BEFORE THE NEW MEXICO OIL CONSERVATION DIVISION

RECEIVED
SEP 26 1995
Oil Conservation Division

APPLICATION OF POGO PRODUCING COMPANY FOR A PILOT WATERFLOOD PROJECT, EDDY COUNTY, NEW MEXICO

NO. _____

11483

APPLICATION

Pogo Producing Company, for its application, states:

1. Applicant is the operator of the Neff Federal lease, which covers all of Section 25, Township 22 South, Range 31 East, N.M.P.M., Eddy County, New Mexico.

2. Applicant proposes to institute a pilot waterflood project for the Neff Federal lease by injecting water into the Delaware formation (Livingston Ridge-Delaware Pool) through perforations from 4554 feet to 5885 feet in its existing Neff Federal Well No. 3, located 430 feet from the North line and 760 feet from the West line (Unit D) of Section 25.

3. The Form C-108 for the project is attached hereto as Exhibit A.

4. The granting of this application is in the interests of conservation and the prevention of waste.

WHEREFORE, Applicant requests that, after notice and hearing, the relief requested herein be granted.

Respectfully submitted,

HINKLE, COX, EATON, COFFIELD & HENSLEY, P.L.L.C., Ltd., Co.

James Bruce
Post Office Box 2068
Santa Fe, New Mexico 87504-2068
(505) 982-4554

Attorneys for Applicant

APPLICATION FOR AUTHORIZATION TO INJECT

Neff Federal No. 3

I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no

RECEIVED
SEP 26 1995
Oil Conservation Division

Case 11403

II. Operator: POGO PRODUCING COMPANY

Address: P. O. Box 10340, Midland, Texas 79702

Contact party: Richard L. Wright Phone: 915/682-6822

III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.

IV. Is this an expansion of an existing project? ☐ yes ☒ no
If yes, give the Division order number authorizing the project _____.

V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.

VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

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

Name: Bill F. Halepeska Title Agent, P.E.

Signature: Bill F. Halepeska Date: 08/16/95

If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstances of the earlier submittal. _____

EXHIBIT A

INSTRUCTION: Original and one copy to Santa Fe with one copy to the appropriate

The following well data must be submitted for each injection well covered by this applic The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

3. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be sho only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the w

(4) Give the depths of any other perforated intervals and detail on the sacks of cement o bridge plugs used to seal off such perforations.

(5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

IV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;

(3) the formation name and depth with expected maximum injection rates and pressures; and

(4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

TICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

FORM C-108

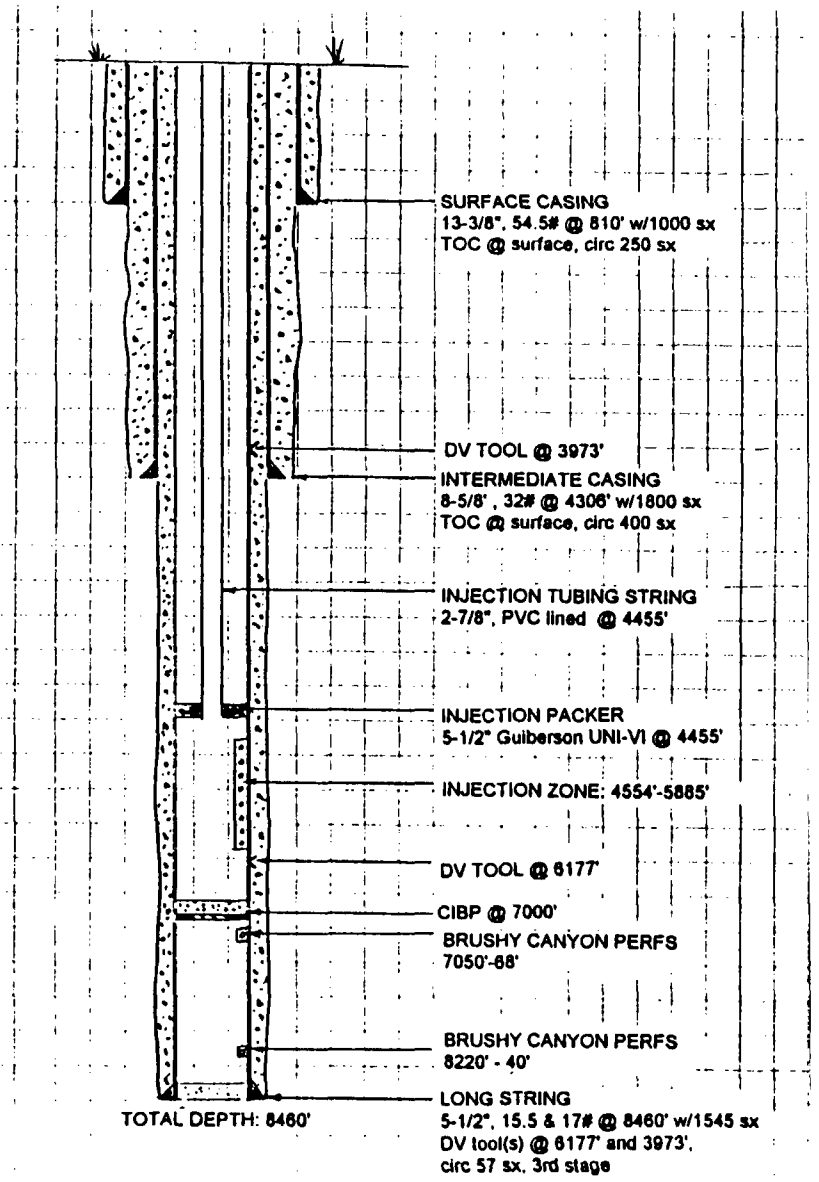
ITEM III-A

Pogo Producing Company

Neff Federal No. 3

INJECTION WELL DATA SHEET

SCHEMATIC



TABULAR DATA

(1). LEASE: Neff Federal WELL # 3

LOCATION: Sec. 25 TWP 22-S Range 31-E

County Eddy

Footage 430' FNL & 760' FWL

(2). CASING STRINGS:

Surface Casing

Size 13-3/8" Depth 810' Cemented w/ 1000 sx.

TOC surf Determined by circ 250 sx

Hole size 17-1/2"

Intermediate Casing

Size 8-5/8" Depth 4306' Cemented w/ 1800 sx.

TOC surf Determined by circ 400 sx

Hole size 11"

Long String

Size 5-1/2" Depth 8460' Cemented w/ 1545 sx.

TOC surf Determined by circ 57 sx, 3rd stg

Hole size 7-7/8"

Injection interval, From 4554' to 5885' Ft.

(3). INJECTION TUBING STRING:

Size 2-7/8 in., ~~coated~~/lined with PVC

Setting depth 4455 Ft.

(4) INJECTION PACKER:

Size 5-1/2 in.; Make/Model Guiberson UNI-VI

Setting depth 4455 Ft.

FORM C-108

ITEM III-B

Pogo Producing Company
Neff Federal No. 3

INJECTION WELL DATA

(1). Injection Formation: Delaware (Bell Canyon and Up Cherry Canyon)

Field/Pool: Livingston Ridge Delaware

(2). Injection interval; from 4554 ft. to 5885 ft.

Perforated XX Open Hole _____

(3). Original purpose well drilled -- as producer from Brushy Canyon

(4). Other perforated intervals; XX Yes _____ No

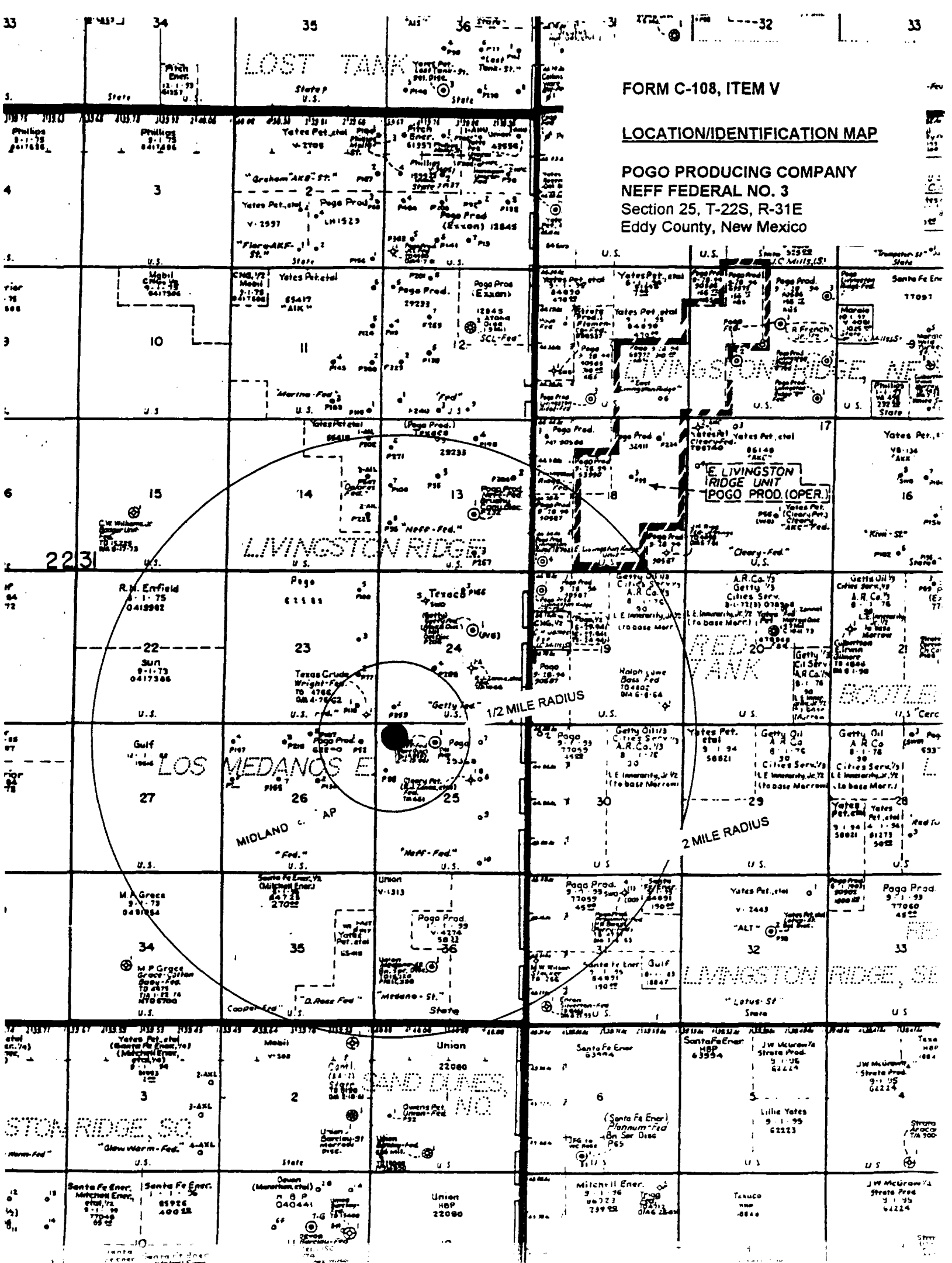
Squeezed with _____ sx., or isolated by CIBP @ 7000'

8220' - 40' and 7050' - 68'

(5). Oil or gas productive zone(s):

Next higher: none

Next lower: Brushy Canyon ---- 7000'


FORM C-108, ITEM V
LOCATION/IDENTIFICATION MAP
POGO PRODUCING COMPANY
NEFF FEDERAL NO. 3
Section 25, T-22S, R-31E
Eddy County, New Mexico
1/2 MILE RADIUS
2 MILE RADIUS
LOST TANK
LIVINGSTON RIDGE
E. LIVINGSTON RIDGE UNIT
POGO PROD. (OPER.)
RED TANK
LOS MEDANOS E
LIVINGSTON RIDGE, SE
SAND DUNES
MIDLAND AP

FORM C-108

ITEM VI

Pogo Producing Company
Neff Federal No. 3

WELL DATA - AREA OF REVIEW

(1). Location: 660' FNL & 1980' FWL, Sec 25, T-22S, R-31E, Eddy County

Operator: Pogo Producing Company Lease: Neff Federal Well # 1

Well type: Oil XX Gas XX D&A _____ Total depth 15,026 ft.

Date drilled: 1986; recomplete 11/04/89

Completion Data: 13-3/8" @ 800' w/827 sx, circ; 10-3/4" @ 4530' w/2000 sx; 7-5/8" @ 11,885' w/1135 sx; 5" 11,531' to 14,998' w/515 sx; perf 14,904' - 912'; A/2000 gal; perf 14,717' - 723'; A/2000 gal; perf 14,460' - 522'; A/4000 gal; IP CAOF 626 MCF; PB to 7180'; perf 7080' - 7120'; A/1000 gal; F/16,000 GW + 30,700# sd; IPP 41 BOPD +219 BW

Plugged _____ Date: _____ (Schematic attached)

(2). Location: 1650' FNL & 330' FWL, Sec 25, T-22S, R-31E, Eddy County

Operator: Pogo Producing Company Lease: Neff Federal Well # 2

Well Type: Oil XX Gas ____ D&A ____ Total Depth: 8440 ft.

Date Drilled: 11/12/91

Completion Data: 13-3/8" @ 814' w/1000 sx, circ; 8-5/8" @ 4340' w/1675 sx; 5-1/2" @ 8440' w/1385 sx; perf 8054'- 8108'; A/1500 gal 15%; F/35,000 GW + 85,000# sd; IP 88 BOPD + 300 BW

Plugged _____ Date _____ (Schematic attached)

(3). Location: 610' FNL & 510' FEL, Sec 26, T-22S, R-31E, Eddy Co.

Operator: Pogo Producing Company Lease: Federal 26 Well # 1

Well Type ; Oil XX Gas _____ D&A ____ Total Depth: 8415 ft.

Date Drilled: 07/06/90

Completion Data: 13-3/8" @ 850' w/900 sx, circ; 8-5/8" @ 4447' w/1280 sx, circ; 5-1/2" @ 8415' w/1220 sx; perf 8224' - 8318'; A/2000 gal 7-1/2%; F/22,205 GW + 51,200# 16/30 sd; IP 52 BOPD + 165 BW; set RBP; perf 7053'-71'; A/2000 gal 7-1/2%; F/51,780# 20/40 sd; IP 110 BOPD + 127 BW ..... commingle

Plugged _____ Date _____ (Schematic attached)

FORM C-108

ITEM VI

Pogo Producing Company
Neff Federal No. 3

WELL DATA - AREA OF REVIEW

(4). Location: 660' FS & EL, Sec 23, T-22S, R-31E, Eddy County

Operator: Pogo Producing Company Lease: Federal 23 Well # 1

Well type: Oil XX Gas ____ D&A ____ Total depth 8420 ft.

Date drilled: 08/03/90

Completion Data: 13-3/8" @ 845' w/800 sx, circ; 8-5/8" @ 4394' w/1340 sx, circ; 5-1/2" @ 8420' w/1240 sx, 2 stg; perf 8090'-8198'; A/2000 gal 7-1/2%; F/38,890 GW + 96,000# 16/30 sd; IP 58 BOPD +138 BW; TA; perf 7046'-65'; A/1500 gal 7-1/2%; F/20,000 GW +52,000# 20/40 sd; IP 110 BOPD + 124 BW: commingled

Plugged ____ Date: ____ (Schematic attached)

(5). Location: 1750' FSL & 660' FEL, Sec 23, T-22S, R-31E, Eddy County

Operator: Pogo Producing Company Lease: Federal 23 Well # 2

Well Type: Oil XX Gas ____ D&A ____ Total Depth: 8430 ft.

Date Drilled: 04/16/92

Completion Data: 13-3/8" @ 828' w/1000 sx, circ; 8-5/8" @ 4279' w/1700 sx, circ; 5-1/2" @ 8430' w/1400 sx; TOC 1250 CBL; perf 7000'-20'; A/1000 gal 15%; F/25,000 GW +44,375# 20/40 sd; IP 77 BOPD +177 BW; recomp 6/94; perf 8208'-57'; A/1500 7-1/2%; F/44,800 GW + 61,800# 20/40 sd; perf 8090'-8140'; A/1500 gal; see below

Plugged ____ Date ____ (Schematic attached)

(6). Location: 660' FS & WL, Sec 24, T-22S, R-31E, Eddy County

Operator: Texaco Lease: Getty 24 Federal Well # 2

Well Type ; Oil XX Gas ____ D&A ____ Total Depth: 8000 ft.

Date Drilled: 03/27/90

Completion Data: 11-3/4" @ 840' W/700 sx; 8-5/8" @ 4500' w/1350 sx; 5-1/2" @ 8000' w/1950 sx; perf 7672'-84'; acid; set CIBP @ 7622'; perf 7062'-7101'; A/1500 gal; F/25,500 GW + 57,500# sd; IP 353 BOPD + 219 BW

Plugged ____ Date ____ (Schematic attached)

Federal 23 No. 2, cont'd.
F/44,000 GW + 47,230# 20/40 sd; IP 97 BO +279 BW; commingled

FORM C-108

ITEM VI

Pogo Producing Company

Neff Federal No.3

WELL DATA - AREA OF REVIEW

(7). Location: 1980' FS & WL, Sec 24, T-22S, R-31E, Eddy County

Operator: Texaco Lease: Getty 24 Federal Well # 4

Well type: Oil XX Gas ____ D&A ____ Total depth 8400 ft.

Date drilled: 02/18/91

Completion Data: 11-3/4" @ 840' w/800 sx; 8-5/8" @ 4350' w/1350 sx; 5-1/2" @ 8400' w/1750 sx; perf 7068'-7118'; A/2000 gal 7-1/2%; F/50,000 GW + 117,000# sd; IP 288 BOPD + 34 BW

Plugged ____ Date: ____ (Schematic attached)

(8). Location: 330' FS & E1; Sec 23, T-22S, R-31E, Eddy County

Operator: Texas Crude Oil Company Lease: Wright 23 Federal Well # 1

Well Type: Oil ____ Gas ____ D&A XX Total Depth: 4766 ft.

Date Drilled: 04/25/62

Completion Data: 8-5/8" @ 305' w/225 sx; DST 4490'-4531', NS

Plugged XX Date 04/25/62 (Schematic attached) FIGURE I

(). Location: ____

Operator: ____ Lease: ____ Well # ____

Well Type ; Oil ____ Gas ____ D&A ____ Total Depth: ____ ft.

Date Drilled: ____

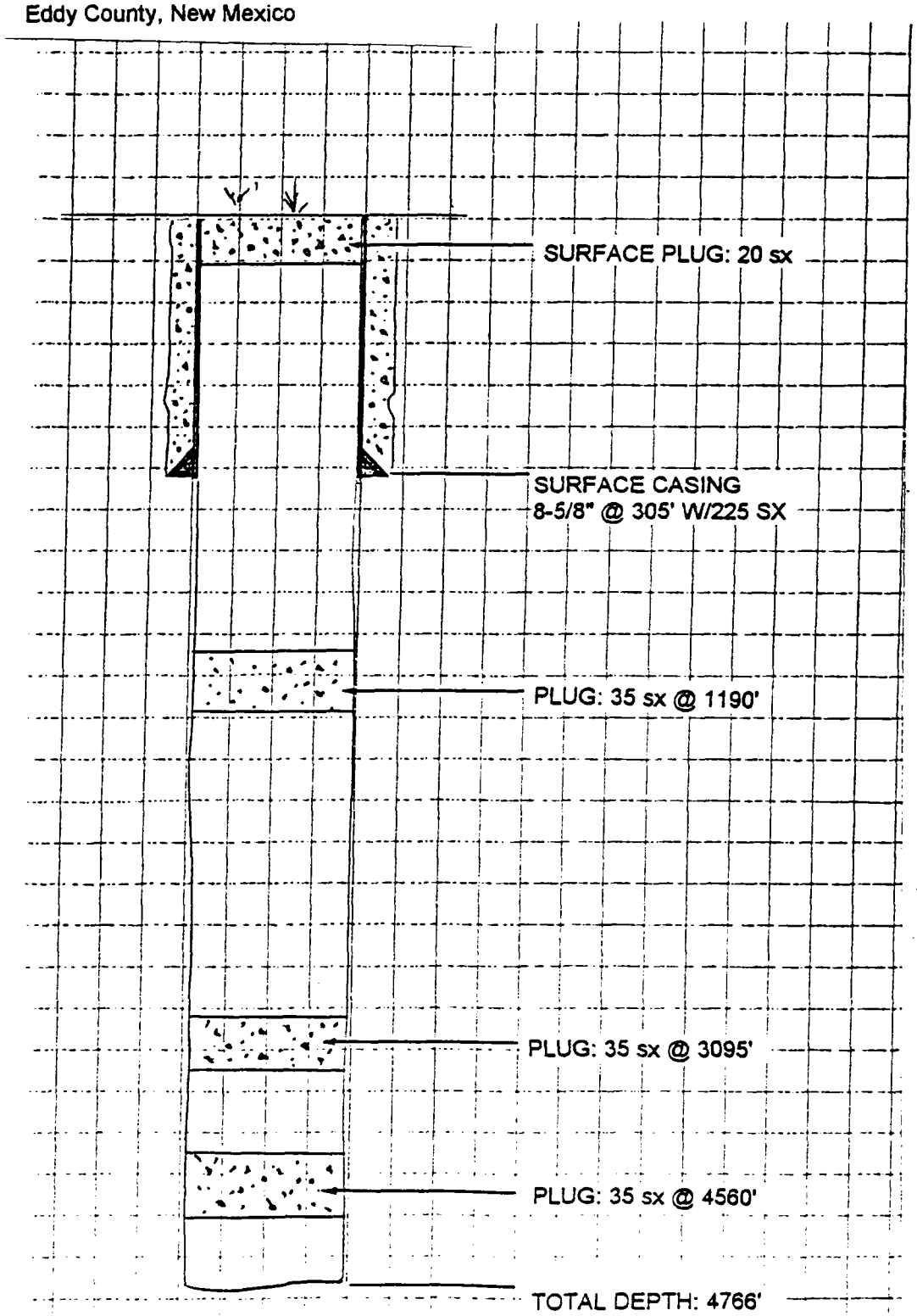
Completion Data: ____

Plugged ____ Date ____ (Schematic attached)

FORM C-108, ITEM VI(8) EXHIBIT NO.I

P & A SCHEMATIC
TEXAS CRUDE - WRIGHT 23 FED NO. 1

POGO PRODUCING COMPANY
NEFF FEDERAL NO. 3
Section 25, T-22S, R-31E
Eddy County, New Mexico



FORM C-108

ITEM VII

Pogo Producing Company
Neff Federal No. 3

OPERATIONAL DATA

(1). Average expected injection rate: 1000 BWPD; maximum anticipated rate: 3000 BWPD

(2). Closed system

(3). Estimated average injection pressure: 750 psi.
Estimated maximum pressure: 910 psi.

(4). Source of injection water: from Lower Delaware zones in nearby Pogo operated wells

Analysis of waters attached. EXHIBIT II

(5). Analysis of injection zone water attached.
Data source: EXHIBIT III, Corbin Delaware; 31-17-33 Roswell Geological Society Symposium

FORM C-108

ITEM VIII

Pogo Producing Company
Neff Federal No. 3

GEOLOGICAL DATA

INJECTION ZONE

Lithological description: sandstone, lt. gray, fine to v fine grained, poorly consolidated, poor calc cement

Geological name: Delaware (Bell Canyon & UP Cherry Canyon)

Zone thickness: 1331 ft.; Depth: 5885 ft.

FRESH WATER SOURCES

Geological name: Santa Rosa

Depth to bottom of zone: +/-650 ft.

ITEM IX

STIMULATION PROGRAM (Proposed)

ACIDIZE:

Volume: 3000 gal Type acid: 15% HCl/Pentol 100

Rate: 5 BPM; Misc. Ball Sealers

FRACTURE:

Fluid volume: 30,000 gal.; Type: Gelled Water

Prop type: 20/40 sand Volume (#): 15,000

Rate: 18 BPM; Conductor: 2-7/8 in.

Misc. Ball Sealers

FORM C-108

Pogo Producing Company

Neff Federal No. 3

ITEM X

LOGGING PROGRAM

Logging program included: CNLD, DLL & CBL

Copy of GR/DLL log included in attachments

ITEM XI

FRESH WATER ANALYSIS

Fresh water well within 1 mile radius; _____ Yes XX No

Chemical analysis from well(s) located: Sec 14, T-22S, R-31E

Date sampled: 05/24/78 EXHIBIT IV

Chemical analysis from well(s) located: _____

Date sampled: _____

ITEM XII

HYDROLOGY

Various engineering data and area well logs reveal no evidence that there might exist hydrologic connection between the intended injection zone and possible fresh water zone above 650' (Santa Rosa).

ITEM XIII

COMMERCIAL INTENTION

Initially, only water from Pogo operated wells will be disposed of in subject well (system). Eventually, Pogo could take water from other leases in the area operated by someone else. Only piped water will be accepted into the system

FORM C-108, ITEM VII(4)

EXHIBIT NO. II

ANALYSIS - BRUSHY CANYON PRODUCED WATER

POGO PRODUCING COMPANY
NEFF FEDERAL NO. 3
Section 25, T-22S, R-31E
Eddy County, New Mexico

16010 Barker's Point Lane • Houston, Texas 77079
713 558-5200 • Telex: 4620346 • FAX: 713 589-4737

Reply to: P.O. Box FF
Artesia, New Mexico 88210
(505) 746-3588 Phone
(505) 748-3580 Fax

WATER ANALYSIS REPORT

Company : POGO PRODUCING
Address : MIDLAND, TEXAS
Lease : RED TANK FED. 28
Well : #1 Brushy Canyon (Del)
Sample Pt. : WELLHEAD

Date : 01/08/93
Date Sampled : 01/04/93
Analysis No. : 005

	ANALYSIS		mg/L		* meq/L
1.	pH	6.2			
2.	H2S	3 PPM			
3.	Specific Gravity	1.160			
4.	Total Dissolved Solids		279018.4		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		80 PPM		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)		60.0		
11.	Bicarbonate	HCO3	73.2	HCO3	1.2
12.	Chloride	Cl	170409.6	Cl	4807.9
13.	Sulfate	SO4	1000.0	SO4	20.8
14.	Calcium	Ca	16881.7	Ca	842.4
15.	Magnesium	Mg	1186.3	Mg	97.6
16.	Sodium (calculated)	Na	89409.6	Na	3889.1
17.	Iron	Fe	58.0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		47042.3		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

842	*Ca <----- *HCO3	1
	/------->	
98	*Mg -----> *SO4	21
	<----------/	
3889	*Na -----> *Cl	4807

Saturation Values Dist. Water 20 C
CaCO3 13 mg/L
CaSO4 * 2H2O 2090 mg/L
BaSO4 2.4 mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	1.2	97
CaSO4	68.1	20.8	1417
CaCl2	55.5	820.4	45523
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	97.6	4646
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	3889.1	227277

REMARKS:
L. MALLETT / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
ROZANNE JOHNSON

FORM C-108, ITEM VII(5)

EXHIBIT NO. III

ANALYSIS - INJECTION ZONE WATER

POGO PRODUCING COMPANY
NEFF FEDERAL NO. 3
Section 25, T-22S, R-31E
Eddy County, New Mexico

Name: Corbin Delaware
Location: NE¼ Sec. 31, T.17 S., R. 33 E.
County & State: Lea Co., N. Mex.

COMPLETION DATE: March 31, 1960

TYPICAL CORE ANALYSIS OF A PAY INTERVAL IN THIS FIELD: No cores taken

Perm. in millidarcys		% Porosity	Liquid Saturation (% of pore space)	
Horizontal	Vertical		Water	Oil

OTHER SHOWS ENCOUNTERED IN THIS FIELD: None

TRAP TYPE: Stratigraphic, sand pinchout
NATURE OF OIL: 37.8° gravity, sweet
NATURE OF GAS: sweet
NATURE OF PRODUCING ZONE WATER: Salt Resistivity: ohm-meters @ °F.

	Total Solids	Na—K	Ca	Mg	Fe	SO_4	Cl	CO_3	HCO_3	OH	H_2S
ppm		47,700	6160	2060	100	1500	89,400		160		neg

INITIAL FIELD PRESSURE: Unknown
TYPE OF DRIVE: Unknown
NORMAL COMPLETION PRACTICES: Set through, perforate & sand frac.

PRODUCTION DATA:

Year	Type	No. of wells @ yr. end: Producing	No. of wells @ yr. end: Shut in or Abnd.	Production Oil in barrels Gas in MMCF: Annual	Production Oil in barrels Gas in MMCF: Cumulative
1956	oil				
	gas				
1957	oil				
	gas				
1958	oil				
	gas				
1959	oil				
	gas				
1960*	oil	0	1 **	631.5	631.5
	gas				

* 1960 Figure is production to July 1, 1960.
** well shut in on April 19, 1960.

FORM C-108, ITEM XI

ANALYSIS - SANTA ROSA WATER

EXHIBIT NO. IV

POGO PRODUCING COMPANY
NEFF FEDERAL NO. 3
Section 25, T-22S, R-31E
Eddy County, New Mexico

Chemical and radiochemical analyses of water from test hole H-5

Water produced from the Santa Rosa Sandstone, sample taken 5/24/78

Alkalinity Field (mg/l as HCO3)	200
Bicarbonate FET-FLD (mg/l as HCO3)	240
Nitrogen, NO2 + NO3 Dissolved (mg/l as N)	0.36
Hardness (mg/l as CACO3)	150
Hardness, noncarbonate(mg/l as CACO3)	150
Calcium Dissolved (mg/l as CA)	56
Magnesium, Dissolved (mg/l as MG)	51
Sodium, Dissolved (mg/l as NA)	280
Potassium, Dissolved (mg/l as K)	25
Chloride, Dissolved (mg/s as CL)	120
Sulfate, Dissolved (mg/l as SO4)	530
Fluoride, Dissolved (mg/l as F)	1.2
Silica, Dissolved (mg/l as SIO2)	11.0
Boron, Dissolved (ug/l as B)	890
Solids Residue at 105 Deg C, Dissolved (mg/l)	1200

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SEP 26 1995

Oil Conservation Division

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Attorneys for Applicant

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VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.

VII. Attach data on the proposed operation, including:

1. Proposed average and maximum daily rate and volume of fluids to be injected;
2. Whether the system is open or closed;
3. Proposed average and maximum injection pressure;
4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).

VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.

IX. Describe the proposed stimulation program, if any.

X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)

XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.

XIII Applicants must complete the "Proof of Notice" section on the reverse side of this form.

XIV. Certification

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

Name: Bill F. Halepeska Title Agent, P.E.

Signature: Bill F. Halepeska Date: 08/16/95

If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.

EXHIBIT A

PENGAD - Bayonne, N.J.

INSTRUCTIONS: Original and one copy to Santa Fe with one copy to the appropriate

following well data must be submitted for each injection well covered by this appli The data must be both in tabular and schematic form and shall include:

(1) Lease name; Well No.; location by Section, Township, and Range; and footage location within the section.

(2) Each casing string used with its size, setting depth, sacks of cement used, hole size, top of cement, and how such top was determined.

(3) A description of the tubing to be used including its size, lining material, and setting depth.

(4) The name, model, and setting depth of the packer used or a description of any other seal system or assembly used.

Division District offices have supplies of Well Data Sheets which may be used or which may be used as models for this purpose. Applicants for several identical wells may submit a "typical data sheet" rather than submitting the data for each well.

B. The following must be submitted for each injection well covered by this application. All items must be addressed for the initial well. Responses for additional wells need be enc only when different. Information shown on schematics need not be repeated.

(1) The name of the injection formation and, if applicable, the field or pool name.

(2) The injection interval and whether it is perforated or open-hole.

(3) State if the well was drilled for injection or, if not, the original purpose of the

(4) Give the depths of any other perforated intervals and detail on the sacks of cement bridge plugs used to seal off such perforations.

(5) Give the depth to and name of the next higher and next lower oil or gas zone in the area of the well, if any.

IV. PROOF OF NOTICE

All applicants must furnish proof that a copy of the application has been furnished, by certified or registered mail, to the owner of the surface of the land on which the well is to be located and to each leasehold operator within one-half mile of the well location.

Where an application is subject to administrative approval, a proof of publication must be submitted. Such proof shall consist of a copy of the legal advertisement which was published in the county in which the well is located. The contents of such advertisement must include:

(1) The name, address, phone number, and contact party for the applicant;

(2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;

(3) the formation name and depth with expected maximum injection rates and pressures; and

(4) a notation that interested parties must file objections or requests for hearing with the Oil Conservation Division, P. O. Box 2088, Santa Fe, New Mexico 87501 within 15 days.

NO ACTION WILL BE TAKEN ON THE APPLICATION UNTIL PROPER PROOF OF NOTICE HAS BEEN SUBMITTED.

TICE: Surface owners or offset operators must file any objections or requests for hearing of administrative applications within 15 days from the date this application was mailed to them.

FORM C-108

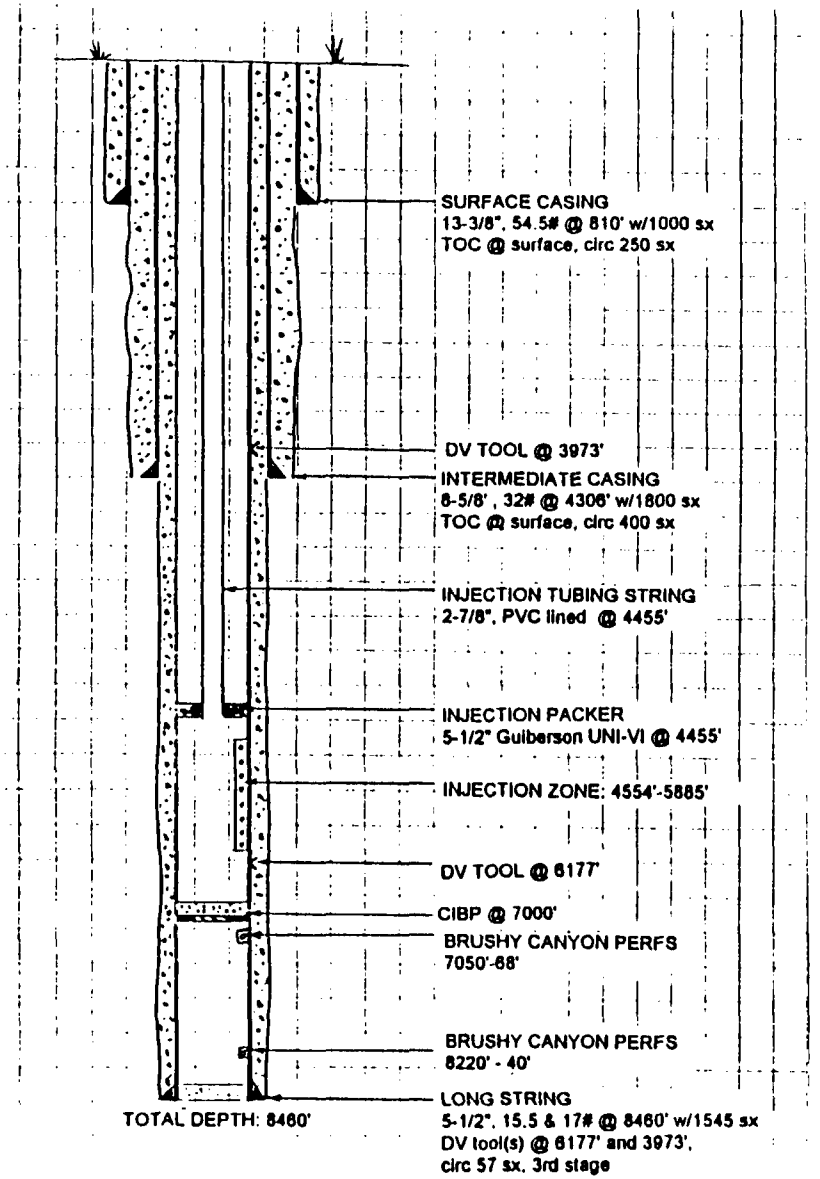
ITEM III-A

Pogo Producing Company

Neff Federal No. 3

INJECTION WELL DATA SHEET

SCHEMATIC



TABULAR DATA

(1). LEASE: Neff Federal WELL # 3

LOCATION: Sec. 25 TWP 22-S Range 31-E

County Eddy

Footage 430' FNL & 760' FWL

(2). CASING STRINGS:

Surface Casing

Size 13-3/8" Depth 810' Cemented w/ 1000 sx.

TOC surf Determined by circ 250 sx

Hole size 17-1/2"

Intermediate Casing

Size 8-5/8" Depth 4306' Cemented w/ 1800 sx.

TOC surf Determined by circ 400 sx

Hole size 11"

Long String

Size 5-1/2" Depth 8460' Cemented w/ 1545 sx.

TOC surf Determined by circ 57 sx, 3rd stg

Hole size 7-7/8"

Injection interval, From 4554' to 5885' Ft.

(3). INJECTION TUBING STRING:

Size 2-7/8 in., ~~coated~~/lined with PVC

Setting depth 4455 Ft.

(4) INJECTION PACKER:

Size 5-1/2 in.; Make/Model Guiberson UNI-VI

Setting depth 4455 Ft.

FORM C-108

ITEM III-B

Pogo Producing Company
Neff Federal No. 3

INJECTION WELL DATA

(1). Injection formation: Delaware (Bell Canyon and Up Cherry Canyon)

Field/Pool: Livingston Ridge Delaware

(2). Injection interval; from 4554 ft. to 5885 ft.

Perforated XX Open Hole _____

(3). Original purpose well drilled -- as producer from Brushy Canyon

(4). Other perforated intervals; XX Yes _____ No

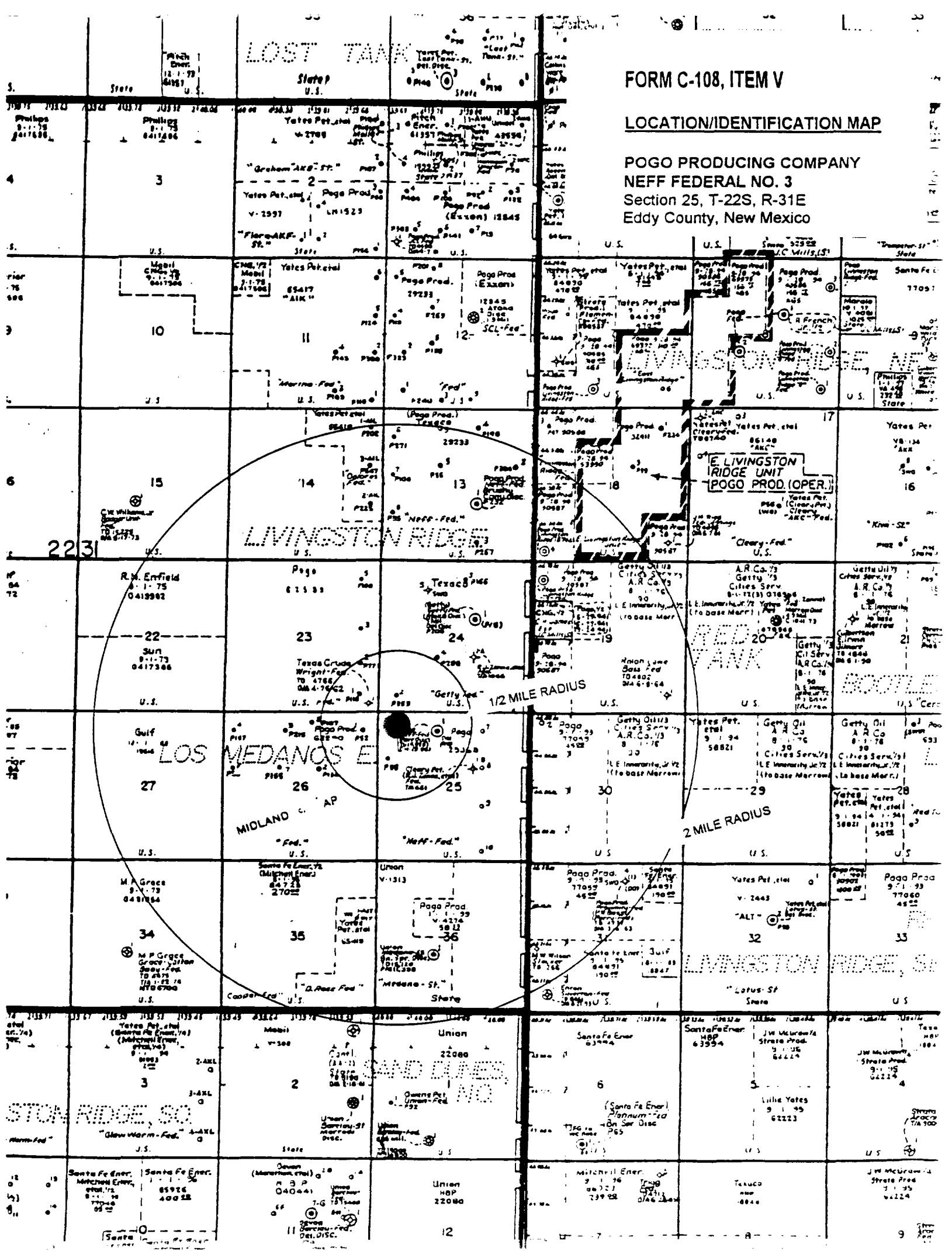
Squeezed with _____ sx., or isolated by CIBP @ 7000'

8220' - 40' and 7050' - 68'

(5). Oil or gas productive zone(s):

Next higher: none

Next lower: Brushy Canyon ---- 7000'


FORM C-108, ITEM V
LOCATION/IDENTIFICATION MAP
POGO PRODUCING COMPANY
NEFF FEDERAL NO. 3
Section 25, T-22S, R-31E
Eddy County, New Mexico
1/2 MILE RADIUS
2 MILE RADIUS
LOST TANK
LIVINGSTON RIDGE
E. LIVINGSTON RIDGE UNIT
POGO PROD. (OPER.)
RED TANK
LOS MEDANOS
MIDLAND AP
LIVINGSTON RIDGE, SO.
STONE RIDGE, SO.
SAND DUNES, NO.
22S
23E

FORM C-108

ITEM VI

Pogo Producing Company
Neff Federal No. 3

WELL DATA - AREA OF REVIEW

(1). Location: 660' FNL & 1980' FWL, Sec 25, T-22S, R-31E, Eddy County
Operator: Pogo Producing Company Lease: Neff Federal Well # 1
Well type: Oil XX Gas XX D&A _____ Total depth 15,026 ft.
Date drilled: 1986; recomplete 11/04/89
Completion Data: 13-3/8" @ 800' w/827 sx, circ; 10-3/4" @ 4530' w/2000 sx; 7-5/8" @ 11,885' w/1135 sx; 5" 11,531' to 14,998' w/515 sx; perf 14,904' - 912'; A/2000 gal; perf 14,717' - 723'; A/2000 gal; perf 14,460' - 522'; A/4000 gal; IP CAOF 626 MCF; PB to 7180'; perf 7080' - 7120'; A/1000 gal; F/16,000 GW + 30,700# sd; IPP 41 BOPD +219 BW
Plugged _____ Date: _____ (Schematic attached)

(2). Location: 1650' FNL & 330' FWL, Sec 25, T-22S, R-31E, Eddy County
Operator: Pogo Producing Company Lease: Neff Federal Well # 2
Well Type: Oil XX Gas ___ D&A ___ Total Depth: 8440 ft.
Date Drilled: 11/12/91
Completion Data: 13-3/8" @ 814' w/1000 sx, circ; 8-5/8" @ 4340' w/1675 sx; 5-1/2" @ 8440' w/1385 sx; perf 8054'- 8108'; A/1500 gal 15%; F/35,000 GW + 85,000# sd; IP 88 BOPD + 300 BW
Plugged _____ Date _____ (Schematic attached)

(3). Location: 610' FNL & 510' FEL, Sec 26, T-22S, R-31E, Eddy Co.
Operator: Pogo Producing Company Lease: Federal 26 Well # 1
Well Type ; Oil XX Gas _____ D&A ___ Total Depth: 8415 ft.
Date Drilled: 07/06/90
Completion Data: 13-3/8" @ 850' w/900 sx, circ; 8-5/8" @ 4447' w/1280 sx, circ; 5-1/2" @ 8415' w/1220 sx; perf 8224' - 8318'; A/2000 gal 7-1/2%; F/22,205 GW + 51,200# 16/30 sd; IP 52 BOPD + 165 BW; set RBP; perf 7053'-71'; A/2000 gal 7-1/2%; F/51,780# 20/40 sd; IP 110 BOPD + 127 BW ..... commingle
Plugged _____ Date _____ (Schematic attached)

FORM C-108

ITEM VI

Pogo Producing Company
Neff Federal No. 3

WELL DATA - AREA OF REVIEW

(4). Location: 660' FS & EL, Sec 23, T-22S, R-31E, Eddy County

Operator: Pogo Producing Company Lease: Federal 23 Well # 1

Well type: Oil XX Gas ____ DSA ____ Total depth 8420 ft.

Date drilled: 08/03/90

Completion Data: 13-3/8" @ 845' w/800 sx, circ; 8-5/8" @ 4394' w/1340 sx, circ; 5-1/2" @ 8420' w/1240 sx, 2 stg; perf 8090'-8198'; A/2000 gal 7-1/2%; F/38,890 GW + 96,000# 16/30 sd; IP 58 BOPD +138 BW; TA; perf 7046'-65'; A/1500 gal 7-1/2%; F/20,000 GW +52,000# 20/40 sd; IP 110 BOPD + 124 BW: commingled

Plugged ____ Date: ____ (Schematic attached)

(5). Location: 1750' FSL & 660' FEL, Sec 23, T-22S, R-31E, Eddy County

Operator: Pogo Producing Company Lease: Federal 23 Well # 2

Well Type: Oil XX Gas ____ DSA ____ Total Depth: 8430 Ft.

Date Drilled: 04/16/92

Completion Data: 13-3/8" @ 828' w/1000 sx, circ; 8-5/8" @ 4279' w/1700 sx, circ; 5-1/2" @ 8430' w/1400 sx; TOC 1250 CBL; perf 7000'-20'; A/1000 gal 15%; F/25,000 GW +44,375# 20/40 sd; IP 77 BOPD +177 BW; recomp 6/94; perf 8208'-57'; A/1500 7-1/2%; F/44,800 GW + 61,800# 20/40 sd; perf 8090'-8140'; A/1500 gal; see below

Plugged ____ Date ____ (Schematic attached)

(6). Location: 660' FS & WL, Sec 24, T-22S, R-31E, Eddy County

Operator: Texaco Lease: Getty 24 Federal Well # 2

Well Type ; Oil XX Gas ____ DSA ____ Total Depth: 8000 ft.

Date Drilled: 03/27/90

Completion Data: 11-3/4" @ 840' W/700 sx; 8-5/8" @ 4500' w/1350 sx; 5-1/2" @ 8000' w/1950 sx; perf 7672'-84'; acid; set CIBP @ 7622'; perf 7062'-7101'; A/1500 gal; F/25,500 GW + 57,500# sd; IP 353 BOPD + 219 BW

Plugged ____ Date ____ (Schematic attached)

Federal 23 No. 2, cont'd.
F/44,000 GW + 47,230# 20/40 sd; IP 97 BO +279 BW; commingled

FORM C-108

ITEM VI

Pogo Producing Company
Neff Federal No.3

WELL DATA - AREA OF REVIEW

(7). Location: 1980' FS & WL, Sec 24, T-22S, R-31E, Eddy County
Operator: Texaco Lease: Getty 24 Federal Well # 4
Well type: Oil XX Gas ____ D&A ____ Total depth 8400 ft.
Date drilled: 02/18/91
Completion Data: 11-3/4" @ 840' w/800 sx; 8-5/8" @ 4350' w/1350 sx; 5-1/2" @ 8400' w/1750 sx; perf 7068'-7118'; A/2000 gal 7-1/2%; F/50,000 GW + 117,000# sd; IP 288 BOPD + 34 BW

Plugged ____ Date: ____ (Schematic attached)

(8). Location: 330' FS & EL; Sec 23, T-22S, R-31E, Eddy County
Operator: Texas Crude Oil Company Lease: Wright 23 Federal Well # 1
Well Type: Oil ____ Gas ____ D&A XX Total Depth: 4766 ft.
Date Drilled: 04/25/62
Completion Data: 8-5/8" @ 305' w/225 sx; DST 4490'-4531', NS

Plugged XX Date 04/25/62 (Schematic attached) FIGURE I

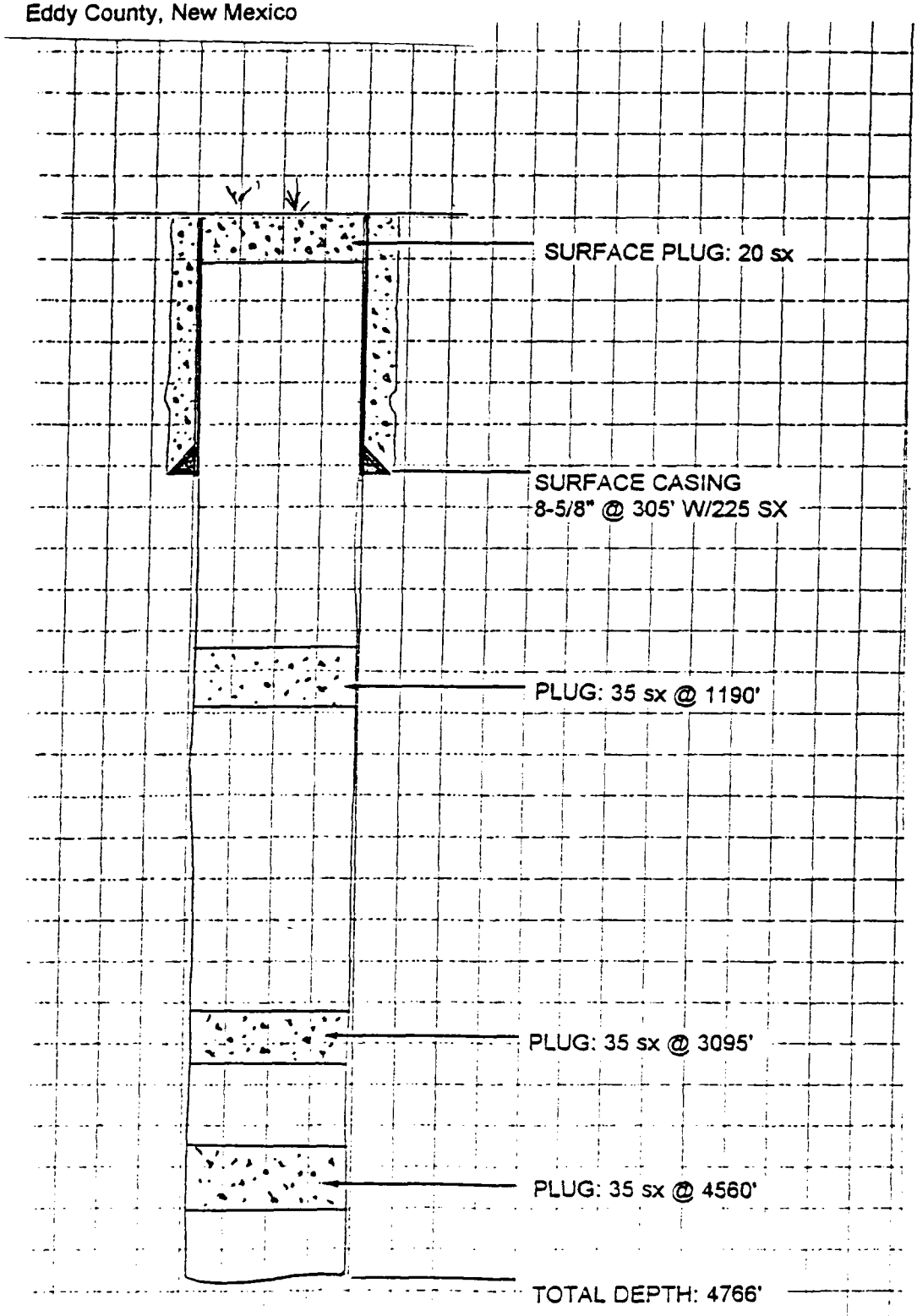
( ). Location: ____
Operator: ____ Lease: ____ Well # ____
Well Type ; Oil ____ Gas ____ D&A ____ Total Depth: ____ ft.
Date Drilled: ____
Completion Data: ____

Plugged ____ Date ____ (Schematic attached)

FORM C-108, ITEM VI(8) EXHIBIT NO.I

P & A SCHEMATIC
TEXAS CRUDE - WRIGHT 23 FED NO. 1

POGO PRODUCING COMPANY
NEFF FEDERAL NO. 3
Section 25, T-22S, R-31E
Eddy County, New Mexico



FORM C-108

ITEM VII

Pogo Producing Company
Neff Federal No. 3

OPERATIONAL DATA

(1). Average expected injection rate: 1000 BWPD; maximum anticipated rate: 3000 BWPD

(2). Closed system

(3). Estimated average injection pressure: 750 psi.
Estimated maximum pressure: 910 psi.

(4). Source of injection water: from Lower Delaware zones in nearby Pogo operated wells

Analysis of waters attached. EXHIBIT II

(5). Analysis of injection zone water attached.
Data source: EXHIBIT III, Corbin Delaware; 31-17-33 Roswell Geological Society Symposium

FORM C-108

ITEM VIII

Pogo Producing Company
Neff Federal No. 3

GEOLOGICAL DATA

INJECTION ZONE

Lithological description: sandstone, lt. gray, fine to v fine grained, poorly consolidated, poor calc cement

Geological name: Delaware (Bell Canyon & UP Cherry Canyon)

Zone thickness: 1331 ft.; Depth: 5885 ft.

FRESH WATER SOURCES

Geological name: Santa Rosa

Depth to bottom of zone: +/-650 ft.

ITEM IX

STIMULATION PROGRAM (Proposed)

ACIDIZE:

Volume: 3000 gal Type acid: 15% HCl/Pentol 100

Rate: 5 BPM; Misc. Ball Sealers

FRACTURE:

Fluid volume: 30,000 gal.; Type: Gelled Water

Prop type: 20/40 sand Volume (#): 15,000

Rate: 18 BPM; Conductor: 2-7/8 in.

Misc. Ball Sealers

FORM C-108

Pogo Producing Company

Neff Federal No. 3

ITEM X LOGGING PROGRAM

Logging program included: CNLD, DLL & CBL

Copy of GR/DLL log included in attachments

ITEM XI FRESH WATER ANALYSIS

Fresh water well within 1 mile radius; _____ Yes XX No

Chemical analysis from well(s) located: Sec 14, T-22S, R-31E

Date sampled: 05/24/78 EXHIBIT IV

Chemical analysis from well(s) located: _____

Date sampled: _____

ITEM XII HYDROLOGY

Various engineering data and area well logs reveal no evidence that there might exist hydrologic connection between the intended injection zone and possible fresh water zone above 650' (Santa Rosa).

ITEM XIII COMMERCIAL INTENTION

Initially, only water from Pogo operated wells will be disposed of in subject well (system). Eventually, Pogo could take water from other leases in the area operated by someone else. Only piped water will be accepted into the system

FORM C-108, ITEM VII(4)

EXHIBIT NO. II

ANALYSIS - BRUSHY CANYON
PRODUCED WATER

POGO PRODUCING COMPANY
NEFF FEDERAL NO. 3
Section 25, T-22S, R-31E
Eddy County, New Mexico

16010 Barker's Point Lane • Houston, Texas 77079
713 558-5200 • Telex: 4620346 • FAX: 713 589-4737

Apply to: P.O. Box FF
Artesia, New Mexico 88210
(505) 746-3588 Phone
(505) 746-3580 Fax

WATER ANALYSIS REPORT

Company : POGO PRODUCING
Address : MIDLAND, TEXAS
Lease : RED TANK FED. 28
Well : #1 Brushy Canyon (Def)
Sample Pt. : WELLHEAD

Date : 01/08/93
Date Sampled : 01/04/93
Analysis No. : 005

	ANALYSIS		mg/L		* meq/L
1.	pH	6.2			
2.	H2S	3 PPM			
3.	Specific Gravity	1.160			
4.	Total Dissolved Solids		279018.4		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		80 PPM		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)		60.0		
11.	Bicarbonate	HCO3	73.2	HCO3	1.2
12.	Chloride	Cl	170409.6	Cl	4807.9
13.	Sulfate	SO4	1000.0	SO4	20.8
14.	Calcium	Ca	16881.7	Ca	842.4
15.	Magnesium	Mg	1186.3	Mg	97.6
16.	Sodium (calculated)	Na	89409.6	Na	3889.1
17.	Iron	Fe	58.0		
18.	Barium	Ba	NR		
19.	Strontium	Sr	NR		
20.	Total Hardness (CaCO3)		47042.3		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

842	*Ca <----- *HCO3	1
	/------->	
98	*Mg -----> *SO4	21
	<----------/	
3889	*Na -----> *Cl	4807

Saturation Values Dist. Water 20 C

CaCO3	13	mg/L
CaSO4 * 2H2O	2090	mg/L
BaSO4	2.4	mg/L

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	1.2	97
CaSO4	68.1	20.8	1417
CaCl2	55.5	820.4	45523
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	97.6	4646
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	3889.1	227277

REMARKS:
L. MALLETT / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
ROZANNE JOHNSON

FORM C-108, ITEM VII(5)

EXHIBIT NO. III

Name: Corbin Delaware

Location: NE¼ Sec. 31, T.17 S., R.33 E.

County & State: Lea Co., N. Mex.

COMPLETION DATE: March 31, 1960

ANALYSIS - INJECTION ZONE WATER

POGO PRODUCING COMPANY
NEFF FEDERAL NO. 3
Section 25, T-22S, R-31E
Eddy County, New Mexico

TYPICAL CORE ANALYSIS OF A PAY INTERVAL IN THIS FIELD: No cores taken

Perm. in millidarcys		% Porosity	Liquid Saturation (% of pore space)	
Horizontal	Vertical		Water	Oil

OTHER SHOWS ENCOUNTERED IN THIS FIELD: None

TRAP TYPE: Stratigraphic, sand pinchout

NATURE OF OIL: 37.8° gravity, sweet

NATURE OF GAS: sweet

NATURE OF PRODUCING ZONE WATER: Salt Resistivity: ohm-meters @ °F.

	Total Solids	Na—K	Ca	Mg	Fe	SO_4	Cl	CO_3	HCO_3	OH	H_2S
ppm		47,700	6160	2060	100	1500	89,400		160		neg

INITIAL FIELD PRESSURE: Unknown

TYPE OF DRIVE: Unknown

NORMAL COMPLETION PRACTICES: Set through, perforate & sand frac.

PRODUCTION DATA:

Year	Type	No. of wells @ yr. end		Production Oil in barrels Gas in MMCF	
		Producing	Shut in or Abnd.	Annual	Cumulative
1956	oil				
	gas				
1957	oil				
	gas				
1958	oil				
	gas				
1959	oil				
	gas				
1960*	oil	0	1 **	631.5	631.5
	gas				

* 1960 Figure is production to July 1, 1960.

** well shut in on April 19, 1960.

FORM C-108, ITEM XI

ANALYSIS - SANTA ROSA WATER

EXHIBIT NO. IV

POGO PRODUCING COMPANY
NEFF FEDERAL NO. 3
Section 25, T-22S, R-31E
Eddy County, New Mexico

Chemical and radiochemical analyses of water from test hole H-5

Water produced from the Santa Rosa Sandstone, sample taken 5/24/78

Alkalinity Field (mg/l as HCO3)	200
Bicarbonate FET-FLD (mg/l as HCO3)	240
Nitrogen, NO2 + NO3 Dissolved (mg/l as N)	0.36
Hardness (mg/l as CACO3)	150
Hardness, noncarbonate(mg/l as CACO3)	150
Calcium Dissolved (mg/l as CA)	56
Magnesium, Dissolved (mg/l as MG)	51
Sodium, Dissolved (mg/l as NA)	280
Potassium, Dissolved (mg/l as K)	25
Chloride, Dissolved (mg/s as CL)	120
Sulfate, Dissolved (mg/l as SO4)	530
Fluoride, Dissolved (mg/l as F)	1.2
Silica, Dissolved (mg/l as SIO2)	11.0
Boron, Dissolved (ug/l as B)	890
Solids Residue at 105 Deg C, Dissolved (mg/l)	1200