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\*NOT LICENSED IN NEW MEXICO  
\*\*FORMERLY COMPRISING THE FIRM OF  
CULTON, MORGAN, BRITAIN & WHITE, P.C.

August 31, 1995

**HAND DELIVERED**

Michael E. Stogner  
Oil Conservation Division  
2040 So. Pacheco Street  
Santa Fe, New Mexico 87502

**Re: Avalon (Delaware) Unit**

Dear Mr. Stogner:

Enclosed, in case it is of any assistance to you, is a proposed order regarding the injection application.

Very truly yours,

HINKLE, COX, EATON, COFFIELD  
& HENSLEY, P.L.L.C., Ltd., Co.

  
James Bruce

Enclosure

cc: W. Thomas Kellahin, Esq. (w/encl.)

**RECEIVED**

**AUG 31 1995**

*Oil Conservation Division*

**DRAFT**

**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. 11,297  
ORDER NO. R-\_\_\_\_\_**

**THE 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.**

**ORDER OF THE DIVISION  
(Proposed by Exxon Corporation)**

**BY THE DIVISION:**

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

**NOW**, on this \_\_\_\_ day of August, 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) At the time of the hearing this case was consolidated with Division Case No. 11298 for the purpose of testimony. Case No. 11298 is a companion case concerning statutory unitization.

(3) The applicant, Exxon Corporation, seeks authority to institute a waterflood project in its proposed Avalon (Delaware) Unit Area (Division Case No. 11298), Eddy County, New Mexico, by the injection of water into the 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.

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

Township 20 South, Range 27 East, NMPM

Section 25:  $E\frac{1}{2}E\frac{1}{2}$

Section 36:  $E\frac{1}{2}E\frac{1}{2}$

Township 20 South, Range 28 East, NMPM

Section 29:  $SW\frac{1}{4}SW\frac{1}{4}$

Section 30: Lots 1-4,  $E\frac{1}{2}W\frac{1}{2}$ ,  $SW\frac{1}{4}NE\frac{1}{4}$ ,  $SE\frac{1}{4}$

Section 31: Lots 1-4,  $E\frac{1}{2}W\frac{1}{2}$ ,  $E\frac{1}{2}$  (All)

Section 32:  $SW\frac{1}{4}NE\frac{1}{4}$ ,  $W\frac{1}{2}$ ,  $W\frac{1}{2}SE\frac{1}{4}$

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 proposed Unit Area includes portions of the designated and undesignated Avalon-Delaware Pool.

(6) The above described area contains undeveloped acreage and acreage that will not be part of the initial waterflood project. Therefore, in compliance with Division Rule 701.G(3), the project area 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 1-4,  $SE\frac{1}{4}NW\frac{1}{4}$ ,  $E\frac{1}{2}SW\frac{1}{4}$ ,  $S\frac{1}{2}SE\frac{1}{4}$

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:  $W\frac{1}{2}W\frac{1}{2}$ ,  $NE\frac{1}{4}SW\frac{1}{4}$

(7) 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."

(8) Surface injection pressure on each well will initially be limited to 0.2 psi/foot. Each well should initially be equipped with a pressure gauge and the pressurization system should initially be equipped with a pressure activated bypass valve and a maximum pressure alarm.

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

(10) The applicant submitted data on the prospective injection wells, water wells in the area, and all other wells (including plugged wells) which penetrate the zone of interest within 1/2-mile of each of the proposed injection wells. This data shows that wells in the area are cased and plugged so as to protect fresh water and prevent fluid migration from the injection zone, and includes testimony indicating no evidence of open faults or any other hydrologic connection between the injection zone and the fresh water resources in the area.

✓ (11) 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.

✓ (12) 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.

✓ (13) 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.

✓ (14) 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.

(15) 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.

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

(17) The applicant submitted a unit production performance curve showing oil, gas and water production from 1983 to 1995. Oil production peaked at approximately 1760 barrels per month in 1984 and has now declined to approximately 400 barrels per month. Slight increases in production were shown in the early 1990's in response to an increase in the gas:oil ratio for the Avalon-Delaware Pool (Order No. R-6368, as amended) and well workovers.

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

(19) The approved "project area" should initially comprise that area described in Finding Paragraph No. (6) above.

(20) 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.

(21) 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.

(22) The waterflood project is expected to cost \$14,400,000 and recover an additional 8.2 million barrels of oil.

(23) 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.

(24) The applicant requested approval of eighteen unorthodox oil well locations, being the first 18 wells described on Exhibit "A." The eighteen wells will initially be producing wells, but after a short period of production will be converted to injection. Approval of the unorthodox locations is necessary for the waterflood project and should be granted.

**IT IS THEREFORE ORDERED THAT:**

(1) The applicant, Exxon Corporation, is hereby authorized to institute a waterflood project in its Avalon (Delaware) Unit Area (Division Case No. 11298), Eddy County, New Mexico, by the injection of water into the 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.

(2) The waterflood project, hereby designated the Avalon (Delaware) Unit Area, as further described below, which was the subject of Division Case No. 11298 heard in combination with this case:

**AVALON (DELAWARE) UNIT  
WATERFLOOD PROJECT  
EDDY COUNTY, NEW MEXICO**

**Township 20 South, Range 27 East, NMPM**

Section 25: E $\frac{1}{2}$ E $\frac{1}{2}$   
Section 36: E $\frac{1}{2}$ E $\frac{1}{2}$

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

Section 29: SW $\frac{1}{4}$ SW $\frac{1}{4}$   
Section 30: Lots 1-4, E $\frac{1}{2}$ W $\frac{1}{2}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , SE $\frac{1}{4}$   
Section 31: Lots 1-4, E $\frac{1}{2}$ W $\frac{1}{2}$ , E $\frac{1}{2}$  (All)  
Section 32: SW $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$

Township 21 South, Range 27 East, NMPM

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

(3) However, 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 1-4, 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 $\frac{1}{2}$ W $\frac{1}{2}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$

(4) 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:**

(5) 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.

(6) The injection wells or pressurization system for each injection well shall be so equipped as to initially limit injection pressure at the wellhead to no more than 0.2 psi/foot of depth to the top perforation..

(7) Any additional increase in the injection pressure limitation placed upon any well in the project area shall only be approved by the Santa Fe Office of the Division.

(8) 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.

(9) 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.

(10) 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.

(11) 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:**

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

(13) The approved "project area" shall initially comprise that area described in Decretory Paragraph No. (3) above.

(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 proposed 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 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.

(16) 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:**

(17) 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.

(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 herein above designated.

STATE OF NEW MEXICO

OIL CONSERVATION DIVISION

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William J. LeMay  
Director

SEAL

# EXHIBIT "A"

CASE NO. 11297

ORDER NO. R- \_\_\_\_\_

## Exxon Corporation Unorthodox Well Locations Avalon (Delaware) Unit Waterflood Project Area

Township 20 South, Range 28 East, NMPM,  
Eddy County, New Mexico

Well Name and Number	Originally Proposed Location	Section	Actual Staked Location
AVALON DELAWARE UNIT 1212	1668 FNL & 1455 FWL	30	1665' FNL & 1452' FWL
AVALON DELAWARE UNIT 1412	2310 FSL & 1485 FWL	30	2301' FSL & 1485' FWL
AVALON DELAWARE UNIT 1612	992 FSL & 1489 FWL	30	1152' FSL & 1489' FWL
AVALON DELAWARE UNIT 1614	1046 FSL & 2677 FWL	30	No change
AVALON DELAWARE UNIT 1812	183 FNL & 1397 FWL	31	101' FNL & 1355' FWL
AVALON DELAWARE UNIT 1814	123 FNL & 2673 FEL	31	No change
AVALON DELAWARE UNIT 1816	46 FNL & 1402 FEL	31	43' FNL & 1458' FEL
AVALON DELAWARE UNIT 2012	1386 FNL & 1314 FWL	31	No change
AVALON DELAWARE UNIT 2014	1335 FNL & 2681 FWL	31	1388' FNL & 2750' FWL
AVALON DELAWARE UNIT 2018	1317 FNL & 97 FEL	31	1310' FNL & 97' FEL
AVALON DELAWARE UNIT 2212	2600 FSL & 1322 FWL	31	No change
AVALON DELAWARE UNIT 2214	2699 FSL & 2549 FWL	31	2610' FSL & 2549' FWL
AVALON DELAWARE UNIT 2216	2566 FNL & 1377 FEL	31	2564' FNL & 1377' FEL
AVALON DELAWARE UNIT 2218	2423 FSL & 78 FEL	31	2438' FSL & 78' FEL
AVALON DELAWARE UNIT 2220	2648 FSL & 1127 FWL	32	2658' FSL & 1127' FWL
AVALON DELAWARE UNIT 2412	1337 FSL & 1324 FWL	31	No change
AVALON DELAWARE UNIT 2418	1356 FSL & 99 FEL	31	No change
AVALON DELAWARE UNIT 2420	1323 FSL & 1107 FWL	32	1333' FSL & 1107' FWL
AVALON DELAWARE UNIT 2016*	1305 FNL & 1305 FEL	31	No change

\*Already drilled under prior Division Order (previously designated the Exxon Corporation Yates "C" Fed. #36).