.O.Box 2130

City and State Hobbs, NM 88240

Well was drilled under Permit No. Test hole for EPA and is located in the: #1 1200'N 300'E

a. ____ ¼ ____ ¼ ____ ¼ ____ ¼ of Section 19 Township 19S Range 32E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____

Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender, Hobbs, NM 88240

Drilling Began 2-8-82 Completed 2-9-82 Type tools tri-cone Size of hole 4 3/4 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 260 ft.

Completed well is ☐ shallow ☐ artesian. Test hole Depth to water upon completion of well 245 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by: _____

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad _____ FWL _____ FSL _____

File No. _____ Use _____ Location No. _____

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Company Owner's Well No. CP639 (explorator

Street or Post Office Address Room 401, 4001 Penbrook St.

City and State Odessa, Texas

Well was drilled under Permit No. CP-639 (exploratory) and is located in the: #2 2400'N 1200'W

a. ____ ¼ ____ ¼ ____ ¼ ____ ¼ of Section 20 Township 19S Range 32S N.M.P.M.

b. Tract No. ____ of Map No. ____ of the ____

c. Lot No. ____ of Block No. ____ of the ____

Subdivision, recorded in ____ Lea ____ County.

d. X= ____ feet, Y= ____ feet, N.M. Coordinate System ____ Zone in the ____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM 88240

Drilling Began 2-9-82 Completed 2-10-82 Type tools tri-cone Size of hole 4-3/4 in.

Elevation of land surface or ____ at well is ____ ft. Total depth of well 350 ft.

Completed well is ☐ shallow ☐ artesian. test hole Depth to water upon completion of well 345 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor Phillips Petroleum Company

Address Room 401, 4001 Penbrook, Odessa, Tx 79762

Plugging Method Filled hole from 350' (TD) to surface with sand

Date Well Plugged February 11, 1982

Plugging approved by:

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1	Surface	350'	sand fill
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad ____ FWL ____ FSL ____

File No. ____ Use ____ Location No. ____

From	To	Thickness in Feet	Color and Type of Material Encountered
0	10	10	blow sand
10	20	10	caliche
20	50	30	red sand
50	80	30	red clay
80	85	5	gray clay
85	100	15	red, gray, green clay
100	135	35	red dirt
135	170	35	gray hard clay
170	174	4	red clay & rock
174	235	61	gray hard clay
235	237	2	red clay
237	250	13	gray clay
250	280	30	red bed some gravel
280	310	30	gray rock
310	335	25	white rock red bed
335	350	15	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

Plugging report

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

W. C. Mueller - Sr. Engineering Specialist
Operator: Phillips Petroleum Company

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

K Stubbs (inf)

Revised Ju[illegible]972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Company Owner's Well No. CP-642 (explorato

Street or Post Office Address Room 401, 4001 Penbrook St.

City and State Odessa, TX 79762

Well was drilled under Permit No. CP-642 (Exploratory) and is located in the: #3-450' N 600'E

a. ___ ¼ ___ ¼ ___ ¼ ___ ¼ of Section 25 Township 19S Range 31E N.M.P.M.

b. Tract No. ___ of Map No. ___ of the ___

c. Lot No. ___ of Block No. ___ of the ___

Subdivision, recorded in Eddy County.

d. X= ___ feet, Y= ___ feet, N.M. Coordinate System ___ Zone in the ___ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM

Drilling Began 2-10-82 Completed 2-11-82 Type tools tri-cone Size of hole 4-3/4 in.

Elevation of land surface or ___ at well is ___ ft. Total depth of well 260 ft.

Completed well is ☐ shallow ☐ artesian. test hole Depth to water upon completion of well ~~210~~ 220' ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor Phillips Petroleum Company

Address Room 401, 4001 Penbrook St., Odessa, TX 79762

Plugging Method Sand fill from 260' (TD) to surface

Date Well Plugged February 12, 1982

Plugging approved by:

___

State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1	surface	260	sand fill
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad ___ FWL ___ FSL ___

File No. ___ Use ___ Location No. ___

From	To	in Feet	Color and Type of Material Encountered
0	2	2	blow sand
2	12	10	caliche
12	36	24	sand
36	60	24	caliche
60	94	34	red dirt hard
94	102	8	gray clay & rock
102	114	12	red dirt
114	116	2	gray rock
116	130	14	red bed
130	168	38	gray rock
168	172	4	red bed
172	180	8	gray rock
180	210	30	red bed
210	223	13	gray rock
223	235	12	damp red bed
235	240	5	gray rock
240	260	20	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

Plugging record

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

W. J. Mueller - Sr. Engineering Specialist
Operator: Phillips Petroleum Company

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

R Stubbs (ltrs)

Revised June 1972

STATE ENGINEER OFFICE
WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Company Owner's Well No. CP641 (Explorator
Street or Post Office Address Room 401, 4001 Penbrook St.
City and State Odessa, Texas 79762

Well was drilled under Permit No. CP-641 and is located in the: #4 1600' FNL 1600' FWL

a. ____ ¼ ____ ¼ ____ ¼ ____ ¼ of Section 36 Township 14S Range 31E N.M.P.M.

b. Tract No. ____ of Map No. ____ of the ____

c. Lot No. ____ of Block No. ____ of the ____
Subdivision, recorded in ____ Eddy ____ County.

d. X= ____ feet, Y= ____ feet, N.M. Coordinate System ____ Zone in the ____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM 88240

Drilling Began 2-11-82 Completed 2-12-82 Type tools ____ Size of hole 7 7/8 in.

Elevation of land surface or ____ at well is ____ ft. Total depth of well 300 ft.

Completed well is ☐ shallow ☐ artesian. test hole Depth to water upon completion of well 50/250 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
9½ x 5½	160PVC							
			0	220'				

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor Phillips Petroleum Company
Address Room 401, 4001 Penbrook St., Odessa, TX 79762
Plugging Method Sand fill, CIBP, cement
Date Well Plugged February 13, 1982
Plugging approved by:

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1	120	300	sand fill
2	120'		CIBP
3	110'±	120	1sx reg cement
4	10'	110±	sand fill
Surface		10'	1 sx reg cement

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad ____ FWL ____ FSL ____

From	To	Thickness in Feet	Color and Type of Material Encountered
0	1	1	topsoil
1	2	1	caliche
2	18	16	white sand
18	40	22	brown sand
40	100	60	brown sand & gravel
100	182	82	brown sand gravel
182	200	18	brown clay gravel
200	292	92	brown clay
292	300	8	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

Plugging report

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

W. [illegible] Mueller - Sr. Engineering Specialist
Operator: Phillips Petroleum Company

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Ed L. Reed and Associates, Inc.
Consulting Hydrologists
MIDLAND · CORPUS CHRISTI
TEXAS

ED. L. REED, P.E.
CHAIRMAN OF THE BOARD
A. JOSEPH REED
PRESIDENT
CHESTER F. SKRABACZ
VICE PRESIDENT FIELD OPERATIONS
1109 N. BIG SPRING
MIDLAND, TEXAS 79701
915 682-0556

V. STEVE REED
EXECUTIVE VICE PRESIDENT
OIL INDUSTRIES BLDG.
SUITE 315
723 UPPER N. BROADWAY
CORPUS CHRISTI, TEXAS 78403
512-883-1353

January 24, 1984

Mr. J. W. Maharg
Engineering Director
Permian Basin Region
Phillips Petroleum Company
Odessa, Texas 79762

Re: Ground Water Monitoring Program
Lusk Gasoline Plant Impoundment
Lea County, New Mexico

Dear Mr. Maharg:

This letter presents the information you requested in your letter of January 18, 1984 concerning development of a ground water sampling program for the Lusk Gasoline Plant Impoundment. The information needed are as follows:

a. Optimum monitor well placements.
b. Completion plans for monitor wells.
c. Sampling procedure.

Monitor Well Locations

The basic requirement for the placement of the monitor wells is the positioning of three wells down the hydraulic gradient from the impoundment and at least one well up-gradient from the impoundment. The down-gradient wells will enable sampling of contaminant that may be present in the uppermost aquifer as a result leaching from the impoundment. The up-gradient well will enable sampling of uncontaminated ground water.

The uppermost formation of water-bearing potential consists of Quaternary alluvium fill. This is underlain by red and gray clays of Triassic age.

Fluid movement in the alluvium may be controlled by the topography of the Triassic surface since the alluvium is apparently not saturated. In this area the Triassic surface dips to the southeast at a relatively steep slope of 50 feet per mile.

The proposed locations for the monitor wells are shown on the

attached map. These are based on the anticipated direction of fluid movement which is southeast and on the need to drill the down-gradient wells as close as possible to the impoundment.

Construction Plans

The attached well profile diagram shows the design that is proposed for construction of the monitor wells. We recommend that a 12-inch hole be drilled to a depth of about 15 feet (base of caliche cap) and 8-inch steel casing cemented in place. After the cement has solidified a 6-3/4-inch hole should be air-drilled to the Triassic surface (approximately 50 feet) then the well cased with 4-inch PVC pipe and gravel packed. About 2 feet of clean sand should be placed above the gravel pack and the remainder of the hole cemented to the surface (about 13 feet of cement).

Although we anticipate that the alluvium is mostly unsaturated, care should be taken during the drilling of the 6-inch hole to sample any fluid encountered at regular intervals if possible.

Sampling Procedure

Once the well is constructed it should be developed by pumping or jetting depending on whether enough water is present. Development is complete when the pumped or bailed water is free of mud and sand. At this point a water sample should be collected and properly labeled.

Subsequent sampling of the monitor wells should be done on a regular basis; every three months would be adequate. Before collecting a sample the well should be pumped or bailed so that at least three casing volumes of water are removed. This will ensure that a representative ground water sample is obtained.

If you have any questions concerning this matter please call on us.

Very truly yours,

ED L. REED & ASSOCIATES, INC.

Ed L Reed

Ed L. Reed, P. E.

ELR:lb

File Phill Petro Phill Lusk

PHILLIPS 66
PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

NATURAL RESOURCES GROUP
Exploration and Production

March 8, 1982

Lusk Gasoline ~~Plant~~
Discharge Plan

FROM EID FILE

Mr. Joe D. Ramey
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

We have recently completed the drilling and sampling of four exploratory water wells, near our Lusk Plant facility, to determine if there is a need for groundwater protection in the area near our facility. The following actions were taken to determine this:

1. Information was secured from the State Engineers Office on the redbed depth in a Township area surrounding Lusk Plant.

2. The depth information was contoured by our geological section from which possible troughs and closures in the redbeds were isolated.

3. Four exploratory well locations were spotted where groundwater accumulation was possible. These locations were down dip from the plant and would be most susceptible to contamination from the plant.

4. The four exploratory wells were drilled. Wells #1 through #3 were drilled entirely with air. Well #4 was drilled with water to a depth of 220 feet due to hole condition. At this point casing was set, and the well was completed with air to a depth of 300 feet.

5. The four wells were allowed to stand overnight as there was not enough water upon completion for sampling. At time of sampling there was approximately 15 feet of water in Well #1, 5 feet of water in Well #2, 40 feet of water in Well #3 and 50 feet of water in Well #4.

→ doesn't agree w/ drillers' log, below

Attached are the water analyses and drilling reports from these four wells. From these we do not feel that the subsurface water around Lusk Plant qualifies as "groundwater", per Section 1-101, Part M of the Water Quality Control Regulations, as sufficient amounts of water were not present to be utilized as a water supply.

unproven

It is our interpretation of the Water Control Regulations, Part 3, that if there is no "groundwater" to protect, we are not subject to filing a discharge plan.

If you have any questions regarding this matter, please contact Bob Stubbs at (915) 367-1302.

Very truly yours,

E. E. Clark
Manager, Permian Basin Region

RGS:jj
Attachments

P. O. BOX 1468
MONAHANS, TEXAS 79756
PHONE 943-3234 OR 563-1040

Martin Water Laboratories, Inc

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 282214

TO: Mr. Bob Stubbs
4001 Penbrook, Odessa, Texas

SAMPLE RECEIVED As listed

RESULTS REPORTED 2-18-82

COMPANY Phillips Petroleum Company LEASE Lusk Gas Plnat

FIELD OR POOL Lusk

SECTION ___ BLOCK ___ SURVEY ___ COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:

NO. 1 Recovered water - taken from test hole #1 (approx. 15' water in hole). 2-10-82

NO. 2 Recovered water - taken from test hole #3 (approx. 40' water in hole). 2-10-82

NO. 3 Recovered water - taken from test hole #2 (approx. 5' water in hole). 2-12-82

NO. 4 Recovered water - taken from test hole #4 (approximately 50' water in hole). 2-13-82

REMARKS: Samples taken by Robert C. Middleton, Martin Water Labs., Inc

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0020	1.0012	1.0045	1.0016
pH When Sampled				
pH When Received	7.96	7.82	7.99	7.54
Bicarbonate as HCO_3	224	229	181	259
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	350	244	2,300	356
Calcium as Ca	62	54	560	82
Magnesium as Mg	47	26	219	36
Sodium and/or Potassium	131	26	296	43
Sulfate as SO_4	371	61	2,588	157
Chloride as Cl	45	34	75	51
Iron as Fe	0.50	5.7	0.63	0.17
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	880	430	3,919	628
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0	0.0	0.0	0.0
Resistivity, ohms/m at 77° F.	8.90	19.50	2.00	13.50
Suspended Oil	Hole #1	Hole #3	Hole #2	Hole #4
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

By _____

Waylan C. Martin, M. A.

P. O. BOX 1468
MONAHANS, TEXAS 79756
PHONE 943-3234 OR 563-1040

Martin Water Laboratories, Inc

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 282216

TO: Mr. Bob Stubbs
4001 Penbrook, Odessa, Texas

SAMPLE RECEIVED 2-12-82
RESULTS REPORTED 2-18-82

COMPANY Phillips Petroleum Company LEASE Lusk Gas Plant
FIELD OR POOL Lusk
SECTION ___ BLOCK ___ SURVEY ___ COUNTY Eddy STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:
NO. 1 Raw water - taken from water tank @ plant. 2-12-82
NO. 2
NO. 3
NO. 4
REMARKS: Water used to drill test hole #4

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0010			
pH When Sampled				
pH When Received	8.19			
Bicarbonate as HCO_3	181			
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	214			
Calcium as Ca	67			
Magnesium as Mg	11			
Sodium and/or Potassium	27			
Sulfate as SO_4	26			
Chloride as Cl	57			
Iron as Fe	0.11			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	379			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	19.95			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Carbonate, as CO_3	10			

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

By Waylan C. Martin

Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, TExas

Laboratory No. 282215
Sample received 2-10-82
Results reported 2-18-82

Company: Phillips Petroleum Company

County: Lea, NM

Lease: Lusk Gas Plant

Subject: To make determinations listed on water from test hole #1. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. on 2-10-82

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadium, as Cd	0.00
Chromium, as Cr	0.04
Cyanide, as CN	0.0
Fluoride, as F	1.2
Lead, Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	1.1
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	45
Copper, as Cu	0.00
Iron, as Fe	0.50
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	371

DETERMINATION	MG/L
Total Dissolved Solids	794
Zinc, as Zn	0.00
pH	7.96

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

WATER CONSULTANTS SINCE 1953

BACTERIAL AND CHEMICAL ANALYSES

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282219
Sample received 2-12-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea, NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water from test hole #2. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. 2-12-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.04
Cyanide, as CN	0.0
Fluoride, as F	0.8
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	3.4
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	75
Copper, as Cu	0.00
Iron, as Fe	0.63
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	2,588

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	4,426
Zinc, as Zn	0.00
pH	7.99

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH: 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

WATER CONSULTANTS SINCE 1953

BACTERIAL AND CHEMICAL ANALYSES

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282218
Sample received 2-10-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea, NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water from test hole #3. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. 2-10-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.04
Cyanide, as CN	0.0
Fluoride, as F	0.8
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	5.7
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	34
Copper, as Cu	0.00
Iron, as Fe	5.7
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	61

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	420
Zinc, as Zn	0.00
pH	7.82

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282217
Sample received 2-13-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea,NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water form test hole #4. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. on 2-13-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.02
Cyanide, as CN	0.0
Fluoride, as F	1.0
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	3.4
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	51
Copper, as Cu	0.00
Iron, as Fe	0.17
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	157

Laboratory No. 28221

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	598
Zinc, as Zn	0.00
pH	7.54

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282220
Sample received 2-12-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea, NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water from storage tank @ plant (used to drill test hole #4). Sample taken by Robert C. Middleton, Martin Water Labs., Inc. on 2-12-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.02
Cyanide, as CN	0.0
Fluoride, as F	0.4
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	3.4
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	57
Copper, as Cu	0.00
Iron, as Fe	0.11
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	26

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	348
Zinc, as Zn	0.00
pH	8.19

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Marvin Stevenson
4001 Penbrook
Odessa, Texas

Laboratory No. 1281890
Sample received 12-7-81
Results reported 12-14-81

Company: Phillips Petroleum Company

Project: Lusk Plant in Eddy County, NM

Subject: To make determinations listed on waste water from disposal pit. Sampled by James C. Powell, Martin Water Labs., Inc. on 12-7-81.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	16.2
Cyanide, as CN	0.7
Fluoride, as F	4.0
Lead, as Pb	1.0
Total Mercury, as Hg	0.000
Nitrate, as N	6.8
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	522
Copper, as Cu	0.00
Iron, as Fe	0.04
Manganese, as Mn	0.00
Phenols	0.5
Sulfate, as SO_4	896

DETERMINATION	MG/L
Total Dissolved Solids	2,840
Zinc, as Zn	1.50
pH	7.9

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Revised June 1972

STATE ENGINEER OFFICE
WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Owner's Well No. _____

Street or Post Office Address P.O. Box 2130

City and State Hobbs, NM 88240

Well was drilled under Permit No. _____ and is located in the: #1 1200'N 300'E

a. ____ ¼ ____ ¼ ____ ¼ ____ ¼ of Section 19 Township 19S Range ~~32E~~ 38E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____

Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM 88240

Drilling Began 2-8-82 Completed 2-9 82 Type tools tri-cone Size of hole 4 3/4 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 260 ft.

Completed well is ☐ shallow ☐ artesian. test hole Depth to water upon completion of well 102 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by: _____

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad _____ FWL _____ FSL _____

File No. _____ Use _____ Location No. _____

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	4	4	blow sand
4	10	6	caliche
10	30	20	sand
30	52	22	sand & gravel
52	60	8	red bed R
60	61	1	clay gray
61	105	44	red bed ← depth of water - 102'
105	115		gray clay & rock
115	117	2	sand black rock
117	152	35	gray clay & rock
152	162	10	red clay
162	230	68	red clay layers of gray & brown dry clay
230	240	10	red clay
240	244	4	gray green clay
244	260	16	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

J. Mike Jackson
Jackson Drilling
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Owner's Well No. _____

Street or Post Office Address P. O. Box 2130

City and State Hobbs, NM 88240

Well was drilled under Permit No. TEST HOLE FOR EPA for EPA #1 and is located in the: #2 ~~1220'N 300'E~~ 2400'N / 200'W

a. ____ ¼ ____ ¼ ____ ¼ ____ ¼ of Section 20 Township 19S Range 32E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____

Subdivision, recorded in _____ Lea _____ County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM 88240

Drilling Began 2-9-82 Completed 2-10-82 Type tools tri-cone Size of hole 4 3/4 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 350 / 345 ft.

Completed well is ☐ shallow ☐ artesian. Test hole Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad _____ FWL _____ FSL _____

File No. _____ Use _____ Location No. _____

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	10	10	blow sand
10	20	10	caliche
20	50	30	red sand
50	80	30	red clay
80	85	5	gray clay
85	100	15	red, gray, green clay
100	135	35	red dirt
135	170	35	gray hard clay
170	174	4	red clay & rock
174	235	61	gray hard clay
235	237	2	red clay
237	250	13	gray clay
250	280	30	red bed some gravel
280	310	30	gray rock
310	335	25	white rock red bed
335	350	15	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Larry Dickens
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Owner's Well No. _____

Street or Post Office Address P.O. Box 2130

City and State Hobbs, NM 88240

Well was drilled under Permit No. TEST HOLE FOR EPA and is located in the 33-450' N 600' E

a. ____ ¼ ____ ¼ ____ ¼ ____ ¼ of Section 25 Township 19S Range 31E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____

Subdivision, recorded in Eddy County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD881

Address 2601 W. Bender Hobbs, NM

Drilling Began 2-10-82 Completed 2-11-82 Type tools tri-cone Size of hole 4 3/4 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 250 ft.

Completed well is ☐ shallow ☐ artesian. test hole Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____ State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad _____ FWL _____ FSL _____

File No. _____ Use _____ Location No. _____

Section 6. LOG OF HOLE

Depth in Feet From	To	Thickness in Feet	Color and Type of Material Encountered
0	2	2	blow sand
2	12	10	caliche
12	36	24	sand
36	60	24	caliche
60	94	34	red dirt hard
94	102	8	gray clay & rock
102	114	12	red dirt
114	116		gray rock
116	130	14	red bed
130	168	38	gray rock
168	172	4	red bed
172	180	8	gray rock
180	210	30	red bed
210	223	13	gray rock
223	235	12	damp red bed
235	240	5	gray rock
240	260	20	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Jerry Tibbetts
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Owner's Well No. _____

Street or Post Office Address P.O. Box 2130

City and State Hobbs, NM 88240

Well was drilled under Permit No. TEST HOLE FOR EPA and is located in the #4 1600' FNL 1600' FWL

a. ____ ¼ ____ ¼ ____ ¼ ____ ¼ of Section 36 Township 19S Range 31E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____

Subdivision, recorded in Eddy County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Lacey's Drilling License No. WD822

Address 2607 W. Bender Hobbs, NM 88240

Drilling Began 2-11-82 Completed 2-18-82 Type tools Cable-tools Size hole 6-220'-7 7/8 220-300 4 3/4

Elevation of land surface or _____ at well is _____ ft. Total depth of well 300 ft.

Completed well is ☐ shallow ☐ artesian dust hole Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
4½	160PVC		220	300	80	STATE	40	80
			0	220'	WITH			
				OK				

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by: _____

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad _____ FWL _____ FSL _____

File No. _____ Use _____ Location No. _____

Section 6. LOG OF HOLE

Depth in Feet From	To	Thickness in Feet	Color and [redacted] of Material Encountered
0	1	1	topsoil
1	2	1	caliche
2	18	16	white sand
18	40	22	brown sand
40	100	60	brown sand & gravel
100	182	82	brown sand gravel
182	200	18	brown clay gravel
200	292	92	brown clay
292	300	8	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Larry Gibson
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Attachment V

Water Analysis Summary

	Ground Water Sampling Well #1	Ground Water Sampling Well #2	Ground Water Sampling Well #3	Ground Water Sampling Well #4	Impoundment Water
Calcium	482	270	334	410	528
Magnesium	None	None	200	33	80
Sodium (Calc.)	225	417	117	399	331
Hydroxide	19	263	None	14	None
Carbonate	151	48	16	29	None
BiCarbonate	None	None	944	None	81
Sulfate	947	84	87	1055	1251
Chloride	284	454	723	596	709
Phenols	less than .001	.084	.131	.005	less than .001
Total Dissolved Solids (Calc.)	2108	1536	1949	2536	2939
Total Hardness (CaCo3)	1204	676	1660	1160	1650
pH	10.67	11.38	9.35	10.45	7.45

Attachment V

119904

SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue [915 - 683-3348] • P.O. Box 2150 • Midland, Texas 79701

File No. C-1950-W
Customer No. 3355796
Report No. 35463

Report Date 5-21-84

Report of tests on: Water

Date Received 5-10-84

Client: Phillips Petroleum Company

Identification: Lusk Plant Pit

		mg/L
Calcium		528
Magnesium		80
Sodium (Calc.)		331
Carbonate		None
Bicarbonate		81
Sulfate		1251
Chloride		709
Phenols	Less Than	0.001
Total Dissolved Solids (Calc.)		2939
Total Hardness (as $CaCO_3$)		1650
pH	7.45	

Technician: KLH,SAM

Copies 3 cc: Phillips Petroleum Company
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

SwL SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

File No. C-1950-W
Customer No. 3355796
Report No. 35344
Report Date 4-9-84

Report of tests on: Water
Date Received 4-3-84

Client: Phillips Petroleum Company

Identification: Lusk Plant, Monitor Well No. 1 Composite, Sampled 4-2-84 by Mike Ford

	mg/L
Calcium	482
Magnesium	None
Sodium (Calc.)	225
Hydroxide	19
Carbonate	151
Bicarbonate	None
Sulfate	947
Chloride	284
Phenols	Less Than 0.001
Total Dissolved Solids (Calc.)	2108
Total Hardness (as $CaCO_3$)	1204
pH	10.67

Technician: KLH, SAM

Copies 3 cc: Phillips Petroleum Company
Attn: Mike Ford

SOUTHWESTERN LABORATORIES
Gary M. Bunch

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1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

File No. C-1950-W
Customer No. 3355796
Report No. 35345

Report Date 4-9-84

ort of tests on: Water

Date Received 4-3-84

nt: Phillips Petroleum Company

tification: Lusk Plant, Monitor Well No. 2 Composite, Sampled 4-2-84 by Mike Ford

	mg/L
Calcium	270
Magnesium	None
Sodium (Calc.)	417
Hydroxide	263
Carbonate	48
Bicarbonate	None
Sulfate	84
Chloride	454
Phenols	0.084
Total Dissolved Solids (Calc.)	1536
Total Hardness (as $CaCO_3$)	676
pH	11.38

nician: KLH, SAM

es 3 cc: Phillips Petroleum Company
Attn: Mike Ford

SOUTHWESTERN LABORATORIES
Gary M. Bunch

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1703 W. Industrial Avenue (915-683-3348) • P.O. Box 2150 • Midland, Texas 79701

File No. C-1950-W
Customer No. 3355796
Report No. 35346

Report Date 4-9-84

Report of tests on: Water

Date Received: 4-3-84

Client: Phillips Petroleum Company

Identification: Lusk Plant, Monitor Well No. 3 Composite, Sampled 4-2-84 by Mike Ford

	mg/L
Calcium	334
Magnesium	200
Sodium (Calc.)	117
Hydroxide	None
Carbonate	16
Bicarbonate	944
Sulfate	87
Chloride	723
Phenols	0.131
Total Dissolved Solids (Calc.)	1949
Total Hardness (as $CaCO_3$)	1660
pH	9.35

Technician: KLH, SAM

Copies 3 cc: Phillips Petroleum Company
Attn: Mike Ford

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1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

File No. C-1950-W
Customer No. 3355796
Report No. 35347
Report Date 4-9-84
Date Received 4-3-84

Report of tests on: Water

Client: Phillips Petroleum Company

Identification: Lusk Plant, Monitor Well No. 4 Composite, Sampled 4-2-84 by Mike Ford

	mg/L
Calcium	410
Magnesium	33
Sodium (Calc.)	399
Hydroxide	14
Carbonate	29
Bicarbonate	None
Sulfate	1055
Chloride	596
Phenols	0.005
Total Dissolved Solids (Calc.)	2536
Total Hardness (as $CaCO_3$)	1160
pH	10.45

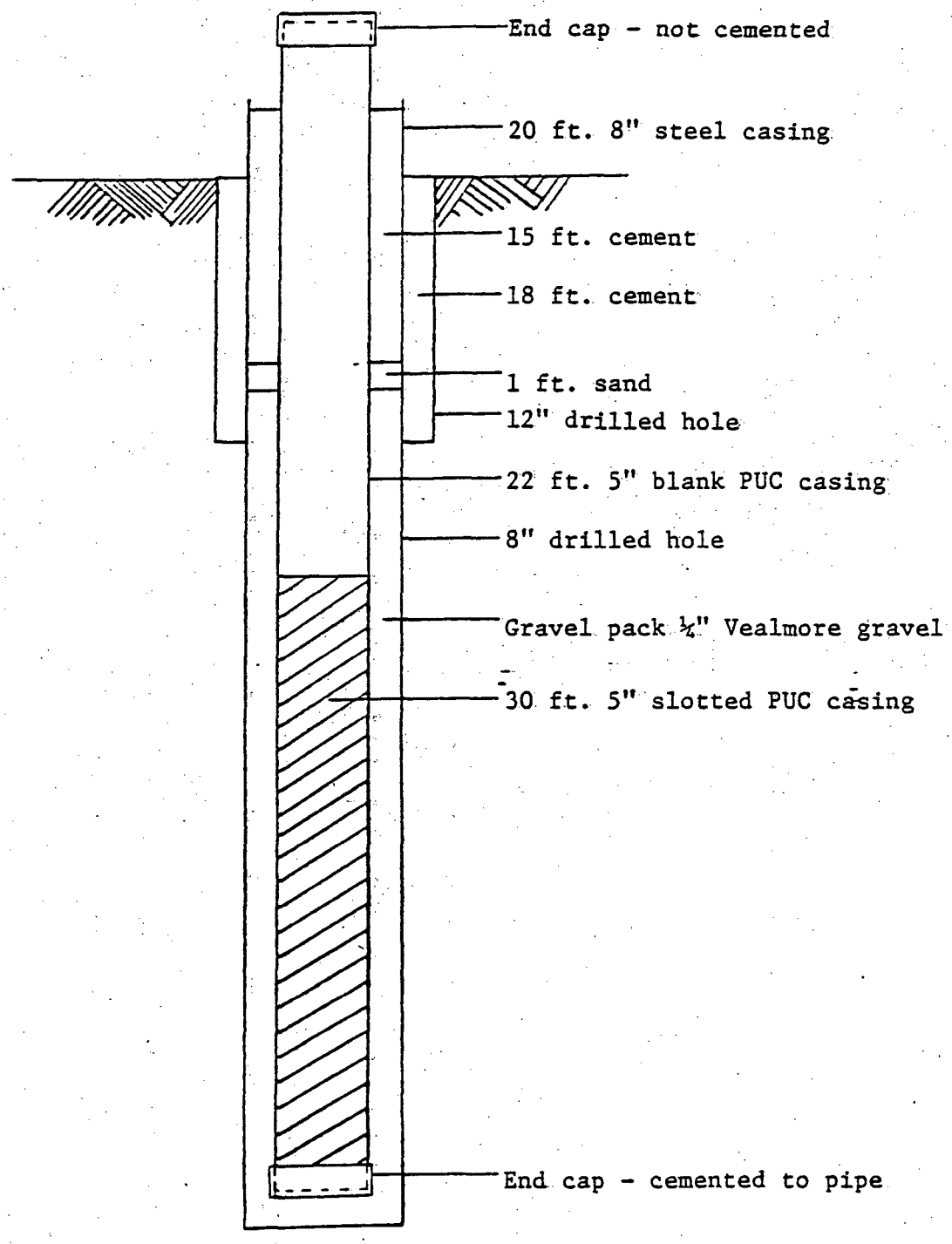
Technician: KLH, SAM

Copies 3 cc: Phillips Petroleum Company
Attn: Mike Ford

SOUTHWESTERN LABORATORIES
Gary M. Burch

Attachment VI

Lusk Gasoline Plant
Groundwater Sampling Well #1



THE LOFTIS COMPANY
P. O. BOX 7847
MIDLAND, TEXAS 79701

COMPANY: Phillips Oil Company

DATE March 30, 1984

ORDER NO. Contract No. 0-415

LOCATION Lusk Gasoline Plant,

COUNTY: Lea STATE NM

PROPOSED USE Monitor Well #1

DIAMETER 8"

DEPTH 50'

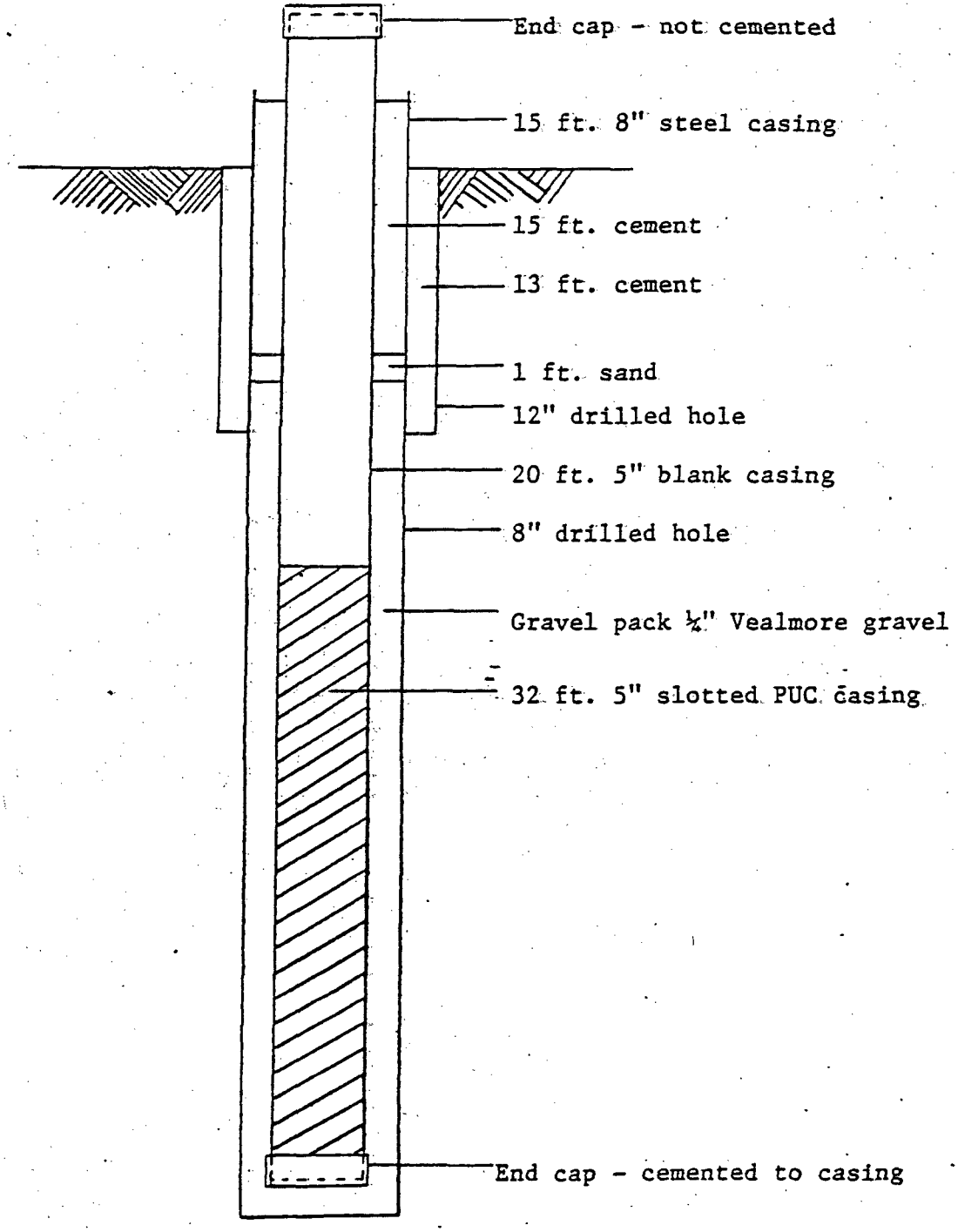
Top of water 40'

DEPTH FT.	DRILLER'S LOG
10	surface sand
20	caliche
30	sand
40	water sand & clay
50	sandy clay
60	
70	
80	
90	
100	
110	
120	
130	
140	
150	
160	
170	
180	
190	
200	
210	
220	
230	
240	
250	
260	
270	
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	
380	
390	
400	

DRILLER Roger Smith

Roger Smith

Lusk Gasoline Plant
Groundwater Sampling Well #2



THE LOFTIS COMPANY
P. O. BOX 7847
MIDLAND, TEXAS 79701

COMPANY: Phillips Oil Company

DATE March 30, 1984

ORDER NO. Contract No. 0-415

LOCATION Lusk Gasoline Plant,

COUNTY: Lea STATE NM

PROPOSED USE Monitor Well #2
DIAMETER 8"
DEPTH 50'

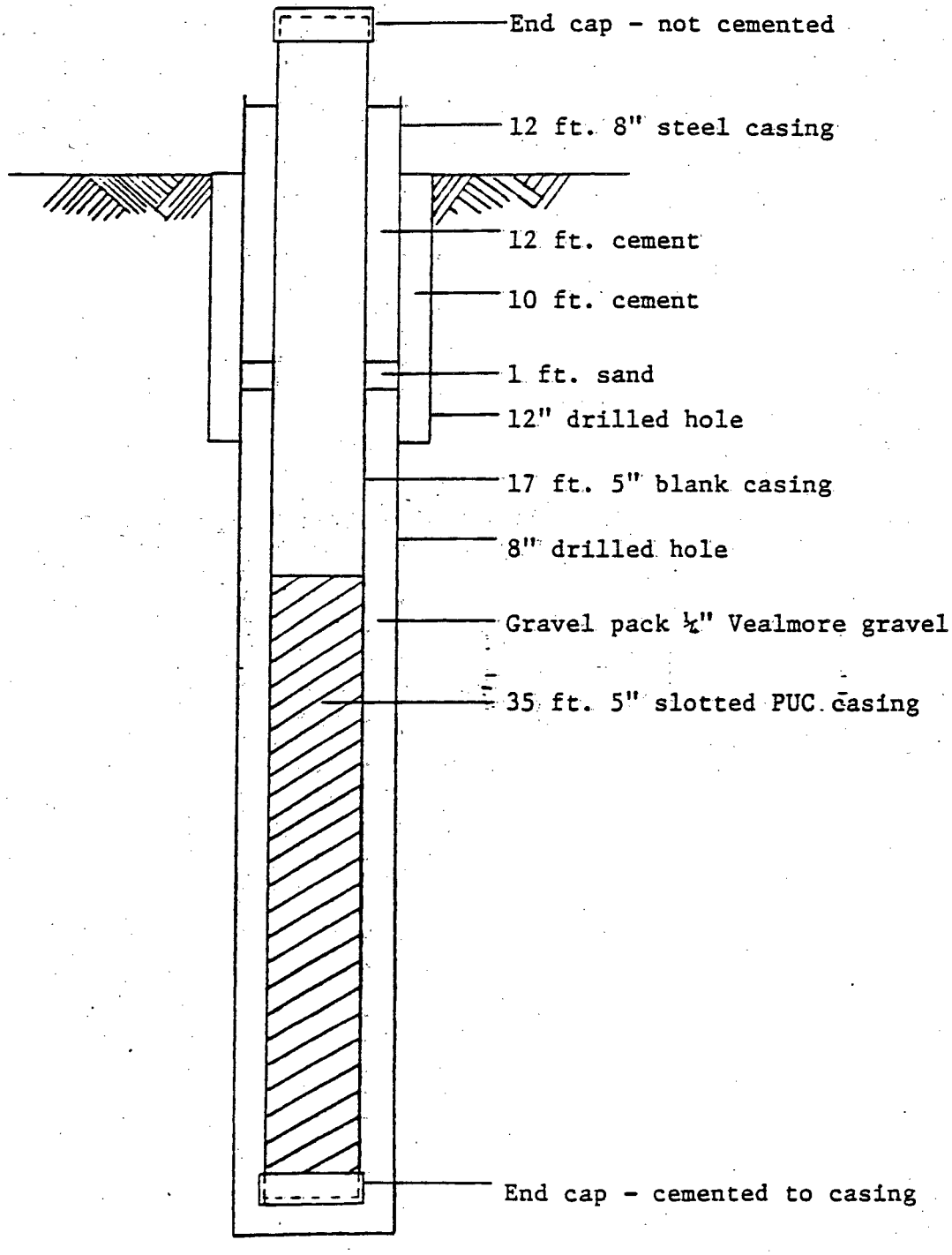
Top of water 42'

DEPTH FT.	DRILLER'S LOG
10	surface sand
20	caliche, & sand
30	clay, water sand
40	sand
50	sandy clay
60	
70	
80	
90	
100	
110	
120	
130	
140	
150	
160	
170	
180	
190	
200	
210	
220	
230	
240	
250	
260	
270	
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	
380	
390	
400	

DRILLER Roger Smith

Roger Smith

Lusk Gasoline Plant
Groundwater Sampling Well #3



THE LOFTIS COMPANY
P. O. BOX 7847
MIDLAND, TEXAS 79701

COMPANY: Phillips Oil Company

DATE March 30, 1984

ORDER NO. Contract No. 0-415

LOCATION Lusk Gasoline Plant,

COUNTY: Lea STATE NM

PROPOSED USE Monitor Well #3

DIAMETER 8"

DEPTH 50'

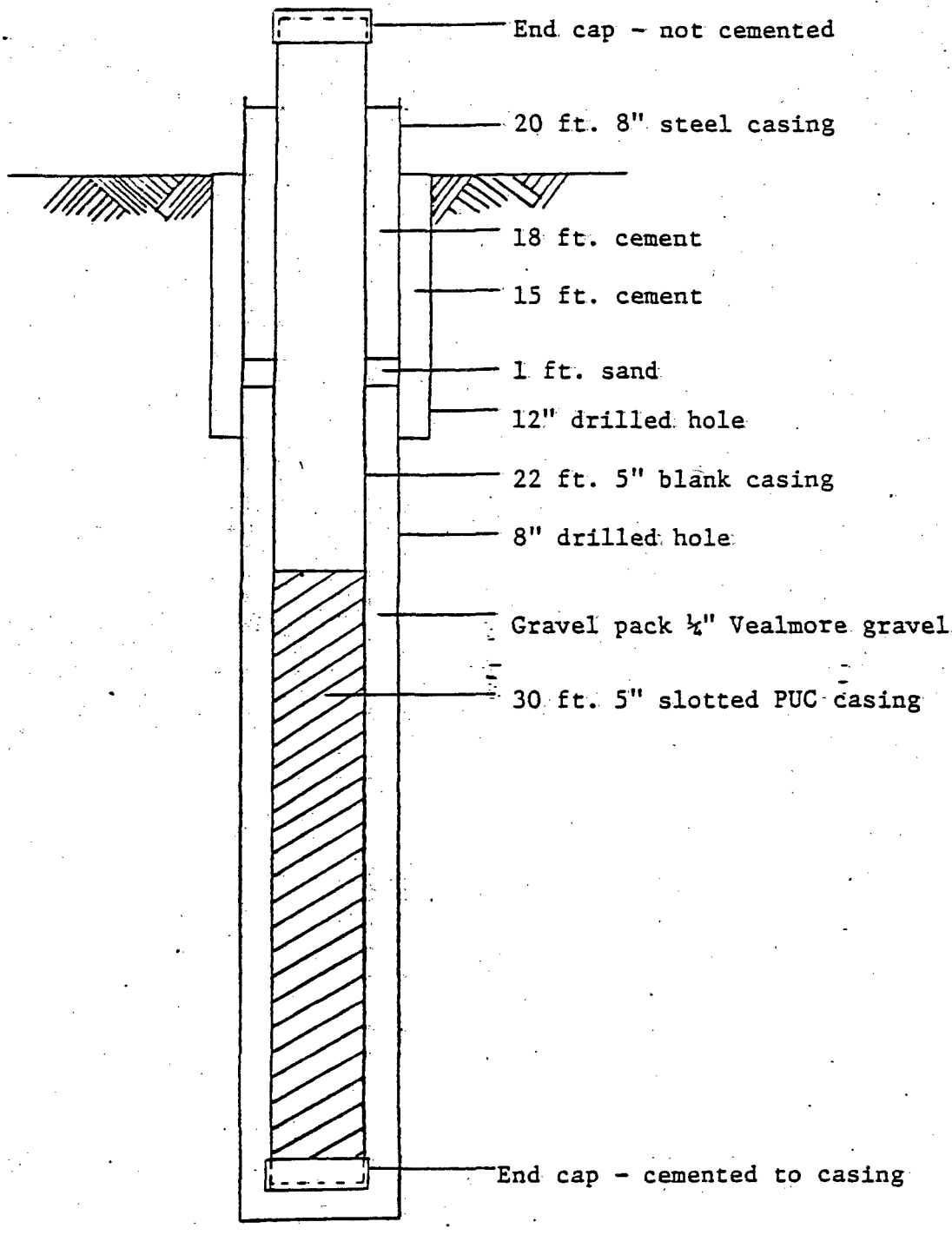
Top of water 38'

DEPTH FT.	DRILLER'S LOG
10	surface sand
20	caliche
30	water sand
40	clay
50	sand
60	
70	
80	
90	
100	
110	
120	
130	
140	
150	
160	
170	
180	
190	
200	
210	
220	
230	
240	
250	
260	
270	
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	
380	
390	
400	

DRILLER Roger Smith

Roger Smith

Lusk Gasoline Plant
Groundwater Sampling Well #4



THE LOFTIS COMPANY
P. O. BOX 7847
MIDLAND, TEXAS 79701

COMPANY: Phillips Oil Company

DATE March 30, 1984

ORDER NO. Contract No.0-415

LOCATION Lusk Gasoline Plant,

COUNTY: Lea STATE NM

PROPOSED USE Monitor Well #4

DIAMETER 8"

DEPTH 50'

Top of water 37'

DEPTH FT.	DRILLER'S LOG
10	surface sand
20	caliche, sand
30	red clay
40	water sand
50	sandy clay
60	
70	
80	
90	
100	
110	
120	
130	
140	
150	
160	
170	
180	
190	
200	
210	
220	
230	
240	
250	
260	
270	
280	
290	
300	
310	
320	
330	
340	
350	
360	
370	
380	
390	
400	

DRILLER Roger Smith

Roger Smith

Memo: to Peter Pache
from Greg Mello 9/21/84
re Phillips-Lusk gw monitoring and closure

FROM EID FILE

Ann's 9/14 memo was appropriate, and flagged a potential problem at Phillips-Lusk. It also points up the need for careful reviews, done without rushing, for all our facilities. To sum up, my concern at Lusk is that their monitoring may have missed the main slug of chromium-laden water, which may have passed their shallow wells long ago. A less-likely scenario is that Cr levels have not yet peaked in their wells. Neither of these scenarios is a priori "likely", in fact, but both are possible. A third possibility is one of a gradual elution of Cr from their pond sludges by their percolating effluent, at levels relevant to public health.

The gw situation at Lusk is fairly simple, overall. A dry alluvium (normally-dry alluvium) overlies Triassic redbeds at the plant. The alluvium is basically sand, silt and caliche, with probably some clayey lenses where wallows, sinkholes, etc. have existed in the past. It has heterogeneous hydraulic properties, and would be dry if Lusk plant wasn't there. The Lusk plant takes Ogalalla water from 20 miles to the east, concentrates the salts, and discharges over half of what's left to the alluvium. This makes a mound beneath the pond, probably with perched zones, conduits through cracks in the caliche, with the water running downslope on top of the redbeds and to some extent infiltrating (recharging) the redbeds, with this recharge especially likely if deep-seated collapse features (in the underlying salt beds) are locally present. These are ~~suspected~~ known to be present throughout the area, although they are obscured by the aeolian sands.

Probably all of the Lusk monitoring wells are downgradient from the pond. The observed "weirdness" of the gradient data is due to 1) all measurements being on the slopes of a mound, 2) the heterogeneity of the Qal sediments, 3) the unevenness of the Tr surface, and 4) the varying permeability (and therefore recharge) of the Tr rock. They correctly interpret regional geology but this is not locally relevant.

If the geology were better known, and if it were uniform, the shape of the mound could be predicted. As it is, the mound shape could only be ascertained directly.

It should be said that water occurs in the Qal in and probably near Laguna Plata, a playa 4 mi. to the SE. The Tr rocks are exposed in the (collapse) wall of this feature, and springs emerge from them.

Cr^{+6} discharge was discontinued 12/82, just before the 1/83 deadline for post-closure permits. Probably all the Cr^{+6}, or nearly all, was reduced to Cr^{+3} and precipitated by 1/83; the conc. of Cr^{+6} was only 3.2 mg/l at the time of Cr discontinuance; this accounted for all the dissolved chromium, to two sig. digits. The wastewater itself, if we believe them, was only 5.02 mg/l total chromium, based on a 12/20/79 sample. So they have almost proven that no HW was present by 1/26/83.[2] So their gw monitoring (never done), closure, and post-closure are all 206.C. standards.

They have almost proven that no HW exists beneath the impoundment. The highest levels they found — about 7 $\times 10^{-2}$ mg/l — are about one-seventieth of the EP-tox level. This level does not appear to have public health significance, if it is Cr^{+3}.[1] Any Cr^{+6} probably has health significance. I believe that if a Eh-pH diagram were located or drawn (I don't know how to do this) for Cr spp. in gw, it would show that Cr^{+6} is not at all stable under any foreseeable gw conditions in the area. This should be checked. (One is attached).

[1] Concentrations Toxic to Plants, Animals & Man, GS Bull. 1466.

2. They didn't sample the sludge at that time, but for us to assert that the sludge was EP-toxic is impossible.

Lusk has been infiltrating ~ 4 gpm for 20 years, or 4.2×10^7 gallons in all, capable of saturating roughly 2.25×10^7 ft^3 @ 25% porosity, if the Qal was initially totally dry, no infiltration has occurred, and no leakage through the Tr rocks has occurred. Probably all these assumptions are more-or-less false, but this gives a general idea of the volume involved. The area of the pond is 37,500 ft^2.

The total amount of Cr. is uncertain. In the last years before discontinuance, 210 kg/yr of Cr were discharged; before this there are no records. Cr was discharged for 16 years. As a guess, then, 3360 kg Cr ± ? were discharged. If rough calculations are made, based on their soil and sludge analyses, one sees that a great deal of this Cr is very shallowly held, as chromic hydroxide probably:

3480 m^2 × 0.1 meter @ 3500 ppm Cr ⟶ (about) 2430 kg Cr (± a large number)

However, to raise the [Cr] from the presumed background of 0.04 mg/ℓ to 0.07 mg/ℓ in the above 4.2×10^7 gal of water requires only 48 kg of soluble Cr.

Note that the water they sampled may be in fairly rapid flux, since the mound will have "steep" sides. When the water sampled left the pond, we don't know, however.

Some further details are found in the attached work sheets.

The regulatory questions can now be addressed. Have they shown no HW present? To a high confidence limit, yes; to "beyond all reasonable doubt", perhaps not. Note that the Cr levels in the wells are roughly proportional to their distance from the pond, i.e. to the presumptive length of time the pond water has taken to reach them. Is water over 5 mg/ℓ Cr going to be found farther out, or deeper? It is very unlikely, because:

1) The pond water itself is < 0.2 mg/ℓ and is in equilibrium w/ 3500 ppm Cr sludge
2) The original wastewater was probably only barely EP-toxic
3) It is very doubtful that Cr is soluble to 5 mg/ℓ in groundwater because Cr^{+6} will be reduced (quickly?). Data in The Hydrolysis of Cations, Baes & Mesmer, suggest that @ pH = 8, chromic oxide dissolves mostly as $Cr(OH)_2^+$, with a total concentration of all hydrolyzed species of less than 10^{-5} M. This is equivalent to roughly 0.5 mg/ℓ Cr. I am not sure that this is the only solubility info that is relevant, though.

   However, this same text says that SO_4^{-2} complexes with Cr^{+3}, which could greatly increase solubility of Cr^{+3}. Another paper, unavailable from Pat L., shows that soils with active microorganisms and manganese (which includes most moist soils) can oxidize Cr^{+3} to Cr^{+6}. In fact, Pat L. has several interesting papers on the complex (pun) world of Cr in the soils.

   The fact that we do not now see Cr complexed to anywhere near an EP-tox level means that we are unlikely to ever see it so complexed w/o massive additions of NH_3, EDTA, etc. to the pond.

   Adsorption of Cr^{+3} complicates the issue. Cr^{+6} is usually (?) anionic and is not much sorbed. Complexed Cr^{+3} would presumably sorb much less well than "naked" Cr^{+3}.

We could require them to better demonstrate that HW is not present, but our case would be very tenuous. Better would be to send them an NOV on gw monitoring — they have done none of the required monitoring — and force them to do what we want in a settlement conference. We cannot, to repeat, get them to do further monitoring as part of a closure plan acceptance, I don't think.

The unfortunate part is that EPA, and to a lesser extent, EID, have led them to believe they may merely close to meet their regulatory requirements. No one has mentioned a gw monitoring problem since 1982.

Is there an environmental problem? We don't know because we don't know if Cr^{+6} is present. Cr^{+3} in gw will not change to Cr^{+6}; the levels of Cr found so far are not worth bothering with if they are Cr^{+3}, which is by far the most likely case.

What to do? I am unsure.

① Cadillac version: have them do the following:
a. map the redbed surface (how? very unclear to me that it could be done geophysically w/gw interference)
b. map the mound/plume (cheaply done with induced electromagnetic techniques)
c. determine local gw gradient from this map
b½. Areal extent of mound could be done by b.; depth by seismic methods? — not really because of caliche interference. Difficult problem.
d. select one or more gw sampling locations and sample both old and young gwaters over time for: i. wq. parameters to establish chemistry
ii. [Cr] total and $[Cr^{+6}]$
iii. organic electron-acceptor scan on selected samples.
e. sample pond sludge for organics as in d. iii.

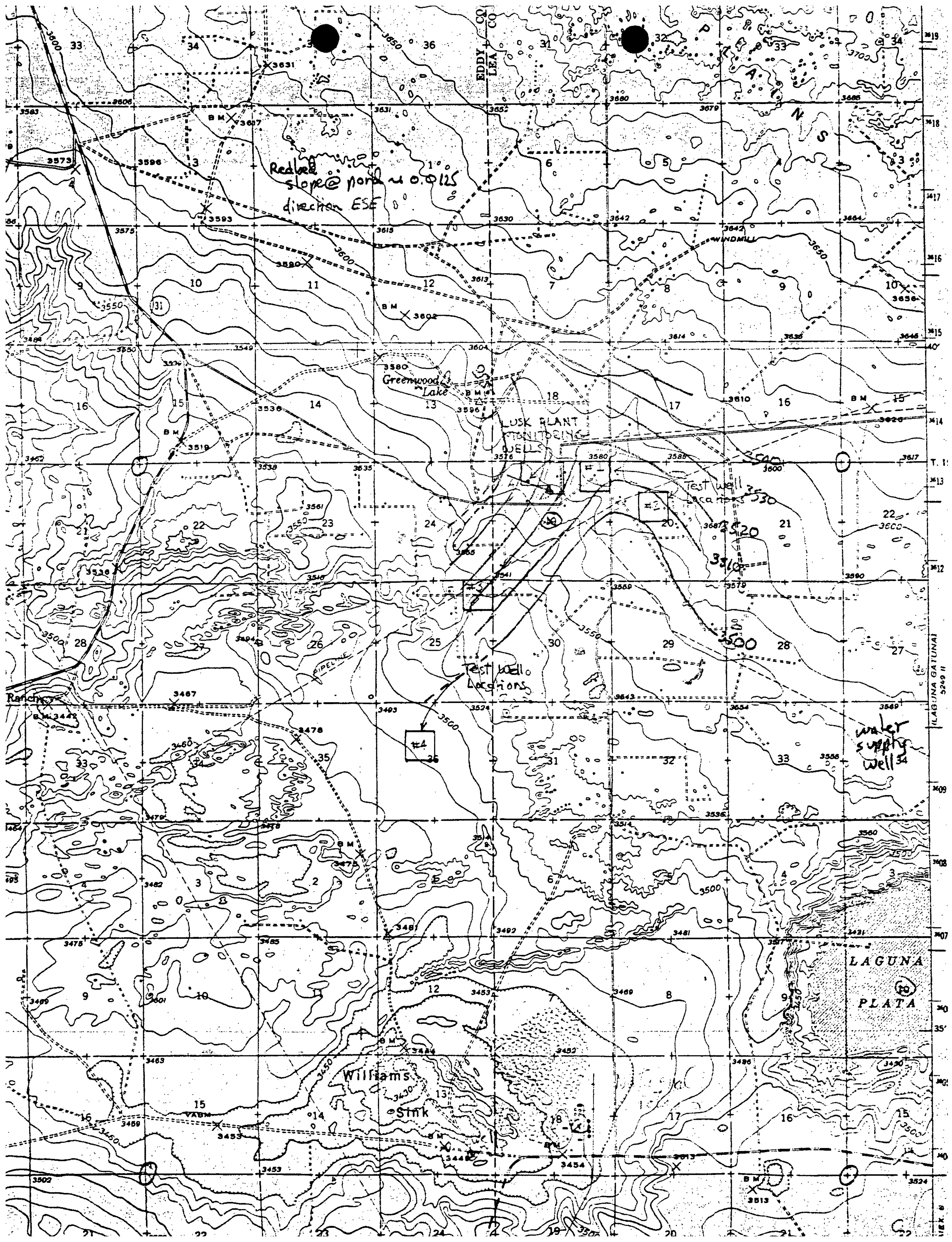
② Drill a monit. well some distance (500' away) all the way to the redbed; provide discrete screened intervals which can be isolated with a movable packer & sampled. The deeper waters will be older. Sample this well and the other four for a year.

③ Sample the existing wells quarterly for a year, for i., ii., & initially for iii. EID split on 1st sample.

gm choice ✱

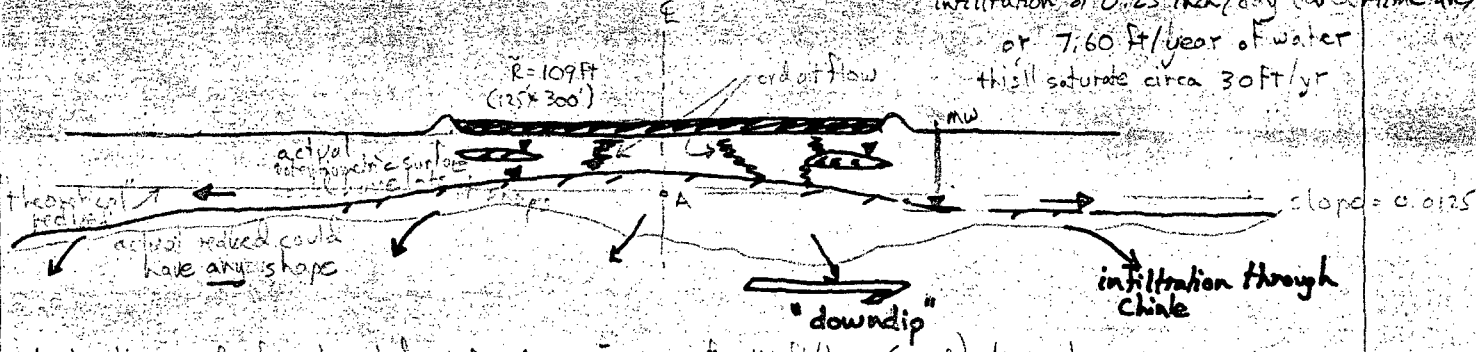
I think we should write them an NOV on their gw monitoring under 206.C.1. We should just flat-out say that we are not interested in TOC or TOX, and we are interested in [Cr] total and $[Cr^{+6}]$. Then we should split with them on the 1st sample, and analyze ours for [Cr] total, $[Cr^{+6}]$, organic electron-acceptor scan and perhaps also hunt for aromatics, and perhaps do the rest of the chemistry too. Then if all goes well we should just let them close in a year. This will really answer all our questions. If Cr^{+6} is detected, then further action — probably under WQCC regs by Dave Boyer — must be taken. If Cr^{+3} levels are unstable, then let 'em close.

④ Analyze once in four wells for Cr^{+6} (EID split) and organic solvents, total Cr, genrl chemistry


EDDY CO
LEA CO
PLAINS
Redbed slope @ north ~ 0.0125
direction ESE
WINDMILL
Greenwood Lake
LUSK PLANT MONITORING WELLS
#1
#2
Test well Locations
#3
PIPELINE
Test Well Locations
#4
Ranch
water supply well
LAGUNA GATUNA
LAGUNA PLATA
Williams Sink

Section AA': along redbed dip (ESE)

infiltration of 0.25 inch/day (area-time ave)
or 7.60 ft/year of water
this'll saturate circa 30 ft/yr



hydraulic grad if saturated @ A = 1 ⇒ $\bar{v}_{vertical}$ of 110 ft/day (sand) down to 0.11 ft/day (silt) (i.e. 3.3 ft/month or 40 ft/yr)

Note reasonable order of magnitude agreement between infiltration average of 30 ft/yr and saturated average vertical velocity of ~40 ft/yr in silt, higher in sands. We do not have saturated flow except perhaps in conduits.

Total H_2O percolated is 5.62×10^6 ft^3, capable of saturating circa 20.5×10^6 ft^3 of soil.

Lusk Test Holes and Monitoring Wells

Test holes	[Cr]	TDS	date sampled	wellhead elev	redbed elev	expected redbed depth	actual redbed ①
#1	0.04 mg/l	794 mg/l	2/82	3580±5 ft	3525±10 ft	55±15	52?
2	0.02	598	2/82	3575	3507±10	68	50?
3	0.04	420	2/82	3530	3520±10	10	60? ②
4	0.04	4,426	2/82	3492	3490±20	2±25	292? ③

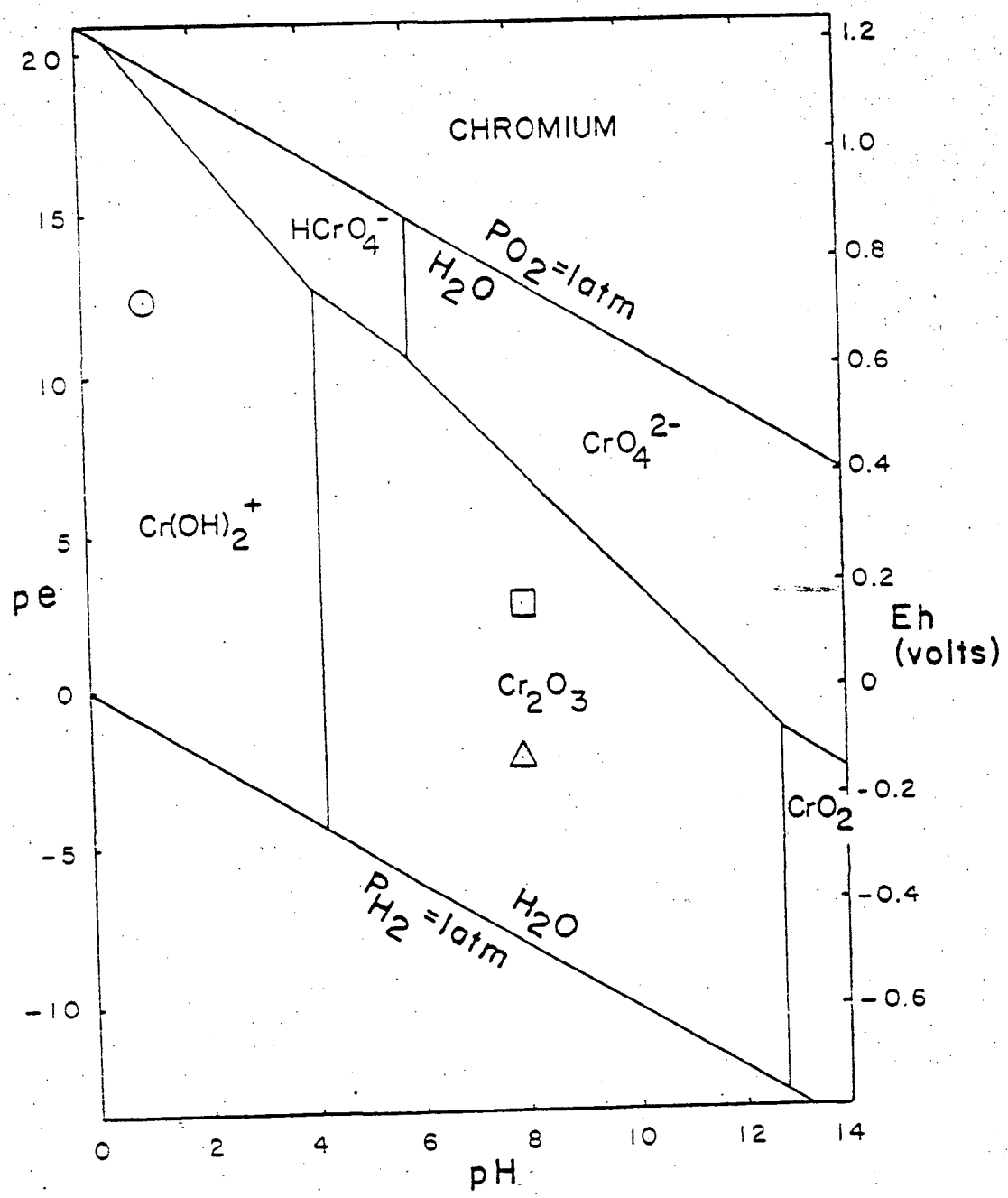
Monitoring Wells

	[Cr]	$\overline{[Cr]}$*	date	rough wellhead elev	expected redbed	depth to standing H$_2$O	depth of redbed found ⑤
I	~~<5~~ ~~0.05~~, 7, 8, 7, 6 $\times 10^{-2}$ mg/l	(6.4)	4/84	3565 ft	3535 (i.e. 30' deep)	40' ③	50?
II	6, 5, 5, 5, 5	(5.2)	4/84	"	3535	42' ④	?
III	<5, <5, <5, <5, <5		4/84	"	3535	38' ④	? 40'?
IV	<5, <5, <5, <5, <5		4/84	"	3535	37' ③	30'?

*taking "<5" as 4.

① Not a good match. Mostly the driller seems to have recorded when damp material was encountered.
② May be over collapse structures, if accurate. Phillips presumably had more accurate maps of the Fe surface; they attempted to locate these wells at red-bed lows. Our map does not show these lows, if they are present.
③ no water above this, evidently
④ "water sand" @ 30'
⑤ The stratigraphy of these wells indicates they intercept spotty lenses of clay, sand; they are not accurate to more than 10' anyway. The subsurface material below the caliche seems to be quite heterogeneous. There seems to be a fair correlation between expected + actual redbed depth. These data suggest no meaningful gradient exists; water is probably extensively perched + "semi-perched" as it moves downward toward the redbeds.

from Pat L.s thesis



Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

1703 W. Industrial Avenue (915 - 683-3348) • P.O. Box 2150 • Midland, Texas 79701

File No. C-1950-W
Customer No. 3355796
Report No. 35198

FROM EID FILE

Report Date 3-22-84

Report of tests on: Water

Date Received 2-29-84

Client: Phillips Petroleum

Identification: Lusk Plant Pit

		mg/L
Aluminum	Less Than	2
Arsenic	Less Than	0.05
Barium	Less Than	1
Boron		0.4
Cadmium	Less Than	0.01
Chromium		0.09
Cobalt	Less Than	0.1
Copper	Less Than	0.1
Iron	Less Than	0.2
Lead	Less Than	0.05
Manganese	Less Than	0.05
Mercury	Less Than	0.002
Molybdenum	Less Than	1
Nickel	Less Than	0.5
Selenium	Less Than	0.01
Silver	Less Than	0.05
Zinc		0.14
Sulfate		820
Chloride		489
Fluoride		2.6
Nitrate	Less Than	0.1
Cyanide	Less Than	0.001
Phenols	Less Than	0.001
Total Dissolved Solids @ 180° C		2208

Technician: KLH,GMB,JHB,RY

Copies 3 cc: Phillips Petroleum Co.
Attn: Mike Ford

SOUTHWESTERN LABORATORIES

Gary M. Burch

Lusk Gasoline Plant
RCRA Impoundment Sampling Results Summary

	Quadrant I	Quadrant II	Quadrant III	Quadrant IV
Impoundment Water EP Toxic Chromium, mg/*	*.2	*.2	*.2	*.2
Impoundment Sludge EP Toxic Chromium, mg/*	.6	.6	.6	1.5
Impoundment Sludge Total Available Chromium p.p.m.	2921	3455	3075	3851
Impoundment Soil EP Toxic Chromium, mg/L	L.2	L.2	L.2	—
Impoundment Soil Total Available Chromium p.p.m.	333	835	470	—

*Indicates less than

Lusk Gasoline Plant
RCRA Groundwater Sampling Results Summary

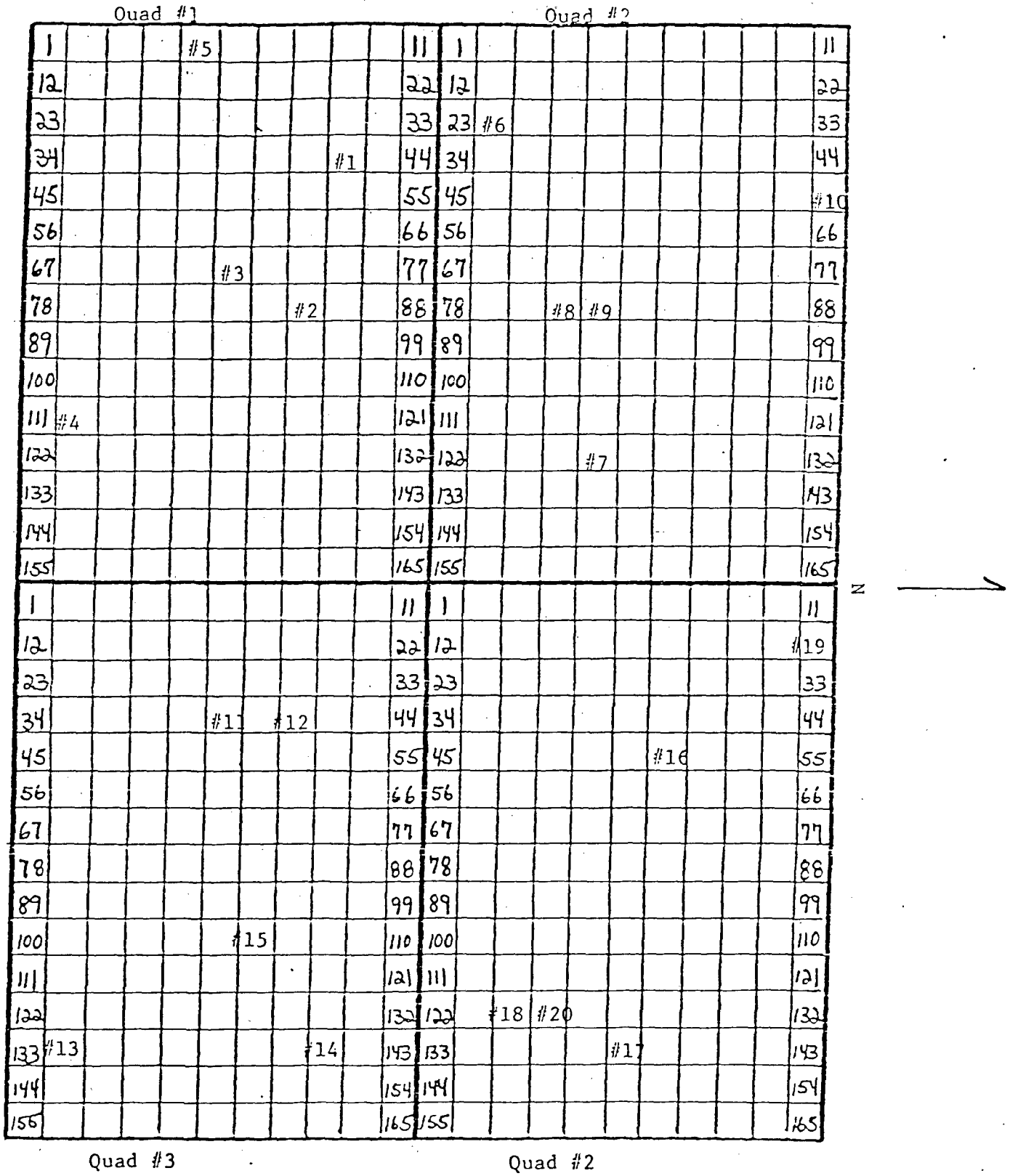
	Water Well I EP Toxic Chromium mg/*	Water Well II EP Toxic Chromium mg/*	Water Well III EP Toxic Chromium mg/*	Water Well IV EP Toxic Chromium mg/*
Initial Water Contact	*.05	.06	*.05	*.05
Sample Pt 1**	.07	.05	*.05	*.05
Sample Pt 2	.08	.05	*.05	*.05
Sample Pt 3	.07	.05	*.05	*.05
Sample Pt 4	.06	.05	*.05	*.05

* Indicates less than

** Sample points numbered from top to bottom with sample point number 1 being at the top.

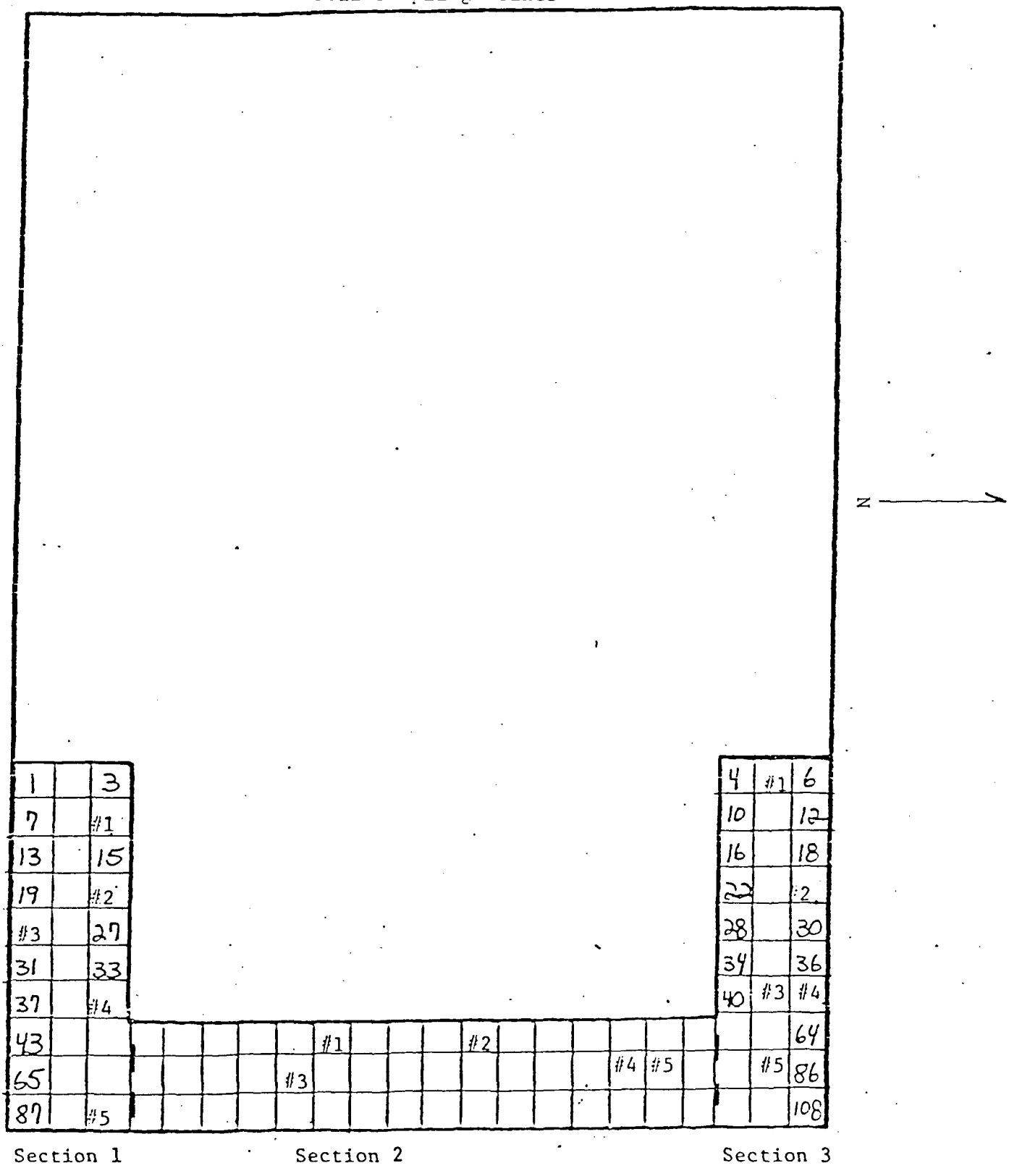
LUSK IMPOUNDMENT

Water and Sludge Sampling Points



LUSK IMPOUNDMENT

Soil Sampling Points



TONEY ANAYA
GOVERNOR

DENISE D. FORT
DIRECTOR

HEALTH ENVIRONMENT department

STATE OF NEW MEXICO

ENVIRONMENTAL IMPROVEMENT DIVISION
P.O. Box 968, Santa Fe, New Mexico 87504-0968
(505) 984-0020

December 31, 1984

Mr. B.F. Ballard, Director
Environment Control
7 Phillips Building
Phillips Petroleum Company
Bartlesville, Oklahoma 74004

Re: Hazardous Waste Closure at the Lusk Natural Gas Plant

Dear Mr. Ballard:

In late July you should have received a copy of our technical comments on the Lusk Plant closure; these were attached to a July 19, 1984 letter from our section to Mr. William Taylor of EPA. A copy of those comments is also attached here for your convenience.

Before final acceptance of this closure plan, the EID will need to sample the monitoring wells at Lusk. This is a standard practice that we are following at all disposal facilities that are seeking closure. We hope to be able to do this sampling in January or February, and I will advise you of the exact date as soon as I know it. We would also like to sample at the Eunice, Lee and Artesia plants at that time.

Note that Phillips must notify EID if a post-closure process change is contemplated at Lusk that would increase the mobilization of chromium from the impoundment sludges and sediments and, when such a change is made, Phillips must commence a monitoring program to assure that hazardous waste is not being generated.

It is the understanding of the EID that, when the Lusk impoundment is no longer in service, it must be levelled and returned to a natural condition pursuant to the regulations of the Oil Conservation Division.

Rcvd 1/2/85

Phillips may wish to sample its Lusk wells from time to time to monitor the concentration of chromium. At the present time, the Lusk plant may be operating in violation of the New Mexico Water Quality Control Commission regulations, as one of its monitoring wells appears to draw water in excess of the 0.05 mg/liter standard for chromium.

Please call Ann Claassen of my staff, at 505-984-0020, ext. 340 if you have any questions.

Sincerely,

Peter H. Pache
Program Manager
Hazardous Waste Section

PHP/mp

cc: Susan Stark, EPA Region VI
Dave Boyer, Oil Conservation Division

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

November 28, 1984

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

Attention: Mr. E. E. Clark

Dear Mr. Clark:

We have received your discharge plan for the Phillips Lusk Plant dated May 22, 1984. To continue with the review process, the following information is required:

A. Provide a layout indicating the location of process equipment and storage tanks. Indicate disposition of any storage tanks (e.g., slop oil tanks; above or below ground).

B. Provide a brief description of processes occurring at the plant; a process flow diagram would be helpful. The flow sheet for the waste disposal system has been reviewed (see comments D & E).

C. Provide a schematic diagram of the waste water disposal system including process waste lines and general plant drainage. Indicate whether or not the piping is above or below ground. Also provide locations and construction details on any sump pits located on site.

D. Construction details of the evaporation pond.

E. Construction details of the sidestream filter basin and skimming pond. From the waste dis-

posal drawing provided in the discharge plan there is no indication of what happens to skimmed hydrocarbons. Is there any danger of overflow from the sidestream filter basin?

F. Description of inspection procedures (and frequency) for leaks in piping and equipment.

G. Provide information on flooding potential and protection measures (curbs, berms, channels, etc.), if applicable.

H. Additional chemical analysis of monitor wells and impoundment water is needed for those constituents listed in Section 3-103 of the WQCC regulations, Parts A, B, and C except those constituents already analyzed for in Attachment V of your discharge plan and except for silver, uranium, radioactivity and chlorinated hydrocarbons. Many of the metals in Parts B and C can easily be detected by means of an ICAP-SCAN. Analysis for xylenes is also requested. Consider the potential for fluctuations in effluent flow rates that could change effluent concentrations in the ponds.

I. Describe procedures addressing containment and clean-up in case of spills from process units or storage vessels.

J. Describe the contingency plan in the event of a major problem with the evaporation pond that would require the pond to be shut down.

K. Describe the frequency of sampling monitor wells and reporting results.

L. Describe any solid waste generated on a continuous or intermittent (e.g. spent catalyst) basis and the method of disposal. If disposed of on site, please indicate the location on a plant layout.

M. Provide safety sheets for the treatment chemicals (i.e., cooling tower) used at the facility.

N. Provide a description and location of any water wells (plugged or producing) within one mile

of the outside perimeter of the facility. Information of this type is needed to indicate whether there should be any concern over artificial penetration.

O. To your knowledge, were any discharges made to the area prior to plant construction (e.g., injection wells, produced water pits, etc.)?

Your letter of May 22, 1984, suggested that a discharge plan might not be required because there is no "ground water" present as defined by the WQCC regulations. In our judgment, the test wells drilled by Phillips in February 1982 yielded water in sufficient amounts to be termed "ground water" as per WQCC regulations. It should also be noted that effluent must conform to all the listed numerical standards of Section 3-103 (of the WQCC regulations), must have a total nitrogen content of 10 mg/l or less, and must not contain any toxic pollutant to be exempt from the discharge plan requirement (see WQCC regulation 3-105).

Please find enclosed the revised edition of the WQCC regulations. The information provided in your discharge plan is greatly appreciated. If
please do not hesitate to call me

Sinc
Phil
PHIL
Envi

P 505 905 788

RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED—
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to Phillips Petroleum Company	
Street and No. 4001 Penbrook	
P.O., State and ZIP Code Odessa, Texas 79762	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom and Date Delivered	
Return Receipt Showing to whom, Date, and Address of Delivery	
TOTAL Postage and Fees	$
Postmark or Date	

PS Form 3800, Feb. 1982

PS Form 3811, Dec. 1980

● **SENDER:** Complete items 1, 2, 3, and 4.
Add your address in the "RETURN TO" space on reverse.

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1. The following service is requested (check one).
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   (The restricted delivery fee is charged in addition to the return receipt fee.)

TOTAL $

3. ARTICLE ADDRESSED TO:
Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

4. TYPE OF SERVICE:
☐ REGISTERED ☐ INSURED
☒ CERTIFIED ☐ COD
☐ EXPRESS MAIL

ARTICLE NUMBER
P505905788

(Always obtain signature of addressee or agent)

I have received the article described above.
SIGNATURE ☐ Addressee ☒ Authorized agent

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6. ADDRESSEE'S ADDRESS *(Only if requested)*

7. UNABLE TO DELIVER BECAUSE:

7a. EMPLOYEE'S INITIALS

RETURN RECEIPT, REGISTERED, INSURED AND CERTIFIED MAIL

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP
Permian Basin Region

May 22, 1984

Effluent Discharge Plan
Lusk Gasoline Plant
Lea County, New Mexico

Mr. Joe D. Ramey, Director
New Mexico Oil Conservation Commission
P. O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

This report is in response to your letter, dated February 21, 1984, in which you requested additional information concerning our Effluent Discharge Plan application. Attached are the red bed map you requested (Attachment I), the most recent topographical map of the area around our Lusk Plant, which also details the location of any fresh water wells in the area (Attachment II), and a groundwater monitoring waiver statement, prepared by an Independent Hydrologist, which outlines the impact of our waste water on the surrounding groundwater (Attachment III). Attachment III also contains all of the other information you requested.

In your letter, you stated that even though there was only a small amount of groundwater present in our test holes, it still had to be protected for a "foreseeable" future use. You suggested we pursue the foreseeable future use aspect of the Water Quality Control Commission Rules in our plan. I would first like to state that it is still Phillips' position that, as groundwater is defined in 1-101-M of the Water Quality Cotrol Commission Rules, there is no "groundwater" present in the area and we therefore do not fall under the jurisdiction of these regulations, but, as it is Phillips' corporate philosophy to protect the environment at all times, we took the step of drilling four groundwater sampling wells to establish what the quality of the groundwater was in the area and what impact, if any, our impoundment water was having on it. Attachment IV is a report prepared by Ed Reed and Associates detailing where and how to drill the groundwater sampling wells. The analysis of the groundwater (Attachment V) and well logs plus completion drawings for the sampling wells (Attachment VI) are attached. As can be seen in Attachment V, the pH of the groundwater in the area (sampling well #1) is so high that it cannot be used for human or agricultural consumption. Also, as the pH of our wastewater is well below the pH of the area's groundwater, its effect on the area's groundwater is that of improving its quality as demonstrated by the pH of the water found in sampling well #3.

We have clearly demonstrated that our method of disposing of our wastewater does not adversely affect the quality of the groundwater in the area. We

therefore feel that the Effluent Discharge Plan should be approved. Any questions concerning this matter should be directed to Robert Stubbs at (915) 367-1302.

Very truly yours,

E. E. Clark
Manager Permian Basin Region

EEC:RGS:ggp

Attachments - In Separate envelope in file DHB

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

TONEY ANAYA
GOVERNOR

February 21, 1984

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-5800

Phillips Petroleum Company
4001 Penbrook
Odessa, Texas 79762

Attention: Mr. E. E. Clark

Gentlemen:

In reviewing correspondence relating to a discharge plan for your Lusk Gasoline Plant, you indicated the mapping of red beds plus the drilling of four test wells to determine water quality. I would like to see the red bed map with well locations in relation to your plant location.

I would also request that you furnish this office with the following information:

1. Location of water for plant operations.

2. Volume of waste water generated.

3. Area map showing fresh water wells within 10 miles of your plant site.

In my opinion there is ground water present in the four test wells. Admittedly the volume is small. However small, this office must protect that water if there is a foreseeable future use.

My suggestion to you would be to pursue the foreseeable future use aspect of the Water Quality Control Commission Rules and determine if you could so qualify.

Yours very truly,

JOE D. RAMEY
Director

JDR/fd

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

NATURAL RESOURCES GROUP
Exploration and Production

March 8, 1982

Lusk Gasoline Plant
Discharge Plan

Mr. Joe D. Ramey
New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

We have recently completed the drilling and sampling of four exploratory water wells, near our Lusk Plant facility, to determine if there is a need for groundwater protection in the area near our facility. The following actions were taken to determine this:

1. Information was secured from the State Engineers Office on the redbed depth in a Township area surrounding Lusk Plant.

2. The depth information was contoured by our geological section from which possible troughs and closures in the redbeds were isolated.

3. Four exploratory well locations were spotted where groundwater accumulation was possible. These locations were down dip from the plant and would be most susceptible to contamination from the plant.

4. The four exploratory wells were drilled. Wells #1 through #3 were drilled entirely with air. Well #4 was drilled with water to a depth of 220 feet due to hole condition. At this point casing was set, and the well was completed with air to a depth of 300 feet.

5. The four wells were allowed to stand overnight as there was not enough water upon completion for sampling. At time of sampling there was approximately 15 feet of water in Well #1, 5 feet of water in Well #2, 40 feet of water in Well #3 and 50 feet of water in Well #4.

Attached are the water analyses and drilling reports from these four wells. From these we do not feel that the subsurface water around Lusk Plant qualifies as "groundwater", per Section 1-101, Part M of the Water Quality Control Regulations, as sufficient amounts of water were not present to be utilized as a water supply.

It is our interpretation of the Water Control Regulations, Part 3, that if there is no "groundwater" to protect, we are not subject to filing a discharge plan.

If you have any questions regarding this matter, please contact Bob Stubbs at (915) 367-1302.

Very truly yours,

E. E. Clark
Manager, Permian Basin Region

RGS:jj
Attachments

P. O. BOX 1468
MONAHANS, TEXAS 79756
PHONE 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 282214

TO: Mr. Bob Stubbs
4001 Penbrook, Odessa, Texas

SAMPLE RECEIVED As listed

RESULTS REPORTED 2-18-82

COMPANY Phillips Petroleum Company LEASE Lusk Gas Plnat

FIELD OR POOL Lusk

SECTION BLOCK SURVEY COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN

NO. 1 Recovered water - taken from test hole #1 (approx. 15' water in hole). 2-10-82

NO. 2 Recovered water - taken from test hole #3 (approx. 40' water in hole). 2-10-82

NO. 3 Recovered water - taken from test hole #2 (approx. 5' water in hole). 2-12-82

NO. 4 Recovered water - taken from test hole #4 (approximately 50' water in hole). 2-13-82

REMARKS: Samples taken by Robert C. Middleton, Martin Water Labs., Inc.

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0020	1.0012	1.0045	1.0016
pH When Sampled				
pH When Received	7.96	7.82	7.99	7.54
Bicarbonate as HCO_3	224	229	181	259
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	350	244	2,300	356
Calcium as Ca	62	54	560	82
Magnesium as Mg	47	26	219	36
Sodium and/or Potassium	131	26	296	43
Sulfate as SO_4	371	61	2,588	157
Chloride as Cl	45	34	75	51
Iron as Fe	0.50	5.7	0.63	0.17
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	880	430	3,919	628
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0	0.0	0.0	0.0
Resistivity, ohms/m at 77° F.	8.90	19.50	2.00	13.50
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

By Waylan C. Martin, M. A.

P. O. BOX 1468
MONAHANS, TEXAS 79756
PHONE 943-3234 OR 563-1040

Martin Water Laboratories, Inc.

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

RESULT OF WATER ANALYSES

LABORATORY NO. 282216

To: Mr. Bob Stubbs
4001 Penbrook, Odessa, Texas

SAMPLE RECEIVED 2-12-82
RESULTS REPORTED 2-18-82

COMPANY Phillips Petroleum Company LEASE Lusk Gas Plant
FIELD OR POOL Lusk
SECTION BLOCK SURVEY COUNTY Eddy STATE NM
SOURCE OF SAMPLE AND DATE TAKEN

NO. 1 Raw water - taken from water tank @ plant 2-12-82
NO. 2
NO. 3
NO. 4

REMARKS: Water used to drill test hole #4

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0010			
pH When Sampled				
pH When Received	8.19			
Bicarbonate as HCO_3	181			
Supersaturation as $CaCO_3$				
Undersaturation as $CaCO_3$				
Total Hardness as $CaCO_3$	214			
Calcium as Ca	67			
Magnesium as Mg	11			
Sodium and/or Potassium	27			
Sulfate as SO_4	26			
Chloride as Cl	57			
Iron as Fe	0.11			
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	379			
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0			
Resistivity, ohms/m at 77° F.	19.95			
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Carbonate as CO_3	10			

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Form No. 3

By Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Marvin Stevenson
4001 Penbrook
Odessa, Texas

Laboratory No. 1281890
Sample received 12-7-81
Results reported 12-14-81

Company: Phillips Petroleum Company

Project: Lusk Plant in Eddy County, NM

Subject: To make determinations listed on waste water from disposal pit. Sampled by James C. Powell, Martin Water Labs., Inc. on 12-7-81.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	16.2
Cyanide, as CN	0.7
Fluoride, as F	4.0
Lead, as Pb	1.0
Total Mercury, as Hg	0.000
Nitrate, as N	6.8
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	522
Copper, as Cu	0.00
Iron, as Fe	0.04
Manganese, as Mn	0.00
Phenols	0.5
Sulfate, as SO_4	896

DETERMINATION	MG/L
Total Dissolved Solids	2,840
Zinc, as Zn	1.50
pH	7.9

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, TExas

Laboratory No. 282215
Sample received 2-10-82
Results reported 2-18-82

Company: Phillips Petroleum Company

County: Lea, NM

Lease: Lusk Gas Plant

Subject: To make determinations listed on water from test hole #1. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. on 2-10-82

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadium, as Cd	0.00
Chromium, as Cr	0.04
Cyanide, as CN	0.0
Fluoride, as F	1.2
Lead, Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	1.1
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	45
Copper, as Cu	0.00
Iron, as Fe	0.50
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	371

DETERMINATION	MG/L
Total Dissolved Solids	794
Zinc, as Zn	0.00
pH	7.96

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282219
Sample received 2-12-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea, NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water from test hole #2. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. 2-12-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.04
Cyanide, as CN	0.0
Fluoride, as F	0.8
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	3.4
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	75
Copper, as Cu	0.00
Iron, as Fe	0.63
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	2,588

Petroleum Company, Lusk Gas Plant, Laboratory No. 28

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	4,426
Zinc, as Zn	0.00
pH	7.99

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.

Martin Water Laboratories, Inc.

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282218
Sample received 2-10-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea, NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water from test hole #3. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. 2-10-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.04
Cyanide, as CN	0.0
Fluoride, as F	0.8
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	5.7
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	34
Copper, as Cu	0.00
Iron, as Fe	5.7
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	61

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	420
Zinc, as Zn	0.00
pH	7.82

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.

Martin Water Laboratories, Inc.

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282217
Sample received 2-13-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea,NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water form test hole #4. Sample taken by Robert C. Middleton, Martin Water Labs., Inc. on 2-13-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.02
Cyanide, as CN	0.0
Fluoride, as F	1.0
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	3.4
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	51
Copper, as Cu	0.00
Iron, as Fe	0.17
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	157

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	598
Zinc, as Zn	0.00
pH	7.54

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Martin Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1953
BACTERIAL AND CHEMICAL ANALYSES

P. O. BOX 1468
MONAHANS, TEXAS 79756
PH. 943-3234 OR 563-1040

709 W. INDIANA
MIDLAND, TEXAS 79701
PHONE 683-4521

To: Mr. Bob Stubbs
4001 Penbrook
Odessa, Texas

Laboratory No. 282220
Sample received 2-12-82
Results reported 2-18-82

Company: Phillips Petroleum Company
County: Lea, NM
Field: Lusk
Lease: Lusk Gas Plant

Subject: To make determinations listed on water from storage tank @ plant (used to drill test hole #4). Sample taken by Robert C. Middleton, Martin Water Labs., Inc. on 2-12-82.

DETERMINATION	MG/L
A. Human Health Standards	
Arsenic, as As	0.000
Barium, as Ba	0.0
Cadmium, as Cd	0.00
Chromium, as Cr	0.02
Cyanide, as CN	0.0
Fluoride, as F	0.4
Lead, as Pb	0.0
Total Mercury, as Hg	0.000
Nitrate, as N	3.4
Selenium, as Se	0.00
Silver, as Ag	0.00
B. Other Standards for Domestic Water Supply	
Chloride, as Cl	57
Copper, as Cu	0.00
Iron, as Fe	0.11
Manganese, as Mn	0.00
Phenols	0.0
Sulfate, as SO_4	26

DETERMINATION	MG/L
Total Dissolved Solids, Evaporated	348
Zinc, as Zn	0.00
pH	8.19

C. Standards for Irrigation Use

Aluminum, as Al	0.00
Boron, as B	0.0
Cobalt, as Co	0.00
Molybdenum, as Mo	0
Nickel, as Ni	0.0

Remarks: The undersigned certifies the above to be true and correct to the best of his knowledge and belief.

Waylan C. Martin, M. A.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Owner's Well No. _____

Street or Post Office Address P.O.Box 2130

City and State Hobbs, NM 88240

Well was drilled under Permit No. TEST HOLE FOR EPA and is located in the #4 1600' FNL 1600' FWL

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section 36 Township 19S Range 31E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____

Subdivision, recorded in Eddy County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM 88240

Drilling Began 2-11-82 Completed 2-12-82 Type tools Rot-cone 0-220'-7 7/8 Size 220 hole 4 3/4 300

Elevation of land surface or _____ at well is _____ ft. Total depth of well _____ ft.

Completed well is ☐ shallow ☐ artesian test hole Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To
9⅝5½	160PVC		~~220~~ 0	~~300~~ 220' OR	~~80~~ WITH	STATE RCA	~~60~~	~~80~~

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad _____ FWL _____ FSL _____

File No. _____ Use _____ Location No. _____

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	1	1	topsoil
1	2	1	caliche
2	18	16	white sand
18	40	22	brown sand
40	100	60	brown sand & gravel
100	182	82	brown sand gravel
182	200	18	brown clay gravel
200	292	92	brown clay
292	500	8	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Larry Tilkins
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Owner's Well No. _____

Street or Post Office Address P.O.Box 2130

City and State Hobbs, NM 88240

Well was drilled under Permit No. TEST HOLE FOR EPA and is located in the: #3-450' N 600'E

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section 25 Township 19S Range 31E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____

Subdivision, recorded in Eddy County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM

Drilling Began 2-10-82 Completed 2-11-82 Type tools Tri-cone Size of hole 4 3/4 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 250 ft.

Completed well is ☐ shallow ☐ artesian. test hole Depth to water upon completion of well _____ ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____

State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad _____ FWL _____ FSL _____

File No. _____ Use _____ Location No. _____

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	2	2	blow sand
2	12	10	caliche
12	36	24	sand
36	60	24	caliche
60	94	34	red dirt hard
94	102	8	gray clay & rock
102	114	12	red dirt
114	116		gray rock
116	130	14	red bed
130	168	38	gray rock
168	172	4	red bed
172	180	8	gray rock
180	210	30	red bed
210	223	13	gray rock
223	235	12	damp red bed
235	240	5	gray rock
240	260	20	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Larry Tilton
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1 and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Owner's Well No. _____

Street or Post Office Address P.O. Box 2130

City and State Hobbs, NM 88240

Well was drilled under Permit No. TEST HOLE FOR EPA Lea #1 and is located in the: #1 ~~1220'N 300'E.~~ 2400'N 1200'W

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section ~~11~~ 20 Township 19S Range 32E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____

Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM 88240

Drilling Began 2-9-82 Completed 2-10-82 Type tools tri-cone Size of hole 4 3/4 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 350 ft.

Completed well is ☐ shallow ☐ artesian. Test hole Depth to water upon completion of well 345 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet		Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)
From	To			

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet		Length (feet)	Type of Shoe	Perforations	
			Top	Bottom			From	To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet		Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement
From	To				

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____

State Engineer Representative

No.	Depth in Feet		Cubic Feet of Cement
	Top	Bottom	
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad _____ FWL _____ FSL _____

File No. _____ Use _____ Location No. _____

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	10	10	blow sand
10	20	10	caliche
20	50	30	red sand
50	80	30	red clay
80	85	5	gray clay
85	100	15	red, gray, green clay
100	135	35	red dirt
135	170	35	gray hard clay
170	174	4	red clay & rock
174	235	61	gray hard clay
235	237	2	red clay
237	250	13	gray clay
250	280	30	red bed some gravel
280	310	30	gray rock
310	335	25	white rock red bed
335	350	15	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Larry Gilkerson Jr
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1(a) and Section 5 need be completed.

Revised June 1972

STATE ENGINEER OFFICE

WELL RECORD

Section 1. GENERAL INFORMATION

(A) Owner of well Phillips Petroleum Owner's Well No. _____

Street or Post Office Address P.O.Box 2130

City and State Hobbs, NM 88240

Well was drilled under Permit No. _____ and is located in the: #1 1200'N 300'E

a. _____ ¼ _____ ¼ _____ ¼ _____ ¼ of Section 19 Township 19S Range 38E N.M.P.M.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____
Subdivision, recorded in Lea County.

d. X= _____ feet, Y= _____ feet, N.M. Coordinate System _____ Zone in the _____ Grant.

(B) Drilling Contractor Larry's Drilling License No. WD882

Address 2601 W. Bender Hobbs, NM 88240

Drilling Began 2-8-82 Completed 2-9-82 Type tools tri-cone Size of hole 4 3/4 in.

Elevation of land surface or _____ at well is _____ ft. Total depth of well 260 ft.

Completed well is ☐ shallow ☐ artesian. test hole Depth to water upon completion of well 102 ft.

Section 2. PRINCIPAL WATER-BEARING STRATA

Depth in Feet From	Depth in Feet To	Thickness in Feet	Description of Water-Bearing Formation	Estimated Yield (gallons per minute)

Section 3. RECORD OF CASING

Diameter (inches)	Pounds per foot	Threads per in.	Depth in Feet Top	Depth in Feet Bottom	Length (feet)	Type of Shoe	Perforations From	Perforations To

Section 4. RECORD OF MUDDING AND CEMENTING

Depth in Feet From	Depth in Feet To	Hole Diameter	Sacks of Mud	Cubic Feet of Cement	Method of Placement

Section 5. PLUGGING RECORD

Plugging Contractor _____

Address _____

Plugging Method _____

Date Well Plugged _____

Plugging approved by:

_____
State Engineer Representative

No.	Depth in Feet Top	Depth in Feet Bottom	Cubic Feet of Cement
1			
2			
3			
4			

FOR USE OF STATE ENGINEER ONLY

Date Received

Quad _____ FWL _____ FSL _____

File No. _____ Use _____ Location No. _____

Section 6. LOG OF HOLE

Depth in Feet From	Depth in Feet To	Thickness in Feet	Color and Type of Material Encountered
0	4	4	blow sand
4	10	6	caliche
10	30	20	sand
30	52	22	sand & gravel
52	60	8	red bed
60	61	1	clay gray
61	105	44	red bed
105	115		gray clay & rock
115	117	2	sand black rock
117	152	35	gray clay & rock
152	162	10	red clay
162	230	68	red clay layers of gray & brown dry clay
230	240	10	red clay
240	244	4	gray green clay
244	260	16	red bed

Section 7. REMARKS AND ADDITIONAL INFORMATION

The undersigned hereby certifies that, to the best of his knowledge and belief, the foregoing is a true and correct record of the above described hole.

Larry S. Perkins
Larry S. Perkins
Driller

INSTRUCTIONS: This form should be executed in triplicate, preferably typewritten, and submitted to the appropriate district office of the State Engineer. All sections, except Section 5, shall be answered as completely and accurately as possible when any well is drilled, repaired or deepened. When this form is used as a plugging record, only Section 1 and Section 5 need be completed.

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

December 3, 1981

Phillip Petroleum Co.
4001 Penbrook
Odessa, Texas 79762

ATTENTION: Ms. Reda Johns

RE: Exploratory Water Well
for Lusk Plant

Dear Ms. Johns:

Pursuant to the letter of November 18, 1981 from the State of New Mexico Commissioner of Public Lands, Phillips Petroleum Company is hereby authorized to drill an exploratory well within the SE/4 NW/4 of Section 36, Township 19 South, Range 31 East, NMPM, to obtain water quality data.

Please advise me when exactly you will start drilling the exploratory well so I can notify the Land Resources Division.

If you have any questions concerning this matter, please let call me.

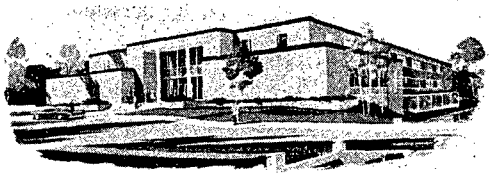
Sincerely,

Oscar A. Simpson, III

Oscar A. Simpson, III
Water Resource Specialist

OAS/dp

State of New Mexico



Commissioner of Public Lands

ALEX J. ARMIJO
COMMISSIONER

Ph. 827-2838
P. O. BOX 1148
SANTA FE, NEW MEXICO 87501
Zip Code: 87504-1148

November 18, 1981

Energy and Minerals Department
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

Attention: Oscar A. Simpson, Water Resource Specialist

Dear Mr. Simpson:

In response to your correspondence of October 23, 1981, relative to permission to obtain water quality data from state trust lands, please be advised that permission is granted to go upon the land and conduct the activity necessary to obtain the water quality data.

Also, be advised that the necessary activity as stated above specifically involves the granting of the drilling of an exploratory well within the SE¼NW¼ of Section 36, Township 19 South, Range 31 East, to a depth of approximately 500 feet. The time involved in drilling the well and obtaining the requested data is hereby limited to three days to include drilling and cleaning up of the site.

Also, it should be further understood that as a result of permission being granted, the Land Office has the right to request and obtain the data derived from the above authorized activity.

If you have any questions concerning the situation, please do not hesitate in contacting me.

Yours very truly,

Benito Lopez

Benito Lopez, Director
Land Resources Division

BL:msa

P.S. Please advise us as to the date you plan to drill the well.

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP

October 27, 1981

Re: Discharge Plan for Lusk
Natural Gasoline Plant

Mr. Oscar A. Simpson, III
Water Resource Specialist
Energy & Minerals Department
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

Dear Sir:

As you requested, per your telephone conversation with Mr. Larry Nash and Ms. Rita Johns of this office, this letter is to request additional time for the preparation of a discharge plan for our Lusk plant. Our July 29, 1981, request for an extension was granted to obtain hydrologic data pertaining to the discharge plan. We received approval from the State Engineer's office to drill four exploratory wells on July 31, 1981. However, to date, we have not received right of way clearance from the State Land office to move on site and drill. Because of your help in this matter, we expect to receive clearance shortly.

Upon receipt of right of way, we estimate that the four exploratory wells can be drilled and sampled in accordance with Section 3-107 of the NMEIA Regulations in two weeks. A complete water analysis for the listed metal contaminants in Section 3-103 of the NMEIA Regulations can be completed in 10-14 days with the exception of uranium and radioactivity which must be run at a speciality lab--the nearest being in Santa Fe. Upon receipt of the completed water analysis and comparison of the analysis with an analysis of the Lusk plant waste water, a discharge plan will be prepared and expedited to your office, within six weeks from receipt of clearance to drill.

Because of the remote location of our Lusk plant and the lack of any existing waste water disposal systems and water injection systems, we have had difficulty in developing a practical and economical discharge plan. By drilling and testing the four water wells, we hope to determine the quantity and quality of the ground water around Lusk plant, determine if ground water protection is necessary and if a disposal method other than our evaporation pits is required.

We appreciate your cooperation and aid in this matter. If you need further information, please don't hesitate to contact Ms. Rita Johns at (915) 367-1302.

Very truly yours,

B. Z. Parker

for E. E. Clark, Manager
Permian Basin Region

RAJ:ps

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

October 23, 1981

State Land Office
Old Santa Fe Trail
Santa Fe, New Mexico 87501

ATTENTION: Dwain Glidewell

Dear Mr. Glidewell:

The Oil Conservation Division would like Mr. Alex Armijo, Land Office Commissioner of the State of New Mexico, to permit the OCD to obtain water quality data from the Ogallala formation beneath state land.

Water analysis data would be obtained from a 40-acre tract of land located as the SE/4 NW/4 of Section 36, Township 19 South, Range 31 East, NMPM, Eddy County, New Mexico. An exploratory well approximately 500 feet deep will be drilled by air for the purpose of obtaining water quality data. The well will take approximately three days to drill and clean-up the site.

The OCD would like permission to drill the exploratory well as soon as possible. Phillips Petroleum Company at the request of the OCD will provide all personnel and incur all expenses in connection with the exploratory drilling and water analysis. All geologic, hydrologic, and water analysis data obtained from the exploratory well will be sent to the OCD and in turn made available to the Land Office.

If there are any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

Oscar A. Simpson

Oscar A. Simpson,
Water Resource Specialist

OAS/dp

August 10, 1981

Phillips Petroleum Company
Exploration and Production Group
4001 Pen Brook
Odessa, Texas 79762

ATTENTION: Mr. Glasgow

RE: Discharge Plan for Lusk Plant

Dear Mr. Glasgow:

Pursuant to the letter of July 29, 1981 by E. E. Clark of Phillips Petroleum Company requesting a 120-day extension of time for Lusk Plant Discharge Plan, the extension of time is hereby granted.

The extension of time was granted on the basis that Phillips needs additional time to obtain geologic and hydrologic data pertaining to the discharge plan. The extension of time for Lusk Discharge Plan is hereby extended from July 29, 1981, to October 29, 1981. This is the second and the last extension to be granted for the Lusk Plant. The OCD expects at the end of this extension to receive a Discharge Plan for Lusk Plant.

If you have any questions regarding this matter, please call me at (505) 827-2534.

Sincerely,

Oscar A. Simpson, III
Water Resources Specialist

OAS/dp

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP

July 29, 1981

Lusk Gasoline Plant
Discharge Plan

Mr. Joe D. Ramey, Director
New Mexico Oil Conservation Commission
P.O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

After further study of the waste water discharge alternatives available to Phillips Petroleum at Lusk Plant, we have decided to determine if there is a need for ground water protection in the area near our facility. To this end, the following actions have been taken or are planned:

1. Information has been secured on the depth to Redbed in a Township area surrounding Lusk Plant.

2. Depth information has been contoured by our geological section and possible troughs and closures in the Redbed isolated.

3. Four exploratory well locations have been spotted where ground water accumulations are possible. These locations are down dip from the plant and would be most susceptible to contamination from plant waste water.

4. Permit applications for drilling the exploratory wells have been submitted to the State Engineer's Office and copies are attached for your information.

5. After obtaining state permission and legal right of way, the four wells will be drilled. Air drilling will be used so as not to damage possible producing formations. A production test and water sample will be secured from each well.

6. Test results and sample analysis will be reviewed to determine if protection and therefore a discharge plan are required.

This procedure has been discussed by telephone with Oscar Simpson of your office. Barring any undue delays in securing legal right of way, a determination of groundwater existence and quality can be obtained in 60 - 90 days. We respectfully request an extension in submitting a discharge plan.

If you have any questions regarding this matter, please do not hesitate to contact Mr. A.B. Glasgow, (915) 367-1439.

Yours very truly,

B. Z. Parker

for E.E. Clark
Regional Manager

ABG:ddc

READ INSTRUCTIONS ON BACK

Revised March 1972

APPLICATION TO APPROPRIATE UNDERGROUND WATERS IN ACCORDANCE WITH SECTION 75-11-1 NEW MEXICO STATUTES

*Exploratory only--not for appropriation.

1. Name and Address of Applicant: File No. _____

Phillips Petroleum Company

Room 401, 4001 Penbrook Street

Odessa, Texas 79762

2. Describe well location under one of the following subheadings:

a. --- ¼ SW ¼ NW ¼ of Sec. 20 Twp. 19S Rge. 32E N. M. P. M., in Lea County.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____ Subdivision, recorded in _____ County.

d. X = _____ feet, Y = _____ feet, N. M. Coordinate System _____ Zone in the _____ Grant.

e. Give street address or route and box No. of property upon which well is to be located, or location by direction and distance from known landmarks Five miles northwest from Halfway, New Mexico.

* 3. Approximate depth (if known) 200 feet; outside diameter of casing none inches.

Name of driller (if known) _____

4. Use of water (check appropriate box or boxes):

☐ Household, non-commercial trees, lawn and garden not to exceed 1 acre.

☐ Livestock watering.

☐ Drinking and sanitary purposes and the irrigation of non-commercial trees, shrubs and lawns in conjunction with a commercial operation.

☐ Prospecting, mining or drilling operations to discover or develop natural resources.

☐ Construction of public works, highways and roads.

* ☒ Other

If any of the last three were marked, give name and nature of business under Remarks. (Item 5)

*5. Remarks: This is an exploratory water well for the purpose of determining if ground water located in the vicinity of the Phillips Petroleum Company's Lusk Gasoline Plant is of a quantity and quality designated to be protected by the New Mexico Water Quality Control Commission Regulations as administered by the New Mexico Oil Conservation Commission.

I, B. Z. Parker, affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Phillips Petroleum Company, Applicant

By: B. Z. Parker Date: July 29, 1981

B. Z. Parker, Manager-Production Operations

ACTION OF STATE ENGINEER

This application is approved for the use indicated, subject to all general conditions and to the specific conditions numbered _____ on the reverse side hereof. This permit will automatically expire unless this well is drilled or driven and the well record filed on or before _____.

S. E. Reynolds, State Engineer

By: _____

Date: _____ File No. _____

READ INSTRUCTIONS ON BACK

Revised March 1972

APPLICATION TO APPROPRIATE UNDERGROUND WATERS IN ACCORDANCE WITH SECTION 75-11-1 NEW MEXICO STATUTES

*Exploratory only--not for appropriation.

1. Name and Address of Applicant: File No. _____

Phillips Petroleum Company

Room 401, 4001 Penbrook Street

Odessa, Texas 79762

2. Describe well location under one of the following subheadings:

a. --- ¼ NE ¼ NE ¼ of Sec. 19 Twp. 19S Rge. 32E N. M. P. M., in Lea County.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____ Subdivision, recorded in _____ County.

d. X = _____ feet, Y = _____ feet, N. M. Coordinate System _____ Zone in the _____ Grant.

e. Give street address or route and box No. of property upon which well is to be located, or location by direction and distance from known landmarks Six miles northwest from Halfway, New Mexico.

* 3. Approximate depth (if known) 200 feet; outside diameter of casing none inches.

Name of driller (if known) _____

4. Use of water (check appropriate box or boxes):

☐ Household, non-commercial trees, lawn and garden not to exceed 1 acre.

☐ Livestock watering.

☐ Drinking and sanitary purposes and the irrigation of non-commercial trees, shrubs and lawns in conjunction with a commercial operation.

☐ Prospecting, mining or drilling operations to discover or develop natural resources.

☐ Construction of public works, highways and roads.

* [X] Other

If any of the last three were marked, give name and nature of business under Remarks. (Item 5)

5. Remarks: This is an exploratory water well for the purpose of determining if ground water located in the vicinity of the Phillips Petroleum Company's Lusk Gasoline Plant is of a quantity and quality designated to be protected by the New Mexico Water Quality Control Commission Regulations as administered by the New Mexico Oil Conservation Commission.

I, B. Z. Parker, affirm that the foregoing statements are true to the best of my knowledge and belief and that development shall not commence until approval of the permit has been obtained.

Phillips Petroleum Company, Applicant

By: B Z Parker Date: July 29, 1981

B. Z. Parker, Manager-Production Operations

ACTION OF STATE ENGINEER

This application is approved for the use indicated, subject to all general conditions and to the specific conditions numbered _____ on the reverse side hereof. This permit will automatically expire unless this well is drilled or driven and the well record filed on or before _____.

S. E. Reynolds, State Engineer

By: _____

Date: _____ File No. _____

READ INSTRUCTIONS ON BACK

Revised March 1972

APPLICATION TO APPROPRIATE UNDERGROUND WATERS IN ACCORDANCE WITH SECTION 75-11-1 NEW MEXICO STATUTES

*Exploratory only--not for appropriation.

1. Name and Address of Applicant: File No. _____

Phillips Petroleum Company

Room 401, 4001 Penbrook Street

Odessa, Texas 79762

2. Describe well location under one of the following subheadings:

a. --- ¼ NE ¼ NE ¼ of Sec. 25 Twp. 19S Rge. 31E N. M. P. M., in Eddy County.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____ Subdivision, recorded in _____ County.

d. X = _____ feet, Y = _____ feet, N. M. Coordinate System _____ Zone in the _____ Grant.

e. Give street address or route and box No. of property upon which well is to be located, or location by direction and distance from known landmarks Six miles northwest from Halfway, New Mexico.

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☐ Prospecting, mining or drilling operations to discover or develop natural resources.

☐ Construction of public works, highways and roads.

* ☒ Other

If any of the last three were marked, give name and nature of business under Remarks. (Item 5)

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Phillips Petroleum Company, Applicant

By: B. Z. Parker Date: July 29, 1981

B.Z. Parker, Manager-Production Operations

ACTION OF STATE ENGINEER

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S. E. Reynolds, State Engineer

By: _____

Date: _____ File No. _____

GENERAL CONDITIONS OF APPROVAL

A. The maximum amount of water that may be appropriated under this permit is 3 acre feet in any calendar year.

B. The well shall be drilled only by a driller licensed in the State of New Mexico in accordance with Section 75-11-13 New Mexico Statutes Annotated. A licensed driller shall not be required for the construction of a driven well; provided, that the casing shall not exceed two and three-eights (2 3/8) inches outside diameter (Section 75-11-13).

C. Driller's log must be filed in the office of the State Engineer within 10 days after the well is drilled or driven. Failure to file the log within that time shall result in automatic cancellation of the permit. Log forms will be provided by the State Engineer upon request.

D. The casing shall not exceed 7 inches outside diameter except under specific conditions in which reasons satisfactory to the State Engineer are shown.

E. If the well under this permit is used at any time to serve more than one household, livestock in a commercial feed lot operation, or any other commercial purpose, the permittee shall comply with Specific Conditon of Approval number 5(b).

F. In the event this well is combined with other wells permitted under Section 75-11-1 New Mexico Statutes Annotated, the total outdoor use shall not exceed the irrigation of one acre of non-commercial trees, lawn, and garden, or the equivalent outside consumptive use, and the total appropriation for household and outdoor use from the entire water distribution system shall not exceed 3 acre feet per annum.

SPECIFIC CONDITIONS OF APPROVAL

(Applicable only when so indicated on the other side of this form.)

1. Depth of the well shall not exceed the thickness of the (a) the valley fill or (b) Ogallala formation.
2. The well shall be constructed to artesian well specifications and the State Engineer Office shall be notified before casing is landed or cemented.
3. Appropriation and use of water under this permit shall not exceed a period of one year from the date of approval.
4. Use shall be limited to household, non-commercial trees, lawn and garden not to exceed one acre and/or stock use.
5. A totalizing meter shall be installed before the first branch of the discharge line from the well and the installation shall be acceptable to the State Engineer; the State Engineer shall be advised of the make, model, serial number, date of installation, and initial reading of the meter prior to appropriation of water and pumping records shall be submitted to the District Supervisor (a) for each calendar month, on or before the 30th day of the following month (b) on or before the 10th of January, April, July and October of each year for the three preceding calendar months (c) for each calendar year on or before the 30th day of January of the following year.
6. The well shall be plugged upon completion of the permitted use and a plugging report shall be filed in the office of the State Engineer within 10 days.
7. Final approval for the use of the well shall be dependent upon a leakage test made by the State Engineer Office.
8. Use shall be limited strictly to household and/or drinking and sanitary purposes; water shall be conveyed from the well to the place of use in closed conduit and the effluent returned to the underground so that it will not appear on the surface. No irrigation of lawns, garden, trees or use in any type of pool or pond is authorized under this permit.

INSTRUCTIONS

The application shall be made in the name of the actual user of the well for the purpose specified in the application.

The application shall be executed in triplicate and forwarded with a $1.00 filing fee to the appropriate office of the State Engineer.

A separate application must be filed for each well to be drilled or used.

If well to be used is an existing well, an explanation (and file number, if possible) should be given under Remarks. (Item 5.)

Applications for appropriation, well logs and request for information in the following basins should be addressed to the State Engineer at the office indicated;

Bluewater, Estancia, Rio Grande, and Sandia Basins
District No. 1, 505 Marquette NW, Room 1023, Albuquerque, New Mexico 87101

Capitan, Carlsbad, Fort Sumner, Hondo, Jal, Lea, Penasco, Portales, Roswell, and Upper Pecos Basins
District No. 2, Box 1717, Roswell, New Mexico 88201

Animas, Gila-San Francisco, Hot Springs, Las Animas Creek, Lordsburg, Mimbres, Nutt-Hockett, Playas, San Simon, and Virden Valley Basins
District No. 3, Box 844, Deming, New Mexico 88030

Canadian River Basin
State Engineer Office, State Capitol, Bataan Memorial Bldg., Santa Fe, New Mexico 87501

READ INSTRUCTIONS ON BACK

Revised March 1972

APPLICATION TO APPROPRIATE UNDERGROUND WATERS IN ACCORDANCE WITH SECTION 75-11-1 NEW MEXICO STATUTES

*Exploratory only--not for appropriation.

1. Name and Address of Applicant: File No. _____

Phillips Petroleum Company

Room 401, 4001 Penbrook Street

Odessa, Texas 79762

2. Describe well location under one of the following subheadings:

a. --- ¼ SE ¼ NW ¼ of Sec. 36 Twp. 19S Rge. 31E N. M. P. M., in Eddy County.

b. Tract No. _____ of Map No. _____ of the _____

c. Lot No. _____ of Block No. _____ of the _____ Subdivision, recorded in _____ County.

d. X = _____ feet, Y = _____ feet, N. M. Coordinate System _____ Zone in the _____ Grant.

e. Give street address or route and box No. of property upon which well is to be located, or location by direction and distance from known landmarks Five miles northwest from Halfway, New Mexico.

* 3. Approximate depth (if known) 200 feet; outside diameter of casing none inches.

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Phillips Petroleum Company, Applicant

By: B. Z. Parker Date: July 29, 1981

B. Z. Parker, Manager-Production Operations

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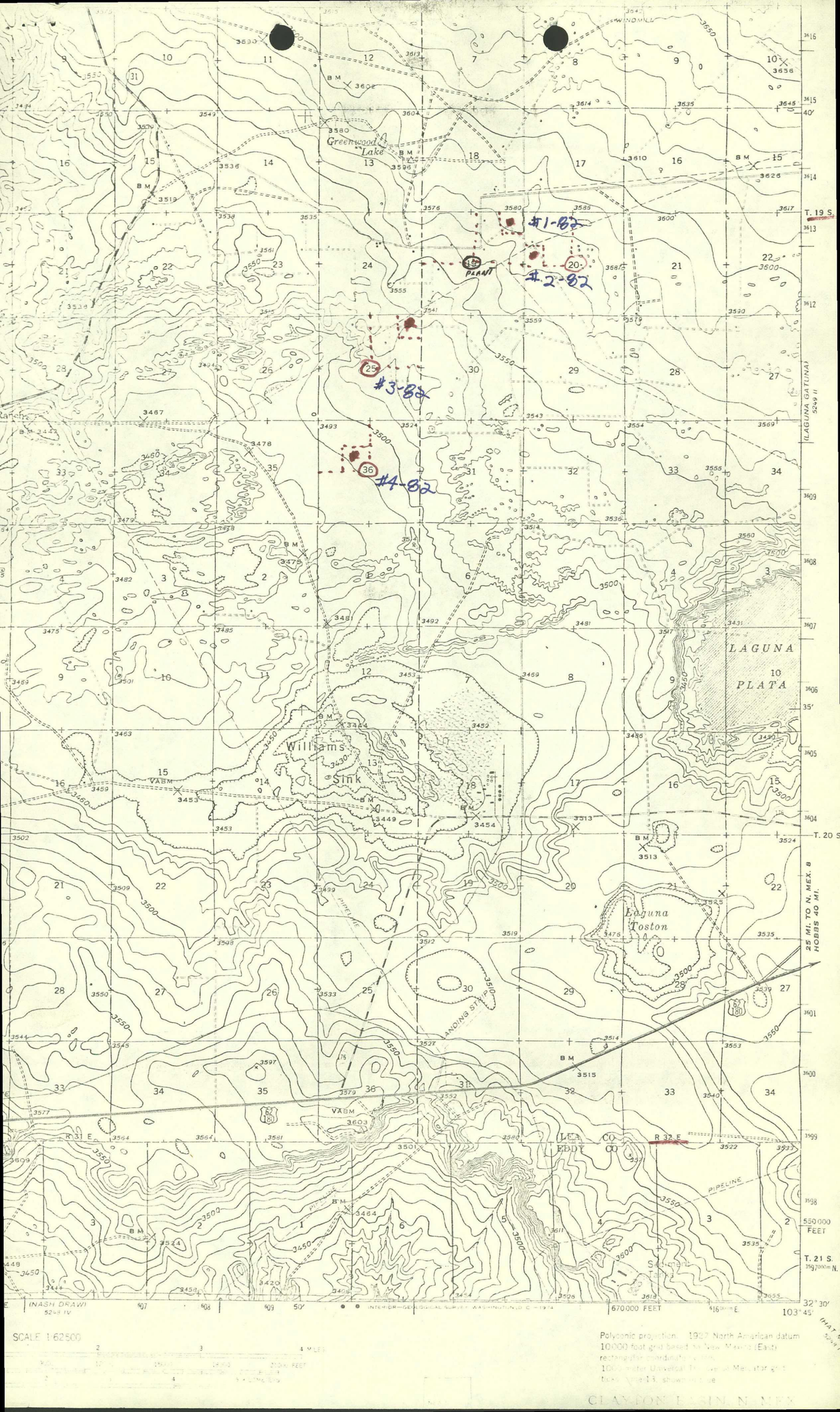
District No. 2, Box 1717, Roswell, New Mexico 88201

Animas, Gila-San Francisco, Hot Springs, Las Animas Creek, Lordsburg, Mimbres, Nutt-Hockett, Playas, San Simon, and Virden Valley Basins
District No. 3, Box 844, Deming, New Mexico 88030

Canadian River Basin
State Engineer Office, State Capitol, Bataan Memorial Bldg., Santa Fe, New Mexico 87501


#1-82
#2-82
#3-82
#4-82
PLANT
Greenwood Lake
Williams Sink
LAGUNA PLATA
Laguna Toston
LEA CO
EDDY CO
T. 19 S.
T. 20 S.
T. 21 S.
R 31 E.
R 32 E.
25 MI. TO N. MEX. 8
HOBBS 40 MI.
PIPELINE
LANDING STRIP
(LAGUNA GATUNA)
(NASH DRAW)
SCALE 1:62500
INTERIOR—GEOLOGICAL SURVEY, WASHINGTON, D. C.—1974
550 000 FEET
670000 FEET
32° 30'
103° 45'

STATE OF NEW MEXICO

ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

May 4, 1981

Mr. A.B. Glasgow
Phillips Petroleum Company
Exploration and Production Group
Odessa, Texas 79762
ADDRESS 4001 PENBROOK

Re: Lusk Gasoline Plant
Discharge Plan Extension

Dear Mr. Glasgow:

We have received your letter of April 24, 1981, concerning your request for an extension of 90 days.

The information Phillips Petroleum Company submitted shows good cause why the Oil Conservation Division should grant a time extension. The due date is hereby extended to July 29, 1981.

Please let us know if you have any problems with this arrangement.

Very truly yours,

JOE D. RAMEY
Director

JDR/OS/og

cc: Oil Conservation Division
Box 1980
Hobbs, New Mexico

PHILLIPS PETROLEUM COMPANY
ODESSA, TEXAS 79762
4001 PENBROOK

EXPLORATION AND PRODUCTION GROUP

April 24, 1981

Lusk Gasoline Plant
Discharge Plan Extension

Mr. Joe D. Ramey, Director
New Mexico Oil Conservation Commission
P.O. Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Ramey:

Phillips Petroleum Company is preparing a discharge plan for Lusk Plant as requested in your letter of December 29, 1980.

We are considering the feasibility of delivering the wastewater to a salt water disposal system or waterflood unit operated near the plant. We respectfully request a 90 day extension on submitting a discharge plan so that technical and contractual requirements can be completed.

If you have any questions regarding this matter, please do not hesitate to contact Mr. A. B. Glasgow, (915) 367- 1439.

Very truly yours,

B. J. Parker

for E. E. Clark
Regional Manager

ABG:ku

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR

LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

December 29, 1980

Mr. Ben Ballard
Director of Environmental Control
10C4 PB
Phillips Petroleum Company
Bartlesville, Oklahoma 74004

Re: Request for Discharge Plan

Dear Mr. Ballard:

Under provisions of the regulations of the Water Quality Control Commission you are hereby notified that the filing of a discharge plans for Phillips' Eunice Plant (Section 5, Township 21 South, Range 36 East) and Phillips' Lusk Plant (Section 19, Township 19 South, Range 32 East) is required. Discharge plans are defined in Section 1-101.1 of the regulations and a copy of the regulations is enclosed for your convenience.

This plan should cover all discharges of effluent at the plant sites or adjacent to plant sites. Section 3-106 A. of the regulations requires submittal of the discharge plans within 120 days of receipt of this notice unless an extension of this period is sought and approved.

The discharge plan should be prepared in accordance with Part 3 of the Regulations.

If there are any questions on this matter, please do not hesitate to call me or Thomas Parkhill at 827-3260. Mr. Parkhill has been assigned responsibility for review of all discharge plans.

Yours very truly,

JOE D. RAMEY
Director

JDR/jc

cc: Oil Conservation Division - Hobbs

Phillips petroleum Company
P. O. Box 66,
Oil Center, New Mexico 88266

Phillips Petroleum Company
P. O. Box 1297
Maljamar, New Mexico 88264

CITIES SERVICE COMPANY
BOX 300
TULSA, OKLAHOMA 74102

May 31, 1979

New Mexicó Oil Conservation Division
P. O. Box 1980
Hobbs, New Mexico 88240

Attention: Mr. Eddie Seay

Dear Mr. Seay:

Attached are the data you requested on your pits, ponds, and lagoons survey for Cities Service Company's Burton Flats Gas Processing Plant, Eddy County, New Mexico.

Cities Service also owns the Empire Abo plant in Eddy County. This plant was shut down in May, 1977. The plant remains down awaiting the installation of residue gas delivery facilities. We will provide the data requested on this survey when the plant is operational.

If you have any questions or need additional information, please contact me.

Very truly yours,

NATURAL GAS LIQUIDS DIVISION

E. E. Moore

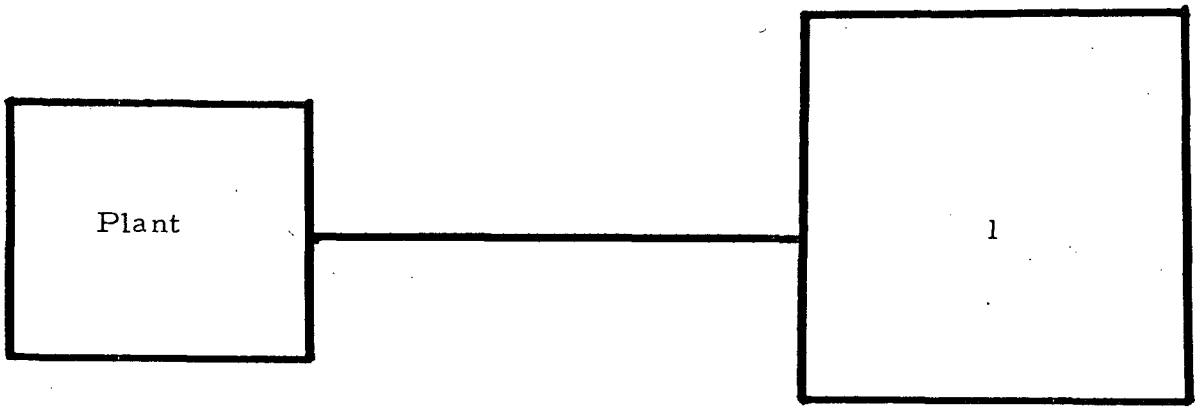
E. E. Moore
Manager, Southern Region

EEM:ww

attachments

Rec'd 6/5/79

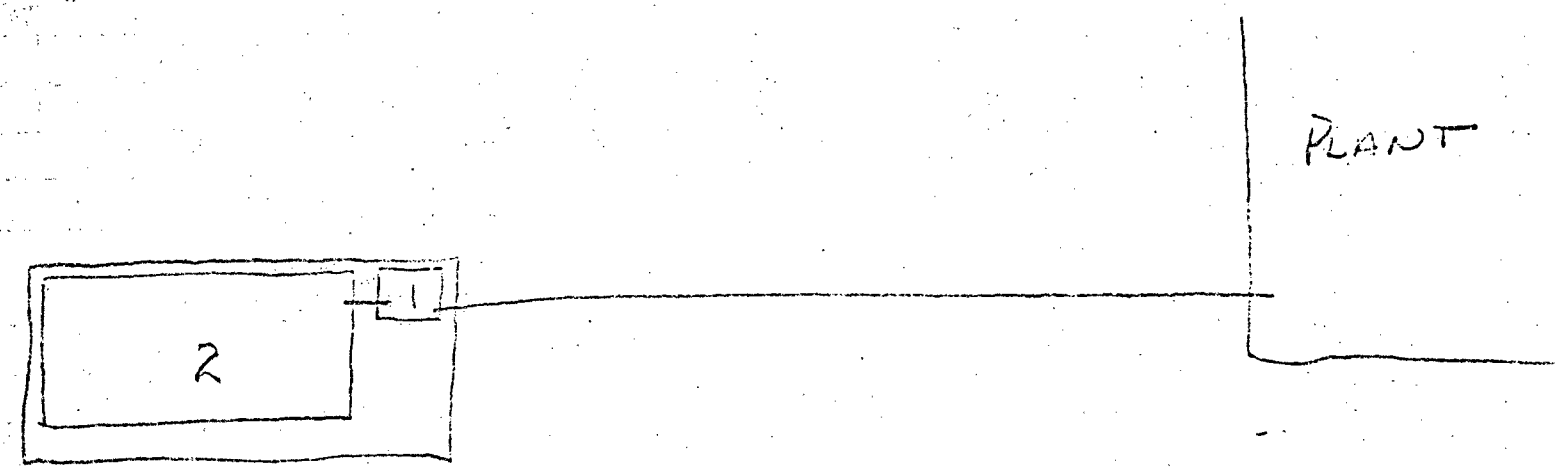
NE/4 of the SE/4 of the SW/4 of Sec. 14, T2OS, R28E



Lagoon	No. 1
Length (ft)	68
Width (ft)	68
Average Depth (ft)	10
Lining Material	Reinforced Neoprene Line
Annual Volumes (Gal/yr)	6,390
Phosphate	0
M-Alkalinity ($CaCO_3$)	68
pH (std. units)	7.2
Chlorides (Cl)	424
Sulfate (SO_4)	26
Silica (S_iO_2)	100
Total Hardness ($CaCO_3$)	272
Sodium (Na)	850
TDS	1400
Conductivity (micromhos)	

*Analyses results in ppm unless otherwise stated

PHILLIPS PETROLEUM CO.
LUSK PLANT



ALL IN NE/4, SEC 19, T-19-S, R-32-E, NMPM, LEA COUNTY NEW MEXICO

Posted
1/25/79
NL/4

PIT: #1 80'X60' DEPTH OF 6' NO LINING
#2 325'X150' DEPTH OF 6' NO LINING

5.5 MM GALLONS PER YEAR OF FLUIDS PLACED IN THE PITS

WATER ANALYSIS ATTACHED

PHILLIPS PETROLEUM COMPANY

LABORATORY ANALYSIS RESULTS SUMMARY

Sample: Waste Water

Secured from: Lusk Plant

Secured by: David Unger

Date: 8/30/78

Analysis No.: L1041

Chlorides, ppm, NaCl	1368
Chlorides, ppm, Cl	836
Alkalinity, ppm $CaCO_3$	82
Hardness, ppm, $CaCO_3$	1306
Calcium, ppm, Ca	416
Magnesium, ppm, Mg.	65
Dissolved Solids, ppm	1800
Sulfates, ppm, Na_2SO_4	945
SO_4	643
Silica, ppm, SiO_2	29
Bicarbonates, ppm, HCO_3	100
Total Iron Fe ppm	0
pH	7.0
Solometer Reading	1
% Salt	.265
lbs. Salt	.022

Copies to:

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Analysis by: David Unger

Checked by:

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

86-355-C

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501
PHONE(S): 827-5812

S.L.D. No.: OR-55-A,B
DATE REC. : 1-27-86
SLD PRIORITY #: 3

USER CODE: 8|2|2|3|5|
SUBMITTER: DAVID BOYER
SUBMITTER CODE: | | | | |
SAMPLE TYPE: WATER [X], SOIL [ ], OTHER _____
SAMPLE TYPE CODE: | |
COLLECTED: 86/01/09-17:20 BY DGB
DATE TIME INITIALS
CODE: Y Y M M D D H H M M I I I
SOURCE: Cooling tower Pond-Composite
CODE: AQUIFER DEPTH
NEAREST CITY: Carlsbad
CODE:
LOCATION: Phillips Lusk Plant
CODE: TOWNSHIP RANGE SECTION TRACTS

pH=_____; Conductivity=900 umho/cm at 8 °C; Chlorine Residual=_____
Dissolved Oxygen=_____mg/l; Alkalinity=_____; Flow Rate=_____
Sampling Location, Methods and Remarks (i.e. odors, etc.)
Composite from 4 corners of pond,

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. David G Boyer
Method of shipment to the Laboratory Hand carried
This form accompanies 2 Septum Vials, ___ Glass Jugs, ___ _____
Containers are marked as follows to indicate preservation:
[ ] NP: No preservation; sample stored at room temperature.
[X] P-Ice Sample stored in an ice bath (not frozen).
[ ] P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from _____
to _____ at (location) _____ on
___/___/___-___:___ and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]
Signatures _____ _____

(we) certify that this sample was transferred from _____
to _____ at (location) _____ on
___/___/___-___:___ and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]
Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 55

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
N/A	N/A				POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halo. purg. screen	none detected		
arom. purg. screen *	none detected ⊙		
		⊗ DETECTION LIMIT	4 ppb
		* DETECTION LIMIT	1 ppb

REMARKS: ~~⊙ A trace amount of~~

⊙ a small amount of one compound was detected by the aromatic screen that was not identified and it was a very early eluter.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 4 ~~Feb~~ 8 ~~6~~ 7 ~~10~~ Feb 86 Analyst's signature: M Finney

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: K Degenhardt

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

STATE OF NEW MEXICO
ENVIRONMENT
OIL CONSERVATION DIVISION
DEC 87 1985

85- 1166 -C

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

PHONE(S): 827-5812

S.L.D. No.: OR- 1166-A,B
DATE REC. : 12/02/85
SLD PRIORITY #: 3

USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer

SUBMITTER CODE:

SAMPLE TYPE: WATER [X], SOIL [ ], OTHER

SAMPLE TYPE CODE:

COLLECTED: 85/11/21 - 17:00 BY DGB
DATE TIME INITIALS

CODE: Y Y M M D D H H M M I I I

SOURCE: Tap Water-Domestic Supply

CODE: AQUIFER DEPTH

NEAREST CITY: Carlsbad

CODE:

LOCATION: Phillips Lusk Gas Plant

CODE: TOWNSHIP RANGE SECTION TRACTS

pH= 6.4; Conductivity= 350 umho/cm at 15.5 °C; Chlorine Residual=

Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Sample from bathroom tap. Water source is caprock wells. Water also supplies cooling tower.

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. David G Boyer

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, Glass Jugs,

Containers are marked as follows to indicate preservation:

- [ ] NP: No preservation; sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (not frozen).
- [ ] P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from

to at (location) on

/ / - : and that the statements in this block are correct.
DATE AND TIME

Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures

(we) certify that this sample was transferred from

to at (location) on

/ / - : and that the statements in this block are correct.
DATE AND TIME

Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures

ANALYSES REQUESTED

LAB. No.: ORG- 1166

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
$CHCl_3$	Trace <1ppb		
$CHCl_2Br$	Trace <1ppb		
$CHClBr_2$	3		
$CHBr_3$	5		
arom. purg. screen	none detected		
		* DETECTION LIMIT	1 ugm/l

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes___ NO X. Seal(s) broken by:_____ date:_____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6 Dec 85. Analyst's signature: [signature]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: [signature]

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12 02 85 | LAB NO. WC-15263 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 85 11 21

Collection TIME 1700

SITE INFORMATION

Sample location: Bathroom faucet Tap

Collection site description: Phillips Lusk Natural Gas Plant

Collected by — Person/Agency: Boyer/Bailey

SEND FINAL REPORT TO ▶

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☐ Dipped ☒ Tap	Water level: —	Discharge: —	Sample type: Grab
pH (00400): 6.4	Conductivity (Uncorrected): 350 µmho	Water Temp. (00010): 15.5 °C	Conductivity at 25°C (00094): µmho

Field comments: Water source is caprock wells. Water also supplies cooling towers

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

F, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	561	µmho	12/18
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	8.03		12/18
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☒ Calcium (00915)	76.0	mg/l	12-30
☒ Magnesium (00925)	9.76	mg/l	"
☒ Sodium (00930)	27.6	mg/l	"
☒ Potassium (00935)	2.89	mg/l	"
☒ Bicarbonate (00440)	188.2	mg/l	12/18
☒ Chloride (00940)	56.0	mg/l	1/10
☒ Sulfate (00945)	32.4	mg/l	12/31
☒ Total filterable residue (dissolved) (70300)	363	mg/l	12/12
☒ Other: B	0.07		1/10
☒ Other: F	0.61		12/5

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported: 1 14 86 | Reviewed by

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/02/85 | LAB NO. W 5276 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 85/11/21 | Collection TIME 1700 | Collected by — Person/Agency Boyer/Bailey

SITE INFORMATION ►

Sample location: Bathroom faucet Tap

Collection site description: Phillips Lusk Natural Gas Plant

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

RECEIVED DEC 18 1985 OIL CONSERVATION DIVISION SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Dipped ☒ Tap	Water level: —	Discharge: —	Sample type: Grab
pH (00400): 6.4	Conductivity (Uncorrected): 350 µmho	Water Temp. (00010): 15.5 °C	Conductivity at 25°C (00094): µmho

Field comments: Water source is caprock wells. Water also supplies cooling towers

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2 ml H_2SO_4/L added

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N dissolved (00631)	2.10	mg/l	12/9
☒ Ammonia-N dissolved (00608)	< 0.10	mg/l	12/4
☒ Total Kjeldahl-N ( )	0.36	mg/l	12/9
☐ Other:			

Analyst | Date Reported: 12/10/85 | Reviewed by: [signature]

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

RECEIVED DEC 26 1985

Heavy metal
~~GENERAL WATER CHEMISTRY~~ and ~~NITROGEN~~ ANALYSIS

DATE RECEIVED 12 02 85	LAB NO. HM-1971	USER CODE ☐ 59300 ☐ 59600 ☒ XX OTHER: 82235	
Collection DATE 85 11 21	SITE INFORMATION ►	Sample location Bathroom Faucet Tap	
Collection TIME 1700		Collection site description Phillips Lusk Natural Gas Plant	
Collected by — Person/Agency Boyer/Bailey			

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

Station/well code
Owner

SAMPLING CONDITIONS

☐ Bailed ☐ Pump ☐ Dipped ☒ Tap	Water level —	Discharge —	Sample type Grab
pH (00400) 6.4	Conductivity (Uncorrected) 350 µmho	Water Temp. (00010) 15.5 °C	Conductivity at 25°C (00094) µmho

Field comments: Water source is caprock wells. Water also supplies cooling towers

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☐ NF: Whole sample (Non-filtered)

~~☒F~~: Filtered in field with 0.45 µmembrane filter

~~☒A: 2 ml H_2SO_4/L~~ added 4ml Foaming HNO_3

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

~~NF~~ NA F, A	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☒ Other: Icap scan			☐ Sodium (00930)	mg/l	
☒ Other: As			☐ Potassium (00935)	mg/l	
☒ Other: Se			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		

NF, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

F, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Other:		

Analyst	Date Reported	Reviewed by
	12 18 85	JFA

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

Lab Number: HM 1971 Sample Code: Bathroom Tap Phillips Labs

Date Submitted: 12/2/85 Date Analyzed: 12/16/85

By: Boyer/Bailey Reviewed By: 12/18/85 Jim Ashley

Date Reported: 12/18/85

Element	ICAP VALUE(MG/L)	AA VALUE(MG/L)
Aluminum	<0.1	
Barium	0.1	
Berylium	<0.1	
Boron	<0.1	
Cadmium		
Calcium	64.	
Chromium	<0.1	
Cobalt	<0.1	
Copper	<0.1	
Iron	<0.1	
Lead	<0.1	
Magnesium	11.	
Manganese	<0.05	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	14.	
Silver	<0.1	
Strontium	0.6	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		<0.005
Selenium		<0.005
Mercury		

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
DEC 27 1985

85-1164-C

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

PHONE(S): 827-5812

S.L.D. No.: OR-11164-17-B
DATE REC. : 12-02-85
SLD PRIORITY #: 3

USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer

SUBMITTER CODE:

SAMPLE TYPE: WATER [X], SOIL [ ], OTHER

SAMPLE TYPE CODE:

COLLECTED: 85/11/21 (DATE) - 15:50 (TIME) BY DGB (INITIALS)

CODE: Y Y M M D D H H M M I I I

SOURCE: Phillips Lusk Cooling Tower Pond

CODE: AQUIFER + DEPTH

NEAREST CITY: Carlsbad

CODE:

LOCATION: Phillips Natural Gas Plant

CODE: TOWNSHIP RANGE SECTION TRACTS

pH= 7.3; Conductivity= 890 umho/cm at 11 °C; Chlorine Residual=

Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods and Remarks (i.e. odors, etc.)

S.E. Corner of blowdown pond, no evidence of floating oil, odor. Sample dipped

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. DG Boyer

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, Glass Jugs,

Containers are marked as follows to indicate preservation:

[ ] NP: No preservation; sample stored at room temperature.

[X] P-Ice Sample stored in an ice bath (not frozen).

P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from

to at (location) on

__/__/__ - __:__ (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures

(we) certify that this sample was transferred from

to at (location) on

__/__/__ - __:__ (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures

ANALYSES REQUESTED

LAB. No.: ORG- 1164

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halo. purg. screen	none detected		
arom. purg. screen	none detected		
		* DETECTION LIMIT	3 ugm/l

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes___ NO X. Seal(s) broken by:_____ date:_____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6 Dec 85. Analyst's signature: J. Finney

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: L. Meyerhen

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12 02 85 | LAB NO. [illegible] | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 85 11 21

Collection TIME 1550

Collected by — Person/Agency Boyer/Bailey

SITE INFORMATION

Sample location Cooling Tower Blowdown pond

Collection site description Phillips Lusk Natural Gas Plant

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level —	Discharge —	Sample type Grab
pH (00400) 7.3	Conductivity (Uncorrected) 890 µmho	Water Temp. (00010) 11 °C	Conductivity at 25°C (00094) µmho

Field comments Sample from S.E. corner of pond, no floating oil or odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1 | ☐ NF: Whole sample (Non-filtered) | ☒ F: Filtered in field with 0.45 µmembrane filter | ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* Est cond 1224@25°C / 2nd 1339@25°C

ANALYTICAL RESULTS from SAMPLES

F, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	1909	µmho	12/18
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.99		12/18
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☒ Calcium (00915)	220.	mg/l	12-4
☒ Magnesium (00925)	38.6	mg/l	"
☒ Sodium (00930)	135.	mg/l	"
☒ Potassium (00935)	24.4	mg/l	"
☒ Bicarbonate (00440)	177.0	mg/l	12/18
☒ Chloride (00940)	266.8	mg/l	1/10
☒ Sulfate (00945)	510	mg/l	12/31
☒ Total filterable residue (dissolved) (70300)	1496	mg/l	12/17
☒ Other: B	0.21		1/10
☒	1.37		12/5

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported 1/14/86 | Reviewed by

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12 02 85 | LAB NO. C-5279 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 85 11 21

Collection TIME 1550

SITE INFORMATION ►

Collected by — Person/Agency: Boyer/Bailey

Sample location: Cooling Tower Blowdown pond

Collection site description: Phillips Lusk Natural Gas Plan

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

RECEIVED
DEC 1985
OIL CONSERVATION DIVISION
SANTA FE

Station/well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level: —	Discharge: —	Sample type: Grab
pH (00400): 7.3	Conductivity (Uncorrected): 890 µmho	Water Temp. (00010): 11 °C	Conductivity at 25°C (00094): µmho

Field comments: Sample from S.E. corner of pond, no floating oil or odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ **NF:** Whole sample (Non-filtered) ☒ **F:** Filtered in field with 0.45 µmembrane filter ☒ **A:** 2 ml H_2SO_4/L added

☐ **NA:** No acid added ☐ *Other-specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☐ Other:		
☐ Other:		
☐ Other:		

F, NA	Units	Date analyzed
☐ Calcium (00915)	mg/l	
☐ Magnesium (00925)	mg/l	
☐ Sodium (00930)	mg/l	
☐ Potassium (00935)	mg/l	
☐ Bicarbonate (00440)	mg/l	
☐ Chloride (00940)	mg/l	
☐ Sulfate (00945)	mg/l	
☐ Total filterable residue (dissolved) (70300)	mg/l	
☐ Other:		

NF, A-H_2SO_4		
☐ Nitrate-N + , Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

F, A-H_2SO_4		
☒ Nitrate-N + , Nitrate-N dissolved (00631)	2.45 mg/l	12/9
☒ Ammonia-N dissolved (00608)	0.74 mg/l	12/4
☒ Total Kjeldahl-N ( )	1.67 mg/l	12/6
☐ Other:		

Analyst | Date Reported: 12 10 85 | Reviewed by: CD

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

PN

~~GENERAL WATER CHEMISTRY and NITROGEN~~ Heavy metal ANALYSIS

DATE RECEIVED 12 02 85 | LAB NO. HM-1969 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 85 11 21

Collection TIME 1550

SITE INFORMATION ►

Sample location: Cooling Tower Blowdown pond

Collection site description: Phillips Lusk Natural Gas Plan

Collected by — Person/Agency: Boyer/Bailey

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg,
Santa Fe, NM 87501

Attn: David Boyer

RECEIVED
JAN 13 1986
OIL CONSERVATION DIVISION
SANTA FE
PO Box 2088

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level: —	Discharge: —	Sample type: Grab
pH (00400): 7.3	Conductivity (Uncorrected): 850 µmho	Water Temp. (00010): 11 °C	Conductivity at 25°C (00094): µmho

Field comments: Sample from S.E. corner of pond, no floating oil or odor

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered)

☒ F: Filtered in field with 0.45 µmembrane filter

☒ A: ~~2 ml H_2SO_4/L~~ added 4 ml Foaming HNO_3

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

~~NF~~ F	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other: Icap Scan		
☒ Other: As		
☒ Other: Se		

F, NA	Units	Date analyzed
☐ Calcium (00915)	mg/l	
☐ Magnesium (00925)	mg/l	
☐ Sodium (00930)	mg/l	
☐ Potassium (00935)	mg/l	
☐ Bicarbonate (00440)	mg/l	
☐ Chloride (00940)	mg/l	
☐ Sulfate (00945)	mg/l	
☐ Total filterable residue (dissolved) (70300)	mg/l	
☐ Other:		

NF, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

F, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Other:		

Analyst | Date Reported: 12 31 85 | Reviewed by: Jim Ashley

Laboratory remarks: digested

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

Lab Number: HM1969 Sample Code: Cooling Tower

Date Submitted: 11/21/85 Date Analyzed: 12/16/85

By: Boyer/Bailey Reviewed By: Jim Bailey

Date Reported: 12/31/85

Element	ICAP VALUE(MG/L)	AA VALUE(MG/L)
Aluminum	<0.1	
Barium	0.2	
Berylium	<0.1	
Boron	0.2	
Cadmium	<0.1	
Calcium	220.	
Chromium	<0.1	
Cobalt	<0.1	
Copper	<0.1	
Iron	<0.1	
Lead	<0.1	
Magnesium	33.	
Manganese	<0.05	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	30.	
Silver	<0.1	
Strontium	1.9	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		0.029
Selenium		<0.005
Mercury		

ENVIRONMENT

RECEIVED
STATE OF NEW MEXICO
DEC 87
OIL CONSERVATION

85-1168-C

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

REPORT TO: DAVID G. BOYER FE
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

PHONE(S): 827-5812

S.L.D. No.: OR-1168-17.B
DATE REC.: 12/02/85
SLD PRIORITY #: 3

USER CODE: 8|2|2|3|5

SUBMITTER: David Boyer

SUBMITTER CODE:

SAMPLE TYPE: WATER [X], SOIL [ ], OTHER

SAMPLE TYPE CODE:

COLLECTED: 11/21/85 (DATE) - 16:10 (TIME) BY DGB (INITIALS)

CODE: Y Y M M D D H H M M I I I

SOURCE: Skimmer Pond

CODE: AQUIFER + DEPTH

NEAREST CITY: Carlsbad

CODE:

LOCATION: Phillips Lusk Gas Plant

CODE: TOWNSHIP RANGE SECTION TRACTS

pH= 5.1 ; Conductivity= 1220 umho/cm at 14 °C; Chlorine Residual=

Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods and Remarks (i.e. odors, etc.)

Middle of S. Shore. Floating oil, strong sour odor. Sample dipped * after swirling to push oil aside

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. D Boyer

Method of shipment to the Laboratory Hand carried

This form accompanies 2 Septum Vials, ___ Glass Jugs, ___

Containers are marked as follows to indicate preservation:

- [ ] NP: No preservation; sample stored at room temperature.
- [X] P-Ice Sample stored in an ice bath (not frozen).
- [ ] P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from _____ to _____ at (location) _____ on ___/___/___ - ___:___ (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

(we) certify that this sample was transferred from _____ to _____ at (location) _____ on ___/___/___ - ___:___ (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]

Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 1168

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halo. purg. screen	none detected		
benzene	230		
toluene	240		
ethylbenzene	50		
p-xylene	35		
m-xylene	90		
o-xylene	37		
		* DETECTION LIMIT	10 ug/L

REMARKS: Ten other compounds were detected by the aromatic screen that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes___ NO X. Seal(s) broken by:_____ date:_____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6 Dec 85. Analyst's signature: [signature]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: [signature]

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/02/85	LAB NO. WR 5270	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85/11/21	SITE INFORM-ATION ►	Sample location 0.1 Skimmer Pond, Phillips NGP	
Collection TIME 1610		Collection site description Natural Gas Plant	
Collected by — Person/Agency Boyer/Bailey OCD			

RECEIVED
JAN 20 1986
OIL CONSERVATION DIVISION
SANTA FE

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

Station/ well code

Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level —	Discharge —	Sample type GRAB
pH (00400) 5.1	Conductivity (Uncorrected) 1220 µmho	Water Temp. (00010) 14 °C	Conductivity at 25°C (00094) µmho

Field comments: Sample from middle of S. Shore. Floating oil, strong odor. Pre-Filtered only

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* → Pre Filtered Est from cond 1558

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	2225	µmho	12/18
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	5.15		12/18
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☒ Calcium (00915)	472.0	mg/l	12-30
☒ Magnesium (00925)	58.6	mg/l	"
☒ Sodium (00930)	29.9	mg/l	"
☒ Potassium (00935)	3.51	mg/l	"
☒ Bicarbonate (00440)	863.6	mg/l	12/18
☒ Chloride (00940)	106.1	mg/l	1/10
☒ Sulfate (00945)	110	mg/l	12/31
☒ Total filterable residue (dissolved) (70300)	2933	mg/l	12/23
☒ Other: B	2.26		1/10
	0.62		12/5

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst	Date Reported	Reviewed by
	1/14/86	

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/02/85	LAB NO. WC-5284	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85/11/21	SITE INFORM-ATION	Sample location 0.1 Skimmer Pond, Phillips NGL Natural Gas Plant	
Collection TIME 1610		Collection site description	
Collected by — Person/Agency Boyer/Bailey ocd			

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

RECEIVED
JAN 13 1986
OIL CONSERVATION DIVISION
SANTA FE

Station/well code
Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level —	Discharge —	Sample type GRAB
pH (00400) 5.1	Conductivity (Uncorrected) 1220 µmho	Water Temp. (00010) 14 °C	Conductivity at 25°C (00094) µmho

Field comments: Sample from middle of S. Shore. Floating oil, strong odor. ~~[illegible]~~ Pre Filtered only

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☒ NF: Whole sample (Non-filtered) ☐ F: Filtered in field with 0.45 µmembrane filter ☒ A: 2 ml H_2SO_4/L added

☐ NA: No acid added ☐ Other-*specify:* → Pre Filtered only

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N dissolved (00631)	0.08	mg/l	12/9
☒ Ammonia-N dissolved (00608)	11.3	mg/l	12/4
☒ Total Kjeldahl-N ( )	22.8	mg/l	12/17
☐ Other:			

Analyst | Date Reported 1/6/86 | Reviewed by

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

PN

Heavy Metal Analysis
~~GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS~~

DATE RECEIVED 12 02 85	LAB NO. HM-1966	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85 11 21	SITE INFORM- ►	Sample location	Oil Skimmer Pond, Phillips NGL
Collection TIME 1610		Collection site description	Natural Gas Plant
Collected by — Person/Agency	Boyer/Bailey ocd		

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg,
Santa Fe, NM 87501
Attn: David Boyer

RECEIVED
JAN 13 1986
OIL CONSERVATION DIVISION
SANTA FE

Station/ well code
Owner

SAMPLING CONDITIONS

☐ Bailed ☒ Dipped ☐ Pump ☐ Tap	Water level —	Discharge —	Sample type GRAB
pH (00400) 5.1	Conductivity (Uncorrected) 1220 µmho	Water Temp. (00010) 14 °C	Conductivity at 25°C (00094) µmho

Field comments: Sample from middle of S. Shore. Floating oil, strong odor. ~~Sample~~ Prefiltered only

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1 | ☐ NF: Whole sample (Non-filtered) | ☐ F: Filtered in field with 0.45 µmembrane filter | ☒ A: ~~2 ml H_2SO_4/L~~ added 4ml Foaming HNO_3

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

~~NF~~ F, A	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☒ Other: ICAP Scan			☐ Sodium (00930)	mg/l	
☒ Other: As			☐ Potassium (00935)	mg/l	
☒ Other: Se			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		

NF, A-H_2SO_4	Units	Date analyzed	F, A-H_2SO_4	Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l		☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ( )	mg/l				
☐ Other:					
☐ Other:					

Analyst	Date Reported	Reviewed by
	12 31 85	J.F. Bailey

Laboratory remarks: digested

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

Lab Number: [redacted]1966

Sample Code: Oil Skimmer Pond

Date Submitted: 11/22/85

Date Analyzed: 12/16/85

By: Boyer/Bailey

Reviewed By: Jim Ashby

Date Reported: 12/31/85

Element	ICAP VALUE(MG/L)	AA VALUE(MG/L)
Aluminum	0.2	
Barium	1.3	
Berylium	<0.1	
Boron	3.5	
Cadmium	<0.1	
Calcium	450.	
Chromium	0.1	
Cobalt	<0.1	
Copper	<0.1	
Iron	46.	
Lead	<0.1	
Magnesium	33.	
Manganese	0.83	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	1.6	
Silver	<0.1	
Strontium	1.5	
Tin	<0.1	
Vanadium	<0.1	
Zinc	0.6	
Arsenic		3.1
Selenium		<0.005
Mercury		

Positive Value from Ashby 1/13/86 ARB

85-1165-C

STATE OF NEW MEXICO
ENVIRONMENT

RECEIVED
DEC 2 1985
OIL CONSERVATION DIVISION
SANTA FE

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

PHONE(S): 827-5812

S.L.D. No.: OR-1165-A,B
DATE REC. : 12-02-85
SLD PRIORITY #: 3

USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer
SUBMITTER CODE:

SAMPLE TYPE: WATER [X], SOIL [ ], OTHER
SAMPLE TYPE CODE:

COLLECTED: 85/11/21 (DATE) - 16:30 (TIME) BY DGB (INITIALS)
CODE: Y Y M M D D H H M M I I I

SOURCE: Pond Mon. Well #1
CODE: AQUIFER + DEPTH

NEAREST CITY: Carlsbad
CODE:

LOCATION: Phillips Lusk Gas Plant
CODE: TOWNSHIP RANGE SECTION TRACTS

pH= 6.3; Conductivity= 1000 umho/cm at 18 °C; Chlorine Residual=
Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=
Sampling Location, Methods and Remarks (i.e. odors, etc.)
4" Mon well pumped dry (cond 1000 @ 19°C). Sampled by bailer after 3 hour recovery

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. D G Boyer
Method of shipment to the Laboratory Hand carried
This form accompanies 2 Septum Vials, Glass Jugs,
Containers are marked as follows to indicate preservation:
[ ] NP: No preservation; sample stored at room temperature.
[X] P-Ice Sample stored in an ice bath (not frozen).
[ ] P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from
to at (location) on
__/__/__ - __:__ (DATE AND TIME) and that the statements in this block are correct.
Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]
Signatures

(we) certify that this sample was transferred from
to at (location) on
__/__/__ - __:__ (DATE AND TIME) and that the statements in this block are correct.
Evidentiary Seals: Not Sealed [ ] Seals Intact: Yes [ ] No [ ]
Signatures

ANALYSES REQUESTED

LAB. No.: ORG- 1165

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halo. purg. screen	none detected		
arom. purg. screen	none detected		
		* DETECTION LIMIT	2 ug/m/l

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes___ NO X. Seal(s) broken by:_____ date:_____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6 Dec 85. Analyst's signature: [signature]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: [signature]

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/02/85	LAB NO. WC 5272	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85 11 21	SITE INFORMATION ►	Sample location Don Q Mon well #1, Phillips Lusk Natural Gas Plant	
Collection TIME 1630		Collection site description 4" Mm well	
Collected by — Person/Agency Boyer/Bailey			

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

RECEIVED
JAN 20 1986
OIL CONSERVATION DIVISION
SANTA FE

Station/well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level 37.20' DTW	Discharge ~5gpm pumped	Sample type GRAB
pH (00400) 6.3 6.4	Conductivity (Uncorrected) 1000 µmho	Water Temp. (00010) 18 °C	Conductivity at 25°C (00094) µmho

Field comments: pumped dry (cond 1000@ 19°C) sampled by bailer after 3 hour recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1 | ☐ NF: Whole sample (Non-filtered) | ☒ F: Filtered in field with 0.45 µmembrane filter | ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* Est corr cond 1163

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	1947	µmho	12/18
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.93		12/18
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☒ Calcium (00915)	220.4	mg/l	12-30
☒ Magnesium (00925)	81.6	mg/l	"
☒ Sodium (00930)	103.5	mg/l	"
☒ Potassium (00935)	5.07	mg/l	"
☒ Bicarbonate (00440)	226.7	mg/l	12/18
☒ Chloride (00940)		mg/l	1/10
☒ Sulfate (00945)	654	mg/l	12/31
☒ Total filterable residue (dissolved) (70300)	1559	mg/l	12/23
☒ Other: Br	0.24		1/10
☒	1.31		12/5

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4		
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l
☐ Ammonia-N dissolved (00608)		mg/l
☐ Total Kjeldahl-N ( )		mg/l
☐ Other:		

Analyst	Date Reported	Reviewed by
	1 14 86	CD

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED: 12/02/85 | LAB NO: WC 5272 | USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE: 12/11/21 | Collection TIME: 1630 | Collected by — Person/Agency: Boyer/Bailey

SITE INFORMATION ►

Sample location: Pan Am Mon well #1, Phillips Lusk

Collection site description: Natural Gas Plant

4" Mon well

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

Station/well code:

Owner:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level: 37.20' DTW	Discharge: ~5 gpm pumped	Sample type: GRAB
pH (00400): 6.3 ~~6.4~~	Conductivity (Uncorrected): 1000 µmho	Water Temp. (00010): 18 °C	Conductivity at 25°C (00094): µmho

Field comments: pumped dry (Cond 1000@ 19°C) Sampled by bailer after 3 hour recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	1947	µmho	12/18
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.93		12/18
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☒ Calcium (00915)	220.4	mg/l	12-30
☒ Magnesium (00925)	81.6	mg/l	"
☒ Sodium (00930)	1038	mg/l	"
☒ Potassium (00935)	5.07	mg/l	"
☒ Bicarbonate (00440)	826.7	mg/l	12/18
☒ Chloride (00940)	133	mg/l	1/10
☒ Sulfate (00945)	654	mg/l	12/31
☒ Total filterable residue (dissolved) (70300)	1559	mg/l	12/23
☒ Other: Br	0.24		1/10
☒	1.31		12/5

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported: 1/14/86 | Reviewed by: CD

Laboratory remarks: Dave, here is the Chloride on this sample

CD

SLD 726 (12/84) *DISTRIBUTION:* WHITE — EID, GW&HW Bureau CANARY — WS System PINK — EID Local Office GOLDENROD — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/02/85 | LAB NO. LL 5278 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 85 11 21 | Collection TIME 1630 | SITE INFORMATION ►

Sample location: Pan Am Well #1, Phillips Lusk

Collection site description: Natural Gas Plant

4" Mon well

Collected by — Person/Agency: Boyer/Bailey

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

RECEIVED JAN 16 1986 OIL CONSERVATION DIVISION SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level: 37.20' DTW	Discharge: ~5gpm pumped	Sample type: GRAB
pH (00400): 6.3 ~~6.4~~	Conductivity (Uncorrected): 1000 µmho	Water Temp. (00010): 18 °C	Conductivity at 25°C (00094): µmho

Field comments: pumped dry (Cond 1000@ 19°C) sampled by bailer after 3 hour recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ **NF:** Whole sample (Non-filtered) ~~☒~~ **F:** Filtered in field with 0.45 µmembrane filter ☒ **A:** 2 ml H_2SO_4/L added

☐ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA		Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)		µmho	
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☐ Other:			
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N dissolved (00631)	22.3	mg/l	1/9
☒ Ammonia-N dissolved (00608)	<0.10	mg/l	12/4
☒ Total Kjeldahl-N ( )	1.59	mg/l	12/9
☐ Other:			

Analyst | Date Reported: 1 9 86 | Reviewed by

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

RECEIVED DEC 26 1985

Heavy Metal
~~GENERAL WATER CHEMISTRY and NITROGEN~~ ANALYSIS

DATE RECEIVED 12 02 85 | LAB NO. HM-1973 | USER CODE ☐ E59300 ☐ D59600 ☒ OTHER: 82235

Collection DATE 85 11 21
Collection TIME 1630
Collected by — Person/Agency Boyer/Bailey

SITE INFORMATION ►
Sample location: Pond Mon well (#), Phillips Lusk
Collection site description: Natural Gas Plant
4" Mm well

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

Station/ well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level: 37.20' DTW	Discharge: ~5gpm pumped	Sample type: GRAB
pH (00400): 6.3 ~~6.4~~	Conductivity (Uncorrected): 1000 µmho	Water Temp. (00010): 18 °C	Conductivity at 25°C (00094): µmho

Field comments: pumped dry (cond 1000@ 19°C) sampled by bailer after ~3 hour recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered)
☒ F: Filtered in field with 0.45 µmembrane filter
☒ A: ~~2 ml H_2SO_4/L~~ added 4 ml foaming HNO_3
☐ NA: No acid added ☐ Other-specify:

ANALYTICAL RESULTS from SAMPLES

~~NF, NA~~ F, A

	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other: ICAP Scan		
☒ Other: As		
☒ Other: Se		

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported: 12 18 85 | Reviewed by: Jim Ashley

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

Lab Number: #M 1973 Sample Code: Pond Mon Well #1 Phillips Lusk

Date Submitted: 12/2/85 Date Analyzed: 12/16/85

By: Boyer/Bailey Reviewed By: Jim Bailey

Date Reported: 12/18/85

Element	ICAP VALUE(MG/L)	AA VALUE(MG/L)
Aluminum	<0.1	
Barium	<0.1	
Berylium	<0.1	
Boron	<0.1	
Cadmium	<0.1	
Calcium	69.	
Chromium	<0.1	
Cobalt	<0.1	
Copper	<0.1	
Iron	<0.1	
Lead	<0.1	
Magnesium	31.	
Manganese	<0.05	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	13.	
Silver	<0.1	
Strontium	1.1	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		0.013
Selenium		0.005
Mercury		

RECEIVED
STATE OF NEW MEXICO
ENVIRONMENT
OIL CONSERVATION DIVISION

85-1160-C

SOIL LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501

PHONE(S): 827-5812

S.L.D. No.: OR-1160-A,B
DATE REC. : 12/02/85
SLD PRIORITY #: 3

USER CODE: 8 2 2 3 5

SUBMITTER: DAVID BOYER
SUBMITTER CODE:

SAMPLE TYPE: WATER X, SOIL ☐, OTHER
SAMPLE TYPE CODE:

COLLECTED: 85/11/21 - 14:10 BY DGB
DATE TIME INITIALS
CODE: Y Y M M D D H H M M I I I

SOURCE: Pond Mon well #2
CODE: AQUIFER DEPTH

NEAREST CITY: Carlsbad
CODE:

LOCATION: Phillips Lusk Gas Plant
CODE: TOWNSHIP RANGE SECTION TRACTS

pH= 6.6 ; Conductivity= 1100 umho/cm at 20 °c; Chlorine Residual=
Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=
Sampling Location, Methods and Remarks (i.e. odors, etc.)

~~Sample~~ pumped to dryness by sub. pump. Sampled by bailer after recovery. 4" Mon Well. During pumping cond. 455 umhos @ 20°

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. DG Boyer
Method of shipment to the Laboratory Hand carried
This form accompanies 2 Septum Vials, Glass Jugs,
Containers are marked as follows to indicate preservation:
☐ NP: No preservation; sample stored at room temperature.
☒ P-Ice Sample stored in an ice bath (not frozen).
☐ P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from
to at (location) on
__/__/__ - __:__ and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐
Signatures

(we) certify that this sample was transferred from
to at (location) on
__/__/__ - __:__ and that the statements in this block are correct.
DATE AND TIME
Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐
Signatures

ANALYSES REQUESTED

LAB. No.: ORG- 1160

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
✓	✓	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
✓	✓	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halo. purg. screen	none detected		
benzene	35		
toluene	6		
ethylbenzene	6		
p-xylene	none detected		
m-xylene	none detected		
o-xylene	none detected		
		* DETECTION LIMIT	2 ugm/l

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes___ NO X. Seal(s) broken by:_____ date:_____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6Dec85. Analyst's signature: [signature]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: [signature]

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12 02 85	LAB NO. WC-5268	USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85 11 21	SITE INFORM-ATION	Sample location: Pan Am Mon well #2, Phillips Lusk Natural Gas Plant	
Collection TIME 1410		Collection site description:	
Collected by — Person/Agency: Boyer/Bailey OCD			

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DEC 10 1985
OIL CONSERVATION DIVISION
SANTA FE

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

Station/well code:
Owner:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 38.65' DTW	Discharge pumped @ 5 gpm	Sample type GRAB
pH (00400) 6.6	Conductivity (Uncorrected) 1100 µmho	Water Temp. (00010) 20 °C	Conductivity at 25°C (00094) µmho

Field comments: 4" Mon well, pumped dry (455 µmhos @ 20°C), bailed after 90 min Recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1 ☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:* Est conv cond 1223

ANALYTICAL RESULTS from SAMPLES

F, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	2358	µmho	12/18
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.79		12/18
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☒ Calcium (00915)	129.6	mg/l	12-30
☒ Magnesium (00925)	152.7	mg/l	"
☒ Sodium (00930)	142.6	mg/l	"
☒ Potassium (00935)	4.29	mg/l	"
☒ Bicarbonate (00440)	549.1	mg/l	12/18
☒ Chloride (00940)	369.3	mg/l	1/10
☒ Sulfate (00945)	309	mg/l	12/31
☒ Total filterable residue (dissolved) (70300)	1608	mg/l	12/23
☒ Other: B	0.47		1/10
☒ F	2.21		12/5

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported 1 14 86 | Reviewed by

Laboratory remarks:

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/02/85	LAB NO. WC-5281	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85/11/21	SITE INFORM-ATION ►	Sample location Pan Am Mon well #2, Phillips Lusk	
Collection TIME 1410		Collection site description Natural Gas Plant	
Collected by — Person/Agency Boyer/Bailey OCD			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

RECEIVED
DEC 18 1985
OIL CONSERVATION DIVISION
SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 38.65' DTW	Discharge pumped ~ 5 gpm	Sample type GRAB
pH (00400) 6.6	Conductivity (Uncorrected) 1100 µmho	Water Temp. (00010) 20 °C	Conductivity at 25°C (00094) µmho

Field comments 4" Mon well, pumped dry (455 µmhos @ 20°C), bailed after 90 min Recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1

☐ **NF:** Whole sample (Non-filtered)

☒ **F:** Filtered in field with 0.45 µmembrane filter

☒ **A:** 2 ml H_2SO_4/L added

☐ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☐ Other:		
☐ Other:		
☐ Other:		

F, NA	Units	Date analyzed
☐ Calcium (00915)	mg/l	
☐ Magnesium (00925)	mg/l	
☐ Sodium (00930)	mg/l	
☐ Potassium (00935)	mg/l	
☐ Bicarbonate (00440)	mg/l	
☐ Chloride (00940)	mg/l	
☐ Sulfate (00945)	mg/l	
☐ Total filterable residue (dissolved) (70300)	mg/l	
☐ Other:		

NF, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4

☒ Nitrate-N +, Nitrate-N dissolved (00631)	0.04	mg/l	12/9
☒ Ammonia-N dissolved (00608)	0.24	mg/l	12/4
☒ Total Kjeldahl-N ( )	0.64	mg/l	12/9
☐ Other:			

Analyst	Date Reported	Reviewed by
	12 10 85	

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

PN

~~GENERAL WATER CHEMISTRY~~ Navy McTel
~~and NITROGEN~~ ANALYSIS

DATE RECEIVED 12 02 85	LAB NO. HM-1970	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85 11 21	SITE INFORM-ATION ►	Sample location: Pan Am Mon well #2, Phillips Lusk Natural Gas Plant	
Collection TIME 1410			
Collected by — Person/Agency: Boyer/Bailey OCD		Collection site description	

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

RECEIVED
JAN 13 1986
OIL CONSERVATION DIVISION
SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 38.65' DTW	Discharge pumped ~ 5 gpm	Sample type GRAB
pH (00400) 6.6	Conductivity (Uncorrected) 1100 µmho	Water Temp. (00010) 20 °C	Conductivity at 25°C (00094) µmho

Field comments: 4" Mon well, pumped dry (455 µmhos @ 20°C), bailed after 90 min Recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered)

☒ F: Filtered in field with 0.45 µmembrane filter

☒ A: ~~2 ml H_2SO_4/L~~ added 4 ml Formin HNO_3

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

~~NF, NA~~ F, A	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☒ Other: ICAP SCAN		
☒ Other: As		
☒ Other: Se		

F, NA	Units	Date analyzed
☐ Calcium (00915)	mg/l	
☐ Magnesium (00925)	mg/l	
☐ Sodium (00930)	mg/l	
☐ Potassium (00935)	mg/l	
☐ Bicarbonate (00440)	mg/l	
☐ Chloride (00940)	mg/l	
☐ Sulfate (00945)	mg/l	
☐ Total filterable residue (dissolved) (70300)	mg/l	
☐ Other:		

NF, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N total (00630)	mg/l	
☐ Ammonia-N total (00610)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l	
☐ Total organic carbon ( )	mg/l	
☐ Other:		
☐ Other:		

F, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Other:		

Analyst	Date Reported	Reviewed by
	12 31 85	JPA

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

Lab Number: HM 1970

Sample Code: Pond Mon Well #2

Date Submitted: 12/02/85

Date Analyzed: 12/16/85 Phillips Dusk

By: Boyer/Bailey

Reviewed By: Jim Ashley

Date Reported: 12/31/85

Element	ICAP VALUE (MG/L)	AA VALUE (MG/L)
Aluminum	<0.1	
Barium	0.1	
Berylium	<0.1	
Boron	0.4	
Cadmium	<0.1	
Calcium	120.	
Chromium	<0.1	
Cobalt	<0.1	
Copper	<0.1	
Iron	1.5	
Lead	<0.1	
Magnesium	160.	
Manganese	0.64	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	22.	
Silver	<0.1	
Strontium	2.6	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		0.027
Selenium		<0.005
Mercury		

ENVIRONMENT

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION
SANTA FE

RECEIVED 85-1167-C

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501
PHONE(S): 827-5812

S.L.D. No.: OR-1167-A,B
DATE REC. : 12-02-85
SLD PRIORITY #: 3

USER CODE: 8 2 2 3 5

SUBMITTER: David Boyer
SUBMITTER CODE:

SAMPLE TYPE: WATER ☒, SOIL ☐, OTHER
SAMPLE TYPE CODE:

COLLECTED: 85/11/21 (DATE) -14:45 (TIME) BY DGB (INITIALS)
CODE: Y Y M M D D H H M M I I I

SOURCE: Pond Mon Well #3
CODE: AQUIFER + DEPTH

NEAREST CITY: Carlsbad
CODE:

LOCATION: Phillips 2USK Natural Gas Plant
CODE: TOWNSHIP RANGE SECTION TRACTS

pH= 6.7; Conductivity= 1000 umho/cm at 18 °C; Chlorine Residual=
Dissolved Oxygen= mg/l; Alkalinity= ; Flow Rate=

Sampling Location, Methods and Remarks (i.e. odors, etc.) 4" mon. well pumped to dryness by Sub. Pump. Sampled after 105 min. recovery period. During pumping Cond 1080@21°

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. David G. Boyer

Method of shipment to the Laboratory Hand Carried

This form accompanies 2 Septum Vials, Glass Jugs,

Containers are marked as follows to indicate preservation:

- ☐ NP: No preservation; sample stored at room temperature.
- ☒ P-Ice Sample stored in an ice bath (not frozen).
- ☐ P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from

to at (location) on

__/__/__ - __:__ (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

(we) certify that this sample was transferred from

to at (location) on

__/__/__ - __:__ (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures

ANALYSES REQUESTED

LAB. No.: ORG- 1167

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halo. purg. screen	none detected		
benzene	15		
toluene	580		
ethylbenzene	200		
p-xylene	170		
m-xylene	120		
o-xylene	68		
		* DETECTION LIMIT	15 ug/l

REMARKS: Three other compounds were detected by the aromatic screen that were not identified.

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6 Dec 85. Analyst's signature: J. Tenney

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: K. Meyerhofer

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/02/85 | LAB NO. LL-5264 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 85/11/21 | Collection TIME 1445 | Collected by: Person/Agency Boyer/Bailey

SITE INFORMATION ►

Sample location: Pond Monwell #3, Phillips Lusk Natural Gas Plant

Collection site description: 4" Mon Well

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

RECEIVED JAN 20 1986 OIL CONSERVATION DIVISION SANTA FE

Station/well code:

Owner:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level: 38.00' DTW	Discharge: Pumped ~ 5GPM	Sample type: Grab
pH (00400): 6.7 (Final)	Conductivity (Uncorrected): 1000 µmho	Water Temp. (00010): 18 °C	Conductivity at 25°C (00094): µmho

Field comments: Pumped to dryness (1080 µmhos @ 21°C). Sampled by bailer after 105 min recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1 | ☐ NF: Whole sample (Non-filtered) | ☒ F: Filtered in field with 0.45 µ membrane filter | ☐ A: 2 ml H_2SO_4/L added

☒ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

F, NA		Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	3368	µmho	12/18
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.81		12/18
☐ Other:			
☐ Other:			

F, NA		Units	Date analyzed
☒ Calcium (00915)	125.6	mg/l	12-30
☒ Magnesium (00925)	258.15	mg/l	"
☒ Sodium (00930)	234.6	mg/l	
☒ Potassium (00935)	2.73	mg/l	
☒ Bicarbonate (00440)	804.7	mg/l	12/18
☒ Chloride (00940)	615.7	mg/l	1/10
☒ Sulfate (00945)	365	mg/l	12/31
☒ Total filterable residue (dissolved) (70300)	2,530	mg/l	12/17
☒ Other: B	0.47		1/10
☒	2.28		12/5

NF, A-H_2SO_4			
☐ Nitrate-N + , Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☐ Nitrate-N + , Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported: 1/14/86 | Reviewed by

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12 02 85	LAB NO. LL-5280	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85 11 21	SITE INFORMATION ►	Sample location Pond Monitor Well #3, Phillips Lusk Natural Gas Plant	
Collection TIME 1445		Collection site description 4" Mon. Well	
Collected by (Person/Agency) Boyer / Bailey			

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

RECEIVED
DEC 18 1985
OIL CONSERVATION DIVISION
SANTA FE

Station/ well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 38.00' BTW	Discharge Pumped @ 5GPM	Sample type Grab
pH (00400) 6.7 (Field)	Conductivity (Uncorrected) 1000 µmho	Water Temp. (00010) 18 °C	Conductivity at 25°C (00094) µmho

Field comments: Pumped to dryness (1080 µmhos @ 21°C). Sampled by bailer after 105 min recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ **NF:** Whole sample (Non-filtered) ☒ **F:** Filtered in field with 0.45 µmembrane filter ☒ **A:** 2 ml H_2SO_4/L added

☐ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☐ Other:			☐ Sodium (00930)	mg/l	
☐ Other:			☐ Potassium (00935)	mg/l	
☐ Other:			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		

NF, A-H_2SO_4	Units	Date analyzed	F, A-H_2SO_4	Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☒ Nitrate-N +, Nitrate-N dissolved (00631)	0.11 mg/l	12/9
☐ Ammonia-N total (00610)	mg/l		☒ Ammonia-N dissolved (00608)	0.28 mg/l	12/4
☐ Total Kjeldahl-N ( )	mg/l		☒ Total Kjeldahl-N ( )	1.14 mg/l	12/9
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ( )	mg/l				
☐ Other:					
☐ Other:					

Analyst	Date Reported	Reviewed by
	12/10/85	

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

PN

Heavy Metal ~~GENERAL WATER CHEMISTRY and NITROGEN~~ ANALYSIS

DATE RECEIVED 12 02 85	LAB NO. HM-1967	USER CODE ☐ 59300 ☐ 59600 XX OTHER: 82235	
Collection DATE 85 11 21	SITE INFORMATION ►	Sample location Pond Monwell #3, Phillips Luck	
Collection TIME 1445		Collection site description Natural Gas Plant	
Collected by (Person/Agency) Reed / Bailey		4" Mon Well	

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

JAN 13 1985
OIL CONSERVATION DIVISION
SANTA FE

Station/ well code

Owner

SAMPLING CONDITIONS

☑ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level 38.00' DTW	Discharge Pumped on 5:55pm	Sample type Grab
pH (00400) 6.7 (Field)	Conductivity (Uncorrected) 1080 µmho	Water Temp. (00010) 18 °C	Conductivity at 25°C (00094) µmho

Field comments Pumped to dryness (1080 µmhos @ 21°C). Sampled by bailer after 105 min recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted 1	☐ NF: Whole sample (Non-filtered)	☑ F: Filtered in field with 0.45 µm membrane filter	☑ A: ~~2 ml H_2SO_4~~ added 4 ml Formic HNO_3

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

~~NF, NA~~ F, A	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☑ Magnesium (00925)	mg/l	
☑ Other: ICAP SCAN			☐ Sodium (00930)	mg/l	
☑ Other: As			☐ Potassium (00935)	mg/l	
☑ Other: Se			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		

NF, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		
☐ Ammonia-N total (00610)	mg/l		
☐ Total Kjeldahl-N ( )	mg/l		
☐ Chemical oxygen demand (00340)	mg/l		
☐ Total organic carbon ( )	mg/l		
☐ Other:			
☐ Other:			

F, A-H_2SO_4

☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l	
☐ Other:		

Analyst	Date Reported	Reviewed by
	12 31 85	Jim Bobby

Laboratory remarks digested

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

Lab Number: [redacted]1967

Sample Code: Pond Mon well #3

Date Submitted: 11/22/85

Date Analyzed: 12/16/85

By: Boyer

Reviewed By: Jim Ashley

Date Reported: 12/31/85

Element	ICAP VALUE(MG/L)	AA VALUE(MG/L)
Aluminum	<0.1	
Barium	0.3	
Berylium	<0.1	
Boron	0.4	
Cadmium	<0.1	
Calcium	100.	
Chromium	<0.1	
Cobalt	<0.1	
Copper	<0.1	
Iron	3.6	
Lead	<0.1	
Magnesium	230.	
Manganese	0.83	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	17.	
Silver	<0.1	
Strontium	3.9	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		0.053
Selenium		<0.005
Mercury		

85-1159-C

STATE OF NEW MEXICO
ENVIRONMENT
DEC
OIL CONSERVATION DIVISION

SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 841-2570

REPORT TO: DAVID G. BOYER
PLEASE PRINT
NEW MEXICO OIL CONSERVATION DIV.
P.O. BOX 2088
SANTA FE, NM 87501
PHONE(S): 827-5812

S.L.D. No.: OR-1159-17.B
DATE REC.: 12/02/85
SLD PRIORITY #: 3

USER CODE: 8|2|2|3|5|

SUBMITTER: D. Boyer
SUBMITTER CODE:

SAMPLE TYPE: WATER X, SOIL ☐, OTHER
SAMPLE TYPE CODE:

COLLECTED: 85/11/21 (DATE) - 15:30 (TIME) BY DGB (INITIALS)
CODE: Y Y M M D D H H M M I I I

SOURCE: Pond Monwell #4
CODE: AQUIFER DEPTH

NEAREST CITY: Carlsbad
CODE:

LOCATION: Phillips Lusk Gas Plant
CODE: TOWNSHIP RANGE SECTION TRACTS

pH= 6.4; Conductivity= 950 umho/cm at 18 °C; Chlorine Residual=
Dissolved Oxygen= mg/l; Alkalinity=; Flow Rate=

Sampling Location, Methods and Remarks (i.e. odors, etc.)

4" Well pumped dry by Sub. pump. Sampled by bailer after 2hr 10min recovery. Pumped Cond 1320 @ 21°C

I certify that the statements in this block accurately reflect the results of my field analyses, observations and activities. D G Boyer

Method of shipment to the Laboratory Hand Carried

This form accompanies 2 Septum Vials, ___ Glass Jugs, ___

Containers are marked as follows to indicate preservation:

- ☐ NP: No preservation; sample stored at room temperature.
- ☒ P-Ice: Sample stored in an ice bath (not frozen).
- ☐ P-$Na_2S_2O_3$; Sample preserved with $Na_2S_2O_3$ to remove chlorine residual.

I (we) certify that this sample was transferred from _____ to _____ at (location) _____ on ___/___/___ - ___:___ (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____ _____

(we) certify that this sample was transferred from _____ to _____ at (location) _____ on ___/___/___ - ___:___ (DATE AND TIME) and that the statements in this block are correct.

Evidentiary Seals: Not Sealed ☐ Seals Intact: Yes ☐ No ☐

Signatures _____ _____

ANALYSES REQUESTED

LAB. No.: ORG- 1159

PLEASE CHECK THE APPROPRIATE BOXES BELOW TO INDICATE THE TYPE OF ANALYTICAL SCREENS REQUIRED. WHENEVER POSSIBLE LIST SPECIFIC COMPOUNDS SUSPECTED OR REQUIRED.

QUALITATIVE	QUANTITATIVE	PURGEABLE SCREENS	QUALITATIVE	QUANTITATIVE	EXTRACTABLE SCREENS
		ALIPHATIC HYDROCARBON SCREEN			ALIPHATIC HYDROCARBONS
X	X	AROMATIC HYDROCARBON SCREEN			CHLORINATED HYDROCARBON PESTICIDES
X	X	HALOGENATED HYDROCARBON SCREEN			CHLOROPHENOXY ACID HERBICIDES
		GAS CHROMATOGRAPH/MASS SPECTROMETER			HYDROCARBON FUEL SCREEN
					ORGANOPHOSPHATE PESTICIDES
					POLYCHLORINATED BIPHENYLS (PCB's)
					POLYNUCLEAR AROMATIC HYDROCARBONS
					TRIAZINE HERBICIDES
		SPECIFIC COMPOUNDS			SPECIFIC COMPOUNDS

REMARKS:

ANALYTICAL RESULTS

COMPOUND	[PPB]	COMPOUND	[PPB]
halo. purg. screen	none detected		
arom. purg. screen	none detected		
		* DETECTION LIMIT	1 ugm/l

REMARKS:

CERTIFICATE OF ANALYTICAL PERSONNEL

Seal(s) Intact: Yes ___ NO X. Seal(s) broken by: _____ date: _____

I certify that I followed standard laboratory procedures on handling and analysis of this sample unless otherwise noted and that the statements in this block and the analytical data on this page accurately reflect the analytical results for this sample.

Date(s) of analysis: 6 Dec 85. Analyst's signature: [signature]

I certify that I have reviewed and concur with the analytical results for this sample and with the statements in this block. Reviewers signature: K Meyerhen

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/02/85 | LAB NO. WC 5371 | USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235

Collection DATE 85/11/21
Collection TIME 1530
Collected by — Person/Agency Boyer/Bailey

SITE INFORMATION ►
Sample location: Pond mon well #4, Phillips Lusk
Collection site description: Natural Gas Plant

RECEIVED JAN 20 1986 OIL CONSERVATION DIVISION SANTA FE

SEND FINAL REPORT TO ►
ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501
Attn: David Boyer

Station/well code
Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Pump ☐ Dipped ☐ Tap	Water level 37.20' DTW	Discharge ~5 gpm pumped	Sample type Grab
pH (00400) 6.4	Conductivity (Uncorrected) 950 µmho	Water Temp. (00010) 18 °C	Conductivity at 25°C (00094) µmho

Field comments: 4" mon well pumped dry (cond 1320 @ 21°) sampled by bailer after 2 hrs 10 min recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1
☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☐ A: 2 ml H_2SO_4/L added
☒ NA: No acid added ☐ Other-specify: Est corr cond 1105

ANALYTICAL RESULTS from SAMPLES

F, NA

	Result	Units	Date analyzed
☒ Conductivity (Corrected) 25°C (00095)	3115	µmho	12/18
☐ Total non-filterable residue (suspended) (00530)		mg/l	
☒ Other: pH	7.87		12/18
☐ Other:			
☐ Other:			

F, NA

	Result	Units	Date analyzed
☒ Calcium (00915)	276.0	mg/l	12-30
☒ Magnesium (00925)	118.0	mg/l	"
☒ Sodium (00930)	278.3	mg/l	"
☒ Potassium (00935)	4.29	mg/l	"
☒ Bicarbonate (00440)	280.2	mg/l	12/18
☒ Chloride (00940)	453.3	mg/l	1/10
☒ Sulfate (00945)	848	mg/l	12/31
☒ Total filterable residue (dissolved) (70300)	2328	mg/l	12/23
☒ Other: B	0.42		1/10
F	2.33		12/5

NF, A-H_2SO_4

	Result	Units	Date analyzed
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4

	Result	Units	Date analyzed
☐ Nitrate-N +, Nitrate-N dissolved (00631)		mg/l	
☐ Ammonia-N dissolved (00608)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Other:			

Analyst | Date Reported 1/14/86 | Reviewed by [signature]

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/02/85	LAB NO. WC 5277	USER CODE ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85/11/21	SITE INFORMATION ►	Sample location: Pond Mon well #4, Phillips Lusk Natural Gas Plant	
Collection TIME 1530		Collection site description:	
Collected by — Person/Agency: Boyer/Bailey			

DEC 18 1985
OIL CONSERVATION DIVISION

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/ well code:

Owner:

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level: 37.20' DTW	Discharge: ~5 gpm pumped	Sample type: Grab
pH (00400): 6.4	Conductivity (Uncorrected): 930 µmho	Water Temp. (00010): 18 °C	Conductivity at 25°C (00094): µmho

Field comments: 4" mon well pumped dry (cond 1320 @ 21°C) Sampled by bailer after 2hr 10 Min recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ **NF:** Whole sample (Non-filtered) ☒ **F:** Filtered in field with 0.45 µmembrane filter ☒ **A:** 2 ml H_2SO_4/L added

☐ **NA:** No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

NF, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho	
☐ Total non-filterable residue (suspended) (00530)	mg/l	
☐ Other:		
☐ Other:		
☐ Other:		

F, NA		Units	Date analyzed
☐ Calcium (00915)		mg/l	
☐ Magnesium (00925)		mg/l	
☐ Sodium (00930)		mg/l	
☐ Potassium (00935)		mg/l	
☐ Bicarbonate (00440)		mg/l	
☐ Chloride (00940)		mg/l	
☐ Sulfate (00945)		mg/l	
☐ Total filterable residue (dissolved) (70300)		mg/l	
☐ Other:			

NF, A-H_2SO_4			
☐ Nitrate-N +, Nitrate-N total (00630)		mg/l	
☐ Ammonia-N total (00610)		mg/l	
☐ Total Kjeldahl-N ( )		mg/l	
☐ Chemical oxygen demand (00340)		mg/l	
☐ Total organic carbon ( )		mg/l	
☐ Other:			
☐ Other:			

F, A-H_2SO_4			
☒ Nitrate-N +, Nitrate-N dissolved (00631)	3.06	mg/l	12/9
☒ Ammonia-N dissolved (00608)	0.47	mg/l	12/4
☒ Total Kjeldahl-N ( )	1.76	mg/l	12/9
☐ Other:			

Analyst	Date Reported	Reviewed by
	12/10/85	CDean

Laboratory remarks:

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

New Mexico Health and Environment Department
SCIENTIFIC LABORATORY DIVISION
700 Camino de Salud NE
Albuquerque, NM 87106 — (505) 841-2555

RECEIVED DEC 26 1985

Heavy Metal GENERAL WATER CHEMISTRY and NITROGEN ANALYSIS

DATE RECEIVED 12/02/85	LAB NO. HM-1972	USER CODE: ☐ 59300 ☐ 59600 ☒ OTHER: 82235	
Collection DATE 85/11/21	SITE INFORMATION ►	Sample location: Pond Mon well #4, Phillips LNGK	
Collection TIME 1530		Collection site description: Natural Gas Plant	
Collected by — Person/Agency: Boyer/Bailey			

SEND FINAL REPORT TO ►

ENVIRONMENTAL BUREAU
NM OIL CONSERVATION DIVISION
State Land Office Bldg, PO Box 2088
Santa Fe, NM 87501

Attn: David Boyer

Station/ well code

Owner

SAMPLING CONDITIONS

☒ Bailed ☐ Dipped ☐ Pump ☐ Tap	Water level: 37.20' DTW	Discharge: ~5 gpm pumped	Sample type: Grab
pH (00400): 6.4	Conductivity (Uncorrected): 950 µmho	Water Temp. (00010): 18 °C	Conductivity at 25°C (00094): µmho

Field comments: 4" mon well pumped dry (cond 1320 @ 21°) Sampled by bailer after 2hr 10 Min recovery

SAMPLE FIELD TREATMENT — *Check proper boxes*

No. of samples submitted: 1

☐ NF: Whole sample (Non-filtered) ☒ F: Filtered in field with 0.45 µmembrane filter ☒ A: ~~2 ml H_2SO_4/L~~ added 4 ml Forming HNO_3

☐ NA: No acid added ☐ Other-*specify:*

ANALYTICAL RESULTS from SAMPLES

~~NF, NA~~ F, A	Units	Date analyzed	F, NA	Units	Date analyzed
☐ Conductivity (Corrected) 25°C (00095)	µmho		☐ Calcium (00915)	mg/l	
☐ Total non-filterable residue (suspended) (00530)	mg/l		☐ Magnesium (00925)	mg/l	
☒ Other: Icap Scan			☐ Sodium (00930)	mg/l	
☒ Other: As			☐ Potassium (00935)	mg/l	
☒ Other: Se			☐ Bicarbonate (00440)	mg/l	
			☐ Chloride (00940)	mg/l	
			☐ Sulfate (00945)	mg/l	
			☐ Total filterable residue (dissolved) (70300)	mg/l	
			☐ Other:		

NF, A-H_2SO_4			F, A-H_2SO_4		
☐ Nitrate-N +, Nitrate-N total (00630)	mg/l		☐ Nitrate-N +, Nitrate-N dissolved (00631)	mg/l	
☐ Ammonia-N total (00610)	mg/l		☐ Ammonia-N dissolved (00608)	mg/l	
☐ Total Kjeldahl-N ( )	mg/l		☐ Total Kjeldahl-N ( )	mg/l	
☐ Chemical oxygen demand (00340)	mg/l		☐ Other:		
☐ Total organic carbon ( )	mg/l				
☐ Other:					
☐ Other:					

Analyst | Date Reported: 12/18/85 | Reviewed by: Jim Ashley

Laboratory remarks

SLD 726 (12/84) *DISTRIBUTION:* **WHITE** — EID, GW&HW Bureau **CANARY** — WS System **PINK** — EID Local Office **GOLDENROD** — SLD

Lab Number: HM 1972 Sample Code: Pond Mon. Well #4 Phillips Sunk

Date Submitted: 12/2/85 Date Analyzed: 12/16/85

By: Boyer/Bailey Reviewed By: Jim Bailey

Date Reported: 12/18/85

Element	ICAP VALUE(MG/L)	AA VALUE(MG/L)
Aluminum	<0.1	
Barium	<0.1	
Berylium	<0.1	
Boron	0.4	
Cadmium	<0.1	
Calcium	260.	
Chromium	<0.1	
Cobalt	<0.1	
Copper	<0.1	
Iron	0.7	
Lead	<0.1	
Magnesium	120.	
Manganese	1.5	
Molybdenum	<0.1	
Nickel	<0.1	
Silicon	21.	
Silver	<0.1	
Strontium	3.8	
Tin	<0.1	
Vanadium	<0.1	
Zinc	<0.1	
Arsenic		0.006
Selenium		<0.005
Mercury		