



POGO PRODUCING COMPANY

OVERNIGHT MAIL

May 18, 1993

New Mexico Oil Conservation Division
310 Old Santa Fe Trail
Santa Fe, New Mexico 87504
Attention: Mr. David R. Catanach

Re: Sand Dunes Prospect NM-555
Eddy County, New Mexico
Application for Administrative
Approval to Inject Saltwater
into the Federal "44" No. 1 Well,
located 660' FSL & 660' FEL
Section 34, T-23-S, R-31-E, N.M.P.M.

Gentlemen:

Pogo hereby respectfully submits two (2) original Applications for Authorization to Inject (Form C-108) pertaining to the captioned well and requests that same be given Administrative Approval.

Pursuant thereto, please find enclosed the following:

- (1) Copy of Notification Letter sent to all Offset Leasehold Operators within a one-half (1/2) mile radius of the proposed injection well and to the surface owner upon which such well is located, along with copies of proof of mailing; and
- (2) Proof of Legal Publication.

If you should have any questions regarding the subject Application, please contact the undersigned.

Very truly yours,

POGO PRODUCING COMPANY

Terry Gant
Consulting Landman

TG:lf/c:SWD22

Enclosures

cc w/encl.: New Mexico Oil Conservation Division
District I Office
P. O. Box 1157
Hobbs, New Mexico 88240



POGO PRODUCING COMPANY

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 6, 1993

To: Offset Leasehold Operators and
Surface Owner
(See Attached List)

Re: Sand Dunes Prospect NM-555
Eddy County, New Mexico
Application for Administrative
Approval to Inject Saltwater
into the Federal "44" No. 1 Well
located 660' FSL & 660' FEL
Section 34, T-23-S, R-31-E

Gentlemen:

Pogo Producing Company has applied to the New Mexico Oil Conservation Division for Administrative Approval to inject saltwater into the captioned well.

A copy of the Form C-108 submitted by Pogo to the Division is enclosed.

If you object to and/or request that a hearing be held pertaining to this Application, you must notify the Division within fifteen (15) days from the date of Pogo's Application.

If you have any questions, please contact the undersigned or Mr. Richard L. Wright.

Very truly yours,

POGO PRODUCING COMPANY

Terry Gant
Consulting Landman

TG:lf/c:SWD19a

Enclosure

cc: New Mexico Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87504-2088
Attention: Mr. David R. Catanach

Attached to Notification Letter dated May 6, 1993
regarding Pogo's Application for Administrative Approval
to Inject Saltwater into the Federal "44" No. 1 Well

Bureau of Land Management
P. O. Box 1449
Santa Fe, New Mexico 87504

Santa Fe Energy Operating Partners, L.P.
550 West Texas, Suite 1330
Midland, Texas 79701
Attention: Mr. Gary Green

Texaco, Inc.
P. O. Box 3109
Midland, Texas 79702
Attention: Mike R. Mullins

Yates Petroleum Corporation
105 South Fourth Street
Artesia, New Mexico 88210
Attention: Mr. Randy Patterson

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

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

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
Bureau of Land Management
P. O. Box 1449
Santa Fe NM 87504

4a. Article Number
P 085 629 190

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

7. Date of Delivery
MAY 10 1993

5. Signature (Addressee)

6. Signature (Agent)
[Signature]

8. Addressee's Address (Only if requested and fee is paid)
SWD Application
Federal 44#1

PS Form 3811, December 1991 ☆ U.S.G.P.O. : 1992-307-530 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
- Attach this form to the front of the mailpiece, or on the back if space does not permit.
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- The Return Receipt will show to whom the article was delivered and the date delivered.

I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
MR. GARY GREEN
SANTA FE ENERGY OPER. PARTNERS LP
550 WEST TEXAS, SUITE 1330
MIDLAND TX 79701

4a. Article Number
P 085 629 189

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

7. Date of Delivery
5-10-93

5. Signature (Addressee)

6. Signature (Agent)
[Signature]

8. Addressee's Address (Only if requested and fee is paid)
SWD Application
Federal 44#1

PS Form 3811, December 1991 ☆ U.S.G.P.O. : 1992-307-530 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

SENDER:

- Complete items 1 and/or 2 for additional services.
- Complete items 3, and 4a & b.
- Print your name and address on the reverse of this form so that we can return this card to you.
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I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
TEXACO INC.
ATTN MIKE R. MULLINS
P O BOX 3109
MIDLAND TX 79702

4a. Article Number
P 085 629 187

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

7. Date of Delivery
MAY 10 1993

5. Signature (Addressee)
[Signature]

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)
SWD Application
Federal 44#1

PS Form 3811, December 1991 ☆ U.S.G.P.O. : 1992-307-530 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Is your RETURN ADDRESS completed on the reverse side?

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- Complete items 3, and 4a & b.
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I also wish to receive the following services (for an extra fee):

- ☐ Addressee's Address
- ☐ Restricted Delivery

Consult postmaster for fee.

3. Article Addressed to:
MR. RANDY PATTERSON
YATES PETROLEUM CORPORATION
105 SOUTH FOURTH STREET
ARTESIA NM 88210

4a. Article Number
P 085 629 188

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

7. Date of Delivery
5-10-93

5. Signature (Addressee)
[Signature]

6. Signature (Agent)

8. Addressee's Address (Only if requested and fee is paid)
SWD Application
Federal 44#1

PS Form 3811, December 1991 ☆ U.S.G.P.O. : 1992-307-530 **DOMESTIC RETURN RECEIPT**

Thank you for using Return Receipt Service.

Affidavit of Publication

State of New Mexico,
County of Eddy, ss.

E. C. Cantwell, being first duly sworn,
on oath says:

That he is publisher of the Carlsbad Current-Argus, a newspaper published daily at the City of Carlsbad, in said county of Eddy, state of New Mexico and of general paid circulation in said county; that the same is a duly qualified newspaper under the laws of the state wherein legal notices and advertisements may be published; that the printed notice attached hereto was published in the regular and entire edition of said newspaper and not in supplement thereof on the date as follows, to wit:

May 11, _____, 19 93
_____, 19 ____
_____, 19 ____
_____, 19 ____

that the cost of publication is \$ 24.50,
and that payment thereof has been made
and will be assessed as court costs.

E. C. Cantwell

Subscribed and sworn to before me this

11 day of May, 19 93

Shirley Taylor

My commission expires 6/01/96

Notary Public

May 11, 1993

PUBLIC NOTICE

APPLICATION FOR AUTHORIZATION TO INJECT SALTWATER

Pogo Producing Company, P.O. Box 10340, Midland, Texas 79702-7340 (Contact - Richard L. Wright at 915/682-6822) has applied to the New Mexico Oil Conservation Division for Administrative Approval for Authorization to inject saltwater into its Federal "44" No. 1 Well, located 660' FSL and 660' FEL of Section 34, T-23-S, R-31-E, N.M.P.M., Eddy County, New Mexico. The purpose of such well will be to dispose of saltwater produced from Pogo's nearby wells. The injection interval will be in the Bell Canyon and Upper Cherry Canyon formations between 4,420'-5,748' beneath the surface, with an expected maximum injection rate of approximately 3,000 BOWPD with an expected maximum injection pressure of approximately 880 psi. Any interested parties must file objections or requests for a hearing with the New Mexico Oil Conservation Division, P.O. Box 2088, Santa Fe, New Mexico 87504-2088 within fifteen (15) days from the date of Pogo's Application.

APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☐ Secondary Recovery ☐ Pressure Maintenance ☒ Disposal ☐ Storage
Application qualifies for administrative approval? ☒ yes ☐ no
- 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 Halepeska Date: 5/5/93
- * 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.

III. WELL DATA

A. The following well data must be submitted for each injection well covered by this application. 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 shown 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 well.
- (4) Give the depths of any other perforated intervals and detail on the sacks of cement or 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.

XIV. 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:

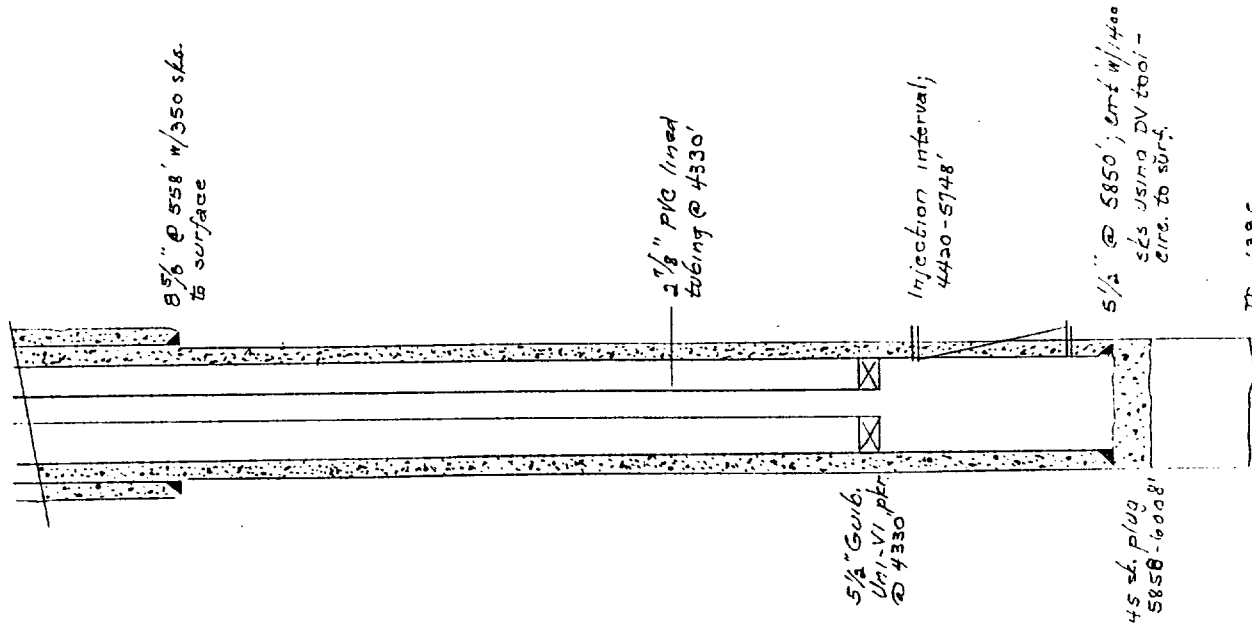
- (1) The name, address, phone number, and contact party for the applicant;
- (2) the intended purpose of the injection well; with the exact location of single wells or the section, township, and range location of multiple wells;
- (3) the formation name and depth with expected maximum injection rates 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.

NOTICE: 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.

INJECTION WELL DATA SHEET

SCHEMATIC



TD. 4330

TABULAR DATA

- (1). LEASE: Federal "44" WELL # 1
 LOCATION: Sec. 34 TWP 23-S Range 31-E
 County Eddy
 Footage 660 FSL & 660 FEL
- (2). CASING STRINGS:
 Surface Casing
 Size 8 5/8" Depth 558 Cemented w/ 350 sx.
 TOC surf. Determined by circulation
 Hole size 12 1/4"
- Intermediate Casing
 Size NA Depth Cemented w/ sx.
 TOC Determined by
 Hole size
- Long String
 Size 5 1/2" Depth 5850' Cemented w/ 1400 sx.
 TOC surf. Determined by circulation
 Hole size 7 7/8"
 Injection interval, from 4420 to 5748 Ft.
- (3). INJECTION TUBING STRING:
 Size 2 7/8 in., coated/lined with PVC
 Setting depth 4330 ft.
- (4) INJECTION PACKER:
 Size 5 1/2 in.; Make/Model Guiberson Uni-VI
 Setting depth 4330 ft.

ITEM 111-8

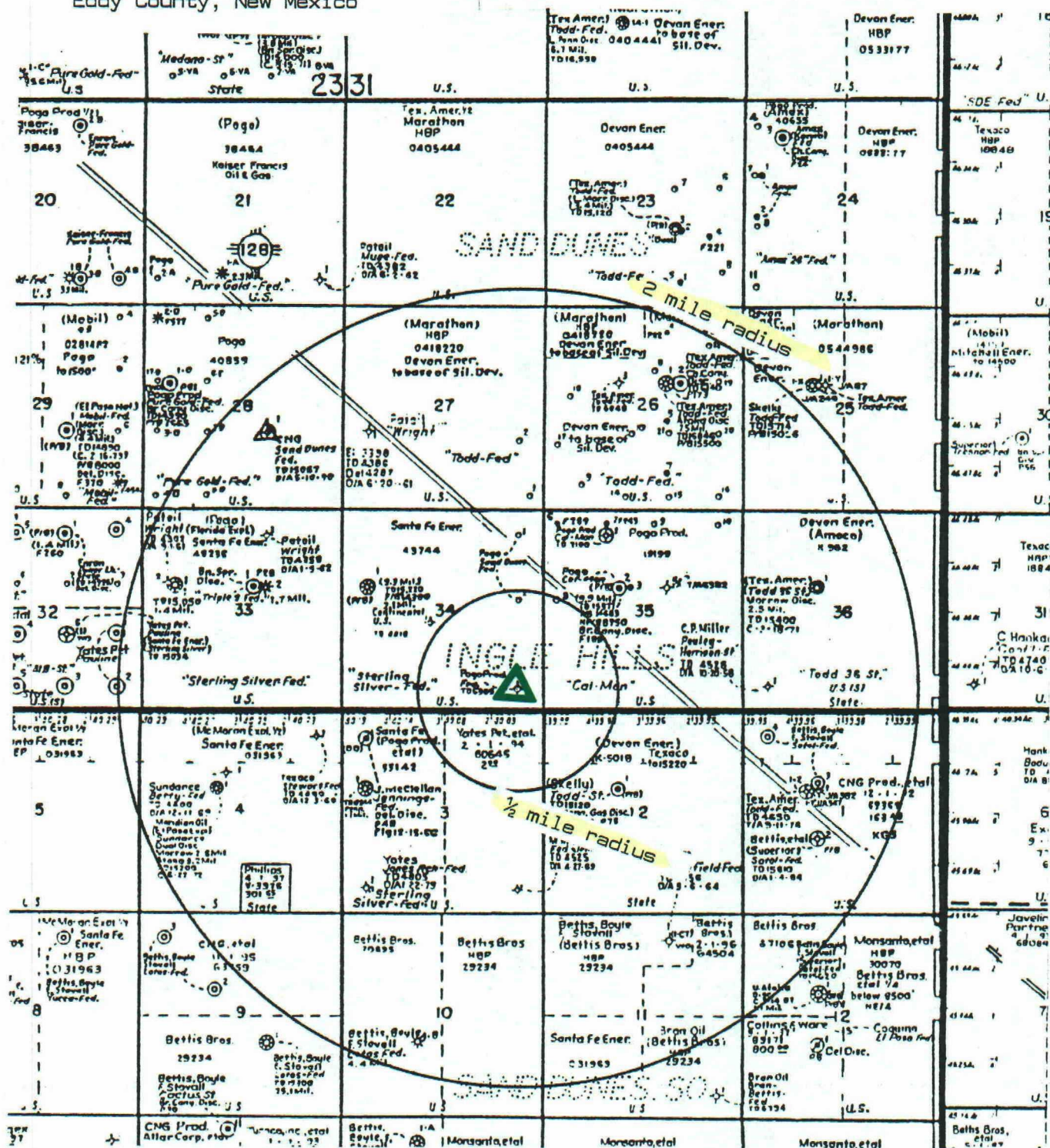
INJECTION WELL DATA

- (1). Injection formation: Bell Canyon and Up. Cherry Canyon (Delaware)
Field/Pool: Sand Dunes
- (2). Injection interval; from 4420 ft. to 5748 ft.
Perforated XX Open Hole _____
- (3). Original purpose well drilled -- Lower Delaware (Cherry Canyon) test
- (4). Other perforated intervals; _____ Yes XX No
Squeezed with NA sx., or isolated by _____

- (5). Oil or gas productive zone(s):
Next higher: None
Next lower: Cherry Canyon , 6300'

IDENTIFICATION MAP

POGO PRODUCING COMPANY
Federal "44" Well #1
Sec. 34, T 23-S, R 31-E
Eddy County, New Mexico



ITEM V1

WELL DATA - AREA OF REVIEW

(). Location: NA: No wells or dry holes within ½ mi. radius
Operator: _____ Lease: _____ Well # _____
Well type: Oil _____ Gas _____ DSA _____ Total depth _____ ft.
Date drilled: _____
Completion Data: _____

Plugged

Data:

(Schematic attached)

ITEM VII

OPERATIONAL DATA

(1). Average expected injection rate: 1200 BWPD; maximum anticipated rate: 3000 BWPD

(2). Closed system

(3). Estimated average injection pressure: 500 psi.

Estimated maximum pressure: 880 psi.

(4). Source of injection water: Produced water from nearby Pogo
operated leases

Analysis of waters attached. Exhibit I

(5). Analysis of injection zone water attached. Exhibit 2

Data source: Corbin Delaware; 31-17-33

Roswell Geological Society Symposium, 1965

ITEM VIII

GEOLOGICAL DATA

INJECTION ZONE

Lithological description: sand, fine-very fine grained, unconsol/
unconsol. friable, trs. lime and shale

Geological name: Bell Canyon and Up. Cherry Canyon (Delaware)

Zone thickness: 1350 ft.; Depth: 5750 ft. to base

FRESH WATER SOURCES

Geological name: Rustler/Santa Rosa (Permian Ochoa)

Depth to bottom of zone: 650 ft. or less

ITEM IX

STIMULATION PROGRAM (Proposed)

ACIDIZE:

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

Rate: 5 BPM; Misc. Ball Sealers for distribution

FRACTURE:

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

Prop type: 20/40 sd. Volume (#): 20,000

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

Misc. Ball sealers for selectivity

FORM C-108

ITEM X LOGGING PROGRAM

Logging program included:

CND, DLL

Copy of CND log included with attachments

ITEM XI FRESH WATER ANALYSIS

Fresh water well within 1 mile radius: -Yes XX No

Chemical analysis from well(s) located: 23-S. 31-E.26.34411

Date sampled: 4/1/92 Attached Exhibit 3

Chemical analysis from well(s) located: 24-S. 31-E.04.433422

Date sampled: 4/1/92 Attached Exhibit 3

ITEM XII HYDROLOGY

Engineering data and area well logs reveal no evidence that hydro-
logic connection might exist between the intended injection zone
(Bell Canyon) at 4420' and probable fresh water zone above 650'

ITEM XIII COMMERCIAL INTENT

Initially, only water from Pogo operated wells will be disposed
of in subject system. Eventually, Pogo could take water from
other leases in the area operated by someone else, but in which
Pogo has a working interest. It is intended that all water will
be piped to the system.

FORM C-108 ITEM VII(4)

EXHIBIT 1

ANALYSIS-INJECTION WATER

POGO PRODUCING COMPANY
Federal "44" Well #1
Sec. 34, T-23-S, R 31-E
Eddy County, New Mexico

ary Services

Tasker Drive
New Mexico 88240
1 397-3713

RECEIVED

SEP 21 1992

MEDLAND

WATER ANALYSISCOMPANY Pogo Producing Co.SAMPLE CAL MON #7SAMPLED BY Rolland PerryDATE TAKEN 9/15/92REMARKS BRUSHY CANYON FORMATION (LOWER DELAWARE)Sodium 50Nitrate 22.44Barium as Ba 0Carbonate alkalinity PPM 0Bicarbonate alkilinity PPM 82pH At Lab 5.62Specific Gravity @ 60 F 1.160Magnesium as Mg 24.418Total Hardness as CaCO3 42,100Chlorides as CL 145,436Sulfate as SO4 475Iron as Fe 45.5Potassium 25.63Hydrogen Sulfide 0Resistivity Ohms 0.2288Total Dissolved Solids 215,250Carbonate as CO3 G/L 7.45Calcium as CA 17,682Results reported as Parts Per Million Unless Stated.Langelier Saturation Index + 0.12Analysis By Rolland PerryDate: 9/15/92

EXHIBIT 2

FORM C-108 ITEM VII(5)

ANALYSIS - INJECTION ZONE WATER

POGO PRODUCING COMPANY
Federal "44" Well #1
Sec. 34, T 23-S, R 31-E
Eddy County, New Mexico

Name: Corbin Delaware

Location: NE $\frac{1}{4}$ 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 ₂ S	
ppm	41,700	6100	2060	100	1500	189,400		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. and		Production	
		Producing	Shut in or Abnd.	Oil in barrels	Gas in MMCF
				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 - FRESH WATER SUPPLY

POGO PRODUCING COMPANY
Federal "44" Well #1
Sec. 34, T 23-S, R 31-E
Eddy County, New Mexico

OF NEW MEXICO

WATER ENGINEER OFFICE

ROSWELL

DISTRICT II
1900 West Second St.
Roswell, New Mexico 88201
(505) 622-6521

April 27, 1993

Bill Halepeska
P. O. Box 11117
Midland, Texas 79702

Dear Sir:

Please find enclosed information and logs requested from this office.
Below please find water quality data on wells which you requested:

<u>USE</u>	<u>LOCATION</u>	<u>CLORIDES</u>	<u>CONDUCTIVITY</u>	<u>DATE</u>
Irr.	23S.28.05.111444	731ppm	6400	04/09/53
Irr.	23S.28.08.13111	1001	5400	07/17/53
"	" " " "	1400	6821	05/14/81
Irr.	23S.28.10.333423	1001	5300	07/16/53
"	" " " "	1310	7017	05/14/81
"	" " " "	1570	7837	08/23/85
Irr.	23S.28.15.32111	2020	8960	05/27/81
Irr.	23S.28.15.32111A	1132	7000	04/19/53
Irr.	23S.28.15.433131	1079	5900	07/16/53
Irr.	23S.28.17.33333	89	1600	03/03/53
Stk.	23S.31.26.32230	122	3455	12/19/79
Stk.	23S.31.26.34411	150	240	12/11/70
"	" " " "	134	3503	10/20/76
"	" " " "	130	3383	02/06/85
"	" " " "	124	3520	07/16/87
"	" " " "	230	3690	04/01/92
Stk.	24S.31.04.433422	246	3690	07/15/87
"	" " " "	310	3780	04/01/92

If you have any further questions, feel free to call this office.

Very truly yours,

Ramon L. Torres
Ramon Torres
Water Resource Tech II

RT/lc
encs.

**SIMULTANEOUS
COMPENSATED NEUTRON-
LITHO DENSITY**

COUNTY	_____
FIELD	_____
LOCATION	_____
FILE	_____
OFFICE	_____
COMPANY	_____
WELL	_____
FIELD	_____
COUNTY	_____
STATE	_____
OTHER SERVICES	_____
DATE	_____
REMARKS NO. 1000	_____

Permanent Datum: _____ Elev: _____
 Log Measured from _____ ft Above Perm Datum
 Drilling Measured from _____
 Elev: K 8 _____
 Df _____
 Cl 141 _____

[illegible]