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copy to Ed 7-3-86*

STATE OF NEW MEXICO
ENERGY & MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

RECEIVED

IN THE MATTER OF THE APPLICATION
OF JEROME P. MCHUGH AND ASSOCIATES
FOR AN AMENDMENT TO THE SPECIAL
POOL RULES OF THE GAVILAN-MANCOS
OIL POOL

Case: 8946
AUG 29 1986
OIL CONSERVATION DIVISION

AND

APPLICATION OF BENSON-MONTIN-GREER
DRILLING CORPORATION FOR THE
AMENDMENT OF THE SPECIAL POOL
RULES AND REGULATIONS OF THE
WEST PUERTO CHIQUITO-MANCOS POOL

Case: 8950

APPLICATION FOR REHEARING

COMES NOW Mallon Oil Company by and through its counsel,
Montgomery & Andrews, P.A., and submits its application for
rehearing of these consolidated cases.

In support of its application, Mallon Oil Company states:

1. That at the close of the hearing of these consolidated
cases on August 27, 1986, the Commission stated its decision in
this matter that the limiting gas/oil ratios for the Gavilan-
Mancos Pool and the West Puerto Chiquito-Mancos Pool would be
reduced to 600 cubic feet of gas for each barrel of oil produced
and that the maximum oil production allowable for the Gavilan-
Mancos Pool would be 400 barrels of oil per day.

2. That the Commission stated its decision that such
amended pool rules governing gas/oil ratios and oil production
allowables would be effective commencing September 1, 1986.

3. That the Commission requested applicants in these two cases to submit draft orders for consideration by the Commission on or before September 5, 1986.

4. That the Commission should reconsider its decision in this matter and should grant rehearing of this matter because:

a. The decision made by the Commission is arbitrary and capricious;

b. The decision of the Commission is not based upon substantial evidence; and

c. The decision of the Commission is contrary to law.

5. Although Mallon Oil Company does not have the benefit of having a complete record of this case, and although the Commission has not yet entered its order in this matter, Mallon is threatened with irreparable injury as a result of this erroneous decision.

6. That applying the Commission's amended gas/oil ratios and amended production allowables to the wells in the Gavilan-Mancos Pool indicates that the applicant in the initial case, Jerome P. McHugh and Associates, is benefitted by this order even more than the request set forth in their application. The percentage of pool production allocated to various operators in this pool prior to these cases, under the Jerome P. McHugh application and under the decision as announced by the Commission are as follows:

PERCENT OF TOTAL STUDY AREA OIL PRODUCTION

<u>Operator</u>	<u>6/86*</u>	<u>Applicant's* Proposal</u>	<u>Order of 400/600</u>
Amoco	0.3	0.6	0.5
Dugan	2.5	4.2	3.6
Mallon	19.5	14.2	13.8
McHugh	39.7	37.5	42.0
Meridian	9.9	13.0	12.0
Merrion	0.4	0.6	0.5
Mesa Grande	10.7	13.2	12.0
Mobil	4.2	5.8	5.7
Reading & Bates	1.1	1.8	1.6
BMG	<u>11.8</u>	<u>9.1</u>	<u>8.4</u>
TOTALS	100.1	100.0	100.1

* Data taken from Dugan Production Company Exhibit No. 3 to the hearing of this matter.

7. That this calculation of impact demonstrates the inherent unfairness and lack of equity in the Commission's decision as well as indicating the failure of the Commission's decision to meet its statutory obligations.

8. Because of the immediacy of the impact placed upon Mallon Oil Company by this decision, this request for rehearing is being filed prior to entry of the Commission's order. In the event the Commission fails, despite the obvious flaws in the decision as announced, to grant this request for rehearing, Mallon Oil Company intends to supplement its request for

rehearing within the time permitted by statute after entry of the order.

WHEREFORE, Mallon Oil Company prays that the Commission suspend the effective date of its initial decision in these consolidated cases and set this matter for rehearing.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

By


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CERTIFICATE OF SERVICE

I hereby certify that I caused to be mailed a true and correct copy of the foregoing Application for Rehearing to the following individuals on this 29th day of August, 1986:

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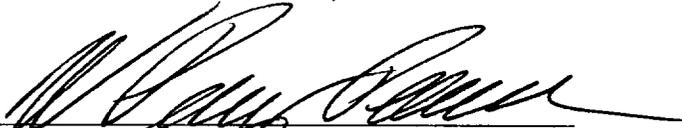
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BEFORE THE
OIL CONSERVATION COMMISSION
NEW MEXICO DEPARTMENT OF ENERGY AND MINERALS

RECEIVED

JUN 29 1987

OIL CONSERVATION DIVISION

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

IN THE MATTER OF CASE 8950 BEING
REOPENED PURSUANT TO THE PROVISIONS
OF COMMISSION ORDERS R-6469-C AND
R-3401-A, AS AMENDED, WHICH ORDER
PROMULGATED A TEMPORARY ALLOWABLE
AND LIMITING GAS-OIL RATIO FOR THE
WEST PUERTO CHIQUITO MANCOS OIL
POOL IN RIO ARRIBA COUNTY, NEW MEXICO.

CASE NO. 8950

ORDER R-6469-D

IN THE MATTER OF CASE 7980 BEING
REOPENED PURSUANT TO THE PROVISIONS
OF COMMISSION ORDER NO. R-7407, WHICH
ORDER PROMULGATED TEMPORARY SPECIAL
RULES AND REGULATIONS FOR THE GAVILAN-
MANCOS OIL POOL IN RIO ARRIBA COUNTY,
INCLUDING A PROVISION FOR 320-ACRE
SPACING UNITS.

CASE NO. 7980

ORDER R-7047-E

IN THE MATTER OF CASE 8946 BEING
REOPENED PURSUANT TO THE PROVISIONS
OF COMMISSION ORDER NO. R-7407-D,
WHICH ORDER PROMULGATED TEMPORARY
LIMITING OIL-GAS RATIO AND DEPTH
BRACKET ALLOWABLE FOR THE GAVILAN-
MANCOS OIL POOL IN RIO ARRIBA COUNTY.

CASE NO. 8946

ORDER R-7047-E

APPLICATION OF BENSON-MONTIN-GREER
DRILLING CORPORATION, JEROME P. MCHUGH
& ASSOCIATES, DUGAN PRODUCTION
CORPORATION AND SUN EXPLORATION AND
PRODUCTION COMPANY TO ABOLISH THE
GAVILAN-MANCOS OIL OPOOL, TO EXTEND
THE WEST PUERTO CHIQUITO-MANCOS OIL
POOL, AND TO AMEND THE SPECIAL RULES
AND REGULATIONS FOR THE WEST PUERTO
CHIQUITO-MANCOS OIL POOL, RIO ARRIBA
COUNTY, NEW MEXICO.

CASE NO. 9113

ORDER R-7047-E

APPLICATION OF MESA GRANDE
RESOURCES, INC. FOR THE
EXTENSION OF THE GAVILAN-
MANCOS OIL POOL AND THE
CONTRACTION OF THE WEST PUERTO
CHIQUITO-MANCOS OIL POOL, RIO
ARRIBA COUNTY, NEW MEXICO

CASE NO. 9114

ORDER R-7047-E

APPLICATION OF BENSON-MONTIN-GREER
DRILLING CORPORATION, JEROME P.
McHUGH & ASSOCIATES, DUGAN
PRODUCTION CORPORATION AND SUN
EXPLORATION AND PRODUCTION COMPANY
FOR REHEARING

Comes now Benson-Montin-Greer Drilling Corporation, Jerome P. McHugh & Associates, Dugan Production Corporation and Sun Exploration and Production Company and pursuant to the provision of Section 70-2-25 NMSA-1978 apply to the Oil Conservation Division of New Mexico for Rehearing of the above-captioned cases and orders and in support thereof state:

PREMIMINARY STATEMENT

(1) On December 20, 1983, the Commission entered Order R-7407 which granted Jerome P. McHugh's application to create a new Gavilan-Mancos Oil Pool and to establish special pool rules including provisions for 320-acre spacing for a temporary period of approximately three years. (Copy attached as Exhibit A).

(2) On September 11, 1986, the Commission entered Order R-7407-D which granted the application of Jerome P. McHugh to reduce the allowables and gas-oil ratio limitations for the Gavilan-Mancos Pool and Oil set the allowable for 320-acres at 400 barrels of oil per day and a limiting gas-oil ratio of 600 cubic feet of gas to one barrel of oil. (Copy of Order R-7407-D attached as Exhibit B).

(3) On June 8, 1987, the Commission entered Order R-6469-D which modified the temporary allowable and

limiting GOR for the West Puerto Chiquito-Mancos Oil Pool. (Copy of Order R-6469-D attached as Exhibit C).

(4) On June 8, 1987, the Commission also entered Order R-7407-E (attached as Exhibit D) which did the following:

(a) Modified the temporary allowable and GOR limitation for the Gavilan-Mancos Oil Pool;

(b) Partially granted Benson-Montin-Greer, et al., application in Case 9113 by creating 640-acre spacing for both the Gavilan-Mancos Oil Pool and the West Puerto Chiquito Mancos Oil Pool;

(c) Denied Benson-Montin-Greer, et al., application to abolish the Gavilan-Mancos Oil Pool and to extend accordingly the West Puerto Chiquito Mancos Pool to include the Gavilan Mancos Pool;

(d) Denied Mesa Grande Resources application to extend the Gavilan-Mancos Oil Pool two rows of sections to the east and deleting those sections from the current West Puerto Chiquito Mancos Oil Pool.

(e) Provided for a testing period beginning July 1, 1987 through January 1, 1988 to gather data to aid in determining whether or not the reservoir is rate sensitive.

Within the twenty days of the date of Order R-7407-E and R-6469-D, Benson-Montin-Greer, et al., have filed this Application for Rehearing.

Background

I

At the August, 1986 Commission hearings on the application for Reduced Allowables and Limiting GOR (Case 8946) Jerome P. McHugh contended:

(a) That the Gavilan-Mancos Oil Pool is a highly fractured reservoir which produces

primarily by solution gas drive and has potential for significant additional oil recovery by gravity drainage and minimizing the unnecessary dissipation of natural reservoir energy which results with the production of wells with gas-oil ratios which results with gas-oil ratios higher than the pool average.

(b) That based upon measurements of reservoir pressure, good communication exists well to well and throughout the reservoir.

(c) Based upon bottom hole pressure measurements, the reservoir pressure is declining at rates that provide little time to prepare and develop an alternative plan for the future operation and development of the reservoir.

(d) Based upon bottom hole pressure measurements, the daily producing oil rate should immediately be reduced to 200 barrels and the gas-oil ratio should be limited to 1,000 to allow time to evaluate the reservoir and to formulate a plan for future operations and development that will result in increased recoveries of oil and gas.

Benson-Montin-Greer Drilling Corp. and Dugan Production Corporation supported the application of McHugh and contended that gravity drainage will be a factor improving ultimate recovery in the Gavilan-Mancos Oil Pool as has been demonstrated in the Canada Ojitos Unit operated by Benson-Montin-Greer Drilling Corp. in the eastern portion of the same Mancos formation as is producing in the Gavilan-Mancos Oil Pool.

(e) That Mobil Producing Texas and New Mexico Inc. opposed McHugh's application and contended that the Gavilan-Mancos Pool is a typical solution gas drive reservoir with significant potential for oil recovery from matrix porosity and because such a reservoir

is not rate sensitive, the operators should be allowed to continue to produce the wells at the current allowable of 702 barrels per day and 2,000 GOR, which derives from the state's standard depth bracket schedule for fixing allowables.

(f) That Mallon Oil Company, Mesa Grande Resources Inc. and Koch Exploration contended that the Gavilan-Mancos Pool is an individual well gas cap drive reservoir and that the gas-oil ratio should be reduced to the solution gas oil ratio in order to most effectively produce this reservoir but contested the reduction in the daily oil rate because they discounted the potential for significant gravity drainage.

As a result of that Hearing the Commission found in Case 8946 that:

(a) the Gavilan-Mancos Oil Pool primarily produces from a fractured shale with little or no matrix contribution;

(b) the Gavilan-Mancos Pool is primarily a solution gas drive reservoir with potential for substantial additional ultimate oil recovery by gravity drainage;

(c) significant pressure depletion is occurring in wells and areas of the reservoir that have produced very little oil or gas;

(d) pressure interference tests have been conducted in representative areas of the pool, all of which demonstrate almost instantaneous interference over large distances;

(e) the solution GOR is between 480 and 646 cubic feet of gas per barrel of oil and most likely approximates 600 cubic feet of gas per barrel;

(f) wells in some areas of the Pool are producing at GOR rates in excess of the solution gas-oil ratio;

(g) free gas is being liberated reservoir-wide irrespective of structural position;

(h) reduction of the limiting GOR in the Gavilan-Mancos Oil Pool to near the solution GOR will prevent the inefficient dissipation of reservoir energy and will permit the owners in the pool to utilize their share of reservoir energy;

(i) the current 702 barrel per day oil maximum allowable is based upon an extension of Oil Conservation Division (Division) Rule 505 to wells in the Gavilan-Mancos Oil Pool depth range with 320-acre dedication;

(j) such depth bracket allowable could be appropriate for a normal pool with substantial matrix contribution to production but bears no rational relationship to the most efficient rate at which to produce the subject pool;

(k) the proposed 200 barrel per day maximum allowable, if imposed, would appear to result in production from the various tracts in the pool generally in closer proportion to the reserves thereunder than the current 702 barrel maximum allowable;

(l) imposition of such a maximum allowable, at this time, would unfairly penalize the operators of newer generally higher capacity wells as opposed to those operators of older generally declining capacity wells which previously enjoyed high rates of reservoir drainage;

(m) adoption of a temporary 400 barrel of oil per day maximum allowable rather than the 200 barrel limit proposed will, at this time, better permit the operators of the newer high

capacity wells to recover their share of the oil in the Gavilan-Mancos Oil Pool; and,

(n) a reduction in both the daily oil production rate and the limiting GOR will reduce the rate of reservoir voidage and pressure depletion and afford an improved opportunity for gravity drainage, thereby preventing waste, and permit operators additional time to determine the most effective and efficient method to further develop and produce the Pool.

The Commission further found that:

(a) The adoption of a 600 cubic feet of gas per barrel of oil limiting GOR and reduction of the oil depth bracket allowable to 400 barrels per day in the Gavilan-Mancos Oil Pool on a temporary basis, at this time, is necessary to prevent waste.

(b) The adoption of such limiting GOR and depth bracket allowable will, at this time, more nearly permit each operator to use his share of the reservoir energy and more nearly recover the oil underlying the individual tracts in the pool than the existing limiting GOR and depth bracket allowable and will, therefore, better protect correlative rights.

(c) Such limiting GOR and depth bracket allowable should be adopted effective September 1, 1986, and should be continued until further order of the Commission.

(d) The issues raised in this case should be reconsidered when temporary special pool rules for the Gavilan-Manocs Oil Pool established by Order No. R-7407 are brought up for reconsideration in March, 1987, or upon the recommendation of the pool study committee.

II.

At the March-April 1987 Hearing Benson-Montin-Greer, et al., contended that:

(a) the Gavilan-Mancos Oil Pool and the West Puerto Chiquito Mancos Oil Pool are producing from a single common source of supply, i.e., one pool.

(b) The Pool is a highly fractured stratified reservoir which produces from a combination of solution gas drive and gravity drainage, supplemented by gas injection pressure maintenance. The majority of the oil is contained within natural fractures and the formation matrix will have little or no contribution to ultimate recoveries.

(c) The Gavilan and West Puerto Chiquito-Mancos producing areas are in effective pressure communication with each other.

(d) Based upon pressure maintenance and interference testing good communication exists well to well and throughout the reservoir and a minimum well spacing of 640 acres per Proration and Spacing Unit should be established.

(e) Minimizing the unnecessary dissipation of natural reservoir energy by restricting the gas oil ratios to 600 cubic feet of gas per barrel of oil produced by restricting the producing rate to 800 barrels of oil per day based upon 640 acre spacing will result in more effective production of the pool and will increase ultimate recovery.

(f) The current pool allowable of 702BOPD for a 320 acre spacing unit (1342BOPD) for a 640 acre spacing unit (the in the adjacent West Puerto Chiquito Mancos Pool) as derived from the statewide depth bracket schedule is too high and does not properly consider the

unique reservoir characteristics that exist in the Mancos formation.

(g) The Pool reservoir pressures are continuing to decline and the GOR continuing to increase at excessive rates even with the adoption of the temporary provisions of Order R-7407-D so that the Commission must take further measures to restrict well density, allowables and gas-oil ratio limits in order to prevent waste.

(h) That under current rules, waste is occurring and will continue to occur in the future, resulting in a large amount of the original oil being left unrecovered.

(i) The current Gavilan-Mancos Oil Pool Rules promote the drilling of unnecessary wells, cause waste to occur, encourage competitive operations which create waste and should be abolished and replaced with the West Puerto Chiquito Mancos Oil Pool Rules as amended.

GROUNDS FOR REHEARING

Point I.

ORDER R-7407-E AND R-6469-D SHOULD BE REVERSED BECAUSE THE COMMISSION FAILED TO MAKE A "BASIC CONCLUSION OF FACT."

On September 11, 1986, the Commission entered very specific findings in Order R-7407-D concerning this reservoir including findings addressed to the potential for substantial additional ultimate recovery by gravity drainage.

Now the Commission has entered Order R-7407-E and R-6469-D with the findings inconsistent with and contradictory to the prior findings of the Commission and without adequate explanation why the earlier findings were erroneous.

Orders R-7407-E and R-6469-D fail to comply with the applicable statutory and judicial mandates as set forth in Continental Oil Company v. Oil Conservation Commission, 70 N.M. 310, 373 P.2d 809 (1962) by failing to articulate how the findings of the prior order R-7407-D did not protect correlative rights and prevent waste.

In Contintental Oil, supra, the New Mexico Supreme Court in a case dealing with the Commission's attempt to change the existing proration formula for the Jalmat Gas Pool held that a supposedly valid proration order in current use cannot be replaced in absence of findings that the present formula does not protect correlative rights.

The Commission in the Gavilan/West Puerto Chiquito Mancos cases has repeated its mistake in the Continental Oil case by failing to enter findings in either Order R-7407-E or R-6469-D which explain how it can return for 90-days to the statewide depth bracket allowable and increase the allowable gas and oil ratio to 1280 barrels a day and 2,000 to one for a 90-day period in view of the findings in Order R-7407-D (September 11, 1986) which hold that "(12)(h) reduction of the limiting GOR in the Gavilan-Mancos Oil Pool to near the solution GOR will prevent the inefficient dissipation of reservoir energy and will permit the owners in the pool to utilize their share of reservoir energy" and "(j) such a depth bracket allowable (referring to 702 BOPD in Finding 12(i)) could be appropriate for a normal pool with substantial matrix contribution to production but bears no rational relationship to the most efficient rate at which to produce the subject pool."

It is apparent that the current Commission has simply substituted its judgment for that of the prior Commission but has done so in an arbitrary way which violates the judicial standard established for the Commission in the Continental Oil Case, supra.

Point II

THE COMMISSION HAS FAILED TO MAKE ESSENTIAL JURISDICTIONAL FINDINGS CONCERNING THE PROTECTION OF CORRELATIVE RIGHTS AND PREVENTION OF WASTE.

Order R-7407-E and R-6469-D fail to set forth the fundamental factual findings raised at the hearing on how, if at all, the subject orders will protect correlative rights and prevent waste. The Commission has set forth no finding that correlative rights will be protected nor that waste will be prevented by the Order as issued. The failure to make such findings and to further articulate the fundamental reasons for that finding are totally absent from the Order. Without such findings the Order is void. See Sims v. Mechem, 72 N.M. 186 (1963) and Faskin v. Oil Conservation Commission, 87 N.M. 292, 532 P.2d 588 (1975).

Point III

THE COMMISSION HAS EXCEEDED ITS STATUTORY AUTHORITY AND VIOLATED ITS OWN RULES AND REGULATIONS (ULTRA-VIRES) BY ARBITRARIALLY TREATING A SINGLE COMMON SOURCE OF SUPPLY (POOL) AS IF IT WERE TWO SEPARATE AND DISTINCT POOLS.

The rules and regulations of the Commission and the statutory authority by which those rules and regulations are adopted are based upon the fundamental conservation concept that special rules shall be applied within a single common source of supply (a pool).

Even the casual observer of oil conservation statutes will quickly realize that as a fundamental conservation measure, rules and regulations of the Commission are based upon the administration of individual pools to protect correlative rights and prevent waste. In administering its own rules, the Commission has not always adhered to the concept that a single common source of supply (a reservoir or a pool)

should be governed by a single set of special pool rules and regulations. For the subject Mancos Pool Area, the Commission, by not consolidating the areas of the Gavilan Manco and West Puerto Chiquito Mancos Oil Pools, even though geological and engineering testimony documented that the two areas are, in fact, one common pool, has perpetuated a fiction that initially (and on a temporary basis) was speculation that the West Puerto Chiquito Mancos Oil Pool was a separate common source of supply from the Gavilan-Mancos Oil Pool. That fiction is no longer functional and is contrary to the undisputed technical geologic and engineering data.

With Order R-7407-E and R-6469-D, the Commission has exceeded its statutory authority and violated its own regulations by denying the Applicant's request in Case 9113.

Point IV

COMMISSION ORDER R-6469-D AND ORDER R-7407-E CONTAIN CERTAIN FINDINGS THAT ARE NOT SUPPORTED BY SUBSTANTIAL EVIDENCE, ARE ARBITRARY AND CAPRICIOUS AND CONTRARY TO LAW.

The following findings by the Commission in Order R-6469-D and R-7407-E are not supported by substantial evidence contained in the record as a whole:

1. Order R-6469-D Finding (5) and Order R-7407-E Finding (6) state

The evidence shows that there is limited pressure communication between the two designated pools, and that there are two weakly connected areas separated by some restriction at or near the common boundary of the two designated pools.

To reach this conclusion, the Commission failed to consider or explain that each and every interference test conducted between the two designated pools unequivocally demonstrated that the pools had a high

degree of lateral communication. The Commission has confused the limited vertical communication of the three zones of production with the tremendous lateral or horizontal communication within those zones across all areas of both pools. For example, the Commission compares C zone pressures in the east part of the units with combined A, B & C zone pressures in the Gavilan area (like mixing apples and oranges) and thereby concludes that the communication between the two areas is "weak." Since about six times as much oil had been taken out of the C zone in the unit as compared to the A and B zones when the first Gavilan well was drilled; it is only to be expected that the combined pressures of the three zones in Gavilan would be significantly different from that of the east portion of the reservoir's C zone pressure. It does not mean that there is weak communication laterally in any of the zones.

2. Order R-6469-D Finding (6) and Order R-7407-E Finding (7) each state:

The evidence shows there are three principal productive zones in the Mancos formation in both presently designated pools, designated A, B and C zones listed from top to bottom and that, while all three zones are productive in both designated pools, West Puerto Chiquito produces primarily from the C zone and Gavilan produces chiefly from the A and B zones.

This finding is factually incorrect. While the principal zone to be completed for production in the West Puerto Chiquito-Mancos Oil Pool for many years has been the C zone, the A and B zones are also productive in the unit and are currently being completed for production. While the dominant zones in Gavilan-Mancos Pool may be the A and B zones, nobody knows because the wells in the Gavilan for the most part have not tested the zones separately and it is common practice to complete all three zones simultaneously.

3. Order R-6469-D Finding (7) and Order R-7407-E Finding (8) each state:

It is clear from the evidence that there is material fracture communication between Zones A & B and that between Zones B & C.

This finding is misleading. It is true that testimony was presented regarding two wells on the South Western extremity of the developed area of Gavilan. This testimony simply stated that in the wellbores of these two wells, the operator had recorded an open hole log that "indicated" that the predominant intervals of fracturing in the wellbore was in the A & B Zones and that no fracturing was observed in the C Zone interval. This data is not to be argued. The fact that this data "clearly" indicates anything conclusive as to the entire reservoir area is highly debateable.

First, the depth of investigation of the logging tool is very shallow and thus the data recorded is representative of only a very small part of the reservoir, in fact, the data recorded is only representative of the wellbore area. Unless substantiated by selective testing, it is quite possible that an entirely different interpretation would exist at some small distance from the specific wellbore.

Second, the two wells from which data was presented are of much lower productivity than most of the wells in the Gavilan and West Puerto Chiquito Mancos Pools. Thus it is implied that the existence of natural fracturing in the vicinity of the subject wells is less than exists in the more productive areas.

4. Order R-6469-D Finding (9) and Order R-7407-E Finding (12) state:

There is conflicting testimony as to whether the reservoir is rate-sensitive and the Commission should act to order the operators in West Puerto Chiquito and Gavilan-Mancos pools to collect additional data

during 90-day periods of increased and decreased allowables and limiting gas-oil ratios.

While there was conflicting testimony as to whether the reservoir is rate sensitive, this issue was decided by the Commission in Order R-7407-D and there was no new and different substantial evidence to cause the current Commission to change that prior determination. In addition, the Commission has failed to make any findings to explain its reasoning on how the proposed test will provide definitive information in this respect. We contend that the test as proposed will not provide the Commission with answers as to the rate sensitivity nature of the reservoir.

The Commission has pulled a proposed test procedure out of the air without any opportunity for the parties to comment on the record as to whether this test or any other test will give the Commission the data they feel necessary to ultimately decide the producing rates for this pool. If for no other reason than to give the parties an opportunity to help the Commission correct a fatally flawed test procedure, this application for rehearing should be granted.

5. Order R-6469-D Finding (11) states:

An allowable of 1280 barrels per day is based upon an extension of the depth bracket allowable table and should be the allowable for a 640-acre proration unit for a period of 90 days with a limiting gas-oil ratio of 2,000 cubic feet of gas per barrel of oil.

This finding is a statement of the statewide depth bracket allowable and is inappropriate for this order in view of the prior finding in Order R-7407-D which include specific and detailed statements that the statewide depth bracket allowable if applied to the Gavilan Pool will cause waste and the inefficient disipation of reservoir energy. There is no substantial evidence in the record to justify the Commission in making this finding. The proposed 90 day test period

is without justification and simply authorizes the continued waste of reservoir energy and frustrates the possibility of gravity drainage enhancing the ultimate recovery.

6. Order R-6469-D Finding (12) states:

The Oil Conservation Commission and their staff will evaluate the data collected, or contract to have the data evaluated, to ascertain whether the 1280 BOPD allowable and 2,000 to 1 limiting GOR will cause waste and/or provide a mechanism for confiscation of oil and gas through drainage via the highly transmissive fracture system.

While the Commission's objectives stated in this finding are commendable, there is nothing in the finding or in the record to support the Commission's assumption that a 90 day test will provide definitive data with regards to these issues. We contend that the test will not. It has already been established (through the pressure decline of shut-in wells) that high volume wells can drain the tracts of smaller (or shut-in wells) just as Finding No. 8 of Order R-6469-D and Finding No. 11 of Order R-7407-C states. In no way can the planned test provide more definitive data than that which already exists.

Further, there are practical matters which override any factual data the Commission is attempting to obtain and analyze with respect to the consequence of setting a high allowable:

(a) High rates of production in Gavilan may cause channelling of the injected gas and compound the problem of keeping unitized products on the unit's side of the boundary.

(b) The only clear-cut consequence of a test raising the allowable and GOR is that production will be transferred from more efficient wells (lower GOR) to less efficient

wells (higher GOR); and it is not necessary to run a test to try to determine how that applies in this particular reservoir -- that's an accepted principle of conservation for any reservoir.

7. Order R-6469-D Finding (16) states:

The existing West Puerto Chiquito Mancos Pool wells located in the westernmost tier of sections in Township 25 North, Range 1 West, and the proper development of the Mancos Pool along the common existing boundary of the two pools will protect operators with the West Puerto Chiquito Mancos Pool from drainage by wells within the Gavilan-Mancos Pool.

This finding is supported by 10% geologic hypothesis and 90% wishful thinking. The Commission seems to assume that the problems of trying to keep two pools separate and manageable within one single common reservoir such as in the subject Mancos, can be resolved as if the Mancos were a simple conventionally waterflooded pool that can be segregated with offsetting producing wells. Such is not the case in the subject Mancos formation. Further development simply reduces the pool operations to the Rule of Capture and promotes the competitive and wasteful drilling of unnecessary wells.

The truth of the matter is that it is impossible to make a conclusive finding that categorically states - as this does - that "proper development" will protect the Canada Ojitos Unit from drainage. The high capacity fracture system does exist in the boundary area; however, the unit wells which are currently being drilled in the boundary area, may or may not, have adequate communication with the high capacity fracture system such that production from them will be sufficient to minimize the drainage.

In a reservoir of uniform properties, two rows of wells on the same spacing within a unit as opposed to

those offsetting wells outside the unit generally can be expected to significantly minimize drainage. This reservoir, however, is not an ordinary reservoir of uniform properties; and the general situation does not apply here.

In addition, the drilling of more than one well to a section will clearly cause waste in that the second well is unnecessary (as the Commission found) to recover the oil and gas. If the Canada Ojitos Unit boundary wells are located one well to a section (one-half the density of the Gavilan wells), then, at a minimum, they must produce twice the reservoir voidage of the average Gavilan well just to match withdrawals - and to stop drainage. Not only must these wells match withdrawals, they must produce their shares of the injected gas as well. With Gavilan's GOR about four times that of the unit's boundary wells (whose gravity drainage production keeps their GOR low) then each Canada Ojitos Unit boundary well must produce in addition to injected gas, eight times as much oil as each Gavilan well to equalize withdrawals. Some of the Canada Ojitos Unit boundary wells are capable of this - - but not all. In addition, at the anticipated rates of withdrawal in West Puerto Chiquito necessary to match production rates in Gavilan, the potential to realize any benefit from gravity drainage is lost.

Accordingly, we cannot blindly rely on the notion that the drilling of offset wells along the boundary will stop drainage from the unit.

8. Order R-7407-E, Finding (17) states:

No party requested making the temporary rules permanent, although certain royalty (not unleased minerals) owners requested a return to 40-acre spacing, without presenting supporting evidence.

This is ridiculous. The whole purpose of five days of hearings was to arrive at permanent special pool rules to replace the temporary pool rules stipulated in Order R-7407.

9. Order R-6469-D Finding (17) and Order R-7407-E Finding (19) state:

Recognizing that the two designated pools constitute two weakly connected areas with different geologic and operating conditions the administration of the two areas will be simplified by maintaining two separate pools.

We disagree with this entirely. The two parts of the reservoir are so well connected that all wells therein should be operated under the same rules and regulations. The two areas are not geologically different: they produce from the same common source of supply, and as reservoirs go, they have an astonishingly high degree of similarity and communication. True, the areas are operated differently -- but this is a man-made development and not a requirement of the physical properties of the reservoir.

CONCLUSION

By not consolidating the currently designated Gavilan Mancos Oil Pool area with the adjacent West Puerto Chiquito-Mancos Oil Pool area and establishing a common set of pool rules, the Commission has simply perpetuated a very serious problem in trying to manage a single pool with two different sets of rules and methods of operation. The practical impact of this will be to create a situation where the pressure can be reduced in the Gavilan area, thus increasing the risks that oil and gas will migrate downstream from the West Puerto Chiquito area into the Gavilan area.

As pressures in the boundary area between the pools and the Gavilan area drop, the pressure differential increases from the Canada Ojitos Unit Pressure Maintenance Project in the West Puerto Chiquito Pool area to the downdip recovery area (along the boundary and into the Gavilan area) and the potential for gas channeling and migration of unitized substances increases.

Also as the reservoir's gas saturation increases, the permeability to gas greatly increases and the migration potential will increase in a compounding fashion.

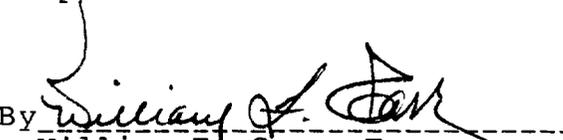
Once this cycle reaches a critical point, it will be impossible to stop and the only remaining solution will be to terminate the long-established Pressure Maintenance Project of the Canada Ojitos Unit in the West Puerto Chiquito-Mancos Oil Pool. This will cause a significant reduction in the ultimate recovery of oil from the reservoir and, considering the high degree of communication that exists across the reservoir in both areas, will create a gross violation of correlative rights.

Respectfully submitted,

Sun Exploration & Production
Company
Jerome P. McHugh & Associates
Dugan Production Corporation

By 
W. Thomas Kellahin, Esq.
Kellahin, Kellahin & Aubrey
Post Office Box 2265
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Corporation

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CERTIFICATE OF SERVICE

The foregoing Application for Rehearing was mailed this 29th day of June, 1987 to all counsel of record in the foregoing cases.



W. Thomas Kellahin

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. 7980
Order No. R-7407

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 November 16, 1983, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 20th day of December, 1983, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearing, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Jerome P. McHugh, seeks an order creating a new oil pool, vertical limits to be the Niobrara member of the Mancos formation, with special pool rules including a provision for 320-acre spacing, Rio Arriba County, New Mexico.

(3) That in companion Case 7979, Northwest Pipeline Company seeks an order deleting certain lands from the Basin Dakota Pool, the creation of a new oil pool with vertical limits defined as being from the base of the Mesaverde formation to the base of the Dakota formation, (the Mancos and Dakota formations), and the promulgation of special pool rules including a provision for 160-acre spacing, Rio Arriba County, New Mexico.

EXHIBIT A

REHEARING APPLICATION

(4) That Cases 7979 and 7980 were consolidated for the purpose of obtaining testimony.

(5) That geological information and bottomhole pressure differentials indicate that the Mancos and Dakota Formations are separate and distinct common sources of supply.

(6) That the testimony presented would not support a finding that one well would efficiently drain 320 acres in the Dakota formation.

(7) That the Mancos formation in the area is a fractured reservoir with low porosity and with a matrix permeability characteristic of the Mancos being produced in the West Puerto Chiquito Mancos Pool immediately to the east of the area.

(8) That said West Puerto Chiquito-Mancos Pool is a gravity drainage reservoir spaced at 640 acres to the well.

(9) That the evidence presented in this case established that the gravity drainage in this area will not be as effective as that in said West Puerto Chiquito-Mancos Pool and that smaller proration units should be established therein.

(10) That the currently available information indicates that one well in the Gavilan-Mancos Oil Pool should be capable of effectively and efficiently draining 320 acres.

(11) That in order to prevent the economic loss caused by the drilling of unnecessary wells, to prevent reduced recovery of hydrocarbons which might result from the drilling of too many wells, and to otherwise prevent waste and protect correlative rights, the Gavilan-Mancos Oil Pool should be created with temporary Special Rules providing for 320-acre spacing.

(12) That the vertical limits of the Gavilan-Mancos Pool should be defined as: The Niobrara member of the Mancos formation between the depths of 6590 feet and 7574 feet as found in 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.

(13) That the horizontal limits of the Gavilan-Mancos Oil Pool should be as follows:

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

(TOWNSHIP 25 NORTH, RANGE 2 WEST, NMPM)
Sections 19 through 30: All
Sections 33 through 36: All

(14) That to protect the correlative rights of interested parties in the West Puerto-Chiquito Mancos Oil Pool, it is necessary to adopt a restriction requiring that no more than one well be completed in the Gavilan-Mancos Oil Pool in the E/2 of each section adjoining the western boundary of the West Puerto Chiquito-Mancos Oil Pool, and shall be no closer than 1650 feet to the common boundary line between the two pools.

(15) That in order to gather information pertaining to reservoir characteristics in the Gavilan-Mancos Oil Pool and its potential impact upon the West Puerto Chiquito-Mancos Oil Pool, the Special Rules for the Gavilan-Mancos Oil Pool should provide for the annual testing of the Mancos in any well drilled in the E/2 of a section adjoining the West Puerto Chiquito-Mancos Pool.

(16) That the said Temporary Special Rules and Regulations should be established for a three-year period in order to allow the operators in the Gavilan-Mancos Oil Pool to gather reservoir information to establish whether the temporary rules should be made permanent.

(17) That the effective date of the Special Rules and Regulations promulgated for the Gavilan-Mancos Oil Pool should be more than sixty days from the date of this order in order to allow the operators time to amend their existing proration and spacing units to conform to the new spacing and proration rules.

IT IS THEREFORE ORDERED:

(1) That a new pool in Rio Arriba County, New Mexico, classified as an oil pool for Mancos production is hereby created and designated as the Gavilan-Mancos Oil Pool, with the vertical limits comprising the Niobrara member of the Mancos shale as described in Finding No. (12) of this Order and with horizontal limits as follows:

GAVILAN-MANCOS OIL POOL
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 19 through 30: All
Sections 33 through 36: All

(2) That temporary Special Rules and Regulations for the Gavilan Mancos Oil Pool are hereby promulgated as follows:

SPECIAL RULES AND REGULATIONS
FOR THE
GAVILAN-MANCOS OIL POOL

RULE 1. Each well completed or recompleted in the Gavilan-Mancos Oil Pool or in a correlative interval within one mile of its northern, western or southern boundary, shall be spaced, drilled, operated and produced in accordance with the Special Rules and Regulations hereinafter set forth.

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, S/2, E/2, or W/2 of a governmental section.

RULE 3. Non-standard spacing or proration units shall be authorized only after proper notice and hearing.

RULE 4. Each well shall be located no nearer than 790 feet to the outer boundary of the spacing or proration unit, nor nearer than 330 feet to a governmental quarter-quarter section line.

RULE 5. That no more than one well in the Gavilan-Mancos Oil Pool shall be completed in the East one-half of any section that is contiguous 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 6. That the operator of any Gavilan-Mancos Oil Pool well located in any of the governmental sections contiguous to the West Puerto Chiquito-Mancos Oil Pool the production from which is commingled with production from any other pool or formation and which is capable of producing more than 50 barrels of oil per day or which has a gas-oil ratio greater than 2,000 to 1, shall annually, during the month of April or May, conduct a production test of the Mancos formation production in each said well in accordance with testing procedures acceptable to the Aztec district office of the Oil Conservation Division.

IT IS FURTHER ORDERED:

(1) That the Special Rules and Regulations for the Gavilan-Mancos Oil Pool shall become effective March 1, 1984.

(2) That any well presently producing from the Gavilan-Mancos Oil Pool which does not have a standard 320-acre proration unit, an approved non-standard proration unit, or which does not have a pending application for a hearing for a standard or non-standard proration unit by March 1, 1984, shall be shut-in until a standard or non-standard unit is assigned the well.

(3) That 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-Mancos Oil Pool should not be developed on 40-acre spacing units.

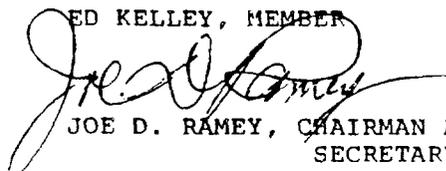
(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JIM BACA, MEMBER


ED KELLEY, MEMBER


JOE D. RAMEY, CHAIRMAN AND
SECRETARY

S E A L

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION

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

CASE NO. 8946
Order No. R-7407-D

APPLICATION OF JEROME P. MCHUGH
AND ASSOCIATES FOR AN AMENDMENT
TO THE SPECIAL RULES AND REGULATIONS
OF THE GAVILAN-MANCOS OIL POOL.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing on August 7, 8, 21, 22, and 27, 1986 at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 11th day of September, 1986, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearings and being fully advised in the premises,

FINDS THAT:

(1) The applicant has made a good-faith diligent effort to find and notify all operators of wells and each appropriate interested party as required by Division Order No. R-8054.

(2) Due public notice has been given as required by law and the Commission has jurisdiction of this case, the parties, and the subject matter thereof.

(3) The applicant, Jerome P. McHugh and Associates, seeks an order amending the temporary Special Rules and Regulations of the Gavilan-Mancos Oil Pool as promulgated by Division Order No. R-7407 to establish for a period of not less than ninety days a temporary special production allowable limitation of 200 barrels of oil per day for a standard 320-acre spacing and proration unit and a special temporary gas-oil ratio limitation factor of 1,000 cubic feet of gas per barrel of oil produced.

(4) In Companion Case No. 8950, Benson-Montin-Greer Drilling Corporation seeks an order amending the Special Rules and Regulations of the West Puerto Chiquito-Mancos Oil Pool

EXHIBIT B

REHEARING APPLICATION

promulgated by Division Order No. R-3401 to establish a temporary special production allowable limitation of 400 barrels of oil per day for a standard 640-acre spacing and proration unit and a special temporary gas-oil ratio limitation factor (GOR) of 1,000 cubic feet of gas per barrel of oil produced.

(5) Case No. 8950 and Case No. 8946 have been consolidated for purposes of hearing.

(6) Benson-Montin-Greer Drilling Corporation, Dugan Production Corporation and Meridian Oil Company appeared in support of McHugh's application.

(7) The proponents in this case presented testimony and evidence to show that:

(a) The Gavilan Mancos Oil Pool is a highly fractured reservoir which produces primarily by solution gas drive but has potential for significant additional oil recovery by gravity drainage and reducing the dissipation of natural reservoir energy by wells with relatively high gas-oil ratios;

(b) Based upon measurements of reservoir pressure and interference testing, excellent communication exists between wells and throughout the reservoir;

(c) Based upon bottom hole pressure measurements, the reservoir pressure is declining at rates that provide little time to prepare and develop a plan for improving the future operation and development of the reservoir;

(d) Based upon bottom hole pressure measurements, the daily producing oil rate should be reduced immediately to 200 barrels and the limiting gas-oil ratio should be reduced to 1,000 to slow reservoir depletion rates, allow time to evaluate the reservoir and formulate a plan for future operations and development that will result in increased recoveries of oil and gas; and

(e) Gravity drainage will be a factor in improving ultimate recovery in the Gavilan Mancos Oil Pool.

(8) Mobil Producing Texas and New Mexico Inc. appeared in opposition to McHugh's application and presented evidence to show that the Gavilan-Mancos Pool is a typical solution gas drive reservoir with significant potential for oil recovery from matrix porosity and that, because such a reservoir is not rate sensitive, to continue to produce the wells at the current allowable of 702 barrels per day and 2,000 GOR would not result in the reduction of the ultimate recovery of oil and gas therefrom.

(9) Mallon Oil Company, Mesa Grande Resources Inc. and Koch Exploration appeared and presented evidence to show that the Gavilan-Mancos Oil Pool is an individual well gas cap drive reservoir and that the limiting GOR should be reduced to the solution gas oil ratio in order to most effectively produce the reservoir but opposed the reduction in the maximum daily oil allowable, discounting the potential for significant gravity drainage.

(10) Prior to the application in this case, the operators in the Gavilan-Mancos Oil Pool formed a working interest owners committee, including geologic and engineering technical subcommittees, in order to discuss and address the issue of the most effective and efficient methods to develop and produce the pool.

(11) The applicant presented testimony that despite numerous meetings, the working interest owners have not yet agreed to any method of operations within said pool other than that provided in its special rules and that an emergency exists requiring the Commission to act immediately to reduce the rate of reservoir voidage in the Gavilan-Mancos Oil Pool to prevent waste and preserve reservoir energy until the working interest owners can reach such an agreement or until the Commission finally determines how best the pool might be developed and produced.

(12) The evidence presented at the hearing established that:

(a) the Gavilan Mancos Oil Pool primarily produces from a fractured shale with little or no matrix contribution;

(b) the Gavilan Mancos Pool is primarily a solution gas drive reservoir with potential for substantial additional ultimate oil recovery by gravity drainage;

(c) significant pressure depletion is occurring in wells and areas of the reservoir that have produced very little oil or gas;

(d) pressure interference tests have been conducted in representative areas of the pool, all of which demonstrate almost instantaneous interference over large distances;

(e) the solution GOR is between 480 and 646 cubic feet of gas per barrel of oil and most likely approximates 600 cubic feet of gas per barrel;

(f) wells in some areas of the Pool are producing at GOR rates in excess of the solution gas-oil ratio;

(g) free gas is being liberated reservoir-wide irrespective of structural position;

(h) reduction of the limiting GOR in the Gavilan-Mancos Oil Pool to near the solution GOR will prevent the inefficient dissipation of reservoir energy and will permit the owners in the pool to utilize their share of reservoir energy;

(i) the current 702 barrel per day oil maximum allowable is based upon an extension of Oil Conservation Division (Division) Rule 505 to wells in the Gavilan-Mancos Oil Pool depth range with 320-acre dedication;

(j) such depth bracket allowable could be appropriate for a normal pool with substantial matrix contribution to production but bears no rational relationship to the most efficient rate at which to produce the subject pool;

(k) the proposed 200 barrel per day maximum allowable, if imposed, would appear to result in production from the various tracts in the pool generally in closer proportion to the reserves thereunder than the current 702 barrel maximum allowable;

(l) imposition of such a maximum allowable, at this time, would unfairly penalize the operators of newer generally higher capacity wells as opposed to those operators of older generally declining capacity wells which previously enjoyed high rates of reservoir drainage;

(m) adoption of a temporary 400 barrel of oil per day maximum allowable rather than the 200 barrel limit proposed will, at this time, better permit the operators of the newer high capacity wells to recover their share of the oil in the Gavilan-Mancos Oil Pool; and

(n) a reduction in both the daily oil production rate and the limiting GOR will reduce the rate of reservoir voidage and pressure depletion and afford an improved opportunity for gravity drainage, thereby preventing waste, and permit operators additional time to determine the most effective and efficient method to further develop and produce the Pool.

(13) The adoption of a 600 cubic feet of gas per barrel of oil limiting GOR and reduction of the oil depth bracket allowable to 400 barrels per day in the Gavilan-Mancos Oil Pool on a temporary basis, at this time, is necessary to prevent waste.

(14) The adoption of such limiting GOR and depth bracket allowable will, at this time, more nearly permit each operator to use his share of the reservoir energy and more nearly recover the oil underlying the individual tracts in the pool than the existing limiting GOR and depth bracket allowable and will, therefore, better protect correlative rights.

(15) Such limiting GOR and depth bracket allowable should be adopted effective September 1, 1986, and should be continued until further order of the Commission.

(16) The issues raised in this case should be reconsidered when temporary special pool rules for the Gavilan-Mancos Oil Pool established by Order No. R-7407 are brought up for reconsideration in March, 1987, or upon the recommendation of the pool study committee.

IT IS THEREFORE ORDERED THAT:

(1) The terms and conditions of this order shall apply to all wells completed in the Gavilan-Mancos Oil Pool or wells completed in the Mancos formation within one mile thereof effective September 1, 1986 and shall remain in effect until further order of the Commission.

(2) The limiting gas oil ratio in the Gavilan-Mancos Oil Pool, as heretofore defined and described, Rio Arriba County, New Mexico, shall be 600 cubic feet of gas for each barrel of liquid hydrocarbons produced and that the depth bracket allowable therefor shall be 400 barrels of oil per day.

Case No. 8946
Order No. R-7407-D

(3) Both applicants and opponents shall be permitted representatives on the Gavilan Pool Technical Study Committee and this Study Committee shall submit a status report to the Commission on or before November 15, 1986.

(4) Unless reopened by the Commission based upon the report of the Study Committee, this case shall be reopened at a Commission hearing in March, 1987, to be consolidated with the reconsideration of the Temporary Special Rules established by Order No. R-7407 for the Gavilan-Mancos Oil Pool.

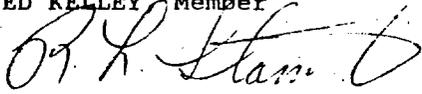
(5) Jurisdiction of this cause is retained for entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JIM BACA, Member

ED KELLEY, Member


R. L. STAMETS, Chairman and
Secretary

S E A L

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 8950
Order No. R-6469-D

IN THE MATTER OF CASE 8950 BEING REOPENED PURSUANT TO THE PROVISIONS OF COMMISSION ORDERS NOS. R-6469-C AND R-3401-A, AS AMENDED, WHICH ORDER PROMULGATED A TEMPORARY ALLOWABLE AND LIMITING GAS-OIL RATIO FOR THE WEST PUERTO CHIQUITO-MANCOS OIL POOL IN RIO ARRIBA COUNTY.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing on March 30 and 31, and April 1, 2, and 3, 1987 at Santa Fe, New Mexico before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 8th day of June, 1987 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) At the time of hearing, Cases 7980, 8946, 8950, 9113 and 9114 were consolidated for purposes of testimony.
- (3) Case 8950 involves re-opening the matter of temporary reduction of allowable and gas/oil ratio limit under Order R-6469-C/R-3401-A pertaining to the West Puerto Chiquito-Mancos Oil Pool.
- (4) Case 9113 involves a proposal to abolish the Gavilan-Mancos Oil Pool and consolidate that pool into the West Puerto Chiquito-Mancos Oil Pool and Case 9114 involves a proposal to shift the boundary between Gavilan-Mancos and West Puerto Chiquito-Mancos Oil Pool.

EXHIBIT C

REHEARING APPLICATION

(5) The evidence shows that there is limited pressure communication between the two designated pools, and that there are two weakly connected areas separated by some restriction at or near the common boundary of the two designated pools.

(6) The evidence shows there are three principal productive zones in the Mancos formation in both presently designated pools, designated A, B, and C zones listed from top to bottom and that, while all three zones are productive in both designated pools, West Puerto Chiquito produces primarily from the C zone and Gavilan produces chiefly from the A and B zone.

(7) It is clear from the evidence that there is natural fracture communication between zones A and B but that natural fracture communication is minor or non-existent between zones B and C.

(8) Interference tests indicate: 1) a high degree of communication between certain wells, 2) the ability of certain wells to economically and efficiently drain a large area of at least 640 acres; and 3) the probability exists that the better wells recover oil from adjacent tracts and even more distant tracts if such tracts have wells which were less successful in connecting with the major fracture system.

(9) There is conflicting testimony as to whether the reservoir is rate-sensitive and the Commission should act to order the operators in West Puerto Chiquito and Gavilan-Mancos pools to collect additional data during 90-day periods of increased and decreased allowables and limiting gas-oil ratios.

(10) Estimates of the amount of time required to deplete the Gavilan Pool at current producing rates varied from 33 months to approximately five years from hearing date.

(11) An allowable of 1280 barrels per day is based upon an extension of the depth bracket allowable table and should be the allowable for a 640-acre proration unit for a period of 90 days with a limiting gas-oil ratio of 2,000 cubic feet of gas per barrel of oil.

(12) The Oil Conservation Commission and their staff will evaluate the data collected, or contract to have the data evaluated, to ascertain whether the 1280 BOPD allowable and 2,000 to 1 limiting GOR will cause waste and/or provide a mechanism for confiscation of oil and gas through drainage via the highly transmissive fracture system.

(13) After the initial 90-day period ends, the allowable should be reduced to 800 BOPD per 640 acres with a limiting GOR of 600 cubic feet of gas per barrel of oil.

(14) The West Puerto Chiquito-Mancos Pool is dominated by the Canada Ojitos Unit on which a pressure maintenance program has been in progress since 1968 wherein all produced gas has been reinjected as well as outside purchased gas being injected.

(15) From commencement of production in the West Puerto Chiquito Mancos Pool in 1964 until approximately the end of 1986, a period of 22 years, the West Puerto Chiquito Pool enjoyed a favored pressure differential to the area now designated the Gavilan Mancos Pool but now the pressure differential favors the Gavilan Mancos Pool.

(16) The existing West Puerto Chiquito Mancos Pool wells located in the westernmost tier of sections in Township 25 North, Range 1 West, and the proper development of the Mancos Pool along the common existing boundary of the two pools will protect operators within the West Puerto Chiquito Mancos Pool from drainage by wells within the Gavilan Mancos Pool.

(17) Recognizing that the two designated pools constitute two weakly connected areas with different geologic and operating conditions the administration of the two areas will be simplified by maintaining two separate pools.

IT IS THEREFORE ORDERED THAT:

(1) The application of Benson-Montin-Greer in Case No. 9113 to abolish the Gavilan-Mancos Pool and extend the West Puerto Chiquito-Mancos Pool to include the area occupied by the Gavilan-Mancos pool is denied.

(2) The application of Mesa Grande Resources, Inc. for the extension of the Gavilan-Mancos and the concomitant contraction of West Puerto Chiquito-Mancos pool is denied.

(3) Beginning July 1, 1987, the allowable shall be 1280 barrels of oil per day per 640 acres with a limiting gas-oil ratio of 2,000 cubic feet of gas per barrel of oil. Operators are required to monitor reservoir performance, including but not limited to, production rates, gas-oil ratios, reservoir pressures, and shall report this information to the Commission within 30 days from completion of the tests. Within the first week of July, 1987, bottom hole pressure tests shall be taken

on all wells. Wells shall be shut-in until pressure stabilizes or for a period not longer than 72 hours. Additional bottom hole tests shall be taken within the first week of October, 1987, with similar testing requirements. All produced gas, including gas vented or flared, shall be metered. Operators are required to submit a testing schedule to the District Supervisor of the Aztec office of the Oil Conservation Division prior to testing so that tests may be witnessed by OCD personnel.

(4) Beginning October 1, 1987, the allowable shall be 800 barrels of oil per day per 640 acres with a limiting gas-oil ratio of 600 cubic feet of gas per barrel of oil. Operators are required to monitor reservoir performance as in (3) above with bottom hole pressure tests to be taken within the first week of January, 1988. This allowable and GOR limitation shall remain in effect until further notice from the Commission.

(5) This case shall be reopened at a hearing to be held in May, 1988 to review the pools in light of information to be gained in the next year and to determine if further changes in rules may be advisable.

(5) 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.

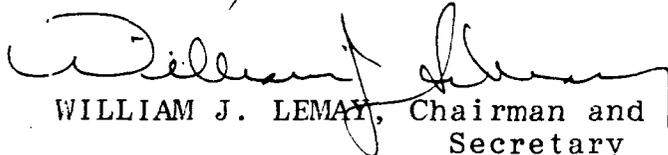
STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



WILLIAM R. HUMPHRIES, Member



ERLING A. BROSTUEN, Member



WILLIAM J. LEMAY, Chairman and
Secretary

S E A L

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASES NOS. 7980, 8946,
9113, AND 9114
ORDER NO. R-7407-E

CASE NO. 7980

IN THE MATTER OF CASE 7980 BEING REOPENED PURSUANT TO THE PROVISIONS OF COMMISSION ORDER NO. R-7407, WHICH ORDER PROMULGATED TEMPORARY SPECIAL RULES AND REGULATIONS FOR THE GAVILAN-MANCOS OIL POOL IN RIO ARRIBA COUNTY, INCLUDING A PROVISION FOR 320-ACRE SPACING UNITS.

CASE NO. 8946

IN THE MATTER OF CASE 8946 BEING REOPENED PURSUANT TO THE PROVISIONS OF COMMISSION ORDER NO. R-7407-D, WHICH ORDER PROMULGATED A TEMPORARY LIMITING GAS-OIL RATIO AND DEPTH BRACKET ALLOWABLE FOR THE GAVILAN-MANCOS OIL POOL IN RIO ARRIBA COUNTY.

CASE NO. 9113

APPLICATION OF BENSON-MONTIN-GREER DRILLING CORPORATION, JEROME P. McHUGH & ASSOCIATES, AND SUN EXPLORATION AND PRODUCTION COMPANY TO ABOLISH THE GAVILAN-MANCOS OIL POOL, TO EXTEND THE WEST PUERTO CHIQUITO-MANCOS OIL POOL, AND TO AMEND THE SPECIAL RULES AND REGULATIONS FOR THE WEST PUERTO CHIQUITO-MANCOS OIL POOL, RIO ARRIBA COUNTY, NEW MEXICO.

CASE NO. 9114

APPLICATION OF MESA GRANDE RESOURCES, INC. FOR THE EXTENSION OF THE GAVILAN-MANCOS OIL POOL AND THE CONTRACTION OF THE WEST PUERTO CHIQUITO-MANCOS OIL POOL, RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

These causes came on for hearing on March 30 and 31 and April 1, 2, and 3, 1987 at Santa Fe, New Mexico before the Oil Conservation Commission of New Mexico hereinafter referred to as the "Commission."

EXHIBIT D

REHEARING APPLICATION

NOW, on this 8th day of June, 1987, the Commission, a quorum being present, having considered the testimony presented and the exhibits received at said hearings 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 these causes and the subject matter thereof.
- (2) At the time of hearing, Cases 7980, 8946, 8950, 9113 and 9114 were consolidated for purposes of testimony.
- (3) Case 7980 involves review of temporary pool rules promulgated by Order R-7407 and Case 8946 involves reopening the matter of temporary reduction of allowable and gas/oil ratio limit, under Order R-7407-D, both orders pertaining to the Gavilan-Mancos Oil Pool.
- (4) Case 8950 involves reopening the matter of temporary reduction of allowable and gas/oil ratio limit under Order R-3401-A pertaining to the West Puerto-Chiquito-Mancos Oil Pool.
- (5) Case 9113 involves a proposal to abolish the Gavilan-Mancos Oil Pool and consolidate that pool into the West Puerto-Chiquito-Mancos Oil Pool and Case 9114 involves a proposal to shift the boundary between Gavilan-Mancos and West Puerto Chiquito-Mancos Oil Pools.
- (6) The evidence shows that there is limited pressure communication between the two designated pools, and that there are two weakly connected areas separated by some restriction at or near the common boundary of the two designated pools.
- (7) The evidence shows there are three principal productive zones in the Mancos formation in both presently designated pools, designated A, B, and C zones listed from top to bottom and that, while all three zones are productive in both designated pools, West Puerto Chiquito produces primarily from the C zone and Gavilan produces chiefly from the A and B zones.
- (8) It is clear from the evidence that there is natural fracture communication between zones A and B but that natural fracture communication is minor or non-existent between zones B and C.

(9) The reservoir consists of fractures ranging from major channels of high transmissibility to micro-fractures of negligible transmissibility, and possibly, some intergranular porosity that must feed into the fracture system in order for oil therein to be recovered.

(10) The productive capacity of an individual well depends upon the degree of success in communicating the wellbore with the major fracture system.

(11) Interference tests indicate: 1) a high degree of communication between certain wells, 2) the ability of certain wells to economically and efficiently drain a large area of at least 640 acres; and 3) the probability exists that the better wells recover oil from adjacent tracts and even more distant tracts if such tracts have wells which were less successful in connecting with the major fracture system.

(12) There is conflicting testimony as to whether the reservoir is rate-sensitive and the Commission should act to order the operators in West Puerto Chiquito and Gavilan-Mancos pools to collect additional data during 90-day periods of increased and decreased allowables and limiting gas-oil ratios.

(13) Two very sophisticated model studies conducted by highly skilled technicians with data input from competent reservoir engineers produced diametrically opposed results so that estimates of original oil in place, recovery efficiency and ultimate recoverable oil are very different and therefore are in a wide range of values.

(14) There was agreement that pressure maintenance would enhance recovery from the reservoir and that a unit would be required to implement such a program in the Gavilan-Mancos Pool.

(15) Estimates of the amount of time required to deplete the Gavilan pool at current producing rates varied from 33 months to approximately five years from hearing date.

(16) Many wells are shut in or are severely curtailed by OCD limits on permissible gas venting because of lack of pipeline connections and have been so shut in or curtailed for many months, during which time reservoir pressure has been shown by pressure surveys to be declining at 1 psi per day or more, indicating severe drainage conditions.

(17) No party requested making the temporary rules permanent, although certain royalty (not unleased minerals)

owners requested a return to 40-acre spacing, without presenting supporting evidence.

(18) Proration units comprised of 640 acres with the option to drill a second well would permit wider spacing and also provide flexibility.

(19) Recognizing that the two designated pools constitute two weakly connected areas with different geologic and operating conditions, the administration of the two areas will be simplified by maintaining two separate pools.

(20) A ninety day period commencing July 1, 1987, should be given for the connection for casinghead gas sale from now-unconnected wells in the Gavilan pool, after which allowables should be reduced in that pool until said wells are connected.

(21) To provide continuity of operation and to prevent waste by the drilling of unnecessary wells, the temporary spacing rules promulgated by Order R-7407 should remain in effect until superceded by this Order.

(22) Rules for 640-acre spacing units with the option for a second well on each unit should be adopted together with a provision that units existing at the date of this order should be continued in effect.

IT IS THEREFORE ORDERED THAT:

(1) The application of Benson-Montin-Greer et al in Case No. 9113 to abolish the Gavilan-Mancos pool and extend the West Puerto Chiquito-Mancos pool to include the area occupied by the Gavilan-Mancos Pool is denied.

(2) The application of Mesa Grande Resources, Inc. for the extension of the Gavilan-Mancos and the concomitant contraction of West Puerto Chiquito-Mancos Pool is denied.

(3) Rule 2 of the temporary special rules and regulations for the Gavilan-Mancos Oil Pool as promulgated by Order R-7407 is hereby amended as follows:

Rule 2 (a). A standard proration unit shall consist of between 632 and 648 acres consisting of a governmental section with at least one and not more than two wells drilled or recompleted thereon; provided that if the second well is drilled or recompleted on a standard unit it shall not be located in the same quarter section, nor

closer than 1650 feet to the first well drilled on the unit; and provided further that proration units formed prior to the date of this order are hereby granted exception to this rule.

(b). A buffer zone is hereby created consisting of the east half of sections bordering Township 1 West. Only one well per section shall be drilled in said buffer zone and if such well is located closer than 2310 feet from the western boundary of the West Puerto Chiquito-Mancos Oil Pool it shall not be allowed to produce more than one-half the top allowable for a 640-acre proration unit.

(4) Beginning July 1, 1987, the allowable shall be 1280 barrels of oil per day per 640 acres with a limiting gas-oil ratio of 2,000 cubic feet of gas per barrel of oil. Operators are required to monitor reservoir performance, including but not limited to, production rates, gas-oil ratios, reservoir pressures, and shall report this information to the Commission within 30 days after completion of the tests. Within the first week of July, 1987, bottom hole pressure tests shall be taken on all wells. Wells shall be shut-in until pressure stabilizes or for a period not longer than 72 hours. Additional bottom hole tests shall be taken within the first week of October, 1987, with similar testing requirements. All produced gas, including gas vented or flared, shall be metered. Operators are required to submit a testing schedule to the District Supervisor of the Aztec office of the Oil Conservation Division prior to testing so that tests may be witnessed by OCD personnel.

(5) Beginning October 1, 1987, the allowable shall be 800 barrels of oil per day per 640 acres with a limiting gas-oil ratio of 600 cubic feet of gas per barrel of oil. Operators are required to monitor reservoir performance as in (4) above with bottom hole pressure tests to be taken within the first week of January, 1988. This allowable and GOR limitation shall remain in effect until further notice from the Commission.

(6) In order to prevent further waste and impairment of correlative rights each well in the Gavilan-Mancos Oil Pool shall be connected to a gas gathering system by October 1, 1987 or within ninety days of completion. If Wells presently unconnected are not connected by October 1 the Director may reduce the Gavilan-Mancos allowable as may be appropriate to prevent waste and protect correlative rights. In instances where it can be shown that connection is absolutely uneconomic the well involved may be granted authority to flow or vent the

gas under such circumstances as to minimize waste as determined by the Director.

(7) The temporary special pool rules promulgated by Order R-7407 are hereby extended to the effective date of this order and said rules as amended herein are hereby made permanent.

(8) This case shall be reopened at a hearing to be held in May, 1988 to review the pools in light of information to be gained in the next year and to determine if further changes in rules may be advisable.

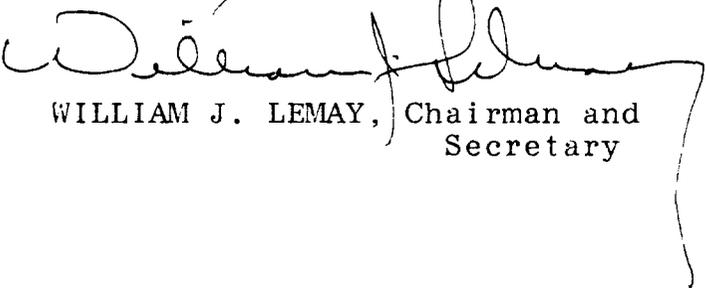
(9) Jurisdiction of this cause is retained for entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


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