

**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. 10870  
Order No. R-10086**

**APPLICATION OF POGO PRODUCING COMPANY  
FOR SPECIAL POOL RULES FOR THE LOS  
MEDANOS-DELAWARE AND WEST SAND DUNES-  
DELAWARE POOLS, EDDY COUNTY, NEW  
MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This cause came on for hearing at 8:15 a.m. on January 20, 1994, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 4th day of April, 1994, 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 (Pogo), seeks the promulgation of special rules and regulations for both the Los Medanos-Delaware and West Sand Dunes-Delaware Pools, Eddy County, New Mexico, including a provision for a gas-oil ratio limitation of 8,000 cubic feet of gas per barrel of oil.

(3) The Los Medanos-Delaware Pool was created and defined by Division Order No. R-9473 dated March 28, 1991, and currently comprises the following described acreage. The discovery well for the pool was the Yates Petroleum Corporation Medano "VA" State Well No. 1 located in Unit K of Section 16, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico:

TOWNSHIP 23 SOUTH, RANGE 31 EAST, NMPM

Section 8: SE/4  
Section 9: W/2  
Section 16: W/2, NE/4  
Section 17: E/2, SW/4

(4) The West Sand Dunes-Delaware Pool was created and defined by Division Order No. R-9709 dated August 25, 1992, and currently comprises the following described acreage. The discovery well for the pool was the Pogo Producing Company Mobil Federal Well No. 1 located in Unit J of Section 29, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico:

TOWNSHIP 23 SOUTH, RANGE 31 EAST, NMPM

Section 20: SE/4  
Section 21: SW/4  
Section 28: All  
Section 29: E/2, SW/4  
Section 32: All  
Section 33: N/2, SW/4

TOWNSHIP 24 SOUTH, RANGE 31 EAST, NMPM

Section 4: NW/4  
Section 5: E/2, NW/4

(5) Both the Los Medanos-Delaware and West Sand Dunes-Delaware Pools are currently governed by Division General Rules and Regulations including standard 40-acre spacing and proration units with wells to be located no closer than 330 feet from the outer boundary of the spacing unit, a top oil allowable of 187 barrels per day, and a limiting gas-oil ratio of 2,000 cubic feet of gas per barrel of oil.

(6) According to the Division's Monthly Statistical Report for September, 1993, there were sixty-eight (68) wells within the subject pools operated by six different operators.

(7) Kaiser-Francis Oil Company (Kaiser-Francis), an operator in the West Sand Dunes-Delaware Pool, appeared at the hearing in opposition to the application.

(8) Santa Fe Energy Operating Partners, L. P., Yates Petroleum Corporation and Merit Energy Company, also operators within one or both of the subject pools, appeared at the hearing but presented no evidence or testimony.

(9) The applicant presented as evidence in this case letters of support from operators within one or both of the subject pools or within one mile thereof, including Yates Petroleum Corporation, Santa Fe Energy Resources Inc., Merit Energy Company, Devon Energy Corporation, Phillips Petroleum Company and Bettis, Boyle and Stovall. In addition, two leasehold owners within one mile of the subject pools, Bass Enterprises Production Company and Shell Western E & P Inc., submitted letters of support of the application. Enron Oil and Gas Company, an operator in the West Sand Dunes-Delaware Pool, submitted a letter stating it did not object to the application.

(10) Both Pogo and Kaiser-Francis presented extensive geologic and engineering evidence in this case.

(11) The vertical limits of the Los Medanos-Delaware and West Sand Dunes-Delaware Pools currently comprise the entire Delaware Mountain Group which consists of the Bell, Cherry and Brushy Canyon formations. A type log submitted by the applicant indicates that within the Pogo Producing Company Pure Gold "D" Well No. 4, located in Unit M of Section 28, Township 23 South, Range 31 East, NMPM, the top of the Bell, Cherry and Brushy Canyon formations occur at depths, respectively, of 4,160 feet, 5,062 feet and 6,365 feet.

(12) Both Pogo and Kaiser-Francis agree that the Los Medanos-Delaware and West Sand Dunes-Delaware Pools comprise a single common source of supply in the Delaware formation.

(13) Although there is a minor amount of production from the Bell and Cherry Canyon formations, the most significant producing intervals within both the subject pools occur within the lower portion or "A" Section (as identified by the applicant), of the Brushy Canyon formation. Within the "A" Section the applicant has identified six intervals capable of production (BC-1 through BC-6). The most prolific producing intervals within the "A" Section are the BC-2 and BC-4 intervals.

(14) Due to the relatively low permeability of these producing intervals, applicant testified that fracture stimulations often result in communication between the separate producing intervals within the "A" Section.

(15) There appears to be good continuity of these producing intervals over the entire area encompassed by both pools.

(16) There is general agreement among Pogo and Kaiser-Francis that:

- a) the reservoir drive mechanism is solution gas;
- b) there does not appear to be a water drive mechanism within the reservoir;

- c) the reservoir contains no initial or secondary gas cap as evidenced from the fact that there does not appear to be a correlation between initial gas-oil ratio and structural location of wells within the pools, and from the fact that initial reservoir pressure was at or above the bubble point pressure;
- d) based on PVT data from the Pogo Mobil Federal "29" Well No. 8 and the Pure Gold "A" Well No. 2, the solution gas-oil ratio for the reservoir is in the range of 1,130-1,425 SCF/BBL at a bubble point pressure in the range of 3,173-3,200 psi.

(17) The applicant contends that the ultimate oil recovery from the subject reservoir, being a true solution gas-drive reservoir, is essentially independent of both individual well rates and total or reservoir production rates.

(18) In support of its request, the applicant presented the results of a reservoir simulation conducted on five wells located within the subject reservoir. The results of the simulation indicate that ultimate oil recovery from the five wells at a producing gas-oil ratio of 2,000:1 was 605 MBO compared to an ultimate recovery of 594 MBO at a gas-oil ratio of 8,000:1, or a 1.8 percent difference. In addition, the results also indicate a slight increase in ultimate gas recovery at a gas-oil ratio of 8,000:1 compared to a ratio of 2,000:1.

(19) Kaiser-Francis is the operator of Sections 20 and 21 which are located in the northern portion of this Delaware reservoir, and because of the presence of minable potash underlying this area, the United States Bureau of Land Management (BLM) has denied development of the N/2 of these sections as well as the SW/4 of Section 20 and the SE/4 of Section 21 unless that development is conducted with directionally drilled wells located within areas barren of minable potash.

(20) The Division issued Order No. R-10048 in Case No. 10887 on January 12, 1994, granting Kaiser-Francis' application for permission to drill directionally from barren areas or state lands to standard bottomhole locations in Sections 20 and 21. However, the ability of Kaiser-Francis to develop these properties by directional drilling has been challenged by Santa Fe Operating Partners, L. P., one of the supporters of Pogo's application in this case, which on January 26, 1994, filed a request for a De Novo hearing of Order R-10048. Kaiser-Francis' ability to drill these wells may be delayed because of this De Novo appeal.

(21) The hearing De Novo in Case No. 10887 was held on March 10, 1994.

(22) Kaiser-Francis contends that the subject application should be denied for the following reasons:

- a) development of the reservoir has not occurred uniformly due to limitations on drilling in the potash area. Increasing the current gas-oil ratio limitation is therefore premature and should be delayed at least until full development of the reservoir has occurred in order to provide all operators the opportunity to protect correlative rights;
- b) increasing the current gas-oil ratio limitation permits high GOR wells to unfairly deplete the solution gas drive mechanism of this reservoir, which may result in reduced oil and gas recoveries from low GOR wells and undeveloped areas of the reservoir, thereby violating correlative rights;
- c) all of the wells with GOR's in excess of 4,000:1 are located in the West Sand Dunes-Delaware Pool or southern area of this reservoir. Increasing the gas-oil ratio limitation will result in uncompensated drainage of oil and gas from the northern portion of the reservoir.

(23) Kaiser-Francis further presented bottomhole pressure data which indicates that some drainage from the undeveloped acreage in Sections 20 and 21 is likely occurring at the present time.

(24) The evidence presented indicates that Kaiser-Francis is being afforded some protection from drainage inasmuch as it operates seven wells in the West Sand Dunes-Delaware Pool in the SE/4 of Section 20 and the SW/4 of Section 21.

(25) In addition, Sections 28 and 29, directly to the south of Kaiser-Francis' leases in Sections 20 and 21, have not been fully developed in the subject reservoir due to similar drilling constraints related to potash considerations.

(26) Correlative rights is defined as the opportunity afforded an owner to produce its just and equitable share of the oil and/or gas in a pool.

(27) Kaiser-Francis has owned the leases in Sections 20 and 21 for approximately ten years and has had the opportunity to develop these leases. Kaiser-Francis has chosen to not actively pursue the development of such leases until recently.

(28) Kaiser-Francis presented no engineering evidence or testimony which would refute the results of the reservoir simulation conducted by the applicant.

(29) Kaiser-Francis presented no engineering evidence to indicate that producing the subject reservoir at a gas-oil ratio of 8,000:1 will be detrimental to the reservoir and result in reduced oil and gas recoveries.

(30) Kaiser-Francis presented no engineering evidence to indicate that approval of the proposed gas-oil ratio limitation will accelerate gas migration from its leases or otherwise aggravate drainage which may be occurring due to normal field development.

(31) Unless the Oil Conservation Commission overturns the decision issued in Case No. 10887, Kaiser-Francis will develop its acreage in Sections 20 and 21, thereby assuring itself protection from offset drainage.

(32) Approval of the subject application will afford each operator the opportunity to recover its just and equitable share of the oil and gas in the subject reservoir, will not cause reduced recovery as a result of waste of reservoir energy, and will not violate correlative rights.

(33) Evidence in this case demonstrated that there are several wells within the subject pools which, during the past several months, may have overproduced oil and/or casinghead gas.

(34) Pogo and Merit Energy Company, as well as any other operator whose wells within the subject pools are currently in an overproduced status, should be required to consult with the supervisor of the Division's Artesia district office in order to determine a schedule for making up such overproduction.

**IT IS THEREFORE ORDERED THAT:**

(1) A limiting gas-oil ratio of 8,000 cubic feet of gas per barrel of oil is hereby established for the Los Medanos-Delaware Pool located in portions of Township 23 South, Range 31 East, NMPM, and for the West Sand Dunes-Delaware Pool located in portions of Townships 23 and 24 South, Range 31 East, NMPM, Eddy County, New Mexico.

(2) Any operator having wells within the Los Medanos-Delaware or West Sand Dunes-Delaware Pools which are currently in an overproduced status shall consult with the supervisor of the Division's Artesia district office in order to determine a schedule for making up such overproduction.

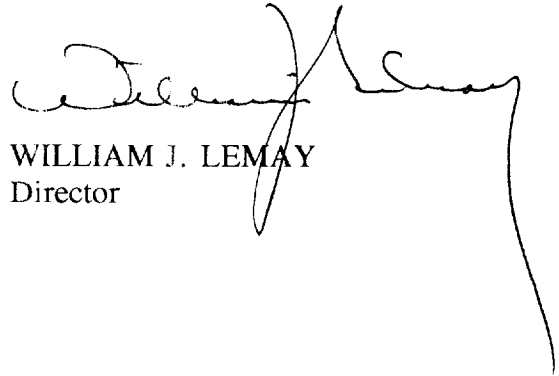
(3) Jurisdiction of this cause is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY  
Director

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