STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT

OIL CONSERVATION DIVISION
POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501

FORM C-108
Revised 7-1-81

Pogo Producing Company
Aracanga Federal No. 1

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: 915/685-8100

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: 09-05-00

* 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.

DISTRIBUTION: Original and one copy to Santa Fe with one copy to the appropriate Division district office.

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.

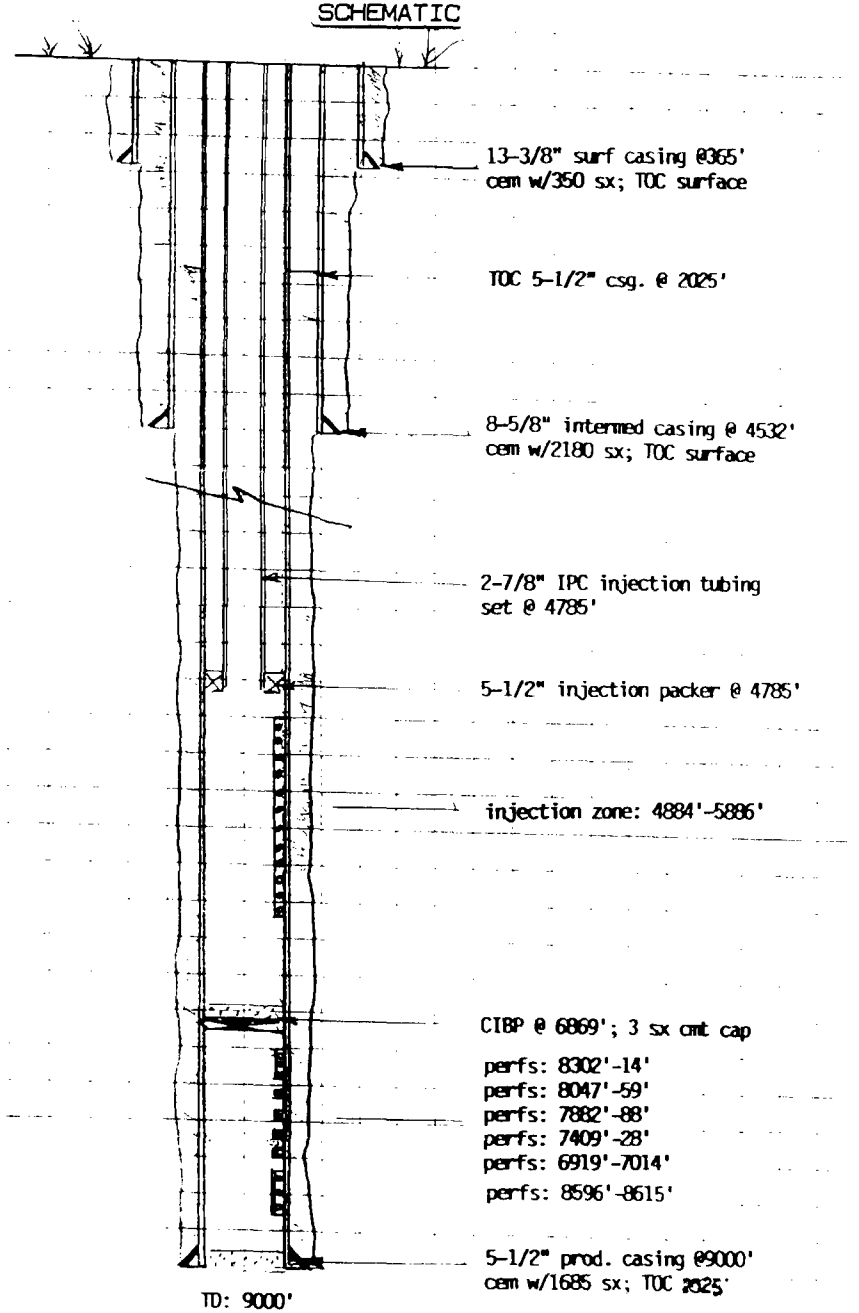
Pogo Producing Company
Aracanga Federal No. 1

FORM C-108

ITEM III-A

INJECTION WELL DATA SHEET

SCHEMATIC



TABULAR DATA

(1). LEASE: Aracanga Federal WELL # 1

LOCATION: Sec. 4 TWP 23S Range 32E

County Lea County

Footage 330 FSL & 2310 FEL

(2). CASING STRINGS:

Surface Casing

Size 13-3/8" Depth 365' Cemented w/ 350 sx.

TOC surf Determined by circulated 100 sx

Hole size 17-1/2"

Intermediate Casing

Size 8-5/8" Depth 4532' Cemented w/ 2180 sx.

TOC surf Determined by circulated 200 sx

Hole size 12-1/4"

Long String

Size 5-1/2" Depth 9000 Cemented w/ 1685 sx.

TOC 2025' Determined by CBL

Hole size 7-7/8"

Injection interval, from 4884 to 5886 ft.

(3). INJECTION TUBING STRING:

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

Setting depth 4785 ft.

(4) INJECTION PACKER:

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

Setting depth 4785 ft.

FORM C-108

ITEM III-B

INJECTION WELL DATA

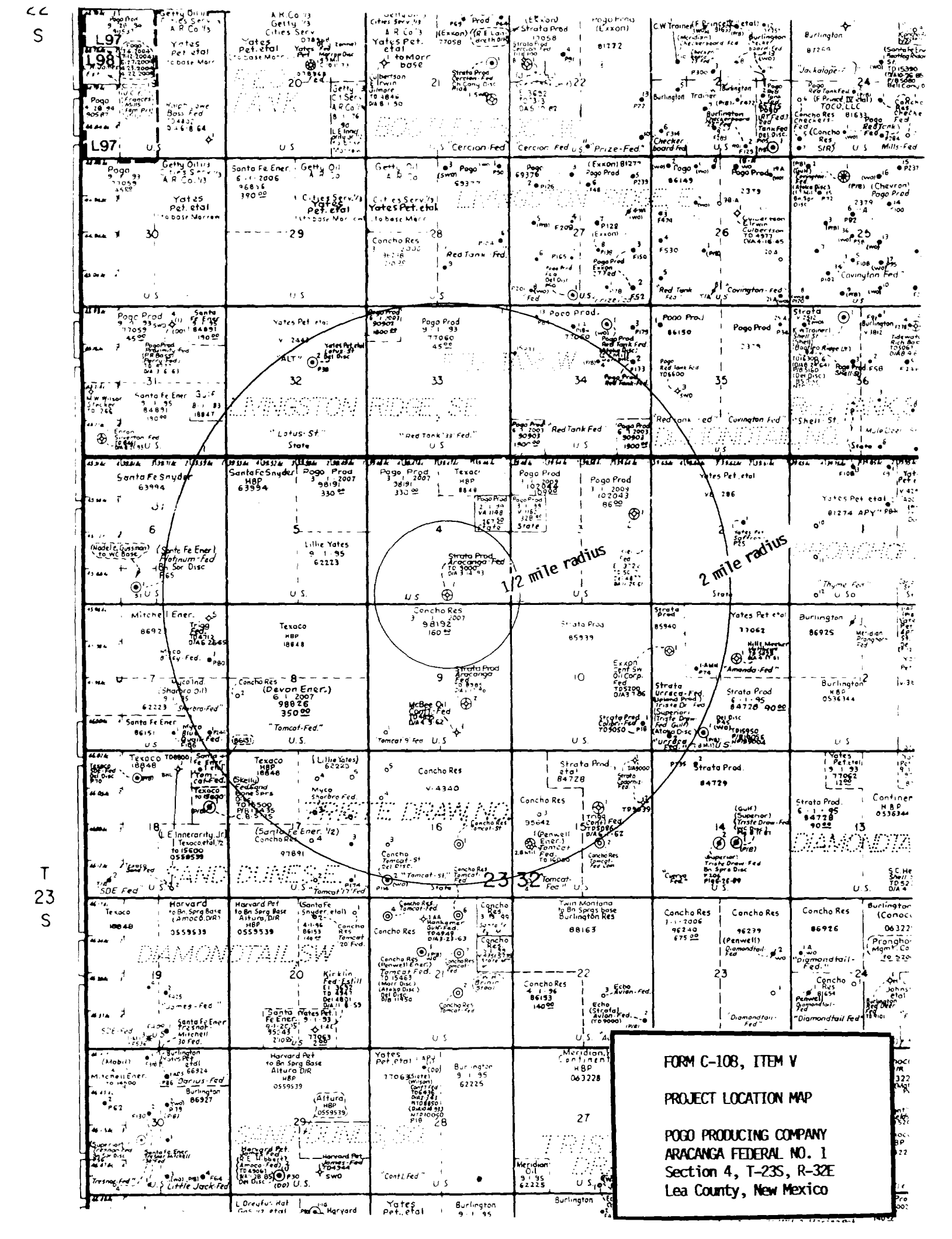
(1). Injection formation: Delaware
Field/Pool: Red Tank, West (Delaware)

(2). Injection interval; from 4884 ft. to 5886 ft.
Perforated XX Open Hole _____

(3). Original purpose well drilled Test Lower Delaware for production

(4). Other perforated intervals; XX Yes _____ No
Squeezed with _____ sx., or isolated by CIBP
test perforations 6919' - 8615' will be isolated with CIBP at +/-6869'
and 3 sk cement cap

(5). Oil or gas productive zone(s):
Next higher none
Next lower Lower Delaware (Brushy Canyon) at +/-7050'



FORM C-108, ITEM V

PROJECT LOCATION MAP

POGO PRODUCING COMPANY
ARACANGA FEDERAL NO. 1
Section 4, T-23S, R-32E
Lea County, New Mexico

Pogo Producing Company
Aracanga Federal No. 1

FORM C-108

ITEM VI

WELL DATA - AREA OF REVIEW

( ). Location: None currently within 1/2 mile radius
Operator: _____
Lease: _____ Well No. _____
Well type: Oil _____ Gas _____ T.D. _____
Date drilled: _____
Completion data: _____

Plugged _____ Date _____ (diagram att.)

( ). Location: _____
Operator: _____
Lease: _____ Well No. _____
Well type: Oil _____ Gas _____ T.D. _____
Date drilled: _____
Completion data: _____

Plugged _____ Date _____ (diagram att.)

( ). Location: _____
Operator: _____
Lease: _____ Well No. _____
Well type: Oil _____ Gas _____ T.D. _____
Date drilled: _____
Completion data: _____

Plugged _____ Date _____ (diagram att.)

Pogo Producing Company
Aracanga Federal No. 1

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ITEM VII

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: 975 psi.

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

Analysis of waters attached **EXHIBITS I & II**

(5). Analysis of injection zone water attached , **EXHIBIT III**
Data source: Corbin Delaware, Section 31, 17S, 33E from Roswell Geological Society Symposium

ITEM VIII

GEOLOGICAL DATA

INJECTION ZONE

Lithological description: sandstone, lt gray, fine to v fine grained, poorly consolidated, silty, poor calcareous cementing

Geological name: Delaware

Zone thickness: 1002 ft; Depth: 4884'

FRESH WATER SOURCE(S)

Geological name of aquifer: Santa Rosa

Depth to bottom of zone +/-650'

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ITEM IX

STIMULATION PROGRAM

ACIDIZE

Volume: 2000 Type acid: 7-1/2% HCl

Rate: 5 BPM; Misc.: ball sealers

FRACTURE

Fluid volume: 55,000 gal.; Type: XLGW

Prop type: 16/30 sand Volume (lb): 250,000

Rate: 30 BPM; Conductor: 5-1/2"

Misc:

ITEM X

LOGGING PROGRAM

Logging program included: GR/CN,L-D, DLL/MSFL

Copy of GR/CND log(s) included with attachments

ITEM XI

FRESH WATER DATA

Fresh water well within 1 mile radius: xx Yes ____ No

Chemical analysis from well located: Sec. 14-22S-31E

Date sampled: 5-24-78 EXHIBIT IV

Chemical analysis from well located:

Date sampled:

ITEM XII

HYDROLOGY

Various engineering data and area logs reveal no evidence that there might exist hydrologic connection between the intended injection zone (Delaware) at 4884' and 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 wish to take water from other leases in the area operated by someone else, but in which Pogo has a working interest. Only piped water will be taken into the system.

FORM C-108, ITEM VII(4)

ANALYSIS - BRUSHY CANYON PRODUCED WATER

POGO PRODUCING COMPANY
ARACANGA FEDERAL NO. 1
Section 4, T-23S, R-32E
Lea County, New Mexico

EXHIBIT I

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 (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	4807.0
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(4)

ANALYSIS - UP. BONE SPRING
PRODUCED WATER

POGO PRODUCING COMPANY
ARACANGA FEDERAL NO. 1
Section 4, T-23S, R-32E
Lea County, New Mexico

EXHIBIT II

TER ANALYSIS REPORT

Date : 1-23-93
Date Sampled : 1-22-93
Analysis No. : 006

Lease : RED TANK FED.
Well : 23-1 Bone Spring
Sample Pt. : WELL

	ANALYSIS		mg/L		* meq/L
1.	pH	5.9			
2.	H2S	0			
3.	Specific Gravity	1.155			
4.	Total Dissolved Solids		243572.9		
5.	Suspended Solids		NR		
6.	Dissolved Oxygen		NR		
7.	Dissolved CO2		NR		
8.	Oil In Water		NR		
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	48.8	HCO3	0.8
12.	Chloride	Cl	151230.0	Cl	4266.0
13.	Sulfate	SO4	250.0	SO4	5.2
14.	Calcium	Ca	16840.0	Ca	840.3
15.	Magnesium	Mg	4140.2	Mg	340.6
16.	Sodium (calculated)	Na	71063.9	Na	3091.1
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		59100.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter

840	*Ca <----- *HCO3	1
	/------->	
341	*Mg -----> *SO4	5
	<---------/	
3091	*Na -----> *Cl	4266

Compound	Equiv wt	X meq/L	= mg/L
Ca(HCO3)2	81.0	0.8	65
CaSO4	68.1	5.2	354
CaCl2	55.5	834.3	46296
Mg(HCO3)2	73.2		
MgSO4	60.2		
MgCl2	47.6	340.6	16215
NaHCO3	84.0		
Na2SO4	71.0		
NaCl	58.4	3091.1	180643

Saturation Values Dist. Water 20 C

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

REMARKS: L. MALLETT -FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
L. MALLETT

FORM C-108, ITEM XI

ANALYSIS - FRESH WATER

POGO PRODUCING COMPANY
ARACANGA FEDERAL NO. 1
Section 4, T-23S, R-32E
Lea County, New Mexico

EXHIBIT IV

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

Affidavit of Publication

STATE OF NEW MEXICO)
) ss.
COUNTY OF LEA)

Joyce Clemens being first duly sworn on oath deposes and says that she is Advertisting Director of **THE LOVINGTON DAILY LEADER**, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Application For Authorization To Inject Saltwater

was published in a regular and entire issue of **THE LOVINGTON DAILY LEADER** and not in any supplement thereof, for one (1) day, beginning with the issue of August 30, 2000 and ending with the issue of August 30, 2000.

And that the cost of publishing said notice is the sum of $ 21.48 which sum has been (Paid) as Court Costs.

Joyce Clemens

Subscribed and sworn to before me this 30th day of August 2000.

Debbie Schilling

Debbie Schilling
Notary Public, Lea County, New Mexico
My Commission Expires June 22, 2002

LEGAL NOTICE
PUBLIC NOTICE
APPLICATION FOR AUTHORIZATION TO INJECT SALTWATER

POGO PRODUCING COMPANY, P.O. Box 10340, Midland, Texas 79702 (Contact-Richard L. Wright at 915/685-8100) has applied to the New Mexico Oil Conservation Division for Administrative Approval for Authorization to inject saltwater into its Aracanga Federal No. 1 well, located 330' FSL & 2310' FEL of Section 4, T-23-S, R-32-E, U.S.M., Lea 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 Delaware Formation between 4884' and 5886' beneath the surface, with an expected maximum injection rate of 3000 BWPD with an expected maximum injection pressure of 975 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.

Published in the Lovington Daily Leader August 30, 2000.