

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

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

**Case No. 11579
Order No. R-10657**

**APPLICATION OF POGO PRODUCING
COMPANY FOR A PRESSURE MAINTENANCE
PROJECT, LEA COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on July 25, 1996, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 21st day of August, 1996, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) The applicant, Pogo Producing Company, seeks authority to institute a pressure maintenance project on a portion of its Red Tank "26" Federal Lease (NM-86149) in Section 26, Township 22 South, Range 32 East, NMPM, Lea County, New Mexico, by the injection of gas into the Brushy Canyon member of the Delaware formation, West Red Tank-Delaware Pool, through the perforated interval from approximately 8,399 feet to 8,471 feet in its existing Red Tank "26" Federal Well No. 1 located 1880 feet from the South and West lines (Unit K) of Section 26.

(3) The applicant proposes that the project area comprise the S/2 NW/4 and the SW/4 of Section 26, encompassing some 240 acres.

(4) Within the proposed project area, the applicant currently operates the Red Tank "26" Federal Well Nos. 3,4, 5, 7 and 8 located respectively in Units E, L, M, F and N. The Red Tank "26" Federal Well Nos. 3, 4, 5 and 7 are currently producing from the Basal Brushy Canyon member of the Delaware formation, identified by the applicant as the BC-4 interval. The Red Tank "26" Federal Well No. 8 is currently completed in the Bell Canyon member of the Delaware formation and is currently capable of producing approximately 600 MCF gas per day from this interval.

(5) Applicant's plan of operation for the project area includes:

- a) utilizing the Red Tank "26" Federal Well Nos. 3, 4, 5 and 7 as producing wells within the project area;
- b) due to its high nitrogen content and the inability of the applicant to market this gas, the gas produced from the Red Tank "26" Federal Well No. 8 will be utilized as the source of gas for the proposed pressure maintenance project.

(6) Applicant's geologic evidence and testimony indicates that:

- a) the proposed injection well is located slightly down-structure from the four producing wells;
- b) the BC-4 interval, being the proposed injection interval, is continuous across the project area, and is currently being produced within the four producing wells; and,
- c) the geologic properties of the Delaware formation are such that gas injected into the BC-4 interval should be confined to that interval.

(7) The engineering evidence and testimony presented by the applicant indicates that:

- a) the West Red Tank-Delaware Pool is a solution gas-drive reservoir. The four producing wells within the proposed project area are all currently exhibiting increasing producing gas-oil ratios;

- b) the injection of gas into the BC-4 interval should retard the dissipation of reservoir energy, which should result in the recovery of additional oil from the project area which may otherwise not be recovered, thereby preventing waste.

(8) The proposed pressure maintenance project should be approved.

(9) The applicant submitted data on the proposed injection well and all other wells which penetrate the zone of interest within ½-mile of the proposed injection well. This data shows that wells in the area are cased and plugged so as to protect fresh water and prevent fluid migration from the injection zone, and includes testimony indicating no evidence of open faults or any other hydrologic connection between the injection zone and any fresh water resources in the area.

(10) The operator should take all steps necessary to ensure that the injected gas enters only the proposed injection interval and is not permitted to escape into other formations or onto the surface from injection, production or plugged and abandoned wells.

(11) The injection of gas into the proposed injection well should be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 8,263 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.

(12) In addition to the proposed injection perforations at 8,399 feet to 8,471 feet, the Red Tank "26" Federal Well No. 1 is also perforated in the Cherry Canyon interval from 6,788 feet to 6,860 feet. Applicant proposes to isolate these perforations with a dual packer system, the top packer to be set at a depth of 6,700 feet and the lower packer to be set at a depth of 8,263 feet.

(13) This type of injection well completion would preclude the detection of leaks in the tubing from a depth of 6,700 feet to 8,263 feet and leakage from the packer set at 8,263 feet. Any such leakage could necessarily result in the unauthorized injection of gas into the perforated interval from 6,788 feet to 6,860 feet.

(14) Prior to commencing injection operations into the Red Tank "26" Federal Well No. 1, the perforations from a depth of 6,788 feet to 6,860 feet should be squeeze cemented in accordance with a procedure approved by the supervisor of the Division's Hobbs district office.

(15) Prior to commencing injection operations into the subject well, the casing should be pressure tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(16) The injection well or pressurization system should be initially equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 1680 psi.

(17) The Division Director should have the authority to administratively authorize a pressure limitation in excess of the pressure limitation described above upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(18) The operator should give advance notification to the supervisor of the Hobbs District Office of the Division of the date and time of the commencement of workover operations, the installation of injection equipment and of the mechanical integrity pressure test in order that the same may be witnessed.

(19) The proposed pressure maintenance project should be approved and the project should be governed by the provisions of Rule Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(20) The project allowable should be equal to top unit allowable for the West Red Tank-Delaware Pool (230 barrels of oil per day) times the number of developed (production or injection) proration units within the project area. Unless additional producing or injection wells are drilled within the project area, the allowable should be established at 1,150 barrels of oil per day.

(21) The transfer of allowable between wells within the project area should be permitted.

(22) The injection authority granted herein for the proposed injection well should terminate one year after the effective 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 thereof for good cause shown.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Pogo Producing Company, is hereby authorized to institute a pressure maintenance project on a portion of its Red Tank "26" Federal Lease (NM-86149) in Section 26, Township 22 South, Range 32 East, NMPM, Lea County, New Mexico, by the injection of gas into the Brushy Canyon member of the Delaware formation, West Red Tank-Delaware Pool, through the perforated interval from approximately 8,399 feet to 8,471 feet in its existing Red Tank "26" Federal Well No. 1 located 1880 feet from the South and West lines (Unit K) of Section 26.

(2) The project area shall initially comprise the S/2 NW/4 and the SW/4 of Section 26, encompassing some 240 acres.

(3) The operator shall take all steps necessary to ensure that the injected gas 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) Injection shall be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 8,263 feet; the casing-tubing annulus shall be filled with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(4) The injection well or pressurization system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 1,680 psi.

(5) The Division Director shall have the authority to administratively authorize a pressure limitation in excess of the above upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(6) Prior to commencing injection operations into the Red Tank "26" Federal Well No. 1, the perforations from a depth of 6,788 feet to 6,860 feet shall be squeeze cemented in accordance with a procedure approved by the supervisor of the Division's Hobbs district office.

(7) Prior to commencing injection operations, the casing shall be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(8) The operator shall give advance notification to the supervisor of the Hobbs District Office of the Division of the date and time of the commencement of workover operations, installation of injection equipment and of the mechanical integrity pressure test in order that the same may be witnessed.

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

(10) The subject pressure maintenance project is hereby designated the Federal "26" West Red Tank-Delaware Pressure Maintenance Project, and the operator shall conduct injection operations in accordance with Division Rule Nos. 701 through 708 and shall submit monthly progress reports in accordance with Division Rule Nos. 706 and 1115.

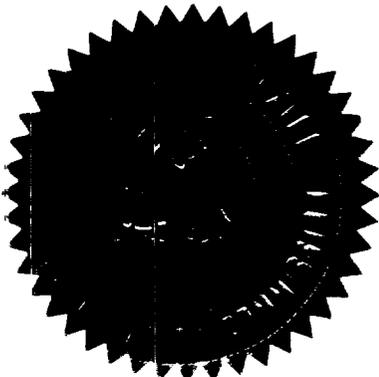
(11) The project allowable shall be equal to top unit allowable for the West Red Tank-Delaware Pool (230 barrels of oil per day) times the number of developed (production or injection) proration units within the project area. Unless additional producing or injection wells are drilled within the project area, the allowable shall be established at 1150 barrels of oil per day.

(12) The transfer of allowable between wells within the project area shall be permitted.

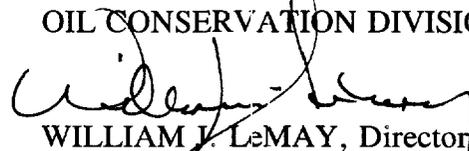
(13) The injection authority granted herein for the proposed injection well shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the well, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

(14) Jurisdiction of this cause is 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


WILLIAM J. LeMAY, Director