

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 8418
Order No. R-7900

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

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8 a.m. on November 28, 1984, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 25th day of April, 1985, 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, Phillips Oil Company, seeks authority to institute a cooperative waterflood project in the Grayburg-Jackson Pool by the injection of water into the Grayburg and San Andres formations through selected perforated intervals from approximately 2300 feet to 3500 feet in 23 existing wells, as described in Exhibit "A" attached hereto and made a part hereof, all located on the applicant's Keely "A" Federal, Keely "B" Federal, Keely "C" Federal, Burch "BB" Federal, Burch "C" Federal, and Dexter Federal Leases in Sections 23, 24, 25, and 26, Township 17 South, Range 29 East, NMPM, and Sections 19 and 30, Township 17 South, Range 30 East, NMPM, in Eddy County, New Mexico.

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

-2-

Case No. 8418
Order No. R-7900

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

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

(6) There are two temporarily abandoned wells within the area of the proposed waterflood project that may require remedial work prior to the commencement of injection operations in a portion of the project area, those wells being the Phillips Petroleum Company Grayburg Deep Unit Wells Nos. 4 and 6 located 1946 feet from the South line and 662 feet from the West line (Unit L) and 330 feet from the North line and 1980 feet from the West line (Unit C), respectively, both in Section 30, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico.

(7) The injection wells or injection pressurization system should be so equipped as to limit injection pressure at the wellhead to no more than 0.2 psi, per foot of depth to the top of the uppermost perforation, but the Division Director should have authority to increase said pressure limitation, should circumstances warrant.

(8) The subject application should be approved and the cooperative project should be governed by the provisions of Rules 702 through 708 of the Division Rules and Regulations.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Phillips Oil Company, is hereby authorized to institute a cooperative waterflood project on its Keely "A" Federal, Keely "B" Federal, Keely "C" Federal, Burch "B" Federal, Burch "BB" Federal, Burch "C" Federal and Dexter Federal Leases, Grayburg-Jackson Pool, by the injection of water into the Grayburg and San Andres formations through 23 existing wells, as described in Exhibit "A" attached hereto and made a part hereof, in Eddy County, New Mexico.

(2) Injection into each of said wells shall be through internally coated tubing, set in a packer which shall be located as near as practicable to the uppermost perforation; the casing-tubing annulus of each injection well shall be loaded with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

-3-

Case No. 8418

Order No. R-7900

(3) The operator shall immediately notify the supervisor of the Division's Artesia district office of the failure of the tubing or packer in any of said injection wells, the leakage of water or oil from or around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area and shall take such timely steps as may be necessary or required to correct such failure or leakage.

(4) The injection wells herein authorized and/or the injection pressurization system shall be so equipped as to limit injection pressure at the wellhead to no more than 0.2 psi per foot of depth to the uppermost perforation of each well, provided however, the Division Director may authorize a higher surface injection pressure upon application and satisfactory showing that such pressure will not result in fracturing of the confining strata.

(5) The subject cooperative waterflood project is hereby designated the Phillips Burch-Keely Cooperative Waterflood Project and shall be governed by the provisions of Rules 701 through 708 of the Division Rules and Regulations.

(6) Monthly progress reports of the cooperative waterflood project herein authorized shall be submitted to the Division in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

(7) Injection into the following described three injection wells shall not commence until the Phillips Oil Company Grayburg Deep Unit Wells Nos. 4 and 6 located 1946 feet from the South line and 662 feet from the West line (Unit L) and 330 feet from the North line and 1980 feet from the the West line (Unit C), respectively, both in Section 30, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico, have been completed in such a manner as to ensure that they do not provide an avenue of escape for the injected fluids from the proposed zone of interest and that is satisfactory to the supervisor of the Division's district office at Artesia:

| <u>WELL NAME AND NO.</u> | <u>FOOTAGE LOCATION (UNIT)</u> | <u>SECTION-TOWNSHIP RANGE</u> |
|--------------------------------|------------------------------------|-----------------------------------|
| Burch "BB" Fed. Well No. 6 | 660' FS & WL (M) | 19-17S-30E |
| Keely "C" Fed. Well No. 20 | 1980' FSL -660'FEL (I) | 25-17S-29E |
| Burch "BB" Fed. Well No. 10 | 660' FNL-1980'FWL (C) | 30-17S-30E |

-4-
Case No. 8418
Order No. R-7900

(8) 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


R. L. STAMETS,
Director

S E A L

EXHIBIT "A"
ORDER NO. R-7900

| <u>WELL NAME AND NO.</u> | <u>FOOTAGE LOCATION (UNIT)</u> | <u>SECTION TOWNSHIP, RANGE</u> |
|-----------------------------------|--------------------------------|------------------------------------|
| Burch "BB" Fed. Well No. 6 | 660' FS & WL (M) | 19-17S-30E |
| Burch "BB" Fed. Well No. 10 | 660' FNL-1980' FWL (C) | 30-17S-30E |
| Burch "BB" Federal Well No. 19 | 660' FN & FEL (A) | 23-17S-29E |
| Burch "C" Federal Well No. 17 | 660' FNL-1980' FWL (C) | 23-17S-29E |
| Keely "A" Federal Well No. 5 | 2310' FSL-330' FEL (I) | 24-17S-29E |
| Keely "A" Federal Well No. 7 | 1980' FS & WL (K) | 24-17S-29E |
| Keely "A" Federal Well No. 9 | 1980' FNL -660' FWL (E) | 24-17S-29E |
| Keely "A" Federal Well No. 15 | 1650' FNL -2310' FEL (G) | 24-17S-29E |
| Keely "B" Federal Well No. 6 | 660' FNL - 1980' FWL (C) | 25-17S-29E |
| Keely "B" Federal Well No. 7 | 1980' FN & FEL (G) | 26-17S-29E |
| Keely "B" Federal Well No. 10 | 1980' FSL - 660' FEL (I) | 26-17S-29E |
| Keely "B" Federal Well No. 11 | 660' FSL-1980' FEL (O) | 26-17S-29E |
| Keely "B" Federal Well No. 24 | 660' FSL - 560' FWL (M) | 24-17S-29E |
| Keely "C" Federal Well No. 5 | 660' FSL - 1980' FEL (O) | 24-17S-29E |

EXHIBIT "A"
Case No. 8418
Order No. R-7900

| | | |
|----------------------------------|--------------------------|------------|
| Keely "C" Federal Well No. 8 | 660' FN & FEL (A) | 25-17S-29E |
| Keely "C" Federal Well No. 10 | 1980' FNL - 660'FWL (E) | 25-17S-29E |
| Keely "C" Federal Well No. 12 | 1980'FN & FEL (G) | 25-17S-29E |
| Keely "C" Federal Well No. 16 | 1980'FS & FWL (K) | 26-17S-29E |
| Keely "C" Federal Well No. 18 | 1980'FS & FWL (K) | 25-17S-29E |
| Keely "C" Federal Well No. 20 | 1980' FSL - 660' FEL (I) | 25-17S-29E |
| Keely "C" Federal Well No. 21 | 660' FS & FWL (M) | 26-17S-29E |
| Keely "C" Federal Well No. 23 | 660' FS & FWL (M) | 25-17S-29E |
| Keely "C" Federal Well No. 25 | 660' FSL - 1980' FEL (O) | 25-17S-29E |

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. 10810
ORDER NO. R-7900-A

APPLICATION OF MARBOB ENERGY CORPORATION FOR STATUTORY
UNITIZATION, EDDY COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on August 26, 1993, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 28th day of October, 1993 the Division Director, having considered the testimony, the record and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

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

(2) The applicant, Marbob Energy Corporation ("Marbob"), seeks the statutory unitization, pursuant to the "Statutory Unitization Act", Sections 70-7-1 through 70-7-21, NMSA (1978), of 5149.44 acres, more or less, of all mineral interests in the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool in Eddy County, New Mexico, said unit to henceforth be known as the Burch-Keely Unit Area; the applicant further seeks approval of its "Unit Agreement" and "Unit Operating Agreement", which were submitted at the time of the hearing in evidence as applicant's Exhibit Nos. 3 and 4.

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

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

(4) The proposed vertical limits or "Unitized Formation" of said area is to comprise that 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 5,000 feet below the surface, whichever is lesser.

(5) The horizontal confines of said unit are entirely within the boundary of the Grayburg-Jackson Pool that has been reasonably defined by development and includes a large portion that has been under waterflood since 1985. Currently there have been a total of 209 wells drilled in the proposed unit area.

(6) The aforementioned waterflood within the proposed unit area is the Phillips Burch-Keely Cooperative Waterflood Project that was approved by Division Order No. R-7900, dated April 25, 1985, and comprised the Keely "A" Federal, Keely "B" Federal, Keely "C" Federal, Burch "BB" Federal, Burch "C" Federal, and Dexter Federal Leases in Sections 23, 24, 25, and 26, Township 17 South, Range 29 East, NMPM, and Sections 19 and 30, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico. Phillips Petroleum Company ("Phillips") operated said project until November, 1992 when Marbob purchased Phillips' interest as to all of that area involved in the cooperative waterflood area.

(7) The proposed Unit Area contains seven separate tracts of land owned by five different working interests. There is only one royalty interest owner in the Unit Area, the United States government. The status of the overriding royalty interest owners in each tract is as follows:

| Status of Overriding Royalty Interests By Tract | | | | | | | |
|---|---------|---------|---------|---|---------|---------|---------|
| | Tract 1 | Tract 2 | Tract 3 | Tract 3B | Tract 4 | Tract 5 | Tract 6 |
| Total Number of Interests in Tract | 37 | 48 | 2 | 2 | 17 | 17 | 2 |
| Number Committed | 31 | 28 | 2 | 2 | 15 | 15 | 2 |
| Number Un-Committed | 6 | 13 | 0 | 0 | 2 | 2 | 0 |
| % Un-Committed | 11.03 | 13.05 | 0 | 0 | 2.43 | 2.43 | 0 |
| Tract 1: Keely "A" Lease (640-acres) Tract 2: Burch "AA" Lease (629.70-acres) Tract 3: Burch "BB" Lease (784.52-acres) Tract 3B: Keely "B" Lease (480-acres) | | | | Tract 4: Burch "C" Lease (1115.22-acres) Tract 5: Keely "C" Lease (1470-acres) Tract 6: Dexter Lease (40-acres) | | | |

(8) The applicant has made a good faith effort to contact and/or secure voluntary unitization of all the above-described un-committed interests within that portion of the Grayburg-Jackson Pool affected by this application. However, no interested party or person entered an appearance or opposed the application at the hearing.

(9) Should this application to unitize the subject area be approved the applicant intends to subsequently seek approval to extend the existing waterflood project to include injection operations in the remaining area of the proposed Unit. Prior to that time however Marbob will undertake additional work to determine the exact needs for such request. According to the testimony presented there are currently 49 wells within the Unit area that are either inactive injectors or shut-in producers. All wells would be returned to production within a three year period. An infill development program will be initiated in order to identify certain target areas that might have additional recoverable reserves and could ultimately benefit by an infill injection program.

(10) From testimony presented at the hearing the existing waterflood project within the area under unitization would enable the operator to manage the secondary recovery operations more efficiently and serve to lessen the problems of associated field operating procedures and the burdens of rights-of-ways and governmental permitting.

(11) The applicant, through testimony, estimated that under current operations the recovery from the proposed Unit to be 1,487,000 barrels of oil. Under unitized operations total recovery was estimated at 5,796,000 barrels of oil, or an increased recovery in excess of 4,000,000 barrels.

(12) The unitized management, operating and further development of the Grayburg-Jackson Pool, which is the subject of this application, is reasonably necessary in order to effectively carry on secondary recovery operations and to substantially increase the ultimate recovery of oil and gas from the unitized portion of the pool.

(13) Unitized methods of operation applied to this portion of the Grayburg-Jackson Pool are feasible and will result with reasonable probability in the increased recovery of substantially more oil and gas from the unitized portion of the pool than would otherwise be recovered without unitization.

(14) Marbob's witness at the hearing anticipated their costs involved with the Unit to be approximately \$28,000,000.00 and the additional value to be recovered to be approximately \$81,000,000.00.

(15) The estimated additional costs of such operations are not expected to exceed the estimated value of the additional oil so recovered plus a reasonable profit.

(16) The participation formula contained in the "Unit Agreement" allocates the produced and saved unitized substances to the separately owned tracts in the Unit Area on a fair, reasonable, and equitable basis.

(17) Such unitization and adoption of applicant's proposed unitized method of operation will benefit the working interest owners and royalty owners of the oil and gas rights within this portion of the Pool.

(18) The granting of the application in this case will have no adverse effect upon other portions of the Grayburg-Jackson Pool.

(19) The applicant's Exhibit Nos. 3 and 4 in this case, being the Unit Agreement, as amended, and the Unit Operating Agreement should be incorporated by reference into this order.

(20) The Burch-Keely Unit Area Agreement and the Burch-Keely Unit Operating Agreement, provide for unitization and unit operation of the Burch-Keely Unit Area upon terms and conditions that are fair, reasonable and equitable, and which include:

- (a) an allocation to the separately owned tracts of the unit area of all oil and gas that is produced from the unit area and which 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 operators;
- (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 said costs shall be paid, including a provision providing when, how and by whom such costs shall be charged to such owner, or the interest of such owner, and how his interest may be sold and the proceeds applied to the payment of his 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 which are just and reasonable, and which 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 the Unit Operator and providing for supervision and conduct of the unit operations, including the selection, removal and substitution of an operator from among the working interest owners to conduct the unit operations;
- (f) a provision for a voting procedure for decisions on matters to be decided by the working interest owners in respect to which each working interest owner shall have a voting interest equal to his unit participation; and
- (g) the time when the unit operation shall commence and the manner in which, and the circumstances under which, the operations shall terminate and for the settlement of accounts upon such termination.

(21) The statutory unitization of the Burch-Keely 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.

IT IS THEREFORE ORDERED THAT:

(1) The application of Marbob Energy Corporation for the Burch-Keely Unit Area, covering 5149.44 acres, more or less, of federal lands in the Grayburg-Jackson (Seven Rivers-Queen-Grayburg-San Andres) Pool, Eddy County, New Mexico is hereby approved for statutory unitization pursuant to the "Statutory Unitization Act", Sections 70-7-1 through 70-7-21, NMSA (1978).

(2) The Burch-Keely Unit Agreement and Burch-Keely Unit Operating Agreement, which were submitted at the time of the hearing in evidence as applicant's Exhibit Nos. 3 and 4 are hereby incorporated by reference into this order.

(3) The lands herein designated the Burch-Keely Unit Area shall comprise the following described acreage in Eddy County, New Mexico:

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 |

(4) The vertical limits or "Unitized Formation" of said area shall comprise that 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 5,000 feet below the surface, whichever is lesser.

(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.

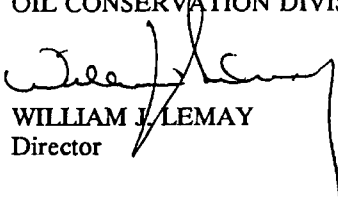
(6) Since the persons owning the required statutory minimum percentage of interest in the unit area have approved or ratified the Unit Agreement and the Unit Operating Agreement, the interests of all persons within the Unit Area are hereby unitized whether or not such persons have approved the Unit Agreement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

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

(8) 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

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. 10904
ORDER NO. R-7900-B

APPLICATION OF MARBOB ENERGY CORPORATION FOR AUTHORIZATION OF
UNORTHODOX WELL LOCATIONS WITHIN ITS BURCH-KEELY UNIT, 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 3rd day of March, 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 authority to drill producing wells at unorthodox well locations within its Burch-Keely Unit located in portions of Township 17 South, Ranges 29 and 30 East, NMPM, Eddy County, New Mexico, provided said locations would be no closer than 330 feet to the outer boundary of the Unit Area nor closer than 25 feet to any quarter section line or quarter-quarter line.

(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. 10904 are based on exhibits and documents submitted by the applicant, the testimony of the applicant's witnesses, and record information in Case No. 10903.

(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. A portion of the unit is currently being waterflooded. A planned expansion would extend flood operations to all the unit.

(5) The vertical limits of the Grayburg-Jackson Pool were amended within the designated Burch-Keely Unit Area by Division Order No. R-10067 and R-10067-A, entered February 22, 1994, to include the interval from the top of the Seven Rivers formation to 500 feet below the top of the Paddock formation.

(6) Marbob has recently received administrative approval for 13 non-standard producing well locations within the Burch-Keely Unit Area. Twelve of these have been drilled. At least 60 more producing wells are planned. In spacing the new infill wells to improve oil recovery and conform to the flood pattern, many will fall in unorthodox locations.

(7) Marbob is requesting a simplified approval procedure for unorthodox locations which meet the requirements set out in Finding Paragraph No. 2. This would save both Marbob and the Division the time and money required to prepare and review formal applications and would provide for more efficient development of the waterflood project.

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

IT IS THEREFORE ORDERED THAT:

(1) The District Supervisor of the Artesia District Office of The Oil Conservation Division or his designee is hereby authorized to review and approve or deny Marbob Energy Corporation applications for approval to drill at unorthodox locations within the designated Burch-Keely Unit Area, as described in Exhibit "A" attached hereto. Said locations shall be no closer than 330 feet to the outer boundary of the Unit Area nor closer than 25 feet to any quarter section line or quarter-quarter section line and otherwise shall comply with the Oil Conservation Division's General Rules of statewide application.

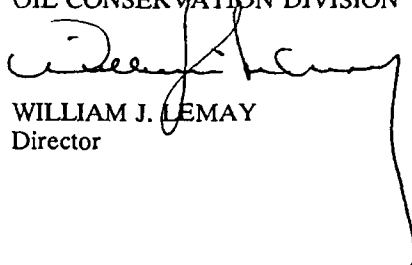
(2) Such application for approval shall be filed in triplicate and shall include a transmittal letter which references this order, a copy of the Application For Permit To Drill, and a copy of Oil Conservation Division Form C-102 which shows the proposed

location and all other wells within the quarter-quarter section in which the proposed well is located. District approval or denial shall be indicated on copies of the transmittal letter with one copy of the complete application to be returned to the applicant and one mailed to the Division's Santa Fe Office.

(3) 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. 10904
ORDER NO. R-7900-B

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

Eddy County, New Mexico

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