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. 10771
Order No. R-9955

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

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 A.M. on July 15, 1993, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 7th day of September, 1993, 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, OXY USA Inc. (OXY), seeks an order pursuant to the Rules and Procedures for Qualifications of Enhanced Oil Recovery Projects and Certification for the Recovered Oil Tax Rate, as promulgated

by Division Order No. R-9708, qualifying a portion of its Skelly Penrose "B" Unit Waterflood Project in portions of Sections 4, 5 and 8, Township 23 South, Range 37 East, NMPM, Langlie Mattix Seven Rivers-Queen-Grayburg Pool, Lea County, New Mexico, for the recovered oil tax rate pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(3) The applicant further seeks authority to expand a portion of the Skelly Penrose "B" Unit Waterflood Project by converting nine additional wells to injection within the unit area, all as shown on Exhibit "A" attached hereto.

(4) The Skelly Penrose "B" Unit, comprising some 2,612.16 acres, was approved by Division Order No. R-2915 on June 1, 1965 upon the application of Skelly Oil Company.

(5) Waterflood operations within the Skelly Penrose "B" Unit were approved by Division Order No. R-2956 on August 16, 1965. During mid-1966, Skelly Oil Company commenced waterflood operations within the unit by the injection of water into the Queen (Penrose) formation through thirty-three initial injection wells.

(6) Waterflood operations within the unit have thus far been conducted on 80-acre five spot injection patterns.

(7) During 1992, the unit was operated by Sirgo Operating Inc. According to Division records, activity within the Skelly Penrose "B" Unit during 1992 was minimal, with production from the unit averaging approximately 29 barrels of oil per day from sixteen active producing wells.

(8) The applicant assumed operations of the Skelly Penrose "B" Unit on February 1, 1993.

(9) The applicant has made a significant capital investment since taking over operations preparing the unit wells for active waterflood operations.

(10) Average production from the unit is currently 80 barrels of

oil per day from twenty active producing wells.

(11) The applicant now seeks to qualify the following described 760 acres, hereinafter referred to as the "Project Area", being a portion of the Skelly Penrose "B" Unit Waterflood Project, for the recovered oil tax rate:

TOWNSHIP 23 SOUTH, RANGE 37 EAST, NMPM
Section 4: W/2 NW/4
Section 5: E/2, SW/4, S/2 NW/4
Section 8: N/2 NW/4, NW/4 NE/4

(12) Within the Project Area, the applicant proposes to conduct waterflood operations on a 40-acre five spot injection pattern. Such action will require that the applicant drill and equip five new producing wells, convert nine producing wells to injection, reactivate nine injection wells and three producing wells, and upgrade tank battery and injection facilities.

(13) The proposed change in operations within the Project Area will require a capital expenditure of approximately two million dollars.

(14) OXY requests certification of the Project Area on the contention that it has or will expand the use of enhanced oil recovery technology and will increase the size of the geologic area being flooded representing a unique area of activity.

(15) The geologic evidence presented by the applicant indicates that the various pay sections in the Queen (Penrose) formation of the pool are generally present and continuous within the Project Area; however, the thickness, uniformity, porosity and permeability may vary significantly resulting in areas of lateral discontinuity.

(16) The geologic evidence presented by the applicant further indicates that the Queen (Penrose) formation in the Project Area contains distinct stringers each vertically isolated from the others with permeability and porosity being highly variable over this entire portion of the unit.

(17) Geologic variations as described above generally indicate that the 80-acre five spot injection pattern previously utilized within the Skelly Penrose "B" Unit Waterflood Project may have been too large and likely resulted in substantial volumes of oil being unrecovered.

(18) As of April 1, 1993, cumulative oil production from the Skelly Penrose "B" Unit was 3,441,632 barrels. Under the current 80-acre five-spot injection patterns, applicant estimates that the remaining secondary oil reserves within the unit are 75,000 barrels.

(19) Applicant's engineering evidence and testimony indicate that the recoverable oil reserves within the Project Area under the proposed 40-acre five spot injection pattern are approximately 971,780 barrels.

(20) The reduction in the waterflood injection pattern from 80 acres to 40 acres will improve the sweep efficiency and should increase the ultimate oil recovery from the proposed Project Area.

(21) After being fully developed, the Project Area will contain nineteen injection wells and ten producing wells.

(22) The evidence presented in this case indicates that the previous operator of the Skelly Penrose "B" Unit, Sirgo Collier Inc., drilled five of the infill producing wells within the Project Area in 1988.

(23) The Division has determined in a previous application (Order No. R-9789 issued in Case No. 10570 on November 23, 1992) that action taken to reduce the spacing and waterflood injection pattern within a "Project Area" several years prior to making application for the EOR reduced tax rate does not represent a significant change or modification in the technology or process used for the displacement of crude oil, but rather represents a logical continuation of a process previously commenced.

(24) In order to be consistent with current Division policy, the Project Area eligible for the recovered oil tax rate should contain only that area that has not been previously infill drilled.

(25) The Project Area should be defined in terms of the unit wells

which would actually qualify for the recovered oil tax rate, described as follows:

WELL NAME AND NUMBER	WELL LOCATION
SPBU Well No. 70	2610' FNL & 2520' FEL (Unit G) Section 5
SPBU Well No. 71	1420' FSL & 2614' FWL (Unit K) Section 5
SPBU Well No. 72	1220' FNL & 1370' FEL (Unit B) Section 5
SPBU Well No. 73	20' FNL & 1330' FWL (Unit C) Section 8
SPBU Well No. 74	20' FNL & 2611' FEL (Unit B) Section 8

(26) The evidence and testimony presented in this case indicate that:

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

(b) the Project 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; and,

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

(27) The baseline decline curve to be utilized in determining the occurrence of a positive production response should consist of production from the Skelly Penrose "B" Unit Well Nos. 18, 28, 33, 39 and 44.

(28) The Project Area within the Skelly Penrose "B" Unit Waterflood Project (defined in Finding No. (25) above) should be qualified as an "Enhanced Oil Recovery Project" (EOR) pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(29) To be eligible for the EOR credit, the operator should advise

the Division when water injection into each additional injection well commences and, at such time, request the Division certify the project to the New Mexico Taxation and Revenue Department.

(30) The application should be approved and the EOR Project should 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.

(31) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations, and identifying the specific wells which the operator believes are eligible for the credit. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to The Department of Taxation and Revenue those lands and wells which are eligible for the credit.

(32) The injection of water into the proposed injection wells should be accomplished through 2 3/8-inch internally plastic-lined tubing installed in a packer set within 100 feet of the uppermost injection perforation; the casing-tubing annulus should be filled with an inert fluid and a gauge or approved leak-detection device should be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(33) Prior to commencing injection operations into the wells shown on Exhibit "A", the casing in each well should be pressure tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(34) The injection wells or pressurization system should be initially equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than that shown on Exhibit "A".

(35) The Division Director should have the authority to administratively authorize a pressure limitation in excess of the pressure

limitation described above upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(36) The operator should give advance notification to 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 pressure tests in order that the same may be witnessed.

(37) The proposed waterflood expansion should be approved and the project should be governed by the provisions of Rule Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(38) The injection authority granted herein for the proposed injection wells should terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject wells, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, OXY USA Inc., is hereby authorized to expand its Skelly Penrose "B" Unit Waterflood Project by the injection of water into the Queen (Penrose) formation, Langlie Mattix Seven Rivers-Queen-Grayburg Pool, Lea County, New Mexico, through the gross interval from approximately 3,505 feet to 3,744 feet in the nine wells 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) The injection of water into the wells shown on Exhibit "A" shall be accomplished through 2 3/8-inch internally plastic-lined tubing installed in a packer set within 100 feet of the uppermost injection perforation; the casing-tubing annulus shall be filled with an inert fluid and a gauge or approved leak-detection device shall be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(4) Prior to commencing injection operations into the wells shown on Exhibit "A", the casing in each well shall be pressure tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(5) The injection wells or pressurization system shall be initially equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than that shown on Exhibit "A".

(6) The Division Director shall have the authority to administratively authorize a pressure limitation in excess of the pressure limitation described above upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(7) The operator shall give advance notification to 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 pressure tests in order that the same may be 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 any of the wells shown on Exhibit "A" 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 provisions of Division Order No. R-2956 and Rule Nos. 702-706 of the Oil Conservation Division Rules and Regulations.

(10) The injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the subject wells, provided however, the Division, upon written request by the operator, may grant an extension thereof for good cause shown.

IT IS FURTHER ORDERED THAT:

(11) The application of OXY USA Inc. to qualify a portion of its

Skelly Penrose "B" Unit Waterflood Project as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5), is hereby approved.

(12) The Project Area shall be defined in terms of the unit wells which would actually qualify for the recovered oil tax rate, described as follows:

WELL NAME AND NUMBER	WELL LOCATION
SPBU Well No. 70	2610' FNL & 2520' FEL (Unit G) Section 5
SPBU Well No. 71	1420' FSL & 2614' FWL (Unit K) Section 5
SPBU Well No. 72	1220' FNL & 1370' FEL (Unit B) Section 5
SPBU Well No. 73	20' FNL & 1330' FWL (Unit C) Section 8
SPBU Well No. 74	20' FNL & 2611' FEL (Unit B) Section 8

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

(14) To be eligible for the EOR credit, prior to commencing injection operations, the operator must request from the Division a Certificate of Qualification, which certificate will specify the project area as described above.

(15) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations, and identifying the specific wells which the operator believes are eligible for the credit. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to The Department of Taxation and Revenue those lands and wells which are eligible for the credit.

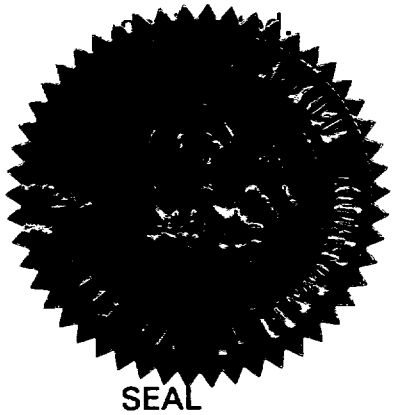
(16) Said EOR project shall be governed by the provisions of the "Rules and Procedures for Qualifications of Enhanced Oil Recovery Projects" and "Certification for Recovered Oil Tax Rate" as promulgated

by Division Order No. R-9708.

(17) The baseline decline curve to be utilized in determining the occurrence of a positive production response shall consist of production from the Skelly Penrose "B" Unit Well Nos. 18, 28, 33, 39 and 44.

(18) 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



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STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY
Director

EXHIBIT "A"
CASE NO. 10771
DIVISION ORDER NO. R-9955
SKELLY PENROSE "B" UNIT WATERFLOOD PROJECT
APPROVED INJECTION WELLS
LEA COUNTY, NEW MEXICO

Well No.	*Location*	*Unit*	*S-T-R*	*Injection Perforations*	*Packer Depth*	*Tubing Size*	*Injection Pressure (PSIG)*
18	660' FNL - 660' FEL	A	5-23S-37E	3614' - 3744'	3550'	2 3/8"	723
26	1980' FNL - 990' FWL	E	5-23S-37E	3659' - 3768'	3600'	2 3/8"	732
28	1980' FNL - 1980' FEL	G	5-23S-37E	3638' - 3724'	3550'	2 3/8"	726
30	1980' FNL - 660' FWL	E	4-23S-37E	3505' - 3666' (open hole)	3450'	2 3/8"	701
31	1980' FSL - 660' FEL	I	5-23S-37E	3580' - 3698'	3500'	2 3/8"	716
33	1980' FSL - 1980' FWL	K	5-23S-37E	3610' - 3719'	3550'	2 3/8"	722
37	660' FSL - 660' FWL	M	5-23S-37E	3606' - 3730'	3550'	2 3/8"	721
39	660' FSL - 1980' FEL	O	5-23S-37E	3564' - 3685'	3500'	2 3/8"	711
44	660' FNL - 1980' FWL	C	8-23S-37E	3544' - 3655'	3500'	2 3/8"	709