

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
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. 8350
Order No. R-7745

NOMENCLATURE

APPLICATION OF JEROME P. McHUGH
FOR THE CREATION OF A NEW OIL POOL
AND SPECIAL POOL RULES, RIO ARRIBA
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 20, 1984, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 30th day of November, 1984, 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 THAT:

- (1) Due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.
- (2) The applicant, Jerome P. McHugh, seeks an order creating a new oil pool, with vertical limits to be from the base of the Gavilan-Mancos Oil Pool to the base of the Dakota formation, with special pool rules including a provision for temporary 320-acre spacing and proration units, Rio Arriba County, New Mexico.
- (3) The main pay interval in said proposed pool is the Dakota formation with the Greenhorn and Graneros zones being non-continuous potential secondary zones of production in individual wells.
- (4) In a companion Case 8286, Mesa Grande Resources, Inc., seeks an order creating a new oil pool for a similar area with similar vertical limits and the promulgation of special

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pool rules, including a provision for 160-acre spacing, Rio Arriba County, New Mexico.

(5) Cases 8286 and 8350 were consolidated for the purposes of obtaining testimony.

(6) Jerome P. McHugh either individually or jointly with Dugan Production Corporation has leasehold interest in 4397.89 acres representing approximately 37% of the acreage within the proposed pool boundaries.

(7) Jerome P. McHugh is the operator of 6 of the 12 completion attempts in the proposed pool and either individually or jointly with Dugan Production Corporation has a working interest in all 12 completion attempts in the proposed pool.

(8) To date, 12 completion attempts have been made within the Gavilan Area (11 within the proposed pool boundary), all located within the boundaries of the Basin Dakota Gas Pool and, based upon completion testing and early production performance, it is indicated that the Dakota formation within the pool boundary is productive primarily of oil, thereby necessitating deletion from the Basin Dakota Gas Pool and the creation of special pool rules.

(9) Available geological data indicates that the proposed Dakota pool has structural features similar to the Gavilan Mancos Pool.

(10) While the relative permeability of the Dakota zone is nearly non-existent because the matrix permeability is very low and the primary reservoir fluid is oil, productivity of the Dakota formation is enhanced by natural fracturing.

(11) Carlisle, Greenhorn, Graneros and Dakota formations are correlative well to well within the pool boundary.

(12) Average development well cost in the Gavilan area for 19 wells is \$607,984.00.

(13) Mesa Grande Resources, Inc. presented computer reservoir model results which incorporated data from the West Lindrith Dakota Pool which were used to predict performance of a Dakota completion in the Gavilan area utilizing short term tests during the completion on 2 wells.

(14) Based upon available data, the Mesa Grande Resources, Inc.'s evidence is not representative of a typical Dakota, Greenhorn, Graneros completion in the proposed pool and is

inconclusive in determining if one well can economically and efficiently drain 160 acres or 320 acres.

(15) Engineering information and production data including bottomhole pressure tests indicated that the average well in the proposed pool should be capable of producing only marginal quantities of oil and gas.

(16) Engineering information and production data from the Greenhorn-Graneros and Dakota formations indicate that these zones are marginal in nature and will not support the drilling of a well to produce these zones only.

(17) Jerome P. McHugh presented evidence designed to demonstrate that the only economic, effective and efficient method of producing the subject pool was downhole commingled with production from the Gavilan-Mancos Oil Pool.

(18) If the production from the proposed pool is downhole commingled with production from the Gavilan-Mancos Oil Pool, the high quality engineering data necessary to establish the proper permanent spacing unit size for each pool cannot be obtained.

(19) Wells in said pools should be completed as single or dual wells during the period of any temporary pool rules.

(20) The Gavilan Mancos oil pool is adjacent to and above the proposed pool and is the pool of primary interest with respect to ultimate recoveries of oil and gas.

(21) The fractured nature of the Mancos makes it susceptible to damage during the drilling and cementing of Dakota pool development wells.

(22) Damage to the Gavilan-Mancos pool may result in a substantial reduction of the ultimate recovery of hydrocarbons from the Mancos.

(23) Limiting the number of wells drilled through the Mancos formation to the proposed pool will serve to protect the Mancos formation from said potential damage.

(24) Any well drilled to the proposed pool should utilize a drilling, casing, and cementing program designed to minimize fluid loss to the Mancos formation.

(25) In order to prevent the economic loss caused by the drilling of unnecessary wells, to prevent reduced recovery of hydrocarbons from the Mancos and to otherwise prevent waste and

protect correlative rights, the Gavilan Greenhorn-Graneros-Dakota Oil Pool should be created with temporary Special Rules providing for 320-acre spacing and proration units consistent with the provisions of Commission Order No. R-7407.

(26) The vertical limits of the Gavilan-Greenhorn-Graneros Dakota Oil Pool should be defined as the Greenhorn, Graneros and Dakota formations.

(27) The horizontal limits of the Gavilan-Greenhorn-Graneros-Dakota Oil Pool should be as follows:

TOWNSHIP 24 NORTH, RANGE 2 WEST
Sections 1 through 3: All

TOWNSHIP 25 NORTH, RANGE 2 WEST
Sections 17 through 30: All
Sections 33 through 36: All

(28) To protect the correlative rights of the interested parties in the Gavilan Mancos Oil Pool, it is necessary to adopt a restriction requiring that no more than one well be completed in the Gavilan-Greenhorn-Graneros-Dakota Oil Pool in any 320 acre proration and spacing unit and that said proration and spacing unit be identical with the acreage dedicated to a well drilled to the Gavilan-Mancos Oil Pool.

(29) The said Temporary Special Rules and Regulations should be established for a period ending March 1, 1987, in order to allow the operators in the subject pool to gather information to establish whether the temporary rules should be made permanent.

(30) An order based on the above findings is in the interest of conservation, will prevent waste and protect correlative rights, and should be entered in this case.

IT IS THEREFORE ORDERED THAT:

(1) Effective December 1, 1984, a new oil pool in Rio Arriba County, New Mexico, is hereby created and designated as the Gavilan-Greenhorn-Graneros-Dakota Oil Pool, with vertical limits being from the base of the Gavilan-Mancos Oil Pool, as found at a depth of 7574 feet on the log of the Northwest Exploration Company Gavilan Well No. 1, located in Unit A of Section 26, Township 25 North, Range 2 West, NMPM, Rio Arriba County, New Mexico, to a point 400 feet below the base of the Greenhorn formation (said base being found at a depth of 7822 feet on the aforesaid log); the horizontal limits of said pool

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shall comprise the following described lands in Rio Arriba County, New Mexico:

TOWNSHIP 24 NORTH, RANGE 2 WEST, NMPM
Sections 1 through 3: All

TOWNSHIP 25 NORTH, RANGE 2 WEST, NMPM
Sections 17 through 30: All
Sections 33 through 36: All

(2) Temporary Special Rules and Regulations for the Gavilan-Greenhorn-Graneros-Dakota Oil Pool are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
GAVILAN GREENHORN-GRANEROS-DAKOTA OIL POOL

RULE 1. Each well completed or recompleted in the Gavilan Greenhorn-Graneros-Dakota Oil Pool or in a correlative interval within one mile of its boundary to the North, South and West, shall be spaced, drilled, operated and produced in accordance with the Special Rules and Regulations hereinafter set forth. The one mile automatic extension does not apply to the Eastern boundary of the proposed pool.

RULE 2. No more than one well shall be completed or recompleted on a standard unit containing 320 acres, more or less, consisting of the N/2, E/2, S/2, or W/2 of a governmental section.

RULE 3. Wells in the Gavilan Greenhorn-Graneros-Dakota Oil Pool shall have the same proration and spacing units as any well completed or recompleted in the Gavilan-Mancos Oil Pool.

RULE 4. Non-standard spacing or proration units shall be authorized only after notice and hearing.

RULE 5. Each well shall be located no nearer than 790 feet to the outer boundary of the spacing and proration unit, nor nearer than 330 feet to a governmental quarter-quarter section line and shall be located within the same quarter-quarter section as a well completed or recompleted in the Gavilan-Mancos Oil Pool.

RULE 6. No more than one well in the Gavilan Greenhorn-Graneros-Dakota Oil Pool shall be completed in the East one-half of any section that is continuous with the western boundary of the West Puerto Chiquito-Mancos Oil Pool, with said well being located no closer than 1650 feet to said boundary.

RULE 7. The limiting gas-oil ratio for the Gavilan Greenhorn-Graneros-Dakota Oil Pool shall be 2000 cubic feet of gas per barrel of oil produced.

RULE 8. Any well drilled with its objective being a formation below the Gavilan Mancos pool shall be required to take special precautions during the drilling and cementing through the Gavilan Mancos Pool interval as follows:

- (a) Drilling must be done with a mud system designated to control lost circulation within the fractured Mancos interval.
- (b) Cementing of the casing shall be done in a manner and with a slurry designed to minimize losses to natural fractures that may exist within the Mancos interval.

RULE 9. Production from any well drilled to the Gavilan Greenhorn-Graneros-Dakota Oil Pool after the effective date of this order shall not be downhole commingled with production from any other pool.

RULE 10. A standard proration unit (316 through 324 acres) shall be assigned a depth bracket allowable of 427 barrels, subject to the market demand factor.

IT IS FURTHER ORDERED THAT:

(1) The locations of all wells presently drilling to or completed in the Gavilan Greenhorn-Graneros-Dakota Oil Pool or in the Greenhorn-Graneros-Dakota formations within one mile thereof are hereby approved; the operator of any well having an unorthodox location shall notify the Aztec District Office of the Division in writing of the name and location of the well on or before February 1, 1985.

(2) Pursuant to Paragraph A. of Section 70-2-18, N.M.S.A. 1978 Comp., contained in Laws 1969, Chapter 271, existing oil wells in the Gavilan Greenhorn-Graneros-Dakota Oil Pool shall have dedicated thereto 320 acres in accordance with the foregoing pool rules; or, pursuant to Paragraph C. of said Section 70-2-18, existing wells may have non-standard spacing or proration units established by the Division and dedicated thereto.

Failure to file new Forms C-102 with the Division dedicating 320 acres to a well or to obtain a non-standard unit approved by the Division within 60 days from the date of this

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order shall subject the well to cancellation of allowable. Until said Form C-102 has been filed or until a non-standard unit has been approved, and subject to said 60-day limitation, each well presently drilling to or completed in the Gavilan Greenhorn-Graneros-Dakota Oil Pool shall receive no more than one-eighth of a standard allowable for the pool.

(3) This case shall be reopened at an examiner hearing in March, 1987, at which time the operators in the subject pool should be prepared to appear and show cause why the Gavilan Greenhorn-Graneros-Dakota Oil Pool should not be developed on 40-acre spacing units.

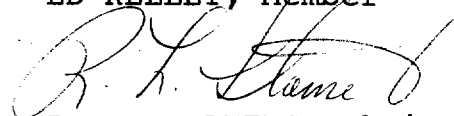
(4) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JIM BACA, Member


ED KELLEY, Member


R. L. STAMETS, Chairman
and Secretary



S E A L

SPECIAL RULES AND REGULATIONS
FOR THE
GAVILAN GREENHORN-GRANEROS-DAKOTA OIL POOL

RULE 1. The vertical limits of the Gavilan Greenhorn-Graneros-Dakota Oil Pool shall be from the base of the Gavilan-Mancos Oil Pool, as found at a depth of 7574 feet on the log of the Northwest Exploration Company Gavilan Well No. 1, located in Unit A of Section 26, Township 25 North, Range 2 West, NMPM, Rio Arriba County, New Mexico, to a point 400 feet below the base of the Greenhorn formation, as found at a depth of 7822 feet on the aforesaid log; the horizontal limits of said pool shall comprise the following described lands in Rio Arriba County, New Mexico:

TOWNSHIP 24 NORTH, RANGE 2 WEST, NMPM

Section 2: All
Section 3: E/2

TOWNSHIP 25 NORTH, RANGE 2 WEST, NMPM

Section 14: W/2
Sections 15 thru 17: All
Section 20: E/2
Sections 21 thru 23: All
Sections 26 thru 28: All
Section 29: E/2
Section 33: E/2
Sections 34 and 35: All

RULE 2. Each well completed or recompleted in the Gavilan Greenhorn-Graneros-Dakota Oil Pool shall be spaced, drilled, operated, and produced in accordance with the Special Rules and Regulations hereinafter set forth.

RULE 3. Each well shall be located on a standard unit containing 160 acres, more or less, substantially in the form of a square, which is a quarter section being a legal subdivision of the United States Public Land Surveys.

RULE 4. The Division Director may grant an exception to the requirements of Rule 2 without notice and hearing when an application has been filed for a non-standard unit consisting of less than 160 acres or the unorthodox size or shape of the tract is due to a variation in the legal subdivision of the United States Public Land Surveys. All operators offsetting the proposed non-standard unit shall be notified of the application by registered or certified mail, and the

application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all offset operators or if no offset operator has entered an objection to the formation of the non-standard unit within 30 days after the Director has received the application.

RULE 5. Each well shall be located no nearer than 330 feet to the outer boundary of the proration unit or to any governmental quarter-quarter section line nor nearer than 660 feet to the nearest well drilling to or capable of producing from the same pool.

RULE 6. The Division Director may grant an exception to the requirements of Rule 4 without notice and hearing when an application has been filed for an unorthodox location necessitated by topographical conditions or the recompletion of a well previously drilled to another horizon. All operators offsetting the proposed location shall be notified of the application by registered or certified mail, and the application shall state that such notice has been furnished. The Director may approve the application upon receipt of written waivers from all operators offsetting the proposed location or if no objection to the unorthodox location has been entered within 20 days after the Director has received the application.

RULE 7. A standard proration unit (158 through 162 acres) shall be assigned a depth bracket allowable of 427 barrels, subject to the market demand percentage factor, and in the event there is more than one well on a 160-acre proration unit, the operator may produce the allowable assigned to the unit in any proportion.

The allowable assigned to a non-standard unit shall bear the same ratio to a standard allowable as the acreage in such non-standard unit bears to 160 acres.

RULE 8. The limiting gas-oil ratio for the Gavilan Graneros-Greenhorn-Dakota Oil Pool shall be 2000 cubic feet of gas per barrel of oil produced.

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. 8350 (Reopened)
Order No. R-7745-A

IN THE MATTER OF CASE 8350 BEING
REOPENED PURSUANT TO THE PROVISIONS
OF COMMISSION ORDER NO. R-7745, WHICH
ORDER PROMULGATED TEMPORARY SPECIAL
RULES AND REGULATIONS FOR THE GAVILAN
GREENHORN-GRANEROS-DAKOTA OIL POOL IN
RIO ARriba COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on August 22, 1990, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 24th day of September, 1990, 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) By Order No. R-7745 dated November 30, 1984, issued in Case No. 8350, the Division, upon application of Jerome P. McHugh, created, defined and promulgated temporary special rules and regulations for the Gavilan Greenhorn-Graneros-Dakota Oil Pool, Rio Arriba County, New Mexico, including a provision for 320-acre spacing and proration units and designated well locations.

CASE NO. 8350 (REOPENED)

Order No. R-7745-A

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(3) Pursuant to the provisions of said Order No. R-7745, this case was reopened to allow the operators in the subject pool to appear and show cause why the special rules and regulations for said pool should not be rescinded and the pool developed on less than 320-acre spacing.

(4) Pursuant to Order No. R-7745, this case was to be reopened at an examiner hearing in March, 1987, however, due to inadvertence, the reopening of this case was delayed until the present time.

(5) Geologic and engineering evidence presented in original Case No. 8350 indicated that the average well in the Gavilan Greenhorn-Graneros-Dakota Oil Pool would be capable of marginal production only and, being so marginal in nature, would not support the drilling of a well to produce these zones only.

(6) The evidence presented in said Case No. 8350 further indicated that the Gavilan-Mancos Oil Pool is above the Gavilan Greenhorn-Graneros-Dakota Oil Pool and is the pool of primary interest with respect to ultimate recoveries of oil and gas.

(7) The 320-acre spacing within the subject pool was instituted primarily to limit the number of wells drilled through the Mancos formation which would serve to protect said Mancos formation from potential damage during drilling and cementing operations.

(8) No additional evidence was presented in this reopened case; however, a statement by a representative of Oryx Energy Company (Oryx), one of five current operators in the subject pool, was read into the record.

(9) It is the contention of Oryx Energy Company that the circumstances leading to and resulting in the promulgation of special rules and regulations for the subject pool have not changed.

(10) Oryx Energy Company therefore requested that the temporary special rules and regulations for the subject pool remain in effect for an additional two year period.

CASE NO. 8350 (REOPENED)

Order No. R-7745-A

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(11) No other operator and/or interest owner appeared at the hearing in opposition to Oryx's proposal.

(12) In order to prevent the economic loss caused by the drilling of unnecessary wells, to prevent reduced recovery of hydrocarbons from the Mancos and to otherwise prevent waste and protect correlative rights, the temporary special rules and regulations for the Gavilan Greenhorn-Graneros-Dakota Oil Pool should remain in effect for an additional temporary period of two years.

(13) This case should be reopened at an examiner hearing in September, 1992, at which time the operators in the subject pool should be prepared to appear and show cause why the temporary special rules for the Gavilan Greenhorn-Graneros-Dakota Oil Pool should not be rescinded.

IT IS THEREFORE ORDERED THAT:

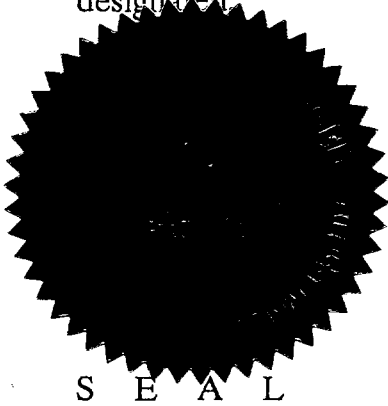
(1) The temporary special rules and regulations for the Gavilan Greenhorn-Graneros-Dakota Oil Pool, Rio Arriba County, New Mexico, as promulgated by Division Order No. R-7745, are hereby continued in full force and effect for a period of two years.

(2) This case shall be reopened at an examiner hearing in September, 1992, at which time the operators in the subject pool should be prepared to appear and show cause why the temporary special rules for the Gavilan Greenhorn-Graneros-Dakota Oil Pool should not be rescinded.

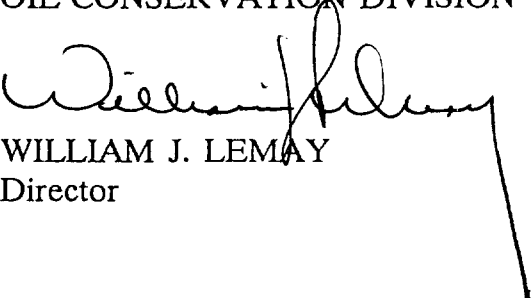
(3) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

CASE NO. 8350 (REOPENED)
Order No. R-7745-A
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DONE at Santa Fe, New Mexico, on the day and year hereinabove
designated.



STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


WILLIAM J. LEMAY
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:**

**CASE NO. 8350 (Reopened)
Order No. R-7745-B**

**IN THE MATTER OF CASE NO. 8350 BEING
REOPENED PURSUANT TO THE PROVISIONS
OF DIVISION ORDER NOS. R-7745 AND
R-7745-A WHICH ORDERS PROMULGATED
TEMPORARY SPECIAL RULES AND REGULATIONS
FOR THE GAVILAN GREENHORN-GRANEROS-
DAKOTA OIL POOL IN RIO ARriba COUNTY,
NEW MEXICO, INCLUDING A PROVISION FOR
320-ACRE SPACING AND PRORATION UNITS
AND DESIGNATED WELL LOCATIONS.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on September 17, 1992, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 4th day of November, 1992, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

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

(2) By Order No. R-7745 issued in Case No. 8350 on November 30, 1984, the Division, upon application of Jerome P. McHugh, created, defined and promulgated temporary special rules and regulations for the Gavilan Greenhorn-Graneros-Dakota Oil Pool in Rio Arriba County, New Mexico, including provisions for 320-acre spacing and proration units and designated well locations.

(3) Pursuant to the provisions of Order No. R-7745, Case No. 8350 was reopened and heard August 22, 1990 to allow the operators in the subject pool the opportunity to appear and show cause why the special rules and regulations for said pool should not be rescinded and the pool developed on less than 320-acre spacing.

(4) By Order No. R-7745-A issued on September 24, 1990, the Division, upon the request of Oryx Energy Company and as a result of testimony presented in Reopened Case No. 8350, continued in effect the temporary special rules and regulations for an additional period of two years.

(5) Pursuant to the provisions of Order No. R-7745-A, Case No. 8350 is being reopened at the present time to allow the operators in the subject pool the opportunity to appear and show cause why the special rules and regulations for said pool should not be rescinded and the pool developed on less than 320-acre spacing.

(6) Benson-Montin-Greer Drilling Corporation, one of six operators in the subject pool, appeared through counsel at the hearing but presented no evidence and testimony in this case.

(7) Benson-Montin-Greer Drilling Corporation's position is that the temporary special rules and regulations for the Gavilan Greenhorn-Graneros-Dakota Oil Pool should be made permanent.

(8) In addition, NM & O Operating Company and Mallon Oil Company, both operators in the subject pool, submitted letters also in support of making the temporary special rules and regulations permanent.

(9) The subject pool was initially spaced on 320 acres for the following reasons:

- a) geologic and engineering data presented in original Case No. 8350 demonstrated that the average well in the subject pool would be capable of marginal production only and, being so marginal in nature, would not support the drilling of a well to produce these zones only;
- b) the Gavilan-Mancos Oil Pool is above the Gavilan Greenhorn-Graneros-Dakota Oil Pool and is the pool of primary interest with respect to ultimate recoveries of oil and gas, and;
- c) the institution of 320-acre spacing for the subject pool would effectively limit the number of wells drilled through the Mancos formation which would serve to protect said formation from potential damage during drilling and cementing operations.

(10) It is apparent from previous evidence and testimony in this matter that spacing the Gavilan Greenhorn-Graneros-Dakota Oil Pool on less than 320 acres would not serve to increase the recovery of oil and gas from the pool, may cause reduced recovery from the Mancos formation due to formation damage during drilling and cementing operations, and would likely disrupt and cause inequities in revenue distribution among those parties who have thus far shared in production from the subject pool.

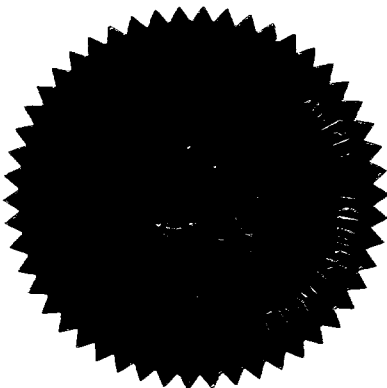
(11) Continuation of the temporary special rules and regulations for the Gavilan Greenhorn-Graneros-Dakota Oil Pool will serve to prevent the economic loss caused by the drilling of unnecessary wells, will prevent reduced recovery from the Mancos formation, and will prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED THAT:

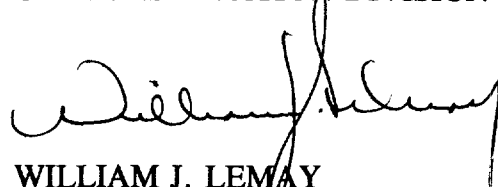
(1) The temporary rules and regulations for the Gavilan Greenhorn-Graneros-Dakota Oil Pool, Rio Arriba County, New Mexico, as promulgated by Division Order No. R-7745, are hereby continued in full force and effect until further order of the Division.

(2) 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


WILLIAM J. LEMAY
Director

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