

*Entered October 4, 1966  
Q.L.B.*

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. 3468  
Order No. R-3127

APPLICATION OF TENNECO OIL COMPANY  
FOR APPROVAL OF THE GRAYBURG-JACKSON  
WEST COOPERATIVE UNIT AGREEMENT, EDDY  
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 28, 1966,  
at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 4th day of October, 1966, 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, Tenneco Oil Company, seeks approval  
of the Grayburg-Jackson West Cooperative Unit Agreement covering  
2000 acres, more or less, of State and fee lands described as  
follows:

EDDY COUNTY, NEW MEXICO  
TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM  
Section 15: W/2 SW/4  
Section 16: S/2 SW/4 and SE/4  
Section 21: All  
Section 22: W/2 W/2, E/2 NW/4, NE/4 SW/4,  
and NW/4 NE/4  
Section 27: W/2 SW/4  
Section 28: All

(3) That approval of the proposed unit agreement should  
promote the prevention of waste and the protection of correlative  
rights within the unit area.

NMOCD CASE NOS. 13608 & 13609  
APRIL 13, 2006  
MACK ENERGY CORPORATION  
EXHIBIT NO. 5

-2-

CASE No. 3468  
Order No. R-3127

IT IS THEREFORE ORDERED:

(1) That the Grayburg-Jackson West Cooperative Unit Agreement is hereby approved.

(2) That the plan contained in said unit agreement for the development and operation of the unit area is hereby 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, duty, or obligation which is now, or may hereafter be, vested in the Commission to supervise and control operations for the exploration and development of any lands committed to the unit and production of oil or gas therefrom.

(3) That the unit operator shall file with the Commission an executed original or executed counterpart of the unit agreement within 30 days after the effective date thereof; that in the event of subsequent joinder by any party or expansion or contraction of the unit area, the unit operator shall file with the Commission within 30 days thereafter counterparts of the unit agreement reflecting the subscription of those interests having joined or ratified.

(4) 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; that this order shall terminate ipso facto upon the termination of said unit agreement; and that the last unit operator shall notify the Commission immediately in writing of such termination.

(5) 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*  
JACK M. CAMPBELL, Chairman

*Guyton B. Hays*  
GUYTON B. HAYS, Member

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

S E A L

esr/

*Entered March 4, 1968*  
*R.L.R.*

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. 3728  
Order No. R-3127-A

APPLICATION OF TENNECO OIL COMPANY  
FOR AN AMENDMENT TO ORDER NO. R-3127,  
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 28, 1968,  
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 4th day of March, 1968, 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 by Order No. R-3127, dated October 4, 1966, the  
Commission approved the Grayburg-Jackson West Cooperative Unit  
Agreement covering 2000 acres, more or less, of State and fee  
lands described as follows:

EDDY COUNTY, NEW MEXICO  
TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM  
Section 15: W/2 SW/4  
Section 16: S/2 SW/4 and SE/4  
Section 21: All  
Section 22: W/2 W/2, E/2 NW/4, NE/4 SW/4,  
and NW/4 NE/4  
Section 27: W/2 SW/4  
Section 28: All

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CASE No. 3728

Order No. R-3127-A

(3) That the applicant, Tenneco Oil Company, seeks the expansion of said Grayburg-Jackson West Cooperative Unit Area to include 400 additional acres of State land described as follows:

EDDY COUNTY, NEW MEXICO  
TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM  
Section 16: N/2 and N/2 SW/4

(4) That the proposed expansion of said Grayburg-Jackson West Cooperative Unit Agreement should promote the prevention of waste and protection of correlative rights within the unit area as expanded.

IT IS THEREFORE ORDERED:

(1) That the Grayburg-Jackson West Cooperative Unit Agreement, as amended to include the acreage described in Finding (3) above, is hereby approved.

(2) That the unit operator shall file with the Commission an executed original or executed counterpart of the amendment to the unit agreement within 30 days after the effective date thereof; that in the event of subsequent joinder by any party or expansion or contraction of the unit area, the unit operator shall file with the Commission within 30 days thereafter counterparts of the unit agreement reflecting the subscription of those interests having joined or ratified.

(3) That this order shall become effective upon the approval of the aforesaid amendment to the Grayburg-Jackson West Cooperative Unit Agreement by the Commissioner of Public Lands for the State of New Mexico; that this order shall terminate ipso facto upon the termination of said unit agreement; and that the last unit operator shall notify the Commission immediately in writing of such termination.

(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. 3728

Order No. R-3127-A

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION

DAVID F. CARGO, Chairman

  
GUYTON B. HAYS, Member

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

S E A L

esr/

*Entered June 1, 1966*  
*CLP*

*WT*

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. 3404  
Order No. R-3069

APPLICATION OF TENNECO OIL COMPANY  
FOR A WATERFLOOD PROJECT, EDDY COUNTY,  
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 25, 1966,  
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 1st day of June, 1966, 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, Tenneco Oil Company, amended its  
application for water injection into the Grayburg and San Andres  
formations through six wells in Sections 22 and 28 at the hearing  
and now seeks permission to institute a waterflood project in the  
Grayburg-Jackson Pool by the injection of water into the San  
Andres formation only through four injection wells in Section 28,  
Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico.

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

(4) That the proposed waterflood project should result in  
the recovery of otherwise unrecoverable oil, thereby preventing  
waste.

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CASE No. 3404

Order No. R-3069

(5) That the applicant further seeks the establishment of an administrative procedure whereby additional wells could be placed on water injection and additional leases could be included in the waterflood project area upon unitization.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, Tenneco Oil Company, is hereby authorized to institute a waterflood project in the Grayburg-Jackson Pool by the injection of water into the San Andres formation through the following-described wells in Section 28, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico:

| <u>Well Name and Number</u> | <u>Location</u> |
|-----------------------------|-----------------|
| State "L" No. 16            | NE/4 SW/4       |
| State "L" No. 18            | SW/4 NE/4       |
| State "K" No. 11            | SW/4 SE/4       |
| State "K" No. 13            | NE/4 SE/4       |

(2) That the subject waterflood project is hereby designated the Grayburg Jackson West Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided, however, that the Secretary-Director of the Commission may approve expansion of said waterflood project to include additional injection wells and leases as may be necessary to complete an efficient waterflood injection pattern upon unitization, and provided that the name of said waterflood project shall be changed to Grayburg Jackson West Unit Waterflood Project upon such unitization.

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(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. 3404

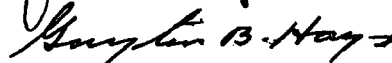
Order No. R-3069

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

STATE OF NEW MEXICO  
OIL CONSERVATION COMMISSION



JACK M. CAMPBELL, Chairman



GUYTON B. HAYS, Member



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

S E A L

esr/

**STATE OF NEW MEXICO  
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

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

**CASE NO. 13385  
ORDER NO. R-12255**

**APPLICATION OF MARBOB ENERGY CORPORATION FOR  
AUTHORIZATION TO CONDUCT WATERFLOOD OPERATIONS IN THE  
DODD FEDERAL UNIT AREA THROUGH EXISTING AND FUTURE  
INJECTION WELLS, EDDY COUNTY, NEW MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This case came on for hearing at 8:15 a.m. on November 18, 2004, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 3<sup>rd</sup> day of January, 2005, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

**FINDS THAT:**

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

(2) Division Cases No. 13385 and 13386 were consolidated at the hearing for the purpose of testimony.

(3) The applicant, Marbob Energy Corporation ("Marbob") seeks authority to conduct secondary recovery operations in the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool ("Grayburg-Jackson Pool") and the East Empire-Yeso Pool within its Dodd Federal Unit Area, described as follows, located in Eddy County, New Mexico:

**TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM**

|             |              |
|-------------|--------------|
| Section 10: | E/2, E/2 W/2 |
| Section 11: | All          |
| Section 14: | All          |

Section 15: E/2  
Section 22: SE/4, SE/4 SW/4, E/2 NE/4, SW/4 NE/4

(4) The Seven Rivers, Queen, Grayburg and San Andres formations within the Dodd Federal Unit Area are contained within the Grayburg-Jackson Pool. The Yeso/Paddock interval within the Dodd Federal Unit Area is contained within the East Empire-Yeso Pool. In companion Case No. 13386, Marbob seeks an order that would combine the Grayburg-Jackson and East Empire-Yeso Pools within the Dodd Federal Unit Area for the purpose of conducting secondary recovery operations in these zones.

(5) By Order No. R-12228 issued in Case No. 13350 on November 1, 2004, the Division approved Marbob's application to statutorily unitize 2,400 acres, more or less, of Federal lands, this area to be known as the Dodd Federal Unit Area ("Unit Area"). The Unit Area was unitized for the purpose of conducting secondary recovery operations within the Grayburg-Jackson and East Empire-Yeso Pools.

(6) Waterflood operations in the Grayburg-Jackson Pool within a portion of the Unit Area have previously been authorized by Division Order No. R-3013 dated December 3, 1965. Subsequent to that time, waterflood operations in the Grayburg-Jackson Pool have been expanded within the Unit Area by Division Orders No. WFX-254, WFX-258, WFX-268, WFX-268-A, WFX-288 and WFX-298.

(7) Waterflood operations in the Yeso/Paddock interval have not previously been authorized by the Division within the Unit Area.

(8) The evidence presented by Marbob demonstrates that:

- (a) the Grayburg-Jackson Pool is productive throughout the Unit Area and has been reasonably defined by development;
- (b) there are currently fourteen injection wells in the Grayburg-Jackson Pool within the Unit Area. Expansion of waterflood operations in the Grayburg-Jackson Pool within the Unit Area will result in the recovery of additional secondary oil reserves that may otherwise not be recovered;

- (c) development of the Yeso/Paddock interval within the Unit Area is currently limited to a small area in Section 22; however, the Yeso/Paddock interval is potentially productive within a large portion of the Unit Area; *no development 31*
- (d) within the next several years, Marbob plans to drill an additional 80-120 wells to fully develop the Grayburg-Jackson Pool. Within those areas where the Yeso/Paddock interval is potentially productive, Marbob plans to drill its wells to a depth sufficient to test this interval; and
- (e) the feasibility of conducting secondary recovery operations within the Yeso/Paddock interval will be evaluated, tested and implemented on an ongoing basis as development occurs in this interval within the Unit Area. *✓ 32*

(9) Approval of the subject application will provide Marbob the opportunity to recover additional secondary oil reserves from the Grayburg-Jackson Pool within the Unit Area, will provide Marbob the opportunity to economically recover additional primary and secondary oil reserves from the Yeso/Paddock interval within the Unit Area, thereby preventing waste, and will not violate correlative rights.

(10) The applicant should be required to file a Division Form C-108 (Application for Authorization to Inject) in the event the injection interval in the existing injection wells within the Unit Area is to be expanded to include the Yeso/Paddock interval.

**IT IS THEREFORE ORDERED THAT:**

(1) The applicant, Marbob Energy Corporation, is hereby authorized to conduct secondary recovery operations in the Seven Rivers, Queen, Grayburg, San Andres and Yeso/Paddock intervals within its Dodd Federal Unit Area, described as follows, in Eddy County, New Mexico:

**TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM**

|             |                                      |
|-------------|--------------------------------------|
| Section 10: | E/2, E/2 W/2                         |
| Section 11: | All                                  |
| Section 14: | All                                  |
| Section 15: | E/2                                  |
| Section 22: | SE/4, SE/4 SW/4, E/2 NE/4, SW/4 NE/4 |

(2) The waterflood project is hereby designated the Dodd Federal Unit Waterflood Project, and the applicant shall conduct injection operations in accordance with Division Rules No. 701 through 708, and shall submit monthly progress reports in accordance with Division Rules No. 706 and 1115.


(3) All provisions of Division Order No. R-3013, and Division Administrative Orders No. WFX-254, WFX-258, WFX-268, WFX-268-A, WFX-288 and WFX-298 shall remain in full force and effect.

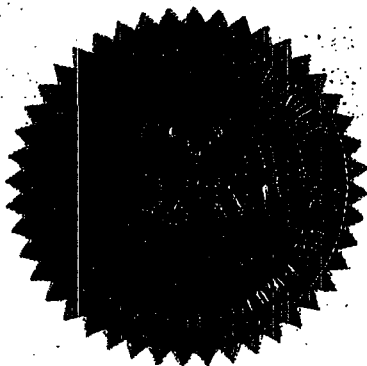
(4) The applicant shall file a Division Form C-108 (Application for Authorization to Inject) in the event the injection interval in the existing injection wells within the Unit Area is to be expanded to include the Yeso/Paddock interval.

(5) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
MARK E. FESMIRE, PE  
Director



SEAL

**STATE OF NEW MEXICO  
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

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

**CASE NO. 13386 (NOMENCLATURE)  
ORDER NO. R-12256**

**APPLICATION OF MARBOB ENERGY CORPORATION FOR  
CONTRACTION OF THE EAST EMPIRE-YESO POOL AND EXTENSION OF  
THE HORIZONTAL BOUNDARIES AND THE VERTICAL LIMITS OF A  
PORTION OF THE GRAYBURG-JACKSON (SEVEN RIVERS-QUEEN-  
GRAYBURG-SAN ANDRES) POOL, EDDY COUNTY, NEW MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This case came on for hearing at 8:15 a.m. on November 18 and December 16, 2004, at Santa Fe, New Mexico, before Examiners David R. Catanach and William V. Jones, respectively.

NOW, on this 3<sup>rd</sup> day of January, 2005, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

**FINDS THAT:**

- (1) Due public notice has been given, and the Division has jurisdiction of this case and its subject matter.
- (2) Division Cases No. 13385 and 13386 were consolidated at the hearing for the purpose of testimony.
- (3) The applicant, Marbob Energy Corporation ("Marbob"), seeks an order: i) contracting the boundaries of the East Empire-Yeso Pool to exclude the SE/4 and SE/4 SW/4 of Section 22, Township 17 South, Range 29 East, NMPM; ii) extending the boundaries of the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool ("Grayburg-Jackson Pool") to include the NE/4 of Section 11, Township 17 South, Range 29 East, NMPM; and iii) extending the vertical limits of the Grayburg-Jackson Pool to

include the Glorieta and Yeso/Paddock intervals within the Dodd Federal Unit Area comprised of the following-described acreage in Eddy County, New Mexico:

**TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM**

|             |                                      |
|-------------|--------------------------------------|
| Section 10: | E/2, E/2 W/2                         |
| Section 11: | All                                  |
| Section 14: | All                                  |
| Section 15: | E/2                                  |
| Section 22: | SE/4, SE/4 SW/4, E/2 NE/4, SW/4 NE/4 |

(4) This case was originally heard on November 18, 2004 and was taken under advisement at that time. Subsequent to the hearing, it was determined that the advertisement for this case did not correctly describe the acreage to be deleted from the East Empire-Yeso Pool, and the acreage to be extended and included in the Grayburg-Jackson Pool. The case was reopened and heard on December 16, 2004 to correct the deficiencies in the advertisement for this case.

(5) By Order No. R-12228 issued in Case No. 13350 on November 1, 2004, the Division approved Marbob's application to statutorily unitize 2,400 acres, more or less of Federal lands, this area to be known as the Dodd Federal Unit Area ("Unit Area"). The Unit Area was statutorily unitized for the purpose of conducting secondary recovery operations within the Grayburg-Jackson and East Empire-Yeso Pools.

✓ (6) In companion Case No. 13385, Marbob seeks an order authorizing waterflood operations within the Unit Area in the Seven Rivers, Queen, Grayburg, San Andres, Glorieta and Yeso/Paddock intervals.

(7) Waterflood operations in the Grayburg-Jackson Pool within a portion of the Unit Area have been ongoing since approximately 1965. Division Order No. R-3013 dated December 3, 1965 authorized Sunray DX Oil Company to initiate waterflood operations in the Grayburg formation through injection wells in Sections 14 and 15, Township 17 South, Range 29 East, NMPM.

(8) The unitized interval within the Unit Area comprises that interval from the top of the Seven Rivers formation to the base of the Yeso/Paddock formation or 5,000 feet beneath the surface, whichever is less, as reflected on the Spectral Density Dual Spaced Neutron Log for the Marbob Energy Corporation Mary Dodd "B" Deep Federal Well No. 2 (API No. 30-015-31041) located 1980 feet from the North line and 1295 feet from the East line (Unit H) of Section 14, Township 17 South, Range 29 East, NMPM.

(9) The Grayburg-Jackson Pool is productive throughout the Unit Area and has been reasonably defined by development.

(10) Marbob testified that the Yeso/Paddock interval will likely be productive in portions of the Unit Area. Development of the Yeso/Paddock interval within the Unit Area has been limited thus far to a small area in Section 22, Township 17 South, Range 29 East, NMPM.

(11) Marbob testified that in the next several years, approximately 80-120 wells will be drilled within the Unit Area to fully develop the Grayburg-Jackson Pool and the Yeso/Paddock intervals.

(12) Within the Unit Area where it believes the Yeso/Paddock interval will be productive, Marbob will drill its Grayburg-Jackson Pool producing wells deep enough to test this interval. Additionally, Marbob will gather reservoir data to determine the feasibility of conducting future secondary recovery operations within the Yeso/Paddock interval.

(13) Development of the Grayburg-Jackson Pool and the Yeso/Paddock interval as a single common source of supply within the Unit Area will not adversely affect either of these reservoirs.

(14) Marbob provided notice of its application to all offset operators outside the Unit Area. No offset operator and/or interest owner appeared at the hearing in opposition to the application.

(15) Approval of the subject application will provide Marbob the opportunity to economically recover primary and secondary oil and gas reserves from the Yeso/Paddock interval that may otherwise not be recovered, thereby preventing waste, and will not violate correlative rights.

**IT IS THEREFORE ORDERED THAT:**

(1) The application of Marbob Energy Corporation for contraction of the East Empire-Yeso Pool and extension of the horizontal boundaries and vertical limits of the Grayburg-Jackson Pool in Eddy County, New Mexico, is hereby approved.

(2) The East Empire-Yeso Pool is hereby contracted by the deletion of the SE/4 and the SE/4 SW/4 of Section 22, Township 17 South, Range 29 East, NMPM.

(3) The Grayburg-Jackson Pool is hereby extended to include the NE/4 of Section 11, Township 17 South, Range 29 East, NMPM.

*no problem as per  
145 - p. 33*

Case No. 13386  
Order No. R-12256  
Page 4

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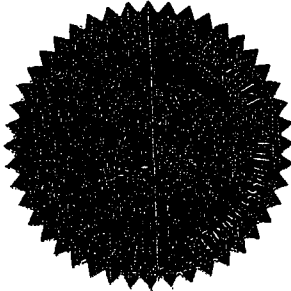
(4) Within the Dodd Federal Unit Area, described as follows, the vertical limits of the Grayburg-Jackson Pool are hereby extended to include the Glorieta and Yeso/Paddock intervals. Within the Dodd Federal Unit Area, the Grayburg-Jackson Pool shall be renamed as the Grayburg-Jackson-Yeso Pool:

**TOWNSHIP 17 SOUTH. RANGE 29 EAST. NMPM**

|             |                                      |
|-------------|--------------------------------------|
| Section 10: | E/2, E/2 W/2                         |
| Section 11: | All                                  |
| Section 14: | All                                  |
| Section 15: | E/2                                  |
| Section 22: | SE/4, SE/4 SW/4, E/2 NE/4, SW/4 NE/4 |

(5) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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



SEAL

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

MARK E. FESMIRE, P. E.  
Director

STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

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

NOMENCLATURE  
CASE NO. 10903  
ORDER NO. R-10067

APPLICATION OF MARBOB ENERGY CORPORATION FOR ABOLISHMENT OF  
THE GRAYBURG-PADDOCK POOL AND EXTENSION OF THE VERTICAL LIMITS  
OF THE GRAYBURG-JACKSON POOL, EDDY COUNTY, NEW MEXICO

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on February 3, 1994, at Santa Fe, New Mexico, before Examiner Jim Morrow.

NOW, on this 22nd day of February, 1994, the Division Director, having considered the testimony, the record and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

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

(2) The applicant, Marbob Energy Corporation (Marbob), seeks an order abolishing the Grayburg-Paddock Pool located in the SE/4 of Section 18, Township 17 South, Range 30 East, and extending the vertical limits of the Grayburg-Jackson Pool to include the Glorieta Yeso (Paddock) formation under the Unit Area which is located in portions of Township 17 South, Ranges 29 and 30 East, NMPM, Eddy County, New Mexico.

(3) Division Cases Nos. 10903 and 10904 were consolidated at the time of the hearing for the purpose of testimony. The following findings concerning Case No. 10903 are based on exhibits and documents submitted by the applicant and the testimony of the applicant's witnesses.

(4) Marbob is the operator of the Burch-Keely Unit, Grayburg-Jackson Pool, Eddy County, New Mexico which is comprised of 5149.44 acres, more or less, of federal lands which was statutorily unitized pursuant to Oil Conservation Division Order No. R-7900-A dated October 28, 1993. The Unit Area includes only a part of the Grayburg-Jackson Pool. The Unit Area is described in Exhibit "A" attached hereto. A portion of the unit is currently being waterflooded. A planned expansion would extend flood operations to all the unit.

(5) The "Unitized Formation" in the Burch Keely Unit comprises the interval from the top of the Seven Rivers formation to the base of the San Andres formation (which also corresponds with the vertical limits of the Grayburg-Jackson Pool) or to a true vertical depth of 5000 feet, whichever is lesser.

(6) The Grayburg-Paddock Pool was created by Order No. R-1042, dated August 29, 1957. The pool area is entirely within the boundaries of the Burch-Keely Unit. The Paddock formation is also known as the Glorieta Yeso. Only two wells ever produced from the Grayburg-Paddock Pool. Each recovered approximately 5000 barrels of oil and have now been plugged back to the Grayburg-Jackson pool. Four other wells within the Burch-Keely Unit have tested the Paddock formation with indications of production. Maps and cross-sections suggest that the Paddock may be productive all across the Burch-Keely Unit.

(7) Based on estimated recoveries from the Paddock, wells to develop only the Paddock would not be economically feasible. However, the cost of deepening Grayburg-Jackson wells to the Paddock formation could be justified providing the formations could be produced together as a single pool. ✓

(8) If allowed to add the Paddock to the Grayburg-Jackson Pool vertical interval, the operator would keep the wells pumped off to prevent cross flow. The Paddock formation would not be flooded but produced water from the Paddock would be used for the Grayburg-Jackson waterflood. Compatibility tests indicate only minor scaling problems.

(9) The Bureau of Land Management is in agreement with this application and would modify the Unit Agreement to extend the unitized interval to include the Paddock formation.

(10) The top 500 feet of the Paddock formation is the interval which Marbob plans to develop.

(11) Offset operators and other interested persons were notified of this application but none appeared at the hearing to oppose it.

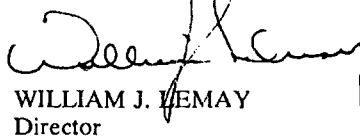
(12) Granting this application will permit Marbob to recover Paddock formation hydrocarbons which might otherwise remain in place.

IT IS THEREFORE ORDERED THAT:

- (1) The Grayburg-Paddock Pool is hereby abolished.
- (2) Within the designated Burch-Keely Unit Area, as described in Exhibit "A" attached hereto, the vertical limits of the Grayburg-Jackson Pool are hereby amended to include that interval from the top of the Seven Rivers formation to 500 feet below the top of the Paddock formation, with the geologic markers for the tops of the Seven Rivers and Paddock formations being found to occur at 1365 feet and 4210 feet, respectively, in the Western Drilling Company, Grayburg Deep Unit Well No. 3 (renamed Marbob, Burch-Keely Unit "A" Well No. 27) located 660 feet from the South line and 660 feet from the East line of Section 18, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico, as recorded on the Schlumberger Electric Log dated April 17 and June 20, 1956.
- (3) The pool name within said Burch-Keely Unit Area is hereby changed from the Grayburg-Jackson Pool to the Grayburg-Jackson-Paddock Pool.
- (4) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
WILLIAM J. LEMAY  
Director

S E A L

*EXHIBIT "A"*  
*CASE NO. 10903*  
*ORDER NO. R-10067*

Marbob Energy Corporation  
Burch-Keely Unit Area  
Grayburg-Jackson-Paddock Pool

Eddy County, New Mexico

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TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM

|                         |           |
|-------------------------|-----------|
| Section 12:             | SE/4 SE/4 |
| Section 13:             | All       |
| Sections 23 through 26: | All       |

TOWNSHIP 17 SOUTH, RANGE 30 EAST, NMPM

|                     |     |
|---------------------|-----|
| Sections 18 and 19: | All |
| Section 30:         | All |

STATE OF NEW MEXICO  
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION

NOMENCLATURE  
CASE NO. 10903  
ORDER NO. R-10067-A

APPLICATION OF MARBOB ENERGY CORPORATION  
FOR ABOLISHMENT OF THE GRAYBURG-PADDOCK  
POOL AND EXTENSION OF THE VERTICAL LIMITS  
OF THE GRAYBURG-JACKSON POOL, EDDY COUNTY,  
NEW MEXICO.

NUNC PRO TUNC ORDER

BY THE DIVISION:

It appearing to the Division that Order No. R-10067 dated February 22, 1994 does not correctly state the intended order of the Division,

IT IS THEREFORE ORDERED THAT:

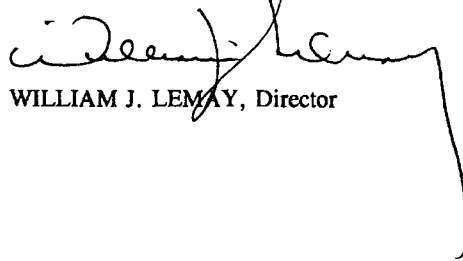
(1) Decretory Paragraph No. (3) on page 3 of said Order No. R-10067 is hereby deleted.

(2) Exhibit "A" attached to said Order No. R-10067 is hereby amended to delete the words "-Paddock Pool".

(3) The corrections set forth in this order be entered nunc pro tunc as of February 22, 1994.

DONE at Santa Fe, New Mexico, on this 1st day of March, 1994.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

  
WILLIAM J. LEMAY, Director

S E A L

**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION DIVISION**

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

**CASE NO. 13350  
ORDER NO. R-12228**

**APPLICATION OF MARBOB ENERGY CORPORATION FOR STATUTORY  
UNITIZATION OF THE DODD FEDERAL UNIT AREA, EDDY COUNTY, NEW  
MEXICO**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This case came on for hearing at 8:15 a.m. on October 7, 2004, at Santa Fe, New Mexico before Examiner David R. Catanach.

NOW, on this 1<sup>st</sup> day of November, 2004, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

**FINDS THAT:**

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

(2) Division Cases No. 13349 and 13350 were consolidated at the hearing for the purpose of testimony.

(3) The applicant, Marbob Energy Corporation ("Marbob"), seeks: (i) the statutory unitization, pursuant to the Statutory Unitization Act, Sections 70-7-1 through 70-7-21, NMSA 1978, of 2,400 acres, more or less, of all mineral interests in the Seven Rivers, Queen, Grayburg and San Andres formations, Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool, and the Glorieta and Yeso/Paddock formations, East Empire-Yeso Pool, Eddy County, New Mexico, and to be known as the Dodd Federal Unit, hereinafter sometimes referred to as the "Unit Area"; and (ii) approval of the Unit Agreement and the Unit Operating Agreement, which were submitted in evidence as applicant's Exhibits No. 4 and 5, respectively, in this case.

(4) The proposed Dodd Federal Unit consists of four Federal oil and gas leases located in Eddy County, New Mexico, and comprises 2,400 acres, more or less, described as follows:

**TOWNSHIP 17 SOUTH. RANGE 29 EAST. NMPM**

|             |                                      |
|-------------|--------------------------------------|
| Section 10: | E/2, E/2 W/2                         |
| Section 11: | All                                  |
| Section 14: | All                                  |
| Section 15: | E/2                                  |
| Section 22: | SE/4, SE/4 SW/4, S/2 NE/4, NE/4 NE/4 |

(5) Portions of the proposed Unit Area have previously been approved by the Division for secondary recovery operations within the ~~Grayburg-Jackson~~ (Seven Rivers-Queen-Grayburg-San Andres) Pool. The initial order authorizing waterflood operations was Division Order No. R-3013 issued in Case No. 3343 on December 3, 1965. Subsequent to that time, expanded waterflood operations have been authorized by Division Orders No. WFX-254 dated February 2, 1967, WFX-258 dated March 25, 1967, WFX-268 dated August 14, 1967, WFX-288 dated April 25, 1968, WFX-298 dated October 2, 1968 and WFX-307 dated March 7, 1969.

(6) Division records show that Marbob currently operates twelve (12) active water injection wells within the proposed Unit Area.

(7) Marbob plans to continue implementing secondary recovery operations within the Dodd Federal Unit and also plans to expand these operations by converting additional wells to injection and expanding the injection interval.

(8) The proposed Unitized Formation is that interval underlying the Unit Area, the vertical limits of which extend from the top of the Seven Rivers formation to the base of the Yesso/Paddock formation or 5,000 feet beneath the surface, whichever is less, as reflected on the Spectral Density Dual Spaced Neutron Log for the Marbob Energy Corporation's Mary Dodd "B" Deep Federal Well No. 2 (API No. 30-015-31041) located 1980 feet from the North line and 1295 feet from the East line (Unit H) of Section 14, Township 17 South, Range 29 East, NMPM.

(9) The Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool encompasses the entire Unit Area with the exception of the NE/4 of Section 11.

(10) The East Empire-Yeso Pool currently encompasses only that portion of the Unit Area comprising the SE/4 and SE/4 SW/4 of Section 22.

(11) The Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool underlying the Unit Area has been reasonably defined by development and has been subject to secondary recovery operations for more than thirty (30) years. According to applicant's testimony, the East Empire-Yeso Pool is potentially productive throughout the entire Unit Area.

(12) The proposed Unit Area contains five separate tracts of land owned by thirty-four (34) different working interest owners and approximately thirty-six (36) different overriding royalty interest owners. Royalty interest within the Unit Area is owned entirely by the United States government.

(13) As of the hearing date, 96.6655% of the working interest and 77.0653% of the overriding royalty interest have ratified the unit.

(14) The United States Bureau of Land Management ("BLM") has approved Marbob's plan for unit operations.

(15) The applicant has made a good faith effort to secure the voluntary participation of all interest owners in the Unit Area.

(16) Notice of this application was provided to all affected interest owners in the Unit Area. No interest owner appeared at the hearing in opposition to the application.

(17) Marbob plans to drill an additional 30-35 wells within the next five years to further develop the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool and the East Empire-Yeso Pool.

(18) The continued implementation and expansion of secondary recovery operations within the Unit Area under a unitization plan will enable Marbob to efficiently and effectively recover additional oil and gas reserves from the Unit Area.

(19) The applicant projects that the unitized management, operation and further development of the Unitized Formation within the Unit Area will result in the recovery of an additional 13.7 million barrels of secondary reserves which would otherwise not be recovered, thereby preventing waste.

(20) The applicant further projects that the cost to implement operations within the Unit Area over the life of the project are anticipated to be approximately \$86.5 million dollars.

(21) The statutory unitization of the Unitized Formation within the Unit Area in accordance with the plan embodied in the Unit Agreement and Unit Operating Agreement will prevent waste and protect correlative rights and is upon terms and conditions that are fair, reasonable, equitable and in accordance with the Statutory Unitization Act, including all of the elements necessary for the entry of an order.

(22) The proposed unitized method of secondary recovery operations within the Unit Area is feasible and will result with reasonable probability in the recovery of substantially more oil and gas from the unitized portion of the pool than would otherwise be recovered.

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

(24) Statutory unitization and adoption of applicant's proposed unitized method of operation will benefit the working interest and royalty interest owners within the proposed secondary recovery project area.

(25) The Unit Agreement and Unit Operating Agreement, applicant's Exhibits No. 4 and 5 in this case, should be incorporated by reference into this order.

(26) The Dodd Federal Unit Agreement and the Dodd Federal Unit Operating Agreement provide for unitization and unit operation upon terms and conditions that are fair, reasonable and equitable, and include:

- (a) an allocation to the separately owned tracts in the Unit Area of all oil and gas that is produced from the Unit Area and that is saved, being the production that is not used in the conduct of unit operations or not unavoidably lost;

- (b) a provision for the credits and charges to be made in the adjustment among the owners in the Unit Area for their respective investments in wells, tanks, pumps, machinery, materials and equipment contributed to the unit operations;
- (c) a provision governing how the costs of unit operations including capital investments shall be determined and charged to the separately owned tracts and how such costs shall be paid, including a provision specifying when, how and by whom such costs shall be charged to the owners, or the interests of such owners, and how their interests may be sold and the proceeds applied to the payment of their costs;
- (d) a provision for carrying any working interest owner on a limited, carried or net-profits basis, payable out of production, upon terms and conditions that are just and reasonable and that allow an appropriate charge for interest for such service payable out of production, upon such terms and conditions determined by the Division to be just and reasonable;
- (e) a provision designating a Unit Operator and providing for supervision and conduct of unit operations, including the selection, removal and substitution of an operator from among the working interest owners to conduct unit operations;
- (f) a voting procedure for matters to be decided by the working interest owners under which each working interest owner shall have a voting interest equal to its participation; and
- (g) a provision specifying the time when the unit operation shall commence and the manner in which, and the circumstances under which, the operations shall terminate and provision for the settlement of accounts upon such termination.

(27) The statutory unitization of the Dodd Federal Unit Area is in conformity with the above findings, and will prevent waste and protect correlative rights of all interest owners within the proposed Unit Area, and should be approved.

(28) In order to facilitate the orderly development of the **Grayburg-Jackson** (Seven Rivers-Queen-Grayburg-San Andres) and **East Empire-Yeso** Pools within the Unit Area, the applicant should be required to file additional applications to:

- (a) expand the pool boundary for the **Grayburg-Jackson** (Seven Rivers-Queen-Grayburg-San Andres) Pool to include the NE/4 of Section 11, Township 17 South, Range 29 East, NMPM;
- (b) expand the vertical limits of the **Grayburg-Jackson** (Seven Rivers-Queen-Grayburg-San Andres) Pool within the Unit Area to include the **Glorieta** and **Yeso** formations; and
- (c) authorize expanded waterflood operations to be conducted within the Seven Rivers, Queen, Grayburg, San Andres, **Glorieta** and **Yeso** formations within the Unit Area.

**IT IS THEREFORE ORDERED:**

(1) The application of Marbob Energy Corporation for the statutory unitization of 2,400 acres, more or less, being a portion of the **Grayburg-Jackson** (Seven Rivers-Queen-Grayburg-San Andres) and **East Empire-Yeso** Pools, Eddy County, New Mexico, to be known as the **Dodd Federal Unit**, is hereby approved pursuant to the Statutory Unitization Act, Sections 70-7-1 through 70-7-21, NMSA 1978.

(2) The **Dodd Federal Unit** shall comprise the following-described 2,400 acres, more or less, of Federal lands in Eddy County, New Mexico:

**TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM**

|             |                                      |
|-------------|--------------------------------------|
| Section 10: | E/2, E/2 W/2                         |
| Section 11: | All                                  |
| Section 14: | All                                  |
| Section 15: | E/2                                  |
| Section 22: | SE/4, SE/4 SW/4, S/2 NE/4, NE/4 NE/4 |

(3) The "Unitized Formation" shall comprise that interval underlying the Unit Area the vertical limits of which extend from the top of the Seven Rivers formation to the base of the Yeso/Paddock formation or 5,000 feet beneath the surface, whichever is less, as reflected on the Spectral Density Dual Spaced Neutron Log for the Marbob Energy Corporation's Mary Dodd "B" Deep Federal Well No. 2 (API No. 30-015-31041) located 1980 feet from the North line and 1295 feet from the East line (Unit H) of Section 14, Township 17 South, Range 29 East, NMPM.

(4) The Dodd Federal Unit Agreement and Dodd Federal Unit Operating Agreement, which were submitted to the Division at the time of the hearing as Exhibits No. 4 and 5, respectively, are hereby incorporated by reference into this order.

(5) The applicant shall continue with its current waterflood activities and expand such operations for the secondary recovery of oil and associated gas, condensate, and all associated liquefiable hydrocarbons within and produced from the Unit Area.

(6) In order to facilitate the orderly development of the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) and East Empire-Yeso Pools within the Unit Area, the applicant shall file additional applications to:

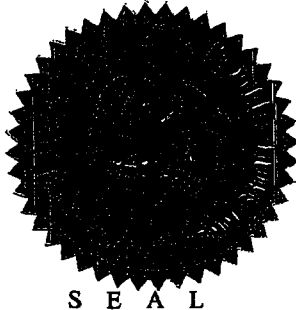
- (a) expand the pool boundary for the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool to include the NE/4 of Section 11, Township 17 South, Range 29 East, NMPM;
- (b) expand the vertical limits of the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool within the Unit Area to include the Glorieta and Yeso formations; and
- (c) authorize expanded waterflood operations to be conducted within the Seven Rivers, Queen, Grayburg, San Andres, Glorieta and Yeso formations within the Unit Area.

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

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

(9) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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



STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

MARK E. FESMIRE, P.E.  
Director