9-6-95

State of New Mexico
OIL CONSERVATION COMMISSION

From

MICHAEL E. STOGNER
PETROLEUM ENGINEER

Memo

To: Note to File:

Case No. 11,327

Administrative Order NSP-1111(H) authorized the subject application; therefore Case 11,327 can be Dismissed.

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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

August 18, 1995

Merrion Oil & Gas Corporation
P. O. Box 840
Farmington, New Mexico 87499

Attention: George Sharpe

Administrative Order DD-111(H)
High Angle/Horizontal

Dear Mr. Sharpe:

Reference is made to your application dated May 31, 1995 for authorization to initiate a high angle/horizontal directionally drilling project in the designated and Undesignated Snake Eyes-Entrada Oil Pool on Merrion Oil & Gas Corporation's Santa Fe fee lease in Sections 19, 20, and 21, Township 21 North, Range 8 West, NMPM, San Juan County, New Mexico.

The Division Director Finds That:

(1) The application by Merrion Oil & Gas Corporation ("Merrion") has been duly filed under the provisions of Rule 111.D and E of the General Rules and Regulations of the New Mexico Oil Conservation Division ("Division"), revised by Division Order No. R-10388, issued by the Oil Conservation Commission in Case 11,274 on June 13, 1995;

(2) The Snake Eyes-Entrada Oil Pool currently comprises the N/2 of Section 20, Township 21 North, Range 8 West, NMPM, San Juan County, New Mexico and is subject to the statewide rules and regulations for oil wells, as promulgated by Rule 104.C(1)(a), which provides for 40-acre oil spacing and proration units, or drilling units, and requires that wells be located no closer than 330 feet to the outer boundary of a single 40-acre oil spacing and proration unit;

(3) A special depth bracket oil allowable of 750 barrels of oil per day per 40-acre unit was established for said pool by Division Order No. R-5421, dated April 26, 1977;

(4) The Entrada formation in this area was deposited as an eolian sand overlain by lacustrine limestones and anhydrites of the Todilto formation. The resulting "dune-

like" structures, having porosity and permeability, act as the reservoir for trapping the accumulation of oil in the Entrada formation. The Eagle Mesa-Entrada Pool is in contact with a large aquifer and hydrodynamically active fresh ground water flowing to the southwest beneath the oil accumulation. This strong drive acts to tilt the oil-water contact in the direction of flow; conventionally drilled (vertical) wells in this pool experience significant "water coning", whereby the water below the oil moves upward to the wellbore, a process that has left a significant amount of "attic" oil sidetracked or by-passed between wells; by drilling horizontally across the top of the structure, the applicant is attempting to drain this otherwise unrecoverable attic oil by alleviating this coning action; such horizonal drainhole will act to create a small pressure drop along the large area found in a long horizontal drainhole instead of a large pressure drop through a small area available to a vertical wellbore;

(5) The "project area" proposed by Merrion would consist of a single fee lease which comprises 1040 acres, or 26 40-acre units, underlying the following described area in San Juan County, New Mexico:

TOWNSHIP 21 NORTH, RANGE 8 WEST, NMPM
Section 19: E/2 NE/4 and NE/4 SE/4
Section 20: All
Section 21: NW/4, N/2 SW/4, and SW/4 SW/4;

(6) Within this project area Merrion seeks:

a) the ability to traverse section, quarter section and quarter-quarter section lines within the project area in order to form non-standard oversized and irregular sized spacing and proration units to accommodate such wellbores;

b) drill the proposed horizontal wellbores to within 330 feet of the outer boundary of the project area; and,

c) the assignment of an allowable for a horizontally drilled well based upon the number of standard 40-acre proration units which are developed or traversed by a horizontal wellbore;

(7) Initially, it is Merrion's intent to utilize the existing wellbores on its Santa Fe "20" Well No. 1 (**API No. 30-045-22291**), located 1800 feet from the North line and 2110 feet from the East line (Unit G), of said Section 20 and its Santa Fe "20" Well No. 3 (**API No. 30-045-22568**), located 2220 feet from the North line and 990 feet from the East line (Unit H), of said Section 20 to drill short radius horizontal drainholes a lateral distance of 800 to 1,000 feet; and,

(8) It appears the applicant has satisfied all of the appropriate requirements prescribed in said Rule 111.D and E, the subject application should be approved and the well should be governed by the provisions contained within this order and all other applicable provisions of Division General Rule 111.

IT IS THEREFORE ORDERED THAT:

(1) The application of Merrion Oil and Gas Corporation ("Merrion") for high angle/horizontal directional drilling within a "project area", in the designated and Undesignated Snake Eyes-Entrada Oil Pool on its Santa Fe fee lease comprising the following described 1040 acres in San Juan County, New Mexico, is hereby approved:

TOWNSHIP 21 NORTH, RANGE 8 WEST, NMPM
Section 19: E/2 NE/4 and NE/4 SE/4
Section 20: All
Section 21: NW/4, N/2 SW/4, and SW/4 SW/4.

(2) Merrion is further authorized to proceed with their initial plans to recomplete its existing Santa Fe "20" Well No. 1 (**API No. 30-045-22291**), located 1800 feet from the North line and 2110 feet from the East line (Unit G), of said Section 20 and its Santa Fe "20" Well No. 3 (**API No. 30-045-22568**), located 2220 feet from the North line and 990 feet from the East line (Unit H), of said Section 20 by plugging-back, milling a window in the existing production casing, kick-off from the vertical by drilling a short radius curve hole to approximately 90 degrees so as to encounter the upper portion of the oil bearing Entrada sand, and continue drilling horizontally a distance of 800 to 1,000 feet.

PROVIDED HOWEVER THAT any drainhole drilled from either of said wellbores may traverse section, quarter section and quarter-quarter section lines within the project area provided that the horizonal or producing portion of any drainhole shall be located no closer than 330 feet from the outer boundary of the above-described "project area".

PROVIDED FURTHER THAT the applicant shall determine the actual location of the kick-off points in each well prior to commencing directional drilling operations. Also, the applicant shall conduct a directional survey on the lateral portion of any horizontal wellbore during or after completion of drilling operations.

(3) The applicant shall notify the supervisor of the Aztec District office of the Division of the date and time said wellbore surveys are to be conducted so that they may be witnessed. The applicant shall further provide a copy of said wellbore surveys to the Santa Fe and Aztec offices of the Division upon completion.

(4) The allowable assigned to the proration units designated to each well in the Snake Eyes-Entrada Oil Pool shall be assigned by the supervisor of the Division's Aztec district office and shall be equal to 750 barrels of oil per day times the number of standard 40-acre tracts within each designated proration unit that are developed/traversed by a horizontal drainhole.

(5) The operator shall comply with all requirements and conditions set forth in Division General Rule 111.E(2) and any applicable requirements in 111.D and F.

(6) Form C-105 shall be filed in accordance with Division Rule 1105 and the operator shall indicate thereon true vertical depth (TVD) in addition to measured depths (MVD).

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

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

WILLIAM J. LEMAY
Director

S E A L

cc: Oil Conservation Division - Aztec
U. S. Bureau of Land Management - Farmington
File: Case 11327