

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. 11168  
Order No. R\_\_\_\_\_

APPLICATION OF OXY USA INC. TO AUTHORIZE  
THE EXPANSION OF A PORTION OF A WATERFLOOD PROJECT  
AND TO QUALIFY SAID EXPANSION FOR THE RECOVERED  
OIL TAX RATE PURSUANT TO THE "NEW MEXICO ENHANCED  
OIL RECOVERY ACT," LEA COUNTY, NEW MEXICO

OXY USA INC.'S  
PROPOSED  
ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 A.M. on December 15, 1994, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this \_\_\_\_ of December, 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 case and the subject matter thereof.

(2) OXY USA INC., ("Oxy") pursuant to the New Mexico "Enhanced Oil Recovery Act" and to Division Rule 701(G) seeks approval of an expansion of its Myers Langlie-Mattix Unit Waterflood Project by means of a significant change in process including the approval of the conversion of 16 producers to injection wells, to reactivate a plugged injector and an order pursuant to the Rules and Procedures for Qualification of Enhanced Oil Recovery Projects and Certification for the Recovered Oil Tax Rate, as promulgated by Division Order R-9708, qualifying portions of its Myers Langlie-Mattix Unit Waterflood Project, located in various parts of Section 36, T23S, R36E, and in Sections 31 and 32, T23S, R37E, and in Sections 5 and 6, T24S, R37E, NMPM, Queen formation of the Langlie-Mattix Seven Rivers Queen Grayburg Pool, for the recovered oil tax rate under the "Enhanced Oil Recovery Act" (Law 1992, Chapter 38, Sections 1 through 5).

(3) Oxy USA Inc. ("OXY") is the current operator of both the Myers Langlie-Mattix Unit ("Unit") which was approved by Division Order R-4660 issued November 16, 1973 and the Myers Langlie-Mattix Unit Waterflood Project ("Existing EOR Project") which was approved by Division Order R-4680 issued effective November 20, 1973.

(4) At the time of unitization approval by the Division on November 16, 1973, the Unit encompassed 9923.68 acres. Waterflood operations were initiated during the 1970s on 80-acre five-spot injection patterns. Ultimate primary oil recovery from the Unit has been 9,000 MBBL. As of October 31, 1994, total oil production from the Unit was 15,200,000 barrels. The Unit is currently producing at 613 BOPD and 7032 BWPD from 93 active producers. Only 62 injectors are currently active. Approximately 688 MBBL of secondary reserves remain under the current mode of 80-acres five spot patterns.

(5) OXY proposes to utilize changes in technology and the process to be used for displacement of oil for a Project Area consisting of 760 acres, more or less, as was approved by Division Order R-9955-A, issued April 29, 1994, for the OXY USA Inc.'s Skelly Penrose "B" Unit Waterflood Project.

(6) In order to expand the EOR Project and to recover oil that otherwise will not be recovered, it is necessary to convert 16 producers to injection wells, to again utilize 1 plugged injection well (Unit Well No. 134) for injection for the expansion of this Waterflood Project and to have authorization for the necessary changes to convert said waterflood project from 80-acre five spot patterns to 20-acre infill with 40-acre 5-spot patterns.

(7) If these changes are approved and implemented, then this expansion is estimated to increase ultimate secondary oil recovery by 1,600,000 barrels of oil.

(8) OXY seeks to expand this 760 acre portion of this Unit by means of a significant change in the process used for the displacement of crude oil by a 20-acre infill drilling, reworking, establishment of water injection and initiation of 40-acre, 5-spot patterns for the Unit. The estimated amount of recoverable oil attributable to a Positive Production Response from the Expanded Use of enhanced oil recovery technology for a portion of this existing EOR Project is 1,600,000 barrels of additional oil.

(9) OXY has submitted satisfactory evidence on Division Form C-108 in compliance with Division Rule 701.

(10) The injection of water into each of the injection wells shown on Exhibit "A" should be accomplished under the terms and conditions of Division Rule 701.

(11) Applicant's engineering evidence concludes that changing or modifying the injection patterns by drilling additional producers and converting existing producing wells to injection should result in an estimated additional 1,600,000 barrels of oil to be recovered, with a current undiscounted value of \$14.8 million dollars.

(12) While new producers have been drilled in the EOR Project as infill wells, none of those producers will be recovering enough primary oil to pay for their costs. Instead, these producers are an integral part of the EOR project being necessary in order to close the injection patterns and improve sweep efficiency for the secondary recovery project.

(13) The costs of the required additional producing wells is estimated to be \$3,660,000, the facilities is estimated to be \$1,440,000 and the total project costs is estimated to be \$5,100,000.

(14) The reduction in the waterflood pattern from 80-acre to 40-acre pattern will improve the sweep efficiency by increasing in size the geologic area being affected by this new activity and increasing ultimate recovery from the Expanded Use Area of the pool.

(15) Based on the testimony presented in this case:

(a) the reduction in the waterflood injection well pattern in the Expanded Use Area should result in a substantial increase in the amount of crude oil ultimately recovered therefrom;

(b) the Expanded Use Area has been so depleted that it is prudent to implement a waterflood injection well pattern reduction to maximize the ultimate recovery of crude oil from the project area;

(c) the proposed enhanced oil recovery project is economically and technically feasible and has not been prematurely filed;

(d) the reduction of the waterflood pattern from 80-acre five spot to 40-acre five spot within an existing waterflood project area is a significant change in the process for the displacement of crude oil;

(e) the Project Area eligibility for the recovered oil tax rate is not defined or limited only to that area that has not been previously infill drilled; and

(f) to be eligible for the recovered oil tax rate, the operate needs to establish that a positive production response has occurred for the Project Area and not for each specific individual well in that project area.

(16) The subject Expanded Use Area within the Myers Langlie-Mattix Unit Waterflood Project should be qualified an "Enhanced Oil Recovery Project" (EOR) pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(17) To be eligible for the EOR credit, the operator should advise the Division when the water injection into each additional injection wells commences and at such time, request the Division certify the project to the New Mexico Taxation and Revenue Department.

(18) The "enhanced oil recovery project area" should initially comprise the region to be affected by injection on 40-acre patterns which includes the following area described in Ordering Paragraph (11) below.

(19) The application should be approved and the EOR Project should be governed by the provision of the "Rules and Procedures for Qualifications of Enhanced Oil Recovery Projects" and "Certification for Recovered Oil Tax Rate" as promulgated by Division Order No. R-9708.

**IT IS THEREFORE ORDERED THAT:**

(1) The applicant, OXY USA Inc. is hereby authorized to expand its Myers Langlie-Mattix Unit Waterflood Project and to institute waterflood injection into the Lower Seven Rivers and Queen formations at approximately 3354 feet to approximately 3793 feet through 2-3/8 inch fiberglass lined tubing set in a packer located within 100 feet of the uppermost injection perforations in the following described wells for purposes of secondary recovery as shown on Exhibit "A" attached hereto.

(2) The applicant shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface,

(3) Prior to commencing injection operations into the wells, the casing shall be pressure tested from the surface to the packer setting depth to assure the integrity of said casing.

(4) The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing.

(5) The injection wells or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection wells to no more than 0.2 psi/ft of depth to the uppermost injection perforations.

(6) The Division Director may authorize an increase in injection pressure upon a proper showing by the operator of said wells that such higher pressure will not result in migration of the injected fluid from the Queen (Penrose) formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

(7) The operator shall notify the supervisor of the Hobbs district office of the Division of the date and time of the installation of injection equipment and of the mechanical integrity tests so that the same may be inspected and witnessed.

(8) The operator shall immediately notify the supervisor of the Hobbs district office of the Division of the failure of the tubing, casing or packer in said wells and shall take such steps as may be timely and necessary to correct such failure or leakage.

(9) The subject wells shall be governed by all provision of Division Rule 702-706.

**IT IS FURTHER ORDERED THAT:**

(10) The application of OXY USA INC. to qualify its Expanded Use Area within a portion of its Myers Langlie-Mattix Unit Waterflood Project, which was the subject of Division Order No. R-4680, as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5), is hereby approved.

(11) The subject "enhanced oil recovery project area" shall initially comprise the following described areas in Lea County, New Mexico:

**Township 23 South, Range 36 East, NMPM**

**Sec. 36: SE/4SE/4NE/4  
NE/4NE/4SE/4**

**Township 23 South, Range 37 East, NMPM**

**Sec. 31: S/2S/2NW/4  
SW/4SW/4NE/4  
E/2SW/4  
E/2W/2SW/4  
NW/4NW/4SW/4  
S/2SE/4  
S/2N/2SE/4  
NW/4NW/4SE/4**

**Sec. 32: S/2NW/4SW/4  
SW/4NE/4SW/4  
W/2SE/4SW/4  
SW/4SW/4**

**Township 23 South, Range 37 East, NMPM**

**Sec 5: W/2NW/4  
W2/2E/2NW/4  
NW/4SW/4  
W/2NE/4SW/4  
N/2SW/4SW/4  
NW/4SE/4SW/4**

**Sec 6: NE/4NW/4NW/4  
N/2NE/4NW/4  
N/2N/2NE/4  
SE/4NE/4NE/4  
E/2SE/4NE/4  
E/2NE/4SE/4  
NE/4SE/4SE/4**

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(12) The operator shall advise the Division when the additional water injection phase of the project commences into any of the new injection wells.

(13) Said EOR project shall be governed by the provisions of the "Rules and Procedures for Qualifications of Enhanced Oil Recovery Projects" and "Certification for Recovered Oil Tax Rate" as promulgated by Division Order No. R-9708.

(14) 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

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