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. 10960
Order No. R-10151

APPLICATION OF MEWBOURNE OIL COMPANY FOR A WATERFLOOD PROJECT AND QUALIFICATION FOR THE RECOVERED OIL TAX RATE, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on April 28, 1994 at Santa Fe, New Mexico, before Examiner Jim Morrow.

NOW, on this 14th day of July, 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 cause and the subject matter thereof.

(2) At the time of the hearing this case was consolidated with Division Case No. 10959 for the purpose of testimony. Case No. 10959 is a companion case concerning statutory unitization.

(3) The applicant, Mewbourne Oil Company, seeks authority to institute a waterflood project in its proposed Querecho Plains Queen Associated Sand Unit Area (Division Case No. 10959), Lea County, New Mexico, by the injection of water into the Querecho Plains-Queen Associated Pool, as found in that stratigraphic interval between 3886 feet to 4222 feet as measured on the *Welex - Compensated Acoustic Velocity Log* run on July 15, 1983 in the applicant's Federal Well No. 7 located 330 feet from the North line and 990 feet from the East line (Unit A) of Section 27, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, through ten certain wells as further described in Exhibit "A" attached hereto and made a part hereof.

(4) It is proposed that the waterflood project area coincide with the boundary o the Querecho Plains Queen Associated Sand Unit Area in Lea County, New Mexico, a further described below, which was the subject of Division Case No. 10959 and was hear in combination with this case:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 21: S/2 SE/4
Section 22: S/2
Section 23: S/2 and S/2 NW/4
Section 26: N/2 N/2
Section 27: N/2 and N/2 SW/4
Section 28: NE/4 SE/4, N/2 NE/4, and SE/4 NE/4

(5) The above-described area contains several tracts of undeveloped acreage; therefore, in compliance with Division General Rule 701.G(1) the project area as requested should be reduced to include only those oil spacing and proration units within the proposed area that have experienced production from the Querecho Plains-Queen Associated Pool. The S/2 SE/4 of Section 21 should also be removed from the project area because of the reasons explained in Finding Paragraph No. 21 of this order. The resulting project area should contain the following described 1000 acres in Lea County, New Mexico:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM
Section 22: S/2
Section 23: SW/4, S/2 NW/4 and NE/4 SE/4
Section 26: NW/4 NW/4
Section 27: N/2 NE/4, SE/4 NE/4, S/2 NW/4, NE/4 NW/4 and N/2 SW/4
Section 28: SE/4 NE/4

(6) The present Queen Associated 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".

(7) The applicant requested that maximum surface injection pressure be set at 1400 psi. In support of this request, the applicant's witness used initial shut-in pressure and fluid gradients from the fracture treatments of seventeen wells in the pool, but failed to prove that 1400 psi surface injection pressure would not cause fracturing in the Queen-Penrose interval.

(8) 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 777 PSI because the increase in surface injection pressure as requested by the applicant was not supported with step rate tests.

(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 operator of the proposed Querecho Plains Queen Associated Sand 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.

(11) The applicant submitted data concerning all plugged and producing wells within the area of review. There are five wells which may not be plugged in such a manner which will assure that their wellbores will not serve as a conduit for movement of injected fluid out of the injection interval. Three of the wells are located outside the zero contour lines of the Queen and Penrose porosity isopach maps and should pose no problem. The other two following described wells should be re-plugged in a manner which will assure that the wellbores will not serve as a conduit for migration of injection fluid to the satisfaction of the Hobbs District Supervisor.

Plugged Wells:

Oil Associates, Inc.
Edwards Well No. 1
660' FSL & 660' FWL (Unit M), Section 22;

H & S Oil Company
Anadarko Well No. 1-Y
1980' FNL & 1995' FWL (Unit F), Section 27.

(12) There are five active producing wells in the area of review which do not have cement covering the Queen-Penrose interval. These wells, and their casing program and calculated cement tops, are listed below. These wells will require remedial cement operations in a manner which will assure that the wellbores will not serve as a conduit for migration of injection fluid to the satisfaction of the Hobbs District Supervisor.

Anadarko Pet. Co.	Cavalcade Federal No. 3	I-21-18S-32E
	13 3/8" @ 753' w/750 sx	TOC - Surface
	8 5/8" @ 3465' W/1700 sx	TOC - Surface
	5 1/2" @ 10,787' w/400 sx	TOC - 8880'
Mewbourne Oil Co.	Murjo Federal Well No. 1	E-23-18S-32E
	13 3/8" @ 350' w/350 sx	TOC - Surface
	8 5/8" @ 2777' w/1200 sx	TOC - Surface
	5 1/2" @ 10,800' w/650 sx	TOC - 7701'
Mewbourne Oil Co.	Burleson Federal No. 1	B-26-18S-32E
	11 3/4" @ 350' w/485 sx	TOC - Surface
	8 5/8" @ 2800' w/2250 sx	TOC - Surface
	4 1/2" @ 8700' w/1205 sx	TOC - 4331'
Mewbourne Oil Co.	Sprinkle Federal No. 3	E-26-18S-32E
	11 3/4" @ 350' w/485 sx	TOC - Surface
	8 5/8" @ 2767' w/1700 sx	TOC - Surface
	5 1/2" @ 8710' w/700 sx	TOC - 5373'
Santa Fe Energy	Sprinkle Federal No. 4	F-26-18S-32E
	13 3/8" @ 353' w/370 sx	TOC - Surface
	8 5/8" @ 2810' w/1050 sx	TOC - Surface
	5 1/2" @ 9700' w/900 sx	TOC - 5409'

(13) Evidence on the corrosive nature of the proposed injection fluid was submitted by the applicant in support of its request to utilize "bare steel" tubing instead of internally plastic-coated tubing at this time. The Division requires plastic-coated tubing on injection wells because even though fresh water is used for initial injection, this water is recirculated and injected with producted water from the Queen-Penrose formation, which can be corrosive.

(14) The injection of water into the proposed injection wells should be accomplished either through 2 3/8-inch or 2 7/8-inch plastic-coated 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.

(15) 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 packer setting depth, to assure the integrity of such casing.

(16) The injection wells or pressurization system for each well should be so equipped as to initially limit injection pressure at the wellhead to no more than 777 psi.

(17) Any further increase in the injection pressure limitation placed upon any well in the project area should only be approved after the Santa Fe office of the Division has reviewed evidence showing that increased injection pressure will not result in fracturing.

(18) 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.

(19) 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.

(20) 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).

(21) The applicant's witness submitted a unit area production performance curve showing oil, gas and water production from 1973 to 1993. Oil production peaked at approximately 12,000 barrels per month in 1983 and has now declined to less than 2500 barrels per month. Slight increases in production were shown in 1987 and 1991 in response to injection in Section 27 outside the unit area and later into the Cavalcade Federal 21 Well No. 4 in Section 21 as approved by Division Order No. R-9240, dated July 1, 1990. While injection outside the unit area had some slight affect on unit production, it does not constitute an area project and would not disqualify any part of the project for approval under the "Enhanced Oil Recovery Act." However, as required by Rule D.2, Exhibit "A" of Division Order No. R-9708, the project area should have the S/2 SE/4 of Section 21 removed because of the injection into the Cavalcade Federal 21 Well No. 4. Average injection rate into the well in 1993 was 66 barrels of water per day. Total injection as of December 1993 was 88,208 barrels.

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

(23) The approved "project area" should initially comprise that area described in Finding Paragraph No. (5) above.

(24) 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.

(25) 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.

(26) The project is expected to cost at least $592,000 and recover an additional 220,000 barrels of oil.

(27) The applicant requested special operating rules for the unit which would provide for administrative approval of unorthodox locations and injection wells. Division General Rule 104.F(1) and 701.G currently provide for the administrative procedures, therefore the special rules are not needed.

(28) 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, Mewbourne Oil Company, is hereby authorized to institute a waterflood project in its Querecho Plains Queen Associated Sand Unit Area (Division Case No. 10959), Lea County, New Mexico, by the injection of water into the Querecho Plains-Queen Associated Pool (as found in that stratigraphic interval between 3886 feet to 4222 feet as measured on the *Welex - Compensated Acoustic Velocity Log* run on July 15, 1983 in the applicant's Federal "E" Well No. 7 located 330 feet from the North line and 990 feet from the East line (Unit A) of Section 27, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico) through ten certain wells as further described in Exhibit "A" attached hereto and made a part hereof.

(2) The waterflood project, hereby designated the Querecho Plains Queen Associated Sand Unit Waterflood Project, shall coincide with the boundary of the Querecho Plains Queen Associated Sand Unit Area, as further described below, which was the subject of Division Case No. 10959 heard in combination with this case:

QUERECHO PLAINS QUEEN ASSOCIATED SAND UNIT
WATERFLOOD PROJECT
LEA COUNTY, NEW MEXICO

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 21:	S/2 SE/4
Section 22:	S/2
Section 23:	S/2 and S/2 NW/4
Section 26:	N/2 N/2
Section 27:	N/2 and N/2 SW/4
Section 28:	NE/4 SE/4, N/2 NE/4, and SE/4 NE/4

(3) However, the initial waterflood project area, for allowable and tax credit purposes, shall comprise only the following described 1000 acres in Lea County, New Mexico:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 22:	S/2
Section 23:	SW/4, S/2 NW/4 and NE/4 SE/4
Section 26:	NW/4 NW/4
Section 27:	N/2 NE/4, SE/4 NE/4, S/2 NW/4, NE/4 NW/4 and N/2 SW/4
Section 28:	SE/4 NE/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.

PROVIDED HOWEVER THAT:

(5) Prior to initiating injection within one-half mile of any of the wells listed below, the applicant shall re-plug said wells in a manner which will assure that these wellbores will not serve as a conduit for migration of injected fluid to the satisfaction of the supervisor of the Hobbs District Office of the Division.

Plugged Wells:

Oil Associates, Inc.
Edwards Well No. 1
(Unit M), Section 22;

H & S Oil Company
Anadarko Well No. 1-Y
(Unit F), Section 27.

(6) Prior to initiating injection within one-half mile of any of the five active, producing wells listed below, the applicant shall perform remedial cement operations on said wells in a manner which will assure that these wellbores will not serve as a conduit for migration of injected fluid to the satisfaction of the supervisor of the Hobbs District Office of the Division.

Producing Wells:

Anadarko Petroleum Company
Cavalcade Federal No. 3
(Unit I), Section 21;

Mewbourne Oil Company
Murjo Federal Well No. 1
(Unit E), Section 23;

Mewbourne Oil Company
Burleson Federal No. 1
(Unit B), Section 26;

Mewbourne Oil Company
Sprinkle Federal Well No. 3
(Unit E), Section 26; and,

Santa Fe Energy Company
Sprinkle Federal Well No. 4
(Unit F), Section 26,

all in Township 18 South, Range 32 East, NMPM,
Lea County, New Mexico.

IT IS FURTHER ORDERED THAT:

(7) Injection shall be accomplished through 2 3/8-inch or 2 7/8-inch plastic-coated tubing installed in a packer 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.

(8) 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 777 psi.

(9) 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.

(10) 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 packer setting depth, to assure the integrity of such casing.

(11) 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-test in order that the same may be witnessed.

(12) The applicant 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 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.

(13) 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:

(14) 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).

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

(16) 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.

(17) 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.

(18) 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.

(19) 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. 10960
ORDER NO. R-10151

Mewbourne Oil Company
Proposed Injection Well Locations
Querecho Plains Queen Associated Sand Unit Waterflood Project Area

Township 18 South, Range 32 East, NMPM,
Lea County, New Mexico

Well Name and Number	Footage Location	Section	Unit	Proposed Injection Interval (Feet)
Cavalcade Federal Well No. 4	400' FSL & 660' FEL	21	P	4096 - 4130
Bennett Federal Well No. 1	660' FSL & 1650' FEL	22	O	3897 - 4138
Flip Federal Well No. 1	1650' FNL & 330' FWL	23	E	4143 - 4150
Edith Federal Well No. 2	1980' FSL & 1980' FEL	23	J	3953 - 4224
Marshall Federal Well No. 1	660' FSL & 1980' FWL	23	N	4176 - 4190
Walker Federal Well No. 1	330' FNL & 330' FWL	26	D	3914 - 3947
Federal "E" Well No. 8	1650' FNL & 660' FEL	27	H	3934 - 4198
Anadarko Federal Well No. 2	1650' FSL & 1980' FWL	27	K	3888 - 4026
Anadarko Federal Well No. 3	1650' FSL & 990' FWL	27	L	3830 - 4060
Federal "E" Well No. 9	1980' FNL & 330' FEL	28	H	3875 - 4152