

**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. 10462
Order No. R-9677**

**APPLICATION OF MARATHON OIL
COMPANY FOR TERMINATION OF OIL
PRORATIONING IN THE VACUUM-
GLORIETA POOL, LEA COUNTY, NEW
MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on April 2, 1992, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 22nd day of May, 1992, 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, Marathon Oil Company (Marathon), seeks an exception to Division General Rule No. 505 for the Vacuum-Glorieta Pool, located in portions of Townships 17 and 18 South, Ranges 34 and 35 East, NMPM, Lea County, New Mexico, whereby the allowable for each well producing from said pool would equal its producing capability.

(3) There are currently four wells in the Vacuum-Glorieta Pool capable of producing in excess of the pool allowable of 107 barrels of oil per day, these being the Marathon Oil Company Warn State AC/3 Well Nos. 6 and 7 located, respectively, in Units G and F, Section 33, Township 17 South, Range 35 East, NMPM, and the Exxon Company USA New Mexico "K" State Well Nos. 28 and 29 located, respectively, in Unit A of Section 32 and Unit K of Section 28, both in Township 17 South, Range 35 East, NMPM.

(4) The applicant further proposed that in each instance where there are two wells producing from the same proration unit whose combined production exceeds the current pool allowable, the allowable assigned to such proration unit shall equal 107 barrels of oil per day or the rate of production from the higher producing well, whichever is greater.

(5) The applicant further proposed that such allowable for simultaneously dedicated wells only apply to those proration units presently containing infill wells, and not to those which may be infill drilled in the future.

(6) There is currently only one simultaneously dedicated proration unit in the pool capable of production in excess of the pool allowable, this being the NW/4 SW/4 of Section 28, Township 17 South, Range 35 East, NMPM, which is currently dedicated to the Exxon Company USA New Mexico "K" State Well Nos. 31 and 34.

(7) It is anticipated that the six subject wells will produce an additional 468 barrels of oil per day if the application is granted.

(8) According to evidence presented, the central and eastern portions of the Vacuum-Glorieta Pool comprising portions of Sections 26 through 34, Township 17 South, Range 35 East, NMPM, and portions of Section 5, Township 18 South, Range 35 East, NMPM, are currently being considered for unitization for the purpose of conducting secondary recovery operations.

(9) Within the unitization negotiations, there apparently exists a dispute between Marathon and Phillips Petroleum Company, being the proposed unit operator, regarding the amount of remaining primary reserves attributable to Marathon's Warn State AC/3 Well Nos. 6 and 7 due to the lack of decline curve data.

(10) The applicant seeks authority to produce its wells at capacity for the following reasons:

- a) Increased allowables will allow the applicant the opportunity to compete for remaining reservoir energy with offset wells which are producing at higher reservoir fluid voidage rates; and,
- b) Producing the wells at capacity will allow the applicant to establish a decline curve for the subject wells which may be used to more accurately determine remaining primary reserves, a critical factor in determining unit participation under any future unitization proposal.

(11) Phillips Petroleum Company (Phillips) and Exxon Company USA (Exxon), both operators in the subject pool, appeared at the hearing in support of increased allowables for a period not to exceed nine months subject to certain testing provisions.

(12) Mobil Exploration & Producing U.S., another operator in the Vacuum-Glorieta Pool, appeared at the hearing in opposition to the application.

(13) The geologic and engineering evidence and testimony presented in this case by the applicant indicates the following:

- a) production of the subject wells at capacity will result in a 15 percent increase in total oil production from the pool and will result in only a 2 percent increase in the total reservoir voidage from the pool;
- b) the average reservoir voidage within the pool is currently 367 reservoir barrels per well per day. The average reservoir voidage for the subject wells producing at capacity will be approximately 456 reservoir barrels per well per day. The average reservoir voidage of the twelve wells directly offsetting the six subject wells is approximately 450 reservoir barrels per well per day;
- c) the drilling of infill wells within the S/2 of Section 28 has not resulted in an increase in water production nor has it resulted in an increase in the water/oil ratio in the wells originally drilled on the proration units within said area;
- d) the Vacuum-Glorieta reservoir is heterogeneous in nature in terms of the porosity, producing capabilities of the rock in the reservoir, and the producing capabilities of the individual zones in the reservoir.

(14) The applicant further presented evidence which indicates that although there are localized areas within the pool producing at high water cuts, the main water encroachment is from the far eastern portion of the pool.

(15) Further evidence presented indicates that there are six wells located between the subject wells and the water front which produce at relatively high reservoir voidage rates.

(16) The applicant contends that the six wells described above should have a much greater impact on the rate of water encroachment into the reservoir than would the six subject wells producing at capacity.

(17) Mobil presented geologic and engineering evidence and testimony which indicates the following:

- a) various wells in the subject area, including the New Mexico "K" State Well No. 29, have exhibited marked increases in water production, especially during the past two years, indicating water influx into this area;
- b) a substantial portion of the eastern side of the field has already experienced significant water influx;
- c) an area of approximately 1,000 acres within the Vacuum-Glorieta Pool may be adversely affected by approval of the application, thereby affecting, to some extent, the recovery of some 5 million barrels of secondary reserves.

(18) The evidence presented in this case indicates that to some extent, water is currently encroaching into the Vacuum-Glorieta Pool, either locally or poolwide, due in part to wells producing at high reservoir voidage rates.

(19) Such present producing activity is having an adverse affect on the reservoir, which will ultimately reduce oil recovery under secondary recovery operations.

(20) The evidence further indicates that approval of the subject application will tend to accelerate the encroachment of water into the reservoir, thereby further reducing ultimate oil recovery under secondary recovery operations, thereby causing waste.

(21) In addition, reduced oil recovery under secondary recovery operations will adversely affect the correlative rights of the various working interest owners who will participate in unitized operations.

(22) Within the Vacuum-Glorieta Pool, there exists substantial geologic and engineering data with which to reach a reasonable agreement on remaining primary reserves underlying the SE/4 NW/4 and the SW/4 NE/4 of Section 33.

(23) Applicant's proponents in this case, Phillips and Exxon, contend that denial of this application may substantially delay the execution of a unitization agreement for the East Vacuum Glorieta Unit, thereby causing a substantially greater detrimental affect on the reservoir than would be incurred by approval of the application.

(24) A disagreement regarding unitization parameters and allocations between various working interest owners in the proposed East Vacuum Glorieta Unit does not preclude Phillips Petroleum Company from initiating unitization proceedings under the "Statutory Unitization Act", Sections 70-7-1 through 70-7-21, NMSA, (1978).

(25) Approval of the subject application will tend to reduce ultimate oil recovery under secondary recovery operations, thereby causing waste, will violate the correlative rights of the various working interest owners within the proposed East Vacuum Glorieta Unit, and is not necessary for the effective unitization of the subject area for the purpose of conducting secondary recovery operations, and should therefore be denied.

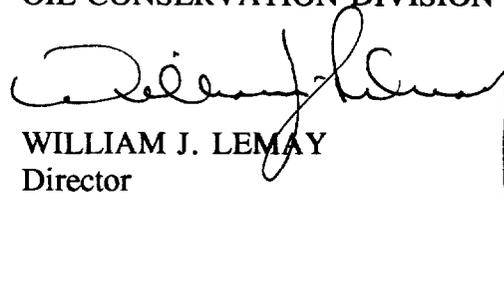
IT IS THEREFORE ORDERED THAT:

(1) The application of Marathon Oil Company for an exception to Division General Rule No. 505 for the Vacuum-Glorieta Pool, located in portions of Townships 17 and 18 South, Ranges 34 and 35 East, NMPM, Lea County, New Mexico, whereby the allowable for each well producing from said pool would equal its producing capability is hereby denied.

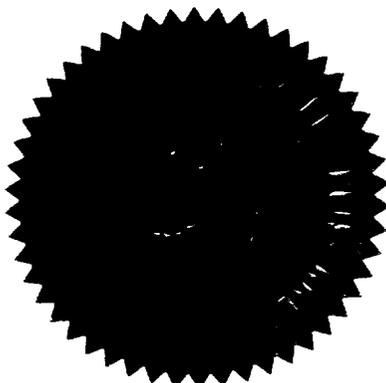
(2) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY
Director



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

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

**CASE NO. 10462 (De Novo)
Order No. R-9677-A**

**APPLICATION OF MARATHON OIL
COMPANY FOR TERMINATION OF OIL
PRORATIONING IN THE VACUUM-
GLORIETA POOL, LEA COUNTY,
NEW MEXICO**

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 a.m. on August 13, 1992, at Santa Fe, New Mexico, before the Oil Conservation Commission (hereinafter called the "Commission").

NOW, on this 10th of September, 1992, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS THAT:

- (1) Due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) The applicant, Marathon Oil Company ("Marathon"), seeks exception to Division General Rule No. 505 for the Vacuum-Glorieta Pool, located in portions of Townships 17 and 18 South, Ranges 34 and 35 East, NMPM, Lea County, New Mexico, whereby the allowable for each well producing from said pool would equal its producing capability for a period of nine (9) months.
- (3) There are currently seven (7) wells in the Vacuum-Glorieta Pool potentially capable of producing in excess of the pool allowable of 107 barrels of oil per day, these being Marathon's Warn State AC/3 Well Nos. 6 and 7, located respectively in Units G and F, Section 33, Township 17 South, Range 35 East, NMPM and the Exxon Company USA New Mexico "K" State Well Nos. 27, 28, 29, 34 and 36 located, respectively in Unit N of Section 28, Unit A of Section 32, Unit F, Unit L and Unit M of Section 28, all in Township 17 South, Range 35 East, NMPM.

(4) The Vacuum-Glorieta Oil Pool is in an advanced stage of depletion with 48 wells out of 121 active wells producing less than 10 barrels of oil per day.

(5) Marathon estimates current recovery for the pool to be approximately 37 percent of the calculated 172 million barrels of oil originally in place in the reservoir.

(6) Unitization of the eastern portion of the pool for enhanced oil recovery is necessary in order to recover an estimated 22 million barrels of additional oil.

(7) There is not sufficient production data currently available to accurately determine the remaining recoverable primary oil for the top allowable wells.

(8) The absence of such data has frustrated efforts at unitization either by voluntary or by statutory means.

(9) On April 2, 1992, Marathon appeared before the Division Examiner seeking the permanent termination of oil prorationing in the Vacuum-Glorieta Pool. The granting of that request would have removed the production limitation which was affecting six (6) wells out of 121 active wells in the pool.

(10) One of the primary results of termination of prorationing would have been the production of the top allowable wells at capacity which would establish production decline curves from which accurate calculations of remaining recoverable reserves for those wells could be made and negotiations for unitization advanced.

(11) Phillips Petroleum Company and Exxon Corporation supported Marathon's application provided that termination of allowables was for a nine month period and subject to certain testing and data collection requirements.

(12) Mobil appeared at the Examiner's hearing in opposition to the application.

(13) On May 22, 1992, the Division entered order R-9677 denying Marathon's original application.

(14) Subsequent to the entry of that order, Marathon has modified its request and now seeks the following:

(a) The granting of a special allowable for the Vacuum-Glorieta Pool equal to the producing capacity of each well currently drilled in the pool for a period of nine months.

(b) That the operators of any wells capable of producing in excess of 107 barrels of oil per day average during a month, regardless of how many wells are within a single spacing and proration unit, shall have the right to produce such well at capacity provided that the following tests are conducted and/or data are collected and provided to the unitization engineering committee:

(1) A minimum 24-hour production test of oil, water, and gas volumes to be performed twice monthly;

(2) Monthly pumping fluid levels, to coincide with a production test;

(3) A multi-rate flow test to enable calculations of the well's productivity index; and

(4) A shut-in bottom hole pressure test, either by direct measurement or fluid level, for any one well on the lease during the period. This test may be taken on any well, even non-top allowable wells.

(15) The geologic and engineering evidence and testimony presented in this case by Marathon indicates the following:

(a) production of the remaining top allowable wells at capacity will result in a 14.42 percent increase in total oil production from the pool and will result in only a 2.21 percent increase in the total reservoir voidage from the pool;

(b) the average reservoir voidage of all wells within the pool is currently 359 reservoir barrels per well per day while the current average reservoir voidage for the top allowable wells is 272 reservoir barrels per well per day;

(c) if the remaining top allowable wells are produced at capacity, it will result in an average increase for those wells of 60 barrels of oil per well per day with an increase in reservoir voidage of approximately 137 reservoir barrels per well per day;

(d) the drilling of infill wells within the S/2 of Section 28 has not resulted in an increase in water production nor has it resulted in an increase in the water/oil ratio in the wells originally drilled on the proration units within said area; and

(e) The Vacuum-Glorieta reservoir is heterogeneous in nature in terms of the porosity, producing capabilities of the individual zones in the reservoir.

(16) The applicant further presented evidence which indicates that the main water encroachment is from the far eastern portion of the pool and has advanced westward one mile in the past 30 years.

(17) The evidence further indicates that approval of the subject application will not reduce ultimate oil recovery under secondary recovery operations.

(18) Within the Vacuum-Glorieta Pool, there does not exist substantial geologic and engineering data with which to reach a reasonable agreement on remaining primary reserves underlying each of the spacing units currently dedicated to top allowable wells.

(19) Applicant's proponents in this case, Phillips and Exxon, contend that denial of this application may substantially delay or prevent the execution of a unitization agreement for the proposed Vacuum Glorieta East Unit, thereby causing the potential for waste by possibly damaging the reservoir.

(20) A disagreement regarding unitization parameters and allocations between various working interest owners in the proposed Vacuum Glorieta East Unit precludes Phillips Petroleum Company from initiating unitization proceedings under the "Statutory Unitization Act," Sections 70-7-1 through 70-7-21, NMSA, (1978).

(21) No party appeared at the hearings in opposition to Marathon's request.

(22) Approval of the subject application will afford an opportunity to increase ultimate oil recovery under secondary recovery operations, thereby preventing waste and protecting the correlative rights of the various working interest owners within the proposed Vacuum Glorieta East Unit, and is necessary for the effective unitization of the subject area for the purpose of conducting secondary recovery operations, and should therefore be granted.

IT IS THEREFORE ORDERED THAT:

(1) The application of Marathon Oil Company for an exception to Division General Rule No. 505 for the Vacuum-Glorieta Pool, located in portions of Townships 17 and 18 South, Ranges 34 and 35 East, NMPM, Lea County, New Mexico, whereby the allowable for each well producing from said pool would equal its producing capability in hereby GRANTED for a period of nine (9) months to commence on October 1, 1992 and end on July 1, 1993.

(2) The operators of any wells capable of producing in excess of 107 barrels of oil per day average during a month, regardless of how many wells are within a single spacing and proration unit, shall have the right to produce such wells at capacity provided that the following tests are conducted and/or data are collected and provided to the unitization engineering

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committee:

- (a) A minimum 24-hour production test of oil, water, and gas volumes to be performed twice monthly;
 - (b) Monthly pumping fluid levels, to coincide with a production test;
 - (c) A multi-rate flow test to enable calculations of the well's productivity index; and
 - (d) A shut-in bottom hole pressure test, either by direct measurement or fluid level, for any one well on the lease during this period.
- (3) Jurisdiction is hereby retained for the entry of such further orders as the Commission may deem necessary.

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

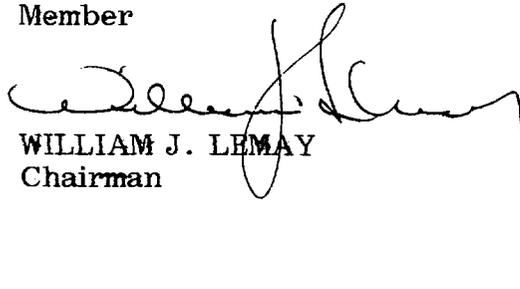
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



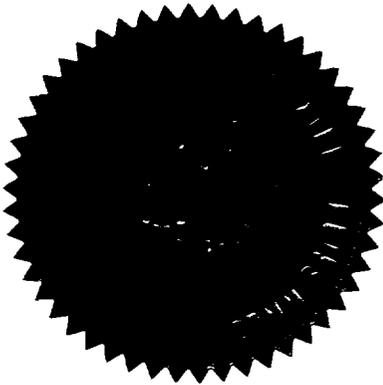
GARY CARLSON
Member



WILLIAM W. WEISS
Member



WILLIAM J. LEMAY
Chairman



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