



STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION



BRUCE KING  
GOVERNOR

ANITA LOCKWOOD  
CABINET SECRETARY

POST OFFICE BOX 2088  
STATE LAND OFFICE BUILDING  
SANTA FE, NEW MEXICO 87504  
(505) 827-5800

October 8, 1993

HINKLE, COX, EATON,  
COFFIELD & HENSLEY  
Attorneys at Law  
P. O. Box 2068  
Santa Fe, New Mexico 87501

RE: CASE NO. 10762  
ORDER NO. R-9737-A

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Sincerely,

*Sally E. Martinez*  
Sally E. Martinez  
Administrative Secretary

cc: BLM - Carlsbad  
Rick Brown - OCD  
Donna McDonald - OCD  
David Abbey

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. 10762*  
*Order No. R-9737-A*

**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 July 1, 1993, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 13<sup>th</sup> day of October, 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) At the time of the hearing this case was consolidated with Division Case No. 10761 for the purpose of testimony.

(3) By Division Order No. R-9737, issued in Case No. 10497 and dated October 1, 1992, Mewbourne Oil Company was authorized to convert its Government "K" Well No. 2, located 1950 feet from the South line and 1980 feet from the West line (Unit K) of Section 23, and its Federal "E" Well No. 11, located 660 feet from the North line and 530 feet from the East line (Unit A) of Section 27, both in Township 18 South,

Range 32 East, NMPM, Lea County, New Mexico, into water injection wells for the purpose of testing the "injectivity" of the Querecho Plains-Upper Bone Spring Pool for a sufficient period of time to establish stabilized injection rates in order to determine the feasibility of commencing a waterflood project in this general area to be unitized at a later date.

(4) The applicant, Mewbourne Oil Company, at this time seeks authority to institute a waterflood project in its proposed Querecho Plains Bone Spring Sand Unit Area (Division Case No. 10761), Lea County, New Mexico, by the injection of water into the designated and Undesignated Querecho Plains-Upper Bone Spring Pool, as found in that stratigraphic interval between 8,328 feet to 8,620 feet as measured on the *Welex - Spectral Density Dual Spaced Neutron Log* ran on November 28, 1987 in the applicant's Federal Well No. 4 located 660 feet from the North line and 1650 feet from the East line (Unit B) of Section 23, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, through fifteen certain wells to be converted from producing wells to injectors, as further described in Exhibit "A" attached hereto and made a part hereof.

(5) It is proposed that the waterflood project area coincide with the boundary of the Querecho Plains Bone Spring Sand Unit Area in Lea County, New Mexico, as further described below, which was the subject of Division Case No. 10761 and was heard in combination with this case:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 13: S/2 SW/4  
Section 14: SE/4  
Section 22: NE/4 SE/4 and S/2 SE/4  
Section 23: All  
Section 24: W/2 NW/4 and SW/4 SW/4  
Section 26: N/2  
Section 27: All  
Section 28: E/2

(6) 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-Upper Bone Spring Pool, being the following described 2,040 acres in Lea County, New Mexico:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 13: SW/4 SW/4  
Section 14: SE/4  
Section 22: SE/4 SE/4  
Section 23: NE/4, S/2 NW/4 and S/2  
Section 24: W/2 NW/4 and SW/4 SW/4  
Section 26: N/2 NE/4, SW/4 NE/4 and NW/4  
Section 27: E/2 NE/4, SW/4 NE/4, SE/4 NW/4 and E/2 SW/4

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

(8) The results of the injectivity test approved by said Order No. R-9737 indicates that both of the test wells are capable of injection rates of 700 to 800 barrels of water per day at the maximum injection pressure of 1650 psi permitted by said Order No. R-9737. Further, injection surveys from both wells indicated that the injected waters remained confined to the Upper Bone Spring interval.

(9) The applicant further requests a surface limitation pressure in excess of the Division's guidelines of 0.2 psi per foot of depth, but not in excess of 2,000 psi surface pressure.

(10) In support of this request the applicant presented additional results from its injectivity tests, showing that the Delaware produced water utilized for injection had a gradient hydrostatic head of 0.51 psi per foot. While injecting this "heavy water" at the maximum 1650 psi (as permitted by Order R-9737) the total gradient hydrostatic head generated at depth was equal to 0.70 psi per foot. The applicant testified that the average formation fracture gradient for the Querecho Plains-Upper Bone Spring Pool is equal to 0.74 psi per foot as determined by the initial shut-in pressures from fracture stimulations which were performed on several wells in the general area. Injected waters to be utilized in this project initially will consist of fresh water to be purchased from the City of Carlsbad, New Mexico (approximately 90 percent of volume) with the remaining volume to be produced salt water from surrounding operators. The fluid gradient for this "less heavy" water is expected to be approximately 0.45 psi per foot. With a 2,000 psi pressure limit at the surface the total gradient hydrostatic head generated at depth calculates out at 0.69 psi per foot, which is below the fracture gradient for the pool.

(11) The increase in surface injection pressure as requested by the applicant is not expected to have an adverse effect on the unitized interval, further the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(12) The operator of the proposed Querecho Plains Bone Spring 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 (Upper Bone Spring zone) 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.

(13) The previously plugged and abandoned BTA Oil Producers Cinco de Mayo Federal Well No. 1, the former Ralph Lowe Yates-Federal Well No. 1, located 660 feet from the North line and 1980 feet from the West line (Unit C) of Section 24, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, is located within the one-half mile "area of review" of the proposed Federal "P" (water inject) Well No. 1, located 660 feet from the North and West lines (Unit D) of said Section 24.

Prior to commencement of injection into said Federal "P" Well No. 1, the operator should demonstrate to the satisfaction of the supervisor of the Division's District Office in Hobbs that the BTA Oil Producers Cinco de Mayo Federal Well No. 1, the former Ralph Lowe Yates-Federal Well No. 1, as described above, has been re-entered and replugged in such a manner as to ensure that it does not provide an avenue of escape for waters from the proposed injection interval.

(14) Likewise, the previously plugged and abandoned Lewis B. Burleson, Inc. Anadarko Federal Well No. 1, located 660 feet from the South line and 1980 feet from the West line (Unit N) of Section 27, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, is located within the one-half mile "area of review" of the proposed Federal "E" (water inject) Well No. 10, located 2310 feet from the North and East lines (Unit G) of said Section 27.

Prior to commencement of injection into said Federal "E" Well No. 10, the operator should demonstrate to the satisfaction of the supervisor of the Division's District Office in Hobbs that the Lewis B. Burleson, Inc. Anadarko Federal Well No. 1, as described above, has either been re-entered and replugged or has previously been plugged and abandoned in such a manner as to ensure that it does not provide an avenue of escape for waters from the proposed injection interval of the Mewbourne well or that said wellbore will not otherwise serve for such escape.

(15) From the evidence presented at the hearing it appears the applicant's existing Federal "E" Well No. 1, located 660 feet from the North line and 1980 feet from the East line (Unit B) of Section 27, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, which is also within this "area of review" and currently completed in and producing from the North Lusk-Morrow Gas Pool, is not cemented or completed in such a manner which will prevent the migration of fluid from the proposed injection zone.

Therefore, prior to commencing injection operations into the Federal "E" Well Nos. 10 and 11 located in Units "G" and "A", respectively, of said Section 27 the operator should demonstrate to the satisfaction of the supervisor of the Division's District Office in Hobbs that the Federal "E" Well No. 1, as described above, has either been recompleted or is shown to have been previously completed in such a manner as to ensure that they do not provide an avenue of escape for waters from the proposed injection interval of the Mewbourne Morrow gas well or that said wellbore will not otherwise serve for such escape.

(16) Sufficient evidence on the corrosive nature of the proposed injection fluid was submitted by the applicant to support its request to utilize "bare steel" tubing instead of internally plastic-coated tubing at this time.

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

(18) 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.

(19) 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 2,000 psi.

(20) Any further increase in the injection pressure limitation placed upon any well in the project area should only be approved after proper notice and hearing.

(21) 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.

(22) 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.

(23) 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).

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

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

(26) 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.

(27) 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.

(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 Bone Spring Sand Unit Area (Division Case No. 10761), Lea County, New Mexico, by the injection of water into the designated and Undesignated Querecho Plains-Upper Bone Spring Pool (as found in that stratigraphic interval between 8,328 feet to 8,620 feet as measured on the *Welex - Spectral Density Dual Spaced Neutron Log* ran on November 28, 1987 in the applicant's Federal Well

No. 4 located 660 feet from the North line and 1650 feet from the East line (Unit B) of Section 23, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico) through fifteen certain wells to be converted from producing wells to injectors, as further described in Exhibit "A" attached hereto and made a part hereof.

(2) The waterflood project, hereby designated the Querecho Plains Bone Spring Sand Unit Waterflood Project, shall coincide with the boundary of the Querecho Plains Bone Spring Sand Unit Area, as further described below, and was the subject of Division Case No. 10761 which was heard in combination with this case:

**QUERECHO PLAINS BONE SPRING SAND UNIT WATERFLOOD PROJECT  
LEA COUNTY, NEW MEXICO**

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 13: S/2 SW/4  
Section 14: SE/4  
Section 22: NE/4 SE/4 and S/2 SE/4  
Section 23: All  
Section 24: W/2 NW/4 and SW/4 SW/4  
Section 26: N/2  
Section 27: All  
Section 28: E/2

(3) However, the initial waterflood project area, for allowable and tax credit purposes shall comprise only the following described 2040 acres in Lea County, New Mexico:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 13: SW/4 SW/4  
Section 14: SE/4  
Section 22: SE/4 SE/4  
Section 23: NE/4, S/2 NW/4 and S/2  
Section 24: W/2 NW/4 and SW/4 SW/4  
Section 26: N/2 NE/4, SW/4 NE/4 and NW/4  
Section 27: E/2 NE/4, SW/4 NE/4, SE/4 NW/4 and E/2 SW/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) Injection into the Federal "P" Well No. 1, located 660 feet from the North and West lines (Unit D) of Section 24, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, shall not commence until the previously plugged and abandoned BTA Oil Producers Cinco de Mayo Federal Well No. 1, the former Ralph Lowe Yates-Federal Well No. 1, located 660 feet from the North line and 1980 feet from the West line (Unit C) of said Section 24, has either been re-entered and replugged or is shown to have been adequately plugged and abandoned in a manner that ensures it does not provide an avenue of escape for waters from the proposed injection interval to the satisfaction of the Supervisor of the Division's District Office in Hobbs.

(6) FURTHER, injection into the Federal "E" Well No. 10, located 2310 feet from the North and East lines (Unit G) of Section 27, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, shall not commence until the previously plugged and abandoned Lewis B. Burleson, Inc. Anadarko Federal Well No. 1, located 660 feet from the South line and 1980 feet from the West line (Unit N) of said Section 27, has either been re-entered and re-plugged or is shown to have been adequately plugged and abandoned in a manner that ensures it does not provide an avenue of escape for waters from the proposed injection interval to the satisfaction of the Supervisor of the Division's District Office in Hobbs.

(7) ALSO, injection into the Federal "E" Well Nos. 10 and 11 located in Units "G" and "A", respectively, of said Section 27, shall not commence until the applicant's Federal "E" Well No. 1, located 660 feet from the North line and 1980 feet from the East line (Unit B) of said Section 27, has either been recompleted or is shown to have been previously completed in such a manner as to ensure that they do not provide an avenue of escape for waters from the proposed injection interval to the satisfaction of the Supervisor of the Division's District Office in Hobbs.

**IT IS FURTHER ORDERED THAT:**

(8) Injection shall be accomplished through 2 3/8-inch or 2 7/8-inch bare steel 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.

(9) The injection wells or pressurization system for each injection well shall be so equipped as to limit injection pressure at the wellhead to no more than 2,000 psi.

(10) Any additional increase in the injection pressure limitation placed upon any well in the project area shall only be approved after proper notice and hearing.

(11) 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.

(12) 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.

(13) 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.

(14) 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:**

(15) 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).

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

(17) 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.

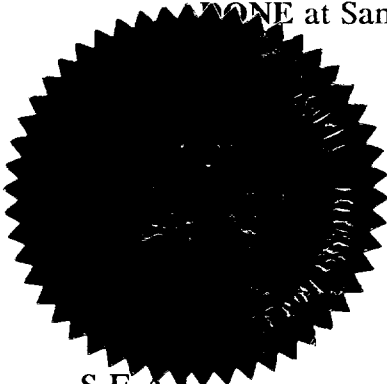
(18) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced 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.

(19) 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.


(20) 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.



SEAL

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
WILLIAM J. LeMAY  
Director

**EXHIBIT "A"**

CASE NO. 10762  
ORDER NO. R-9737-A

**Mewbourne Oil Company**

**Proposed Injection Well Locations  
Querecho Plains Bone Spring Sand Unit Waterflood Project Area  
Township 18 South, Range 32 East, NMPM,  
Lea County, New Mexico**

| <b>Well Name and Number</b>  | <b>Footage Location</b> | <b>Sec-<br/>tion</b> | <b>Unit</b> | <b>Proposed<br/>Injection<br/>Interval (Feet)</b> |
|--|-------------------------|----------------------|-------------|---|
| Santa Fe Energy Operating Partners, L.P.<br>Shinnery "14" Federal Well No. 4 | 1980'FSL - 660'FEL      | 14                   | I           | 8412 - 8490                                       |
| Santa Fe Energy Operating Partners, L.P.<br>Shinnery "14" Federal Well No. 3 | 1980'FS & EL            | 14                   | J           | 8478 - 8504                                       |
| Federal "L" Well No. 5   | 660' FN & EL            | 23                   | A           | 8430 - 8574                                       |
| Federal "L" Well No. 4   | 660'FNL - 1650'FEL      | 23                   | B           | 8431 - 8506                                       |
| Federal "L" Well No. 7   | 2310'FSL - 990'FEL      | 23                   | I           | 8485 - 8552                                       |
| Federal "L" Well No. 2   | 2130'FSL - 2030'FEL     | 23                   | J           | 8458 - 8531                                       |
| Government "K" Well No. 2  | 1950'FSL - 1980'FWL     | 23                   | K           | 8343 - 8515                                       |
| Federal "F" Well No. 3   | 1980'FSL - 990'FWL      | 23                   | L           | 8362 - 8436                                       |
| Federal "P" Well No. 1   | 660'FN & WL             | 24                   | D           | 8473 - 8545                                       |
| Burleson Federal Well No. 2  | 660'FN & EL             | 26                   | A           | 8515 - 8584                                       |
| Burleson Federal Well No. 1  | 660'FNL - 2310'FEL      | 26                   | B           | 8512 - 8572                                       |
| Sprinkle Federal Well No. 2  | 660'FNL - 1980'FWL      | 26                   | C           | 8542 - 8574                                       |
| Sprinkle Federal Well No. 1  | 660'FN & WL             | 26                   | D           | 8507 - 8532                                       |
| Federal "E" Well No. 11  | 660'FNL - 530'FEL       | 27                   | A           | 8360 - 8388                                       |
| Federal "E" Well No. 10  | 2310'FN & EL            | 27                   | G           | 8501 - 8530                                       |

STATE OF NEW MEXICO  
ENERGY AND MINERALS DEPARTMENT  
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING  
CALLED BY THE OIL CONSERVATION  
COMMISSION FOR THE PURPOSE OF  
CONSIDERING:

CASE NO. 6848 DE NOVO  
Order No. R-6332-A  
NOMENCLATURE

APPLICATION OF PETROLEUM DEVELOPMENT  
CORPORATION FOR POOL CONTRACTION AND  
CREATION, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 5, 1980, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 14th day of August, 1980, the Commission, a quorum being present, having considered the testimony, the record, and the exhibits, and being fully advised in the premises,

FINDS:

- (1) That Case No. 6848 originally came on for hearing before Examiner Richard L. Stamets on March 26, 1980, whereupon the Division entered Order No. R-6332 on April 30, 1980, denying the application.
- (2) That the applicant filed timely application for hearing de novo of Case No. 6848 and this case was set for hearing before the Commission.
- (3) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (4) That the applicant in this case, Petroleum Development Corporation, requested the contraction of the vertical limits of the Querecho Plains-Bone Spring Pool in Sections 27 and 34, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, to comprise the Upper Bone Spring formation only, from 8390 feet to 8680 feet, and the creation of the Querecho Plains-Lower Bone Spring Pool to comprise the Lower Bone Spring formation only,

from 8680 feet to the base of the Bone Spring formation, all depths being from the log of applicant's McKay West Federal Well No. 1, located in Unit F of the aforesaid Section 34.

(5) That pressure and production information indicates there are at least two distinct separate reservoirs within the Bone Spring formation in the present Querecho Plains-Bone Spring Pool.

(6) That it appears that the upper section of the Bone Spring formation should be designated a pool, and that said pool should be known as the Querecho Plains-Upper Bone Spring Pool with vertical limits from 8390 feet to 8680 feet on the log of the McKay West Federal Well No. 1 located in Unit F of Section 34, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, and with horizontal limits comprising the following described lands:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM  
Section 27: SW/4  
Section 34: NW/4

(7) That to accomplish the above-described designation of an upper Bone Spring pool, it would be best to contract the vertical limits of the present Querecho Plains-Bone Spring Pool to the limits described above, extend the horizontal limits of said pool to the horizontal limits described above, and redesignate said pool the Querecho Plains-Upper Bone Spring Pool.

(8) That there is need for the creation of a lower Bone Spring pool, said pool to be designated the Querecho Plains-Lower Bone Spring Pool and have vertical limits from 8680 feet to the base of the Bone Spring formation on the log of the above-described McKay West Federal Well No. 1, and horizontal limits comprising the following described lands:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM  
Section 27: SW/4  
Section 34: NW/4

(9) That an order embodying the above findings will not impair correlative rights nor cause waste and should be approved.

IT IS THEREFORE ORDERED:

(1) That the Querecho Plains-Bone Spring Pool in Lea County, New Mexico, is hereby redesignated the Querecho Plains-Upper Bone

Spring Pool, and the vertical limits of said Querecho Plains-Upper Bone Spring Pool are established as being that interval in the Bone Spring formation from 8390 feet to 8680 feet on the log of the Petroleum Development Corporation McKay West Federal Well No. 1 located in Unit F of Section 34, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, and the horizontal limits of said pool are established as comprising the following described area:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 27: SW/4

Section 34: NW/4

(2) That a new pool for Lower Bone Spring production, classified as an oil pool and designated the Querecho Plains-Lower Bone Spring Pool is hereby created, with vertical limits established as being that interval in the Bone Spring formation from 8680 feet to the base of the Bone Spring formation on the log of the aforementioned Petroleum Development Corporation McKay West Federal Well No. 1, and the horizontal limits of said pool are established as comprising the following described lands in Lea County, New Mexico:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 27: SW/4

Section 34: NW/4


(3) That this order shall become effective February 21, 1980.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

ALEX J. ARMIJO, Member

  
EMERY C. ARNOLD, Member

  
JOE D. RAMEY, Member & Secretary

S E A L  
fd/

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. 10497  
ORDER NO. R-9737

APPLICATION OF MEWBOURNE OIL COMPANY FOR TWO  
SECONDARY RECOVERY PROJECTS, LEA COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on July 9, 1992 at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 1st day of October, 1992, 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, Mewbourne Oil Company, seeks authorization to institute two secondary recovery pilot projects in the Querecho Plains-Upper Bone Spring Pool within Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, on its Government "K" and Federal "E" Leases by the injection of water into the following three existing wells:

| Well Name and Number | Footage Location      | Unit | Section | Injection Perforations |
|----------------------|-----------------------|------|---------|------------------------|
| Government "K" No. 2 | 1950' FSL - 1980' FWL | K    | 23      | 8343' - 8515'          |
| Federal "E" No. 10   | 2310' FN & EL         | G    | 27      | 8501' - 8530'          |
| Federal "E" No. 11   | 660' FNL - 530' FEL   | A    | 27      | 8360' - 8486'          |



(3) At the time of the hearing, Mewbourne requested that this application be limited to only the "K" No. 2 and the "E" No. 11 wells and that the portion of this application requesting injection into the Federal "E" Well No. 10 be dismissed.

(4) Mewbourne's objective with this application at this time is to test the injectivity of the Upper Bone Spring interval for a sufficient period of time to establish stabilized injection rates. This data will then be reviewed to determine the feasibility of commencing a waterflood project in this area to be unitized at a later time. Said injectivity testing was from a consensus born out of several operator meetings of owners of interests in the area that would be unitized.

(5) It is not Mewbourne's intention to proceed with its proposed test for any length of time that could indicate a response in any surrounding wells.

(6) The applicant has suggested a period of three months, more or less, to be adequate for such testing phase.

(7) The proposed injection test would secure information that, in the long run, could be utilized in establishing a waterflood project and unit agreement in the Upper Bone Spring formation underlying the immediate area.

(8) The operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape into other formations or onto the surface from injection, production or plugged and abandoned wells.

(9) The applicant's testimony indicates that its Federal "E" Well No. 1, located 660 feet from the North line and 1980 feet from the East line (Unit B) of said Section 27, a North Lusk Morrow gas well completed at a depth in excess of 12,500 feet, is within one-half mile of the proposed "E" No. 11 injection well and does not appear to have adequate cement across its production casing string at the Bone Spring interval. However, a maximum injection rate per well of 800 barrels of water per day, as proposed by the applicant, should not cause any migration of the injected fluids to reach the suspected unprotected wellbore.

(10) Injection should be accomplished through 2 7/8-inch tubing installed in a packer set approximately 100 feet above the uppermost perforated interval; the casing-tubing annulus for both wells should be filled with an inert fluid; and a pressure gauge or approved leak-detection device should be attached to the annulus in order to determine leaks in the casing, tubing or packer.

(11) Prior to commencing injection operations, the casing in each of the subject wells should be pressure-tested throughout the interval, from the surface down to the proposed packer-setting depth, to assure integrity of such casing.

(12) The injection wells or injection pressurization system for each well should be so equipped as to limit injection pressure at the wellhead to no more than 1650 psi.

(13) The Director of the Division should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such high pressure will not result in migration of the injected waters from the Querecho Plains-Upper Bone Spring Pool.

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

(15) The subject application should be approved pursuant to the applicable provisions of Rules 702 through 708 of the Division Rules and Regulations.

(16) The provisions of this order should be on a temporary basis only and water injection into both the subject wells should cease as of December 31, 1992. Provisions for a one-time extension to continue the injectivity test should be included in this order, however any such extension should be limited to a period not to exceed forty-five days.

(17) At the conclusion of the injectivity test and should the applicant wish to continue water injection on a permanent basis, this case should be incorporated into the record on any other matter requiring an examiner hearing for approval such as statutory unitization, enhanced oil recovery tax credit and a waterflood project within a voluntary unit area. At that time, the applicant must be prepared to address certain issues pertaining to, but not limited to, the following items:

- inadequate cement behind the Federal "E" Well No. 1;
- requirements for plastic-lined tubing in the injection wells;
- project oil allowable; and,
- project designation and area.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Mewbourne Oil Company, is hereby authorized to commence, on a temporary basis, a two well water injectivity test in the Querecho Plains-Upper Bone Spring Pool within Township 18 South, Range 32 East, NMPM, Lea County, New Mexico on its Government "K" and Federal "E" Leases.

(2) Said operator shall be permitted to convert its Government "K" Well No. 2 located 1950 feet from the South line and 1980 feet from the West line (Unit K) of Section 23 and its Federal "E" Well No. 11 located 660 feet from the North line and 530 feet from the East line (Unit A) of Section 27 from producing oil wells to water injection wells in the Upper Bone Spring interval only.

(3) The portion of this application seeking approval to inject water into the Federal "E" Well No. 10, located 2310 feet from the North and East lines (Unit G) of said Section 27, is hereby dismissed.

(4) Injection into the "K" No. 2 well shall be accomplished through 2 7/8-inch unlined tubing installed in a packer set at approximately 100 feet above the uppermost perforated interval, with injection into the perforated interval from approximately 8343 feet to 8515 feet.

(5) Injection into the "E" No. 11 well shall be accomplished through 2 7/8-inch unlined tubing installed in a packer set at approximately 100 feet above the uppermost perforated interval, with injection into the perforated interval from approximately 8360 feet to 8486 feet.

(6) The casing-tubing annulus shall be filled with an inert fluid; and a pressure gauge shall be attached to the annulus or the annulus shall be equipped with an approved leak-detection device in order to determine leakage in the casing, tubing or packer.

(7) Prior to commencing injection operations, the casing in the subject well shall be pressure-tested to assure the integrity of such casing in a manner that is satisfactory to the supervisor of the Division's Hobbs District Office.

(8) The injection well or system shall be equipped with a pressure-limiting switch or other acceptable device which will limit the wellhead pressure on the injection well to no more than 1650 psi.

(9) The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the Querecho Plains-Upper Bone Spring Pool.

(10) The operator shall notify the supervisor of the Hobbs District Office of the Division in advance 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.

(11) The operator shall immediately notify the supervisor of the Division's Hobbs District Office of the failure of the tubing, casing or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

(12) Both wells shall be governed by the applicable provisions of Rules 702 through 708 of the Division Rules and Regulations.

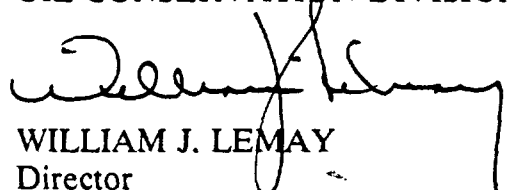
(13) Authorization to inject into both the aforementioned wells shall cease on December 31, 1992; however, a one-time request to continue the injectivity test shall be granted only after a written request to continue such test is submitted to, and approved by, the Division Director and the Supervisor of the Division's Hobbs District Office. Such written request shall explain in detail why such continuation is needed and what effects such continuation will have on the wells and surrounding area.

(14) Monthly progress reports shall be submitted to the Division in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

(15) 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

Draft 10762

DC 10/6 PS 10/6

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:

2/4  
10/12

Case No. 10762  
Order No. R-\*\*\*\*  
9737-A

**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 July 1, 1993, at Santa Fe, New Mexico,  
before Examiner Michael E. Stogner.

NOW, on this \_\_\_\_ day of October, 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) At the time of the hearing this case was consolidated with Division Case No.  
10761 for the purpose of testimony.

(3) By Division Order No. R-9737, issued in Case No. 10497 and dated October 1,  
1992, Mewbourne Oil Company was authorized to convert its Government "K" Well No. 2,  
located 1950 feet from the South line and 1980 feet from the West line (Unit K) of Section 23,  
and its Federal "E" Well No. 11, located 660 feet from the North line and 530 feet from the  
East line (Unit A) of Section 27, both in Township 18 South, Range 32 East, NMPM, Lea  
County, New Mexico, into water injection wells for the purpose of testing the "injectivity" of  
the Querecho Plains-Upper Bone Spring Pool for a sufficient period of time to establish stablized  
injection rates in order to determine the feasibility of commencing a waterflood project in this  
general area to be unitized at a later date.

(4) The applicant, Mewbourne Oil Company, at this time seeks authority to institute a waterflood project in its proposed Querecho Plains Bone Spring Sand Unit Area (Division Case No. 10761), Lea County, New Mexico, by the injection of water into the designated and Undesignated Querecho Plains-Upper Bone Spring Pool, as found in that stratigraphic interval between 8,328 feet to 8,620 feet as measured on the *Welex - Spectral Density Dual Spaced Neutron Log* ran on November 28, 1987 in the applicant's Federal Well No. 4 located 660 feet from the North line and 1650 feet from the East line (Unit B) of Section 23, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, through fifteen certain wells to be converted from producing wells to injectors, as further described in Exhibit "A" attached hereto and made a part hereof.

(5) It is proposed that the waterflood project area coincide with the boundary of the Querecho Plains Bone Spring Sand Unit Area in Lea County, New Mexico, as further described below, which was the subject of Division Case No. 10761 and was heard in combination with this case:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 13: S/2 SW/4  
Section 14: SE/4  
Section 22: NE/4 SE/4 and S/2 SE/4  
Section 23: All  
Section 24: W/2 NW/4 and SW/4 SW/4  
Section 26: N/2  
Section 27: All  
Section 28: E/2

(6) 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-Upper Bone Spring Pool, being the following described 2,040 acres in Lea County, New Mexico:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 13: SW/4 SW/4  
Section 14: SE/4  
Section 22: SE/4 SE/4  
Section 23: NE/4, S/2 NW/4 and S/2  
Section 24: W/2 NW/4 and SW/4 SW/4  
Section 26: N/2 NE/4, SW/4 NE/4 and NW/4  
Section 27: E/2 NE/4, SW/4 NE/4, SE/4 NW/4 and E/2 SW/4

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

(8) The results of the injectivity test approved by said Order No. R-9737 <sup>indicates</sup> ~~showed~~ that both of the test wells ~~were~~ <sup>are</sup> capable of injection rates of 700 to 800 barrels of water per day at the maximum injection pressure of 1650 psi permitted by said Order No. R-9737. Further, injection surveys from both wells indicated that the injected waters ~~stayed~~ <sup>remained</sup> confined to the Upper Bone Spring interval.

(9) The applicant further requests a surface limitation pressure in excess of the Division's guidelines of 0.2 psi per foot of depth, but not in excess of 2,000 psi surface pressure.

(10) In support of this request the applicant presented additional results from its injectivity tests, showing that the Delaware produced water utilized for injection had a gradient hydrostatic head of 0.51 psi per foot. While injecting this "heavy water" at the maximum 1650 psi (as permitted by Order R-9737) the total gradient hydrostatic head generated at depth was equal to 0.70 psi per foot. The applicant testified that the average formation fracture gradient for the Querecho Plains-Upper Bone Spring Pool is equal to 0.74 psi per foot as determined by the initial shut-in pressures from fracture stimulations which were performed on several wells in the general area. Injected waters to be utilized in this project initially will consist of fresh water to be purchased from the City of Carlsbad, New Mexico (approximately 90 percent of volume) with the remaining volume to be produced saltwater from surrounding operators. The fluid gradient for this "less heavy" water is expected to be approximately 0.45 psi per foot. With a 2,000 psi pressure limit at the surface the total gradient hydrostatic head generated at depth ~~is~~ calculates out at 0.69 psi per foot, which is below the fracture gradient for the pool.

(11) The increase in surface injection pressure as requested by the applicant is not expected to have an adverse effect on the unitized interval, further the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(12) The operator of the proposed Querecho Plains Bone Spring 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 (Upper Bone Spring zone) 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.

(13) The previously plugged and abandoned BTA Oil Producers Cinco de Mayo Federal Well No. 1, the former Ralph Lowe Yates-Federal Well No. 1, located 660 feet from the North line and 1980 feet from the West line (Unit C) of Section 24, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, is located within the one-half mile "area of review" of ~~is~~ proposed Federal "P" (water inject) Well No. 1, located 660 feet from the North and West lines (Unit D) of said Section 24.

~~(14)~~ Prior to commencement of injection into said Federal "P" Well No. 1, the operator should demonstrate to the satisfaction of the supervisor of the Division's District Office in Hobbs that the BTA Oil Producers Cinco de Mayo Federal Well No. 1, the former Ralph Lowe Yates-Federal Well No. 1, as described above, has been re-entered and ~~re~~plugged in such a manner as to ensure that it does not provide an avenue of escape for waters from the proposed injection interval.

(15) Likewise, the previously plugged and abandoned Lewis B. Burleson, Inc. Anadarko Federal Well No. 1, located 660 feet from the South line and 1980 feet from the West line (Unit N) of Section 27, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, is located within the one-half mile "area of review" of ~~its~~ <sup>the</sup> proposed Federal "E" (water inject) Well No. 10, located 2310 feet from the North and East lines (Unit G) of said Section 27.

~~(16)~~ Prior to commencement of injection into said Federal "E" Well No. 10, the operator should demonstrate to the satisfaction of the supervisor of the Division's District Office in Hobbs that the Lewis B. Burleson, Inc. Anadarko Federal Well No. 1, as described above, has either been re-entered and re~~x~~plugged or has previously been plugged and abandoned in such a manner as to ensure that it does not provide an avenue of escape for waters from the proposed injection interval of the Mewbourne well or that said wellbore will not otherwise serve for such escape.

(17) From the evidence presented at the hearing it appears the applicants' existing Federal "E" Well No. 1, located 660 feet from the North line and 1980 feet from the East line (Unit B) of Section 27, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, which is also within the "area of review" ~~and is~~ <sup>this</sup> currently completed in and producing from the North Lusk-Morrow Gas Pool, is not cemented or completed in such a manner which will prevent the migration of fluid from the proposed injection zone.

~~(18)~~ Therefore, prior to commencing injection operations into the Federal "E" Well Nos. 10 and 11 located in Units "G" and "A", respectively, of said Section 27 the operator should demonstrate to the satisfaction of the supervisor of the Division's District Office in Hobbs that the Federal "E" Well No. 1, as described above, has either been re~~x~~completed or is shown to have been previously completed in such a manner as to ensure that they do not provide an avenue of escape for waters from the proposed injection interval of the Mewbourne Morrow gas well or that said wellbore will not otherwise serve for such escape.

(19) Sufficient evidence on the corrosive nature of the proposed injection fluid was submitted by the applicant to support ~~their~~ <sup>its</sup> request to utilize "bare" tubing instead of internally plastic coated tubing at this time.   
 *↳ steel*

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

(21) 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.

(22) 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 2,000 psi.



(23) Any further increase in the injection pressure limitation placed upon any well in the project area should only be approved after proper notice and hearing.

(24) 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.

(25) 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.

(26) 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).

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

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

(29) 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.

(30) 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.

(31) 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 Bone Spring Sand Unit Area (Division Case No. 10761), Lea County, New Mexico, by the injection of water into the designated and Undesignated Querecho Plains-Upper Bone Spring Pool (as found in that stratigraphic interval between 8,328 feet to 8,620 feet as measured on the *Welex - Spectral Density Dual Spaced*

*Neutron Log* ran on November 28, 1987 in the applicant's Federal Well No. 4 located 660 feet from the North line and 1650 feet from the East line (Unit B) of Section 23, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico) through fifteen certain wells to be converted from producing wells to injectors, as further described in Exhibit "A" attached hereto and made a part hereof.

(2) The waterflood project, hereby designated the Querecho Plains Bone Spring Sand Unit Waterflood Project, shall coincide with the boundary of the Querecho Plains Bone Spring Sand Unit Area, as further described below, and was the subject of Division Case No. 10761 which was heard in combination with this case:

**QUERECHO PLAINS BONE SPRING SAND UNIT WATERFLOOD PROJECT  
LEA COUNTY, NEW MEXICO**

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 13: S/2 SW/4  
Section 14: SE/4  
Section 22: NE/4 SE/4 and S/2 SE/4  
Section 23: All  
Section 24: W/2 NW/4 and SW/4 SW/4  
Section 26: N/2  
Section 27: All  
Section 28: E/2

(3) However, the initial waterflood project area, for allowable and tax credit purposes shall comprise only the ~~the~~ following described 2040 acres in Lea County, New Mexico:

TOWNSHIP 18 SOUTH, RANGE 32 EAST, NMPM

Section 13: SW/4 SW/4  
Section 14: SE/4  
Section 22: SE/4 SE/4  
Section 23: NE/4, S/2 NW/4 and S/2  
Section 24: W/2 NW/4 and SW/4 SW/4  
Section 26: N/2 NE/4, SW/4 NE/4 and NW/4  
Section 27: E/2 NE/4, SW/4 NE/4, SE/4 NW/4 and E/2 SW/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) Injection into the Federal "P" Well No. 1, located 660 feet from the North and West lines (Unit D) of Section 24, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, shall not commence until the previously plugged and abandoned BTA Oil Producers Cinco de Mayo Federal Well No. 1, the former Ralph Lowe Yates-Federal Well No. 1, located 660 feet from the North line and 1980 feet from the West line (Unit C) of said Section 24, has either been re-entered and re-plugged or is shown to have been adequately plugged and abandoned in a manner that ensures it does not provide an avenue of escape for waters from the proposed injection interval to the satisfaction of the Supervisor of the Division's District Office in Hobbs.

(6) FURTHER, injection into the Federal "E" Well No. 10, located 2310 feet from the North and East lines (Unit G) of Section 27, Township 18 South, Range 32 East, NMPM, Lea County, New Mexico, shall not commence until the previously plugged and abandoned Lewis B. Burleson, Inc. Anadarko Federal Well No. 1, located 660 feet from the South line and 1980 feet from the West line (Unit N) of said Section 27, has either been re-entered and re-plugged or is shown to have been adequately plugged and abandoned in a manner that ensures it does not provide an avenue of escape for waters from the proposed injection interval to the satisfaction of the Supervisor of the Division's District Office in Hobbs.

(7) ALSO, injection into the Federal "E" Well Nos. 10 and 11 located in Units "G" and "A", respectively, of said Section 27, shall not commence until the applicant's Federal "E" Well No. 1, located 660 feet from the North line and 1980 feet from the East line (Unit B) of said Section 27, has either been re-completed or is shown to have been previously completed in such a manner as to ensure that they do not provide an avenue of escape for waters from the proposed injection interval to the satisfaction of the Supervisor of the Division's District Office in Hobbs.

**IT IS FURTHER ORDERED THAT:**

(8) Injection shall be accomplished through 2-3/8 inch or 2-7/8 inch bare steel 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.

(9) The injection wells or pressurization system for each injection well shall be so equipped as to limit injection pressure at the wellhead to no more than 2,000 psi.

(10) Any additional increase in the injection pressure limitation placed upon any well in the project area shall only be approved after proper notice and hearing.

(11) 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.

(12) The operator shall give advance notification to the supervisor of the ~~Artesia~~ <sup>Hobbs</sup>

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.

(13) The applicant shall immediately notify the supervisor of the <sup>Hobbs</sup>~~Artesia~~ 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.

(14) 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:**

(15) 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).

(16) The approved "project area" shall initially comprise that area described in Secretary Paragraph No. ~~9~~ above.

(3)

(17) 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.

(18) 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.

(19) 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.

(20) 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. 10762  
ORDER NO. R-\*\*\*\*9737-A

**Mewbourne Oil Company**

**Proposed Injection Well Locations**  
**Querecho Plains Bone Spring 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) |
|---|---------------------|---------|------|------------------------------------|
| <i>Santa Fe Energy Operating Partners, L.P.</i><br>Shinnery "14" Federal Well No. 4 | 1980'FSL - 660'FEL  | 14      | I    | 8412 - 8490                        |
| <i>Santa Fe Energy Operating Partners, L.P.</i><br>Shinnery "14" Federal Well No. 3 | 1980'FS & EL        | 14      | J    | 8478 - 8504                        |
| Federal "L" Well No. 5  | 660' FN & EL        | 23      | A    | 8430 - 8574                        |
| Federal "L" Well No. 4  | 660'FNL - 1650'FEL  | 23      | B    | 8431 - 8506                        |
| Federal "L" Well No. 7  | 2310'FSL - 990'FEL  | 23      | I    | 8485 - 8552                        |
| Federal "L" Well No. 2  | 2130'FSL - 2030'FEL | 23      | J    | 8458 - 8531                        |
| Government "K" Well No. 2   | 1950'FSL - 1980'FWL | 23      | K    | 8343 - 8515                        |
| Federal "F" Well No. 3  | 1980'FSL - 990'FWL  | 23      | L    | 8362 - 8436                        |
| Federal "P" Well No. 1  | 660'FN & WL         | 24      | D    | 8473 - 8545                        |
| Burleson Federal Well No. 2   | 660'FN & EL         | 26      | A    | 8515 - 8584                        |
| Burleson Federal Well No. 1   | 660'FNL - 2310'FEL  | 26      | B    | 8512 - 8572                        |

|                             |                    |    |   |                |
|-----------------------------|--------------------|----|---|----------------|
| Sprinkle Federal Well No. 2 | 660'FNL - 1980'FWL | 26 | C | 8542 -<br>8574 |
| Sprinkle Federal Well No. 1 | 660'FN & WL        | 26 | D | 8507 -<br>8532 |
| Federal "E" Well No. 11     | 660'FNL - 530'FEL  | 27 | A | 8360 -<br>8388 |
| Federal "E" Well No. 10     | 2310'FN & EL       | 27 | G | 8501 -<br>8530 |