

**STATE OF NEW MEXICO  
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

**IN THE MATTER OF THE HEARING CALLED  
CALLED BY THE OIL CONSERVATION DIVISION  
FOR THE PURPOSE OF CONSIDERING:**

**APPLICATION OF POGO PRODUCING COMPANY FOR APPROVAL OF A  
PILOT PRESSURE MAINTENANCE PROJECT AND TO QUALIFY THE  
PROJECT FOR THE RECOVERED OIL TAX RATE PURSUANT TO THE  
ENHANCED OIL RECOVERY ACT, EDDY COUNTY, NEW MEXICO.**

**REOPENED  
CASE NO. 12223  
ORDER NO. R-11246-A**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This case came on for hearing at 8:15 a.m. on August 5, 1999 at Santa Fe, New Mexico before Examiner David R. Catanach, and on January 6, 2000 at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 1st day of May, 2001, the Division Director, having reviewed the record,

**FINDS THAT:**

(1) Due public notice has been given, and the Division has jurisdiction of this case and its subject matter.

(2) The applicant, Pogo Producing Company ("Pogo"), seeks authority to institute a pilot pressure maintenance project within an area encompassing 320 acres and comprised of four Federal leases, described below, by the injection of water into the West Sand Dunes-Delaware Pool through its Pure Gold "B" Federal Well No. 20 located 1260 feet from the South line and 250 feet from the East line (Unit P) of Section 20, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico:

| <u>Federal Lease Name &amp; Number</u> | <u>Lease Description</u> |
|--|--------------------------|
| Pure Gold "B" Federal (NM 38463)       | SE/4 of Section 20       |
| Pure Gold "A" Federal (NM 38464)       | W/2 SW/4 of Section 21   |
| Pure Gold "D" Federal (NM 40859)       | NW/4 NW/4 of Section 28  |

Mobil Federal (NM 0281482-A)

NE/4 NE/4 of Section 29

(All in Township 23 South, Range 31 East, NMPM.)

- (3) The applicant presented land testimony showing that:
- (a) Pogo owns 100% of the working interest in the Pure Gold "A," "B," and "D" Federal Leases;
  - (b) the working interest in the Mobil Federal Lease is owned as follows:

|                              |        |
|------------------------------|--------|
| Pogo Producing Company       | 46.06% |
| Hunt Oil Company             | 29.33% |
| Southwest Royalties, Inc.    | 17.72% |
| Devon Energy Prod. Co., L.P. | 6.89%  |
  - (c) Pogo operates all four leases;
  - (d) royalty interest ownership is common throughout all four leases; and
  - (e) Pogo will pay all costs related to the injection well, but all working interest owners will share in the benefit from the project.

(4) The West Sand Dunes-Delaware Pool was created by Division Order No. R-9709 dated August 25, 1992. The pool was discovered by Pogo's Mobil Federal Well No. 1, located in Unit J of Section 29, and currently comprises portions of Sections 20, 21, 28, 29, 31, 32, and 33 of Township 23 South, Range 31 East, NMPM, and Sections 4, 5, and 9 of Township 24 South, Range 31 East, NMPM.

- (5) The applicant presented geologic evidence indicating that:
- (a) the proposed injection interval, identified by the applicant as the "BC-4" interval, is located in the Brushy Canyon member of the Delaware formation;
  - (b) the "BC-4" interval, which occurs at a depth of approximately 7,725-7,800 feet in the Pure Gold "B" Federal Well No. 20, is the main producing interval within the West Sand Dunes-Delaware Pool and is continuous across the proposed pilot project area; and
  - (c) the only other interval currently being produced within the pilot

project area is the "BC-2" interval, which is below the "BC-4" interval. The "BC-2" interval may be in pressure communication with the "BC-4" interval due to fracture stimulations and, as a result, may benefit from pressure maintenance operations within the pilot project area.

(6) The applicant proposes to use eight producing wells within the pilot project area, identified as follows:

| <u>Well Name &amp; Number</u> | <u>API Number</u> | <u>Well Location</u>          |
|-------------------------------|-------------------|-------------------------------|
| Pure Gold "B" Fed. No. 3      | 30-015-27237      | SW/4 SE/4 (Unit O) Section 20 |
| Pure Gold "B" Fed. No. 4      | 30-015-27238      | SE/4 SE/4 (Unit P) Section 20 |
| Pure Gold "B" Fed. No. 5      | 30-015-27289      | NE/4 SE/4 (Unit I) Section 20 |
| Pure Gold "B" Fed. No. 6      | 30-015-27290      | NW/4 SE/4 (Unit J) Section 20 |
| Pure Gold "A" Fed. No. 2      | 30-015-27243      | SW/4 SW/4 (Unit M) Section 21 |
| Pure Gold "A" Fed. No. 4      | 30-015-27388      | NW/4 SW/4 (Unit L) Section 21 |
| Pure Gold "D" Fed. No. 2      | 30-015-26987      | NW/4 NW/4 (Unit D) Section 28 |
| Mobil Fed. No. 4              | 30-015-27114      | NE/4 NE/4 (Unit A) Section 29 |

(7) The producing wells within the pilot project area currently produce at average rates of approximately 19 BOPD and 227 MMCFGPD.

(8) As a result of implementing pressure maintenance operations, the applicant estimates that 127,000 barrels of oil and 177 MMCF of gas will ultimately be recovered from the pilot project area that would otherwise not be recovered, thereby preventing waste.

(9) The applicant estimates that \$150,000 in capital costs will be required to initiate pressure maintenance operation within the pilot project area.

(10) The proposed pilot pressure maintenance project should be approved.

(11) The Pure Gold "B" Federal Well No. 20 was drilled in March 1999, and was originally to be a producing well. However, Pogo has not completed the well as a producer in order to preserve its useability as an injection well.

(12) The applicant proposes to inject into the Pure Gold "B" Federal Well No. 20 through the perforated interval from approximately 7,695-7,774 feet. The evidence indicates that the Pure Gold "B" Federal Well No. 20 is cased and cemented adequately so as to preclude the migration of fluid from the proposed injection zone.

(13) There is a well located within the 1/2-mile "area of review" of the Pure Gold "B" Federal Well No. 20 that is not cemented across and above the proposed injection zone. Division records indicate that within the Kaiser-Francis Oil Company Pure Gold "A" Federal Well No. 1, located 800 feet from the South line and 1980 feet from the West line

(Unit N) of Section 21, the 9-5/8 inch production casing was set at 12,398 feet and cemented with 1,450 sacks of cement. Division records further indicate that the cement top is at 7,850 feet as determined by temperature survey.

(14) Division Order No. R-12246 required that, before commencing injection operations into the Pure Gold "B" Federal Well No. 20, the applicant cement the production casing within the Pure Gold "A" Federal Well No. 1 across and above the proposed injection interval.

(15) The applicant appealed Order No. R-12246 to the Oil Conservation Commission as to the requirement set forth in Finding Paragraph (14) above. After a hearing on the appeal, the Oil Conservation Commission remanded the case to the Division to receive and consider evidence related to Finding Paragraph (14) not presented at the original Division hearing.

(16) At the hearing on remand, the applicant presented evidence indicating that:

- (a) the Kaiser-Francis Oil Company Pure Gold "A" Federal Well No. 1 was completed in May 1982, and currently produces from the Atoka formation. The well is not cemented across a portion of the Delaware interval, but it has two strings of casing cemented across the fresh water zones. It was properly cased and cemented under regulations in effect at the time the well was drilled and completed;
- (b) the Pure Gold "A" Federal Well No. 1 is located just within the 1/2-mile radius of the "area of review";
- (c) Pogo will inject produced Delaware water into the Pure Gold "B" Federal Well No. 20, and thus there will be no change in the character of the fluid near the wellbore of the Pure Gold "A" Federal Well No. 1;
- (d) the pressure in the Delaware interval was approximately 3550 psi when the Pure Gold "A" Federal Well No. 1 was completed, and it is currently about 900 psi;
- (e) in the proposed project, there are three producing wells between the injector and the Pure Gold "A" Federal Well No. 1; and
- (f) the Pure Gold "A" Federal Well No. 1 produces at a rate of approximately 150 MCFGPD, and has estimated reserves of 400 MMCF. To cement the production casing, the well will have to be killed, which will risk damaging the existing completion, and reserves may be lost.

(17) Based on the evidence, the lack of cement across the injection interval in the Kaiser-Francis Oil Company Pure Gold "A" Federal Well No. 1 is unlikely to cause migration of fluids out of the injection zone.

(18) To assure that fluids do not migrate out of the injection zone through the Pure Gold "A" Federal Well No. 1, the operator should:

- (a) monitor on a monthly basis the production volumes of gas, oil and water in the Pure Gold "A" Federal Well No. 3 (API No. 30-015-27616) located 530 feet from the South line and 1650 feet from the West line (Unit N) of Section 21;
- (b) using 0 to 1,000 psi gauges, observe and record on a monthly basis the pressures on the annuli between the intermediate and production casings and between the production casing and tubing in the Pure Gold "A" Federal Well No. 1; and
- (c) report the results to the Division's Artesia District Office by the 15<sup>th</sup> of the month following the end of each calendar quarter.

(19) The injection of water into the Pure Gold "B" Federal Well No. 20 should be accomplished through 2-7/8 inch internally plastic-lined tubing installed in a packer set at approximately 7,645 feet. The casing-tubing annulus should be filled with an inert fluid and a gauge or approved leak-detection device should be attached to the annulus in order to determine leakage in the casing, tubing, or packer.

(20) Prior to commencing injection operations into the Pure Gold "B" Federal Well No. 20, the casing should be pressure tested throughout the interval from the surface down to the proposed packer setting to assure the integrity of the casing.

(21) The injection well or pressurization system should be equipped with a pressure control device or acceptable substitute that will limit the surface injection pressure to no more than 1,540 psi.

(22) The operator should give advance notice to the supervisor of the Division's Artesia District Office of the date and time (i) injection equipment will be installed and (ii) the mechanical integrity pressure test will be conducted on the Pure Gold "B" Federal Well No. 20, so these operations may be witnessed.

(23) The pressure maintenance project should be governed by Division Rules No. 701 through 708.

(24) The oil allowable for the pilot pressure maintenance project should be established at 1,496 barrels of oil per day.

(25) The injection authority granted herein for the Pure Gold "B" Federal Well No. 20 should terminate one year after the date of this order if the operator has not commenced injection operations into the well; provided, however, the Division, upon written request by the operator, may grant an extension for good cause.

(26) The applicant seeks to qualify the pilot pressure maintenance project as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (NMSA 1978 §§7-29A-1 through 7-29A-5).

(27) The evidence presented indicates that the pilot pressure maintenance project meets all the criteria for certification.

(28) The certified project area should initially comprise the SE/4 of Section 20, W/2 SW/4 of Section 21, NW/4 NW/4 of Section 28, and NE/4 NE/4 of Section 29, Township 23 South, Range 31 East, NMPM; provided, however, the "project area" and/or the producing wells eligible for the enhanced oil recovery (EOR) tax rate may be contracted and reduced based upon the evidence presented by the applicant in its demonstration of a positive production response.

(29) To be eligible for the EOR tax rate, the operator should advise the Division of the date and time water injection commences within the pilot pressure maintenance project. At that time, the Division will certify the project to the New Mexico Taxation and Revenue Department.

(30) At such time as a positive production response occurs, and within five years from the date the project was certified to the New Mexico Taxation and Revenue Department, the applicant must apply to the Division for certification of a positive production response. This application shall identify the area benefiting from enhanced oil recovery operations and the specific wells eligible for the EOR tax rate. The Division may review the application administratively or set it for hearing. Based upon the evidence presented, the Division will certify to the New Mexico Taxation and Revenue Department those wells that are eligible for the EOR tax rate.

**IT IS THEREFORE ORDERED THAT:**

(1) The applicant, Pogo Producing Company, is hereby authorized to institute a pilot pressure maintenance project within an area encompassing 320 acres and comprised of four Federal leases, described below, by the injection of water into the West Sand Dunes-

Delaware Pool through its Pure Gold "B" Federal Well No. 20 located 1260 feet from the South line and 250 feet from the East line (Unit P) of Section 20, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico:

| <u>Federal Lease Name &amp; Number</u> | <u>Lease Description</u> |
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| Pure Gold "B" Federal (NM 38463)       | SE/4 of Section 20       |
| Pure Gold "A" Federal (NM 38464)       | W/2 SW/4 of Section 21   |
| Pure Gold "D" Federal (NM 40859)       | NW/4 NW/4 of Section 28  |
| Mobil Federal (NM 0281482-A)           | NE/4 NE/4 of Section 29  |

(All in Township 23 South, Range 31 East, NMPM.)

(2) The applicant shall take all steps necessary to ensure that the injected fluid enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(3) The injection of water into the Pure Gold "B" Federal Well No. 20 shall be accomplished through 2-7/8 inch internally plastic-lined tubing installed in a packer set at approximately 7,645 feet. The casing-tubing annulus shall be filled with an inert fluid and a gauge or approved leak-detection device shall be attached to the annulus in order to determine leakage in the casing, tubing, or packer.

(4) Prior to commencing injection operations into the Pure Gold "B" Federal Well No. 20, the casing shall be pressure tested throughout the interval from the surface down to the proposed packer setting depth to assure the integrity of the casing.

(5) To assure that fluids do not migrate out of the injection zone through the Pure Gold "A" Federal Well No. 1, the operator shall:

- (a) monitor on a monthly basis the production volumes of gas, oil and water in the Pure Gold "A" Federal Well No. 3;
- (b) using 0 to 1,000 psi gauges, observe and record on a monthly basis the pressures on the annuli between the intermediate and production casings and between the production casing and tubing in the Pure Gold "A" Federal Well No. 1; and
- (c) report the results to the Division's Artesia District Office by the 15<sup>th</sup> of the month following the end of each calendar quarter.

(6) The injection well or pressurization system shall be equipped with a pressure control device or acceptable substitute that will limit the surface injection pressure to no

more than 1,540 psi.

(7) The operator shall give advance notice to the supervisor of the Division's Artesia District Office of the date and time (i) injection equipment will be installed and (ii) the mechanical integrity pressure test will be conducted on the Pure Gold "B" Federal Well No. 20, so these operations may be witnessed.

(8) The applicant shall immediately notify the supervisor of the Division's Artesia District Office of the failure of the tubing, casing, or packer in the injection well or the leakage of water or oil from or around any producing or plugged and abandoned well within the project area, and shall take such steps as may be necessary and timely to correct the failure or leakage.

(9) The pilot pressure maintenance project is hereby designated the Sand Dunes Cooperative Pressure Maintenance Project, and the applicant shall conduct injection operations in accordance with Division Rules No. 701 through 708, and shall submit monthly progress reports in accordance with Division Rules No. 706 and 1115.

(10) The oil allowable for the pilot pressure maintenance project is hereby established at 1,496 barrels of oil per day.

(11) The injection authority granted herein for the Pure Gold "B" Federal Well No. 20 shall terminate one year after the date of this order if the operator has not commenced injection operations into the well; provided, however, the Division, upon written request by the operator, may grant an extension for good cause.

(12) The Sand Dunes Cooperative Pressure Maintenance Project is hereby certified as an "Enhanced Oil Recovery Project." The project area shall initially comprise the SE/4 of Section 20, W/2 SW/4 of Section 21, NW/4 NW/4 of Section 28, and NE/4 NE/4 of Section 29, Township 23 South, Range 31 East, NMPM; provided, however, the "project area" and/or the producing wells eligible for the enhanced oil recovery (EOR) tax rate may be contracted and reduced based upon the evidence presented by the applicant in its demonstration of a positive production response.

(13) To be eligible for the EOR tax rate, the operator shall advise the Division of the date and time water injection commences within the pilot pressure maintenance project. At such time, the Division will certify the project to the New Mexico Taxation and Revenue Department.

(14) At such time as a positive production response occurs, and within five years from the date the project was certified to the New Mexico Taxation and Revenue Department, the applicant must apply to the Division for certification of a positive

production response. This application shall identify the area benefiting from enhanced oil recovery operations and the specific wells eligible for the EOR tax rate. The Division may review the application administratively or set it for hearing. Based upon the evidence presented, the Division will certify to the New Mexico Taxation and Revenue Department those wells that are eligible for the EOR tax rate.

(15) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

*Lori Wrotenbery*  
LORI WROTENBERY  
Director