CASE 4104: MOTION OF THE OCC FOR DOWN-HOLE COMMINGLING.

Case Number 4104

Application

Transcripts.

Small Exhibits

ETC.

MOBIL

1. ALL ZONES NEED ARTIFICIAL LIFT ✓
2. TOTAL DAILY AVERAGE PRODUCTION DOES NOT EXCEED GREATEST ALLOWABLE ✓
3. FLUIDS MUST BE COMPATIBLE
4. COMMON OWNERSHIP ALL ZONES ✓
5. COMMINGLING DOES NOT JEOPARDIZE SECONDARY RECOVERY ✓

CITIES SERVICE

1. IN LIEU OF LOW MARGINAL, DEFINITION, SHOULD USE CERTAIN NO. OF BARRELS W/ DEPTH FACTOR

SKELLY

1. PERCENTAGE PRESSURE DIFFERENTIAL SHOULD BE THE SAME FOR CASE I AND CASE II
2. SINGLE INITIAL TESTING ANNUAL TESTS THEREAFTER (DOES NOT SPECIFY WHETHER SINGLY OR COMBINED)
3. SHOULD NOT HAVE TO NOTIFY ROYALTY OWNER

If well offsets a flood or receives a response to a flood, separation eqpt would have to be re-installed.

WITHOUT DOWN-HOLE EQPT

CONTI

✓ 1. BOTH ZONES MUST BE OIL ✓

✓ 2. NEITHER ZONE MAY MAKE MORE THAN 15 BWPD ✓

✓ 3. BOTH ZONES COMBINED MAY NOT MAKE MORE THAN 1/2 OF THE ~~AT~~ LEAST ALLOWABLE ✓

? 4. 6 MOS. C-115's BE USED TO DETERMINE PRODUCTIVITY

✓ 5. IF EITHER ZONE IS ARTIFICIALLY LIFTED PRIOR TO COMMINGLING, THE COMBINED ZONES MUST BE ✓

✓ 6. UNIT VALUE OF CRUDE MAY NOT BE REDUCED BY COMMINGLING ✓

✓ 7. COMBINED PRODUCTION SHOULD BE SUBJECT TO LEAST GOR LIMITATION

? 8. PRODUCTION SHOULD BE ALLOCATED ON EXTRAPOLATED DECLINE CURVES

9. WELL SHOULD BE TESTED (COMMINGLED) ANNUALLY EXCEPT WHERE THERE IS A GOR PENALTY: SEMI-ANNUAL

25% ✓ 10. DON'T SPECIFY ANY PRESSURE DIFFERENTIAL

AMERADA

1. COMMINGLING SHOULD BE PERMITTED WITHOUT DOWNHOLE EQPT WHERE COMBINED PRODUCTION, OIL OR GAS, IS LESS THAN 1 ALLOWABLE ✓

(at only)

TEXACO

1. PERMIT COMMINGLING OF MARGINAL ZONES PROVIDED COMBINED PRODUCTION DOES NOT EXCEED TOP ALLOWABLE FOR LEAST ZONE ✓

(extremely marginal only)

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION UPON ITS OWN MOTION TO CONSIDER THE ADOPTION OF AN ADMINISTRATIVE PROCEDURE WHEREBY THE SECRETARY-DIRECTOR OF THE COMMISSION COULD GRANT EXCEPTIONS TO RULE 303 (a) OF THE COMMISSION RULES AND RECULATIONS AND PERMIT MARGINAL ZONES IN DUALLY COMPLETED OIL WELLS TO BE COMMINGLED IN THE WELL-BORE.

CASE No. 4104
Order No. R-3845

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 16, 1969, at Hobbs, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 1st day of October, 1969, 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 Rule 303 of the Commission Rules and Regulations prohibits, among other things, the commingling of production from two or more common sources of supply in the well-bore of any well.

(3) That there are a number of dually completed oil wells, the production from which is marginal as to each zone.

(4) That there are cases in which the reservoir characteristics of pools are such that waste would not be caused by the commingling of two separate common sources of supply in the well-bore.

(5) That there are cases in which the productive life of each of the marginal zones in a dually completed well may be substantially extended by permitting the commingling of production in the well-bore.

(6) That commingling the production from marginal zones in the well-bore of certain dually completed wells may result in the recovery of substantial amounts of additional oil from one or both of the zones, thereby preventing waste, and will not violate correlative rights.

(7) That in order to ease the administrative burden upon the operators and the Commission and to enable the Commission to more efficiently and effectively administer the laws of the State of New Mexico concerning the prevention of waste and the protection of correlative rights, Rule 303 of the New Mexico Oil Conservation Commission Rules and Regulations should be amended to grant the Secretary-Director of the Commission authority to permit the commingling of production from two separate common sources of supply of oil in the well-bore of a dually completed well.

IT IS THEREFORE ORDERED:

(1) That Rule 303 of the New Mexico Oil Conservation Commission Rules and Regulations is hereby amended to read in its entirety as follows:

RULE 303. SEGREGATION OF PRODUCTION FROM POOLS

A. SEGREGATION REQUIRED

Each pool shall be produced as a single common source of supply and the wells therein shall be completed, cased, maintained, and operated so as to prevent communication, within the well-bore, with any other specific pool or horizon, and the production therefrom shall at all times be actually segregated, and the commingling or confusion of such production, before marketing, with the production from any other pool or pools is strictly prohibited.

B. SURFACE COMMINGLING

The Secretary-Director of the Commission shall have the authority to grant an exception to Rule 303-A to permit the commingling in common facilities of the commonly owned production

from two or more common sources of supply, without notice and hearing, provided that the liquid hydrocarbon production from each common source of supply is to be accurately measured or determined prior to such commingling in accordance with the applicable provisions of the Commission "Manual for the Installation and Operation of Commingling Facilities," then current.

Applications for administrative approval to commingle the production from two or more common sources of supply shall be filed in triplicate with the Santa Fe office of the Commission. The application must contain detailed data as to the gravities of the liquid hydrocarbons, the values thereof, and the volumes of the liquid hydrocarbons from each pool, as well as the expected gravity and value of the commingled liquid hydrocarbon production; a schematic diagram of the proposed installation; a plat showing the location of all wells on the applicant's lease and the pool from which each well is producing. The application shall also state specifically whether the actual commercial value of such commingled production will be less than the sum of the values of the production from each common source of supply and, if so, how much less.

Where State or Federal lands are involved, applicant shall furnish evidence that the Commissioner of Public Lands for the State of New Mexico or the Regional Supervisor of the United States Geological Survey has consented to the proposed commingling.

C. DOWN-HOLE COMMINGLING

1. The Secretary-Director of the Commission shall have the authority to grant an exception to Rule 303-A to permit the commingling in the well-bore of dually completed oil wells when the following facts exist and the following conditions are met:

(a) Both zones to be commingled in the well-bore are classified as oil zones.

(b) The total daily production from both zones before commingling (as determined in accordance with Section 2, paragraphs (d) and

(e) below) does not exceed the following:

Bottom perforation, lowermost pool	Bbls/day
Less than 4,999 feet	20
5,000 feet to 5,999 feet	30
6,000 feet to 6,999 feet	40
7,000 feet to 7,999 feet	50
8,000 feet to 8,999 feet	60
9,000 feet to 9,999 feet	70
More than 10,000 feet	80

(c) Both zones require artificial lift, or, both zones are capable of flowing. (Special consideration may be given to an exception to this latter requirement in the case in which a particular well's characteristics may justify same; however, the commingled production must be artificially lifted if either zone required artificial lift prior to commingling.)

(d) Neither zone produces more water than the combined oil limit as determined in paragraph (b) above.

(e) The fluids from each zone are compatible with the fluids from the other, and combining the fluids will not result in the formation of precipitates which might damage either reservoir.

(f) The total value of the crude will not be reduced by commingling.

(g) Ownership of the two zones to be commingled is common (including working interest, royalty, and overriding royalty).

(h) The commingling will not jeopardize the efficiency of present or future secondary recovery operations in either of the zones to be commingled.

2. To obtain approval for down-hole commingling, the operator of the well shall submit the following in duplicate to

the Secretary-Director of the Commission plus one copy to the appropriate District Office of the Commission:

(a) Name and address of the operator.

(b) Lease name, well number, well location.

(c) Names of the pools the well is completed in and the Commission order number which authorized the dual completion.

(d) A current (within 30 days) 24-hour productivity test on Commission Form C-116 showing the amount of oil, gas, and water produced from each zone.

(e) A production decline curve for both zones showing that for a period of at least one year a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes. (This requirement may be dispensed with in the case of a newly completed or recently completed well which has little or no production history. However, a complete résumé of the well's completion history including description of treating, testing, etc., of each zone, and a prognostication of future production from each zone shall be submitted.)

(f) Estimated bottom-hole pressure for each artificially lifted zone. A current (within 30 days) measured bottom-hole pressure for each zone capable of flowing.

(g) A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the well-bore.

(h) A computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams.

(i) A statement that all offset operators and, in the case of a well on Federal land, the United States Geological Survey, have been notified in writing of the proposed commingling.

3. The Secretary-Director of the Commission may approve the proposed down-hole commingling in the absence of a valid objection within 20 days after the receipt of the application if, in his opinion, there is no disqualifying disparity of bottom-hole pressures or other reservoir characteristics, waste will not result thereby, and correlative rights will not be violated. The 20-day waiting period may be dispensed with upon receipt of waivers of objection from all parties mentioned in Section 2, paragraph (i).

4. Upon such approval, the well shall be operated in accordance with the provisions of the administrative order which authorized the commingling, and allocation of the commingled production from the well to each of the producing zones shall be in accordance with the allocation formula set forth in the order. The production from the well shall be subject to the lower of the daily gas-oil ratio limitations applicable to the reservoirs. Wells shall be tested on a commingled basis annually, except that a well penalized for a high gas-oil ratio shall be tested semi-annually.

5. The Secretary-Director may rescind authority to commingle production in the well-bore and require both zones to be produced separately, if, in his opinion, waste or reservoir damage is resulting thereby or the efficiency of any secondary recovery project is being impaired, or if any change of conditions renders the installation no longer eligible for down-hole commingling under the provisions of Section 1, paragraphs (a) through (h).

(2) 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

DAVID F. CARGO, Chairman

ALEX J. ARMIJO, Member

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

esr/

PROPOSED ADDITION ~~TO~~
TO
COMMISSION RULE 303

(c) The Secretary-Director of the Commission shall have the authority to grant an exception to Rule 303(a) to permit the commingling in the wellbore of dually completed oil wells when the following facts exist and the following conditions are met.

(1) Commingling of fluids from two commonly owned reservoirs in the wellbore without down-hole separation equipment of any kind.

This type of down-hole commingling may be approved when the producing zone of the ~~dually~~ dual completion has declined to 25 percent or less of the currently assigned top limit allowable for each pool, provided that the pressure of the zone with the lowest pressure is at least 10 percent of the pressure of the other zone, and provided further that no fluid compatibility problems exist in the well which might result in the formation of precipitates which would damage either reservoir.

(2) Commingling of fluids from two commonly owned reservoirs in the tubing, maintaining separation of the zones in the casing by means of a packer and dual-flow down-hole choke assembly or other acceptable mechanical device.

in the absence of a valid objection within 20 days after the receipt of the application

The Secretary Director of the Commission may approve the proposed down-hole commingling if, in his opinion, waste will not result thereby and correlative rights will not be violated. The 20-day waiting period may be dispensed with upon receipt of waivers of objection from all ~~parties of the aforesaid~~ parties mentioned in item (i) above.

~~both zones~~ showing the amount of oil, gas, and water produced from each zone during a current (within 30 days) 24-hour period.

(e) ~~A subsurface bottom hole~~ pressure test on Commission Form C-124 showing the ~~measured~~ 24-hour shut-in ~~bottom~~ pressure for each zone taken in accordance with Rule 302 of the Commission Rules and Regulations. (Pressures may be calculated from fluid levels in pumping wells)

(f) Statement that ownership of the two zones is common throughout, including working interest, royalty ownership, and overriding royalty ownerships.

(g) A production decline curve for both zones ~~established~~ showing that a steady rate ~~has~~ of decline has been established for each zone which will permit a reasonable allocation of the commingled production to ~~the~~ each zone for statistical purposes.

(h) A description of the fluid characteristics of each zone showing that the fluids ~~are~~ will not be incompatible in the well-bore and ~~that~~ the actual ~~combined~~ value of the commingled production will not be substantially less ~~than~~ than the sum of the values of the production from each pool if segregated.

(i) A statement that all offset operators and the royalty owner have been notified of the proposed commingling.

This type of down-hole commingling may be approved when the productivity of each zone of the dual completion has declined so that the combined productivity of both zones is equal to or less than the currently assigned top unit allowable for the uppermost pool, provided that the pressure of the zone with the lowest pressure is at least 75 percent of the pressure of the other zone, and provided further that there is no serious detrimental effect on the value of the ~~combined~~ commingled stream as compared to the sum of the values of the individual streams.

(3) (k) To obtain approval for down-hole commingling of the ~~fluids~~ production from both zones of a dually completed oil well, the operator of the well shall submit the following in duplicate to the Secretary-Director of the Commission:

(a) Name and address of the operator
(b) Lease name, well number, well location
(c) Names of the pools the well is completed in and the Commission Order number which authorized the dual completion
(d) A current (within 30 days) 24-hour productivity test on Form C-116

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3112
Order No. R-2824

APPLICATION OF CONTINENTAL OIL
COMPANY FOR DOWNHOLE COMMINGLING,
RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on September 30, 1964, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 7th day of December, 1964, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Continental Oil Company, seeks authority to install a dual-flow downhole choke assembly in its Jicarilla 28 Well No. 1, located in Unit J of Section 28, Township 25 North, Range 4 West, NMPM, Rio Arriba County, New Mexico, to produce oil from the Gallup formation and to produce oil from the Dakota formation through one string of 2 3/8-inch tubing, with separation of zones by said choke assembly set at approximately 6500 feet and a packer set at approximately 7317 feet.

(3) That the applicant proposes to commingle the Gallup and Dakota production in the 2 3/8-inch tubing above the dual-flow downhole choke assembly and to determine production from each zone by periodic production tests.

(4) That the proposed dual completion should be approved for a six-month period in order to determine the feasibility of authorizing such completions in this area.

(5) That since the Gallup and Dakota formations in the subject well are marginal, the applicant should be authorized to determine production from each zone by periodic production tests witnessed by the Commission.

IT IS THEREFORE ORDERED:

(1) That the applicant, Continental Oil Company, is hereby authorized to install a dual-flow downhole choke assembly in its Jicarilla 28 Well No. 1, located in Unit J of Section 28, Township 25 North, Range 4 West, NMPM, Rio Arriba County, New Mexico, to produce oil from the Gallup formation and to produce oil from the Dakota formation through one string of 2 3/8-inch tubing, with separation of zones by said choke assembly set at approximately 6500 feet and a packer set at approximately 7317 feet;

PROVIDED HOWEVER, that the applicant shall complete, operate, and produce said well in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations insofar as said rule is not inconsistent with this order.

(2) That the applicant shall take a packer-leakage test prior to installation of the downhole choke assembly and upon termination of the six-month test period authorized by this order.

(3) That upon installation of the dual-flow downhole choke assembly and upon termination of the six-month test period authorized by this order, the applicant shall conduct tests to determine packer leakage or seal leakage in the dual-flow downhole choke assembly in either direction, and shall notify the Supervisor, District 3, Oil Conservation Commission, Aztec, New Mexico, of the exact date and time said tests are to commence in order that the Commission may witness the same.

(4) That the applicant is hereby authorized to determine production from each zone of the subject well by periodic production tests and shall notify the Supervisor, District 3, Oil Conservation Commission, Aztec, New Mexico, of the date and time said tests are to commence in order that the Commission may witness the same.

(5) That this case shall be reopened at an examiner hearing in June, 1965, at which time the applicant may appear and show cause why the authority granted under this order should not be terminated.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

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

S E A L

esr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3112
Order No. R-2824-A

APPLICATION OF CONTINENTAL OIL
COMPANY FOR DOWNHOLE COMMINGLING,
RIO ARRIBA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on July 28, 1965, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 16th day of August, 1965, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That this case has been reopened pursuant to the provisions of Order No. R-2824 to permit the applicant to show cause why the authority granted under Order No. R-2824 should not be terminated.

(3) That the applicant has established that the Gallup and Dakota zones in the subject well are marginal and that it is not economically feasible to equip these zones for conventional operation.

(4) That the applicant has established that continued use of the dual-flow downhole choke assembly in the subject well will permit the recovery of otherwise unrecoverable oil, thereby preventing waste.

(5) That the applicant has established that correlative rights will be protected by allocating production from the subject well to each zone by periodic production tests utilizing the subtraction method.

IT IS THEREFORE ORDERED:

(1) That the authority granted under Order No. R-2824 is hereby continued in full force and effect;

PROVIDED HOWEVER, that a production test shall be conducted annually and production allocated to the Gallup and Dakota zones of the subject well by the subtraction method until further order of the Commission.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

GUYTON B. HAYS, Member

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

S E A L

esr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3387
Order No. R-3053

APPLICATION OF CHARLES B. READ
FOR A DUAL COMPLETION AND DOWN-
HOLE COMMINGLING, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on March 23, 1966, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 1st day of April, 1966, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Charles B. Read, seeks authority to complete his Bogle Farms Well No. 1, located in Unit L of Section 13, Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico, as a dual completion (conventional) to produce gas from the West Mesa-Queen Gas Pool through the casing-tubing annulus from perforations at approximately 3332 to 3343 feet and to produce oil from the Bunker Hill-Queen Pool through 2 3/8-inch tubing from perforations at approximately 3605 to 3629 feet, separating the zones by a packer set at approximately 3574 feet.

(3) That the applicant also seeks authority to install a gas-operated free plunger lifting assembly and to utilize gas from the West Mesa-Queen Gas Pool to lift the oil production from the Bunker Hill-Queen Pool.

(4) That the mechanics of the proposed dual completion are feasible and in accord with good conservation practices.

(5) That approval of the subject application will permit the recovery of otherwise unrecoverable oil, prevent waste, and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Charles B. Read, is hereby authorized to complete his Bogle Farms Well No. 1, located in Unit L of Section 13, Township 16 South, Range 31 East, NMPM, Eddy County, New Mexico, as a dual completion (conventional) to produce gas from the West Mesa-Queen Gas Pool through the casing-tubing annulus from perforations at approximately 3332 to 3343 feet and to produce oil from the Bunker Hill-Queen Pool through 2 3/8-inch tubing from perforations at approximately 3605 to 3629 feet, separating the zones by a packer set at approximately 3574 feet;

PROVIDED HOWEVER, that the applicant shall complete, operate, and produce said well in accordance with the provisions of Rule 112-A of the Commission Rules and Regulations insofar as said rule is not inconsistent with this order;

PROVIDED FURTHER, that the applicant shall conduct a gas-oil ratio test on the oil zone of the subject well upon completion and annually thereafter.

(2) That the applicant is hereby authorized to install a gas-operated free plunger lifting assembly and to utilize gas from the West Mesa-Queen Gas Pool to lift the oil production from the Bunker Hill-Queen Pool.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

GUYTON B. HAYS, Member

S E A L

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

esr/

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL, CHAIRMAN OF THE BOARD
R. W. McFALL, PRESIDENT

SYMBOLS
DL = Day Letter
NL = Night Letter
LT = International Letter Telegram

The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL TIME at point of destination

DOWNHOLE COMMINGLING WITHOUT THE USE OF DUAL FLOW
DOWNHOLE CHOKE DEVICES WHERE THIS CAN BE JUSTIFIED=
D L RAY DIVISION ENGINEER PAN AMERICAN
PETROLEUM CORP FORT WORTH TEX=

MAIN OFFICE

'69 APR 14 PM 1 26

WU1201 (R2-65) THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION TELEGRAM

W. P. MARSHALL, CHAIRMAN OF THE BOARD
R. W. McFALL, PRESIDENT

SYMBOLS
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The filing time shown in the date line on domestic telegrams is LOCAL TIME at point of origin. Time of receipt is LOCAL

(128)

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1969 APR 14 PM 12 47

NS FWB169 EV PD 5 EXTRA=FAX FORT WORTH TEX 14 124P CST=
NEW MEXICO OIL CONSERVATION COMMISSION=
PO BOX 871 SANTA FE NMEX=

REFERENCE IS TO CASE 4104 CALLED BY NMOCC TO CONSIDER ADMINISTRATIVE PROCEDURE FOR GRANTING OF EXCEPTIONS TO RULE 303 (A) TO PERMIT DOWNHOLE COMMINGLING OF SEPARATE POOLS.=

PAN AMERICAN PETROLEUM CORPORATION RECOMMENDS THAT AN ADMINISTRATIVE PROCEDURE BE ADOPTED BY THE COMMISSION WHICH PROVIDES FOR APPROVAL FOR DOWNHOLE COMMINGLING. WE RECOMMEND THAT THIS PROCEDURE INCLUDE PROVISIONS FOR

WU1201 (R2-65) THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3389
Order No. R-3060

APPLICATION OF DAVID FASKEN
FOR DOWN-HOLE COMMINGLING,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 13, 1966, at Hobbs, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 4th day of May, 1966, 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, David Fasken, is the operator of the David Fasken Felmont Collier Well No. 1, located 1980 feet from the North line and 510 feet from the East line of Section 9, Township 11 South, Range 33 East, NMPM, Lea County, New Mexico.

(3) That said well is presently completed and equipped to produce from perforations in the North Bagley-Upper Pennsylvanian Pool from 9372 feet to 9379 feet and from 9502 feet to 9510 feet, and from perforations in the North Bagley-Lower Pennsylvanian Pool from 10,122 feet to 10,130 feet and from 10,258 feet to 10,266 feet through parallel strings of tubing, separation of the two pools being achieved by means of a packer set at 10,007 feet.

(4) That the applicant proposes to remove said packer and to produce both pools simultaneously into the well-bore of the subject well, with the provision that no more than one top allowable could be produced from the well.

(5) That there are producible reserves of oil in the North Bagley-Lower Pennsylvanian Pool; that the North Bagley-Upper Pennsylvanian Pool produces large quantities of water as well as oil; and that there is danger of drowning out the Lower Pennsylvanian if the proposed commingling in the well-bore is permitted, thus causing waste and possible violation of correlative rights.

(6) That the subject application should be denied.

IT IS THEREFORE ORDERED:

(1) That the subject application is hereby denied.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

GUYTON B. HAYS, Member

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

S E A L

esr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3395
Order No. R-3066

APPLICATION OF R. W. WARNER
FOR DOWN-HOLE COMMINGLING,
SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 27, 1966, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 11th day of May, 1966, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, R. W. Warner, is the owner and operator of the Warner-Federal Well No. 1 located in Unit A of Section 10, Township 22 North, Range 8 West, NMPM, San Juan County, New Mexico.

(3) That said well was originally completed as a low-marginal pumping oil well and was subsequently plugged and abandoned.

(4) That the applicant, R. W. Warner, has re-entered said well and has established low-marginal production from an undesignated Gallup oil pool through perforations from 4768 feet to 4830 feet and from an undesignated Dakota oil pool through perforations from 5628 feet to 5635 feet.

(5) That the applicant proposes to produce and to commingle in the well-bore the marginal oil production from the aforesaid pools.

(6) That the production from neither of said zones, in itself, is sufficient to cover the operating costs of producing the well as a single completion. Further, that the production from both zones, combined, is insufficient to cover the cost of installing conventional dual completion equipment and the operating cost of the well.

(7) That the reservoir characteristics of each of the two zones are such that underground waste would not be caused by the proposed commingling in the well-bore.

(8) That approval of the proposal will prevent waste in permitting the production of otherwise unrecoverable oil and will not violate correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, R. W. Warner, is hereby authorized to complete his Warner-Federal Well No. 1 located in Unit A of Section 10, Township 22 North, Range 8 West, NMPM, San Juan County, New Mexico, in such a manner as to produce oil from an undesignated Gallup oil pool through perforations from 4768 feet to 4830 feet and from an undesignated Dakota oil pool through perforations from 5628 feet to 5635 feet, commingling the production from each of said zones in the well-bore.

(2) That the operator shall notify the Santa Fe Office of the Commission in the event that either or both of the perforated intervals in the subject well becomes capable, for any reason, of producing in excess of 10 barrels per day.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

GUYTON B. HAYS, Member

S E A L

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

esr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3447
Order No. R-3117

APPLICATION OF TEXAS PACIFIC OIL
COMPANY FOR DOWN-HOLE COMMINGLING,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on August 24, 1966, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 21st day of September, 1966, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Texas Pacific Oil Company, is the operator of the J. P. Collier Well No. 1, located in Unit F of Section 10, Township 11 South, Range 33 East, NMPM, Lea County, New Mexico.

(3) That said well is presently completed and equipped to produce from perforations in the North Bagley-Upper Pennsylvanian Pool from 9466 feet to 9474 feet and from perforations in the North Bagley-Middle Pennsylvanian Pool from 9862 feet to 9872 feet through parallel strings of tubing, separation of the two pools being achieved by means of a packer set at 9852 feet.

(4) That said well is assigned a top allowable for each of said pools.

(5) That said well is presently flowing as a top allowable well from the North Bagley-Upper Pennsylvanian Pool.

(6) That said well is presently shut in in the North Bagley-Middle Pennsylvanian Pool.

(7) That the applicant proposes to produce and to commingle in the casing-tubing annulus the non-marginal oil production from the aforesaid pools by means of a Special Multiple Zone Single String Production Hookup without first measuring the production from each zone.

(8) That the applicant proposes to ensure that neither of the aforesaid zones produces more than its assigned allowable by means of down-hole choke assemblies.

(9) That neither of the producing zones in the subject well is of a settled nature, and both are, in fact, presently subject to rapid change in productivity of oil and water.

(10) That a change in the rate of pumping, bottom hole pressure of either or both zones, or percent of water in either or both zones, can cause either or both zones to produce more or less than its calculated share of the combined allowable for said well thereby endangering correlative rights and causing waste.

(11) That the applicant has not established that correlative rights can be protected by allocating production from each of these non-marginal zones in said well by periodic production tests utilizing the subtraction method.

(12) That the subject application should be denied.

IT IS THEREFORE ORDERED:

(1) That the subject application is hereby denied.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JACK M. CAMPBELL, Chairman

GUYTON B. HAYS, Member

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

S E A L

esr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3593
Order No. R-3276

APPLICATION OF AMERADA PETROLEUM
CORPORATION FOR DOWNHOLE COMMINGLING,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on June 6, 1967, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 18th day of July, 1967, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Amerada Petroleum Corporation, is the operator of the L. M. Lambert Well No. 8, located in Unit G of Section 6, Township 20 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) That by Order No. R-2355, dated October 31, 1962, issued in Case No. 2669, the applicant was authorized to complete the subject well as a dual completion to produce oil from the Monument-Paddock Oil Pool through a 2 3/8 x 1 1/4-inch tapered tubing string and to produce oil from the Monument-Blinebry Oil Pool through a parallel 2 3/8 x 2 1/16-inch tapered tubing string separated by a permanent type packer set at approximately 5550 feet.

(4) That as part of the evidence presented in Case No. 2669 to secure Commission approval of the aforementioned dual completion,

the applicant in said Case No. 2669 presented evidence that the aforementioned installation could be satisfactorily utilized to artificially lift both zones to depletion should such artificial lifting become necessary.

(5) That the applicant has replaced the aforesaid strings of tubing with a single string of 2 3/8-inch tubing and proposes to commingle in the well bore and produce therefrom by means of said single string of tubing the oil production from the aforementioned pools.

(6) That the applicant would allocate production to the pools on the basis of annual well tests.

(7) That changes in fluid properties or reservoir pressures in either or both reservoirs may occur and render allocation of oil production on the basis of annual tests inaccurate.

(8) That the applicant has failed to prove that the requested downhole commingling is necessary to efficiently and economically deplete the subject reservoirs.

(9) That the subject application should be denied.

IT IS THEREFORE ORDERED:

(1) That the subject application is hereby denied.

(2) 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

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

S E A L

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

esr/

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 3886
Order No. R-3363

APPLICATION OF GULF OIL CORPORATION
FOR DOWN-HOLE COMMINGLING, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on November 8, 1967, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 9th day of January, 1968, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Gulf Oil Corporation, is the operator of the Federal Mills Well No. 1, located in Unit C of Section 11, Township 9 South, Range 36 East, NMPM, Lea County, New Mexico.

(3) That said well is presently completed and equipped to produce from perforations in the Allison-Abo Pool from 8970 feet to 8990 feet and from the open-hole interval in the Allison-Pennsylvanian Pool from 9670 feet to 9703 feet through parallel strings of tubing, separation of the two pools being achieved by means of a packer set at 9655 feet.

(4) That the applicant proposes to remove said packer [illegible] to produce both pools simultaneously into the [illegible]

subject well, with the provision that no more than one top allowable could be produced from the well.

(5) That the proposed commingling will not substantially reduce operating costs nor extend the producing life of either zone to any great degree.

(6) That there is insufficient data concerning the reservoir and reservoir fluid characteristics of the two zones to ensure that reservoir damage and waste will not result from the commingling.

(7) That the Abo formation produces considerably more water than the Pennsylvanian formation in the subject well; this larger amount of water, if the two zones are commingled in the well-bore, may have an adverse and detrimental effect on the Pennsylvanian zone in the subject well and nearby wells, thus causing waste and a violation of correlative rights.

(8) That the subject application should be denied.

IT IS THEREFORE ORDERED:

(1) That the subject application is hereby denied.

(2) 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

DAVID F. CARGO, Chairman

GUYTON B. HAYS, Member

S E A L

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

OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
1000 RIO BRAZOS ROAD - AZTEC
87410

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August 11, 1969

GOVERNOR
DAVID F. CARGO
CHAIRMAN

LAND COMMISSIONER
ALEX ARMIJO
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico

Re: Proposed Downhole Commingling

Dear Pete, George, Dan, Jim and Elvis:

The proposed rule for downhole commingling appears to fit a particular group of existing wells.

The following comments are submitted for your consideration:

1. The overall idea is good, but the limitations are too restrictive.

2. The combined production rate should be limited to top allowable for the shallow zone.

3. The water volume is not critical so long as it can be handled economically. (Eliminate paragraph 1.d.)

4. Most marginal wells need artificial lift. One zone which does not need artificial lift may help a zone which does need artificial lift. Some completions may produce without artificial lift but are not economical. Elimination of paragraph 1.e would allow that oil to be produced instead of being left in the ground.

5. Insert a paragraph which would require the bottom hole pressure of the low-pressure zone to be above a percentage of the high-pressure zone. The percentage can be a magic number such as 30 or 60 barrels in b and d.

6. Make provisions to authorize downhole commingling for new completions. This would not require the well to have been a multiple completion for more than one year. This would eliminate extra costs such as a packer, one string of tubing, a pump, separator and tank plus their installation and removal.

7. Let the Secretary-Director or some appointed staff member use some discretion in making a decision.

Other comments may be made at a later time.

Yours very truly,

A. R. Kendrick
Engineer, District #3

ARK:mc

Encl.

Emery - we will check with you in a few days for your comments on this
Dan

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C. DOWNHOLE COMMINGLING

1. The Secretary-Director of the Commission shall have the authority to grant an exception to Rule 303-A of the Commission Rules and Regulations to permit the commingling in the well-bore of dually completed oil wells when the following facts exist and the following conditions are met:

(a) Both zones to be commingled in the well are classified as oil zones.

(b) The combined oil production from both zones will not exceed ~~one half~~ the top unit allowable for the uppermost pool, ~~or 60 barrel per day, whichever is less.~~

(c) The fluids from each zone are compatible with the fluids from the other and combining the fluids will not result in the formation of precipitates which would damage either reservoir.

(d) ~~Neither zone produces more than 30 barrels of water per day.~~ BHP of low-pressure zone shall be at least __% of the BHP of the high-pressure zone.

~~(e) Both of the zones require artificial lift.~~

(e) ~~(f)~~ The unit value of the crude will not be reduced by commingling.

(f) ~~(g)~~ Ownership of the two zones to be commingled is common (including working interest, royalty, and overriding royalty).

(g) ~~(h)~~ The commingling will not jeopardize the efficiency of present or future secondary recovery operations in either of the zones to be commingled.

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OIL CON. COM.
DIST. 3

Rough draft

2. To obtain approval for down-hole commingling, the operator of the well shall submit the following in duplicate to the Secretary-Director of the Commission: plus one copy to district office:

(a) Name and address of the operator.

(b) Lease name, well number, well location.

(c) Names of the pools the well is completed in, ~~and the Commission order number which authorized the dual completion~~.

(d) A current (within 30 days) 24-hour productivity test on Commission Form C-116 showing the amount of oil, gas, and water produced from each zone.

(e) A production decline curve for both zones showing that ~~for a period of at least one year~~ a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes. or a test procedure to determine such rates;

(f) A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the well-bore.

(g) A computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams.

(h) A statement that all offset operators have been notified in writing of the proposed commingling.

Rough draft

3. The Secretary-Director of the Commission may approve the proposed down-hole commingling in the absence of a valid objection within 20 days after the receipt of the application if, in his opinion, waste will not result thereby and correlative rights will not be violated. The 20-day waiting period may be dispensed with upon receipt of waivers of objection from all parties mentioned in item 2(h) above.

4. The Secretary-Director may rescind authority to commingle production in the well-bore and require both zones to be produced separately, if, in his opinion, waste or reservoir damage is resulting thereby or the efficiency of any secondary recovery project is being impaired, or if any change of conditions renders the installation no longer eligible for down-hole commingling under the provisions of Section 1, paragraphs (a) through (h) above. The operator shall have 10 days to separate the zones or to plug one zone after notice [illegible] the [illegible]

Mobil Oil Corporation

P.O. BOX 633
MIDLAND, TEXAS 79701

April 30, 1969

New Mexico Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Att: Mr. A. L. Porter, Jr.

NEW MEXICO OIL CONSERVATION COMMISSION
CALLED CASE NO. 4104, APRIL 16, 1969
PROPOSED STATEWIDE ADMINISTRATIVE PROCEDURE FOR DOWNHOLE COMMINGLING IN NEW MEXICO

Gentlemen:

Mobil Oil Corporation attended the subject hearing on downhole commingling and read a statement into the record supporting the Commission's proposal of a rule change. We have had time now to consider the testimony, statements and "Proposed Addition to Commission Rule 303" presented at the hearing.

Mobil respectfully offers for the Commission's consideration the following recommendations for supplementing the proposed rules:

A. Rule 303 C-1: The bottomhole pressure differential between the two zones is limited to 10%. This is a very severe limitation and would administratively eliminate wells for commingling that would otherwise qualify on the merits of a specific case. However, since a definite figure for permissible BHP differential would be easier to administer, it is felt that a 25% difference in BHP would provide the regulation needed to protect the zones while allowing sufficient latitude for the Commission to efficiently administer downhole commingling in New Mexico.

B. Rule 303 C-2: During the April 16 hearing, the expected testing provisions for downhole commingling with a dual flow downhole choke assembly were discussed. Evidently a quarterly test provision has been made a part of an order in past decisions. These tests are time-consuming, expensive and hazardous. Mobil recommends a test schedule no more frequently than once a year.

Mobil

C. Rule 303 C-3-e: This rule calls for a current (within 30 days) 24-hour productivity test from each zone to be commingled. Mobil recommends that the time limitation be extended from 30 days to 90 days.

D. Rule 303 C-3-f: Mechanical problems in the well can restrict the determination of BHP or fluid level of the zone. It is recommended that when the BHP or fluid level of a zone cannot be determined due to mechanical problems in a well, that Rule 303 C-3-f be waived and that information from an offset well would be used to determine the zone's BHP, subject to individual approval of the Commission.

Mobil also recommends that a test be considered current if taken within 90 days rather than 30 days.

E. Rule 303 C-3-i: Mobil agrees with the Commission's proposed ruling on the actual commercial value of commingled production and recommends that the wording remains as follows:

"....and that the actual commercial value of the commingled production will not be substantially less than the sum of the values of the production from each pool if segregated."

F. Rule 303 C-3-j: Mobil recommends that the provision calling for the royalty owner to be notified be deleted. Provisions for the protection of the royalty owner are covered in proposed Rule 303 C-3-g and i.

G. The matter of water production in a zone was introduced by Continental Oil Company during the hearing ("no zone should make over 15 BWPD"). While it is recognized that excessive water production from a zone to be downhole commingled could have a detrimental effect on the other zone, the amount of water that would have this effect should not be arbitrarily set but determined by the merits of a specific case.

Mobil believes that the resulting rules would help to provide the oil industry with an administrative procedure that has sufficient scope to be really useful and yet contain adequate provisions for effective management, protection of correlative rights and prevention of waste.

Very truly yours,

C. F. Underriner, Jr.
Division Engineer

WBSimmonsJr/bje

Docket No. 11-69

DOCKET: REGULAR HEARING - WEDNESDAY - APRIL 16, 1969

OIL CONSERVATION COMMISSION - 9 A.M. THE HOLIDAY INN, 200 SOUTH LINAM, HOBBS, NEW MEXICO

ALLOWABLE: (1) Consideration of the oil allowable for May, 1969.

(2) Consideration of the allowable production of gas for May, 1969, from thirteen prorated pools in Lea, Eddy, and Roosevelt Counties, New Mexico. Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico, for May, 1969.

CASE 4099: Application of Joseph L. Dunigan for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for the Sudderth and Hicks Vickers Well No. 1 located in Unit A of Section 23, Township 20 South, Range 28 East, Russell (Yates) Pool, Eddy County, New Mexico. Applicant seeks authority to continue to dispose of produced salt water in an unlined surface pit located near said well.

CASE 4100: Application of J. M. C. Ritchie for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for four wells located in Sections 16, 20 and 21 of Township 26 South, Range 27 West, Welch-Delaware Pool, Eddy County, New Mexico. Applicant seeks authority to continue to dispose of salt water produced by the four wells in unlined surface pits.

CASE 4101: Application of George H. Mitchell for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil or gas or both, on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for all wells producing from the Pecos-Delaware Pool, Eddy County, New Mexico. Applicant seeks authority for the operators of said wells to continue to dispose of produced water in unlined surface pits servicing said wells.

CASE 4102: Application of W. H. McKinley for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended which order prohibits the disposal of water produced in conjunction with the production of oil or gas, or both, on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico, after January 1, 1969. Said exception would be for the applicant's lease covering the SE/4 of Section 1, Township 17 South, Range 30 East, Square Lake Grayburg-San Andres Pool, Eddy County, New Mexico. Applicant seeks authority to continue to dispose of salt water produced by the wells on said lease in unlined surface pits.

CASE 4103: Application of New Mexico Salt Water Disposal Company, Inc., for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Queen and Penrose formations in the perforated interval from approximately 4823 feet to 5146 feet in the Charles B. Read Atlantic Richfield Well No. 2 located 660 feet from the South and West lines of Section 13, Township 19 South, Range 34 East, Quail-Queen Pool, Lea County, New Mexico.

CASE 4104: In the matter of the hearing called by the Oil Conservation Commission upon its own motion to consider the adoption of an administrative procedure whereby the Secretary-Director of the Commission could grant exceptions to Rule 303 (a) of the Commission Rules and Regulations and permit marginal zones in dually completed oil wells to be commingled in the well-bore provided waste would not result thereby, provided dual-flow down-hole choke assemblies or other acceptable mechanical devices were installed, and provided that the total production from both zones would not exceed top allowable for the uppermost zone. Further, to consider an administrative procedure to permit down-hole commingling of low marginal wells approaching their economic limit without the installation of the above-mentioned down-hole equipment.

CASE 4105: Southeastern nomenclature case calling for an order for the creation and extension of certain pools in Lea, Eddy, Chaves and Roosevelt Counties, New Mexico:

(a) Create a new pool in Lea County, New Mexico, classified as an oil pool for San Andres production and designated as the Cormac-San Andres Pool comprising the following:

TOWNSHIP 10 SOUTH, RANGE 33 EAST, NMPM
Section 17: NE/4

Further, for the assignment of approximately 22,040 barrels of oil discovery allowable to the discovery well Corinne Grace's T. P. State Well No. 1 located in Unit A of said Section 17.

(b) Create a new pool in Eddy County, New Mexico, classified as a gas pool for Morrow production and designated as the South Carlsbad-Morrow Gas Pool. The discovery well is Pennzoil United, Inc., Mobil 12 Federal No. 1 located in Unit G of Section 12, Township 23 South, Range 26 East, NMPM. Said pool should comprise:

TOWNSHIP 23 SOUTH, RANGE 26 EAST, NMPM
SECTION 12: N/2

(c) Create a new pool in Lea County, New Mexico, classified as an oil pool for Delaware production and designated as the Lusk-Delaware Pool. The discovery well is Pan American Petroleum Corporation, Plains Unit Federal No. 7 located in Unit D of Section 33, Township 19 South, Range 32 East. Said pool should comprise:

TOWNSHIP 19 SOUTH, RANGE 32 EAST, NMPM
SECTION 33: NW/4

(d) Extend the East Bluitt-San Andres Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 37 EAST, NMPM
SECTION 13: SW/4

TOWNSHIP 8 SOUTH, RANGE 38 EAST, NMPM
SECTION 18: NW/4

(e) Extend the South Corbin-Morrow Gas Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 33 EAST, NMPM
SECTION 29: W/2

(f) Extend the Drinkard Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM
SECTION 25: NW/4

(g) Extend the Hobbs-Blinebry Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 18 SOUTH, RANGE 38 EAST, NMPM
SECTION 29: SW/4

(h) Extend the Imperial Tubb-Drinkard Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 37 EAST, NMPM
SECTION 21: E/2
SECTION 27: SW/4
SECTION 28: E/2
SECTION 33: NE/4

(i) Extend the Maljamar Grayburg-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 33 EAST, NMPM
SECTION 9: SE/4

(j) Extend the South Prairie-Devonian Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 36 EAST, NMPM
SECTION 20: W/2 NE/4

(k) Extend the Sulimar-Queen Pool in Chaves County, New Mexico, to include therein:

TOWNSHIP 15 SOUTH, RANGE 29 EAST, NMPM
SECTION 24: S/2 NE/4

(l) Extend the Teague-Blinebry Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 37 EAST, NMPM
SECTION 33: SE/4

(m) Extend the Vada-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 33 EAST, NMPM
SECTION 36: E/2

TOWNSHIP 9 SOUTH, RANGE 34 EAST, NMPM
SECTION 31: SW/4
SECTION 34: NW/4

TOWNSHIP 10 SOUTH, RANGE 33 EAST, NMPM
SECTION 1: NE/4

TOWNSHIP 10 SOUTH, RANGE 34 EAST, NMPM
SECTION 5: NE/4

(n) Extend the Wantz-Abo Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM
SECTION 1: S/2

TOWNSHIP 21 SOUTH, RANGE 38 EAST, NMPM
SECTION 6: SW/4
SECTION 18: NW/4

TOWNSHIP 22 SOUTH, RANGE 37 EAST, NMPM
SECTION 1: S/2

TOWNSHIP 22 SOUTH, RANGE 38 EAST, NMPM
SECTION 6: S/2
SECTION 7: NW/4

SHELL OIL COMPANY
PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

April 15, 1969

Secretary-Director
New Mexico Oil Conservation Commission

STATEMENT OF SHELL OIL COMPANY IN
NEW MEXICO OIL CONSERVATION COMMISSION
DOCKET NO. 11-69, CASE 4104

Shell Oil Company strongly supports the motion of the Oil Conservation Commission to consider the adoption of an administrative procedure whereby the Secretary-Director of the Commission could grant exceptions to Rule 303(a) of the Commission Rules and Regulations and permit marginal zones in dually completed oil wells to be commingled in the well-bore provided waste would not result thereby, provided dual-flow down-hole choke assemblies or other acceptable mechanical devices were installed, and provided that the total production from both zones would not exceed top allowable for the uppermost zone. Shell also supports the motion to consider an administrative procedure to permit down-hole commingling of low marginal wells approaching their economic limit without the installation of the above-mentioned down-hole equipment. Shell recommends that the administrative procedure provide for written notification of all offset operators and that the Secretary-Director may authorize commingling provided that no offset operator objects to said commingling within fifteen (15) days. Shell recommends that the Secretary-Director be permitted to grant immediate approval of the proposed commingling upon receipt of waivers of objection from all operators offsetting the well in which commingling is proposed.

Shell commends the Commission for its continuing concern in helping the operators in the State of New Mexico to reduce costs in connection with the administration of regulatory matters. The lessened burden upon the operators which will result from the adoption of administrative procedures authorizing commingling in the bore-hole is particularly important because marginal production is involved.

S. M. Vaine

For: W. E. Owen
Proration Coordinator,
Southwestern Region

EWN:JB

POST OFFICE BOX 234
Zip Code 87401

Carl file

DUGAN PRODUCTION CORP.

THOMAS A. DUGAN, President
709 BLOOMFIELD RD.
FARMINGTON, NEW MEXICO

April 10, 1969

'69 APR 11 AM 8 21

TELEPHONE: 325-91
325-569
Area Code 505

Mr. A. L. Porter
Oil Conservation Commission
Box 2088
Santa Fe, New Mexico 87501

Dear Mr. Porter:

We believe that the down-hole commingling of low marginal wells would result in recovery of a considerable amount of gas and oil that otherwise would be uneconomical to produce. We would like to encourage the Oil Conservation Commission to approve Case #4104.

Sincerely,

Thomas A. Dugan

Thomas A. Dugan

sc

cc: Emery Arnold

Case 4104

well bore, we are not able to measure the production from each zone in that well. Consequently, we will have a further loss of accuracy in our data when such commingling is permitted. We must then consider what this greater accuracy may cost us. There can be little doubt that many reservoirs in SE New Mexico can be commingled without creating waste and that such wells can be operated to a lower producing rate so that oil is actually conserved. We must find a balancing point where we maintain production for accuracy of data until the accuracy of that data is down to the point that it is no longer worth the extra oil that it will cost us that could be saved if the two zones were commingled in the well bore. After giving due consideration to the factors which I have discussed, it is Continental Oil Company's position that down hole commingling without any downhole separation should be permitted by administrative procedures under the following conditions:

1. Both zones are classified as oil well completions.
2. Neither zone produces more than 15 barrels of water per day.
3. Both zones have a combined producing capacity of not more than half of the top allowable of the zone having the lower allowable and gas production below the lower of the two daily gas limits. It is recommended that the production from the C-115 for the last 6 months be used to determine whether a well can qualify under this requirement.
4. If either zone is produced by artificial lift prior to down hole commingling, the commingled zones must be artificially lifted. This requirement is suggested in order to prevent the thiefing from a high pressure zone to a low pressure zone. It is believed that there would be no loss of oil provided that the well is pumped off to the point that the producing bottom hole pressure is less than the static reservoir pressure of both zones.

5. The unit value of the crude oil shall not be reduced as a result of the commingling. This refers primarily to the commingling of sweet and sour crude. There could be a loss of revenue if the producer is receiving a sweet crude price for one crude and a sour crude price for the other and the commingling of the two would result in both being sold as sour crude. If the producer is receiving sour crude prices for sweet crude, prior to commingling, there would not be any loss in revenue as a result of the commingling. It is further recommended that the following restrictions be imposed:

"If a well qualifies under the above conditions, it may receive an allowable of not more than 50% of the top allowable of the zone having the smaller allowable and shall be penalized for excessive gas-oil ratio based on the lower of the daily gas limits which apply to the two reservoirs, and (1) production from the well during down hole commingling shall be allocated between the two zones on the basis of extrapolated decline curves of the zones prior to the down hole commingling or on such other basis to the District Supervisor, and (2) the well shall be tested on a commingled basis each year during the normal testing period for the lowermost zone; except that a well penalized for high gas-oil ratio shall be tested semi-annually, once during the period mentioned above, and once six months later."

1. Both zones must be oil
2. Neither zone may make more than 15 BWPD
3. Both zones combined will produce more than ½ the allowable for the uppermost zone
4. Both zones need artificial lift.
5. Fluids must be compatible
6. Common ownership of both zones
7. Unit value of crude will not be reduced by commingling
8. Commingling does not jeopardize secondary recovery operations in area.

PROPOSED STATEMENT TO BE READ AT THE
NEW MEXICO OIL CONSERVATION COMMISSION
CASE NO. 4104

STATEWIDE ADMINISTRATIVE PROCEDURE FOR
DOWNHOLE COMMINGLING IN NEW MEXICO

Mobil Oil Corporation welcomes the opportunity to express its views on the adoption of a statewide administrative procedure to authorize the Secretary-Director of the New Mexico Oil Conservation Commission to grant exceptions to Rule 303(a) of the Commission Rules and Regulations and permit downhole commingling of marginal zones under conditions established by the Commission.

Mobil has reviewed the testimony and exhibits presented at past downhole commingling hearings. It appears that while the administrative work incurred by both the Commission and the oil operators has been within manageable limits in the past, it can be expected to become time consuming and expensive as the hearing loads increase in the future.

It is for this reason that Mobil supports the establishment of an administrative procedure whereby the application for downhole commingling could be simplified and expedited by the Commission. The advantages of downhole commingling have been recognized by the Commission as evidenced by the approvals granted in the past.

Mobil would like to take this opportunity to state its views on downhole commingling. Avoiding the economics of specific cases, Mobil believes that the increased cost of maintaining a multiply completed well over the cost of producing a downhole commingled well will cause premature abandonment and waste of recoverable hydrocarbons. Whereas, the amount of hydrocarbons recovered from any one commingled well would be relatively small, the combined amounts would become significant as more wells were

commingled in an aging reservoir.

Other favorable aspects of commingling multiple wells would be the savings inherent in the utilization of salvaged equipment on other wells and minimizing the administrative and operational procedures that multiply completed wells require. These savings can be better spent on development and exploratory drilling opportunities.

The following limitations for downhole commingling applications are proposed by Mobil for consideration as guidelines by the Commission:

1. All zones to be commingled are or need to be artificially lifted.
2. Total daily average production from all zones to be commingled shall not exceed the top unit allowable for highest allowable zone commingled.
3. Evidence be presented supporting the compatibility of the zones to be commingled.
4. There is common ownership of all zones to be commingled.
5. Commingling does not jeopardize secondary recovery operations.

Mobil Oil Corporation reiterates its support of the proposed administrative procedure and believes that its implementation will simplify downhole commingling applications while preventing waste and protecting correlative rights.

WBSimmonsJr/bje
4-11-69

Bill & Dick 414
Joe average of the 3 (339 or 340) or stay on the original 360
John 414
Jim 414

Joe - limit to very poor wells only
(both zones wont make more than ½ the smallest allowable)

NEW MEXICO OIL CONSERVATION COMMISSION

GAS – OIL RATIO TESTS

C-116
Revised 1-1-65

Operator	Pool	County
Address	TYPE OF TEST – (X)	Scheduled ☐ Completion ☐ Special ☐

LEASE NAME	WELL NO.	LOCATION U	S	T	R	DATE OF TEST	STATUS	CHOKE SIZE	TBG. PRESS.	DAILY ALLOW-ABLE	LENGTH OF TEST HOURS	PROD. DURING TEST WATER BBLS.	GRAV. OIL	OIL BBLS.	GAS M.C.F.	GAS – OIL RATIO CU.FT/BBL

No well will be assigned an allowable greater than the amount of oil produced on the official test.

During gas-oil ratio test, each well shall be produced at a rate not exceeding the top unit allowable for the pool in which well is located by more than 25 percent. Operator is encouraged to take advantage of this 25 percent tolerance in order that well can be assigned increased allowables when authorized by the Commission.

Gas volumes must be reported in MCF measured at a pressure base of 15.025 psia and a temperature of 60° F. Specific gravity base will be 0.60.

Report casing pressure in lieu of tubing pressure for any well producing through casing.

Mail original and one copy of this report to the district office of the New Mexico Oil Conservation Commission in accordance with Rule 301 and appropriate pool rules.

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

(Signature)

(Title)

(Date)

Stronger zone 10 BOPD
Weaker zone 6 BOPD

Decline on both: 10% per year
Economic limit 2 BOPD each zone

	Better zone	Poor Zone
1st yr	10 BOPD	6 BOPD
2nd yr	9 BOPD	5.4 BOPD
3rd yr	8.1 BOPD	4.9 BOPD
4th yr	7.3 BOPD	4.4 BOPD
5th yr	6.6 BOPD	4.0 BOPD
6th yr	6.0 BOPD	3.6 BOPD
7th yr	5.4 BOPD	3.2
8th yr	4.9 BOPD	2.9
	4.4	2.6
	4.0	2.3
	3.6	2.1
	3.2	1.9
	2.6	1.7
	2.3	1.5
	2.1	1.4

TYPE OF REPORT – (X)	
Initial Completion	
Special	
General Survey	

NEW MEXICO OIL CONSERVATION COMMISSION

Form C-124
Revised 1-1-65

RESERVOIR PRESSURE REPORT

Operator	Pool			County	Date
Address	Producing Formation	Oil Gradient psi/ft.	Water Gradient psi/ft.	Gas Gravity	Datum Plane

LEASE	WELL NO.	LOCATION U	S	T	R	ELEV.	OIL (O) OR GAS (G)	DATE TESTED	SHUT-IN HOURS	SHUT-IN TBG. PRESS.	BOMB TEST DATA: TEST DEPTH	B.H. TEMP. °F	OBSERVED PRESS.	SONIC INSTRUMENT TEST DATA*: PROD. TEST (BBLS./DAY) OIL	WATER	LIQUID LEVEL	LIQUID GRADIENT PSI/FT.	WT. OF LIQUID COL. PSI	WT. OF GAS COL. PSI	CSG. PRESS.	PRESS. AT DATUM

All depths plus or minus sea level; all pressures psi; Bomb shall be calibrated frequently enough against a dead weight tester to ensure an accuracy of one per cent; gas gravity shall be determined by analysis; liquid level shall be feet above datum plane. SEE RULE 302.

* Well shall be produced at least 24 hours prior to shutting in for sonic test.

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

(Signature)	(Title)	(Date)

OCC Exhibit 2
Case 4104

Zone "A" 6 BOPD
Zone "B" 10 BOPD
Decline on Both: 10% per year
Economic Limit: 2 BOPD

Year	Zone "A"	Zone "B"	Combined	Diff.	Prod. (Diff. x 365)
1	6.0	10.0	16.0		
2	5.4	9.0	14.4		
3	4.9	8.1	13.0		
4	4.4	7.3	11.7		
5	4.0	6.6	10.5		
6	3.6	5.9	9.5		
7	3.2	5.3	8.6		
8	2.9	4.8	7.7		
9	2.6	4.3	6.9		
10	2.3	3.9	6.2		
11	2.1	3.5	5.6		
12	1.9	3.2	5.0	1.8	657
13		2.9	4.5	1.6	584
14		2.6	4.1	1.5	548
15		2.3	3.7	1.4	511
16		2.1	3.3	1.2	438
17		1.9	3.0	1.1	402
18			2.7	2.7	986
19			2.4	2.4	876
20			2.2	2.2	803
21			2.0	2.0	730
					6535

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
OCC Staff Exhibit No. 2
Case No. 4104

BEFORE THE

NEW MEXICO OIL CONSERVATION COMMISSION

Hobbs, New Mexico

April 16, 1969

REGULAR HEARING

IN THE MATTER OF:

Consideration of the adoption of an administrative procedure whereby the Secretary-Director could grant exceptions to Rule 303(a) — Case 4104

BEFORE: A. L. PORTER, JR. Secretary Director

ALEX J. ARJIMO, Land Commissioner

GOVERNOR DAVID F. CARGO, Chairman

GEORGE HATCH, Counsel

TRANSCRIPT OF HEARING

RECOMMENDATIONS
STATE - P. 10
CONSERVATION - P. 26; 14
AMERADA - P. 28
MOBIL - P. 41
CONTINENTAL - P. 43
SKELLY - P. 45

MR. HATCH: Case 4104, in the matter of hearing called by the Oil Conservation Commission upon its own motion to consider the adoption of an administrative procedure whereby the Secretary-Director of the Commission could grant exceptions to Rule 303(a) of the Commission Rules and Regulations, and permit marginal zones in dually completed oil wells to be commingled in the wellbore provided waste would not result thereby, provided dual flow downhole choke assemblies or other acceptable mechanical devices were installed, and provided that the total production from both zones would not exceed top allowable for the uppermost zone. Further, to consider an administrative procedure to permit downhole commingling of low marginal wells approaching their economic limit without the installation of the above-mentioned downhole equipment.

MR. PORTER: The Commission would like to ask for appearances in this case at this time, Case 4104. First, I would like to have the appearance of those who desire to present testimony. Does anyone desire to present testimony in Case 4104?

MR. KELLAHIN: I would like to enter an appearance

for Continental Oil Company. Jason Kellahin of Kellahin & Fox, Santa Fe, appearing for Continental Oil, and we will have one witness.

MR. PORTER: After the testimony has been presented, anyone who wants to may make a statement of position for the record. We may have 3 or 4 written communications also.

We were not able to get the proposed rule, the one that was proposed by the Commission's witness, in the mail prior to the hearing, but I believe there were distributed here at the door this morning. However, the case was advertised, I think, in such a manner that you could reasonably foretell what would be presented in the way of testimony by the Commission staff.

MR. HATCH: If the Commission please, George Hatch appearing on behalf of the Commission, and I have one witness, Mr. Nutter.

(Thereupon, Commission's Exhibits 1, 2, and 3 were marked for identification.)

DAN NUTTER

called as a witness by the Commission, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. HATCH:

Q State your name and position for the record?

A Dan Nutter, chief engineer for the Oil Conservation Commission.

Q As chief engineer, do you have a duty to make recommendations to the Commission concerning the enactment of rules for the prevention of waste and protection of correlative rates pertaining to the production of crude oil andnatural gas?

A Yes, I do.

Q Are you familiar with Case 4104, and what it proposes?

A Yes, I am.

Q Would you give a little of the background and the necessity for this case?

A This case is being called to consider the adoption of a revision of Rule 303 of the Commission's Rules and Regulations, to permit under some circumstances the commingling in the wellbore of the production from dually completed oil wells.

The history of dual completions in this State

goes back to 1956 when the first oil-oil dual completions were allowed by this Commission. The Commission had steadfastly resisted the dual completion of oil wells until that time, because for the most part, the plan was to complete the wells flowing one zone through thetubing and the other zone through the casing, and the Commission was convinced that this was not a practical method to produce oil wells.

Finally, in 1956, the industry came up with the idea of running parallel strings of tubing, and separating the two zones by packers, and producing each zone through a single string of tubing. At that time, the Commission authorized the first oil wells duals. These first oil-oil duals are now approaching 13 years of age, and there has been an evident decline in production from these oil-oil dual completions, to the point where the zones are now becoming marginal andlow marginal, and there is a distinct advantage to combining the production in the wellbore under some circumstances, and this is essentially the background for this case today.

Q You mentioned the desirability of commingling in the wellbore. Do you have any exhibit that will point that out?

A Yes, Exhibit I, which is mounted on the board here, depicts the advantages of the downhole commingling in just a typical well.

We have a well here which is dually completed. It has Zone A in it which makes 6 barrels of oil per day, and Zone B which makes 10 barrels of oil per day. Both zones have an established decline rate of 10 percent per annum. We have Zone A depicted here, starting of with its 6 barrels of oil per day, and Zone B with its 10 barrels of oil perday. They decline to an economic limit of 2 barrels of oil per day. We see that Zone A will reach its decline limit in 11 1/2 years at this established rate of decline. Zone B, the better zone, will extend its economic life to 2 barrels per day, and we find that it goes 16 1/2 years before it reaches 2 barrels.

Now, if we were to combine these two zones and took out the separation equipment, we would have a combined producing rate of16 barrels per day, and we have shown this 16 barrels per day by a combined line, line C on this graph.

We have the well starting off here making 16 barrels per day, and decline at the same continuous

rate of 10 percent per annum. Now, we have a tabulation of the figures that we used to derive this curve.

Q Excuse me. Did you mention the number of that Exhibit?

A This is Staff Exhibit I in this case. This would be Staff Exhibit II, which is the supporting figures upon which Exhibit I is based. We will see that the combined total for the first year is 16 barrels per day; that by the end of 11 1/2 years, when the first well or the Zone A has reached its economic limit and would have to be shut in, we will see that the combined production from the two zones is still 5.6 barrels per day. So, rather than losing one zone, we are continuing to produce the well.

Then we can take the combined production clear on out and at the end of 21 years, the combined well reaches its economic limit of 2 barrels per day. What we have done, we have increased the productivity of this well by the blue hatchered area. The blue hatchered area represents at this point 11 1/2 years. Line B is the production that is coming from Zone A plus theproduction that is coming from Zone B. Then

by the time you reach 16 1/2 years, the blue area is the production that is coming from both zones, but which would not have been produced from either zone had they been segregated.

So using this as just a typical example, with a 10 percent actual decline, and a 6 barrel and a 10 barrel zone, we find that the blue hatchered area here represents a total of 6,535 barrels of oil that could be produced by combining the zones, and this oil would not have been produced otherwise. So we feel that under some circumstances you can definitely justify the commingling of the zones in the wellbore, providing no reservoir waste will result.

If the economic limit if raised, if we raised it to 4 barrels, we would shift the red line over to this point, we would shift the blue hatchered area to here, and the blue hatchered area would represent 20,000 or 30,000 barrels by simply raising the economic limit. Now, some of our wells are much deeper than this typical well here, and the economic limit would be much higher than just 2 barrels a day. The higher the economic limit, the more justification there is, providing reservoir conditions justify the commingling. Thisis what we have

to be cautious of, the reservoir conditions.

Q Do you have a recommendation to make to the Commission?

A Yes, I have proposed a suggested Rule 303-c. We have Rule 303(a) of the Commission's Rules and Regulations, which prohibits the commingling of production from oil pools in the wellbore, or on the surface of the ground.

303-A, now 303-B, establishes an administrative procedure whereby production from oil pools can be commingled on the surface of the ground, providing economic waste and other factors are taken into consideration. I would suggest an amendment to Rule 303, to provide 303-C, which would establish an administrative procedure for commingling of production in a wellbore of these dually completed oil wells.

Q Have you prepared a proposed rule?

A Yes, I have. It is printed and has been distributed at this hearing this morning. It is entitled "PROPOSED ADDITION TO COMMISSION RULE 303."

Q Would you go through that Rule, proposed rule,

and explain it, and as you are doing that, point out any changes that you would like to suggest at this time?

A Rule 303-C would read as follows: "The Secretary-Director of the Commission shall have the authority to grant an exception to Rule 303-A, to permit the commingling in the wellbore of dually completed oil wells when the following facts exists and the following conditions are met:

(1) Commingling of fluids from two commonly owned reservoirs in the casing without reservoirs in the casing without downhole separation equipment of any kind. This type of downhole commingling may be approved when the productivity of each zone of the dual completion has declined to 25 percent or less of the currently assigned top unit allowable for each pool, provided that the pressure of the zone with the lowest pressure is at least 90 percent of the pressure of the other zone, and provided further that no fluid compatibility problems exist in the well which

might result in the formation of precipitates which would damage either reservoir.

(2) Commingling of fluids from two commonly owned reservoirs in the tubing, maintaining separation of the zones in the casing by means of a packer and a dual flow downhole choke assembly or other acceptable mechanical device.

This type of downhole commingling may be approved when the productivity of each zone of the dual completion has declined so that the combined productivity of both zones is equal to orless than the currently assigned top unit allowable for the uppermost pool, provided that the pressure of the zone with the lowest pressure is at least 75 percent of the pressure of the other zone, and provided further that there is no serious detrimental effect on the value of the commingled stream as compared to the sum of the values of the individual streams.

(3) To obtain approval for downhole commingling of the production from both zones of a dually completed oil well, the operator of the well shall submit the following in duplicate to the Secretary-Director of the Commission:

(a) Name and address of the operator.

(b) Lease name, well number, well location.

(c) Names of the pools the well is completed in and the Commission order number which authorized the dual completion.

Now, this is a change from the printed proposal, and reads as follows, d would read: a schematic diagram of the well showing all downhole equipment to be installed, if application is being filed pursuant to Section 2 above.

Paragraph e then would provide as our rule, it is shown as d, paragraph e would be: a current (within 30 days) 24-hour productivity test on Form C-116 showing the amoun' of oil, gas, and water produced from each zone.

(f) A current (within 30 days) sub-surface pressure test on Commission Form C-124

showing the 24 hour shut-in pressure for each zone taken in accordance with Rule 302 of the Commission Rules and Regulations. (Pressures may be calculated from fluid levels in pumping wells.)

(g) Statement that ownership of the two zones is common throughout, including working interest, royalty ownership, and overriding royalty ownership.

(h) A production decline curve for both zones showing that a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes.

(i) A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the wellbore and that the actual commercial value of the commingled production will not be substantially less than the sum of the values of the production from each pool if segregated:

(j) A statement that all offset operators and the royalty owner have been notified of the proposed commingling.

The Secretary-Director of the Commission may approve the proposed downhole commingling in the absence of a valid objection within 30 days after the receipt of the applicationif, in his opinion, waste will not result thereby and correlative rights willnot be violated. The 20-day waiting period may be dispensed with upon receipt of waivers of objections from all parties mention in item (j) above.

That is the proposed amendment to Rule 303.

Q Does your copy have the corrections made on it?

A Yes, sir.

Q Would you mark that up as an exhibit?

A Yes, sir. This has been identified as OCC Staff Exhibit III.

Q Do you have anything else to add to your testimony at this time?

A Not particularly. I would be ready to answer questions, however, if anyone has any.

MR. PORTER: Does anyone have a question of Mr. Nutter? Mr. Kellahin.

MR. KELLAHIN: I would like to ask you a couple of questions.

CROSS EXAMINATION

BY MR. KELLAHIN:

Q In your paragraphs 1 and 2 or your proposed Rules, you have a requirement fora differential of not less than 10 percent. In other words, the lowest pressure in commingling without any equipment, the lower zone must be at least 90 percent of the upper, of the higher pressure zone, and the other is 75 percent if you are using equipment. What is the reason for that?

A Well, Mr. Kellahin, I feel that if you are going to throw the two zones together in the wellbore, the pressures should be the same or nearly the same. Now, we are allowing a 10 percent differential in pressure there. We are talking about, in most cases, marginal production which doesn't have much pressure. But in the event there is a substantial differential, you may have migration from one zone into the other, interzone feed back, and if you keep these pressure differentials practically the same or within a 10

percent maximum, you will have very little interzone feeding. For that reason, I propose that if, in the event of commingling without separation equipment, that the differentials be maintain at 10 percent or less.

Now, in the case of the situation where you would be installing the dual flow downhole choke assemblies, the differential authorized by this proposed rule would be 25 percent there. You could probably go more than 25 percent, but I don't have all that faith in this equipment, and for that reason I have restricted it in my suggested rule to 25 percent.

Q Actually, the Commission --

A Yes, after hearing when they investigated the individual case. We are talking about a situation here where the application is filed by the applicant, and we are not cross examining the well, we are not cross examining the man. We are taking the data provided to the Commission, based on the recent GOR test, and the recent bottomhole or sub-surface pressure test.

Q But in that order there is a provision for administrative approval, is there not?

A Yes, sir.

Q Where there is a greater differential than 25 percent?

A Yes, sir. And also, that is a particular situation where we know the formations in that area. And you will recall there were several hearings before that administrative procedure for that particular area was ever approved. We were well acquainted with the formations, the pressures, and the producing characteristics of both zones.

Q Would there be any migration of fluid if the producing bottom hole pressure of the well is less than the static bottom hole pressure?

A If the producing pressure is less than static?

Q Yes.

A There could be. The differential is what counts. Really, this thing is silent here on saying what types of pressures, and I pondered this very seriously, as to whether this should be a flowing pressure or a shut-in pressure, and I finally came up with the shut-in pressure on this, because I feel that the differential is normally going to be less during a flow period, but you have to contemplate the time when the wells are shut in, too, and for this reason, we felt that there would probably be a

bigger differential at the time the well was shut in, and we ought to measure some of the shut in pressures.

MR. KELLAHIN: Thank you.

MR. PORTER: Does anyone else have a question? The witness may be excused. Mr. Hatch, I believe you haven't offered your exhibits.

MR. HATCH: I would like to offer Exhibits 1, 2, and 3.

MR. PORTER: If there are no objections, Exhibits 1, 2, and 3 of the Commission Staff in Case 4104 will be admitted.

(Whereupon, Commission's Staff Exhibit 1, 2, and 3 were admitted in evidence.)

If there are no further questions, the witnesses may be excused. Mr. Kellahin, would you like to proceed with your testimony at this time?

MR. KELLAHIN: I would like to call as our witness, Mr. V. T. Lyon.

VICTOR T. LYON

called as a witness by Continental Oil Company, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would state your name, please?

A Victor T. Lyon.

Q With whom are you employed, and in what position?

A I am employed by Continental Oil Company as Conservation Coordinator for the Hobbs Division.

Q Have you testified before the Oil Conservation Commission, and made your qualification as a Petroleum Engineer a matter of record?

A Yes, sir.

MR. KELLAHIN: Are the witness's qualifications acceptable?

MR. PORTER: Yes, sir.

Q Mr. Lyon, have you made any study of the proposal which has been made by the Oil Conservation Commission in Case 4104?

A Yes, I have.

Q And in connection with that, have you prepared some data or proposals to be submitted for information of the Commission later in your testimony?

A Yes, sir.

Q Mr. Lyon, did you recently participate, that is, in December 1968, in an application filed by Continental Oil Company seeking downhole commingling in Case 3995?

A Yes, sir.

Q Were you the witness in that case?

A Yes, I was.

Q For the benefit of the Commission, would you review briefly what was proposed in that application?

A Case 3995 was Continental's application for authority to downhole commingle production from the Maljamar-Abo Baish-Wolfcamp pools in our Baish A Wells No. 12 and 13. Both of these wells had previously been dually completed in the two reservoirs and the completions of both zones had ceased flowing. Hydraulic pumping equipment had been installed for the Wolfcamp completion in Well No. 13. It was proposed therefore to complete both wells with downhole dual flow chokes and lift production from both zones with a single hydraulic pump. The equipment which was proposed was designed so that the production from one formation would not be in contact with the other formation and that the oil would be commingled only in the tubing. The installation called for two packers, one placed between the two zones, and one above the top zone which would permit the gas from both zones to be vented through the casing tubing annulus thereby increasing the efficiency of the pumping equipment.

Q Has Continental Oil Company had experience with this equipment in New Mexico prior to these two installations?

A Our Casper Division office operates Continental's production in the northwest part of the State, and at that time the office was located in Durango, Colorado, which has since been consolidated with the Casper Division office. There was an application filed for the use of the downhole flow choke assembly in the Jicarilla Field. In this particular installation, the two zones involved are high gas-oil ratio flowing zones. Since that area is operated out of a different office, I am not familiar with the details of those installations, but I am told that there were a number of such wells which utilize this equipment. I am also told that the installations had been modified so that the chokes, themselves, have been removed, and the installations involve essentially two check valves which prevent the production from one zone being in contact with the other, so they are commingled just in the tubing, but the equipment has been modified.

The installationsin our Baish 12 and 13 are the first instances, to my knowledge, in New Mexico where the equipment has been used for artificial lift.

Q What was the result of the applicaation in Case 3995?

A Order No. R-3645, dated December 31, 1968, was entered as a result of our hearing in Case No. 3995 approving our application to dual the wells as we requested.

MR. KELLAHIN: If the Commission please, I don't believe Mr. Nutter made any proposals as to testing of the wells which would be completed in accordance with his proposal. We would, of course, anticipate certain tests would be required, and for the purposes of our testimony, we would like to go into that phase of it, too. If you have no objection.

MR. PORTER: The Commission has no objection.

Q (By Mr. Kellahin) Mr. Lyon, at the presentation of the application in Case 3995, how often did you propose to test the zones individually?

A We proposed to test one zone individually, and then test both zones together, so that the zone that was not tested would in effect be tested by the subtraction method, and this was proposed to be done once each year.

Q Now, what are the testing requirements that were actually included in Order R-3645?

A Paragraph 6 of the Order states "that production

tests of the combined zones and of either of the Abo or Wolfcamp zones in each well shall be conducted quarterly, and the productivitiy of each zone thus established."

Paragraph Nine of the Order states "that the Secretary-Director may authorize annual production tests if he determines on the basis of previous tests that a stabilized rate of decline and production has been achieved in each zone, and that quarterly tests are no longer necessary to accurately determine and allocate production from each zone."

Q In presenting your testimony, did you give the Commission an estimate of the cost of performing these tests?

A It was estimated at that time that our cost of testing would be in the range of $400 to $600.

Q Have these wells now been equipped as proposed in Case No. 3995?

A Yes, they have.

Q Was the cost to install the equipment more or less than you had anticipated?

A In one instance, it was about the same, in the other, it was greater. The Baish A no. 13

was estimated to cost $8,400, but actually cost $13,800. The additional cost was the result of additional rate time, due to problems encountered in running the dual flow choke equipment.

Q Is that the same type of equipment that would be required in the proposed Order, paragraph 2?

A Yes, essentially the same equipment.

Q So you would anticipate similar costs if you were proceeding under the proposed Order, would you not?

A Yes, sir.

Q Have you made the tests that were required by the Order?

A We are in the process of conducting the test.

Q And what experience have you had in connection with the cost of conducting these tests?

A Well, we believe that our original estimates were considerably optimistic. It appears now, based on our experience in testing the wells that the cost to test the well will be approximately $1,000.

Q Just what do you have to do in order to conduct this test?

A Well, it is quite an involved process, and I would like to go through it just to make sure that the

Commission is familiar with what all is involved.

First, since this is a hydraulic pumping installation, the pump must be surfaced by reversing the flow.

Then the standing valve is removed by a wire line. Then you go in with a wire line again, and remove the blanking plug, and then you go in again with a wire line, and remove the dual orifice head. When you do this you take out the top part of the dual. The check valve still stays in place, so the zones are not commingled.

Then you change the orifice head so that one of the flow tubes is blanked on it, and you run it back with a wire line. Then you run in with a wire line again and replace the blanking plug; and then you run in again with a wire line again, and replace the standing valve.

Then you pump the pump back to the bottom and being your production test. When you have stabilized your production, and have a reasonably accurate test, you surface the pump again by reversing the flow. Then you go in with a wire line, pull out the standing valve,

go in with a wire line and remove the blanking plug.

Then you go in with a wire line again, remove the head, change the flow tube so that they are both open and run in with a wire line, replace the orifice head, then run in with a wire line again, replace the standing valve -- I mean the blanking plug and then you run in again with a wire line and replace the standing valve, and you pump the well back down, and conduct your test with both zones together.

Now, we could do it the other way. We could test both zones first, and then test the one zone individually but the result is the same. It requires two round trips of this equipment, which involves 12 runs with a wire line.

MR. PORTER: In other words, you better have pretty good wire?

(Laughter)

Q Does this type of operation on your well involved any risk, loss of one or both zones, at least temporarily?

A Well, it sounds relatively simple when I tell you that you run in with a wire line andpick up

this equipment. It doesn't always come, so then you have to make another run, or if there is something else that happens, you may have to pull the tubing. It sounds real simple, but it doesn't work quite that easy.

Q Is it your recommendation to this Commission that such tests be held to a minimum?

A Yes, it certainly is.

Q What do you anticipate the cost will be to conduct these tests that you described?

A Well, as I said, I believe that the cost to conduct this test in the absence of more than usual difficulty, to be about $1,000.

Q Have you found that this type of equipmenthas resulted in a saving to Continental Oil Company?

A Yes, the equipment has certainly resulted in less investment than would be involved in installing two parallel completely separate hydraulic pumping systems. But, really, the test on a quarterly basis considerably offsets the savings in investment.

Q Is it your testimony then that the downhole dual flow choke assembly does not have any application in your operation?

A No, it is not my intent to give this impression. I think the equipment does have application. I think these applications should be limited to reasonably high producing rates, and in those situations where there could be waste or loss of oil as a result of putting the two zones together.

Q Now, you heard Mr. Nutter testify in regard to this type of completion, and 25 percent differential of pressure across the two zones. Do you have any comment on that?

A Well, we have discussed this at length in our office, a good many of engineers, and it is true there are times when the well will not be producing, but in most cases these times will be quite short in duration. Really, if your bottom hole producing pressure is less than the staticpressure of those zones, then I can't see any possibility of thiefing from one zone to another.

Q In the event there was some limited amount of thiefing from one zone to another, would it, in your opinion, cause any waste or damage to any of the reservoirs?

A If both zones are oil producing zones, and in the absence of some characteristic of the fluids which would make them incompatible, any thiefing on a temporary basis would be recovered shortly after the well was replaced on production.

Q Do you have any recommendation as to an alternate courseof action?

A Yes, sir.

Q What would those recommendations be?

A I believe that it is generally conceded that dual completions are requested and approved on the basis that they permit development of zones which under normal circumstances would not be developed by individual wells. This is not always the case, since certainly there are savings in dually completing wells. Where you can anticipate a minimum of difficulty in producing them, then certainly an operator's profit can be increased by dual completions. But when producing rates decline to the point that the profit is small, the operator must look for some way in which he can continue to operate the well at a profit.

Any operator who looks at his operating costs

must be aware of the cost of maintaining additional equipment, the cost of conductingproduction tests, the cost of conducting packer leakage tests, and the cost of performing repair work when communication is found to exist between zones.

By commingling downhole, an operator can salvage a tubing string, and in many instances can salvage surplus equipment such as separators, heater treaters, and so forth. Therefore, from an operator's viewpoint there are many advantages to commingling production downhole.

The expenses that I have mentioned are eliminated, and in many cases the lower zone is producing more efficiently when it is not restricted by producing below a packer. The ability to vent the gas just naturally improves pumping efficiency.

Q Are there any disadvantages to this type of completion.

A Well, of course, there are disadvantages to down hole commingling, or we would have been doing it before this. First, there is the reluctance to commingle downhole, because of the possibility of causing waste.

Primarily, such waste could result from, say, the drowning of one zone when it is produced together with another zone that has an active water drive.

Another possibility of waste would be where a gas zone is commingled with an oil zone, and the gas reservoir becomes saturated with oil from the oil zone, and this oil will be forever lost.

Another possibility of loss, at least of a temporary nature, would be where one zone had a considerably lower producing pressure than the other. For instance, if one zone was pumping and had a very low bottomhole pressure, and the other was flowing so that its producing pressure is greater thanthe shut in pressure of the zone, then oil from thehigher pressure zone would enter the lower pressure zone, and the production from the well would be reduced rather than increased.

I say this would cause a temporary loss, because as the pressure of the higher pressure zone declines, it would ultimately reach a point where the lower pressure zone would begin to feed into the well, and any oil that was lost by migration would ultimately be recovered, and the zone would give up the oil which

is indigenous to that formation.

Then, also, there is a question of data. It is desirable to have as accurate data as possible on production from each lease, and each well, and each reservoir on each lease. The accuracy of this data varies considerably according to the number of wells, the number of producing zones, the quality of the testing equipment, and the quality of supervision which isgiven to the well. Those who gather data in New Mexico are certainly appreciative of the fact our data is reported by wells, and by zones. This data is generally pretty good, but one must understand when evaluating this data that each well's production is not individually measured. Consequently, the data is not 100 percent accurate.

By commingling production in the wellbore, we are not able to measure the production from each zone in that well. Consequently, we have a further loss of accuracy in our data when such commingling is permitted. Wemust then consider what this greater accuracy must cost us. Therefore, there can be no doubt that many reservoirs in Southeast New Mexico can be commingled

without creating waste, and that such wells can be operated to a lower producing rate so that the oil is actually conserved. We must find a balancing point where we maintain production for accuracy of data, until the accuracy of that data is down to the point that it is no longer worth the extra oil that it will cost us, which could be saved ifthe two zones were produced together.

After giving due consideration to the factors I have just discussed, it is Continental Oil Company's position that downhole commingling without separation equipment could be permitted by administrative procedure under the following conditions.

Q Mr. Lyon, before you read that, do you have a copy which you can make available to the Commission of your recommendations that you are about to --

A I can supply them later. I don't have them available with me right now.

Q Will you supply a copy to the Commission?

A I would be happy to.

Q What recommendations do you make with regards to downhole commingling without any downhole

separation?

A No. 1, both zones should be classified as oil well completions.

No. 2, neither zone should produce more than 15 barrels of water per day.

No. 3, both zones have a combined producing capacity of not more than half of the top allowable of the zone having the lower allowable, and gas production below the lower of the two daily gas limits.

It is recommended tht the production from C-115 for the last six months be used to determine whether a well can qualify under these requirements.

No. 4, if either zone is produced by artificial lift prior to downhole commingling, the commingled zones must be artificially lifted. This is in order to prevent the thiefing from a high pressure zone to a low pressure zone. It is believed that there would be no loss of oil, provided that the well is pumped off to the point that the producing bottom hole pressure is less than the static reservoir pressure of both zones.

No. 5, the unit value of the crude oil should not be reduced as a result of the commingling. This

refers primarily to the commingling of the sweet and the sour crude. There could be a loss of revenue if the producer is receiving a sweet crude price for one crude, and a sour crude price for the other, and the commingling of the two would result in the commingled stream being sold as sour crude. If the sweet crude is being sold at a sour price before the commingling, then there would not be any reduction in revenue.

We further recommend that the following restrictions be imposed. If a well qualifies under the above conditions, it may receive an allowable of not more than 50 percent of the top allowable of the zone having the smaller allowable, and shall be penalized for excessive gas-oil ratio, based on the lower of the daily gas limits which apply to the reservoirs; and production from the well during downhole commingling shall be allocated between the two zones on the basis of extrapolated decline curves of the zones prior to the downhole commingling, or on such other basis which is satisfactory to the District supervisor. Now, it's positively been my observation that there are some wells that just don't

have decline curves which you can readily extrapolate very accurately. And, too, the wells shall be tested on a commingled basis each year during the normal testing period for the lowermost zones, except that a well penalized for a gas-oil ratio shall be tested semi-annually, at 6 month intervals.

Q Does that complete your recommendations?

A Yes, sir.

MR. KELLAHIN: That completes the direct examination of the witness.

MR. PORTER: Do you have any Exhibits that you would like to offer, Mr. Kellahin?

MR. KELLAHIN: We do not have an Exhibit. I can leave a copy of the recommendations that were made, if you would like it.

MR. PORTER: We would like to have a copy.

Does anyone have any question of Mr. Lyon? Mr. Nutter, do you have any question?

MR. NUTTER: No.

MR. SELINGER: George W. Selinger, with Skelly Oil Company. I would like to ask Mr. Lyon a clarification question. As I understand it, Mr. Lyon,

the Staffs' recommendation is for a one time current productivity and pressure test, whereas your recommendations indicate an annual testing, is that correct?

THE WITNESS: Yes,sir.

MR. SELINGER: Thank you.

MR. NUTTER: Mr. Porter, I don't think I would recommend that these wells, particularly the wells that you are going to put the downhole dual flow choke assemblies on, would never be tested again. Maybe I should have gone into that in a little further detail, but I think that periodic tests of some nature should be conducted. I envision that the orders which would authorize the downhole commingling would make provisions for some sort of a test.

MR. SELINGER: Under paragraph 2 of the proposal?

MR. NUTTER: On paragraph 2 only, yes.

MR. PORTER: I believe that concludes the testimony in the case. Now, do we have statements, is there anyone who would like to make a statement referring for Case 4104?

MR. SIMEX: I am Brad Simex with Amarado

Petroleum. Amarado Petroleum Corporation supports the adoption of administrative procedure to allow dually completed wells to be commingled in the wellbore, where the combined production of the commingled zones, either gas or oil, is less than one allowable, and Amarado supports the approval of the wellbore commingling even without downhole chokes.

MR. WHIGHAM: I am Carl Whigham, employed by Texaco, Inc., at Midland, as proration division engineer. I would like to make a statement. Texaco is a proponent of wellbore commingling and partially completed multi-pay oil and gas pools producing from reservoirs which are compatible, where mineral interests ownership will not be adversely affected. Such wellbore commingling is recognized as an effective conservation measure due to increased utlimate recovery of hyddrocarbon reserves resulting from more economic operation. Texaco recommends the adoption of administrative procedures whereby the Secretary-Director of the Commission can administratively grant exceptions to Rule 303-A of the Commission's Rules and Regulations permitting marginal zones and dually completed wells to be commingled in the wellbore, providing waste will not result thereby, and provided that

the total production from both zones will not exceed the top allowable for the uppermost zone.

MR. TERRY: My name is George Terry, with Phillips Petroleum Company in Midland, Texas. I would like to read the following statement for Phillips. Phillips Petroleum Company wishes to commend the Commission for its foresightedness in bringing this matter on for hearing, and Phillips believes that the reduced operating and investment expenditures permissible under downhoole commingling in marginal zones will yield an increased economic recovery of oil, which otherwise would be lost, and supports the proposed rule.

MR. SIMMONS: I am W. B. Simmons, proration engineer with Mobil Oil Corporation, from Midland, Texas, and I would to read this statement into the record.

Mobil Oil Corporation welcomes the opportunity to express its views on the adoption of a statewide administrative procedure to authorize the Secretary-Director of the New Mexico Oil Conservation Commission to grant exceptions to Rule 303 (a) of the Commission Rules and Regulations and permit downhole commingling of marginal zones under conditions established by the Commission.

Mobil has reviewed the testimony and exhibits presented at past downhole commingling hearings. It appears that while the administrative work incurred by both the Commission and the oil operators has been within manageable limits in the past, it can be expected to become time consuming and expensive as the hearing loads increase in the future.

It is for this reason that Mobil supports the establishment of administrative procedure whereby the application for downhole commingling could be simplified and expedited by the Commission. The advantages of downhole commingling have been recognized by the Commission as evidenced by the approvals granted in the past.

Mobil would like to take this opportunity to state its views on downhole commingling. Avoiding the economics of specific cases, Mobil believes that the increased cost of maintaining a multiple completed well over the cost of producing a downhole commingled well will cause premature abandonment and waste of recoverable hydrocarbons. Whereas, the amount of hydrocarbons recovered from any one commingled well would be relatively small, the combined amounts would become significant as more wells were commingled in an aging reservoir.

Other favorable aspects of commingling multiple wells would be the savings inherent in the utilization of

salvaged equipment on other wells and minimizing the administrative and operational procedures that multiple completed wells require. These savings can be better spent on development and exploratory drilling opportunities.

The following limitations for downhole commingling applications are proposed by Mobil for consideration as guidelines by the Commission:

1. All zones to be commingled are or need to be artificially lifted.
2. Total daily average production from all zones to be commingled shall not exceed top unit allowable for highest allowable zone commingled.
3. Evidence be presented supporting the compatibility of the zones to be commingled.
4. There is common ownership of all zones to be commingled.
5. Commingling does not jeopardize secondary recovery operations.

Mobil Oil Corporation reiterates its support of the proposed administrative procedures and believes

that its implementation will simplify downhole commingling applications while preventing waste and protecting correlative rights. Thank you.

MR. PORTER: Does anyone else have a statement?

MR. MOTTER: Gene Motter of Cities Service. I would also like to commend to the Commission,and to recommend that you proceed with the adoption of the administrative procedure for wellbore commingling. I believe the case has had some relationship to two different cases, one describing low marginal well. I would suggest that the Commission might consider, in lieu oflow marginal wells, that they consider the barrel situation along with thecurrent depth record. This might ease the situation in determining a low marginal well.

MR. PORTER: You would suggest that rather than just the terminology of a low marginal well, that we might use a definite number of barrels?

MR. MOTTER: Yes, and correlate it to the present depth record.

MR. PORTER: Does anyone else have a statment?

MR. KELLAHIN: Jason Kellahin of Kellahin & Fox, Santa Fe. I would like to make a statement. If

the Commission please, we feel that the Oil Conservation Commission is to be commended for bringing this matter on to a hearing. If we left any doubt in the Commission's mind, I would like to remove it. Continental Oil Company is in favor of the adoption of the rule as proposed by Mr. Nutter, with the modifications that we have suggested. We do feel it is quite important, however, that the Commission adopt a rule for administrative procedure for commingling of production in the wellbore as one of the next steps, which the Commission must take in order that the oil and the gas operations of our State continue in many of the pools which are now reaching economic limit. We did attempt to putout a few matters which we feel are important. As you recall, I believe Continental Oil Company introduced the use of downhole assembly as the first operator in the State to use that. It was up in Northwest New Mexico, and has proved quite satisfactory. There are certain problems, as were outlined by Mr. Lyon, in connection with the use of this equipment, and I think those problems must be borne in mind by the Commission when it adopts any order.

We are really dealing with an economic problem. As was pointed out by Mr. Nutter, what we are talking about is the conservation of oil in our State, and production of the greatest ultimate recovery, which is shown by his cross hatched area in his Exhibit. This is of importance to the States, and it will avoid premature abandonment of our wells.

Now, we do feel, however, that if the order is unduly restrictive, it will lose its purpose. In that connection, in particular, we would propose that rather than saying if you are commingling between two common reservoirs without downhole separation that one zone be at least 90 percent of the pressure of the other, just leave that percentage out, and consider the matter solely on the information that is submitted to the Commission, which would deal with the type of reservoir we are in, and the nature of fluids. As Mr. Lyons testified, the presence of water would cause a problem. These are far more important, actually, than 10 percent differential, in our opinion. Since these are marginal wells, they are going to be producing most of the time, and the producing pressures are going

to be less than those in the zones involved. Normally, in depleted reservoirs, your pressures are going to be low, anyway. This becomes more important when we consider it in the use of dual downhole choke assemblies. Actually, here again, as a normal thing, thepressures are going to be low. It is the number of pounds that will be important, and there again, I think the pressure information submitted to the Commission should govern, rather than saying a 25 percent differential, because we don't feel that 25 percent is significant in this.

We do urge the Commission the adoption of administrative procedure for downhole commingling, both with separation of the two zones or without separation, as may be indicated, and in compliance with the Commission's Rules.

MR. PORTER: Does anyone else have any statement?

MR. SELINGER: George W. Selinger, representing Skelly Oil Company. We concur in the principle of administrative approval of commingling. We are

inclined to believe that the percentage figures indicated in Class I and Class II, as to types should be equal, should be the same. We think there should be some measure of standards made applicable so that all operators will be given notice as to what the administrative procedures will be. I think that should include the eligibility for administrative approval. I believe that the single initial testing of the low wells, and the periodic tests not earlier or sooner than annual, would be adequate.

The only other comment I wish to make is with respect to paragraph J on Page 2 regarding a statement that all the offset operators and royalty owners have been notified in writing. We believe that since it is an operating problem, we don't believe that the royalty owner is interested as such, and it is an additional burden on the operator to attempt to notify all the royalty owners. The protection is already secured in Section 10 or paragraph G of the Order, in which a statement is made that all interests are common. The additional burden of notification is

becoming quite burdensome on all administrative procedures before the State Regulatory Agency, and we would like to start cutting down on some of the paper work.

MR. PORTER: Does anyone else have any statement?

If there is nothing further to be offered in this case, the Commission will take it under advisement.

I N D E X

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, SAMUEL MORTELETTE, Court Reporter in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

Samuel Mortelette

PROPOSED ADDITION
TO
COMMISSION RULE 303

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
OCC Staff Exhibit No. 3
Case No. 4104

C. The Secretary-Director of the Commission shall have the authority to grant an exception to Rule 303 A to permit the commingling in the well-bore of dually completed oil wells when the following facts exist and the following conditions are met:

(1) Commingling of fluids from two commonly owned reservoirs in the casing without down-hole separation equipment of any kind.

This type of down-hole commingling may be approved when the productivity of each zone of the dual completion has declined to 25 percent or less of the currently assigned top unit allowable for each pool, provided that the pressure of the zone with the lowest pressure is at least 90 percent of the pressure of the other zone, and provided further that no fluid compatibility problems exist in the well which might result in the formation of precipitates which would damage either reservoir.

(2) Commingling of fluids from two commonly owned reservoirs in the tubing, maintaining separation of the zones in the casing by means of a packer and a dual-flow down-hole choke assembly or other acceptable mechanical device.

This type of down-hole commingling may be approved when the productivity of each zone of the dual completion has declined so that the combined productivity of both zones is equal to or less than the currently assigned top unit allowable for the uppermost pool, provided that the pressure of the zone with the lowest pressure is at least 75 percent of the pressure of the other zone, and provided further that there is no serious detrimental effect on the value of the commingled stream as compared to the sum of the values of the individual streams.

(3) To obtain approval for down-hole commingling of the production from both zones of a dually completed oil well, the operator of the well shall submit the following in duplicate to the Secretary-Director of the Commission:

(a) Name and address of the operator.

(b) Lease name, well number, well location.

A schematic diagram of the well showing all downhole equipment to be installed if application is for being filed pursuant to Section (2) above,

(c) Names of the pools the well is completed in and the Commission order number which authorized the dual completion.

(d)

(e) (D) A current (within 30 days) 24-hour productivity test on Form C-116 showing the amount of oil, gas, and water produced from each zone.

(f) (E) A current (within 30 days) sub-surface pressure test on Commission Form C-124 showing the 24-hour shut-in pressure for each zone taken in accordance with Rule 302 of the Commission Rules and Regulations. (Pressures may be calculated from fluid levels in pumping wells.)

(g) (F) Statement that ownership of the two zones is common throughout, including working interest, royalty ownership, and overriding royalty ownership.

(h) (G) A production decline curve for both zones showing that a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes.

(i) (H) A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the well-bore and that the actual commercial value of the commingled production will not be substantially less than the sum of the values of the production from each pool if segregated.

(j) (I) A statement that all offset operators in writing and the royalty owner have been notified of the proposed commingling.

The Secretary-Director of the Commission may approve the proposed down-hole commingling in the absence of a valid objection within 20 days after the receipt of the application if, in his opinion, waste will not result thereby and correlative rights will not be violated. The 20-day waiting period may be dispensed with upon receipt of waivers of objection from all parties mentioned in item (J) above.

DRAFT

GMH/DSN/esr
9-24-69

RECORDS CENTER

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION UPON ITS OWN MOTION TO CONSIDER THE ADOPTION OF AN ADMINISTRATIVE PROCEDURE WHEREBY THE SECRETARY-DIRECTOR OF THE COMMISSION COULD GRANT EXCEPTIONS TO RULE 303 (a) OF THE COMMISSION RULES AND REGULATIONS AND PERMIT MARGINAL ZONES IN DUALLY COMPLETED OIL WELLS TO BE COMMINGLED IN THE WELL-BORE.

CASE No. 4104

Order No. R-3845

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on April 16, 1969, at Hobbs, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this _____ day of ~~September~~ Oct, 1969, 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 Rule 303 of the Commission Rules and Regulations prohibits, among other things, the commingling of production from two or more common sources of supply in the well-bore of any well.

(3) That there are a number of ~~multiple~~ dually completed oil wells, the production from which is marginal as to each zone.

(4) That there are cases in which the reservoir characteristics of pools are such that waste would not be caused by the commingling of two separate common sources of supply in the well-bore.

(5) That there are cases in which the productive life of each of the marginal zones in a ~~multiple~~ dually completed well may be

substantially extended by permitting the commingling of production in the well-bore.

(6) That commingling the production from marginal zones in the well-bore of certain ~~multiple~~ dually completed wells may result in the recovery of substantial amounts of additional oil from one or ~~more~~ both of the zones, thereby preventing waste, and will not violate correlative rights.

(7) That in order to ease the administrative burden upon the operators and the Commission and to enable the Commission to more efficiently and effectively administer the laws of the State of New Mexico concerning the prevention of waste and the protection of correlative rights, Rule 303 of the New Mexico Oil Conservation Commission Rules and Regulations should be amended to grant the Secretary-Director of the Commission authority to permit the commingling of production from two separate common sources of supply of oil in the well-bore of a ~~multiple~~ dually completed well.

IT IS THEREFORE ORDERED:

(1) That Rule 303 of the New Mexico Oil Conservation Commission Rules and Regulations is hereby amended to read in its entirety as follows:

RULE 303. SEGREGATION OF PRODUCTION FROM POOLS

A. SEGREGATION REQUIRED

Each pool shall be produced as a single common source of supply and the wells therein shall be completed, cased, maintained, and operated so as to prevent communication, within the well-bore, with any other specific pool or horizon, and the production therefrom shall at all times be actually segregated, and the commingling or confusion of such production, before marketing, with the production from any other pool or pools is strictly prohibited.

B. SURFACE COMMINGLING

The Secretary-Director of the Commission shall have the authority to grant an exception to Rule 303-A to permit the commingling in common facilities of the commonly owned production from two or more common sources of supply, without notice and hearing, provided that the liquid hydrocarbon production from each common source of supply is to be accurately measured or determined prior to such commingling in accordance with the applicable provisions of the Commission "Manual for the Installation and Operation of Commingling Facilities," then current.

Applications for administrative approval to commingle the production from two or more common sources of supply shall be filed in triplicate with the Santa Fe office of the Commission. The application must contain detailed data as to the gravities of the liquid hydrocarbons, the values thereof, and the volumes of the liquid hydrocarbons from each pool, as well as the expected gravity and value of the commingled liquid hydrocarbon production; a schematic diagram of the proposed installation; a plat showing the location of all wells on the applicant's lease and the pool from which each well is producing. The application shall also state specifically whether the actual commercial value of such commingled production will be less than the sum of the values of the production from each common source of supply and, if so, how much less.

Where State or Federal lands are involved, applicant shall furnish evidence that the Commissioner of Public Lands for the State of New Mexico or the Regional Supervisor of the United States Geological Survey has consented to the proposed commingling.

C. ~~DOWNHOLE~~ DOWN-HOLE COMMINGLING

1. The Secretary-Director of the Commission shall have the authority to grant an exception to Rule 303-A ~~of the Commission~~

~~Rules and Regulations~~ to permit the commingling in the well-bore of dually completed oil wells when the following facts exist and the following conditions are met:

(a) Both zones to be commingled in the well-bore are classified as oil zones.

(b) The total daily production from both zones before commingling (as determined in accordance with ~~Sections 2. (d) and 2. (e) below)~~ Section 2, paragraphs (d) and (e) below) does not exceed the following:

Bottom perforation, lowermost pool	Bbls/day
Less than 4,999 feet	20
5,000 feet to 5,999 feet	30
6,000 feet to 6,999 feet	40
7,000 feet to 7,999 feet	50
8,000 feet to 8,999 feet	60
9,000 feet to 9,999 feet	70
~~Over~~ More than 10,000 feet	80

(c) Both zones require artificial lift, or, both zones are capable of flowing. (Special consideration may be given to an exception to this latter requirement in the case in which a particular well's characteristics may justify same; however, the commingled production must be artifically lifted if either zone required artificial lift prior to commingling.)

(d) Neither zone produces more water than the combined oil limit as determined in paragraph (b) above.

(e) The fluids from each zone are compatible with the fluids from the other, and combining the fluids will not result in the formation of precipitates which might damage either reservoir.

(f) The total value of the crude will not be reduced by commingling.

(g) Ownership of the two zones to be commingled is common (including working interest, royalty, and overriding royalty).

(h) The commingling will not jeopardize the efficiency of present or future secondary recovery operations in either of the zones to be commingled.

2. To obtain approval for ~~the~~ down-hole commingling, the operator of the well shall submit the following in duplicate to the Secretary-Director of the Commission plus one copy to the appropriate District Office of the Commission:

(a) Name and address of the operator.

(b) Lease name, well number, well location.

(c) Names of the pools the well is completed in and the Commission order number which authorized the dual completion.

(d) A current (within 30 days) 24-hour productivity test on Commission Form C-116 showing the amount of oil, gas, and water produced from each zone.

(e) A production decline curve for both zones showing that for a period of at least one year a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes. (This requirement may be dispensed with in the case of a newly completed or recently completed well which has little or no production history. However, a complete résumé of the well's completion history including description of treating, testing, etc.,

of each zone, and a prognostication of future production from each zone ~~should~~ shall be submitted.)

(f) Estimated bottom-hole pressure for each artificially lifted zone. A current (within 30 days) measured bottom-hole pressure for each zone capable of flowing.

(g) A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the well-bore.

(h) A computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams.

(i) A statement that all offset operators have been notified in writing of the proposed commingling. and, in the case of a well on Federal land, the United States Geological Survey

3. The Secretary-Director of the Commission may approve the proposed down-hole commingling in the absence of a valid objection within 20 days after the receipt of the application if, in his opinion, there is no disqualifying disparity of bottom-hole pressures or other reservoir characteristics, waste will not result thereby, and correlative rights will not be violated. The 20-day waiting period may be dispensed with upon receipt of waivers of objection from all parties mentioned in ~~item 2(h) above.~~ Section 2, paragraph (i).

4. Upon such approval, the well shall be operated in accordance with the provisions of the administrative order which authorized the commingling, and allocation of the commingled production from the well to each of the producing zones shall be in accordance with the allocation formula set forth in the order. The production from the well shall be subject to the

lower of the daily gas-oil ratio limitations applicable to the reservoirs. Wells shall be tested on a commingled basis annually, except that a well penalized for a high gas-oil ratio shall be tested semi-annually.

5. The Secretary-Director may rescind authority to commingle production in the well-bore and require both zones to be produced separately, if, in his opinion, waste or reservoir damage is resulting thereby or the efficiency of any secondary recovery project is being impaired, or if any change of conditions renders the installation no longer eligible for down-hole commingling under the provisions of Section 1, paragraphs (a) through (h). ~~above~~.

(2) 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.

Case 4104:

Finds:

(1)

(2) That Rule 303 of the Commission Rules and Regulations prohibits, among other things, the commingling, ~~subject to certain exceptions~~, of production from two or more common sources of supply ~~within~~ in the well bore of any well.

(3) That there are a number of multiple completed oil wells, the production from which is marginal as to ~~all~~ each zone.

(4) That there are cases in which the reservoir characteristics of pools are such that ~~undue~~ waste would not be caused by the commingling of two or more separate common sources of supply in the well-bore.

(5) That there are cases in which the productive life of each of the marginal zones in a multiple completed well may be substantially extended by permitting the commingling of production in the well bore.

(6) That commingling ~~of~~ the production from marginal zones in the well-bore of certain multiple completed wells may result in the recovery of substantial amounts of additional oil from one or more of the zones, thereby preventing waste, and will not violate correlative rights.

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(7) That in order to enable the Commission the Secretary-Director of the Commission should have the authority to grant an exception to Rule 303 of the Commission Rules and Regulations to permit the

(7)

That in order to ease the administrative burden upon the operators and the Commission and to enable the Commission to more efficiently and effectively administer the laws of the State of New Mexico concerning the prevention of waste and the protection of correlative rights, Rule 303 of the New Mexico Oil Conservation Commission Rules and Regulations should be amended to grant ~~authority~~ permit the Secretary-Director of the Commission authority to permit the commingling of production from separate common sources of supply in the well-bore of a multiple completed well.

Ordered : New Mexico Oil Conservati

(1) That Rule 303 of the Commission Rules and Regulations is hereby amended ~~by t~~ ~~the addition of Rule 303~~ include Section 3 (c) as follows:

~~Rule 303 (c)~~

(c)

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DSN/esr
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9-24-69

C. DOWNHOLE COMMINGLING

1. The Secretary-Director of the Commission shall have the authority to grant an exception to Rule 303-A of the Commission Rules and Regulations to permit the commingling in the well-bore of dually completed oil wells when the following facts exist and the following conditions are met:

(a) Both zones to be commingled in the well-bore are classified as oil zones.

(b) The total daily production from both zones before commingling (as determined in accordance with ~~paragraph (e)~~ sections 2.(d) and 2.(e) below) does not exceed the following:

Bottom perforation, lowermost pool	Bbls/day
Less than 4,999 feet	20
5,000 feet to 5,999 feet	30
6,000 feet to 6,999 feet	40
7,000 feet to 7,999 feet	50
8,000 feet to 8,999 feet	60
9,000 feet to 9,999 feet	70
Over 10,000 feet	80

(c) Both zones require artificial lift, or both zones are capable of flowing. (Special consideration may be given to an exception to this latter requirement in the case in which a particular well's characteristics may justify same; however, the commingled production must be artifically lifted if either zone required artificial lift prior to commingling.)

(d) Neither zone produces more water than the combined oil limit as determined in paragraph (b) above.

(e) The fluids from each zone are compatible with the fluids from the other, and combining the fluids will not result in the formation of precipitates which might damage either reservoir.

(f) The total value of the crude will not be reduced by commingling.

(g) Ownership of the two zones to be commingled is common (including working interest, royalty, and overriding royalty).

(h) The commingling will not jeopardize the efficiency of present or future secondary recovery operations in either of the zones to be commingled.

Rough draft

with in the case of a newly completed or recently completed well which has little or no production history. However, a complete resume of the well's completion history including description of treating, testing, etc., of each zone, and a prognostication of future production from each zone should be submitted.)

2. To obtain approval for down-hole commingling, the operator of the well shall submit the following in duplicate to the Secretary-Director of the Commission:

(a) Name and address of the operator.

(b) Lease name, well number, well location.

(c) Names of the pools the well is completed in and the Commission order number which authorized the dual completion.

(d) A current (within 30 days) 24-hour productivity test on Commission Form C-116 showing the amount of oil, gas, and water produced from each zone.

(e) A production decline curve for both zones showing that for a period of at least one year a steady rate of decline has been established for each zone which will permit a reasonable allocation of the commingled production to each zone for statistical purposes. (This requirement may be dispensed

(g) A description of the fluid characteristics of each zone showing that the fluids will not be incompatible in the well-bore.

(h) A computation showing that the value of the commingled production will not be less than the sum of the values of the individual streams.

(i) A statement that all offset operators have been notified in writing of the proposed commingling.

(f) Estimated bottom-hole pressure for each artificially lifted zone. Current (within 30 days) measured bottom-hole pressure for each zone capable of flowing.

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draft

3. The Secretary-Director of the Commission may approve the proposed down-hole commingling in the absence of a valid objection within 20 days after the receipt of the application if, in his opinion there is no disqualifying disparity of bottom-hole pressures ~~waste~~ will not result thereby and correlative rights will not be violated. The 20-day waiting period may be dispensed with upon receipt of waivers of objection from all parties mentioned in item 2(h) above.

4. Upon such approval, the well shall be operated in accordance with the provisions of the administrative order which authorized the commingling, and ~~the~~ allocation of production from the well to each of the producing zones shall be in accordance with the allocation formula set forth in the order. The production from the well shall be subject to the lower of the daily gas-oil ~~ratio~~ ratio limitations applicable to the reservoirs. Wells shall be tested on a commingled basis annually, ~~during~~ except that a well penalized for a high gas-oil ratio shall be tested semi-annually.

or other reservoir characteristics