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November 12, 1993

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*NOT LICENSED IN NEW MEXICO

William J. LeMay, Director
Oil Conservation Division
310 Old Santa Fe Trail
Santa Fe, New Mexico 87503

Re: Case No. 10,870, The Application of Pogo
Producing Company for Special Pool Rules,
Eddy County, New Mexico

Dear Mr. LeMay:

Kaiser-Francis Oil Company, an interested party in the above case, has requested Pogo Producing Company to continue the above matter. In order to accommodate Kaiser-Francis, Pogo hereby requests that the case be continued to the December 16, 1993 Examiner docket.

Very truly yours,

HINKLE, COX, EATON, COFFIELD
& HENSLEY


James Bruce

c: W. Thomas Kellahin, Esq.
(via facsimile transmission)

Scott McDaniel

VIA HAND DELIVERY

JGB5\93L27.c

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December 13, 1993

Mr. William LeMay
New Mexico Oil Conservation Division
Energy, Minerals and Natural Resources Department
State Land Office Building
Santa Fe, New Mexico 87501

DEC 14 1993

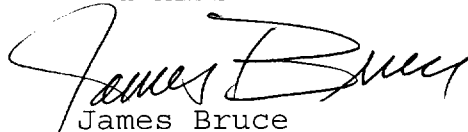
Re: Case No. 10870 (Pogo Producing Company)

Dear Mr. LeMay:

Please continue the above case to the January 6, 1994 Examiner Hearing. Mr. Kellahin, attorney for Kaiser-Francis Oil Company, does not oppose this request.

Very truly yours,

HINKLE, COX, EATON, COFFIELD
& HENSLEY


James Bruce

JB/bc

cc: W. Thomas Kellehin, Esq.
William F. Carr, Esq.

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January 5, 1994

HAND DELIVERED

William J. LeMay
Oil Conservation Division
State Land Office Building
Santa Fe, New Mexico 87504

Dear Mr. LeMay:

Please continue Case 10,870 (Pogo Producing Company) until the January 20, 1994 Examiner Hearing. Thank you.

Very truly yours,

HINKLE, COX, EATON,
COFFIELD & HENSLEY


James Bruce

JB:jr

cc: W. Thomas Kellahin
William F. Carr

OIL CONSERVATION DIVISION
REC-780

BASS ENTERPRISES PRODUCTION CO.

6 DESTA DRIVE, SUITE 3700
P.O. BOX 2760
MIDLAND, TEXAS 79702

1994 JAN 20 AM 8 57

FAX (915) 687-0086

(915) 683-2277

January 14, 1994


RE: NMOCD Hearing - Increase GOR
Los Medanos - Delaware Pool
West Sand Dunes - Delaware Pool
Eddy County, New Mexico
FILE: 800-FF: NMOCDHRG.GOR

Mr. William J. LeMay
Oil Conservation Division
310 Old Santa Fe Trail, Room 206
Santa Fe, NM 87503

Dear Mr. LeMay:

Please be advised that Bass Enterprises Production Co. supports the 8000:1 GOR, which Pogo Producing Company has requested for the above-mentioned Pools.

Sincerely,


for George A. Teer
Division Production Manager

GAT/JRS:tlw

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February 9, 1994

HAND DELIVERED

David Catanach
Oil Conservation Division
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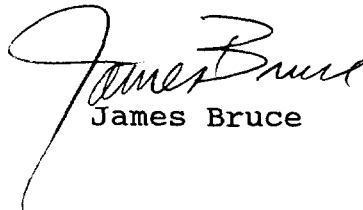
Re: Case No. 10870 (Pogo Producing Company)

Dear Mr. Catanach:

Enclosed is a copy of an Order proposed by Pogo Producing Company, together with a disk containing the Order. I would appreciate it if you could return the disk to me. Thank you.

Very truly yours,

HINKLE, COX, EATON,
COFFIELD & HENSLEY


James Bruce

JB:jr

Enclosure

cc: W. Thomas Kellahin w/enc.
Scott McDaniel w/enc.
Ernest Carroll w/enc.
Robert L. Sykes w/enc.

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-_____

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
(Proposed by Pogo Producing Company)

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 ____ day of February, 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) By Order No. R-9473, dated April 1, 1991, the Division created and defined the Los Medanos-Delaware Pool for the production of oil from the entire Delaware formation. The horizontal limits for said pool, as currently designated, include the following described lands in Eddy County, New Mexico:

Township 23 South, Range 31 East, N.M.P.M.

Section 8:	SE $\frac{1}{4}$
Section 9:	W $\frac{1}{2}$
Section 16:	NE $\frac{1}{4}$, W $\frac{1}{2}$
Section 17:	NE $\frac{1}{4}$, S $\frac{1}{2}$

A special depth bracket allowable of 187 barrels of oil per day has been assigned to said pool by the Division by Order No. R-9568.

By Order No. R-9709, dated September 1, 1992, the Division created and defined the West Sand Dunes-Delaware Pool for the production of oil from the entire Delaware formation. The

horizontal limits for said pool, as currently designated, include the following described lands in Eddy County, New Mexico:

Township 23 South, Range 31 East, N.M.P.M.

Section 20:	SE $\frac{1}{4}$
Section 21:	SW $\frac{1}{4}$
Section 28:	All
Section 29:	NE $\frac{1}{4}$, S $\frac{1}{2}$
Section 32:	All
Section 33:	N $\frac{1}{2}$, SW $\frac{1}{4}$

Township 24 South, Range 31 East, N.M.P.M.

Section 4:	NW $\frac{1}{4}$
Section 5:	N $\frac{1}{2}$, SE $\frac{1}{4}$

The depth bracket allowable for said pool is 187 barrels of oil per day.

(3) Both pools are governed by Statewide Rules and Regulations with development on standard 40-acre spacing and proration units each having a limiting gas:oil ratio of 2,000 cubic feet of gas per barrel of oil, which results in a casinghead gas allowable of 374 MCF per day.

(4) At this time Pogo seeks the adoption of special rules and regulations for both pools, as described in Finding Paragraph No. (2) above, establishing a limiting gas:oil ratio of 8,000 cubic feet of gas per barrel of oil.

(5) According to Division records, there were 71 producing wells in the subject pool operated by eight operators for the month of September 1993.

(6) At the hearing on this matter one operator, Kaiser-Francis Oil Company, appeared and objected to the application. However, all other operators of wells in the two pools, or within a mile thereof (Yates Petroleum Corporation, Santa Fe Energy Resources, Inc., Merit Energy Company, Devon Energy Corporation (Nevada), Phillips Petroleum Company, and Bettis, Boyle and Stovall) submitted letters in support of the application. In addition, two operators of leases within a mile of the two pools (Bass Enterprises Production Co. and Shell Western E&P Inc.) submitted letters in support of the application. One lease operator (Enron Oil & Gas Company) submitted a letter stating that it did not object to the application.

(7) The Delaware Mountain Group in southeast New Mexico, more commonly known as the "Delaware formation," comprises three separate formations: the Bell Canyon, Cherry Canyon, and Brushy Canyon.

(8) The Compensated Z-Densilog/Compensated Neutron/Gamma Ray Caliper Log run on October 17, 1992 in the applicant's Pure Gold "D" Fed. Well No. 4, located 330 feet from the South line and 330 feet from the West line (Unit M) of Section 28 - 23 South - 31 East, was offered as a type log for the entire Delaware Mountain Group which properly depicts both pools as they are designated at this time. The applicant also testified as to the formation tops of the three separate units within the Delaware Mountain Group on said log:

Bell Canyon formation - 4,160 feet;
Cherry Canyon formation - 5,062 feet; and
Brushy Canyon formation - 6,365 feet to 7,966 feet.

(9) The evidence submitted by the applicant indicates that the primary zone of interest, in which all wells in both pools are completed, is the lower Brushy Canyon formation. However, three wells contain perforations in the Cherry Canyon formation and two wells contain perforations in the Bell Canyon formation. There is limited potential for additional completions in the Bell Canyon and Cherry Canyon formations reservoir-wide.

(10) The geologic and engineering testimony presented by the applicant indicates that:

(a) both pools produce from the same intervals and there is no geologic or engineering basis to treat the pools as separate reservoirs;

(b) the reservoir has very low permeability, as shown by core and pressure buildup data, and as evidenced by the need to frac wells in order to produce them;

(c) the reservoir drive mechanism for all three Delaware formations is solution-gas drive, and thus ultimate recovery is independent of both individual well producing rates and overall pool production rates;

(d) due to the scattering or randomness of initial GORs in wells throughout the pools there is no relationship between structure and initial GOR, contrary to what would be expected if an initial gas cap were present;

(e) due to low structural relief, very low permeability in the reservoir, and scattering of current GORs throughout the pools, there is no indication of the existence or potential formation of a secondary gas cap or caps within the reservoir; and

(f) approval of this application is in the best interest of conservation and will prevent waste.

(11) All Delaware oil pools in New Mexico have been developed on 40 acre spacing. Delaware pools with production from the Brushy Canyon formation have historically shown a rapid increase in GORs, and many pools have received increased GORs upon application to the Division early in the life of the pools. The Los Medanos-Delaware and West Sand Dunes-Delaware Pools have produced approximately 1.7 million barrels of oil and 3 BCF of gas through September 1993.

(12) The subject pools include many wells producing or capable of producing at top oil allowable with rapidly increasing GORs. The producing GOR for both pools as of September 1993 is in excess of 2600:1.

(13) Kaiser-Francis Oil Company presented testimony agreeing that the reservoir drive mechanism is solution-gas drive. Kaiser-Francis further admitted that the solution gas is an energy factor which will be used as efficiently at an 8000:1 GOR as at a 2000:1 GOR. However, Kaiser-Francis requested that the GOR not be increased until it had additional time to develop the acreage it operates in Sections 20 and 21, Township 23 South, Range 31 East, in order to protect its correlative rights.

(14) Kaiser-Francis expressed concern over potential pressure depletion of Sections 20 and 21 due to migration of gas to the south. This concern is of little or no consequence, since the low permeability nature of the reservoir results in slow migration of gas. Regardless of permeability, gas in the S½ of Sections 20 and 21 will be preferentially produced by the nearest wells, which are the seven wells located thereon operated by Kaiser-Francis. These seven wells are offset by only four Pogo operated wells in the N½ of Section 28 and 29. Furthermore, in the N½N½ of Sections 28 and 29, operated by the applicant, there are only three wells, as opposed to four wells in the S½S½ of Sections 20 and 21, operated by Kaiser-Francis. All of these factors considered collectively, or even separately, and coupled with the planned development of the pools during 1994, will result in an insignificant amount of pressure depletion in Sections 20 and 21.

(15) The leases covering Sections 20 and 21, and other leases in the pools, are jointly owned by Kaiser-Francis, Pogo, and others. Kaiser-Francis has owned an interest in and operated Sections 20 and 21 for over a decade.

(16) The discovery well for the Los Medanos-Delaware Pool was completed in October 1990. The discovery well for the West Sand Dunes-Delaware Pool was completed in March 1992. Although operations by Kaiser-Francis, Pogo, and other operators have been delayed by potash considerations, Kaiser-Francis is one of the last operators to begin development operations in the pools. Further, Kaiser-Francis admitted that of the seven wells it operates in the pools, at least five were drilled after they were proposed by non-operators.

(17) Correlative rights is defined as the opportunity afforded an owner to produce its equitable share of hydrocarbons in a pool. Kaiser-Francis' correlative rights have not been violated, nor will they be violated by the granting of this application. Kaiser-Francis has failed to take full advantage of its opportunity to drill for and produce oil and gas from the pools.

(18) Other operators in the pools, including the applicant, also have undeveloped acreage in the pools due to drilling constraints related to potash considerations. However, all other operators with wells and undeveloped acreage in the pools support the application.

(19) An increased gas allowable is needed early in the life of these pools, when wells are capable of producing at top oil allowable. Due to natural production declines, older wells may not need an increased gas allowable, although they continue to produce at high GORs.

(20) An increased GOR will allow every operator to produce their wells at higher rates, which will in turn reduce operating costs. Further, due to sliding scale royalties on federal leases in the pools, producing wells at higher rates benefits those who share in the royalty interest.

(21) Delaying the institution of an increased GOR penalizes the parties who discovered and initiated early development of the pools.

(22) The effective date of this order should be February 1, 1994.

IT IS THEREFORE ORDERED THAT:

(1) Special Rules for the Los Medanos-Delaware Pool and West Sand Dunes-Delaware Pool are hereby promulgated as follows:

**SPECIAL RULES AND REGULATIONS
FOR THE
LOS MEDANOS-DELAWARE POOL
AND
WEST SAND DUNES-DELAWARE POOL**

RULE 1. Each well completed or recompleted in the Los Medanos-Delaware Pool or the West Sand Dunes-Delaware Pool or within one mile thereof, and not nearer to or within the limits of another designated Delaware pool, shall be produced in accordance with the Special Rules herein set forth.

RULE 2. The limiting gas:oil ratio for the Los Medanos-Delaware Pool and the West Sand Dunes-Delaware Pool shall be 8,000 cubic feet of gas per barrel of oil produced; each proration unit in said pool shall produce only that volume of gas equivalent to 8,000 multiplied by the top unit depth bracket allowable set for the pool (which remains 187 barrels of oil per day).

(3) The operator of any well affected by this order shall file with the appropriate District Office of the Division a new Form C-104 (Request For Allowable And Authorization To Transport Oil And Natural Gas) pursuant to Division General Rule 1104.E.

(4) Failure to file new Forms C-104 with the Division indicating the pool redesignation within sixty days from the date of this order shall subject the well to cancellation of allowable.

(5) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary, including the return to the statewide 2,000-to-1 gas:oil ratio limitation of the pool without notice and hearing should the Division Director deem it necessary to prevent waste and to protect correlative rights.

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

**STATE OF NEW MEXICO
OIL CONSERVATION DIVISION**

**WILLIAM J. LEMAY
Director**

KELLAHIN AND KELLAHIN

ATTORNEYS AT LAW

EL PATIO BUILDING

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February 9, 1994

HAND DELIVERED

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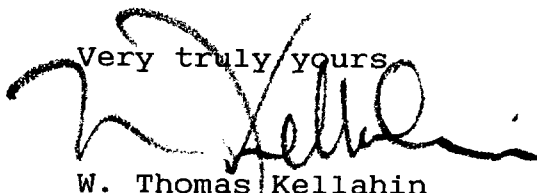
Mr. David R. Catanach
Oil Conservation Division
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

Re: NMOCD Case 10870
Application of Pogo Producing Company
to Increase the GOR in Los Medanos and
West Sand Dunes-Delaware Pools,
Eddy County, New Mexico

Dear Mr. Catanach:

On behalf of Kaiser-Francis Oil Company and in accordance with your request at the conclusion of the hearing of the referenced case held on January 20, 1994, please find enclosed our proposed order for entry in this matter.

Very truly yours,



W. Thomas Kellahin

cc: Jim Bruce, Esq. (Pogo & Santa Fe)
Earnest Carroll, Esq. (Yates)
James Wakefield (Kaiser-Francis)

**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--A**

**APPLICATION OF POGO PRODUCING COMPANY FOR
AN INCREASE IN GOR FOR THE LOS MEDANOS-DELAWARE
AND WEST SAND DUNES-DELAWARE POOLS,
EDDY COUNTY, NEW MEXICO**

**KAISER-FRANCIS OIL COMPANY'S PROPOSED
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 ____ day of February, 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) On April 1, 1991, by Order No. R-9473, the Division created the Los Medanos-Delaware Pool. The discovery well for the pool is the Yates Petroleum Corporation's Medano VA State #1 Well, located in Unit K of Section 16, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico.

(3) On September 1, 1992, by Order No. R-9545, the Division created the West Sand Dunes-Delaware Pool. The discovery well for the pool is Pogo Producing Company's Mobil Federal 29 No. 1 Well, located in Unit J of Section 29, Township 23 South, Range 31 East, NMPM, Eddy County, New Mexico.

(4) Both pools are currently governed by General Statewide Rules and Regulations with development on standard 40-acre spacing and proration units each having a top unit depth bracket allowable of 187 barrels of oil per day and a limiting gas/oil ratio ("GOR") of 2,000 cubic feet of gas per barrel of oil which results in a maximum casinghead gas allowable of 374 MCF per day. The depth bracket allowable was established and set by the top perforation in the two discovery wells each of which was completed in the Lower Brushy Canyon member of the Delaware formation.

(5) The applicant, Pogo Producing Company ("Pogo") seeks an order increasing the current limiting 2,000 to 1 GOR to a special 8,000 to 1 GOR for these two subject pools which would increase the maximum casinghead gas allowable to 1,496 MCFPD.

(6) Kaiser-Francis Oil Company ("Kaiser") opposes the applicant and contends that it is premature in the life of these two pools to increase the current maximum casinghead gas allowable of 374 MCFPD (2,000 to 1 GOR).

(7) Kaiser and Pogo were the only operators in these pools to present expert geologic witnesses and evidence, both of whom concluded that both pools are part of a single Delaware reservoir and constitute a single common source of supply.

(8) The southern area of this common Delaware reservoir is currently designated West Sand Dunes-Delaware Pool and the northern area is currently designated the Los Medanos-Delaware Pool.

(9) All of the wells producing in excess of the limiting 2,000 to 1 GOR or 374 MCFPD gas allowable are located in the southern portion of the reservoir. These higher GOR wells are the older wells in the reservoir where more rapid development has occurred.

(10) Both the Los Medanos and the West Sand Dune Delaware Pools are located within the Department of Interior Potash Enclave. The BLM has prohibited development of conventional vertical or straight hole drilling in various portions of Sections 17, 20, 21, 28 and 29 due to the presence of mineable potash. This action by the BLM is the primary cause for the delay in the development of the northern portion of the reservoir.

(11) Kaiser 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 BLM has denied development of the north half of these sections as well as the southwest quarter of Section 20 and the southeast quarter of Section 21 unless that development is conducted with directionally drilled wells located within areas barren of mineable potash.

(12) The Division issued order R-10048 on January 12, 1994, granting Kaiser's application for permission to drill directionally from barren areas or state lands to standard subsurface locations in Sections 20 and 21. However, the ability of Kaiser to develop these properties by directional drilling has been challenged by Santa Fe Operating Partners, one of the supporters of Pogo's application in this case, which on January 26, 1994 filed a request for a Denovo hearing of Order R-10048. Kaiser's ability to drill these wells may be delayed because of this DeNovo appeal.

(13) Kaiser operates seven wells, four in Section 20 and three in Section 21, in this reservoir, none of which produces in excess of the maximum casinghead gas allowable of 374 MFCPD through the month of December, 1993.

(14) Pogo operates nine wells in Section 28 and six wells in Section 29 in this reservoir of which 9 wells produce in excess of the maximum casinghead gas allowable of 374 MCFPD for the month of October, 1993.

(15) Testimony presented by Pogo Producing Company establishes that:

(a) based upon PVT data from Pogo's Mobil Federal 29 No. 8 Well, the solution gas-oil ratio for the reservoir was 1,130 SCF/BBL at a bubble point pressure of 3,173 psig. The reservoir was initially under saturated with an initial reservoir pressure at or above the bubble-point;

(b) none of the 19 wells in the Los Medanos-Delaware Pool has a producing gas-oil ratio in excess of 2,000 to 1 or the 374 MCFPD per well gas allowable;

(c) of the 49 wells in the West Sand Dunes-Delaware Pool, the producing gas-oil ratios are summarized as follows:

1. 13 wells with less than 2,000 to 1;
2. 22 wells between 2 and 4,000 to 1;
3. 10 wells between 4 and 6,000 to 1;
4. 4 wells over 6,000 to 1.

(d) only 21% (14 of 68 wells) have producing GORs in excess of 4,000 to 1; and

(e) the pool substantially underproduces its current total pool casinghead gas allowable.

(16) Both the applicant and Kaiser presented engineering and geologic evidence and testimony in this case, and based upon such evidence and testimony, the following conclusions concerning both the Los Medanos and West Sand Dunes Pools can be ascertained:

(a) the drive mechanism within this reservoir is solution gas with no indication of an extensive gas cap, water influx, or connate water expansion; and

(b) sandstones of the Lower Brushy Canyon member of the Delaware Mountain Group within these two pools is continuous across the reservoir and constitutes a single oil and gas reservoir ("a single common source of supply").

(17) Pogo relied exclusively upon its model reservoir simulation to contend that an increase to 8,000 to 1 GOR would reduce ultimate oil recovery from the model area by only 1.8%

(18) Pogo's computer reservoir simulation modeled an area encompassing 240 acres located in W/2SW/4 of Section 28 and the SE/4 of Section 29, T23S, R31E that is developed by five wells. The model study results indicate that at a 2,000 to 1 GOR these five wells will recover 605,000 barrels of oil over a 10 year period versus 594,000 barrels of oil over an 8 year period at an 8,000 to 1 GOR.

(19) The Division finds that this model forecast of ultimate oil recovery is speculative and therefore does not constitute substantial evidence because:

(a) not less than 50 separate model "runs" were conducted prior to obtaining the "history match" of actual production for these five wells which raises substantial questions about non-uniqueness of the model results;

(b) the model results did not include a determination of the impact of a higher GOR upon the undeveloped spacing unit within the model area;

(c) the model study had only two pressure points for matching purposes neither of which were shut-in an adequate period of time to reflect reservoir conditions which raise substantial questions about the ability of the model to accurately predict future recoveries;

(d) the historical production time frame "matched" by the model study is not long enough to provide adequate reliability for extrapolation of future recoveries; and

(e) no individual well production forecasts were submitted from which to determine if there was any drainage occurring among or between wells within the model area, or the affect upon the one undrilled 40-acre spacing unit within the model area.

(20) Pogo failed to introduced any field measured pressure data, rate sensitivity tests or drainage calculations to prove that waste was not occurring or that correlative rights were not being violated by having a high GOR well offsetting a low GOR well.

(21) Kaiser presented evidence demonstrating that:

(a) the initial reservoir pressure was approximately 3570 psig; the PVT data obtained from a bottomhole sample from the Pure Gold A No. 2 Well indicates a bubble point pressure of 3,200 psig with a solution gas-oil ratio of 1,425 SCF/BBL and an original formation volume factor of 1.754 at the bubble point. This data indicates that the reservoir was initially under saturated with no original gas cap when discovered, and gas recoveries will be significant;

(b) ultimate recoveries of 20 MMBO and 130 BCF of gas are estimated from this reservoir. Consequently, gas proration as well as oil proration must be given close scrutiny in order to protect correlative rights. Permitting an increase in the limiting GOR to 8,000 to 1 SCF/BBL with a resulting 1,496 MCFPD per well gas allowable will permit high GOR wells to cause excessive depletion of reservoir energy and adversely affect correlative rights of owners with low GOR producing wells;

(c) Measured gas-oil ratios in excess of 1,425 SCF/BBL indicate reservoir pressure at these wells has fallen below the bubble-point, and new wells with GOR's in excess of the solution GOR indicate drainage by offsetting wells has already occurred and will continue to occur;

(d) the reservoir pressure of 2,762 psig measured at the Pure Gold A No. 3 Well in November, 1993, indicates that drainage of undeveloped areas of the reservoir is occurring. Comparison of this pressure with that of the Pure Gold B No. 4 Well being 1,447 psig taken on January 12, 1994 after 117 hours of buildup, and with that of the Mobil Federal 29 No. 1 Well being 1,613 psig taken on November 26, 1993 after 335 hours of buildup indicates that there is a 1,000 plus psig pressure sink between areas of development versus areas of non-development in this reservoir at the current limiting GOR. Increasing the limiting GOR to 8,000 to 1 will exacerbate this pressure differential and accelerate drainage of undeveloped portions of the reservoir;

(e) the recovery factor for solution gas drive reservoirs is controlled by the PVT relationships, reservoir pressure and cumulative GOR. The PVT data is fixed for each reservoir, consequently the recovery factor is directly proportional to reservoir pressure and inversely proportional to the cumulative GOR. Initial wells drilled early in the reservoir life enjoy greater recoveries than later wells due to the high initial reservoir pressure and the resulting lower cumulative GOR;

(f) the "waste" of reservoir energy occurring by accommodating those operators whose wells are producing above the 374 MCFPD gas allowable with an increase to 1,496 MCFPD gas allowable will result in uncompensated depletion of the reservoir energy by draining oil and gas from areas of low GOR producing wells and from currently undeveloped areas resulting in lowering recoveries for those spacing units; and

(g) the Los Medanos and West Sand Dunes Delaware reservoir performance was compared to the East Loving Pool which indicates that both reservoirs produce significantly below a 2,000 to 1 limiting GOR gas allowable. Performance of the East Loving Pool suggests that an increased gas allowable for the Los Medanos and West Sand Dunes Pools is not necessary since total pool gas rates are significantly less than total pool gas allowables.

(22) The application should be DENIED because:

(a) development of the reservoir has not occurred uniformly due to limitations on drilling in the potash area. Therefore increasing the current limiting GOR is 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 limiting GOR permits high GOR wells to unfairly deplete the solution gas drive mechanism of this reservoir, thereby violating the correlative rights of owners of low GOR wells and owners of undeveloped areas of the reservoir;

(c) increasing the current limiting GOR will allow the higher GOR wells to use more of the reservoir drive mechanism per barrel of oil recovered thereby violating the correlative rights of those owners who still have low GOR wells producing;

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(d) all of the wells with GOR's in excess of 4,000 to 1 are located in the West Sand Dunes Pool or southern area of this reservoir. Increasing the GOR will result in uncompensated drainage of oil and gas from the northern portion of the reservoir;

(e) in any solution gas drive recovery reservoir, primary oil recovery is inversely proportional to cumulative GOR. Therefore, increasing the limiting GOR allowable will result in significantly increased reservoir voidage by high GOR wells compared to wells of similar oil rate but lower GOR and hence lowering recovery factors for those lower GOR wells;

(f) analogy to the East Loving Pool indicates that that pool's total gas producing rate does not approach the 2,000 to 1 limiting GOR allowable indicating that increasing the GOR limits benefits only those wells with higher GORs to the detriment of wells with low GORs; and

(g) the evidence presented further indicates that increasing the gas-oil ratio to 8,000 cubic feet of gas per barrel of oil may have an adverse affect on correlative rights and should remain at a 2,000 to 1 GOR thereby giving all operators the opportunity to maximize ultimate recovery of oil or gas from the reservoir.

(23) Evidence submitted by both Kaiser and Pogo demonstrates that as early as September and October, 1993, the operators of the following wells are producing them in violation of the limiting GOR of 2,000 to 1 (374 MCFPD gas allowable) for these two pools:

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<u>OPERATOR</u>	<u>WELL NAME</u>
Pogo Producing:	Pure Gold #D2 Well Sec 28-D
Pogo Producing:	Pure Gold #D3 Well Sec 28-L
Pogo Producing:	Pure Gold #D4 Well Sec 28-M
Pogo Producing:	Pure Gold #D7 Well Sec 28-K
Pogo Producing:	Pure Gold #D8 Well Sec 28-N
Pogo Producing:	Pure Gold #D12 Well Sec 28-O
Pogo Producing:	Pure Gold #D16 Well Sec 28-P
Pogo Producing:	Mobil Federal #1 Well Sec 29-J
Pogo Producing:	Mobil Federal #4 Well Sec 29-A
Pogo Producing:	Mobil Federal #8 Well Sec 28-O
Yates Petroleum Corp.	Pauline ALB State #2 Well Sec 32-P
Yates Petroleum Corp.	Pauline ALB State #8 Well Sec 32-L
Merit Oil Corp.	Poker Lake 32 State #1 Well Sec 32-B
Merit Oil Corp.	Poker Lake 32 State #4 Well Sec 32-A
Merit Oil Corp.	Sundance Federal #3 Well Sec 5-A
Merit Oil Corp.	Sundance Federal #4 Well Sec 5-B
Merit Oil Corp.	Sundance Federal #5 Well Sec 5-C
Merit Oil Corp.	Sundance Federal #6 Well Sec 5-D
Merit Oil Corp.	Sundance Federal #8 Well Sec 5-F
Merit Oil Corp.	Sundance Federal #10 Well Sec 5-H
Santa Fe Operating	Sterling Silver 33 #5 Well Sec 33-C

(24) That the Division should issue an Order to each operator listed in Finding (23) above, to immediately shut-in those wells until such cumulative overproduction has been made up in accordance with Division rules.

(25) Denial of the application will allow Kaiser and other operators the opportunity to economically recover their share of the oil and gas in the subject pools in a timely manner, and afford them the opportunity to protect their spacing units from uncompensated drainage.

(26) Denial of the application will not reduce ultimate recovery from the subject pool and will not violate correlative rights.

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(27) the application should be denied.

IT IS THEREFORE ORDERED THAT:

(1) The application of Pogo Producing Company for the promulgation of special rules and regulations for the West Sand Dunes-Delaware Pool and the Los Medanos-Delaware Pool, Eddy County, New Mexico including a provision for a limiting gas-oil ratio of 8,000 cubic feet of gas per barrel of oil is hereby **DENIED**.

(2) 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

S E A L



STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION



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April 5, 1994

HINKLE, COX, EATON,
COFFIELD & HENSLEY
Attorneys at Law
P. O. Box 2068
Santa Fe, New Mexico 87501

RE: CASE NO. 10870
ORDER NO. R-10086

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Sincerely,

Sally E. Martinez
Sally E. Martinez
Administrative Secretary

cc: BLM - Carlsbad
Donna McDonald - OCD
Ernest Carroll
Tom Kellahin
Fred Diem