

**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. 10443  
Order No. R-9503-A**

**APPLICATION OF MARATHON OIL  
COMPANY TO AMEND DIVISION ORDER  
NO. R-9503, LEA COUNTY, NEW  
MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This cause came on for hearing at 8:15 a.m. on March 5, 1992 at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 7th day of April, 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) By Order No. R-9503 dated May 10, 1991, the Division authorized Marathon Oil Company to institute a waterflood project on its McDonald State A/C-1 Lease in portions of Sections 15 and 16, Township 22 South, Range 36 East, NMPM, Lea County, New Mexico, by the injection of water into the South Eunice Seven Rivers-Queen Pool through twelve injection wells (as more fully described in said Order No. R-9503).

(3) Order No. R-9503 further contained a provision whereby injection within the McDonald State A/C-1 Well Nos. 30, 31, 33, 34 and 40 was limited to that portion of the South Eunice Seven Rivers-Queen Pool extending from the top of the Queen formation to the top of the Grayburg formation.

(4) The vertical limits of the South Eunice Seven Rivers-Queen Pool in this area currently extend from 100 feet above the top of the Queen formation to the top of the Grayburg formation. The lower vertical limit of the Jalmat Gas Pool in this area corresponds to the top of the South Eunice Seven Rivers-Queen Pool.

(5) The injection interval within the wells described in Finding No. (3) above was limited by the Division in order to provide protection to certain offset wells currently producing from the Jalmat Gas Pool from possible "watering out" of gas reserves within the Seven Rivers formation which may occur as a result of waterflood operations.

(6) The applicant, Marathon Oil Company (Marathon), seeks an amendment to Division Order No. R-9503 to authorize an increase in the injection interval in its McDonald State A/C-1 Well Nos. 30 and 33 located in Units L and I of said Section 16 to include the lowermost 46 feet of the Seven Rivers formation.

(7) At the time of the hearing, Marathon requested that the portion of the application requesting the extension of the injection interval in its McDonald State A/C-1 Well No. 33 be dismissed.

(8) In conformance with Ordering Paragraph No. (1) Subparts (c) and (d) of said Order No. R-9503, the applicant has obtained a cement bond log and has conducted an injectivity survey on the McDonald State A/C-1 Well No. 30.

(9) The results of both the cement bond log and the injectivity survey were presented by the applicant as evidence in this case. The cement bond log indicates good cement throughout both the South Eunice Seven Rivers-Queen and Jalmat Gas Pool intervals. The results of the injectivity survey indicate, however, the presence of a channel behind the 5 1/2-inch casing which extends from the top of the Queen formation at 3606 feet upward to an approximate depth of 3575 feet.

(10) The applicant presented additional geologic and engineering evidence and testimony which indicate that:

a) the channel within the subject well does not appear to extend any higher than 3575 feet;

b) the interval from approximately 3571 feet to 3580 feet in the subject well is a sand member of the Seven Rivers formation identified by the applicant as the Lower Seven Rivers "A" Zone. This interval has good lateral continuity and, according to core data obtained from ARCO Oil and Gas Company's McDonald "WN" State Well No. 15 located in Unit L of Section 15, this interval is predominantly oil bearing;

c) the interval between the base of the Jalmat Gas Pool and the top of the Seven Rivers "A" Zone contains very little porosity or permeability;

d) the Marathon operated McDonald State A/C-1 Well Nos. 8, 9 and 10 which offset the subject injection well to the southwest, northwest and northeast, respectively, are currently open in the lower Seven Rivers interval. In addition, Marathon currently operates the McDonald State A/C-1 Well No. 6 which is located to the southeast of the subject injection well and which is currently completed in the Jalmat Gas Pool.

(11) The evidence presented indicates that injection into the Seven Rivers "A" Zone should not have any adverse affect on Jalmat Gas Pool production in this area, and any fluid injected into the Seven Rivers "A" Zone should be effectively confined to said zone.

(12) The completion intervals within the McDonald State A/C-1 Well Nos. 8, 9, and 10 should provide a pressure sink whereby the Seven Rivers "A" Zone will not pressure up as a result of fluid injection.

(13) The applicant has supplied copies of the bond log and injection survey run on the subject well and has notified Doyle Hartman and ARCO Oil and Gas Company of its proposal in this case. Neither Doyle Hartman nor ARCO Oil and Gas Company, both of whom operate offset Jalmat Gas wells, appeared at the hearing in opposition to the application.

(14) No other offset operator appeared at the hearing in opposition to the application.

(15) Approval of the application will afford the applicant the opportunity to effectively conduct waterflood operations, will not cause the waste of gas reserves within the Jalmat Gas Pool, and will not violate correlative rights.

(16) The applicant should be required to conduct an injectivity survey on the subject well on an annual basis in order to assure that the injected fluid is being effectively confined to the injection interval approved herein.

(17) In addition, the applicant should be required to conduct an injectivity survey on the subject well any time an injection pressure increase is sought and a step rate test is conducted.

(18) The applicant should be required to furnish copies of any injectivity surveys conducted on the subject well to Doyle Hartman, ARCO Oil and Gas Company, and to the Santa Fe office of the Division.

**IT IS THEREFORE ORDERED THAT:**

(1) The applicant, Marathon Oil Inc, is hereby authorized to expand the injection interval in its McDonald State A/C-1 Well No. 30 located 1390 feet from the South line and 1260 feet from the West line (Unit L) of Section 16, Township 22 South, Range 36 East, NMPM, Lea County, New Mexico, to include the entire interval from 3560 feet to 3850 feet.

(2) The applicant shall conduct an injectivity survey on the subject well on an annual basis in order to assure that the injected fluid is being effectively confined to the injection interval approved herein.

(3) In addition, the applicant shall conduct an injectivity survey on the subject well any time an injection pressure increase is sought and a step rate test is conducted.

(4) The applicant shall furnish copies of any injectivity surveys conducted on the subject well to Doyle Hartman, ARCO Oil and Gas Company, and to the Santa Fe office of the Division.

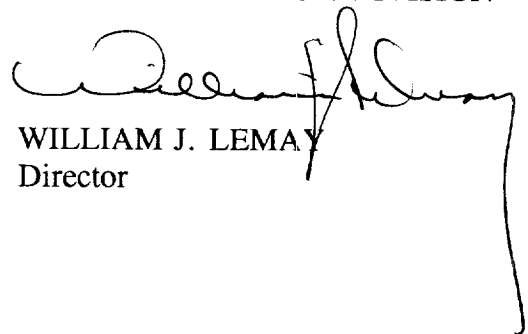
(5) All other provisions contained within Division Order No. R-9503 not inconsistent or in conflict herewith shall remain in full force and effect.

(6) The portion of the application requesting the extension of the injection interval in the McDonald State A/C-1 Well No. 33 is hereby dismissed.

(7) 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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