

September 6, 2000

State of New Mexico  
Energy and Minerals Department  
Oil Conservation Division  
2040 Pacheco  
Santa Fe, NM 87505

*Case 12510*

RE: S.E. Red Tank Prospect NM-607  
Lea County, New Mexico  
Application for Administrative  
Approval To Inject Saltwater into  
the Red Tank "30" State No. 3 Well  
Located 1980' FNL & 660' FEL  
Section 30, T-22-S, R-33-E, N.M.P.M.

Gentlemen:

Seaboard Oil Co. objects to the injection of saltwater into the well described above. The proposed injection well directly offsets a prospect of Seaboard Oil Co. in the adjoining Section 29, T-22-S, R-33-E Lea County, New Mexico. The injection interval proposed in the Application on Form C-108 by Pogo Producing Company from 4946' to 4963' is the same zone in which Seaboard Oil Co. will propose an exploratory test in the near future to test the potential of this zone in Section 29.

Seaboard Oil Co. strongly objects to Administrative Approval of Pogo Producing Company's request without a formal hearing on this matter. Seaboard Oil Co. was notified by Pogo Producing Company on September 1, 2000.

Very truly yours,

SEABOARD OIL CO.

Gary B. Gilliam  
President

Enclosure

GBG/kal

cc: Pogo Producing Company  
ATTN: Richard C. Wright  
P.O. Box 10340  
Midland, TX 79702

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**SEABOARD OIL CO.**

POST OFFICE BOX 50180 • MIDLAND, TEXAS 79710-0180 • (915) 684-7005 • FAX (915) 684-7060  
3100 NORTH A STREET • BUILDING B SUITE 200 • MIDLAND, TEXAS 79705

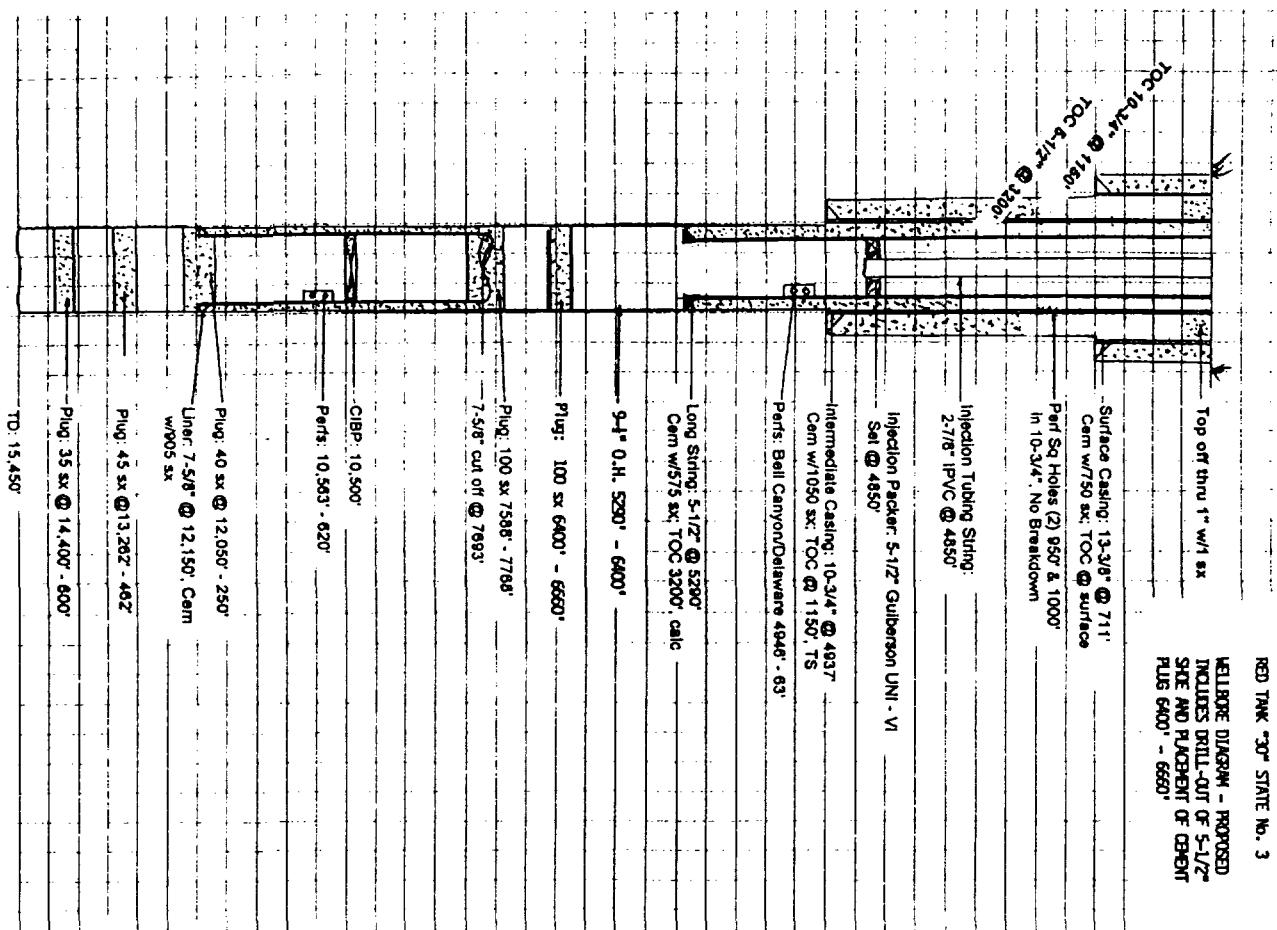
## APPLICATION FOR AUTHORIZATION TO INJECT

Pogo Producing Company  
Red Tank "30" State No. 3

- 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 details.
- 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 geologic 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 E. Halepeska Title: Agent  
Signature: Bill E. Halepeska Date: 08-22-00 8-22-00
- \* 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.

## INJECTION WELL DATA SHEET

## SCHEMATIC



## TABULAR DATA

(1). LEASE: Red Tank "30" State WELL # 3LOCATION: Sec. 30 TWP 22S Range 33ECounty Lea CountyFootage 1980' FN. & 660' FEL

## (2). CASING STRINGS:

## Surface Casing

Size 13-3/8" Depth 711' Cemented w/ 750 sx.TOC surface Determined by circ. 30 sxHole size 17-1/2"

## Intermediate Casing

Size 10-3/4" Depth 4937' Cemented w/ 1050 sx.TOC 1150' Determined by temp. surveyHole size 12-1/4"

## Long String

Size 5-1/2" Depth 5290' Cemented w/ 575 sx.TOC 3200' Determined by calculatedHole size 9-1/2"Injection interval, from 4946' to 6400 ft.

## (3). INJECTION TUBING STRING:

Size 2-7/8" in., coated/lined with plasticSetting depth 4850 ft.

## (4) INJECTION PACKER:

Size 5-1/2 in.; Make/Model UNI-VI or equivalentSetting depth 4850 ft.

FORM C-108

ITEM III-B

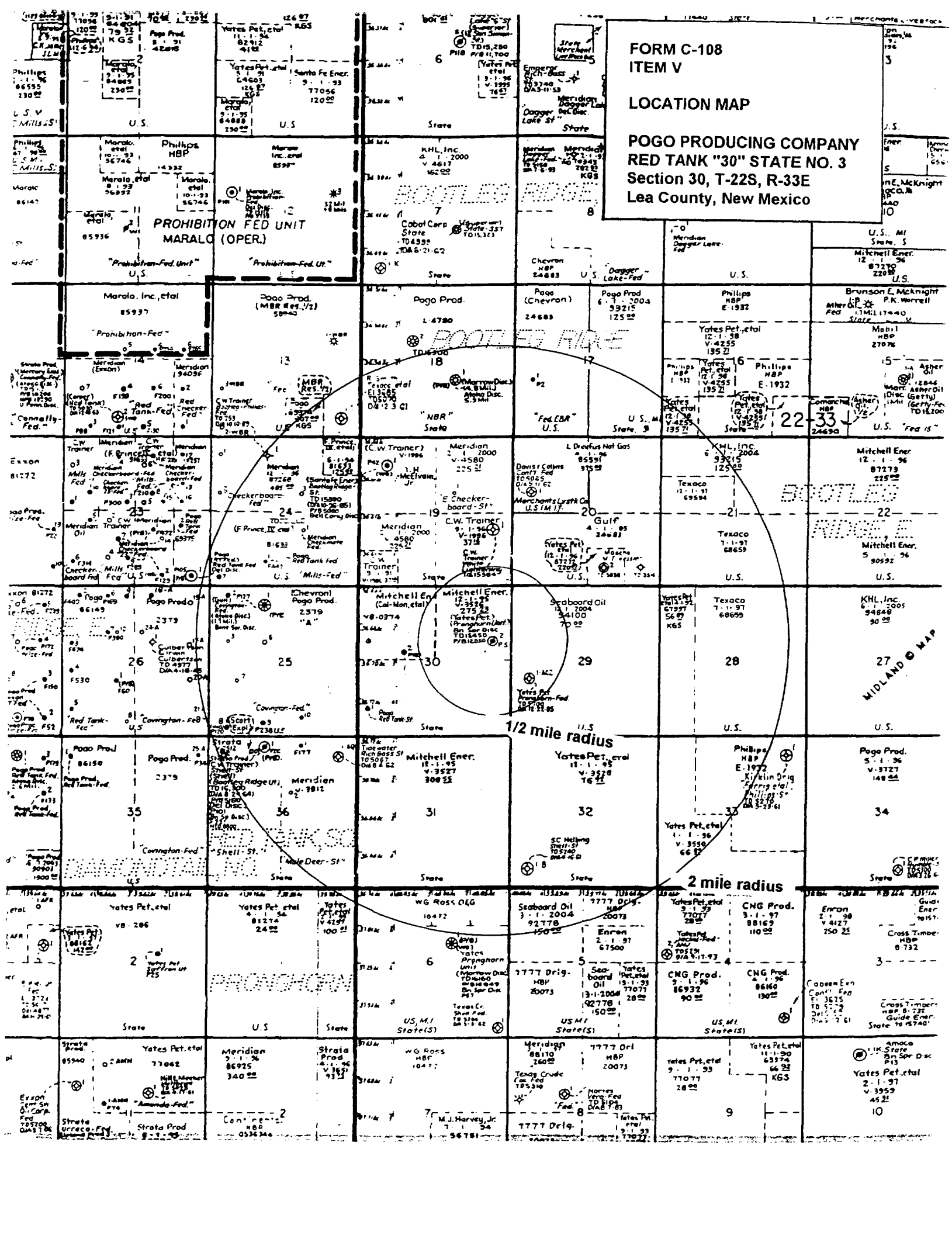
INJECTION WELL DATA

- (1). Injection formation: Delaware  
Field/Pool: Red Tank West
- (2). Injection interval; from 4946 ft. to 6400 ft.  
Perforated 4946'-4963' Open Hole 5290'-6400'
- (3). Original purpose well drilled Morrow test at 15,000'+
- (4). Other perforated intervals; XX Yes        No  
Squeezed with        sx., or isolated by PB with CIBP @  
10,500' and multiple cement plugs to 6400'
- (5). Oil or gas productive zone(s):  
Next higher       none        
Next lower Lower Cherry Canyon at 6500'+

# FORM C-108 ITEM V

## LOCATION MAP

**POGO PRODUCING COMPANY  
RED TANK "30" STATE NO. 3  
Section 30, T-22S, R-33E  
Lea County, New Mexico**



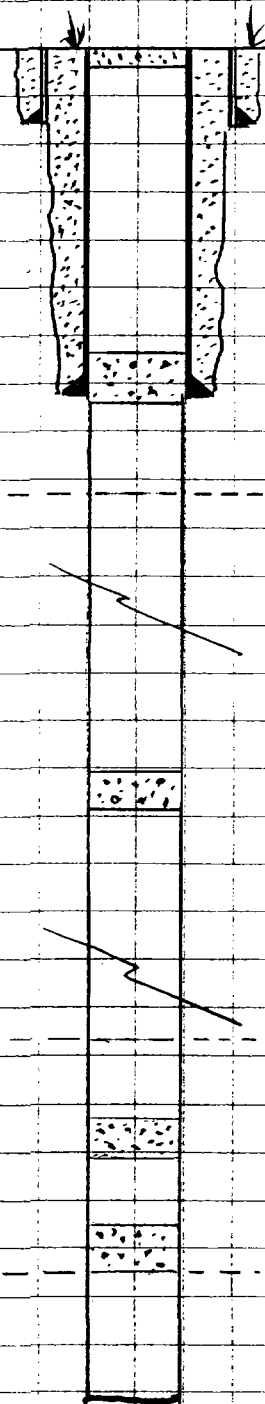
( ). Location: \_\_\_\_\_  
Operator: \_\_\_\_\_ Lease: \_\_\_\_\_ Well # \_\_\_\_\_  
Well Type ; Oil \_\_\_\_\_ Gas \_\_\_\_\_ DSA \_\_\_\_\_ Total Depth: \_\_\_\_\_ Ft.  
Date Drilled: \_\_\_\_\_  
Completion Data: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
Plugged \_\_\_\_\_ Date \_\_\_\_\_ (Schematic attached)

FORM C-108  
ITEM VI

PLUGGING DIAGRAM

Yates Pet. - No. 1 Pronghorn "ACZ" Fed.

POGO PRODUCING COMPANY  
RED TANK "30" STATE NO. 3  
Section 30, T-22S, R-33E  
Lea County, New Mexico



Plug: 15 sx surf to 50'

Conductor Pipe: 20" @ 40'

Surface Casing: 10-3/4" @ 800'  
Cem w/550 sx

Plug: 40 sx 721' - 815'

T/Rustler - 1070'

Plug: 40 sx 2330' - 2485'

B/Salt - 4580'

Plug: 70 sx 4710' - 4935'

Plug: 70 sx 5083' - 5308'

T/Delaware Sd - 4938'

T D: 5700'

FORM C-108

ITEM VII

OPERATIONAL DATA

- (1). Average expected injection rate: 1000 BWPB; maximum anticipated rate: 3000 BWPB
- (2). Closed system
- (3). Estimated average injection pressure: 750 psi.  
Estimated maximum pressure: 990 psi.
- (4). Source of injection water: Bone Spring and Lower Delaware Sand production from nearby Pogo operated wells  
Analysis of waters attached EXHIBITS I & II
- (5). Analysis of injection zone water attached  
Data source: EXHIBIT III: test of injection zone water from subject well during Mitchell Energy Corp. test 2/26/93

ITEM VIII

GEOLOGICAL DATA

INJECTION ZONE

Lithological description: sandstone, lt gray, fine to v fine gr., poorly consol., silty, poor calc cementing

Geological name: Delaware

Zone thickness: 1454 ft; Depth: 6400'

FRESH WATER SOURCE(S)

Geological name of aquifer: Santa Rosa

Depth to bottom of zone +/-650'



FORM C-108

ITEM IX

STIMULATION PROGRAM

ACIDIZE

Volume: 1500 gal Type acid: 15% NEFE HCl  
Rate: 4.5 BPM; Misc.: Ball Sealers

FRACTURE

Fluid volume: 26,000 gal.; Type: XLGW  
Prop type: 12/20 sand Volume (lb): 79,800  
Rate: 12 BPM; Conductor: 2-7/8"  
Misc: \_\_\_\_\_

ITEM X

LOGGING PROGRAM

Logging program included: CNL/FDC, DLL/MSFL  
Copy of Comp. Neutron/Fmtn Density log(s) included with  
attachments

ITEM XI

FRESH WATER DATA

Fresh water well within 1 mile radius: \_\_\_\_\_ Yes xx No  
Chemical analysis from well located: Section 14, T-22S, R-31E  
Date sampled: 05-24-78; EXHIBIT IV  
Chemical analysis from well 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 (Delaware) at 4946' and possible fresh water zone above 650' (Santa Rosa)

**ITEM XIII**

**COMMERCIAL INTENTION**

Initially, only water from Pogo operated wells will be disposed of into subject well. Eventually, Pogo could 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 this system.

## EXHIBIT I

**Endura Products**

P.O. Box 3394 Midland, Texas  
Phone (915) 684-4233 \* Fax (915)

FORM C-108  
ITEM VII(4)

**ANALYSIS - BONE SPRING  
PRODUCED WATER**

POGO PRODUCING COMPANY  
RED TANK "30" STATE NO. 3  
Section 30, T-22S, R-33E  
Lea County, New Mexico

**WATER ANALYSIS**

Date 8/22/95 ~~NOTE~~ Rep TERRY SOLANSKY  
Sampling Point/Date WELL HEAD - 8/21/95  
Company POGO PRODUCING  
Field Lease RED TANK "30"

Code W-0262  
State NEW MEXICO  
County EDDY  
Well STATE #1

**DISSOLVED SOLIDS****CATIONS**

|                                    | mg/l   | me/l  |
|------------------------------------|--------|-------|
| Sodium, Na <sup>+</sup> (Calc.)    | 73,692 | 3,204 |
| Total Hardness as Ca <sup>++</sup> | 6,120  | 0     |
| Calcium, Ca <sup>++</sup>          | 5,680  | 284   |
| Magnesium, Mg <sup>++</sup>        | 268    | 22    |
| Barium, Ba <sup>++</sup>           | 0      | 0     |
| Iron (Total) Fe <sup>+++</sup>     | 185    | 10    |

**ANIONS**

|                                            |         |       |
|--------------------------------------------|---------|-------|
| Chlorides, Cl <sup>-</sup>                 | 122,500 | 3,451 |
| Sulfate, SO <sub>4</sub> <sup>-</sup>      | 2,375   | 49    |
| Carbonate, CO <sub>3</sub> <sup>-</sup>    | 0       | 0     |
| Bicarbonate, HCO <sub>3</sub> <sup>-</sup> | 1,244   | 20    |
| Sulfide, S <sup>-</sup>                    | 0       | 0     |
| Total Dissolved Solids (Calc.)             | 205,944 |       |

**OTHER PROPERTIES**

|                            |       |
|----------------------------|-------|
| pH <sup>-</sup>            | 6.260 |
| Specific Gravity, 60°/60 F | 1.112 |
| TURBIDITY                  | >500  |

**SCALING INDICIES**

| <u>TEMP, F</u> | <u>CA CO<sub>3</sub></u> | <u>CASO<sub>4</sub>*2H<sub>2</sub>O</u> | <u>CA SO<sub>4</sub></u> | <u>BA SO<sub>4</sub></u> |
|----------------|--------------------------|-----------------------------------------|--------------------------|--------------------------|
| 80             | 0.9815                   | 0.1097                                  | -0.1791                  | -29.3701                 |
| 120            | 1.3955                   | 0.1015                                  | -0.0069                  | -29.5509                 |
| 160            | 2.0301                   | 0.0799                                  | 0.1541                   | -29.7755                 |

## Nutro Products Cor

P.O. Box 21187 Houston, Texas 772  
Phone (713) 675-3421 \* Fax (713) 675FORM C-108  
ITEM VII(4)ANALYSIS - LOWER DELAWARE  
PRODUCED WATERPOGO PRODUCING COMPANY  
RED TANK "30" STATE NO. 3  
Section 30, T-22S, R-33E  
Lea County, New MexicoWATER ANALYSIS

Date 06/08/95 Nutro Rep TERRY SOLANSKY

Sampling Point

Company POGO PRODUCING

Field

Lease COVINGTON "A"

County

Well 9

DISSOLVED SOLIDS

| <u>CATIONS</u>                     | mg/l   | me/l  |
|------------------------------------|--------|-------|
| Sodium, Na <sup>+</sup> (Calc.)    | 82,156 | 3,572 |
| Total Hardness as Ca <sup>++</sup> | 26,560 | 0     |
| Calcium, Ca <sup>++</sup>          | 20,960 | 1,048 |
| Magnesium, Mg <sup>++</sup>        | 3,415  | 285   |
| Barium, Ba <sup>++</sup>           | 2      | 0     |
| Iron (Total) Fe <sup>+++</sup>     | 30     | 2     |

ANIONS

|                                            |         |       |
|--------------------------------------------|---------|-------|
| Chlorides, Cl <sup>-</sup>                 | 174,000 | 4,901 |
| Sulfate, SO <sub>4</sub> <sup>-</sup>      | 225     | 5     |
| Carbonate, CO <sub>3</sub> <sup>-</sup>    | 0       | 0     |
| Bicarbonate, HCO <sub>3</sub> <sup>-</sup> | 49      | 1     |
| Sulfide, S <sup>-</sup>                    | 0       | 0     |
| Total Dissolved Solids (Calc.)             | 280,837 |       |

OTHER PROPERTIES

|                            |       |
|----------------------------|-------|
| pH <sup>*</sup>            | 5.200 |
| Specific Gravity, 60°/60 F | 1.179 |
| TURBIDITY                  | >500  |

Remarks SAMPLE TAKEN ON 05/02/95

## SCALING INDICIES

| <u>TEMP, F</u> | <u>CA CO<sub>3</sub></u> | <u>CASO<sub>4</sub>*2H<sub>2</sub>O</u> | <u>CA SO<sub>4</sub></u> | <u>BA SO<sub>4</sub></u> |
|----------------|--------------------------|-----------------------------------------|--------------------------|--------------------------|
| 80             | 0.1101                   | -0.1998                                 | -0.5770                  | 0.0270                   |
| 120            | 0.6873                   | -0.2122                                 | -0.4089                  | -0.1128                  |
| 160            | 1.5588                   | -0.2267                                 | -0.2508                  | -0.3171                  |

## EXHIBIT III

FORM C-108  
ITEM VII(5)ANALYSIS - INJECTION ZONE  
PRODUCED WATERPOGO PRODUCING COMPANY  
RED TANK "30" STATE NO. 3  
Section 30, T-22S, R-33E  
Lea County, New Mexico

## MARTIN WATER LABORATORIES, INC.

P.O. Box 1488 Phone 843-3284 or 583-1040  
Monahans, Texas 79758

## RESULT OF WATER ANALYSES

709 W. Indiana Phone 682-4521  
Midland, Texas 79701TO: Mr. Dan Tuffly  
400 West Illinois, Suite 1000  
Midland, TX 79701LABORATORY NO. 3938  
SAMPLE RECEIVED 3-3-93  
RESULTS REPORTED 3-4-93

## API WATER ANALYSIS REPORT FORM

|                                                    |            |                    |                       |                         |                         |
|----------------------------------------------------|------------|--------------------|-----------------------|-------------------------|-------------------------|
| Company<br>Mitchell Energy Corporation             |            |                    | Sample No.            |                         | Date Sampled<br>2/26/93 |
| Field<br>Bootleg Ridge                             |            | Legal Description  |                       | County or Parish<br>Lea | State<br>NM             |
| Lease or Unit<br>Big Horn "30" State               | Well<br>#1 | Depth<br>4946-4963 | Formation<br>Delaware | Water, B/D              |                         |
| Type of Water (Produced, Supply, etc.)<br>Produced |            |                    | Sampling Point        |                         | Sampled By              |

## DISSOLVED SOLIDS

## CATIONS

|                   | mg/l   | me/l    |
|-------------------|--------|---------|
| Sodium, Na (calc) | 61,383 | 2,668.8 |
| Calcium, Ca       | 20,000 | 1,000.0 |
| Magnesium, Mg     | 2,795  | 230.0   |
| Barium, Ba        | 0      | 0.0     |

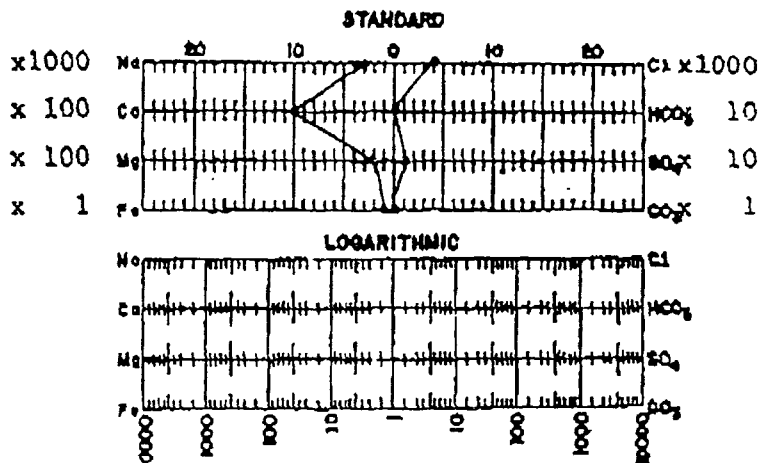
## OTHER PROPERTIES

pH 5.91  
 Specific Gravity, 60/60 F. 1.1481  
 Resistivity (ohm-meters) 77° F. 0.053  
 Total Hardness, as CaCO<sub>3</sub> 61,500

## ANIONS

|                               | mg/l    | me/l    |
|-------------------------------|---------|---------|
| Chloride, Cl                  | 137,777 | 3,885.3 |
| Sulfate, SO <sub>4</sub>      | 566     | 11.8    |
| Carbonate, CO <sub>3</sub>    | 0       | 0.0     |
| Bicarbonate, HCO <sub>3</sub> | 105     | 1.7     |

## WATER PATTERNS - me/l



## Total Dissolved Solids (calc.)

222,625

|                              |      |     |
|------------------------------|------|-----|
| Iron, Fe (total)             | 18.0 | 0.7 |
| Sulfide, as H <sub>2</sub> S | 0.0  |     |

REMARKS & RECOMMENDATIONS: The above results show this water to have a slightly lower level of sodium chloride than our predominant records in the area and also the water from Comanche State "17" #2. However, the characteristics are still those expected from natural Delaware; therefore, it is indicated to be all, or essentially all, natural Delaware.

ANALYSIS - SANTA ROSA WATER

EXHIBIT 4

POGO PRODUCING COMPANY  
RED TANK "30" STATE NO. 3  
Section 30, T-22S, R-33E  
Lea County, New Mexico

ical analyses of water from test hole H-5  
Santa Rosa Sandstone, sample taken 5/24/78

|                                                                   |      |
|-------------------------------------------------------------------|------|
| Alkalinity Field (mg/l as HCO <sub>3</sub> )                      | 200  |
| Bicarbonate FET-FLD (mg/l as HCO <sub>3</sub> )                   | 240  |
| Nitrogen, NO <sub>2</sub> + NO <sub>3</sub> Dissolved (mg/l as N) | 0.36 |
| Hardness (mg/l as CaCO <sub>3</sub> )                             | 150  |
| Hardness, noncarbonate(mg/l as CaCO <sub>3</sub> )                | 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 SO <sub>4</sub> )                     | 530  |
| Fluoride, Dissolved (mg/l as F)                                   | 1.2  |
| Silica, Dissolved (mg/l as SiO <sub>2</sub> )                     | 11.0 |
| Boron, Dissolved (ug/l as B)                                      | 890  |
| Solids Residue at 105 Deg C, Dissolved (mg/l)                     | 1200 |