

**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 THE:**

**APPLICATION OF POGO PRODUCING COMPANY TO INSTITUTE A
COOPERATIVE TERTIARY RECOVERY PROJECT AND TO QUALIFY THE
PROJECT FOR THE RECOVERED OIL TAX RATE, LEA COUNTY, NEW
MEXICO**

**CASE NO. 13581
ORDER NO. R-12886**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on October 20, 2005, at Santa Fe, New Mexico, before Examiner William V. Jones.

NOW, on this 18th day of January, 2008, the Division Director, having considered the record and the recommendations of the Examiner,

FINDS THAT:

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

(2) The applicant, Pogo Producing Company ("Pogo"), seeks authority to institute a cooperative tertiary recovery project for the injection of produced water, produced gas, and carbon dioxide ("CO₂") into the Ramsey and Olds sands within the Bell Canyon member of the Delaware Mountain Group, Paduca-Delaware Pool (49460), through 57 proposed injection wells located within the following "project area" consisting of 2280 acres of state and federal lands:

Township 25 South, Range 32 East, N.M.P.M., Lea County

Section 9:	E/2 SE/4
Section 10:	SW/4 NE/4, SE/4 NW/4, SW/4
Section 15:	W/2 NE/4, W/2
Section 16:	E/2 NE/4, S/2
Section 20:	E/2 SE/4
Section 21:	All

Section 22: NW/4, NW/4 SW/4
Section 28: N/2 N/2, SE/4 NW/4
Section 29: NE/4 NE/4

(3) The proposed project area, except for the S/2 of Section 16, comprises the Delaware Participating Area (Initial Participating Area, and First through Thirteenth Expansions) under the "unit agreement" for the development and operation of the Cotton Draw Unit area, dated April 21, 1958. On June 4, 1958, the unit agreement for this federal exploratory unit was approved (Oil Conservation Commission Case No. 1446, Order No. R-1186). Under the unit agreement, production within the participating area is shared on an acreage basis.

(4) The portion of the proposed project area covering the S/2 of Section 16 is covered by the "Monsanto State Lease" (State Lease E-9789-9) and was never included in the Delaware participating area.

(5) The proposed project area is fully within the Paduca-Delaware Pool, which is developed on statewide spacing rules.

(6) No other party entered an appearance in this case or opposed this application.

(7) At the hearing, Pogo presented exhibits and testimony from a landman, a geologist, and an engineer.

(8) Pogo is the only working interest owner in the injection interval within the proposed project area, is the sub-operator of the Cotton Draw Unit, Delaware Participating Area, and is the operator in the Delaware formation of the Monsanto State Lease.

(9) The project area consists solely of federal and state leases with identical royalty burdens. There are no fee lands involved. Both the United States Bureau of Land Management ("BLM") and the New Mexico State Land Office ("SLO") were notified of this proposal and both agencies have agreed that a cooperative project based solely on acreage of leases is acceptable.

(10) Notice of this hearing and of this proposed CO2 injection project was provided to all offset operators.

(11) A waterflood project in the Delaware formation for the Monsanto State Lease, designated the Tenneco Paduca Monsanto Waterflood Project, was approved by Oil Conservation Commission Order No. R-3313.

(12) A waterflood project in the Delaware formation for the Cotton Draw Unit Delaware Participating Area, designated the Texaco Cotton Draw Waterflood Project, was approved by Oil Conservation Commission Order No. R-3314.

(13) This area was first developed in 1960 and produced under primary production until 1968. Since 1968, the proposed project area has been under waterflood operations.

(14) The reservoir has produced approximately 14 million barrels of oil and 15 BCF of gas to date, and current total production from the project area is approximately 50 barrels of oil per day. The wells within the project area are in an advanced state of depletion.

(15) Pogo proposes to inject into the upper Bell Canyon member of the Delaware Mountain Group within the 57 proposed injection wells located within the project area. The proposed injection wells are described on Exhibit A attached to this order, although the number and location of the injection wells may change as development of the project proceeds. All of the injection wells except for two will be newly drilled.

(16) The injection fluids will be either water or carbon dioxide. Produced gases consisting of hydrocarbons and carbon dioxide will initially be re-injected into the approved injection wells. At a later date, facilities may be installed to refine the produced gas streams to extract natural gas liquids.

(17) The top of the injection interval is located approximately 250 feet below the base of the Salado ("Salt") formation. In this case, Pogo is asking for approval of injection wells into virtually every portion of the proposed project area. Within the area of review of the project, the Continental State Well No. 1 API No. 30-025-21474, located 2080 from the North line and 1650 from the East line, in Section 16, of Township 25 South, Range 32 East, should be re-entered and re-plugged to adequately protect against fluid movement up and into the Salt.

(18) All existing wells within the confines of the proposed project area should be tested for bradenhead flows. Any wells failing a bradenhead test should be repaired under supervision of Division inspectors prior to implementation of this project.

(19) Pogo will use approximately 53 existing wells as producing wells. After drilling and installing new injection wells, the effective well spacing will be 20 acres per well. The CO₂ injection project will likely be developed on 40-acre 5-spot patterns although actual pattern development will depend on fracture orientation studies. Water injection wells will be placed along the northern edge and along the southern edge to contain injected CO₂ from moving north or south out of the intended area.

(20) The upper Bell Canyon member of the Delaware Mountain Group is the only productive interval in the Paduca-Delaware Pool within the proposed project area. The primary productive Bell Canyon interval is approximately 120 feet thick, and is comprised of two productive sand members, the Ramsey sand and Olds sand. The

productive interval is defined by an updip pinchout to the west, and wet and/or tight reservoir to the north, east, and south.

(21) The Ramsey sand is considered to be much more productive than the Olds sand and is the only sand included in the Original Oil in Place ("OOIP") calculation. From available cores and logs, scientists estimate the Ramsey sand averages 24 percent porosity, 20 millidarcys of permeability, 30 feet of thickness, and 45 percent water saturation. Additional cores will be taken and further special core analysis will be performed in the beginning stages of this project.

(22) Pogo estimates that it will cost approximately \$35.5 Million to implement tertiary recovery operations within the proposed project area. This amount does not include the construction of a major CO2 supply line to the area.

(23) Pogo estimates that implementation of the proposed tertiary recovery project will result in the recovery of an additional 12 million barrels of oil that would not otherwise be recovered, thereby preventing waste. Pogo has not yet set up or run a computer simulation for matching and prediction purposes. In lieu of this, Pogo used an analog model based on the successful CO2 project in the Two Freds Field of Loving and Ward Counties, Texas.

(24) Pogo plans to re-cycle produced gases into the injection stream until the CO2 volumes get too low and miscibility is endangered. At that point, Pogo intends to install NGL recovery facilities.

(25) Pogo further seeks to qualify the tertiary recovery project as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act," NMSA 1978 §§7-29A-1 *et seq.*

(26) The proposed tertiary recovery project meets all the criteria for certification by the Division as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act," NMSA 1978 §§7-29A-1 *et seq.*

(27) The approved project area should initially comprise all lands described above in Finding No. 2. However, the "project area" and/or producing wells eligible for the enhanced oil recovery ("EOR") tax rate may be contracted and reduced based upon the evidence presented by Pogo in its demonstration of a positive production response.

(28) To be eligible for the EOR tax rate, Pogo should advise the division of the date that carbon dioxide injection commences within the tertiary recovery project. At that time, the Division will certify the project to the New Mexico Taxation and Revenue Department.

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

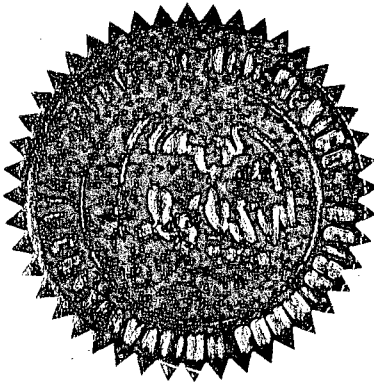
production response. This application shall identify the area benefiting from enhanced oil recovery operations and the specific wells eligible for the EOR tax rate. The Division may review the application administratively, or set it for hearing. Based upon the evidence presented, the Division will certify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

(30) Subsequent to this hearing, the Examiner requested additional information considered necessary to finalize an order in this case. To date, no response to this request has been received from Pogo. The attorney for Pogo has mentioned that CO2 procurement may be an issue and has agreed that this case be dismissed at this time.

IT IS THEREFORE ORDERED THAT:

Case No. 13581 is dismissed without prejudice.

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



SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

A handwritten signature in dark ink, appearing to read "Mark E. Fesmire", written over a horizontal line.

MARK E. FESMIRE, P.E.
Director