

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE NO. 1564  
Order No. R-1311

APPLICATION OF GREAT WESTERN DRILLING  
COMPANY FOR APPROVAL OF A UNIT AGREEMENT  
AND FOR PERMISSION TO INSTITUTE A PILOT  
WATER FLOOD PROJECT IN THE CAPROCK-QUEEN  
POOL, CHAVES AND LEA COUNTIES, NEW MEXICO,  
AND FOR THE ESTABLISHMENT OF AN ADMINIS-  
TRATIVE PROCEDURE WHEREBY SAID PROJECT MAY  
BE EXPANDED.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on December 10, 1958, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 17th day of December, 1958, the Commission, a quorum being present, having considered the application, the evidence adduced and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the proposed unit plan will in principle tend to promote the conservation of oil and gas and the prevention of waste.

(3) That the applicant will be the operator of the proposed North Central Caprock Queen Unit comprising 2,040 acres, more or less, of State and Federal land in Sections 13, 14, 15, and 24 of Township 13 South, Range 31 East, and Sections 17, 18, and 19 of Township 13 South, Range 32 East, Caprock-Queen Pool, Chaves and Lea Counties, New Mexico.

(4) That the applicant proposes to institute a pilot water flood project on said North Central Caprock Queen Unit by the injection of water into the Queen formation underlying said unit through the following-described wells:

	<u>Tract</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
Graridge Morgan State Well No. 2	NW/4 NW/4	17	13S	32E
Great Western State "N" Well No. 1	NW/4 NW/4	18	13S	32E
Great Western State "N" Well No. 3	NW/4 NE/4	18	13S	32E
Great Western State "N" Well No. 4	SE/4 NE/4	18	13S	32E
Graridge Caprock State "A" Well No. 1	NW/4 SW/4	18	13S	32E
Great Western State "Y" Well No. 2	SE/4 SW/4	18	13S	32E
Great Western State "N" Well No. 7	SE/4 NW/4	18	13S	32E
Graridge B-A State Well No. 1	NW/4 NE/4	13	13S	31E
Great Western State "O" Well No. 1	SE/4 NE/4	13	13S	31E

(5) That the applicant further proposes that it be authorized to convert any other well located on the said North Central Caprock Queen Unit to water injection, without notice and hearing, subject to administrative approval by the Commission.

(6) That the applicant stipulates that the State Engineer is an interested party and is to be notified of any request for the expansion of said pilot water flood project.

(7) That a seven well pilot project is adequate to test the efficiency of water flooding in the subject unit area; that accordingly permission to convert the said Great Western State "O" Well No. 1 and the said Graridge B-A State Well No. 1 should not be granted at this time.

(8) That the applicant should be permitted to inject water into the Queen formation in the Caprock-Queen Pool on said North Central Caprock Queen Unit through the first seven wells described in Finding No. 4.

(9) That the proposed pilot water flood project, as restricted by the deletion of the said Great Western State "O" Well No. 1 and the said Graridge B-A State Well No. 1, will not

adversely affect the interests of any other operators in the area.

(10) That an administrative procedure should be established whereby approval may be granted for conversion to water injection of additional wells on said North Central Caprock Queen Unit when it is established to the satisfaction of the Secretary-Director that the proposed injection well has experienced a substantial response to the water flood project or is directly offset by a producing well which has experienced such response.

IT IS THEREFORE ORDERED:

(1) That Great Western Drilling Company be and the same is hereby authorized to immediately convert for the purpose of water injection into the Queen formation in the Caprock-Queen Pool, the following-described wells:

	<u>Tract</u>	<u>Section</u>	<u>Township</u>	<u>Range</u>
Graridge Morgan State Well No. 2	NW/4 NW/4	17	13S	32E
Great Western State "N" Well No. 1	NW/4 NW/4	18	13S	32E
Great Western State "N" Well No. 3	NW/4 NE/4	18	13S	32E
Great Western State "N" Well No. 4	SE/4 NE/4	18	13S	32E
Graridge Caprock State "A" Well No. 1	NW/4 SW/4	18	13S	32E
Great Western State "Y" Well No. 2	SE/4 SW/4	18	13S	32E
Great Western State "N" Well No. 7	SE/4 NW/4	18	13S	32E

(2) That Great Western Drilling Company be and the same is hereby authorized to convert to water injection any well located on the proposed North Central Caprock Queen Unit in the Caprock-Queen Pool, subject to administrative approval by the Commission. The proposed North Central Caprock Queen Unit Area comprises that acreage hereinafter described in paragraph 5 (a) of this order.

PROVIDED HOWEVER, That no well located on the said North Central Caprock Queen Unit shall be eligible for administrative approval for conversion to water injection unless it is established to the satisfaction of the Secretary-Director of the Commission that the proposed water injection well has experienced a substantial

response to the water flood project or is directly offset by a producing well which has experienced such response; and that it is located on a water injection pattern which will result in a thorough and efficient sweep of oil by said water flood.

PROVIDED FURTHER, That to obtain administrative approval for the conversion of any well to water injection, applicant shall submit to the Commission in triplicate a request for such administrative approval, setting forth therein all the facts pertinent to the need for expansion of the water flood, and attaching thereto Commission Form C-116, showing production tests of the affected well or wells both before and after stimulation by water flood. Applicant shall also attach plats of the water flood project area and immediate surrounding area, indicating thereon the owner of each lease and the location of all water injection wells and producing wells, and shall submit evidence that a copy of the application to expand the water flood project area has been sent to each operator offsetting the proposed expansion, and to the State Engineer.

The Secretary-Director of the Commission may, if in his opinion there is need for the expansion of the water flood project area, authorize said expansion without notice and hearing, provided no offset operator (nor the State Engineer) objects to said expansion within fifteen (15) days. The Secretary-Director may grant immediate approval of the expansion upon receipt of waivers of objection from all operators offsetting the proposed expansion, and the State Engineer.

(3) (a) That the unit herein referred to shall be known as the North Central Caprock Queen Unit Agreement.

(b) That the Plan by which the unit area shall be operated shall be embraced in the form of a unit agreement for the development and operation of the North Central Caprock Queen Unit Area, referred to in the Petitioner's petition and filed with said petition, and such plan shall be known as the North Central Caprock Queen Unit Agreement Plan.

(4) That the North Central Caprock Queen Unit Agreement Plan shall be, and hereby is, approved in principle as a proper conservation measure; provided, however, that notwithstanding any of the provisions contained in said unit agreement, this approval shall not be considered as waiving or relinquishing in any manner any right, duties or obligations which are now, or may hereafter, be vested in the New Mexico Oil Conservation Commission by law relative to the supervision and control of operations for exploration and development of any lands committed to said North Caprock Queen Unit Agreement, or relative to the production of oil and gas therefrom:

(5) (a) That the unit area shall be:

NEW MEXICO PRINCIPAL MERIDIAN

TOWNSHIP 13 SOUTH, RANGE 31 EAST, NMPM, CHAVES COUNTY, N.M.

Section 13: All  
Section 14: All  
Section 15: SE/4 NE/4 and E/2 SE/4  
Section 24: NW/4 NW/4

TOWNSHIP 13 SOUTH, RANGE 32 EAST, NMPM, LEA COUNTY, N.M.

Section 17: N/2 NW/4  
Section 18: W/2 and NE/4  
Section 19: NW/4 NW/4

containing 2,040 acres more or less.

(b) The unit area may be enlarged or contracted as provided in said Plan.

(6) That the unit operator shall file with the Commission an executed original or executed counterpart of the North Central Caprock Queen Unit Agreement within 30 days after the effective date thereof.

(7) That any party owning rights in the unitized substances who does not commit such rights to said unit agreement before the effective date thereof may thereafter become a party thereto by subscribing to such agreement or counterpart thereof, or by ratifying the same. The unit operator shall file with the Commission within 30 days an original of any such counterpart or ratification.

(8) That this order shall become effective upon the approval of said unit agreement by the Commissioner of Public Lands for the State of New Mexico and the Director of the United States Geological Survey and shall terminate ipso facto upon the termination of said unit agreement. The last unit operator shall immediately notify the Commission in writing of such termination.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

MURRAY E. MORGAN, Member

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A. L. PORTER, Jr., Member & Secretary

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 1714  
Order No. R-1456

APPLICATION OF JOHN H. TRIGG  
FOR AN ORDER AUTHORIZING A PILOT  
WATER FLOOD PROJECT IN THE  
CAPROCK-QUEEN POOL, LEA AND  
CHAVES COUNTIES, NEW MEXICO, AND  
FOR THE ESTABLISHMENT OF AN  
ADMINISTRATIVE PROCEDURE FOR  
EXPANDING SAID PROJECT AND FOR  
GRANTING CAPACITY ALLOWABLES TO  
WELLS IN SAID PROJECT

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:00 o'clock a.m. on July 8, 1959, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 1st day of August, 1959, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, John H. Trigg, proposes to institute a water flood project in the Caprock-Queen Pool, Lea and Chaves Counties, New Mexico, with a project area consisting of the following-described acreage:

TOWNSHIP 14 SOUTH, RANGE 31 EAST

Section 4: All

Section 9: All

Section 5: E/2 NE/4, NE/4 SE/4

TOWNSHIP 13 SOUTH, RANGE 31 EAST  
Section 34: SE/4

(3) That the above-mentioned acreage in Section 34, not being contiguous to the portion of the project area in Sections 4, 5, and 9, should not be included in the project at this time.

(4) That initially the applicant proposes to inject water into the Queen formation in said Caprock-Queen Pool through the following-described wells in Township 14 South, Range 31 East:

Well No. 34-5, NE/4 SE/4 of Section 5  
Well No. 35-5, SE/4 NE/4 of Section 5  
Well No. 36-5, NE/4 NE/4 of Section 5  
Well No. 29-4, SW/4 SW/4 of Section 4

(5) That the applicant seeks capacity allowables for the following-described wells in said project:

Well No. 21-4, SE/4 SW/4 of Section 4  
Well No. 22-4, NE/4 SW/4 of Section 4  
Well No. 30-4, NW/4 SW/4 of Section 4  
Well No. 31-4, SW/4 NW/4 of Section 4  
Well No. 32-4, NW/4 NW/4 of Section 4  
Well No. 20-9, NE/4 NW/4 of Section 9  
Well No. 28-9, NW/4 NW/4 of Section 9

all in Township 14 South, Range 31 East.

(6) That there is no necessity for granting capacity allowables to any wells in said project at this time, but an administrative procedure should be established whereby capacity allowables may be granted to wells in said project without notice and hearing when such wells have received a response to water injection enabling them to produce in excess of top unit allowable for the Caprock-Queen Pool.

(7) That, as requested by applicant, an administrative procedure should be established whereby approval may be granted for conversion of additional wells within said project to water injection when it is established to the satisfaction of the Secretary-Director that the proposed injection well has experienced a substantial response to water injection or is directly offset by a producing well which has experienced such response.

IT IS THEREFORE ORDERED:

(1) That John H. Trigg be and the same is hereby authorized to institute a water flood project in the Caprock-Queen Pool, Lea and Chaves Counties, New Mexico, with the project area to consist of the following-described acreage:

TOWNSHIP 14 SOUTH, RANGE 31 EAST

Section 4: All

Section 9: All

Section 5: E/2 NE/4, NE/4 SE/4

(2) That the applicant be and the same is hereby authorized to immediately convert for the purpose of water injection into the Queen formation in the Caprock-Queen Pool, the following-described wells:

Well No. 34-5, NE/4 SE/4 of Section 5

Well No. 35-5, SE/4 NE/4 of Section 5

Well No. 36-5, NE/4 NE/4 of Section 5

Well No. 29-4, SW/4 SW/4 of Section 4

all in Township 14 South, Range 31 East, NMPM, Chaves County, New Mexico.

(3) That an administrative procedure for the conversion of additional wells in said project to water injection without notice and hearing be and the same is hereby established.

PROVIDED HOWEVER, That in order for a well in said project to be eligible for administrative approval for conversion to water injection, it must be established to the satisfaction of the Secretary-Director of the Commission that the proposed water injection well has experienced a substantial response to water injection or is directly offset by a producing well which has experienced such response, and that the proposed injection well is located on a water injection pattern which will result in a thorough and efficient sweep of oil by the water flood.

PROVIDED FURTHER, That to obtain administrative approval for the conversion of any well to water injection, applicant shall submit to the Commission in triplicate a request for such administrative approval, setting forth therein all the facts pertinent to the need for conversion of additional wells to water injection, and attaching thereto Commission Form C-116, showing production tests of the affected well or wells both before and after stimulation by water flood. Applicant shall also attach plats of the water flood project area and immediate surrounding area, indicating thereon the owner of each lease and the location of all water injection wells and producing wells, and shall submit evidence that a copy of the application to convert additional wells to water injection has been sent to each operator offsetting the proposed injection well, and to the State Engineer.

The Secretary-Director may, if in his opinion there is need for conversion of additional wells to water injection, authorize such conversion without notice and hearing, provided that no offset

operator (nor the State Engineer) objects to the proposed conversion within fifteen (15) days. The Secretary-Director may grant immediate approval of the proposed conversion upon receipt of waivers of objection from all operators offsetting the proposed injection well, and from the State Engineer.

(4) That the Proration Manager of the Commission be and the same is hereby authorized to assign an allowable equal to the well's ability to produce for any well in the project area; provided, however, that no well shall receive an allowable greater than the top unit allowable for the Caprock-Queen Pool unless the ability of said well to produce in excess of such top unit allowable is based upon a response from water injection. In order to obtain such capacity allowables, the operator shall file Form C-116 showing the producing capacity of the wells for which such request is made.

(5) That monthly progress reports on the water flood project herein authorized shall be submitted to the Commission in accordance with Rule 704 and Rule 1119 of the Commission Rules and Regulations.

(6) That jurisdiction of this cause is hereby retained by the Commission and the case may be reopened at any time to permit the operator to show cause why wells which produce with a high capacity and with a high gas-oil ratio should not be curtailed, or to show cause why a formula should not be instituted which would allow credit for water injected to be applied against excess gas production from high gas-oil ratio wells.

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

**STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION**

**JOHN BURROUGHS, Chairman**

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**MURRAY E. MORGAN, Member**

**A. L. PORTER, Jr., Member & Secretary**

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BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 1733  
Order No. R-1470

APPLICATION OF KERSEY AND  
COMPANY FOR AN ORDER AUTHORIZING  
A WATER FLOOD PROJECT IN THE  
ARTESIA POOL, EDDY COUNTY, NEW  
MEXICO, FOR SEVERAL UNORTHODOX  
LOCATIONS, AND FOR THE ESTABLISH-  
MENT OF AN ADMINISTRATIVE PROCE-  
DURE FOR THE CONVERSION OF ADDI-  
TIONAL WELLS TO WATER INJECTION  
AND FOR GRANTING CAPACITY ALLOW-  
ABLES TO WELLS IN SAID PROJECT

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on August 5, 1959, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 20th. day of August, 1959, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Kersey and Company, proposes to institute a water flood in the Artesia Pool, with a project area consisting of its Twin Lakes lease comprising the SW/4 of Section 28, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico.

(3) That initially the applicant proposes to inject water into the Grayburg formation in the Artesia Pool through the following-described wells on unorthodox locations in Section 28, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico:

Well No. 8, located 2370 feet from the South line and 270 feet from the West line of said Section 28.

Well No. 4, located 2370 feet from the South line and 1324 feet from the West line of said Section 28.

Well No. 5, located 2370 feet from the South line and 2370 feet from the West line of said Section 28.

(4) That the applicant should install new casing in the above-described wells and cement the same to the surface, and should then pressure-test said casing to the hydrostatic head of the fluid column plus the maximum surface pressure to be used prior to putting said wells into operation.

(5) That there is no need for granting capacity allowables to any wells in said project at this time, but, as requested by applicant, an administrative procedure should be established whereby capacity allowables may be granted to wells in said project without notice and hearing when such wells have received a response to water injection enabling them to produce in excess of top unit allowable for the Artesia Pool.

(6) That, as requested by applicant, an administrative procedure should be established whereby approval may be granted for conversion of additional wells within said project to water injection when it is established to the satisfaction of the Secretary-Director that the proposed injection well has experienced a substantial response to water injection or is directly offset by a producing well which has experienced such response. Provided, however, that any such additional well which is administratively authorized for water injection should be equipped with new casing if pressure tests and/or inspection of the casing presently in such well indicate said casing is not serviceable for water injection purposes.

IT IS THEREFORE ORDERED:

(1) That Kersey and Company be and the same is hereby authorized to institute a water flood project in the Artesia Pool with a project area consisting of its Twin Lakes lease comprising the SW/4 of Section 28, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico, which shall hereinafter be described as the Twin Lakes Water Flood Project.

(2) That the applicant be and the same is hereby authorized to immediately convert for the purpose of water injection into the Grayburg formation in the Artesia Pool, the following-described

wells, on unorthodox locations, in Section 28, Township 18 South, Range 28 East, NMPM, Eddy County, New Mexico:

Well No. 8, located 2370 feet from the South line and 270 feet from the West line of said Section 28.

Well No. 4, located 2370 feet from the South line and 1324 feet from the West line of said Section 28.

Well No. 5, located 2370 feet from the South line and 2370 feet from the West line of said Section 28.

(3) That the applicant be and the same is hereby required to install new casing in the three above-described injection wells and to cement the same to the surface, and shall then pressure-test said casing to the hydrostatic head of the fluid column plus the maximum surface pressure to be used, prior to putting said wells into operation.

(4) That an administrative procedure for the conversion of additional wells in said project area to water injection without notice and hearing, some of which may be on unorthodox locations, be and the same is hereby established.

PROVIDED HOWEVER, That in order for an additional well in said project to be eligible for administrative approval for conversion to water injection, it must be established to the satisfaction of the Secretary-Director of the Commission that the proposed water injection well has experienced a substantial response to water injection or is directly offset by a producing well which has experienced such response, and that the proposed injection well is located on a water injection pattern which will result in a thorough and efficient sweep of oil by the water flood.

PROVIDED FURTHER, That to obtain administrative approval for the conversion of any well to water injection, applicant shall submit to the Commission in triplicate a request for such administrative approval, setting forth therein all the facts pertinent to the need for conversion of additional wells to water injection, and attaching thereto Commission Form C-116, showing production tests of the affected well or wells both before and after stimulation by water flood. Applicant shall also attach plats of the water flood project area and immediate surrounding area, indicating thereon the owner of each lease and the location of all water injection wells and producing wells, and shall submit evidence that a copy of the application to convert additional wells to water injection has been sent to each operator offsetting the proposed injection well, and to the State Engineer.

Case No. 1733  
Order No. R-1470

The Secretary-Director may, if in his opinion there is need for conversion of additional wells to water injection, authorize such conversion without notice and hearing, provided that no offset operator (nor the State Engineer) objects to the proposed conversion within fifteen (15) days. The Secretary-Director may grant immediate approval of the proposed conversion upon receipt of waivers of objection from all operators offsetting the proposed injection well, and from the State Engineer.

PROVIDED FURTHER, That any such well which is administratively authorized for water injection shall be equipped with new casing which shall be properly cemented and tested if pressure tests and/or inspection of the casing in the well prior to such conversion indicate said casing is not serviceable for water injection purposes.

(5) That the Proration Manager of the Commission be and the same is hereby authorized to assign an allowable equal to the well's ability to produce, for any well in the project area; provided, however, that no well shall receive an allowable greater than the top unit allowable for the Artesia Pool unless the ability of such well to produce in excess of such top unit allowable is based upon a response from water injection. In order to obtain such capacity allowables, the operator shall file Form C-116 showing the producing capacity of the wells for which such request is made.

(6) That monthly progress reports on the water flood project herein authorized shall be submitted to the Commission in accordance with Rule 704 and Rule 1119 of the Commission Rules and Regulations.

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

**STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION**

S E A L

**JOHN BURROUGHS, Chairman**

**MURRAY E. MORGAN, Member**

**A. L. PORTER, Jr., Member & Secretary**

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BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE NO. 1762  
Order No. R-1505

APPLICATION OF NEWMONT OIL COMPANY  
FOR AN UNORTHODOX WATER INJECTION  
WELL LOCATION IN SECTION 32, TOWN-  
SHIP 16 SOUTH, RANGE 31 EAST, SQUARE  
LAKE POOL, EDDY COUNTY, NEW MEXICO

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on September 30, 1959, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 19th day of October, 1959, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That by authority of Commission Order Nos. 1110 and 1110-A, Ambassador Oil Corporation was permitted to institute a pilot water flood in the Square Lake Pool, Eddy County, New Mexico

(3) That the applicant, Newmont Oil Company, is the successor in interest to Ambassador Oil Corporation in the operation of the above-described pilot water flood.

(4) That the applicant seeks an order authorizing it to reopen and utilize for water injection the State "R" Well No. 2 located at an unorthodox location 1620 feet from the North line and 1020 feet from the West line of Section 32, Township 16 South, Range 31 East, NNPM, Square Lake Pool, Eddy County, New Mexico.

Case No. 1762  
Order No. R-1505

(5) That the proposed unorthodox location for the above-described water injection well should be approved.

(6) That the applicant should not be permitted to utilize the subject well for water injection until it is established to the satisfaction of the Secretary-Director that the said well has experienced a substantial response to water injection or is directly offset by a producing well which has experienced such response.

IT IS THEREFORE ORDERED:

(1) That the applicant be and the same is hereby authorized to recomplete as a water injection well in the Square Lake Pool the State "R" Well No. 2 located on an unorthodox location at a point 1620 feet from the North line and 1020 feet from the West line of Section 32, Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico.

(2) That an administrative procedure be and the same is hereby established whereby the utilization of the subject well for water injection may be authorized without notice and hearing.

PROVIDED HOWEVER, That in order for the subject well to be eligible for administrative approval for conversion to water injection, it must be established to the satisfaction of the Secretary-Director of the Commission that the said injection well has experienced a substantial response to water injection or is directly offset by a producing well which has experienced such response.

PROVIDED FURTHER, That to obtain administrative approval for the conversion of said well to water injection, applicant shall submit to the Commission in triplicate a request for such administrative approval, setting forth therein all the facts pertinent to the need for conversion of the well to water injection, and attaching thereto Commission form C-116, showing production tests of the affected well both before and after stimulation by water flood. Applicant shall also attach plats of the water flood project area and immediate surrounding area, indicating thereon the owner of each lease and the location of all water injection wells and producing wells, and shall submit evidence that a copy of the application to convert said well to water injection has been sent to each operator offsetting the proposed injection well, and to the State Engineer.

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Case No. 1762

Order No. R-1505

The Secretary-Director may, if in his opinion there is a need for conversion of the subject well to water injection, authorize such conversion without notice and hearing, provided that no offset operator (~~nor the State Engineer~~) objects to the proposed conversion within fifteen (15) days. The Secretary-Director may grant immediate approval of the proposed conversion upon receipt of waivers of objection from all operators offsetting the subject injection well, and from the State Engineer.

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

**STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION**

**JOHN BURROUGHS, Chairman**

**MURRAY E. MORGAN, Member**

**A. L. PORTER, Jr., Member & Secretary**

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BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 2370  
Order No. R-2064

APPLICATION OF NEWMONT OIL COMPANY  
FOR SPECIAL RULES GOVERNING THE  
SQUARE LAKE POOL WATERFLOOD PROJECT,  
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on August 30, 1961, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 19th day of September, 1961, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That in order for a well in a waterflood project to be eligible for administrative approval for conversion to water injection under the provisions of Rule 701 of the Commission Rules and Regulations, it must have experienced a substantial response to water injection, or be directly offset by a producing well which has experienced such response.

(3) That the applicant, Newmont Oil Company, as an exception to this portion of Rule 701, proposes that an administrative procedure be established for its waterflood project in the Square Lake Pool, Eddy County, New Mexico, whereby the Secretary-Director of the Commission may authorize the conversion of producing wells to water injection wells in stages rather than after response.

(4) That conversion of wells in stages rather than after response in this particular situation will not cause waste nor adversely affect the market demand for crude oil from other wells inasmuch as the project will be so expanded as to cause the several expansions to reach peak production at various times.

(5) That the subject application should be approved.

IT IS THEREFORE ORDERED:

(1) That an administrative procedure is hereby established for the Newmont Oil Company's Square Lake Pool Waterflood project whereby the Secretary-Director of the Commission may authorize the conversion of producing wells to water injection wells in stages, as follows:

(a) Stage I

TOWNSHIP 16 SOUTH, RANGE 31 EAST  
Section 28: W/2 SW/4  
Section 29: SE/4 SE/4  
Section 32: NE/4  
Section 33: W/2 NW/4, NE/4 NW/4

Wells in this stage may be converted to injection not earlier than October 1, 1961.

(b) Stage II

TOWNSHIP 16 SOUTH, RANGE 31 EAST  
Section 33: NE/4, SE/4 NW/4,  
E/2 SW/4, SE/4  
Section 34: W/2 NW/4

Wells in this stage may be converted to injection not earlier than July 1, 1962.

(c) Stage III

TOWNSHIP 16 SOUTH, RANGE 31 EAST  
Section 34: SW/4 NE/4, S/2

Wells in this stage may be converted to injection not earlier than April 1, 1963.

(2) That in order to obtain administrative approval under the procedure established in paragraph (1) above, applicant shall submit to the Commission in triplicate a request for such administrative approval, setting forth therein detailed information concerning the casing and cementing program for each well to be converted to water injection. The State Engineer shall be furnished a copy of said application, and, if no objection to the application is received within fifteen (15) days, the Secretary-Director may authorize such conversion without notice and hearing.

(3) 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

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

esr/

BEFORE THE OIL CONSERVATION COMMISSION

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

CASE No. 2578  
Order No. R-2178-B

APPLICATION OF NEWMONT OIL COMPANY  
FOR APPROVAL OF A DEVELOPMENT PLAN  
FOR THE LOCO HILLS WATERFLOOD PROJ-  
ECT, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on June 7, 1962, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 14th day of June, 1962, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That by Order No. R-2178, entered in Case No. 2473 on January 30, 1962, the Commission authorized Newmont Oil Company to institute a waterflood in the Loco Hills Grayburg No. 4 Sand Unit Area in Eddy County, New Mexico. Said order provided that Rule 701-E of the Commission Rules and Regulations governed the determination of the project area and of the project allowable, and established a buffer zone within which wells could be produced at unrestricted rates.

(3) That the applicant seeks approval of a plan of development for the Loco Hills Waterflood Project, Eddy County, New Mexico, which would permit the conversion of wells to water injection by stages.

(4) That an administrative procedure should be established whereby wells may be converted to injection by stages rather than after experiencing substantial response to water injection as required by Rule 701-E (5).

(5) That approval of the subject application will not alter the manner in which allowable would be assigned to the waterflood

project area under the provisions of Rule 701, and will result in certain operating convenience to the applicant.

IT IS THEREFORE ORDERED:

(1) That an administrative procedure is hereby established whereby the applicant, Newmont Oil Company, may convert wells to injection by stages within its Loco Hills Sand Unit Waterflood Project, Eddy County, New Mexico. Five stages hereinafter designated and described are hereby established within which wells may be converted to water injection:

STAGE I

January 1, 1963 to June 30, 1963	E/2 of Section 2, NE/4 and N/2 SE/4 of Section 11, and S/2 NW/4 and S/2 of Section 12, Township 18 South, Range 29 East, and SW/4, W/2 SE/4, and SE/4 SE/4 of Section 7, Township 18 South, Range 30 East.
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STAGE II

July 1, 1963 to December 31, 1963	W/2 of Section 2, W/2 of Section 11, and NE/4 of Section 13, Township 18 South, Range 29 East, NW/4, W/2 NE/4, NE/4 SW/4, and N/2 SE/4 of Section 18, Township 18 South, Range 30 East.
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STAGE III

January 1, 1964 to June 30, 1964	E/2 of Section 3, E/2 of Section 10, and W/2 NE/4 of Section 15, Township 18 South, Range 29 East.
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STAGE IV

July 1, 1964 to December 31, 1964	W/2 of Section 3, W/2 of Section 10, and NW/4 of Section 15, Township 18 South, Range 29 East.
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STAGE V

After January 1, 1965	E/2 SE/4 of Section 4 and E/2 of Section 9, Township 18 South, Range 29 East.
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(2) That application for administrative approval to convert wells to injection within the above-described stages shall be made in the normal manner under Rule 701-E (5), and shall include data concerning the casing and cementing program in the proposed injection well. (A copy of said application shall be furnished to the office of the State Engineer.)

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CASE No. 2578

Order No. R-2178-B

(3) 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 herein-above designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

E. S. WALKER, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

esr/

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 2909  
Order No. R-2268-A

APPLICATION OF SINCLAIR OIL & GAS  
COMPANY FOR THE EXTENSION OF A  
WATERFLOOD PROJECT, EDDY COUNTY,  
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on September 25, 1963, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 17th day of October, 1963, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That by Order No. R-2268 dated June 21, 1962, the Commission authorized Sinclair Oil & Gas Company to institute a waterflood project in the Grayburg-Jackson Pool with the injection of water through seven wells in Township 17 South, Range 31 East, NMPM, Eddy County, New Mexico.

(3) That the applicant, Sinclair Oil & Gas Company, seeks authority to expand its Keel-West Waterflood Project in the Grayburg-Jackson Pool in four separate stages.

(4) That an administrative procedure should be established whereby wells may be converted to injection by stages rather than after experiencing substantial response to water injection as required by Rule 701-E (5).

(5) That approval of the subject application will not alter the manner in which allowable will be assigned to the waterflood project area under the provisions of Rule 701.

(6) That approval of the subject application will afford the applicant greater operating conveniences; that expansion of the waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(7) That the applicant should not be authorized to utilize any casing or tubing program in expansion of the waterflood project unless approval has been obtained or is obtained from the Commission and the State Engineer.

IT IS THEREFORE ORDERED:

(1) That the applicant, Sinclair Oil & Gas Company, is hereby authorized to expand its Keel-West Waterflood Project in the Grayburg-Jackson Pool in Township 17 South, Range 31 East, NMPM, Eddy County, New Mexico, in four stages as follows:

STAGE I - TO BE COMMENCED PRIOR TO DECEMBER 31, 1963

Convert the following wells to injection wells;

West "B" Well No. 9, Unit M, Section 4  
West "B" Well No. 19, Unit C, Section 10  
West "B" Well No. 23, Unit K, Section 3  
Keel "B" Well No. 16, Unit I, Section 5  
Keel "B" Well No. 12, Unit A, Section 8  
Keel "B" Well No. 13, Unit O, Section 5

Drill 1 injection well located on the  
West "B" lease in Unit A of Section 9.

STAGE II - TO BE COMMENCED SUBSEQUENT TO COMPLETION OF  
STAGE I BUT NOT PRIOR TO JANUARY 1, 1964

Convert the following wells to injection wells;

West "B" Well No. 10, Unit E, Section 9  
Keel "B" Well No. 7, Unit C, Section 8  
Keel "B" Well No. 8, Unit G, Section 8

Drill 1 injection well located on the  
West "B" lease in Unit C of Section 9.

STAGE III - TO BE COMMENCED SUBSEQUENT TO COMPLETION OF  
STAGE II BUT NOT PRIOR TO JULY 1, 1964

Convert the following wells to injection wells;

West "B" Well No. 14, Unit K, Section 10  
West "B" Well No. 17, Unit I, Section 9  
Keel "B" Well No. 2, Unit M, Section 8

Keel "B" Well No. 4, Unit O, Section 8  
Keel "B" Well No. 17, Unit E, Section 8  
Keel "A" Well No. 5, Unit O, Section 7  
Keel "A" Well No. 7, Unit L, Section 7  
Keel "A" Well No. 9, Unit G, Section 7  
Keel "A" Well No. 10, Unit I, Section 7  
Keel "A" Well No. 12, Unit A, Section 7  
Keel "A" Well No. 14, Unit D, Section 7  
West "A" Well No. 1, Unit C, Section 3

Drill 2 injection wells located on the Keel "B" Lease in Units I and K of Section 8; drill 1 injection well located on the West "B" lease in Unit K of Section 9.

STAGE IV - TO BE COMMENCED SUBSEQUENT TO COMPLETION OF  
STAGE III BUT NOT PRIOR TO JANUARY 1, 1965

Convert the following wells to injection wells;

West "A" Well No. 3, Unit A, Section 3  
West "B" Well No. 24, Unit A, Section 10  
West "B" Well No. 26, Unit I, Section 3  
Keel "B" Well No. 1, Unit D, Section 6  
Keel "B" Well No. 19, Unit J, Section 5  
Keel "B" Well No. 21, Unit J, Section 6  
Keel "B" Well No. 22, Unit L, Section 5  
Keel "B" Well No. 25, Unit L, Section 6

Drill 3 injection wells located on the West "B" lease in Unit P of Section 9 and in Units I and N of Section 10.

(2) That the applicant is hereby authorized to drill and substitute injection wells for the injection wells authorized above provided the substitute well will be drilled at a standard location in the same 40-acre tract as the well it is to replace, the usual forms to obtain approval to drill a well are filed with the Commission, and the applicant notifies the Commission in writing of the proposed substitution.

(3) That the applicant shall not utilize any casing or tubing program in expansion of the waterflood project as approved by this order unless the Commission ~~(and the State Engineer) have~~ *shall* approved said casing or tubing program. *hall*

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

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CASE No. 2909

Order No. R-2268-A

DONE at Santa Fe, New Mexico, on the day and year herein-  
above designated.

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

E. S. WALSH, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

esr/

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 2579  
Order No. R-2269

APPLICATION OF NEIL E. SALSICH  
FOR APPROVAL OF A WATERFLOOD  
PROJECT, EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on June 7, 1962, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 21st day of June, 1962, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Neil E. Salsich, seeks approval of a waterflood project in the Square Lake Pool with the injection of water into the Grayburg formation to be through five wells located in Section 36, Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico.

(3) That the wells in the proposed project area are in an advanced stage of depletion and should be classified as "stripper" wells.

(4) That approval of the subject application will neither cause waste nor impair correlative rights; provided, however, that unless agreed to by all parties, the transfer of allowables across lease lines where royalty ownership is diverse should not be authorized.

(5) That an administrative procedure should be established whereby the General American Oil Company of Texas may be authorized to convert to water injection its Nunlee Federal Well No. 5, located in Unit H of Section 35, Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico, upon application and notification to offset operators.

IT IS THEREFORE ORDERED:

(1) That the applicant, Neil E. Salsich, is hereby authorized to institute a waterflood project in the Square Lake Pool with the injection of water into the Grayburg formation through the following-described wells located in Section 36, Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico:

Hollis State Well No. 1, Unit L;  
Leonard State Well No. 1, Unit F;  
Leonard State Well No. 2, Unit N;  
Leonard State Well No. 4, Unit J; and  
Leonard State Well No. 5, Unit D.

(2) That an administrative procedure is hereby established whereby the General American Oil Company of Texas may be authorized to convert to water injection its Nunlee Federal Well No. 5, located in Unit H of Section 35, Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico, upon application to the Commission and notification of such application (to the State Engineer Office and) to all offset operators.

(3) That the waterflood project shall be governed by Rule 701, including the allowable provisions thereof.

PROVIDED HOWEVER, That unless otherwise agreed to by all parties and evidence thereof furnished the Commission, the transfer of allowables within the project area of this waterflood shall be authorized only insofar as the transfer is made between wells having common royalty ownership.

(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

EDWIN L. MECHEM, Chairman

S E A L

E. S. WALKER, Member

esr/

A. I. PORTER, Jr., Member & Secretary

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 2718  
Order No. R-2403

APPLICATION OF CONTINENTAL OIL COMPANY,  
AS OPERATOR, FOR APPROVAL OF A SUPPLE-  
MENTAL COOPERATIVE AGREEMENT UNITIZING  
CERTAIN LEASES, A PLAN OF OPERATION FOR  
CONTINUED GAS AND WATER INJECTION, MODI-  
FICATION OF ALLOCATION METHOD FOR TRANS-  
FER OF ALLOWABLES, CERTAIN ADMINISTRATIVE  
PROCEDURES, AND PERMISSION TO PRODUCE MORE  
THAN 16 WELLS INTO A SINGLE TANK BATTERY,  
MALJAMAR COOPERATIVE AGREEMENT AREA,  
MALJAMAR POOL, LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on December 6, 1962, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 31st day of December, 1962, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That, by Order No. 485, the Commission approved the Maljamar Cooperative Repressuring Agreement, said agreement having been entered into on August 5, 1941, by the parties signatory thereto, for pressure maintenance in the Grayburg-San Andres formations under the Maljamar Cooperative Repressuring Agreement area in the Maljamar Pool, Lea County, New Mexico, unitizing gas in the area, making provisions for gas injection wells, and the expansion thereof by administrative approval. The order further provided that the proration units within the committed area

should not exceed the production of 44 barrels of oil daily; provided for expansion of the committed area by administrative approval; provided for the management of said project by the Operators Committee; and included other provisions for the conduct of the repressuring program.

(3) That, by Order No. 595, the Commission amended Order No. 485 and provided a method of allocation to the committed area and the reallocation to the respective proration units on a basis which included an acreage allowable up to 15 barrels per day, a maximum marginal well allowable of 20 barrels per day, and a void space allowable determined by reservoir conditions as reflected by each well's bottomhole pressure and gas-oil ratio.

(4) That numerous other orders have been entered approving additional injection wells for expansion of the repressuring program and for non-standard locations for both injection and producing wells. The order number or date of administrative approval providing for the present injection wells or non-standard locations is set out in the attached Exhibit "A".

(5) That, by Order No. R-841, the Commission approved the injection of water into the Pearl "B" Well No. 26, located 2615 feet from the South line and 25 feet from the West line of Section 30, Township 17 South, Range 33 East, NMPM, Lea County, New Mexico. By Order No. R-1075 the Commission authorized the expansion of Order No. R-841 to include the drilling and conversion of certain other wells to water injection wells, said wells also being listed on Exhibit "A" attached. The order further provided for administrative approval for expansion of the water injection program.

(6) That by adoption of Supplement No. 4 to the Maljamar Cooperative Repressuring Agreement, the applicant, Continental Oil Company, was elected Chairman of the Operators Committee and the name was changed to the Maljamar Cooperative Agreement.

(7) That the owners in the Maljamar Cooperative Agreement area have adopted Supplement No. 5 to the Maljamar Cooperative Agreement with Continental Oil Company as Operator of the Participating Area. The effect of Supplement No. 5 is to unitize all liquid hydrocarbons in the Grayburg-San Andres formations underlying the Participating Area, and to adopt a Plan of Operations for the expansion of the pressure maintenance program by gas and water injection.

(8) That the pressure maintenance program heretofore carried out has been successful and that approval of Supplement No. 5 and the Plan of Operation contemplated thereunder, and a revision of the allocation method for transferring allowables should increase the efficiency and ultimate recovery of the pressure maintenance program.

(9) That said repressuring project was instituted during the early primary life of the Maljamar Pool; that the Maljamar Pool, without the benefit of fluid injection, would be in or approaching a "stripper" state of depletion, and that any secondary recovery project instituted at the present time would in all probability be classified by the Commission as a water-flood project subject to Commission Rule 701-E governing water-flood projects.

(10) That to afford continuity of operations under the existing pressure maintenance rules, the present void space formula for the project should remain in effect, with the added privilege of allowable transfer for injection tracts, for wells shut-in for engineering reasons, and for wells incapable of making their computed share of the void space allowable. Provided however, that the maximum allowable assigned to any 40-acre proration unit should be limited to the Southeast New Mexico Waterflood Allowable Factor currently in effect or as modified by future orders of the Commission.

(11) That, by application in this case, Continental Oil Company, as Chairman for the Maljamar Cooperative Agreement area and operator of the Participating Area, seeks the consolidation of prior orders, modification of the allocation method for transfer of allowables, an administrative procedure for expansion or revision of the fluid injection program and expansion of the Participating Area within the Maljamar Cooperative Agreement boundaries; further, applicant seeks an exception to the provisions of Rule 309-A of the Commission Rules and Regulations to permit production of more than sixteen proration units into a single tank battery.

(12) That the proposed program will promote conservation and will tend to prevent waste through the production of oil which might not otherwise be recovered.

IT IS THEREFORE ORDERED:

(1) That the Maljamar Cooperative Repressuring Agreement and its supplements, including Supplement 4 which changed the name to Maljamar Cooperative Agreement and appointed Continental Oil Company as Chairman of the Operators Committee, are hereby continued in effect.

(2) That Supplement No. 5, being a Supplemental and Amendatory Agreement to the Maljamar Cooperative Agreement, and the initial Plan of Operations pursuant thereto, are hereby approved.

(3) That all oil produced from the Grayburg-San Andres formations underlying the Participating Area, as hereinafter

CASE No. 2718  
Order No. R-2403

defined, is fully unitized as provided in said Supplement No. 5, and all gas produced and utilized as provided in said Supplements No. 4 and No. 5 is fully unitized as provided therein.

(4) That the Cooperative Area, heretofore approved by this Commission for pressure maintenance of the Grayburg-San Andres formations and hereinafter called MCA Unit Area, consists of the following lands:

TOWNSHIP 17 SOUTH, RANGE 32 EAST, NMPM  
LEA COUNTY, NEW MEXICO  
Sections 14 to 23, inclusive  
Sections 25 to 35, inclusive

TOWNSHIP 17 SOUTH, RANGE 33 EAST, NMPM  
LEA COUNTY, NEW MEXICO  
Section 30: W/2

containing 13,786.66 acres, more or less.

That the following-described lands lying within such Cooperative Area are hereby designated and recognized as constituting the Participating Area for the Grayburg-San Andres formations:

TOWNSHIP 17 SOUTH, RANGE 32 EAST, NMPM  
LEA COUNTY, NEW MEXICO  
Section 15: SW/4 SW/4  
Section 16: S/2 S/2, W/2 NW/4, and  
NE/4 NW/4  
Section 17: E/2 E/2 and NW/4 NE/4,  
SE/4 NW/4, and S/2 SW/4  
Section 18: SW/4 SW/4  
Section 19: All  
Section 20: All  
Section 21: All  
Section 22: NW/4 NW/4, S/2 NW/4, S/2 NE/4,  
and S/2  
Section 23: W/2, S/2 NE/4, and SE/4  
Section 25: N/2, N/2 SW/4, N/2 SE/4 and  
SE/4 SE/4  
Section 26: N/2, SW/4, and NW/4 SE/4  
Section 27: All  
Section 28: All  
Section 29: All  
Section 30: All  
Section 31: NE/4 NW/4  
Section 33: N/2  
Section 34: W/2 NW/4, NE/4 NW/4, and  
NW/4 NE/4

TOWNSHIP 17 SOUTH, RANGE 33 EAST, NMPM  
LEA COUNTY, NEW MEXICO  
Section 30: NW/4 and N/2 SW/4

containing 8,055.16 acres, more or less.

That the Participating Area described above and the following-described lands lying outside of the Participating Area but within the Cooperative Area, are hereby designated and recognized as constituting the committed acreage to the Maljamar Cooperative Agreement:

TOWNSHIP 17 SOUTH, RANGE 32 EAST, NMPM  
LEA COUNTY, NEW MEXICO  
Section 14: SW/4 (156.25 acres of 160-acre tract), and E/2  
Section 16: NE/4, N/2 SE/4, and SE/4 NW/4  
Section 17: SW/4 NE/4, W/2 SE/4, N/2 NW/4, SW/4 NW/4, and N/2 SW/4  
Section 18: E/2, E/2 W/2, and Lots 1, 2 and 3  
Section 22: N/2 NE/4 and NE/4 NW/4  
Section 23: N/2 NE/4  
Section 25: SW/4 SE/4, and S/2 SW/4  
Section 26: NE/4 SE/4, and S/2 SE/4  
Section 31: E/2, SE/4 NW/4, E/2 SW/4, and Lots 1, 2, 3 and 4  
Section 32: NE/4 and N/2 NW/4, below 5,000 feet only  
Section 33: S/2  
Section 34: N/2 SE/4 below 5,000 feet only, NE/4 NE/4, S/2 NE/4, and SE/4 NW/4  
Section 35: W/2

TOWNSHIP 17 SOUTH, RANGE 33 EAST, NMPM  
LEA COUNTY, NEW MEXICO  
Section 30: Lot 4, and SE/4 SW/4

(5) That the fully Unitized Area shall be those lands designated above as the Participating Area of the MCA Unit for the Grayburg-San Andres formation.

(6) That the Participating Area may be enlarged as provided in said Supplement No. 5 and additional acreage committed to the MCA Unit; provided, however, that administrative approval for the expansion of the Participating Area or the committed acreage must be obtained from the Secretary-Director of the Commission; and provided, further, that any extension of the Cooperative Area, or of the Unitized Area beyond the boundaries of the Cooperative Area as described herein, shall be made only after notice and hearing.

(7) That the MCA Unit operator shall file with the Commission an executed original or executed counterpart of the Supplement No. 5 within thirty (30) days after the effective date thereof. In the event of subsequent joinder by any party or expansion of the Participating Area, the unit operator shall file with the Commission within thirty (30) days thereafter counterparts of the unit agreement reflecting the subscription of those interests having subsequently joined or ratified.

IT IS FURTHER ORDERED:

(1) That the applicant, Continental Oil Company, as operator, is hereby authorized to continue the gas and water injection project authorized by Orders 485, 595, and R-841, and to continue and expand the water injection project as further authorized by Order No. R-1075 and as proposed by the Plan of Operations submitted with Supplement No. 5.

(2) That the MCA Unit approved gas and water injection wells shall be those wells listed in Exhibit "A" attached hereto. Additional wells may be drilled for gas or water injection, gas injection wells may be converted to water injection, water injection wells may be converted to gas injection wells, and producing wells may be converted to injection wells and injection wells to producing wells within the boundaries of the Maljamar Cooperative Agreement Area upon administrative approval of the Secretary-Director of the Commission without notice or hearing; provided, however, that all information required by Rule 701-B of the Commission Rules and Regulations shall be included in the application for administrative approval; and provided, further, that all offset operators to the well, if any there be, whose acreage is not included within the Participating Area, and the State Engineer shall also be notified by registered or certified mail of such request for administrative approval. The Secretary-Director may approve the application if no such offset operator (or the State Engineer) has objected within 20 days. The Secretary-Director may grant immediate approval of the application upon receipt of written waivers of objection from all such offset operators and the State Engineer.

(3) That the allocation to the Participating Area and other committed leases within the MCA Unit Area and the reallocation to the respective proration units therein shall be made upon the following plan:

- (a) The unit operator shall submit to the Commission for approval the nomination in total barrels daily and schedule of reallocation to the respective proration units. Said nomination and schedule shall be submitted to the Commission and a duplicate shall be supplied to the Hobbs District Office of

the Commission not later than the twentieth day of each month preceding the next proration month.

- (b) Each proration unit shall be assigned an acreage allowable in whatsoever amount it is capable of producing up to but not exceeding fifteen (15) barrels daily, unless the unit operator nominates a lesser amount per proration unit.
- (c) Each proration unit capable of producing the acreage allowable but incapable of producing the acreage allowable plus the allowable assignable through the application of the void space formula hereinafter provided shall be assigned an allowable equal to that volume of oil shown on its production test.
- (d) All proration units capable of producing said acreage allowable plus the allowable allocated through the application of the void space formula shall be assigned a proportionate part of the total void space allowable so that each said proration unit will share in the void space allocation in inverse proportion to the amount of reservoir space voided as reflected by its production tests in strict accordance with the following formula:

$$\frac{\text{Proration Unit Reciprocal Void Space Factor}}{\text{Summation of MCA Unit Reciprocal Void Space Factors}} \times \text{Void Space Allowable} = \text{Number of Barrels}$$

The reciprocal void space factors to be determined from the attached Exhibit "B", being a table of "BARRELS OF RESERVOIR SPACE VOIDED IN PRODUCING ONE BARREL OF STOCK TANK OIL, AND THE RECIPROCAL FACTOR THERETO, AT GIVEN GAS-OIL RATIOS AND RESERVOIR PRESSURES."

- (e) A proration unit upon which is located a newly completed or reconditioned well shall be assigned an allowable in accordance with its acreage and void space allowable from the first day of production of new oil.

- (f) The proration units within the MCA Unit Area shall have a top daily oil allowable equal to the Southeast New Mexico Waterflood Allowable Factor currently in effect or as modified by future orders of the Commission, subject to the acreage and void space allowable allocations. A proration unit must have either a producing well, an injection well or a shut-in well capable of production before it can receive an allowable assignment.
- (g) Bottomhole pressure surveys and gas-oil ratio tests shall be taken and filed with the Commission in accordance with the Commission Rules and Regulations every six (6) months or at such periods as the Commission in its discretion may prescribe from time to time. All bottomhole pressures shall be computed to a common datum of sea level.
- (h) In no event shall any well producing from horizons other than the Grayburg-San Andres formations be prorated under this plan of allocation.

(4) That the operator is hereby authorized to transfer the top unit allowable from any proration unit containing only an injection well, or a well shut-in for engineering reasons and approved by the Commission, to any well or wells assigned a top unit allowable under the void space formula and capable of making the transferred allowable or portion thereof. Where a well is incapable of producing its calculated void space allowable, the difference between its capability and that allowable assigned by the void space formula may likewise be transferred to any well or wells assigned a top unit allowable under the void space formula capable of making the transferred allowable or a portion thereof. Provided however, that no allowable shall be transferred across the boundary of the Participating Area or across the boundary of any lease outside the Participating Area without notice and hearing.

(5) That an exception is hereby granted to the provisions of Rule 309-A of the Commission Rules and Regulations to permit the production of more than sixteen wells into a single tank battery. Operator shall notify the Commission of the location of any central tank battery at the time of its installation.

(6) That no well in the MCA Unit Area that is within the Participating Area and is closer than 1000 feet to the boundary thereof or that is outside the Participating Area and is closer than 1000 feet to the Participating Area or to another lease shall produce in excess of two times the top unit allowable for the MCA Unit Area. The Secretary-Director may, upon application

filed in due form, approve production in excess of two times the top unit allowable if all offset operators have been notified of the application and no objection has been received within ten days. The Secretary-Director may grant immediate approval of such application upon receipt of written waivers of objection from all such offset operators.

(7) That all previous orders pertaining to the MCA Unit are hereby superseded insofar as they are inconsistent with this order.

(8) 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

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

esr/

NMOCC ORDERS AND ADMINISTRATIVE APPROVALS AFFECTING

MCA UNIT INJECTION WELLS AND NON-STANDARD LOCATIONS

ORDER NO. R-2403

EXHIBIT "A"

Page 1

WELL NAME IN ORIGINAL ORDER

PRESENT WELL NAME

LOCATION

ORDER AUTHORIZING NSL

ORDER AUTHORIZING INJECTION

GAS INJECTION WELLS

Maljamar Oil & Gas Company  
Baish A-8

Continental Oil Company  
Baish A No. 8

1980' FNL, 660' FWL,  
Sec. 21, T17S, R32E

485

Barney Cockburn  
Miller A-6

Miller A No. 6

1980' FNL, 660' FWL,  
Sec. 26, T17S, R32E

485

Buffalo Oil Company

Wm. Mitchell B No. 33

2610' FSL, 2640' FEL,  
Sec. 19, T17S, R32E

Administrative  
Approval 4-6-45

Administrative  
Approval 4-6-45

Wm. Mitchell B No. IP 5

Wm. Mitchell B No. 42

2615' FSL, 2610' FWL,  
Sec. 20, T17S, R32E

Administrative  
Approval 4-6-45

Administrative  
Approval 4-6-45

Wm. Mitchell B-IP No. 12

Wm. Mitchell B No. 44

25' FS&EL,  
Sec. 19, T17S, R32E

Administrative  
Approval 4-6-45

Administrative  
Approval 4-6-45

Wm. Mitchell B No. 17

Wm. Mitchell B No. 17

660' FS&WL,  
Sec. 17, T17S, R32E

Administrative  
Approval 4-6-45

Administrative  
Approval 4-25-57

Wm. Mitchell B-IP No. 18

Wm. Mitchell B No. 45

2615' FSL, 25' FWL,  
Sec. 20, T17S, R32E

Administrative  
Approval 4-6-45

Administrative  
Approval 4-6-45

Wm. Mitchell B-IP No. 36

Wm. Mitchell B No. 36

25' FSL, 2590' FWL,  
Sec. 20, T17S, R32E

Administrative  
Approval 4-6-45

Administrative  
Approval 4-6-45

Baish B No. IP 10

Baish B No. 16

25' FSL, 50' FWL,  
Sec. 22, T17S, R32E

Administrative  
Approval 4-6-45

Administrative  
Approval 4-6-45

Baish A No. IP 19

Baish A No. 28

2530' FNL, 215' FWL,  
Sec. 21, T17S, R32E

Administrative  
Approval 11-27-51

Administrative  
Approval 11-27-51

Baish B No. IP 20

Baish B No. 17

2555' FNL, 2615' FWL,  
Sec. 22, T17S, R32E

Administrative  
Approval 4-6-45

Administrative  
Approval 4-6-45

Baish A No. IP 26

Baish A No. 26

2615' FN&WL,  
Sec. 21, T17S, R32E

Administrative  
Approval 4-6-45

Administrative  
Approval 4-6-45

Baish B No. IP 27

Baish B No. 18

25' FSL, 2612' FWL,  
Sec. 22, T17S, R32E

Administrative  
Approval 4-6-45

Administrative  
Approval 4-6-45

WELL NAME IN ORIGINAL ORDER

Carper Drilling Company  
Simon 8-N

Simon N IP No. 13

Simon R IP No. 21

Simon R IP No. 28

Simon R IP No. 37

Keweenaw Oil Company  
Baish B-11

Baish B No. IP 11

Baish B No. IP 14

Baish B No. IP 15

Baish B IP No. 29

Baish B IP No. 30

Baish B IP No. 35

Miller A No. 5

Miller A No. 11

Mitchell B No. IP 17

Pearsall A No. IP 23

Pearsall BXY No. IP 22

Pearl 22 B IP 42

PRESENT WELL NAME

Simon N-8, IP No. 3

Simon N IP No. 13

Simon R IP No. 21

Simon R IP No. 28

Simon R IP No. 37

Queen B No. 11

Queen B No. 38

Queen B No. 39

Queen B No. 40

Queen B No. 41

Queen B No. 9

Queen B No. 42

Miller A No. 5

Miller A No. 11

King B No. 6

Pearsall A No. 15

Pearsall BXY No. 2

Pearl B No. 22

LOCATION

660' FSL, 1980' FEL,

Sec. 29, T17S, R32E

2580' FNL, 2595' FWL,

Sec. 29, T17S, R32E

2615' FN&WL,

Sec. 30, T17S, R32E

2615' FSL, 140' FEL,

Sec. 30, T17S, R32E

50' FNL, 2635' FWL,

Sec. 30, T17S, R32E

660' FSL, 1980' FEL,

Sec. 27, T17S, R32E

80' FNL, 25' FWL,

Sec. 28, T17S, R32E

2600' FSL, 2470' FEL,

Sec. 28, T17S, R32E

2615' FSL, 2570' FEL,

Sec. 27, T17S, R32E

2590' FSL, 25' FWL,

Sec. 28, T17S, R32E

1980' FNL, 660' FWL,

Sec. 27, T17S, R32E

75' FNL, 2560' FEL,

Sec. 28, T17S, R32E

660' FSL, 1980' FWL,

Sec. 23, T17S, R32E

1980' FS&EL,

Sec. 23, T17S, R32E

40' FSL, 40' FEL,

Sec. 17, T17S, R32E

50' FNL, 2500' FEL,

Sec. 33, T17S, R32E

25' FN&WL,

Sec. 34, T17S, R32E

2615' FSL, 2615' FEL,

Sec. 25, T17S, R32E

ORDER AUTHORIZING NSL

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Administrative

Approval 4-6-45

Administrative

Approval 4-6-45

Administrative

Approval 4-6-45

Administrative

Approval 4-6-45

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Approval 4-6-45

763

485

Administrative

Approval 4-6-45

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Approval 4-6-45

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Approval 4-6-45

Administrative

Approval 4-6-45

485

Administrative

Approval 4-6-45

Administrative

Approval 4-18-58

Administrative

Approval 4-18-58

Administrative

Approval 4-6-45

Administrative

Approval 4-6-45

Administrative

Approval 4-6-45

R-146

WELL NAME IN ORIGINAL ORDER      PRESENT WELL NAME      LOCATION      ORDER AUTHORIZING NSL      ORDER AUTHORIZING INJECTION

Kewanee Oil Company (Continued)  
Pearl 24 B IP 44      Pearl B No. 24      1345' P&W/L, Sec. 25, T17S, R32E      763      R-146  
 Pearl 25 B IP 45      Pearl B No. 25      1345' P&W/L, 2615' P&W/L, Sec. 25, T17S, R32E      770      R-483

WATER INJECTION WELLS

Continental Oil Company  
Pearl B No. 21      Pearl B No. 26      2665' P&W/L, 1295' P&W/L, Sec. 25, T17S, R32E      763      R-1075\*  
 New Well      Pearl B No. 26      2615' P&W/L, 25' P&W/L, Sec. 30, T17S, R33E      770      R-841  
 Buffalo Balsh A No. 21      New Well      25' P&W/L, 1325' P&W/L, Sec. 21, T17S, R32E      R-1075      R-1075\*  
 New Well      Balsh A No. 21      1395' P&W/L, 1347' P&W/L, Sec. 21, T17S, R32E      821      R-1075\*  
 Kewanee Balsh B IP No. 11      New Well      1325' P&W/L, 2615' P&W/L, Sec. 21, T17S, R32E      R-1075      R-1075\*  
 New Well      Queen B No. 38      80' P&W/L, 25' P&W/L, Sec. 28, T17S, R32E      R-1075      R-1075\*  
 Kewanee Balsh B IP No. 11      Queen B No. 38      25' P&W/L, 1325' P&W/L, Sec. 21, T17S, R32E      R-1075      R-1075\*  
 New Well      New Well      75' P&W/L, 2560' P&W/L, Sec. 28, T17S, R32E      Administrative Approval 4-6-45      R-1075\*  
 Kewanee Balsh B No. IP 35      Queen B No. 42      1325' P&W/L, 25' P&W/L, Sec. 28, T17S, R32E      R-1075      R-1075\*  
 New Well      New Well      1325' P&W/L, 25' P&W/L, Sec. 28, T17S, R32E      R-1075      R-1075\*  
 New Well      New Well      1325' P&W/L, 2635' P&W/L, Sec. 28, T17S, R32E      R-1075      R-1075\*

\*Approved but not in operation as injection wells.

<u>WELL NAME IN ORIGINAL ORDER</u>	<u>PRESENT WELL NAME</u>	<u>LOCATION</u>	<u>ORDER AUTHORIZING NSL</u>	<u>REMARKS</u>
<u>PRODUCING WELLS - NSL</u>				
<u>Kewanee Oil Company</u> Pearl 21 B	<u>Continental Oil Company</u> Pearl B No. 21	2665' FNL, 1295' FEL, Sec. 25, T17S, R32E	763	
Pearl 23 B	Pearl B No. 23	2615' FSL, 1345' FWL, Sec. 25, T17S, R32E	763	
Baish B 32	Queen B No. 32	1295' FSL, 2615' FEL, Sec. 27, T17S, R32E	735	
Baish B 34	Queen B No. 34	2600' FNL, 25' FWL, Sec. 27, T17S, R32E	Administrative Approval 4-6-45	
Baish B 37	Queen B No. 37	1345' FS&EL, Sec. 27, T17S, R32E	R-484	Administrative Approval 4-3-57 for recompletion in Maljamar Pool
Pearsall A No. 14	Pearsall A No. 14	1345' FNL, 2615' FEL, Sec. 33, T17S, R32E	R-484	Administrative Approval 4-3-57 for recompletion in Maljamar Pool
<u>Buffalo Oil Company</u> Baish A 20	Baish A No. 20	2615' FNL, 1295' FWL, Sec. 21, T17S, R32E	793	
Baish A 21	Baish A No. 21	1395' FSL, 1347' FWL, Sec. 21, T17S, R32E	821	
Baish A No. 1	Baish A No. 1	250' FN&EL, Sec. 21, T17S, R32E	Discovery Well	Drilled 7-16-26
State A No. 1	State A No. 1	250' FS&EL, Sec. 16, T17S, R32E	Old Well	Drilled 1927
<u>Carper Drilling Company</u> Simon #9-N	<u>Carper Drilling Company</u> Simon N No. 9	1345' FEL, 1295' FSL, Sec. 29, T17S, R32E	828	
Sears Miller No. 5	Sears Miller A No. 5	1295' FSL, 1370' FWL, Sec. 26, T17S, R32E	781	

BARRELS OF RESERVOIR SPACE VOIDED IN PRODUCING ONE BARREL OF STOCK TANK-OIL, AND THE RECIPROCAL FACTOR THEREOF, AT GIVEN GAS OIL RATIOS AND RESERVOIR PRESSURES

Order No. R-2403  
Exhibit "B"  
Page 1

Gas Oil Ratios

	400	500	600	700	800	900	1000	1200	1400	1600	1800	2000	2200	2400	2600
1300	1.111	1.27	1.43	1.59	1.75	1.91	2.07	2.39	2.70	3.02	3.34	3.66	3.98	4.30	4.61
1250	.900	.787	.699	.630	.571	.524	.483	.418	.370	.331	.299	.273	.251	.233	.217
1200	1.10	1.27	1.44	1.61	1.77	1.94	2.11	2.44	2.78	3.11	3.45	3.78	4.12	4.45	4.78
1150	.909	.781	.690	.621	.565	.515	.474	.410	.360	.322	.290	.265	.243	.225	.209
1100	1.10	1.28	1.45	1.63	1.80	1.98	2.15	2.51	2.86	3.21	3.56	3.91	4.26	4.62	4.97
1050	.909	.781	.685	.613	.556	.505	.465	.398	.350	.312	.281	.256	.235	.216	.201
1000	1.09	1.28	1.46	1.65	1.83	2.02	2.20	2.57	2.94	3.31	3.68	4.05	4.42	4.79	5.16
950	.917	.781	.685	.606	.546	.495	.455	.389	.340	.302	.272	.247	.226	.209	.194
900	1.08	1.28	1.47	1.67	1.86	2.06	2.25	2.65	3.04	3.43	3.82	4.21	4.60	5.00	5.39
850	.926	.781	.680	.599	.538	.485	.444	.377	.329	.292	.262	.238	.217	.200	.186
800	1.07	1.28	1.48	1.69	1.90	2.11	2.31	2.73	3.14	3.55	3.97	4.38	4.80	5.21	5.63
750	.935	.781	.676	.592	.526	.474	.433	.366	.318	.282	.252	.228	.208	.192	.178
700	1.06	1.28	1.50	1.72	1.94	2.16	2.37	2.81	3.25	3.69	4.13	4.57	5.00	5.44	5.88
650	.943	.781	.667	.581	.515	.463	.427	.356	.308	.271	.242	.219	.200	.184	.170
600	1.07	1.31	1.54	1.78	2.01	2.24	2.47	2.94	3.41	3.87	4.34	4.81	5.27	5.74	6.21
550	.934	.763	.649	.562	.498	.446	.405	.340	.293	.254	.230	.208	.190	.174	.161
500	1.09	1.34	1.59	1.84	2.09	2.34	2.58	3.08	3.58	4.08	4.58	5.08	5.57	6.07	6.57
450	.917	.746	.630	.543	.478	.427	.388	.325	.279	.245	.218	.197	.180	.165	.152
400	1.11	1.38	1.64	1.91	2.18	2.45	2.71	3.24	3.78	4.31	4.84	5.38	5.91	6.44	6.98
	.900	.725	.610	.524	.459	.408	.369	.309	.265	.232	.207	.186	.169	.155	.143
	1.13	1.42	1.71	2.00	2.28	2.57	2.85	3.42	4.00	4.57	5.14	5.71	6.29	6.86	7.43
	.885	.704	.585	.500	.439	.389	.351	.292	.250	.219	.195	.175	.159	.146	.135
	1.16	1.47	1.78	2.09	2.40	2.71	3.01	3.63	4.25	4.86	5.48	6.10	6.71	7.33	7.94
	.862	.680	.562	.478	.417	.369	.332	.275	.235	.206	.182	.164	.149	.136	.126
	1.20	1.54	1.87	2.21	2.54	2.87	3.20	3.87	4.54	5.21	5.88	6.54	7.21	7.88	8.55
	.833	.649	.535	.452	.394	.348	.313	.258	.220	.192	.170	.153	.139	.127	.117
	1.25	1.61	1.97	2.34	2.70	3.07	3.43	4.15	4.88	5.61	6.34	7.06	7.79	8.52	9.25
	.800	.621	.508	.427	.370	.326	.292	.241	.205	.178	.158	.142	.128	.117	.108
	1.30	1.70	2.10	2.50	2.89	3.29	3.68	4.48	5.27	6.06	6.86	7.65	8.45	9.24	10.03
	.769	.588	.476	.400	.346	.304	.272	.223	.190	.165	.146	.131	.118	.108	.100
	1.37	1.81	2.25	2.69	3.12	3.56	3.99	4.87	5.74	6.62	7.49	8.36	9.24	10.11	10.98
	.730	.552	.444	.372	.321	.281	.251	.205	.174	.151	.134	.120	.108	.099	.091
	1.46	1.95	2.43	2.92	3.40	3.89	4.37	5.33	6.30	7.27	8.24	9.21	10.18	11.15	12.11
	.685	.513	.412	.342	.294	.257	.229	.188	.159	.138	.121	.109	.098	.090	.083
	1.58	2.12	2.66	3.21	3.75	4.29	4.83	5.92	7.00	8.09	9.18	10.26	11.35	12.43	13.52
	.633	.472	.376	.312	.267	.233	.207	.169	.143	.124	.109	.097	.088	.080	.074
	1.73	2.34	2.95	3.57	4.18	4.80	5.41	6.64	7.87	9.10	10.33	11.55	12.78	14.01	15.24
	.578	.427	.339	.280	.239	.208	.185	.151	.127	.110	.097	.087	.078	.071	.066

Reservoir Pressures

BARRELS OF RESERVOIR SPACE VOIDED IN PRODUCING ONE BARREL OF STOCK TANK-OIL, AND  
 THE RECIPROCAL FACTOR THEREOF, AT GIVEN GAS OIL RATIOS AND RESERVOIR PRESSURES

Gas Oil Ratios

	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000
1300	4.93 .203	5.25 .190	5.57 .180	5.89 .170	6.21 .161	6.53 .153	6.84 .146	7.16 .140	7.48 .134	7.80 .128	8.12 .123	8.44 .118
1250	5.12 .195	5.45 .183	5.79 .173	6.12 .163	6.46 .155	6.79 .147	7.13 .140	7.46 .134	7.80 .128	8.13 .123	8.46 .118	8.80 .114
1200	5.32 .188	5.67 .176	6.02 .166	6.38 .157	6.73 .149	7.08 .141	7.43 .135	7.78 .129	8.14 .123	8.49 .118	8.84 .113	9.19 .109
1150	5.53 .181	5.90 .169	6.27 .159	6.64 .151	7.01 .143	7.38 .136	7.75 .129	8.12 .123	8.49 .118	8.86 .113	9.23 .108	9.60 .104
1100	5.78 .173	6.17 .162	6.56 .152	6.95 .144	7.34 .136	7.74 .129	8.13 .123	8.52 .117	8.91 .112	9.30 .108	9.69 .103	10.08 .099
1050	6.04 .166	6.45 .155	6.87 .146	7.28 .137	7.70 .130	8.11 .123	8.52 .117	8.94 .112	9.35 .107	9.77 .102	10.18 .098	10.59 .094
1000	6.32 .158	6.76 .148	7.20 .139	7.63 .131	8.07 .124	8.51 .118	8.95 .112	9.39 .106	9.83 .102	10.26 .097	10.70 .093	11.14 .090
950	6.67 .150	7.14 .140	7.61 .131	8.07 .124	8.54 .117	9.01 .111	9.47 .106	9.94 .101	10.41 .096	10.87 .092	11.34 .088	11.81 .085
900	7.07 .141	7.57 .132	8.07 .124	8.56 .117	9.06 .110	9.56 .105	10.06 .099	10.56 .095	11.06 .090	11.55 .087	12.05 .083	12.55 .080
850	7.51 .133	8.05 .124	8.58 .117	9.11 .110	9.65 .104	10.18 .098	10.71 .093	11.25 .089	11.78 .085	12.31 .081	12.85 .078	13.38 .075
800	8.00 .125	8.58 .117	9.15 .109	9.72 .103	10.29 .097	10.86 .092	11.44 .087	12.01 .083	12.58 .079	13.15 .076	13.73 .073	14.30 .070
750	8.56 .117	9.18 .109	9.79 .102	10.41 .096	11.03 .091	11.64 .086	12.26 .082	12.87 .078	13.49 .074	14.11 .071	14.72 .068	15.34 .065
700	9.22 .108	9.88 .101	10.55 .095	11.22 .089	11.89 .084	12.56 .080	13.22 .076	13.89 .072	14.56 .069	15.23 .066	15.90 .063	16.56 .060
650	9.97 .100	10.70 .093	11.43 .087	12.16 .082	12.88 .078	13.61 .073	14.34 .070	15.07 .066	15.79 .063	16.52 .061	17.25 .058	17.97 .056
600	10.83 .092	11.62 .086	12.41 .081	13.21 .076	14.00 .071	14.80 .068	15.59 .064	16.38 .061	17.18 .058	17.97 .056	18.76 .053	19.56 .051
550	11.86 .084	12.73 .079	13.61 .073	14.48 .069	15.35 .065	16.23 .062	17.10 .058	17.97 .056	18.85 .053	19.72 .051	20.60 .049	21.47 .047
500	13.08 .076	14.05 .071	15.02 .067	15.99 .063	16.96 .059	17.92 .056	18.89 .053	19.86 .050	20.83 .048	21.80 .046	22.77 .044	23.73 .042
450	14.60 .068	15.69 .064	16.77 .059	17.86 .056	18.95 .053	20.03 .050	21.12 .047	22.20 .045	23.29 .043	24.37 .041	25.46 .039	26.55 .038
400	16.47 .061	17.70 .056	18.93 .053	20.15 .050	21.38 .047	22.61 .044	23.84 .042	25.07 .040	26.30 .038	27.53 .036	28.76 .035	29.98 .033

Reservoir Pressures

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 2865  
Order No. R-2541

APPLICATION OF HUMBLE OIL & REFINING  
COMPANY FOR A PRESSURE MAINTENANCE  
PROJECT, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on July 24, 1963, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 7th day of August, 1963, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Humble Oil & Refining Company, seeks authority to institute a pressure maintenance project in the Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup formation initially through nine wells located or to be located within the proposed project area comprising the following-described acreage:

TOWNSHIP 31 NORTH, RANGE 17 WEST, NMPM  
Section 1: W/2, SE/4, and SW/4 NE/4  
Section 2: NE/4 and NE/4 SE/4  
Section 12: NE/4 and NE/4 NW/4

(3) That the applicant seeks the promulgation of special rules and regulations governing the proposed project similar to the special rules and regulations governing the Horseshoe-Gallup Pressure Maintenance Project No. 2 promulgated by Order No. R-1745.

(4) That the applicant proposes that the special rules and regulations provide that any producing well in the project area which directly or diagonally offsets any well outside the project area producing from the same common source of supply shall not produce in excess of top unit allowable for the pool until January 1, 1964, or until the operators of such offset well outside the project area have instituted a pressure maintenance project in the area of such well, whichever shall first occur.

(5) That the proposed pressure maintenance project is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.

(6) That the proposed special rules and regulations should be adopted in order to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Humble Oil & Refining Company, is hereby authorized to institute a pressure maintenance project designated the Many Rocks-Gallup Pressure Maintenance Project No. 1 in the Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup formation through nine injection wells located or to be located in Units F, J, L, and N of Section 1, Unit H of Section 2, and Unit B of Section 12, Township 31 North, Range 17 West, NMPM, San Juan County, New Mexico, with one injection well located on each of the above-described units.

(2) That special rules and regulations governing the Many Rocks-Gallup Pressure Maintenance Project No. 1, San Juan County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS  
FOR THE  
MANY ROCKS-GALLUP PRESSURE MAINTENANCE PROJECT NO. 1

RULE 1. The project area of the Many Rocks-Gallup Pressure Maintenance Project No. 1, hereinafter referred to as the Project, shall comprise the following-described area:

TOWNSHIP 31 NORTH, RANGE 17 WEST, NMPM  
Section 1: W/2, SE/4, and SW/4 NE/4  
Section 2: NE/4 and NE/4 SE/4  
Section 12: NE/4 and NE/4 NW/4

RULE 2. The allowable for the Project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut-in, curtailed, or used as injection wells. Allowables for all wells shall be determined in a manner hereinafter prescribed.

RULE 3. Allowables for injection wells may be transferred to producing wells within the project area, as may the allowables for producing wells which, in the interest of more efficient operation of the Project, are shut-in or curtailed because of high gas-oil ratio, pressure regulation, control of pattern or sweep efficiencies, or to observe changes in pressures or changes in characteristics of reservoir liquids or progress of sweep.

RULE 4. The allowable assigned to any well which is shut-in or which is curtailed in accordance with the provisions of Rule 3, which allowable is to be transferred to any well or wells in the project area for production, shall in no event be greater than its ability to produce during the test prescribed by Rule 6, below, or greater than the current top unit allowable for the pool during the month of transfer, whichever is less.

RULE 5. The allowable assigned to any injection well on a 40-acre proration unit shall be top unit allowable for the pool.

RULE 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rule 3 shall be determined by a 24-hour test at a stabilized rate of production which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at a constant rate. The daily tolerance limitation set forth in Rule 502 I (a) of the General Rules and Regulations and any limiting gas-oil ratio for the pool shall be waived during such tests. The project operator shall notify the Commission and all offset operators in writing of the exact time and date such tests are to be conducted. The Commission and representatives of the offset operators may witness the tests.

RULE 7. The allowable assigned to each producing well in the Project shall be equal to the well's ability to produce or to top unit allowable for the pool, whichever is less; provided, however, that any producing well in the project area which directly or diagonally offsets a well outside the project area producing from the same common source of supply shall not produce in excess of top unit allowable for the pool until January 1, 1964, or until the operators of such offset well outside the project area have instituted a pressure maintenance project in the area of such well, whichever shall first occur. Each producing well shall be subject to the limiting gas-oil ratio (2,000 to 1) for the pool, except that any well or wells within the project area producing with a gas-oil ratio in excess of 2,000 cubic feet of gas per barrel of oil may be produced on a "net" gas-oil ratio basis, which net gas-oil ratio shall be determined by applying credit for daily average gas injected, if any, into the pool within the project area to such high gas-oil ratio well. The daily adjusted oil allowable for any well receiving gas injection credit shall be

determined in accordance with the following formula:

$$A_{adj} = \frac{TUA \times F_a \times 2,000}{\frac{P_g - I_g}{P_o}}$$

where:

- $A_{adj}$  = the well's daily adjusted allowable  
 $TUA$  = top unit allowable for the pool  
 $F_a$  = the well's acreage factor  
 $P_g$  = average daily volume of gas produced by the well during the preceding month, cubic feet  
 $I_g$  = the well's allocated share of the daily average gas injected during the preceding month, cubic feet  
 $P_o$  = average daily volume of oil produced by the well during the preceding month, barrels

In no event shall the amount of injected gas being credited to a well be such as to cause the net gas-oil ratio,  $\frac{P_g - I_g}{P_o}$ , to be less than 2,000 cubic feet of gas per barrel of oil produced.

RULE 8. Credit for daily average net water injected into the pool through any injection well located within the project area may be converted to its gas equivalent and applied to any well producing with a gas-oil ratio in excess of two thousand cubic feet of gas per barrel of oil. Total credit for net water injected in the project area shall be the gas equivalent volume of the daily average net water injected during a one-month period. The daily average gas equivalent of net water injected shall be computed in accordance with the following formula:

$$E_g = (V_w \text{ inj} - V_w \text{ prod}) \times 5.61 \times \frac{P_a}{15.025} \times \frac{520^0}{T_r} \times \frac{1}{Z}$$

where:

- $E_g$  = Average daily gas equivalent of net water injected, cubic feet

- $V_w \text{ inj}$  = Average daily volume of water injected, barrels
- $V_w \text{ prod}$  = Average daily volume of water produced, barrels
- 5.61 = Cubic foot equivalent of one barrel of water
- $P_a$  = Average reservoir pressure at mid-point of the pay-zones of the pool in the project area, psig + 12.01, as determined from most recent survey
- 15.025 = Pressure base, psi
- 520° = Temperature base of 60°F expressed as absolute temperature
- $T_r$  = Reservoir temperature of 92°F expressed as absolute temperature (552°R)
- Z = Compressibility factor from analysis of gas from the pool at average reservoir pressure,  $P_a$ , interpolated from compressibility tabulation below:

Reservoir Pressure	Z	Reservoir Pressure	Z	Reservoir Pressure	Z
50	.9725	300	.8325	500	.6560
100	.9465	350	.8030	600	.6135
150	.9215	400	.7710	650	.5655
200	.8885	450	.7220	700	.5220
250	.8600	500	.6900	750	.4630
				800	.3935

**RULE 9.** Each month the project operator shall, within three days after the normal unit allowable for Northwest New Mexico has been established, submit to the Commission a Pressure Maintenance Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the Project as well as the total Project allowable. The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the Project.

**RULE 10.** The Commission shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for each well in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and may be produced from the wells

in the Project in any proportion except that no well in the Project which directly or diagonally offsets a well outside the Project producing from the same common source of supply shall produce in excess of top unit allowable for the pool until January 1, 1964, or until the operators of such offset well outside the project area have instituted a pressure maintenance project in the area of such well, whichever shall first occur.

RULE 11. The conversion of producing wells to injection, the drilling of additional wells for injection, and expansion of the project area shall be accomplished only after approval of the same by the Secretary-Director of the Commission. To obtain such approval, the project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional injection wells shall be filed in accordance with Commission Rule 701-B and shall be accompanied by a statement that all offset operators to the proposed injection well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed injection well if, within 15 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators, and from the State Engineer.

Expansion of the project area may be approved by the Secretary-Director of the Commission administratively when good cause is shown therefor.

(3) 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

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

esr/

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 2948  
Order No. R-2622

APPLICATION OF THE ATLANTIC REFINING  
COMPANY FOR A PRESSURE MAINTENANCE  
PROJECT, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on December 4, 1963, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 19th day of December, 1963, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, The Atlantic Refining Company, seeks authority to institute a pressure maintenance project in the Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup (Tocito) formation initially through 14 wells located or to be located within the proposed project area comprising the following-described acreage:

TOWNSHIP 31 NORTH, RANGE 16 WEST, NMPM  
Section 6: SW/4 SW/4  
Section 7: W/2 NE/4, SE/4 NE/4, NW/4,  
NW/4 SW/4, E/2 SW/4, and SE/4  
Section 8: SW/4  
Section 17: SE/4 NE/4, W/2 NE/4, NW/4,  
NW/4 SW/4, E/2 SW/4, and SE/4  
Section 18: E/2 NE/4 and NW/4 NE/4

(3) That the applicant seeks the promulgation of special rules and regulations governing the proposed project similar to

the special rules and regulations governing the Many Rocks-Gallup Pressure Maintenance Project No. 1 promulgated by Order No. R-2541.

(4) That the applicant proposes that the special rules and regulations provide that the Atlantic-Navajo Well No. 17-5 located in the SE/4 SE/4 of Section 17, Township 31 North, Range 16 West, shall not produce in excess of top unit allowable for the pool until May 31, 1964, or until a Gallup pressure maintenance project has been instituted in the area offsetting said well outside the project area, whichever shall first occur.

(5) That the proposed pressure maintenance project is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.

(6) That the proposed special rules and regulations should be adopted in order to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, The Atlantic Refining Company, is hereby authorized to institute a pressure maintenance project designated the Many Rocks-Gallup Pressure Maintenance Project No. 2 in the Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup (Tocito) formation through 14 injection wells located or to be located in Unit M of Section 6, Units B, H, L, and N of Section 7, Unit L of Section 8, Units C, E, G, I, K, and O of Section 17, and Units A and B of Section 18, all in Township 31 North, Range 16 West, NMPM, San Juan County, New Mexico, with one injection well located on each of the above-described units.

(2) That special rules and regulations governing the Many Rocks-Gallup Pressure Maintenance Project No. 2, San Juan County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS  
FOR THE  
MANY ROCKS-GALLUP PRESSURE MAINTENANCE PROJECT NO. 2

RULE 1. The project area of the Many Rocks-Gallup Pressure Maintenance Project No. 2, hereinafter referred to as the Project, shall comprise the following-described area:

TOWNSHIP 31 NORTH, RANGE 16 WEST, NMPM  
Section 6: SW/4 SW/4  
Section 7: W/2 NE/4, SE/4 NE/4, NW/4,  
NW/4 SW/4, E/2 SW/4, and SE/4  
Section 8: SW/4  
Section 17: SE/4 NE/4, W/2 NE/4, NW/4,  
NW/4 SW/4, E/2 SW/4, and SE/4  
Section 18: E/2 NE/4 and NW/4 NE/4

RULE 2. The allowable for the Project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut-in, curtailed, or used as injection wells. Allowables for all wells shall be determined in a manner hereinafter prescribed.

RULE 3. Allowables for injection wells may be transferred to producing wells within the project area, as may the allowables for producing wells which, in the interest of more efficient operation of the Project, are shut-in or curtailed because of high gas-oil ratio, pressure regulation, control of pattern or sweep efficiencies, or to observe changes in pressures or changes in characteristics of reservoir liquids or progress of sweep.

RULE 4. The allowable assigned to any well which is shut-in or which is curtailed in accordance with the provisions of Rule 3, which allowable is to be transferred to any well or wells in the project area for production, shall in no event be greater than its ability to produce during the test prescribed by Rule 6, below, or greater than the current top unit allowable for the pool during the month of transfer, whichever is less.

RULE 5. The allowable assigned to any injection well on a 40-acre proration unit shall be top unit allowable for the pool.

RULE 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rule 3 shall be determined by a 24-hour test at a stabilized rate of production which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at a constant rate. The daily tolerance limitation set forth in Rule 502 I (a) of the General Rules and Regulations and any limiting gas-oil ratio for the pool shall be waived during such tests. The project operator shall notify the Commission and all offset operators in writing of the exact time and date such tests are to be conducted. The Commission and representatives of the offset operators may witness the tests.

RULE 7. The allowable assigned to each producing well in the Project shall be equal to the well's ability to produce or to top unit allowable for the pool, whichever is less. Each producing well shall be subject to the limiting gas-oil ratio (2,000 to 1) for the pool, except that any well or wells within the project area producing with a gas-oil ratio in excess of 2,000 cubic feet of gas per barrel of oil may be produced on a "net" gas-oil ratio basis, which net gas-oil ratio shall be determined by applying credit for daily average gas injected, if any, into the pool within the project area to such high gas-oil ratio well. The daily adjusted oil allowable for any well receiving gas injection credit shall be determined in accordance with the following formula:

$$A_{adj} = \frac{TUA \times F_a \times 2,000}{\frac{P_g - I_g}{P_o}}$$

where:

- $A_{adj}$  = the well's daily adjusted allowable
- TUA = top unit allowable for the pool
- $F_a$  = the well's acreage factor
- $P_g$  = average daily volume of gas produced by the well during the preceding month, cubic feet
- $I_g$  = the well's allocated share of the daily average gas injected during the preceding month, cubic feet
- $P_o$  = average daily volume of oil produced by the well during the preceding month, barrels

In no event shall the amount of injected gas being credited to a well be such as to cause the net gas-oil ratio,  $\frac{P_g - I_g}{P_o}$ , to be less than 2,000 cubic feet of gas per barrel of oil produced.

**RULE 8.** Credit for daily average net water injected into the pool through any injection well located within the project area may be converted to its gas equivalent and applied to any well producing with a gas-oil ratio in excess of two thousand cubic feet of gas per barrel of oil. Total credit for net water injected in the project area shall be the gas equivalent volume of the daily average net water injected during a one-month period. The daily average gas equivalent of net water injected shall be computed in accordance with the following formula:

$$E_g = (V_w \text{ inj} - V_w \text{ prod}) \times 5.61 \times \frac{P_a \times 520^{\circ}}{15.025 \times T_r} \times \frac{1}{Z}$$

where:

- $E_g$  = Average daily gas equivalent of net water injected, cubic feet
- $V_w \text{ inj}$  = Average daily volume of water injected, barrels
- $V_w \text{ prod}$  = Average daily volume of water produced, barrels
- 5.61 = Cubic foot equivalent of one barrel of water

- $P_a$  = Average reservoir pressure at mid-point of the pay-zones of the pool in the project area, psig + 12.01, as determined from most recent survey
- 15.025 = Pressure base, psi
- 520° = Temperature base of 60°F expressed as absolute temperature
- $T_r$  = Reservoir temperature of 92°F expressed as absolute temperature (552°R)
- Z = Compressibility factor from analysis of gas from the pool at average reservoir pressure,  $P_a$ , interpolated from compressibility tabulation below:

Reservoir Pressure	Z	Reservoir Pressure	Z	Reservoir Pressure	Z
50	.9725	300	.8325	500	.6560
100	.9465	350	.8030	600	.6135
150	.9215	400	.7710	650	.5655
200	.8885	450	.7220	700	.5220
250	.8600	500	.6900	750	.4630
				800	.3935

**RULE 9.** Each month the project operator shall, within three days after the normal unit allowable for Northwest New Mexico has been established, submit to the Commission a Pressure Maintenance Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the Project as well as the total Project allowable. The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the Project.

**RULE 10.** The Commission shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for each well in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and may be produced from the wells in the project in any proportion except that the Atlantic-Navajo Well No. 17-5, located in the SE/4 SE/4 of Section 17, Township 31 North, Range 16 West, shall not produce in excess of the top unit allowable for the pool until May 31, 1964, or until a Gallup pressure maintenance project has been instituted in the area offsetting said well outside the project area, whichever shall first occur.

RULE 11. The conversion of producing wells to injection, the drilling of additional wells for injection, and expansion of the project area shall be accomplished only after approval of the same by the Secretary-Director of the Commission. To obtain such approval, the project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional injection wells shall be filed in accordance with Commission Rule 701-B and shall be accompanied by a statement that all offset operators to the proposed injection well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed injection well if, within 15 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators and from the State Engineer.

Expansion of the project area may be approved by the Secretary-Director of the Commission administratively when good cause is shown therefor.

(3) 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

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

A. L. PORTER, Jr., Member & Secretary

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BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 2994  
Order No. R-2664

APPLICATION OF SKELLY OIL COMPANY  
FOR A PRESSURE MAINTENANCE PROJECT,  
SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on February 19, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 13th day of March, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Skelly Oil Company, seeks authority to institute a pressure maintenance project in the Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup (Tocito) Sandstone formation underlying its Navajo "P" and "M" Leases in Sections 25, 26, 34, 35, and 36, Township 32 North, Range 17 West, NMPM, San Juan County, New Mexico, initially through its Navajo "P" Well No. 6 located in Unit P of said Section 35.
- (3) That the applicant seeks the promulgation of special rules and regulations governing the proposed project similar to the special rules and regulations governing the Many Rocks-Gallup Pressure Maintenance Project No. 1 promulgated by Order No. R-2541.
- (4) That the proposed pressure maintenance project is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.
- (5) That the proposed special rules and regulations should be adopted in order to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Skelly Oil Company, is hereby authorized to institute a pressure maintenance project designated the Many Rocks-Gallup Pressure Maintenance Project No. 3 in the Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup (Tocito) Sandstone formation initially through its Navajo "P" Well No. 6 located in Unit P of Section 35, Township 32 North, Range 17 West, NMPM, San Juan County, New Mexico.

(2) That special rules and regulations governing the Many Rocks-Gallup Pressure Maintenance Project No. 3, San Juan County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS  
FOR THE  
MANY ROCKS-GALLUP PRESSURE MAINTENANCE PROJECT NO. 3

RULE 1. The project area of the Many Rocks-Gallup Pressure Maintenance Project No. 3, hereinafter referred to as the Project, shall comprise the following-described area:

SAN JUAN COUNTY, NEW MEXICO  
TOWNSHIP 32 NORTH, RANGE 17 WEST, NMPM  
Section 26: W/2 SW/4  
Section 34: NE/4, NE/4 NW/4, and N/2 SE/4  
Section 35: NW/4 and S/2

RULE 2. The allowable for the Project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut-in, curtailed, or used as injection wells. Allowables for all wells shall be determined in a manner hereinafter prescribed.

RULE 3. Allowables for injection wells may be transferred to producing wells within the project area, as may the allowables for producing wells which, in the interest of more efficient operation of the Project, are shut-in or curtailed because of high gas-oil ratio, pressure regulation, control of pattern or sweep efficiencies, or to observe changes in pressures or changes in characteristics of reservoir liquids or progress of sweep.

RULE 4. The allowable assigned to any well which is shut-in or which is curtailed in accordance with the provisions of Rule 3, which allowable is to be transferred to any well or wells in the project area for production, shall in no event be greater than its ability to produce during the test prescribed by Rule 6, below, or greater than the current top unit allowable for the pool during the month of transfer, whichever is less.

RULE 5. The allowable assigned to any injection well on a 40-acre proration unit shall be top unit allowable for the pool.

RULE 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rule 3 shall be determined by a 24-hour test at a stabilized rate of production which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at a constant rate. The daily tolerance limitation set forth in Rule 502 I (a) of the General Rules and Regulations and any limiting gas-oil ratio for the pool shall be waived during such tests. The project operator shall notify the Commission and all offset operators in writing of the exact time and date such tests are to be conducted. The Commission and representatives of the offset operators may witness the tests.

RULE 7. The allowable assigned to each producing well in the Project shall be equal to the well's ability to produce or to top unit allowable for the pool, whichever is less. Each producing well shall be subject to the limiting gas-oil ratio (2,000 to 1) for the pool, except that any well or wells within the project area producing with a gas-oil ratio in excess of 2,000 cubic feet of gas per barrel of oil may be produced on a "net" gas-oil ratio basis, which net gas-oil ratio shall be determined by applying credit for daily average gas injected, if any, into the pool within the project area to such high gas-oil ratio well. The daily adjusted oil allowable for any well receiving gas injection credit shall be determined in accordance with the following formula:

$$A_{adj} = \frac{TUA \times F_a \times 2,000}{\frac{P_g - I_g}{P_o}}$$

where:

- A<sub>adj</sub> = the well's daily adjusted allowable
- TUA = top unit allowable for the pool
- F<sub>a</sub> = the well's acreage factor
- P<sub>g</sub> = average daily volume of gas produced by the well during the preceding month, cubic feet
- I<sub>g</sub> = the well's allocated share of the daily average gas injected during the preceding month, cubic feet
- P<sub>o</sub> = average daily volume of oil produced by the well during the preceding month, barrels

In no event shall the amount of injected gas being credited to a well be such as to cause the net gas-oil ratio,  $\frac{P_g - I_g}{P_o}$ , to be less than 2,000 cubic feet of gas per barrel of oil produced.

**RULE 8.** Credit for daily average net water injected into the pool through any injection well located within the project area may be converted to its gas equivalent and applied to any well producing with a gas-oil ratio in excess of two thousand cubic feet of gas per barrel of oil. Total credit for net water injected in the project area shall be the gas equivalent volume of the daily average net water injected during a one-month period. The daily average gas equivalent of net water injected shall be computed in accordance with the following formula:

$$E_g = (V_w \text{ inj} - V_w \text{ prod}) \times 5.61 \times \frac{P_a}{15.025} \times \frac{520^\circ}{T_r} \times \frac{1}{Z}$$

where:

- $E_g$  = Average daily gas equivalent of net water injected, cubic feet
- $V_w \text{ inj}$  = Average daily volume of water injected, barrels
- $V_w \text{ prod}$  = Average daily volume of water produced, barrels
- 5.61 = Cubic foot equivalent of one barrel of water
- $P_a$  = Average reservoir pressure at mid-point of the pay-zones of the pool in the project area, psig + 12.01, as determined from most recent survey
- 15.025 = Pressure base, psi
- $520^\circ$  = Temperature base of  $60^\circ\text{F}$  expressed as absolute temperature
- $T_r$  = Reservoir temperature of  $92^\circ\text{F}$  expressed as absolute temperature ( $552^\circ\text{R}$ )
- $Z$  = Compressibility factor from analysis of gas from the pool at average reservoir pressure,  $P_a$ , interpolated from compressibility tabulation below:

Reservoir Pressure	Z	Reservoir Pressure	Z	Reservoir Pressure	Z
50	.9725	300	.8325	550	.6560
100	.9465	350	.8030	600	.6135
150	.9215	400	.7710	650	.5655
200	.8885	450	.7220	700	.5220
250	.8600	500	.6900	750	.4630
				800	.3935

RULE 9. Each month the project operator shall, within three days after the normal unit allowable for Northwest New Mexico has been established, submit to the Commission a Pressure Maintenance Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the project as well as the total Project allowable. The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the Project.

RULE 10. The Commission shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for each well in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and may be produced from the wells in the Project in any proportion.

RULE 11. The conversion of producing wells to injection, the drilling of additional wells for injection, and expansion of the project area shall be accomplished only after approval of the same by the Secretary-Director of the Commission. To obtain such approval, the project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional injection wells shall be filed in accordance with Commission Rule 701-B and shall be accompanied by a statement that all offset operators to the proposed injection well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed injection well if, within 15 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators and from the State Engineer.

Expansion of the project area may be approved by the Secretary-Director of the Commission administratively when good cause is shown therefor.

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CASE No. 2994

Order No. R-2664

(3) 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

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

A. L. PORTER, Jr., Member & Secretary

S E A L

esr/

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 3036  
Order No. R-2700

APPLICATION OF CURTIS J. LITTLE  
FOR A PRESSURE MAINTENANCE PROJ-  
ECT, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on April 29, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 8th day of May, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

- (1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) That the applicant, Curtis J. Little, seeks authority to institute a pressure maintenance project in the Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup formation underlying his Navajo Indian Lease in Sections 21, 22, 27, and 28, Township 32 North, Range 17 West, NMPM, San Juan County, New Mexico, with initial injection through three wells in Units D and O of Section 27 and Unit I of Section 28.
- (3) That the applicant seeks the promulgation of special rules and regulations governing the proposed project similar to the special rules and regulations governing previous Many Rocks-Gallup Pressure Maintenance Projects.

(4) That the proposed pressure maintenance project is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.

(5) That the proposed special rules and regulations should be adopted in order to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Curtis J. Little, is hereby authorized to institute a pressure maintenance project designated the Many Rocks-Gallup Pressure Maintenance Project No. 4 in the Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup formation initially through three wells in Units D and O of Section 27 and Unit I of Section 28, Township 32 North, Range 17 West, NMPM, San Juan County, New Mexico.

(2) That special rules and regulations governing the Many Rocks-Gallup Pressure Maintenance Project No. 4, San Juan County, New Mexico, are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS  
FOR THE  
MANY ROCKS-GALLUP PRESSURE MAINTENANCE PROJECT NO. 4

RULE 1. The project area of the Many Rocks-Gallup Pressure Maintenance Project No. 4, hereinafter referred to as the Project, shall comprise the following-described area:

SAN JUAN COUNTY, NEW MEXICO  
TOWNSHIP 32 NORTH, RANGE 17 WEST, NMPM  
Section 27: W/2 and SE/4  
Section 28: E/2 E/2

RULE 2. The allowable for the Project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut-in, curtailed, or used as injection wells. Allowables for all wells shall be determined in a manner hereinafter prescribed.

RULE 3. Allowables for injection wells may be transferred to producing wells within the project area, as may the allowables for producing wells which, in the interest of more efficient operation of the Project, are shut-in or curtailed because of high gas-oil ratio, pressure regulation, control of pattern or sweep

efficiencies, or to observe changes in pressures or changes in characteristics of reservoir liquids or progress of sweep.

RULE 4. The allowable assigned to any well which is shut-in or which is curtailed in accordance with the provisions of Rule 3, which allowable is to be transferred to any well or wells in the project area for production, shall in no event be greater than its ability to produce during the test prescribed by Rule 6, below, or greater than the current top unit allowable for the pool during the month of transfer, whichever is less.

RULE 5. The allowable assigned to any injection well on a 40-acre proration unit shall be top unit allowable for the pool.

RULE 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rule 3 shall be determined by a 24-hour test at a stabilized rate of production which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at a constant rate. The daily tolerance limitation set forth in Rule 502 I (a) of the General Rules and Regulations and any limiting gas-oil ratio for the pool shall be waived during such tests. The project operator shall notify the Commission and all offset operators in writing of the exact time and date such tests are to be conducted. The Commission and representatives of the offset operators may witness the tests.

RULE 7. The allowable assigned to each producing well in the Project shall be equal to the well's ability to produce or to top unit allowable for the pool, whichever is less. Each producing well shall be subject to the limiting gas-oil ratio (2,000 to 1) for the pool, except that any well or wells within the project area producing with a gas-oil ratio in excess of 2,000 cubic feet of gas per barrel of oil may be produced on a "net" gas-oil ratio basis, which net gas-oil ratio shall be determined by applying credit for daily average gas injected, if any, into the pool within the project area to such high gas-oil ratio well. The daily adjusted oil allowable for any well receiving gas injection credit shall be determined in accordance with the following formula:

$$A_{adj} = \frac{TUA \times F_a \times 2,000}{\frac{P_g - I_g}{P_o}}$$

where:

- $A_{adj}$  = the well's daily adjusted allowable
- TUA = top unit allowable for the pool
- $F_a$  = the well's acreage factor
- $P_g$  = average daily volume of gas produced by the well during the preceding month, cubic feet
- $I_g$  = the well's allocated share of the daily average gas injected during the preceding month, cubic feet
- $P_o$  = average daily volume of oil produced by the well during the preceding month, barrels

In no event shall the amount of injected gas being credited to a well be such as to cause the net gas-oil ratio,  $\frac{P_g - I_g}{P_o}$ , to be less than 2,000 cubic feet of gas per barrel of oil produced.

RULE 8. Credit for daily average net water injected into the pool through any injection well located within the project area may be converted to its gas equivalent and applied to any well producing with a gas-oil ratio in excess of two thousand cubic feet of gas per barrel of oil. Total credit for net water injected in the project area shall be the gas equivalent volume of the daily average net water injected during a one-month period. The daily average gas equivalent of net water injected shall be computed in accordance with the following formula:

$$E_g = (V_{w \text{ inj}} - V_{w \text{ prod}}) \times 5.61 \times \frac{P_a}{15.025} \times \frac{520^\circ}{T_r} \times \frac{1}{Z}$$

where:

- $E_g$  = Average daily gas equivalent of net water injected, cubic feet
- $V_{w \text{ inj}}$  = Average daily volume of water injected, barrels

- $V_w$  prod = Average daily volume of water produced, barrels
- 5.61 = Cubic foot equivalent of one barrel of water
- $P_a$  = Average reservoir pressure at mid-point of the pay-zones of the pool in the project area, psig + 12.01, as determined from most recent survey
- 15.025 = Pressure base, psi
- 520° = Temperature base of 60°F expressed as absolute temperature
- $T_r$  = Reservoir temperature of 92°F expressed as absolute temperature (552°R)
- Z = Compressibility factor from analysis of gas from the pool at average reservoir pressure,  $P_a$ , interpolated from compressibility tabulation below:

Reservoir Pressure	Z	Reservoir Pressure	Z	Reservoir Pressure	Z
50	.9725	300	.8325	550	.6560
100	.9465	350	.8030	600	.6135
150	.9215	400	.7710	650	.5655
200	.8885	450	.7220	700	.5220
250	.8600	500	.6900	750	.4630
				800	.3935

RULE 9. Each month the project operator shall, within three days after the normal unit allowable for Northwest New Mexico has been established, submit to the Commission a Pressure Maintenance Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the Project as well as the total Project allowable. The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the Project.

RULE 10. The Commission shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for

CASE No. 3036  
Order No. R-2700

each well in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and may be produced from the wells in the Project in any proportion.

RULE 11. The conversion of producing wells to injection, the drilling of additional wells for injection, and expansion of the project area shall be accomplished only after approval of the same by the Secretary-Director of the Commission. To obtain such approval, the project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional injection wells shall be filed in accordance with Commission Rule 701-B and shall be accompanied by a statement that all offset operators to the proposed injection well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed injection well if, within 15 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators and from the State Engineer.

Expansion of the project area may be approved by the Secretary-Director of the Commission administratively when good cause is shown therefor.

(3) 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

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

S E A L

A. L. PORTER, Jr., Member & Secretary

esr/

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE No. 3126  
Order No. R-2795  
Nomenclature

APPLICATION OF MURPHY OIL CORPORATION  
FOR A PRESSURE MAINTENANCE PROJECT, SAN  
JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on October 13, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 29th day of October, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Murphy Oil Corporation, seeks authority to institute a pressure maintenance project in an un-designated Gallup oil pool, San Juan County, New Mexico, by the injection of water into the Gallup formation initially through five wells located in Sections 17, 18, and 20, Township 32 North, Range 17 West, NMPM, San Juan County, New Mexico.

(3) That the wells within the proposed project area are completed in a separate common source of supply which should be designated the North Many Rocks-Gallup Oil Pool.

(4) That the applicant also seeks the promulgation of special rules and regulations governing the proposed project similar to the special rules and regulations governing previous Gallup Pressure Maintenance Projects.

CASE No. 3126  
Order No. R-2795

(5) That the proposed pressure maintenance project is in the interest of conservation and should result in greater ultimate recovery of oil, thereby preventing waste.

(6) That the proposed special rules and regulations should be adopted in order to prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That a new pool in San Juan County, New Mexico, classified as an oil pool for Gallup production is hereby created and designated the North Many Rocks-Gallup Oil Pool, with vertical limits comprising the Gallup formation and horizontal limits comprising the following-described area:

SAN JUAN COUNTY, NEW MEXICO  
TOWNSHIP 32 NORTH, RANGE 17 WEST, NMPM

Section 17: SW/4 NW/4, SW/4, and SW/4 SE/4

Section 18: NE/4, NE/4 NW/4, and NE/4 SE/4

Section 20: NE/4, E/2 NW/4

(2) That the applicant, Murphy Oil Corporation, is hereby authorized to institute a pressure maintenance project designated the North Many Rocks-Gallup Pressure Maintenance Project No. 1 in the North Many Rocks-Gallup Oil Pool, San Juan County, New Mexico, by the injection of water into the Gallup formation initially through the following-described five wells in Township 32 North, Range 17 West, NMPM, San Juan County, New Mexico:

Navajo "AA" Well No. 4, located 2310 feet from the North line and 330 feet from the West line of Section 17.

Navajo "AA" Well No. 18, to be located 2474 feet from the South line and 133 feet from the East line of Section 18.

Navajo "AA" Well No. 5, located 708 feet from the North line and 1999 feet from the East line of Section 18.

Navajo "AA" Well No. 6, located 980 feet from the North line and 2137 feet from the West line of Section 18.

CASE No. 3126  
Order No. R-2795

Navajo "AA" Well No. 13, located 330 feet from the North line and 2310 feet from the East line of Section 20.

(3) That special rules and regulations governing the North Many Rocks-Gallup Pressure Maintenance Project No. 1, San Juan County, New Mexico, are hereby promulgated as follows:

**SPECIAL RULES AND REGULATIONS  
FOR THE  
NORTH MANY ROCKS-GALLUP PRESSURE MAINTENANCE PROJECT NO. 1**

**RULE 1.** The project area of the North Many Rocks-Gallup Pressure Maintenance Project No. 1, hereinafter referred to as the Project, shall comprise the following-described area:

SAN JUAN COUNTY, NEW MEXICO  
TOWNSHIP 32 NORTH, RANGE 17 WEST, NMPM  
Section 17: SW/4 NW/4, SW/4, and SW/4 SE/4  
Section 18: NE/4, NE/4 NW/4, and NE/4 SE/4  
Section 20: NE/4, E/2 NW/4

**RULE 2.** The allowable for the Project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut-in, curtailed, or used as injection wells. Allowables for all wells shall be determined in a manner hereinafter prescribed.

**RULE 3.** Allowables for injection wells may be transferred to producing wells within the project area, as may the allowables for producing wells which, in the interest of more efficient operation of the Project, are shut-in or curtailed because of high gas-oil ratio, pressure regulation, control of pattern or sweep efficiencies, or to observe changes in pressures or changes in characteristics of reservoir liquids or progress of sweep.

**RULE 4.** The allowable assigned to any well which is shut-in or which is curtailed in accordance with the provisions of Rule 3, which allowable is to be transferred to any well or wells in the project area for production, shall in no event be greater than its ability to produce during the test prescribed by Rule 6, below, or greater than the current top unit allowable for the pool during the month of transfer, whichever is less.

RULE 5. The allowable assigned to any injection well on a 40-acre proration unit shall be top unit allowable for the pool.

RULE 6. The allowable assigned to any well which is shut-in or curtailed in accordance with Rule 3 shall be determined by a 24-hour test at a stabilized rate of production which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at a constant rate. The daily tolerance limitation set forth in Rule 502 I (a) of the General Rules and Regulations and any limiting gas-oil ratio for the pool shall be waived during such tests. The project operator shall notify the Commission and all offset operators in writing of the exact time and date such tests are to be conducted. The Commission and representatives of the offset operators may witness the tests.

RULE 7. The allowable assigned to each producing well in the Project shall be equal to the well's ability to produce or to top unit allowable for the pool, whichever is less. Each producing well shall be subject to the limiting gas-oil ratio (2,000 to 1) for the pool, except that any well or wells within the project area producing with a gas-oil ratio in excess of 2,000 cubic feet of gas per barrel of oil may be produced on a "net" gas-oil ratio basis, which net gas-oil ratio shall be determined by applying credit for daily average gas injected, if any, into the pool within the project area to such high gas-oil ratio well. The daily adjusted oil allowable for any well receiving gas injection credit shall be determined in accordance with the following formula:

$$A_{adj} = \frac{TUA \times F_a \times 2,000}{\frac{P_g - I_g}{P_o}}$$

where:

- $A_{adj}$  = the well's daily adjusted allowable  
 $TUA$  = top unit allowable for the pool  
 $F_a$  = the well's acreage factor  
 $P_g$  = average daily volume of gas produced by the well during the preceding month, cubic feet

$I_g$  = the well's allocated share of the daily average gas injected during the preceding month, cubic feet

$P_o$  = average daily volume of oil produced by the well during the preceding month, barrels

In no event shall the amount of injected gas being credited to a well be such as to cause the net gas-oil ratio,  $\frac{P_g - I_g}{P_o}$ , to

be less than 2,000 cubic feet of gas per barrel of oil produced.

RULE 8. Credit for daily average net water injected into the pool through any injection well located within the project area may be converted to its gas equivalent and applied to any well producing with a gas-oil ratio in excess of two thousand cubic feet of gas per barrel of oil. Total credit for net water injected in the project area shall be the gas equivalent volume of the daily average net water injected during a one-month period. The daily average gas equivalent of net water injected shall be computed in accordance with the following formula:

$$E_g = (V_w \text{ inj} - V_w \text{ prod}) \times 5.61 \times \frac{P_a}{15.025} \times \frac{520^\circ}{T_r} \times \frac{1}{z}$$

where:

$E_g$  = Average daily gas equivalent of net water injected, cubic feet

$V_w \text{ inj}$  = Average daily volume of water injected, barrels

$V_w \text{ prod}$  = Average daily volume of water produced, barrels

5.61 = Cubic foot equivalent of one barrel of water

$P_a$  = Average reservoir pressure at mid-point of the pay-zones of the pool in the project area, psig + 12.01, as determined from most recent survey

15.025 = Pressure base, psi

- 520° = Temperature base of 60°F expressed as absolute temperature
- T<sub>r</sub> = Reservoir temperature of 92°F expressed as absolute temperature (552°R)
- Z = Compressibility factor from analysis of gas from the pool at average reservoir pressure, P<sub>a</sub>, interpolated from compressibility tabulation below:

Reservoir Pressure	Z	Reservoir Pressure	Z	Reservoir Pressure	Z
50	.9725	300	.8325	550	.6560
100	.9465	350	.8030	600	.6135
150	.9215	400	.7710	650	.5655
200	.8885	450	.7220	700	.5220
250	.8600	500	.6900	750	.4630
				800	.3935

RULE 9. Each month the project operator shall, within three days after the normal unit allowable for Northwest New Mexico has been established, submit to the Commission a Pressure Maintenance Project Operator's Report, on a form prescribed by the Commission, outlining thereon the data required, and requesting allowables for each of the several wells in the Project as well as the total Project allowable. The aforesaid Pressure Maintenance Project Operator's Report shall be filed in lieu of Form C-120 for the Project.

RULE 10. The Commission shall, upon review of the report and after any adjustments deemed necessary, calculate the allowable for each well in the Project for the next succeeding month in accordance with these rules. The sum of the allowables so calculated shall be assigned to the Project and may be produced from the wells in the Project in any proportion.

RULE 11. The conversion of producing wells to injection, the drilling of additional wells for injection, and expansion of the project area shall be accomplished only after approval of the same by the Secretary-Director of the Commission. To obtain such approval, the project operator shall file proper application with the Commission, which application, if it seeks authorization to convert additional wells to injection or to drill additional

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CASE No. 3126  
Order No. R-2795

injection wells shall be filed in accordance with Commission Rule 701-B and shall be accompanied by a statement that all offset operators to the proposed injection well have been furnished a complete copy of the application and the date of notification.

The Secretary-Director may approve the proposed injection well, if within 15 days after receiving the application, no objection to the proposal is received. The Secretary-Director may grant immediate approval, provided waivers of objection are received from all offset operators and from the State Engineer.

Expansion of the project area may be approved by the Secretary-Director of the Commission administratively when good cause is shown therefor.

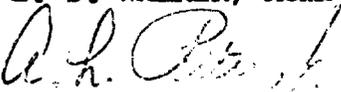
(3) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

  
JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

  
A. L. PORTER, Jr., Member & Secretary

S E A L

esr/

NEW MEXICO OIL CONSERVATION COMMISSION  
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR		ADDRESS	
LEASE NAME	WELL NO.	FIELD	COUNTY
LOCATION			
UNIT LETTER _____; WELL IS LOCATED _____ FEET FROM THE _____ LINE AND _____ FEET FROM THE _____			
LINE, SECTION		TOWNSHIP RANGE NMPM.	

CASING AND TUBING DATA

NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING					
INTERMEDIATE					
LONG STRING					
TUBING					

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
OCC EXHIBIT NO. 2  
NAME, MODEL AND DEPTH OF TUBING PACER  
CASE NO. 3712

NAME OF PROPOSED INJECTION FORMATION		TOP OF FORMATION	BOTTOM OF FORMATION
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?	PERFORATIONS OR OPEN HOLE?	PROPOSED INTERVAL(S) OF INJECTION	
IS THIS A NEW WELL DRILLED FOR DISPOSAL?	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?	HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?	

LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH

DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA	
ANTICIPATED DAILY INJECTION VOLUME (BBL'S.)	MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE -			WATER TO BE DISPOSED OF	NATURAL WATER IN DISPOSAL ZONE	ARE WATER ANALYSES ATTACHED?

NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)

LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL

HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	THE NEW MEXICO STATE ENGINEER
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)	PLAT OF AREA	ELECTRICAL LOG	DIAGRAMMATIC SKETCH OF WELL

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

(Signature)

(Title)

(Date)

NOTE: Should waivers from (the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well. not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMAS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
January 24, 1968

IN THE MATTER OF: )  
)

The hearing called by the Oil )  
Conservation Commission upon )  
its own motion to consider the )  
amendment of Rule 701 of the )  
Commission Rules and Regulations )  
and secondary recovery Orders )  
Nos. R-1244, R-1311, R-1456, )  
R-1470, R-1505, R-2064, R-2178-B, )  
R-2268-A, R-2269, R-2403, R-2541, )  
R-2622, R-2664, R-2700 and R-2795, )  
to delete therefrom all references )  
to the State Engineer or the State )  
Engineer Office. )  
)

CASE NO. 3712

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING



MR. UTZ: Case 3712.

MR. HATCH: In the matter of the hearing called by the Oil Conservation Commission upon its own motion to consider the amendment of Rule 701 of the Commission Rules and Regulations and secondary recovery Orders Nos. R-1244, R-1311, R-1456, R-1470, R-1505, R-2064, R-2178-B, R-2268-A, R-2269, R-2403, R-2541, R-2622, R-2664, R-2700 and R-2795, to delete therefrom all references to the State Engineer or the State Engineer Office.

MR. UTZ: Let the record show that this is the same Mr. Nutter that testified in Case 3711 and was sworn in in that case. Are there any other appearances? You may proceed.

\* \* \* \* \*

D A N N U T T E R, having been previously duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HATCH:

Q Would you state your name and position for the record, again, please, Mr. Nutter?

A Dan Nutter, Chief Engineer for the Oil Conservation Commission.

Q Are you familiar with Case 3712 and what it

proposes?

A Yes, sir, I am.

Q And again, is it part of your duties as Chief Engineer to make recommendations to the Commission concerning Rule changes and changes in Orders?

A Yes, it is.

Q Would you give a brief history of the Rules and Orders concerning the State Engineer and your recommendations?

A Yes, sir. As far as I can tell from reviewing the old Rules of the Conservation Commission, the first Rule, 701, appeared in Order No. 850, which promulgated new Rules for the Commission effective January 1st, 1950. The Rules prior to that had no reference to the injection of fluids into a reservoir. However, Rule 701 adopted January 1st, 1950, provided as follows: "The injection of gas or air or water into any reservoir for the purpose of maintaining reservoir pressure for secondary recovery or for water disposal shall be permitted only by Order of the Commission after a hearing". Now, that Rule remained on the books for some considerable time.

The next event which occurred in the history of this reference to the State Engineer was when the Commission commenced hearings relating to salt water disposal and the

and the protection of fresh water supplies. These hearings were commenced on May the 16th, 1956. There were quite a number of hearings, a whole series of them. The ultimate Order which issued from that hearing came out on September 17, 1958, more than two years later. It was Order No. R-1224-A, which prohibited salt water disposal in unlined pits in ten or twelve critical areas that the Commission deemed pit disposal to constitute a hazard. While these hearings were going on some of the operators started filing more applications for salt water disposal wells, and the Commission, in an effort to expedite the handling of these, proposed a Rule change and entered Order No. R-930 on December 28th, 1956. This Order was the first amendment to Order R-701 which permitted the injection into reservoirs only after a hearing. This Order provided for an administrative approval of salt water disposal under certain conditions and this was an error in which the Commission and the State Engineer were apparently sharing jurisdiction over salt water disposal and the Commission entered this Order No. R-930, December 28, 1956, providing for administrative approval for salt water disposal and the order read as follows:

"The Secretary-Director of the Oil Conservation Commission shall have authority to grant an exception to

the requirements of Rule 701 (A) above for water disposal wells only without notice and hearing when the waters to be disposed of are mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use, and when said waters are to be disposed of into a formation of greater than Triassic age (Lea County Only) which is non-productive of oil and/or gas within a radius of two miles from the proposed injection well, providing that any water occurring naturally within said disposal formation is mineralized to such a degree as to be unfit for domestic, stock, irrigation and/or other general use."

It did provide, however, that operators making such a request would file a copy of the application with all operators owning oil and gas leases within a half a mile and with the State Engineer and also the surface owner. The Commission could approve, the Secretary-Director could approve the application if none of the offset operators or the surface owner or the State Engineer had objected. The Rule was further amended in 1959, Order No. R-1525. provided administrative approval for expansion of waterflood projects. This also contained the requirement that a copy of the application be sent to the State Engineer's office. Now, all of these took place during this era, when I say the

Commission and the State Engineer's office were sharing jurisdiction because there was no specific jurisdiction assigned by Statutes or anything else in this area. The Legislature, in January and February of 1961, amended the Statutes and provided paragraph 15 to Section 65-3-11 of the Statute which I will read into the record. In the enumeration of powers of the Commission, provides that the Commission is empowered: " (15) to regulate the disposition of water produced or used in connection with the drilling for or producing of oil or gas, or both, and to direct surface or subsurface disposal of such water in a manner that will afford reasonable protection against contamination of fresh water supplies, designated by the State Engineer."

So apparently under this Statute, the only thing that the State Engineer has to do here is to designate the water supplies, which he has done, and then it's the Commission's baby from there on out. Well, since this specific legislation was enacted, the State Engineer's office has slowly been withdrawing its jurisdiction or its influence from these matters and in the last several months, they have taken less and less active part in any of these decisions that the Commission might make.

Mr. Steve Reynolds, the State Engineer,

addressed a letter to Mr. A. L. Porter, Junior, Secretary-Director of the Commission, on January 2nd, 1968. I'll read a portion of this letter, he recites some of the rules that require these notices to be sent to the State Engineer and so forth. He then says: "these provisions permit an inference that the State Engineer may encroach on the exclusive jurisdiction of the Oil Conservation Commission since they give the State Engineer at least a veto power over speedy action.

Perhaps most troublesome is the point that the rules permit the inference that the State Engineer approves an application if he does not object to it. Thus there is implied a duplication of effort in the analysis of applications and some degree of redundancy of administration.

In view of the foregoing, I suggest that it might be wise to amend the Oil Conservation Commission rules and regulations to require no more than the submission of a copy to the State Engineer for information. This information copy might be made available to the State Engineer through the Oil Conservation Commission without provision therefor by regulation."

I want to go on and read the rest of this. It's not really germane to the hearing, but I think it should

be in the record. Mr. Reynolds goes on to say "I am very proud of the record of the cooperative efforts of our agencies in matters related to the protection of our fresh water resources and I am most appreciative of all that you have done to keep the State Engineer informed in such matters. Of course, we remain anxious to provide any technical assistance that would be useful to the Oil Conservation Commission in discharging its responsibility to protect fresh water resources from pollution.

Please let me know if some further discussion of this matter would be helpful."

We have discussed this matter with Mr. Reynolds. He's aware that this hearing is coming on today and he is in full accord with the proposed amendments that I am going to get into in a minute. This part where he made allusion to a copy being sent to the State Engineer's office for information only, I don't think that he's going to object to continuing to receive our dockets. Operators won't be asked to send copies of the application to the State Engineer. He will receive a copy of our dockets. He will know what's going on over here. If he wants to obtain a copy of an application, the Commission will cooperate to the fullest extent in furnishing him a copy. However, I don't think

it's going to be incumbent on the operator to advise the State Engineer of their actions.

Now, we want to propose that the reference in the Rule 701 to the State Engineer, be deleted. Rule 701 Section B, Paragraph 5 would be deleted. This paragraph reads as follows:

"Evidence that a copy of the application, complete with all attachments has been sent to the State Engineer's office, Capitol Building, Santa Fe, New Mexico."

MR. UTZ: What portion was that, again?

A Paragraph 5 of Section B of Rule 701. Now, Section C for salt water disposal wells provides that the application must be filed in accord with Rule 701 B above, so by inference, it's referring back to this Section 5. So there's no amendment needed there, but in the last paragraph of Section 5, Paragraph 5, now reads as follows: "The Commission may dispense with the 15-day waiting period if waivers of objection are received from all offset operators, the surface owner and the State Engineer". I would recommend that the words "and the State Engineer" be deleted.

I don't believe there's another reference to the State Engineer in Rule 701 until you get to the last paragraph of Section 5, of Section E, and this last paragraph,

the paragraph reads as follows: "The Secretary-Director may" -- now this is for administrative approval of expansion of waterflood projects -- "Secretary-Director may, if in his opinion there is need for conversion of the additional wells to water injection, authorize such conversion without notice and hearing, provided that no offset operator or the State Engineer objects to the proposed conversion within 15 days. The Secretary-Director may grant immediate approval of the proposed conversion upon receipt of waivers of objection from all operators offsetting the proposed injection well and from the State Engineer". So in the fourth and fifth lines, I would delete the words "or the State Engineer" and in the last line, I would delete the words "and from the State Engineer".

That takes care of Rule 701, doesn't it, counsel?

MR. HATCH: Yes.

A Now, with respect to certain Orders that have been entered by the Commission over the years providing for administrative approval of expansions of various projects and so forth, Order R-1244, dated September 17, 1958, on the fourth page of said Order, the third, it's the fourth paragraph, the last line, delete the words, "and to the State Engineer." The next paragraph, fourth line, delete

"nor the State Engineer", the last line and the next to the last line, delete the words "and the State Engineer".

Order R-1311, dated December 17th, 1958, page four, paragraph commencing "Provided further", delete the words "and to the State Engineer"; next paragraph, last line, "nor the State Engineer". The next to last line and last line, delete the words "and the State Engineer."

Order R-1456, dated August 1st, 1959, page 3, paragraph commencing "Provided further", the last line, and next to last line, delete the words "and to the State Engineer". Page four, top line, delete the words, "nor the State Engineer"; the last line of that paragraph, delete the words "and from the State Engineer."

Order R-1470, dated August 20, 1959, page 3, last line and next to last line, delete the words "and to the State Engineer". Page 4, fourth line, delete the words, "nor the State Engineer"; and the last line "and from the State Engineer".

Order R-1505, dated October 19th, 1959, page 2 last line, delete the words, "and to the State Engineer"; page 3, first paragraph delete the words "nor the State Engineer" from the fourth line, delete the words "and from the State Engineer" from the last line.

Order R-2064, dated September 19, 1961, page 3, Order No. 2, delete the words "The State Engineer shall be furnished a copy of said application, and, if no objection to the application is received within 15 days the Secretary-Director may authorize such conversion without notice and hearing."

Order No. R-2178-B, dated June 14th, 1962, page 2, Order No. 2, delete the words "A copy of said application shall be furnished to the office of the State Engineer."

Order No. R-2268-A, dated October 17th, 1963, page 3, from Order No. 3, the third line, delete the words "and the State Engineer have", and substitute "shall have".

Order No. R-2269, dated June 21, 1962, Page 2, Order No. 2, the next to last line and last line, delete the words "to the State Engineer Office and".

Order No. R-2403, dated December 31st, 1962; Order No. R-2541, dated August 7th, 1963; Order No. R-2622, dated December 19th, 1963; Order No. R-2664, dated March 13th, 1964; Order No. R-2700, dated May 8th, 1964; and Order R=2795, dated October 29th, 1964; in each of those Rule No. 11, the second paragraph in the last line contains the words "and from the State Engineer". Delete those five words in each one of those Orders in the third paragraph of Rule 11.

I believe that covers all of the Orders that I have knowledge of at the present time that contain references which we would want to amend.

Q Do you have anything further?

A No, sir.

Q In your opinion, can the New Mexico Oil Conservation Commission effectively administer its rules and regulations concerning the injection of fluids into reservoirs without specifically requiring the State Engineer's approval?

A I think they can if we amend this form here.

Q All right.

A I almost forgot this. The form No. C-108 which is the application to dispose of salt water by injection into a porous formation, the little box which is second from the bottom on the right-hand side would have to be deleted. The question is, "have copies of this application been sent to each of the following", and the box on the right-hand side says "the New Mexico State Engineer". We would delete that box from this form. There's a note at the bottom of the form that says "should waivers from the State Engineer, the surface owner and all operators within one-half mile of the proposed injection well not accompany this application, the New Mexico

Oil Conservation Commission will hold the application for a period of 15 days" and so forth. We would delete the word in the first line there, "The State Engineer comma", we would delete the comma following "the surface owner", so that the first line would read: "Should waivers from the surface owner and all operators within one-half mile not accompany", and so forth. I would recommend that that form be amended in that manner.

Q In your opinion will the amendment of the Rule 701 and the Orders you have read remove an unnecessary administrative burden upon operators and the Commission?

A Yes, I believe it will.

MR. HATCH: That's all I have.

MR. UTZ: Do you want to offer any of these Orders?

(Whereupon, Applicant's Exhibits 1 and 2 were marked for identification and offered into evidence.)

THE WITNESS: I will offer this bundle of Orders as Exhibit No. 1 and offer the form with the little marks on it as Exhibit No. 2.

MR. UTZ: Each exhibit, or one exhibit with many parts?

THE WITNESS: One exhibit with many parts.

MR. UTZ: Exhibit No. 1, 16 parts?

THE WITNESS: At least.

MR. UTZ: Exhibits No. 1 and No. 2 will be entered into the record of this case.

(Whereupon Exhibits No. 1 and 2 were admitted into evidence.)

MR. UTZ: How about your letter?

THE WITNESS: No, this is not a part.

MR. UTZ: Are there questions of the witness?

Any statements in this case?

MR. KELLAHIN: Jason Kellahin, Kellahin and Fox, Mr. Examiner, the Standard Oil Company of Texas feels that the recommendations made by Mr. Nutter will relieve an unnecessary burden on the oil companies and recommends the adoption of his proposal.

MR. UTZ: Any other statements? The Commission has a letter from Skelly supporting this Rule change. If there are no other statements, the witness may be excused.

(Witness excused.)

MR. UTZ: The case will be taken under advisement.

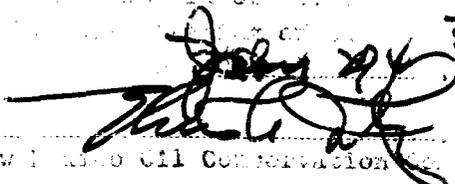


I N D E X

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<u>EXHIBITS</u>	<u>MARKED AND OFFERED</u>	<u>ADMITTED</u>
Applicant's 1 and 2	14	15

I do hereby certify that the foregoing is a true and correct copy of the original as the same appears in the files of the New Jersey Oil Conservation Commission.


  
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New Jersey Oil Conservation Commission

3712  
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BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE NO. 1493  
Order No. R-1244

APPLICATION OF MAGNOLIA PETROLEUM  
COMPANY FOR PERMISSION TO INSTITUTE  
A PILOT WATER FLOOD PROJECT ON ITS  
STATE BRIDGES LEASE IN THE VACUUM  
POOL, LEA COUNTY, NEW MEXICO, AND FOR  
THE ESTABLISHMENT OF AN ADMINISTRATIVE  
PROCEDURE WHEREBY SAID PROJECT MAY BE  
EXPANDED WITHIN THE LIMITS OF THE STATE  
BRIDGES LEASE AND FOR THE ESTABLISHMENT  
OF AN ADMINISTRATIVE PROCEDURE FOR THE  
ASSIGNMENT OF A PROJECT OR LEASE ALLOWABLE  
FOR SAID PROJECT.

BEFORE EXAMINER UTZ  
OIL CONSERVATION COMMISSION  
EXHIBIT NO. 1  
CASE NO. 3712

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m., on August 13, 1958, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 17<sup>th</sup> day of September, 1958, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Magnolia Petroleum Company, is the owner and operator of the State Bridges Lease in the Vacuum Pool, which lease comprises all or portions of Sections 3, 10, 11, 12, 13, 14, 15, 23, 24, 25, 26, and 27, Township 17 South, Range 34 East, NMPM, Lea County, New Mexico.

(3) That the applicant proposes to institute a pilot water flood project on said State Bridges Lease by the injection of water into the Grayburg-San Andres formation in the Vacuum Pool through the

following-described wells:

- Bridges Well No. 2, SW/4 SE/4 Section 14
- Bridges Well No. 37, NE/4 SW/4 Section 14
- Bridges Well No. 56, NE/4 SE/4 Section 14
- Bridges Well No. 64, SW/4 NE/4 Section 14
- Bridges Well No. 66, SW/4 NW/4 Section 14
- Bridges Well No. 71, NE/4 NW/4 Section 14

all in Township 17 South, Range 34 East, NMPM, Lea County, New Mexico.

(4) That applicant further proposes that it be authorized to convert any other well located on the State Bridges Lease to water injection, without notice and hearing, subject to administrative approval by the Commission.

(5) That applicant further proposes that an administrative procedure be established for granting a project or lease allowable.

(6) That the proposed pilot water flood project will not adversely affect the interests of any other operator in the Vacuum Pool.

(7) That the applicant should be permitted to inject water into the Grayburg-San Andres formation in the Vacuum Pool through the six proposed injection wells described above; provided however, that prior to the use of the aforesaid Bridges Well No. 2 as a water injection well, a packer should be installed at a depth of 400 feet or more.

(8) That an administrative procedure should be established whereby approval may be granted for conversion to water injection of any well located on the State Bridges Lease when it is established to the satisfaction of the Secretary-Director that the proposed water injection well has experienced a substantial response to the water flood project or is directly offset by a producing well which has experienced such response; provided however, that no well should be eligible for administrative approval for water injection if said well is located nearer than 1320 feet to the outer boundary of the said State Bridges Lease. For purposes of this order any lease unitized with said State Bridges Lease should be considered as a part of the State Bridges Lease.

(9) That applicant stipulated that the State Engineer is an interested party and is to be notified of any request for expansion of the said pilot project.

(10) That a procedure should be established whereby a project allowable may be granted administratively. Said project allowable should be determined by multiplying top unit allowable times the number of developed 40-acre tracts which directly or diagonally offset an authorized injection well plus top unit allowable times the number of 40-acre tracts on which an authorized injection well is located, which allowable may be produced from any well or wells within said project area.

IT IS THEREFORE ORDERED:

(1) That Magnolia Petroleum Company be and the same is hereby authorized to immediately convert for the purpose of water injection into the Grayburg-San Andres formation, the following-described wells:

Bridges Well No. 2, SW/4 SE/4 Section 14

Bridges Well No. 37, NE/4 SW/4 Section 14

Bridges Well No. 56, NE/4 SE/4 Section 14

Bridges Well No. 64, SW/4 NE/4 Section 14

Bridges Well No. 66, SW/4 NW/4 Section 14

Bridges Well No. 71, NE/4 NW/4 Section 14

all in Township 17 South, Range 34 East, NMPM, Lea County, New Mexico, provided however, that prior to the use of said Bridges Well No. 2, as a water injection well, a packer shall be installed at a depth of 400 feet or more.

(2) That Magnolia Petroleum Company be and the same is hereby authorized to convert to water injection any well located on the State Bridges Lease in the Vacuum Pool, subject to administrative approval by the Commission. The State Bridges Lease consists of the following-described acreage:

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM  
Section 3: W/2 NE/4 and SE/4  
Section 10: NE/4  
Section 11: S/2  
Section 12: S/2 and NE/4  
Section 13: N/2 and SW/4

TOWNSHIP 17 SOUTH, RANGE 34 EAST, NMPM (continued)

Section 14: All  
Section 15: E/2  
Section 23: N/2 and SE/4  
Section 24: SW/4 and S/2 NW/4 and NW/4 NW/4  
Section 25: NW/4 and W/2 NE/4 and NE/4 NE/4  
Section 26: All  
Section 27: E/2

PROVIDED HOWEVER, That no well located on the said State Bridges Lease shall be eligible for administrative approval for conversion to water injection unless it is established to the satisfaction of the Secretary-Director of the Commission that the proposed water injection well has experienced a substantial response to the water flood project or is directly offset by a producing well which has experienced such response; and that it is located on a water injection pattern which will result in a thorough and efficient sweep of oil by said water flood.

PROVIDED FURTHER, That no well on the said State Bridges Lease shall be eligible for administrative approval for conversion to water injection if such well is located nearer than 1320 feet to the outer boundary of said State Bridges Lease. For purposes of this order any lease unitized with said State Bridges Lease shall be considered as a part of the State Bridges Lease.

PROVIDED FURTHER, That to obtain administrative approval for the conversion of any well to water injection, applicant shall submit to the Commission in triplicate a request for such administrative approval, setting forth therein all the facts pertinent to the need for expansion of the water flood, and attaching thereto Commission Form C-116, showing production tests of the affected well or wells both before and after stimulation by water flood. Applicant shall also attach plats of the water flood project area and immediate surrounding area, indicating thereon the owner of each lease and the location of all water injection wells and producing wells, and shall submit evidence that a copy of the application to expand the water flood project area has been sent to each operator offsetting the proposed expansion, and to the State Engineer.

The Secretary-Director of the Commission may, if in his opinion there is need for the expansion of the water flood project area, authorize said expansion without notice and hearing, provided no offset operator (nor the State Engineer) objects to said expansion within fifteen (15) days. The Secretary-Director may grant immediate approval of the expansion upon receipt of waivers of objection from all operators offsetting the proposed expansion, and the State Engineer.

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Case No. 1493  
Order No. R-1244

(3) That an administrative procedure be and the same is hereby established for granting applicant a project allowable which may be produced from any well or wells within said project area.

PROVIDED HOWEVER, That in no event shall the project allowable be greater than an amount to be determined by multiplying top unit allowable times the number of developed 40-acre tracts which directly or diagonally offset an authorized injection well plus top unit allowable times the number of 40-acre tracts on which an authorized injection well is located.

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

EDWIN L. MECHEM, Chairman

MURRAY E. MORGAN, Member

A. L. PORTER, Jr., Member & Secretary

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