

**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. 12512  
ORDER NO. R-10460-C**

**APPLICATION OF EXXON MOBIL CORPORATION TO CERTIFY A  
WATERFLOOD PROJECT FOR A POSITIVE PRODUCTION RESPONSE  
PURSUANT TO THE NEW MEXICO ENHANCED OIL RECOVERY ACT, EDDY  
COUNTY, NEW MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This case came on for hearing at 8:15 a.m. on October 19, 2000 at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 30th day of October, 2001, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

**FINDS THAT:**

(1) Due public notice has been given, and the Division has jurisdiction of this case and its subject matter.

(2) The applicant, Exxon Mobil Corporation, seeks certification pursuant to Division Rule 30.E (2) of a positive production response within its Avalon (Delaware) Unit Waterflood Project Area, Eddy County, New Mexico.

(3) By Order No. R-10460-B issued in Case No. 11298 on March 12, 1996, the New Mexico Oil Conservation Commission ("Commission"), upon application of Exxon Corporation, approved Statutory Unitization for the Avalon (Delaware) Unit Area comprising the following-described 2118.78 acres, more or less, of state, federal, and fee lands in Eddy County, New Mexico:

**TOWNSHIP 20 SOUTH, RANGE 27 EAST, NMPPM**

Section 25:           E/2 E/2  
Section 36:           E/2 E/2

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM

Section 29: SW/4 SW/4  
Section 30: Lots 1, 2, 3, and 4, SW/4 NE/4, E/2 W/2, SE/4  
Section 31: All  
Section 32: SW/4 NE/4, W/2, and W/2 SE/4

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM

Section 4: Lot 4  
Section 5: Lots 1 and 2  
Section 6: Lots 1 and 2.

(4) By Order No. R-10460-B issued in Case No. 11297, the Commission: (i) authorized Exxon Corporation to institute a waterflood project into the designated and Undesignated Avalon-Delaware Pool within the aforementioned Avalon (Delaware) Unit Area; (ii) limited the extent of the initial waterflood project area, therein designated the Avalon (Delaware) Unit Waterflood Project Area, for allowable and tax credit purposes to the following described 1088.50 acres; and (iii) qualified the Avalon (Delaware) Unit Waterflood Project Area as an "Enhanced Oil Recovery ("EOR") Project" pursuant to the "Enhanced Oil Recovery Act" (NMSA 1978 Sections 7-29A-1 through 7-29A-5):

EDDY COUNTY, NEW MEXICO

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM

Section 30: Lots 1, 2, 3, and 4, SE/4 NW/4, E/2 SW/4, S/2 SE/4  
Section 31: Lots 1, 2, and 3, NE/4, E/2 NW/4, NE/4 SW/4, N/2 SE/4, and SE/4 SE/4  
Section 32: W/2 NW/4, N/2 SW/4, and SW/4 SW/4.

(5) The Division certified that the above-described Avalon (Delaware) Unit Waterflood Project was approved as a qualified secondary recovery project to the New Mexico Taxation and Revenue Department on October 15, 1995.

(6) The evidence presented by the applicant in this case shows that:

- (a) the operator commenced water injection within the project area in late October, 1995;
- (b) there are currently 16 water injection wells in the project area, with three producing wells to be converted to injection at a later date;

(c) there are currently 31 producing wells within the Avalon (Delaware) Unit; however, there will be 28 producing wells when the three wells described in sub-paragraph (b) above are converted to injection wells [Attached to this order as Exhibit "A" is a listing of eligible wells within the Avalon (Delaware) Unit Waterflood Project that qualify for the recovered oil tax rate.];

(d) as of August 31, 2000, the applicant was injecting approximately 4,640 barrels of water per day, and has injected a cumulative 6,307,000 barrels of water. Throughout the life of the unit area the applicant has continuously increased the injection: withdrawal ratio;

(e) the gas/oil ratio for the producing wells in the Avalon (Delaware) Unit Waterflood Project began decreasing in early 1996, and has decreased from 4000 to 1 in October 1995 to approximately 1600 to 1 in August 2000. The gas/oil ratio continues to decrease with increasing water injection;

(f) oil production from the Avalon (Delaware) Unit Waterflood Project began increasing by January, 1999;

(g) oil production continues to increase with increasing water injection; and

(h) the entire project area is benefiting from these enhanced recovery operations.

(7) At the time of the hearing, the applicant requested that December 31, 1998 be established as the date a positive production response occurred within the Avalon (Delaware) Unit Waterflood Project. Even though certain wells within the project area show an earlier positive production response, all wells in the project area showed a response by December 31, 1998. Thus, the applicant's request is reasonable and should be granted.

(8) The positive production response has occurred within the five-year time limit provided by Division Rule 30.E (2) (c) (i).

(9) The producing wells described in Exhibit "A" attached hereto should be eligible

for the reduced tax rate.

(10) Subsequent to the issuance of this order, the applicant should notify the Division:

(a) of the change in status of any of the producing wells shown in Exhibit "A";

(b) in the event new producing wells are drilled within the Avalon (Delaware) Unit Waterflood Project Area; and

(c) of changes in operations within the Avalon (Delaware) Unit Project Area that may affect the certification and resulting reduced tax rate granted herein.

(11) Pursuant to the provisions of Division Rule 30.E (2) (c), the Division Director should notify the Secretary of the New Mexico Taxation and Revenue Department of the certification of positive production response.

**IT IS THEREFORE ORDERED THAT:**

(1) Pursuant to the Division Rule 30.E (2), the application of Exxon Mobil Corporation for certification of a positive production response within its Avalon (Delaware) Unit Waterflood Project is hereby approved effective December 31, 1998.

(2) All producing wells within the Avalon (Delaware) Unit that are located within the initial waterflood project area, hereinafter referred to as the Avalon (Delaware) Unit Waterflood Project, as described below, shall be eligible for the recovered oil tax rate. [Attached to this order as Exhibit "A" is a listing of eligible wells within the Avalon (Delaware) Unit that qualify.]:

EDDY COUNTY, NEW MEXICO  
TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM

Section 30: Lots 1, 2, 3, and 4, SE/4 NW/4, E/2 SW/4, S/2 SE/4

Section 31: Lots 1, 2, and 3, NE/4, E/2 NW/4, NE/4 SW/4, N/2 SE/4, and SE/4 SE/4

Section 32: W/2 NW/4, N/2 SW/4, and SW/4 SW/4.

(3) Pursuant to the provisions of Division Rule 30.E (2) (c), the Division Director shall notify the Secretary of the New Mexico Taxation and Revenue Department of the

certification of positive production response granted herein.

**IT IS FURTHER ORDERED THAT:**

- (4) The applicant shall notify the Division of:
- (a) the change in status of any of the producing wells shown in Exhibit "A";
  - (b) new producing wells that are drilled within the Avalon (Delaware) Unit Waterflood Project Area; and
  - (c) changes in operations within the Avalon (Delaware) Unit Waterflood that may affect the certification and resulting reduced tax rate granted herein.

(5) Jurisdiction of this case 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.



SEAL

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
LORI WROTENBERY  
Director

**Exhibit "A"**  
**Case No. 12512 - Order No. R-10460-C**

*Exxon Mobil Corporation*  
*Producing Wells*  
*Avalon (Delaware) Unit Waterflood Project Area - Avalon-Delaware Pool - Lea County, New Mexico.*

<b>Avalon Delaware Unit Well Number</b>	<b>API Number</b>	<b>Footage Location</b>	<b>Section - Township - Range</b>	<b>Unit</b>	<b>Completion Date</b>
210	30-015-24653	990' FN & WL	30-T20S-R28E	D (Lot 1)	January, 1984
226	30-015-24636	2310' FNL & 990' FWL	30-T20S-R28E	E (Lot 2)	January, 1984
227	30-015-24710	2310' FNL & 1980' FWL	30-T20S-R28E	F	April, 1984
242	30-015-24637	1650' FSL & 990' FWL	30-T20S-R28E	L (Lot 3)	December, 1983
243	30-015-24574	1650' FSL & 1980' FWL	30-T20S-R28E	K	November, 1983
246	30-015-24623	1650' FSL & 1980' FEL	30-T20S-R28E	J	December, 1983
258	30-015-24546	330' FSL & 990' FWL	30-T20S-R28E	M (Lot 4)	October, 1983
259	30-015-24487	330' FSL & 1980' FWL	30-T20S-R28E	N	July, 1983
262	30-015-24414	560' FSL & 1980' FEL	30-T20S-R28E	O	June, 1983
401	30-015-24794	330' FN & EL	36-T20S-R27E	A	August, 1984
433	30-015-23443	2180' FSL & 660' FEL	36-T20S-R27E	I	December, 1980
501	30-015-24331	660' FN & EL	31-T20S-R28E	A	January, 1983
509	30-015-24332	660' FN & WL	31-T20S-R28E	D (Lot 1)	May, 1983
511	30-015-24524	760' FNL & 1980' FWL	31-T20S-R28E	C	August, 1983
514	30-015-24194	660' FNL & 1980' FEL	31-T20S-R28E	B	October, 1982
515	30-015-26370	1305' FN & EL	31-T20S-R28E	A	December, 1990
516	30-015-28665	1310' FNL & 97' FEL	31-T20S-R28E	A	June, 1996
517	30-015-24337	1980' FNL & 560' FEL	31-T20S-R28E	H	May, 1983
522	30-015-02434	1980' FN & WL	31-T20S-R28E	F	February, 1983
525	30-015-24336	2180' FNL & 660' FWL	31-T20S-R28E	E (Lot 2)	December, 1982
530	30-015-24335	1980' FN & EL	31-T20S-R28E	G	January, 1983
536	30-015-24525	2310' FS & EL	31-T20S-R28E	J	October, 1983
539	30-015-28682	2600' FSL & 1322' FWL	31-T20S-R28E	L (Lot 3)	May, 1996
540	30-015-24386	1980' FSL & 660' FWL	31-T20S-R28E	L (Lot 3)	August, 1983
543	30-015-24376	1980' FS & WL	31-T20S-R28E	K	July, 1983
548	30-015-24373	1980' FSL & 660' FEL	31-T20S-R28E	I	August, 1983
609	30-015-24388	660' FN & WL	32-T20S-R28E	D	February, 1983
624	30-015-24410	1980' FNL & 330' FWL	32-T20S-R28E	E	March, 1983
641	30-015-24409	1980' FSL & 610' FWL	32-T20S-R28E	L	May, 1983
643	30-015-24495	1980' FSL & 1650' FWL	32-T20S-R28E	K	July, 1983
657	30-015-24473	660' FSL & 330' FWL	32-T20S-R28E	M	June, 1983

## OIL CONSERVATION DIVISION

October 17, 1995

Exxon Company, USA  
P.O. Box 1600  
Midland, Texas 79702-1600

Attention: Mr. William T. Duncan

**CERTIFICATION OF ENHANCED OIL RECOVERY PROJECT  
FOR RECOVERED OIL TAX RATE**

The New Mexico Oil Conservation Division hereby certifies that the following Enhanced Oil Recovery Project has been approved by the Division as a secondary project, pursuant to the provisions of the *New Mexico Enhanced Oil Recovery Act* (Laws of 1992, Chapter 38). In order to qualify for the *Recovered Oil Tax Rate*, you must apply for certification of positive production response within five years from the date of this certification. Only production from that portion of the project area identified herein which is actually developed for enhanced recovery will qualify for the reduced tax rate.

If operation of this project is terminated for any reason, the operator of the project must notify this Division and the Secretary of the Taxation and Revenue Department not later than the thirtieth day after termination.

NAME OF PROJECT: Avalon (Delaware) Unit Waterflood Project

OCD ORDER NO. R-10460

OPERATOR: Exxon Corporation  
Attn: W.T. DuncanADDRESS: P.O. Box 1600  
Midland, Texas 79702-1600

CERTIFICATION DATE: October 15, 1995

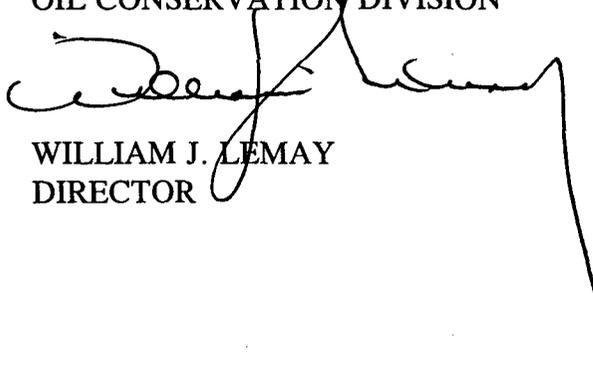
PROJECT AREA of INITIAL INJECTION IMPLEMENTATION:  
(Pursuant to paragraph 8, page 12 of Division Order R-10460)

**TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM**

- Section 30: Lots 1 thru 4, SE/4 NW/4, E/2 SW/4, and S/2 SE/4.  
Section 31: Lots 1 thru 3, NE/4, E/2 NW/4, NE/4 SW/4, N/2 SE/4, and SE/4 SE/4.  
Section 32: W/2 NW/4, N/2 SW/4 and SW/4 SW/4.

APPROVED BY:

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY  
DIRECTOR

S E A L

OIL CONSERVATION DIVISION

October 17, 1995

Department of Taxation and Revenue  
P.O. Box 630  
Santa Fe, NM 87509-0630

Attention: John Chavez, Secretary

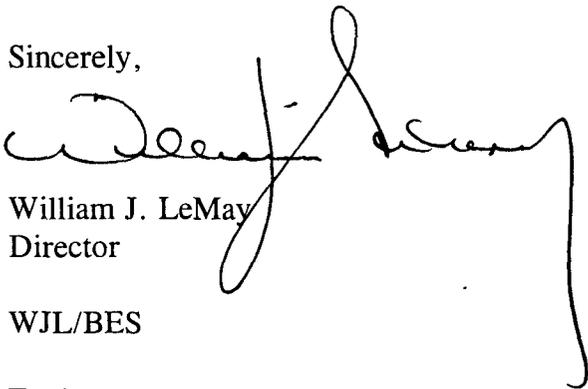
**RE: Certification of EOR Project  
Exxon Company, USA  
Avalon (Delaware) Unit**

Dear Secretary Chavez:

Enclosed is a copy of the certification issued to Exxon Company, USA for its Avalon (Delaware) Unit EOR project, certified by this Division on October 15, 1995, to be a qualified Enhanced Oil Recovery Project. If the operator applies for certification of positive production response within five years from that date, this project will be eligible for the *Recovered Oil Tax Rate* as provided in Laws of 1992, Chapter 38.

Only oil production from that portion of the lands identified in the certification which is actually developed for enhanced recovery will be eligible for the reduced tax rate. At the time positive production response is certified, we will identify for you the specific lands and wells within the project which qualify for the *Recovered Oil Tax Rate*.

Sincerely,

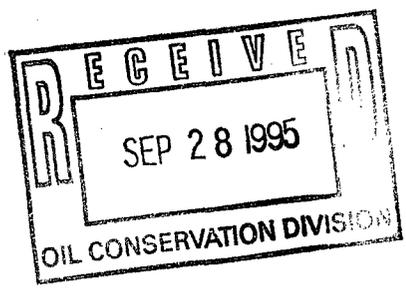
  
William J. LeMay  
Director

WJL/BES

Enclosures

EOR CERT. N/R

**EXXON** COMPANY, U.S.A.  
POST OFFICE BOX 1600 • MIDLAND, TEXAS 79702-1600



MIDLAND PRODUCTION ORGANIZATION

September 27, 1995

Mr. William LeMay  
New Mexico Oil Conservation Division  
2040 South Pacheco  
Santa Fe, New Mexico 87505

Dear Mr. LeMay:

Exxon Corporation, the designated operator of the Avalon (Delaware) Unit pursuant to Division Order No. R-10460, hereby requests the Division to issue a Certificate of Qualification for the project area for the Unit, as approved in the Order. The initial project area is described in Ordering Paragraph No. 8 of said Order. Exxon Corporation wishes to commence injection as soon as possible after October 1, 1995. Your early consideration of our request would be appreciated. We have enclosed a draft certificate and an over-night return envelope, if you wish to use them.

If you need any additional information, please call me at 915/688-6174.

Sincerely,

William T. Duncan, Jr.  
Exxon Corporation

WTD:dh  
data\wtd\lvmay.doc

Enclosures



Exxon Corporation  
Attention: W. T. Duncan  
Post Office Box 1600  
Midland, Texas 79702

**CERTIFICATION OF ENHANCED OIL RECOVERY  
PROJECT FOR RECOVERED OIL TAX RATE**

The New Mexico Oil Conservation Division hereby certifies that the following Enhanced Oil Recovery Project has been approved by the Division as a **secondary** project, pursuant to the provisions of the New Mexico *Enhanced Oil Recovery Act* (L. 1992, Ch. 38). In order to qualify for the *Recovered Oil Tax Rate*, you must apply for certification of positive production response within **five years** from the date of this certification. Only production from that portion of the project area identified herein which is actually developed for enhanced recovery will qualify for the reduced tax rate.

If operation of this project is terminated for any reason, the operator of the project must notify this Division and the Secretary of Taxation and Revenue not later than the thirtieth day after termination.

NAME OF PROJECT:	Avalon (Delaware) Unit Waterflood Project (Avalon (Delaware) Unit)
OCD ORDER NO.:	R-10460
OPERATOR AND ADDRESS:	Exxon Corporation Attn: W. T. Duncan P. O. Box 1600 Midland, Texas 79702
CERTIFICATION DATE:	October 1, 1995

**INITIAL PROJECT AREA:**

**Township 20 South, Range 28 East, NMPM**

Section 30: Lots 1 - 4, SE $\frac{1}{4}$ NW $\frac{1}{4}$ , E $\frac{1}{2}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ SE $\frac{1}{4}$   
Section 31: Lots 1 - 3, NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$   
Section 32: W $\frac{1}{2}$ NW $\frac{1}{4}$ , N $\frac{1}{2}$ SW $\frac{1}{4}$ , and SW $\frac{1}{4}$ SW $\frac{1}{4}$

APPROVED:

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

WILLIAM J. LeMAY, DIRECTOR

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:

**APPLICATION OF EXXON CORPORATION  
FOR A WATERFLOOD PROJECT,  
QUALIFICATION FOR THE RECOVERED  
OIL TAX RATE PURSUANT TO THE  
"NEW MEXICO ENHANCED OIL  
RECOVERY ACT" FOR SAID PROJECT,  
AND FOR 18 NON-STANDARD OIL WELL  
LOCATIONS, EDDY COUNTY, NEW MEXICO.**

*CASE No. 11297*

**APPLICATION OF EXXON CORPORATION  
FOR STATUTORY UNITIZATION, EDDY  
COUNTY, NEW MEXICO.**

*CASE No. 11298*

*Order No. R-10460*

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on June 29, 1995, in Hobbs, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 18th day of September, 1995 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 in Case No. 11298, Exxon Corporation ("Exxon"), seeks the statutory unitization, pursuant to the "Statutory Unitization Act", Sections 70-7-1 through 70-7-21, NMSA (1978), for the purpose of establishing both a secondary recovery and tertiary recovery project, of all mineral interests in the designated and Undesignated Avalon-Delaware Pool comprising 2140.14 acres, more or less, of State, Federal, and fee

lands in Eddy County, New Mexico, said unit to henceforth be known as the Avalon (Delaware) Unit Area; the applicant further seeks approval of the "Unit Agreement" and "Unit Operating Agreement", which were submitted at the time of the hearing in evidence as applicant's Exhibit Nos. 2 and 3.

(3) In Case No. 11297, Exxon seeks authority:

(a) to institute a waterflood project in its proposed Avalon (Delaware) Unit Area by the injection of water into the designated and Undesignated Avalon-Delaware Pool by the injection of water through 18 new wells to be drilled as injection wells and one well to be converted from a producing oil well to an injection well;

(b) to qualify this project for the recovered oil tax rate pursuant to the "New Mexico Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5); and

(c) to drill 18 new producing wells throughout the project area at locations considered to be unorthodox.

(4) The applicant proposes that said unit comprise the following described area in Eddy County, New Mexico:

TOWNSHIP 20 SOUTH, RANGE 27 EAST, NMPM

Section 25: E/2 E/2

Section 36: E/2 E/2

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM

Section 29: SW/4 SW/4

Section 30: Lots 1 through 4, SW/4 NE/4, E/2 W/2, and SE/4

Section 31: All

Section 32: SW/4 NE/4, W/2, and W/2 SE/4

TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM

Section 4: Lot 4

Section 5: Lots 1 and 2

Section 6: Lots 1 and 2

(5) The horizontal confines of said unit are within the governing limits, as specified by Division General Rule 104.A(2), of the Avalon-Delaware Pool with a large part of the proposed area having been reasonably defined by development.

(6) The vertical limits or "unitized formation" of said unitized area is that interval described as the Delaware Mountain Group, extending from 100 feet above the base of the Goat Seep Reef to the top of the Bone Spring formation and including, but not limited to, the Cherry Canyon and Brushy Canyon formations, as identified by the *Compensated Neutron/Lithodensity/Gamma Ray Log* dated September 14, 1990 run in the Exxon Corporation Yates "C" Federal Well No. 36, located 1305 feet from the North and East lines (Unit A) of Section 31, Township 20 South, Range 28 East, NMPM, Eddy County, New Mexico, with the top of the unitized interval being found in said well at a depth of 2,378 feet below the surface (869 feet above sea level) and the base of the unitized interval being found at a depth of 4,880 feet below the surface (1,633 feet below sea level), or stratigraphic equivalents thereof.

(7) The proposed Unit Area contains twelve separate tracts of land, the working interests in which are owned by forty-eight different interest owners. Exxon operates five of the twelve tracts, five tracts are operated by Yates Petroleum Corporation ("Yates"), one tract is operated by Premier Oil & Gas, Inc. ("Premier"), and one tract is operated by MWJ Producing Company. There are twenty-four royalty and overriding royalty interest owners in the proposed Unit Area.

(8) At the time of the hearing, the owners of approximately 97.5% of the working interest, and the owners of over 95% of the royalty and overriding royalty interest, had voluntarily joined in the proposed unitization. The 95% royalty owner approval includes federal lands owned by the United States. The U.S. Bureau of Land Management has indicated its preliminary approval by designating the unit as logical for conducting secondary recovery operations, and the New Mexico Commissioner of Public Lands, acting on behalf of the state's trust lands, has preliminarily approved the proposed unitization.

(9) The applicant has conducted negotiations with interest owners within the proposed unit area for over four years. Therefore, the applicant has made a good faith effort to secure voluntary unitization within the above-described Unit Area.

(10) All interested parties who have not agreed to unitization were notified of the hearing by applicant. At the hearing in this matter, Yates entered its appearance and presented evidence in support of the application. Unit Petroleum Company and MWJ Producing Company, working interest owners, made statements in support of the application.

(11) Premier, the operator and sole working interest owner of Tract No. 6, which comprises the E/2 E/2 of Section 25, Township 20 South, Range 27 East, NMPM, Eddy County, New Mexico, and represents 7.6% of the proposed unit acreage, appeared at the hearing and presented evidence in opposition to the inclusion of Tract 6 within the Unit Area.

(12) Exxon, the largest working interest owner in the proposed Unit Area with 80 percent of the current production, prepared a "*Report of the Technical Committee for the Working Interest Owners*", which was submitted at the time of the hearing in evidence as applicant's Exhibit No. 10, Volumes I and II.

(13) The applicant proposes to institute a waterflood project at an expected cost of \$14,400,000.00 for the secondary recovery of oil and associated gas, condensate, and all associated liquefiable hydrocarbons within and to be produced from the proposed Unit Area (being the subject of Division Case No. 11,297). The estimated reserves recoverable from the waterflood project are 8.2 million barrels of oil.

(14) Said Unit Area also has potential as a tertiary (CO<sub>2</sub> injection) project. Evidence presented at the hearing by the applicant and proponents of this case shows that:

- (a) the estimated recoverable tertiary reserves are 39.9 million barrels of oil;
- (b) if such a CO<sub>2</sub> flood is instituted in the proposed Unit Area, it will likely be the first CO<sub>2</sub> project in the area and could facilitate other CO<sub>2</sub> floods;
- (c) the waterflood project will provide additional data which may justify additional secondary recovery waterflood projects in other Delaware pools in the general area;
- (d) institution of the CO<sub>2</sub> flood depends upon waterflood performance, results of future CO<sub>2</sub> injectivity tests, and perception of future oil prices. A minimum of 3 years of water injection would be required to repressure the reservoir prior to commencing a CO<sub>2</sub> injection program; and
- (e) the participation formula presented is single phase whereby remaining primary oil is weighted by 25%, secondary oil and workover potential is weighted by 50% and tertiary oil is weighted by 25%, which results in Exxon receiving 73.920333% of Unit

production, Yates receiving 4.149893% of Unit production and Premier receiving 1.019231% of Unit production.

(15) Additional testimony was presented by Exxon for approval of said Unit Area because:

- (a) the waterflood project area includes approximately 1100 acres in the center of the Unit Area. The outer or "fringe" tracts were included in the Unit Area based upon their CO<sub>2</sub> flood potential. The "fringe" tracts having little or no primary or secondary production potential will however participate in production from inception of the Unit;
- (b) the "Technical Report" and the Unit Agreement attribute no remaining primary or waterflood reserves to Tract 6, operated by Premier;
- (c) Premier will own 1% of the Avalon (Delaware) Unit despite the fact that Premier's Tract 6 has produced only 0.1% of the cumulative oil to date;
- (d) in addition, Premier is likely to receive positive cash flow from the first day of unit operations because of investment adjustments;
- (e) it would be difficult, if Tract 6 were deleted from the Unit, to waterflood or CO<sub>2</sub> flood Tract 6 separately from the Unit. Furthermore, if Tract 6 is not part of the Unit, production of CO<sub>2</sub>-laden gas from Tract 6 would present operational difficulties; and
- (f) deleting Tract 6 from the Unit Area would require additional negotiations among working interest owners, revision of Unit documents, and other delays. It was further indicated that if Tract 6 is deleted, unitization may never occur.

(16) Premier presented evidence in opposition to the formation of said Unit and contends that Tract 6 should be excluded because:

- (a) the proposed waterflooding portion of this project is the reason for the Unit, while the tertiary recovery portion, or CO<sub>2</sub> injection, has only some probability of happening or not happening;

- (b) under the Exxon analysis the inclusion of the Premier's Tract 6 is not necessary in order to effectively carry on the waterflood portion of this project and that it is premature to include Tract 6 for tertiary recovery;
- (c) under the Exxon analysis there is no increase in ultimate recovery of secondary oil from the Unit by including Tract 6;
- (d) the Exxon analysis of the CO<sub>2</sub> potential is speculative and has not been the subject of any scientific study to determine its feasibility and therefore any forecasted increase in ultimate recovery of tertiary oil from the unit by including Tract 6 is speculative;
- (e) Exxon proposes to include Tract 6 only as a "protection buffer" and assigns no "contributing value" for secondary oil recovery; and
- (f) Premier, as owner of all of said Section 25, is not receiving any "contributing value" for primary or secondary oil and does not desire to divide its property for the formation of said Unit.

(17) Based upon the foregoing, the inclusion of Tract 6 in the proposed unitization is in the best interest of conservation in that it is deemed necessary, as well as fair and reasonable, to effectively carry out tertiary recovery operations. The exclusion of Tract 6 would result in waste and could serve to inhibit CO<sub>2</sub> development not only of this project but others in the area. Further, such unitization as requested and the adoption of Exxon's proposed secondary and tertiary plans for this Unit Area will serve to benefit the working interest and royalty interest owners of the oil and gas rights in the Delaware formation.

(18) The proposed unitized method of operation as applied to the Avalon (Delaware) Unit is feasible and will result with reasonable probability in the increased recovery of substantially more oil and gas from the unitized portion of the Avalon-Delaware Pool than would otherwise be recovered without unitization.

(19) The estimated additional costs of such operations will not exceed the estimated value of the additional oil so recovered plus a reasonable profit.

(20) The applicant's Exhibit Nos. 2 and 3 in this case, being the Unit Agreement and the Unit Operating Agreement, should be incorporated by reference into this order.

(21) The unitized management, operation and further development of the Avalon (Delaware) Unit Area, as proposed, is reasonably necessary to effectively increase the ultimate recovery of oil and gas from the unitized portion of the Avalon-Delaware Pool.

(22) The Avalon (Delaware) Unit Agreement and the Avalon (Delaware) Unit Operating Agreement provide for unitization and unit operation of the Avalon (Delaware) Unit Area upon terms and conditions that are fair, reasonable and equitable, and include:

- (a) a participation formula which will result in fair, reasonable and equitable allocation to the separately owned tracts of the Unit Area of all oil and gas that is produced from the Unit Area and which is saved, being the production that is (i) not used in the conduct of unit operations, or (ii) unavoidably lost;
- (b) a provision for the credits and charges to be made in the adjustment among the owners in the Unit Area for their respective investments in wells, tanks, pumps, machinery, materials and equipment contributed to the unit operators;
- (c) a provision governing how the costs of unit operations including capital investments shall be determined and charged to the separately-owned tracts and how said costs shall be paid, including a provision providing when, how and by whom such costs shall be charged to each owner, or the interest of such owner, and how his interest may be sold and the proceeds applied to the payment of his costs;
- (d) a provision for carrying any working interest owner on a limited or carried basis payable out of production, upon terms and conditions which are just and reasonable, and which allow an appropriate charge for interest for such service payable out of production, upon such terms and conditions determined by the Division to be just and reasonable;
- (e) a provision designating the Unit Operator and providing for supervision and conduct of the unit operations, including the selection, removal and substitution of an operator from among the working interest owners to conduct the unit operations;

- (f) a provision for a voting procedure for decisions on matters to be decided by the working interest owners in respect to which each working interest owner shall have a voting interest equal to his unit participation; and
- (g) a provision specifying the time when the unit operation shall commence and the manner in which, and the circumstances under which, the operations shall terminate and for the settlement of accounts upon such termination.

(23) The statutory unitization of the Avalon (Delaware) Unit Area is in conformity with the above findings, and will prevent waste and protect correlative rights of all interest owners within the proposed Unit Area, and should therefore be approved as requested by Exxon.

(24) The proposed Avalon (Delaware) Unit Area contains undeveloped acreage and acreage that will not be part of the initial waterflood project. Therefore, in compliance with Division General Rule 701.G(3), the initial waterflood project area, for allowable and tax credit purposes, should be reduced to include the following described 1088.50 acres in Eddy County, New Mexico:

TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM

Section 30: Lots 1 through 4, SE/4 NW/4, E/2 SW/4, and S/2 SE/4

Section 31: Lots 1 through 3, NE/4, E/2 NW/4, NE/4 SW/4, N/2 SE/4, and SE/4 SE/4

Section 32: W/2 NW/4, N/2 SW/4, and SW/4 SW/4.

(25) Exhibit "A", attached hereto and made a part hereof, lists the 19 proposed injection wells (18 of which are to be new drills and one is to be a conversion) for the initial waterflood project. It is the applicant's intent to drill the 18 new wells and initially complete them first as oil producing wells and eventually convert them to water injectors. Approval of the unorthodox locations is necessary for "start-up" of said waterflood project.

(26) The waterflood pattern to be utilized initially is to be a 40-acre inverted fivespot comprising the 19 aforementioned water injection wells and 27 producing wells.

(27) The present Delaware oil producing wells within the subject project area and interval are in an advanced state of depletion and should therefore be properly classified as "stripper wells".

(28) The operator of the proposed Avalon (Delaware) Unit Waterflood Project should take all steps necessary to ensure that the injected water enters and remains confined to only the proposed injection interval and is not permitted to escape from that interval and migrate into other formations, producing intervals, pools, or onto the surface from injection, production, or plugged and abandoned wells.

(29) The injection of water into the proposed injection wells should be accomplished through 2-3/8 inch plastic-coated tubing installed in a seal bore assembly 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 seal bore assembly.

(30) Prior to commencing injection operations into the proposed injection wells, the casing in each well should be pressure tested throughout the interval from the surface down to the proposed seal bore assembly setting depth to assure the integrity of such casing.

(31) The injection wells or pressurization system for each well should be so equipped as to limit injection pressure at the wellhead to no more than 490 psi; however, the Division Director should have the authority to administratively authorize a pressure increase upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(32) The operator should give advance notification to the supervisor of the Artesia 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.

(33) The proposed waterflood project 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.

(34) The applicant further requests that the subject waterflood project be approved by the Division as a qualified Enhanced Oil Recovery Project ("EOR") pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(35) The evidence presented indicates that the subject waterflood project meets all the criteria for approval.

(36) The approved "project area" should initially comprise that area described in Finding Paragraph No. (24) above.

(37) 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 proposed project area as described above.

(38) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the operator must apply to the Division for certification of a 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.

(39) 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 application of Exxon Corporation ("Exxon") in Case No, 11,298 for the Avalon (Delaware) Unit, covering 2,118.78 acres, more or less, of State, Federal, and fee lands in the designated and Undesignated Avalon-Delaware Pool, Eddy County, New Mexico is hereby approved for statutory unitization, for the purpose of establishing both a secondary recovery and tertiary recovery project, pursuant to the "Statutory Unitization Act", Sections 70-7-1 through 70-7-21, NMSA (1978).

(2) The Avalon (Delaware) Unit Agreement, and the Avalon (Delaware) Unit Operating Agreement, which were submitted to the Division at the time of the hearing as Exhibits 2 and 3, respectively, are hereby incorporated by reference into this order.

(3) The lands herein designated the Avalon (Delaware) Unit Area shall comprise the following described acreage in Eddy County, New Mexico:

**TOWNSHIP 20 SOUTH, RANGE 27 EAST, NMPM**

Section 25: E/2 E/2

Section 36: E/2 E/2

**TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM**

Section 29: SW/4 SW/4

Section 30: SW/4 NE/4, NW/4, and S/2

Section 31: All

Section 32: SW/4 NE/4, W/2, and W/2 SE/4

**TOWNSHIP 21 SOUTH, RANGE 27 EAST, NMPM**

Section 4: Lot 4

Section 5: Lots 1 and 2

Section 6: Lots 1 and 2

(4) The vertical limits or "unitized formation" of said unitized area shall include that interval described as the Delaware Mountain Group, extending from 100 feet above the base of the Goat Seep Reef to the top of the Bone Spring formation and including, but not limited to, the Cherry Canyon and Brushy Canyon formations, as identified by the *Compensated Neutron/Lithodensity/Gamma Ray Log* dated September 14, 1990 run in the Exxon Corporation Yates "C" Federal Well No. 36, located 1305 feet from the North and East lines (Unit A) of Section 31, Township 20 South, Range 28 East, NMPM, Eddy County, New Mexico, with the top of the unitized interval being found in said well at a depth of 2,378 feet below the surface (869 feet above sea level) and the base of the unitized interval being found at a depth of 4,880 feet below the surface (1,633 feet below sea level), or stratigraphic equivalents thereof.

(5) Since the persons owning the required statutory minimum percentage of interest in the Unit Area have approved, ratified, or indicated their preliminary approval of the Unit Agreement and the Unit Operating Agreement, the interests of all persons within the Unit Area are hereby unitized whether or not such persons have approved the Unit Agreement or the Unit Operating Agreement in writing.

(6) The applicant as Unit operator shall notify in writing the Division Director of any removal or substitution of said Unit operator by any other working interest owner within the Unit Area.

**IT IS FURTHER ORDERED THAT:**

(7) Exxon is hereby authorized to institute a waterflood project in its Avalon (Delaware) Unit Area by the injection of water into the designated and Undesignated Avalon-Delaware Pool, as found in that stratigraphic interval between 2378 feet to 4880 feet as identified by the *Compensated Neutron/Lithodensity/Gamma Ray Log* dated September 14, 1990 run in the Exxon Corporation Yates "C" Federal Well No. 36, located 1305 feet from the North and East lines (Unit A) of Section 31, Township 20 South,

Range 28 East, NMPM, Eddy County, New Mexico, through nineteen certain wells as further described in Exhibit "A" attached hereto and made a part hereof.

(8) In compliance with Division General Rule 701.G(3), the initial waterflood project area, for allowable and tax credit purposes, shall comprise only the following described 1088.50 acres in Eddy County, New Mexico:

**TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM**

Section 30: Lots 1 through 4, SE/4 NW/4, E/2 SW/4, and S/2 SE/4

Section 31: Lots 1 through 3, NE/4, E/2 NW/4, NE/4 SW/4, N/2 SE/4, and SE/4 SE/4

Section 32: W/2 NW/4, N/2 SW/4, and SW/4 SW/4.

(9) The applicant must take all steps necessary to ensure that the injected water only enters and remains confined to the proposed injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

**IT IS FURTHER ORDERED THAT:**

(10) Injection shall be accomplished through 2-3/8 inch plastic-coated tubing installed in a seal bore assembly set approximately within 100 feet of the uppermost injection perforation; the casing-tubing annulus in each well shall be filled with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(11) The 19 water 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 490 psi.

(12) The Division Director shall have the authority to administratively authorize a pressure limitation in excess of the 490 psi herein authorized upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(13) Prior to commencing injection operations, the casing in each injection well shall be pressure-tested throughout the interval from the surface down to the proposed seal bore assembly setting depth, to assure the integrity of such casing.

(14) The operator shall give advance notification to the supervisor of the Artesia District Office of the Division of the date and time of the installation of injection equipment and of the mechanical integrity pressure-test in order that the same may be witnessed.

(15) The applicant shall immediately notify the supervisor of the Artesia District Office of the Division of the failure of the tubing, casing or seal bore assembly in any of the injection wells, the leakage of water or oil from or around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area, and shall take such steps as may be timely and necessary to correct such failure or leakage.

(16) The applicant shall conduct injection operations in accordance with Division Rule Nos. 701 through 708 and shall submit monthly progress reports in accordance with Division Rule Nos. 706 and 1115.

**FURTHERMORE:**

(17) The subject waterflood project is hereby approved as an Enhanced Oil Recovery Project ("EOR") pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(18) The approved "project area" shall initially comprise that area described in Decretory Paragraph No. (8) above.

(19) 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 proposed project area as described above.

(20) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the operator must apply to the Division for certification of a 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.

(21) The injection authority granted herein for the proposed injection wells 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.

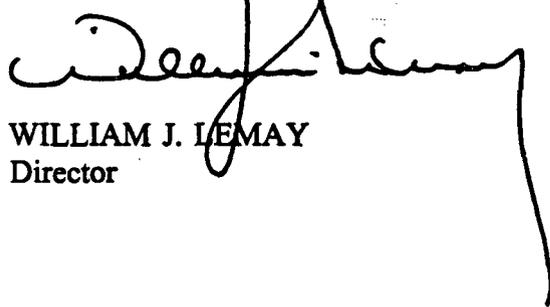
**FURTHERMORE:**

(22) The applicant is authorized to drill the first eighteen wells listed on Exhibit "A" attached hereto. The applicant may complete the wells as producers and later convert them to injection.

(23) 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

EXHIBIT "A"

CASE NO. 11297  
ORDER NO R-10460

EXXON CORPORATION  
PROPOSED WATER INJECTION WELLS/UNORTHODOX OIL WELL LOCATIONS  
AVALON (DELAWARE) UNIT WATERFLOOD PROJECT AREA  
TOWNSHIP 20 SOUTH, RANGE 28 EAST, NMPM,  
EDDY COUNTY, NEW MEXICO

WELL NO.	ORIGINALLY PROPOSED LOCATION	SECTION	ACTUAL STACKED LOCATION	PROPOSED PERFORATED INTERVAL FEET
1212	1668' FNL & 1455' FWL	30	1665' FNL & 1452' FWL	2486 - 4817
1412	2310' FSL & 1485' FWL	30	2301' FSL & 1485' FWL	2509 - 4832
1612	992' FSL & 1489' FWL	30	1152' FSL & 1489' FWL	2492 - 4798
1614	1046' FSL & 2677' FWL	30	NO CHANGE	2498 - 4853
1812	183' FNL & 1397' FWL	31	101' FNL & 1355' FWL	2467 - 4774
1814	123' FNL & 2673' FEL	31	NO CHANGE	2496 - 4844
1816	46' FNL & 1402' FEL	31	43' FNL & 1458' FEL	2520 - 4902
2012	1386' FNL & 1314' FWL	31	NO CHANGE	2481 - 4800
2014	1335' FNL & 2681' FWL	31	1388' FNL & 2750' FWL	2495 - 4843
2018	1317' FNL & 97' FEL	31	1310' FNL & 97' FEL	2501 - 4924
2212	2600' FSL & 1322' FWL	31	NO CHANGE	2496 - 4817

WELL NO.	ORIGINALLY PROPOSED LOCATION	SECTION	ACTUAL STACKED LOCATION	PROPOSED PERFORATED INTERVAL FEET
2214	2699' FSL & 2549' FWL	31	2610' FSL & 2549' FWL	2509 - 4841
2216	2566' FNL & 1377' FEL	31	2564' FNL & 1377' FEL	2505 - 4885
2218	2423' FSL & 78' FEL	31	2517' FSL & 78' FEL	2477 - 4918
2220	2648' FSL & 1127' FWL	32	2658' FSL & 1127' FWL	2489 - 4945
2412	1337' FSL & 1324' FWL	31	NO CHANGE	2535 - 4826
2418	1356' FSL & 99' FEL	31	NO CHANGE	2478 - 4911
2420	1323' FSL & 1107' FWL	32	1333' FSL & 1107' FWL	2479 - 4935
2016*	1305' FNL & 1305' FEL	31	NO CHANGE	2478 - 4880

\*Already drilled under prior Division Order (previously designated the Exxon Corporation Yates "C" Federal No. 36).