

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

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

**CASE NO. 11212
Order No. R-10335**

**APPLICATION OF CONOCO INC. FOR
DOWNHOLE COMMINGLING AND FOR AN
EXCEPTION TO THE GAS-OIL RATIO
LIMITATION FACTOR ESTABLISHED BY
DIVISION ORDER NO. R-8909, LEA
COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on March 2, 1995, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 31st day of March, 1995, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

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

(2) The applicant, Conoco Inc., seeks authority to downhole commingle Warren Blinebry-Tubb Oil and Gas Pool and Warren-Drinkard Pool production within the following described ten existing and four proposed new wells to be drilled within its Warren Unit, located in portions of Sections 27, 28, 33 and 34, Township 20 South, Range 38 East, NMPM, Lea County, New Mexico:

EXISTING WELLS

<u>WARREN UNIT WELL NO.</u>	<u>WELL LOCATION, UL-S-T-R</u>
9	1980' FNL & 660' FWL (E) 27-20S-38E
10	660' FNL & 2130' FEL (B) 28-20S-38E
26	660' FSL & 660' FWL (M) 27-20S-38E
94	1840' FNL & 2020' FWL (F) 28-20S-38E
97	660' FNL & 660' FWL (D) 34-20S-38E
98	660' FNL & 660' FEL (A) 28-20S-38E
99	710' FNL & 660' FEL (A) 33-20S-38E
113	660' FSL & 1980' FEL (O) 28-20S-38E
114	660' FNL & 1980' FWL (C) 28-20S-38E
115	1980' FNL & 660' FWL (E) 28-20S-38E

WELLS TO BE DRILLED

116	660' FNL & 660' FWL (D) 28-20S-38E
117	1980' FSL & 660' FWL (L) 28-20S-38E
118	760' FSL & 660' FWL (M) 28-20S-38E
119	810' FSL & 2105' FWL (N) 28-20S-38E

(3) The applicant further seeks authority to produce these downhole commingled wells in excess of the 8,000:1 gas-oil ratio limitation factor (GOR) currently in effect for the Warren-Drinkard Pool, as promulgated by Division Order No. R-8909.

(4) The evidence presented indicates that the subject wells are located within the applicant's Warren Unit, an exploratory/secondary recovery unit comprising all or portions of Sections 20, 21, 22, 26, 27, 28, 29, 33, 34 and 35, Township 20 South, Range 38 East, NMPM, Lea County, New Mexico.

(5) By Order No. R-6906-B issued in Case No. 10220 on March 15, 1991, the Division authorized Conoco Inc. to conduct secondary recovery operations in the Blinebry and Tubb formations, Warren Blinebry-Tubb Oil and Gas Pool within a portion of the Warren Unit comprising the S/2 S/2 of Section 22, all of Sections 26, 27, 33 and 34, and the N/2 N/2 of Section 35.

(6) By Order No. R-10068 issued in Case No. 10897 on March 8, 1994, the Division authorized Conoco Inc. to expand its Warren Blinebry-Tubb Waterflood Project to include the SE/4 of Section 20, SW/4 and S/2 SE/4 of Section 21, all of Section 28, and the NE/4 and N/2 SE/4 of Section 29.

(7) As a result of the Division approving the waterflood expansion area, the applicant drilled ten new wells within Section 28 in order to recover additional primary reserves and in order to complete an efficient production pattern. As a result of this development drilling, the Drinkard formation was found to be productive in this area.

(8) The geologic evidence presented by the applicant indicates that the Drinkard structure in this area is relatively small and limited to portions of Sections 27, 28, 33 and 34.

(9) The applicant has determined from production data that several wells in the Warren-Drinkard Pool which are located within an area in Section 28 comprising the S/2 NE/4, NE/4 SW/4, N/2 SE/4 and SE/4 SE/4, are economically producible as Blinebry-Tubb/Drinkard dual completions at the present time by virtue of being at structurally high positions in the reservoir. These wells are the Warren Unit Well Nos. 8, 35, 95, 96, 108, 111, and 112.

(10) The applicant has further determined that the remaining Warren-Drinkard Pool wells which are located down structure in the reservoir are not economically producible as dual completions. These wells are the subject of this application.

(11) The evidence indicates that six wells, being the Warren Unit Well Nos. 9, 10, 26, 97, 98 and 99 are currently completed in and producing from the Warren Blinebry-Tubb Oil and Gas Pool with the Warren-Drinkard Pool either shut-in or temporarily abandoned.

(12) The evidence further indicates that four wells, being the Warren Unit Well Nos. 94, 113, 114 and 115 are currently dually completed in the Warren Blinebry-Tubb and Warren-Drinkard Pools.

(13) The Warren Unit Well Nos. 9, 26, 97 and 99 are located within the original waterflood area as described in Finding No. (5) above. The remaining wells are located within the waterflood expansion area described in Finding No. (6) above.

(14) The original waterflood area is currently undergoing active water injection, while waterflood operations have not commenced thus far within the expansion area.

(15) The production data presented as evidence indicates that Warren-Drinkard Pool production within the Warren Unit Well Nos. 9, 10, 26, 97, 98 and 99, prior to being shut-in, was marginal. The evidence further indicates that Warren-Drinkard Pool production within the Warren Unit Well Nos. 94, 113, 114 and 115 is also currently marginal.

(16) Warren Blinebry-Tubb Oil and Gas Pool production from the ten subject wells currently averages 28.9 BOPD and 449 MCF gas per day.

(17) Applicant does not expect to initiate secondary recovery operations (active water injection) within Section 28 until the year 2007. Applicant's plan of operation prior to that time includes producing the subject wells as downhole commingled producers until depletion. At such time as waterflood operations commence, the Drinkard formation will be plugged off.

(18) The applicant's plan of operation for the Warren Unit Well Nos. 9, 26, 97 and 99, which are located within the active waterflood area, includes downhole commingling Warren Blinebry-Tubb and Warren-Drinkard Pool production during such waterflood operations.

(19) Due to differences in the Participating Areas (PA's) within the Warren Unit, ownership between the Warren Blinebry-Tubb and Warren-Drinkard Pools is not common.

(20) The applicant has notified all interest owners in the Warren Unit of its proposed commingling. No interest owner and/or offset operator appeared at the hearing in opposition to the application.

(21) The applicant expects to encounter marginal producing rates within the four wells proposed to be drilled in Section 28.

(22) The applicant further demonstrated through its evidence and testimony that within the wells it proposes to commingle within the Warren Unit:

- a) there will be no crossflow between the commingled pools;
- b) none of the commingled zones exposes the others to damage by produced liquids;
- c) the fluids from each zone are compatible with the other;
- d) the bottomhole pressure of the lower pressure zones should not be less than 50 percent of the bottomhole pressure of the higher pressure zone adjusted to a common datum; and,
- e) the value of the commingled production is not less than the sum of the values of the individual production.

(23) The evidence indicates that the proposed downhole commingling is necessary in order to economically recover the remaining oil and gas reserves in the Drinkard formation as well as the remaining primary oil and gas reserves in the Blinebry-Tubb formations.

(24) Approval of the subject application will allow the applicant the opportunity to recover additional oil and gas reserves from the Drinkard formation which may otherwise not be recovered, thereby preventing waste, and will not violate correlative rights.

(25) Applicant testified that due to relatively high water production from the Drinkard formation within the Warren Unit Well No. 97, an attempt to shut off the water by means of squeeze cementing will be made prior to commingling.

(26) Applicant requested that it be allowed to produce the subject downhole commingled wells in excess of the 8,000:1 GOR currently in effect for the Warren-Drinkard Pool.

(27) The Warren-Drinkard Pool currently has a top unit oil allowable of 142 barrels per day, a gas-oil ratio limitation of 8,000 cubic feet of gas per barrel of oil and a casinghead gas limit of 1,136 MCF gas per day.

(28) Pursuant to Division Rules and Regulations, the subject downhole commingled wells will be allowed to produce 1,136 MCF gas per day regardless of producing gas-oil ratio.

(29) The production data presented as evidence in this case indicates that the combined gas production from the Warren Blinebry-Tubb and Warren-Drinkard Pools within each of the subject wells does not exceed 1,136 MCF gas per day.

(30) The applicant's request is unnecessary and should be dismissed.

(31) The applicant presented proposed allocation factors for the existing wells. The proposed allocation factors, which change on an annual basis, were derived from decline curve analysis conducted on the Warren-Drinkard and Warren Blinebry-Tubb Pools in each well.

(32) The proposed allocation factors are reasonable and should be adopted in this case.

(33) Prior to commingling production within the Warren Unit Well Nos. 116, 117, 118 and 119, the applicant should consult with the supervisor of the Division's Hobbs District Office in order to determine a proper allocation of production.

(34) The operator should immediately notify the supervisor of the Hobbs District Office of the Division any time any of the subject wells have been shut-in for seven consecutive days and shall concurrently present, to the Division, a plan for remedial action.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Conoco Inc., is hereby authorized to downhole commingle Warren Blinebry-Tubb Oil and Gas Pool and Warren-Drinkard Pool production within the following described ten existing and four proposed new wells to be drilled within its Warren Unit, located in portions of Sections 27, 28, 33 and 34, Township 20 South, Range 38 East, NMPM, Lea County, New Mexico:

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(2) The allocation of production from each of the ten existing wells shall be in conformance with the allocation formula submitted by the applicant in this case.

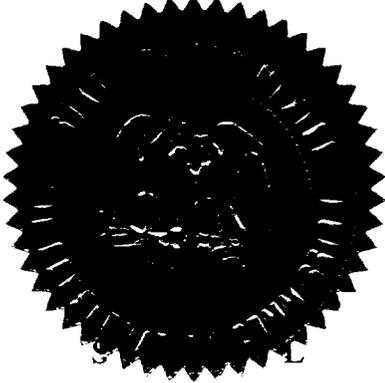
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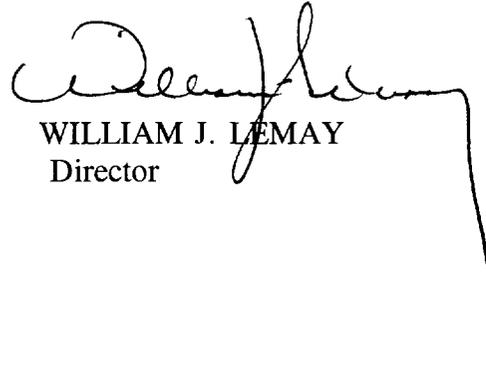
(5) The applicant's request to produce the subject downhole commingled wells at a gas-oil ratio limitation in excess of 8,000:1 is hereby dismissed.

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

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



STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


WILLIAM J. LEMAY
Director