

POGO PRODUCING COMPANY
PURE GOLD FEDERAL "B" 20

APPLICATION FOR AUTHORIZATION TO INJECT

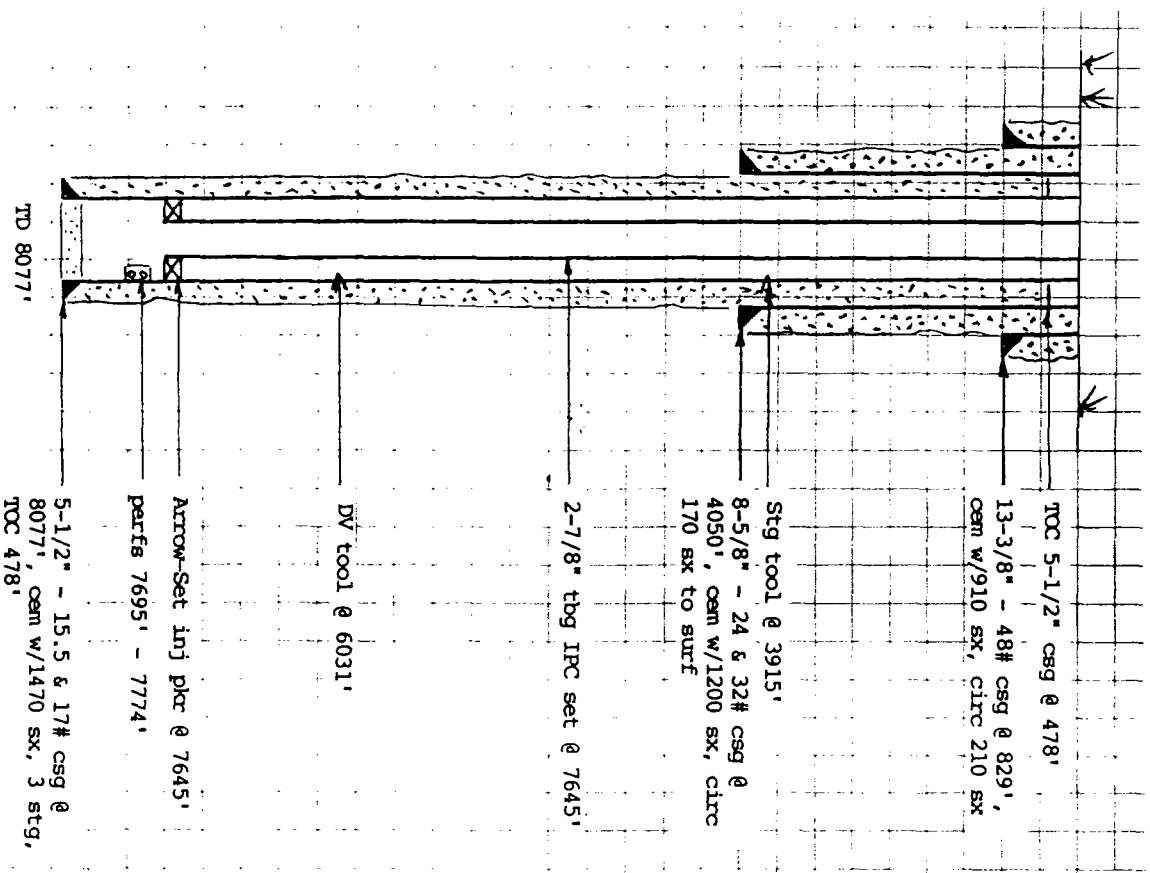
- I. Purpose: ☐ Secondary Recovery ☒ Pressure Maintenance ☐ Disposal ☐ Storage
Application qualifies for administrative approval? ☐ yes ☒ no
- II. Operator: POGO PRODUCING COMPANY
Address: P. O. Box 10340, Midland, Texas 79702
Contact party: Richard L. Wright Phone: 915/685-8100
- III. Well data: Complete 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. Halpeska Title: Agent, PE
Signature: Bill Halpeska Date: 06-30-99
- * 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 of the earlier submittal. _____

EXHIBIT

B

INJECTION WELL DATA SHEET

SCHEMATIC



TABULAR DATA

- (1). LEASE: Pure Gold Fed. "B" WELL # 20
 LOCATION: Sec. 20 TWP 23 S Range 31 E
 County Eddy
 Footage 1260' FSL & 250' FEL
- (2). CASING STRINGS:
- Surface Casing
 Size 13-3/8" Depth 829' Cemented w/ 910 sx.
 TOC surface Determined by circulated 210 sx
 Hole size 17-1/2"
- Intermediate Casing
 Size 8-5/8" Depth 4050' Cemented w/ 1200 sx.
 TOC surface Determined by circulated 170 sx
 Hole size 11"
- Long String
 Size 5-1/2" Depth 8077' Cemented w/ 1470 sx.
 TOC 478' Determined by CBL
 Hole size 7-7/8"
 Injection interval, from 7695 to 7774 ft.
- (3). INJECTION TUBING STRING:
 Size 2-7/8 in., coated/lined with plastic coated
 Setting depth 7645 ft.
- (4) INJECTION PACKER:
 Size 5-1/2 in.; Make/Model Arrow/Arrow-Set
 Setting depth 7645 ft.

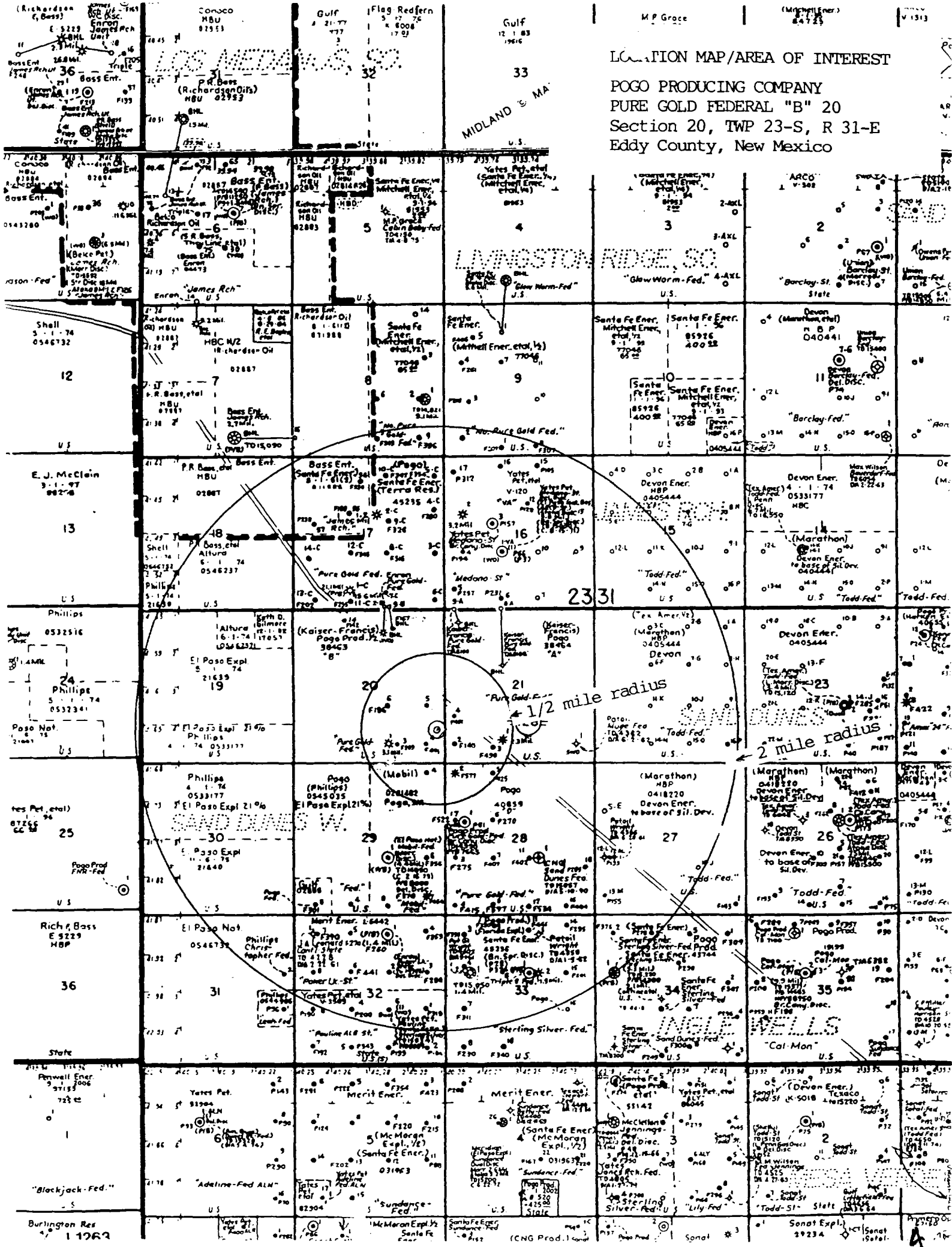
FORM C-108

Pogo Producing Company
Pure Gold Federal "B" 20

ITEM 111-B

INJECTION WELL DATA

- (1). Injection formation: Delaware
Field/Pool: West Sand Dunes (Delaware)
- (2). Injection interval; from 7695 ft. to 7774 ft.
Perforated XX Open Hole _____
- (3). Original purpose well drilled -- test Delaware section for production
- (4). Other perforated intervals; _____ Yes XX No
Squeezed with _____ sx., or isolated by _____
- (5). Oil or gas productive zone(s):
Next higher: 6630' - 7275'
Next lower: Atoka/13,930'



LOCATION MAP/AREA OF INTEREST

POGO PRODUCING COMPANY
PURE GOLD FEDERAL "B" 20
Section 20, TWP 23-S, R 31-E
Eddy County, New Mexico

ITEM V1

WELL DATA - AREA OF REVIEW

- (1). Location: 660' FSL & 1650' FEL sec 20, 23 S, 31 E, Eddy Co.
 Operator: Pogo Producing Co. Lease: Pure Gold Fed. "B" Well # 3
 Well type: Oil XX Gas DSA Total depth 8100 Ft.
 Date drilled: spud 2-14-93; comp. 4-29-93
 Completion Data: 13-3/8" @ 730' w/650 sx; circ cmt; 8-5/8" @ 4100' w/1275 sx;
circ cmt; 5-1/2" @ 8100' w/1290 sx (DV tool @ 6281'), TOC 2800'; perf 7723' -
7883'; A/3200 gal; F/57,000 gal and 133,750 # 16/30 sd; IPF 295 BO +134 BW and
500 MCFG
 Plugged Date: (Schematic attached)
- (2). Location: 660' FS & EL sec 20, 23 S, 31 E, Eddy Co.
 Operator: Pogo Producing Co. Lease: Pure Gold Fed. "B" Well # 4
 Well Type: Oil XX Gas DSA Total Depth: 8100 Ft.
 Date Drilled: spud 1-30-93; comp. 3-05-93
 Completion Data: 13-3/8" @ 700' w/650 sx, circ cmt; 8-5/8" @ 4100' w/1200
sx, circ cmt; 5-1/2" @ 8100' w/1275 sx (DV tool @ 6192'), TOC @ 2650'; perf
7734 - 7896'; acid 7846 - 96' w/3200 gal; F/10,000 gal & 32.050# 16/30 sd;
acid 7734 - 86 w/4200 gal; F/14,000 gal & 35,000# sd; IPF 401 BO + 100 BW &
 Plugged Date (Schematic attached)
339 MCFG
- (3). Location: 1980' FSL & 660' FEL, sec 20, 23 S, 31 E, Eddy Co.
 Operator: Pogo Producing Co. Lease: Pure Gold Fed. "B" Well # 5
 Well Type ; Oil XX Gas DSA Total Depth: 8100' Ft.
 Date Drilled: spud 5-21-93; comp 6-23-93
 Completion Data: 13-3/8" @ 722' w/ 615 sx, circ cmt; 8-5/8" @ 4070' w/1250 sx,
circ cmt; 5-1/2" @ 8100' w/1150 sx (DV tool @ 6208'), TOC 2500'; perf 7735 -
97' & 7854 - 96'; A/3200 gal; F/50,750 gal & 169,540# 16/30 sd; IPF 273 BO
+ 224 BW and 374 MCFG
 Plugged Date (Schematic attached)
- (4). Location: 1980' FS & EL, sec 20, 23 S, 31 E, Eddy Co.
 Operator: Pogo Producing Co. Lease: Pure Gold Fed. "B" Well # 6
 Well type: Oil XX Gas DSA Total depth 8100 Ft.
 Date drilled: spud 6-03-93; comp 6-29-93 PB 8029'
 Completion Data: 13-3/8" @ 727' w/965 sx, TOC 403'; cmt via 1" into annulus
w/350 sx, circ cmt; 8-5/8" @ 4070' w/ 1450 sx, circ cmt; 5-1/2" @ 8100' w/1250 sx
(DV tool @ 6193'), TOC 2750'; perf 7704 - 58' & 7825 - 68'; A/3200 gal; F/
50,750 gal & 168,260# 16/30 sd; IPF 186 BO + 187 BW & 585 MCFG
 Plugged Date: (Schematic attached)

- (5). Location: 660' FSL & 1980' FEL sec 20, 23 S, 31 E, Eddy Co.
Operator: Kaiser-Francis Lease: Pure Gold Fed. "B" Well #1
Well type: Oil Gas XX DSA Total depth 14,866 Ft.
Date drilled: spud 7-11-81; comp 5-27-82
Completion Data: 20" @ 600' w/1100 sx, circ cmt; 13-3/8" @ 4106' w/4000 sx, circ cmt; 9-5/8" @ 12,395' w/3650 sx (DV tool @ 6969'), TOC 4200'; sg 9-5/8" thru perms @ 4120' w/1240 sx, TOC 1987'; 7-5/8" liner @ 10,939-14,268' w/ 1116 sx, sq liner top; 5-1/2" liner 14,062-865' w/320 sx; perf 14,811-824'; A/1500 gal; CIBP @ 14,723' w/11' cmt cap; perf 14,286-294' & 13,344-366'; CIBP @ 14,025' w/10' cmt cap; perf 13,866-904' 13,926-930', 13,910-913', 13,916-920', 13,577-582' & 13,590-593'; IPCAOF 3140 MCFG
- (6). Location: 330' FML & 660' FEL sec 29, 23 S, 31 E, Eddy Co.
Operator: Pogo Producing Co. Lease: Mobil Federal Well #4
Well Type: Oil XX Gas DSA Total Depth: 8100' Ft.
Date Drilled: spud 1-09-93; comp 2-11-93
Completion Data: 13-3/8" @ 550' w/ 725 sx, circ cmt; 8-5/8" @ 4010' w/1600 sx, circ cmt; 5-1/2" @ 8100' w/1680 sx (DV tool @ 5805' & 3781'), circ cmt; perf 7840-64'; A/1000 gal; F/49,000 gal & 35,000 # sd; IPF 580 BO + 146 BW & 973 MCF; perf 7726-78'; A/1500 gal; F/50,000 gal + 44,800# sd; F/434 BO & 443 MCFG
Plugged Date (Schematic attached)
- (7). Location: 800' FSL & 1980' FWL sec 21, 23 S, 31 E, Eddy Co.
Operator: Kaiser-Francis Lease: Pure Gold Federal "A" Well #1
Well Type ; Oil Gas XX DSA Total Depth: 14,924 Ft. PB
Date Drilled: spud 8-12-80; comp 1-20-81
Completion Data: 20" @ 583' w/625 sx; 13-3/8" @ 4206' w/2550 sx; 9-5/8" @ 12,398' w/1450 sx; 7-7/8" liner 11,860-14,161' w/615 sx; 5" liner 13,702-967' w/200 sx; perf 14,414- 633'; IPCAOF nat 2397 MCFGD; re-comp 1 9/85; perf 14,165-228'; nat flow 1038 MCFGD; CIBP @ 14,335' w/10' cmt cap
Plugged Date (Schematic attached)
- (8). Location: 660' FSL & 330' FWL sec 21, 23 S, 31 E, Eddy Co.
Operator: Pogo Producing Co. Lease: Pure Gold "A" Federal Well #2
Well type: Oil XX Gas DSA Total depth 8100 Ft.
Date drilled: spud 1-12-93; comp 2-13-93
Completion Data: 13-3/8" @ 560' w/500 sx, circ cmt; 8-5/8" @ 4100' w/1250 sx, circ cmt; 5-1/2" @ 8100' w/1414 sx (DV tool @ 6184'), TOC 2700'; perf 7860-7901'; A/3200 gal; F/43,600 gal & 50,000# 20/40 sd; IPF 280 BO + 18 BW & 266 MCFG
Plugged Date (Schematic attached)

WELL DATA - AREA OF REVIEW

- Plugged _____ Date: _____ (Schematic attached)

WELL DATA - AREA OF REVIEW

(12). Location: 330' FML & 1650' FML sec 28-23S-31E, Eddy Co.
Operator: Pogo Producing Co. Lease: Pure Gold Fed. "D" Well # 5
Well type: Oil XX Gas DSA Total depth 8140' Ft.
Date drilled: spud 12-26-92; comp 1-14-93
Completion Data: 13-3/8" @ 551' w/700 sx, circ cmt; 8-5/8" @ 4060' w/1600 sx,
circ cmt; 5-1/2" @ 8140' w/ 880 sx, circ cmt (DV tools 5792' & 3817"); perf
7884-7942'; A/2500 gal; F/55,000 gal + 42,000# 20/40 sd; IPE 425 BO + 61 BW &
484 MCFG; 8-95, perf 6654-64'; A/1000 gal; F/48,000 gal + 19,320# sd; test
184 BO + 79 BW & 116 MCFG; 9-93, perf 7749-7816'; A/1200 gal; F/80,500
gal + 210,000# 20/40 sd; pump 143 BO + 189 BW & 267 MCFG

(). Location: _____
Operator: _____ Lease: _____ Well # _____
Well Type: Oil _____ Gas _____ DSA _____ Total Depth: _____ Ft.
Date Drilled: _____
Completion Data: _____

Plugged _____ Date _____ (Schematic attached)

(3). Location: _____
Operator: _____ Lease: _____ Well # _____
Well Type ; Oil _____ Gas _____ DSA _____ Total Depth: _____ Ft.
Date Drilled: _____
Completion Data: _____

Plugged _____ Date _____ (Schematic attached)

(). Location: _____
Operator: _____ Lease: _____ Well # _____
Well type: Oil _____ Gas _____ DSA _____ Total depth _____ Ft.
Date drilled: _____
Completion Data: _____

Plugged _____ Date: _____ (Schematic attached)

ITEM VII

OPERATIONAL DATA

(1). Average expected injection rate: 4000 BWPD; maximum anticipated rate: 6000 BWPD

(2). Closed system

(3). Estimated average injection pressure: 1000 psi.

Estimated maximum pressure: 1535 psi.

(4). Source of injection water: produced water from surrounding Pogo

leases

Analysis of waters attached. EXHIBIT(S) I, II & III

(5). Analysis of injection zone water attached.

Data source: NA

FORM C-108

ITEM V111

Pogo Producing Company
Pure Gold Federal "B" 20

GEOLOGICAL DATA

INJECTION ZONE

Lithological description: ss, lt gy - clr, frosted, vfg sbang -
sbrnd, mod well srted, sl cons - uncon, frly cln

Geological name: Delaware

Zone thickness: 79 ft.; Depth: 7695 ft.

FRESH WATER SOURCES

Geological name: Santa Rosa

Depth to bottom of zone: ± 650' ft.

ITEM 1X

STIMULATION PROGRAM (Proposed)

ACIDIZE:

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

Rate: 7.5 BPM; Misc. ball sealers

FRACTURE: NA

Fluid volume: _____ gal.; Type: _____

Prop type: _____ Volume (#): _____

Rate: _____ BPM; Conductor: _____ in.

Misc. _____

LOGGING PROGRAM

Copy of GR - CND log included in attachments

FRESH WATER ANALYSIS

Date sampled:

HYDROLOGY

Engineering data and area well logs reveal no evidence that hydrologic connection might exist between the intended injection zone at 7695' and probable water zone (Santa Rosa) above 650'

EXHIBIT I

Nutro Products Corporation

21187 Houston, Texas 77225
675-3421 * Fax (713) 675-7646

ANALYSIS - PRODUCED WATER

WATER ANALYSIS

POGO PRODUCING COMPANY
PURE GOLD FEDERAL "B" 20
Section 20, TWP 23-S, R 31-E
Eddy County, New Mexico

RY SOLANSKY

Code W-1303

State TEXAS

County

Field

Lease PURE GOLD "D"

Well 2

DISSOLVED SOLIDSCATIONS

	mg/l	me/l
Sodium, Na ⁺ (Calc.)	114,862	4,994
Total Hardness as Ca ⁺⁺	26,840	0
Calcium, Ca ⁺⁺	24,480	1,224
Magnesium, Mg ⁺⁺	1,439	120
Barium, Ba ⁺⁺	3	0
Iron (Total) Fe ⁺⁺⁺	58	3

ANIONS

Chlorides, Cl ⁻	225,000	6,338
Sulfate, SO ₄ ⁻	74	2
Carbonate, CO ₃ ⁻	0	0
Bicarbonate, HCO ₃ ⁻	73	1
Sulfide, S ⁻	0	0
Total Dissolved Solids (Calc.)	365,989	

OTHER PROPERTIES

pH [*]	6.600
Specific Gravity, 60°/60 F	1.194
TURBIDITY	270

Remarks SAMPLE TAKEN ON 05/13/94

SCALING INDICIES

TEMP, F	CA CO ₃	CASO ₄ *2H ₂ O	CA SO ₄	BA SO ₄
80	2.7006	-0.3328	-0.8107	-0.3778
120	3.4494	-0.3376	-0.6351	-0.4602
160	4.5746	-0.3076	-0.4325	-0.6413

EXHIBIT II

ANALYSIS - PRODUCED WATER

POGO PRODUCING COMPANY
 PURE GOLD FEDERAL "B" 20
 Section 20, TWP 23-S, R 31-E,
 Eddy County, New Mexico

Products Corp.

xx 3394 Midland, Texas 79706
 15) 684-4233 * Fax (915) 684-4277

WATER ANALYSIS

Date 7/24/95 Nutro Rep TERRY SOLANSKY Code W-0053
 Sampling Point/Date WELL HEAD - 7/15/95 State NEW MEXICO
 Company POGO PRODUCING County EDDY
 Field Lease PURE GOLD "B" Well #4

DISSOLVED SOLIDS

<u>CATIONS</u>	mg/l	me/l
Sodium, Na ⁺ (Calc.)	94,438	4,106
Total Hardness as Ca ⁺⁺	24,500	0
Calcium, Ca ⁺⁺	14,800	740
Magnesium, Mg ⁺⁺	5,915	493
Barium, Ba ⁺⁺	9	0
Iron (Total) Fe ⁺⁺⁺	6	0

ANIONS

Chlorides, Cl ⁻	189,500	5,338
Sulfate, SO ₄ ⁻	0	0
Carbonate, CO ₃ ⁻	0	0
Bicarbonate, HCO ₃ ⁻	73	1
Sulfide, S ⁻	0	0
Total Dissolved Solids (Calc.)	304,741	

OTHER PROPERTIES

pH ⁻	4.500
Specific Gravity, 60°/60 F	1.198
TURBIDITY	175

SCALING INDICIES

<u>TEMP, F</u>	<u>CA CO₃</u>	<u>CASO₄*2H₂O</u>	<u>CA SO₄</u>	<u>BA SO₄</u>
80	-0.3287	-34.2263	-34.6284	-29.5387
120	0.2997	-34.2412	-34.4629	-29.6564
160	1.2317	-34.2512	-34.3002	-29.8550

EXHIBIT III

Products Corp.

ANALYSIS - PRODUCED WATER
 POGO PRODUCING COMPANY
 PURE GOLD FEDERAL "B" 20
 Section 20, TWP 23-S, R 31-E
 Eddy County, New Mexico

1394 Midland, Texas 79706
 684-4233 * Fax (915) 684-4277

WATER ANALYSIS

Date 7/24/95 Nutro Rep TERRY SOLANSKY Code W-0054
 Sampling Point/Date WELL HEAD - 7/15/95 State NEW MEXICO
 Company POGO PRODUCING County EDDY
 Field Lease PURE GOLD "B" Well #5

DISSOLVED SOLIDS

<u>CATIONS</u>	mg/l	me/l
Sodium, Na ⁺ (Calc.)	78,384	3,408
Total Hardness as Ca ⁺⁺	44,800	0
Calcium, Ca ⁺⁺	36,400	1,820
Magnesium, Mg ⁺⁺	5,122	427
Barium, Ba ⁺⁺	6	0
Iron (Total) Fe ⁺⁺⁺	175	9

ANIONS

Chlorides, Cl ⁻	201,000	5,662
Sulfate, SO ₄ ⁻	0	0
Carbonate, CO ₃ ⁻	0	0
Bicarbonate, HCO ₃ ⁻	122	2
Sulfide, S ⁻	0	0
Total Dissolved Solids (Calc.)	321,209	

OTHER PROPERTIES

pH ⁻	6.000
Specific Gravity, 60-/60 F	1.198
TURBIDITY	225

SCALING INDICIES

<u>TEMP, F</u>	<u>CA CO₃</u>	<u>CASO₄*2H₂O</u>	<u>CA SO₄</u>	<u>BA SO₄</u>
80	2.3392	-34.1054	-34.5572	-29.5987
120	3.0587	-34.1160	-34.3874	-29.6930
160	4.1402	-34.1039	-34.2026	-29.8801

EXHIBIT IV

FORM C-108, ITEM XI

ANALYSIS - SANTA ROSA WATER

POGO PRODUCING COMPANY

PURE GOLD FEDERAL "B" 20

Section 20, TWP 23-S, R 31-E

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