



STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 S. PACHECO
SANTA FE, NEW MEXICO 87505
(505) 827-7131

May 6, 1996

Merrion Oil & Gas Corporation
610 Reilly Avenue
Farmington, New Mexico 87401
Attention: George Sharpe

Administrative Order DD-143(H)
High Angle/Horizontal

Dear Mr. Sharpe:

Reference is made to your application dated March 21, 1996 for authorization to initiate a high angle/horizontal directionally drilling project in the designated and Undesignated Ojo Encino-Entrada Oil Pool within a "cooperative area" comprising three separate Federal leases operated by Merrion Oil & Gas Corporation in Sections 21 and 28, Township 20 North, Range 5 West, NMPM, McKinley 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 Ojo Encino-Entrada Oil Pool currently comprises the SE/4 NW/4 and E/2 SW/4 of Section 21, Township 20 North, Range 5 West, NMPM, McKinley County, New Mexico and is therefore 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-5420, 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 designated and Undesignated Ojo Encino-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 horizontal 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 an area comprising 480 acres, more or less, covered by a cooperative Federal lease agreement underlying the following described acreage in McKinley County, New Mexico:

TOWNSHIP 20 NORTH, RANGE 5 WEST, NMPM

Section 21:	SW/4	(Federal Lease No. NM-5980)
Section 21:	W/2 SE/4	(Federal Lease No. NM-89020)
Section 28:	NE/4 and E/2 NW/4	(Federal Lease No. NM-90836);

- (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 following two existing wellbores in order to drill short radius horizontal drainholes a lateral distance of approximately 1,000 feet:

a) the Federal "21" Well No. 1 (API No. 30-031-20486), located 2310 feet from the South and West lines (Unit K), of said Section 21; and,

b) the Federal "21" Well No. 4 (API No. 30-031-20934), located 330 feet from the South line and 2310 feet from the West line (Unit N), of said Section 21.

- (8) It should be noted that the Federal "21" Well No. 4 was the subject of a previous directional drilling directive, Division Order No. R-8323, issued in Case 8989 and dated October 10, 1986; and,
- (9) 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 Ojo Encino-Entrada Oil Pool within a "cooperative area" comprising three separate Federal leases operated by Merrion underlying the following described acreage in McKinley County, New Mexico, is hereby approved:

TOWNSHIP 20 NORTH, RANGE 5 WEST, NMPM

Section 21:	SW/4	(Federal Lease No. NM-5980)
Section 21:	W/2 SE/4	(Federal Lease No. NM-89020)
Section 28:	NE/4 and E/2 NW/4	(Federal Lease No. NM-90836).

(2) Merrion is further authorized to proceed with their initial plans to recomplete its existing Federal "21" Well No. 1 (API No. 30-031-20486), located 2310 feet from the South and West lines (Unit K), of said Section 21 and its Federal "21" Well No. 4 (API No. 30-031-20934), located 330 feet from the South line and 2310 feet from the West line (Unit N), of said Section 21, by plugging-back, milling a window in the existing production casing, kick-off from the vertical, drill 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 approximately 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 horizontal 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 Ojo Encino-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.

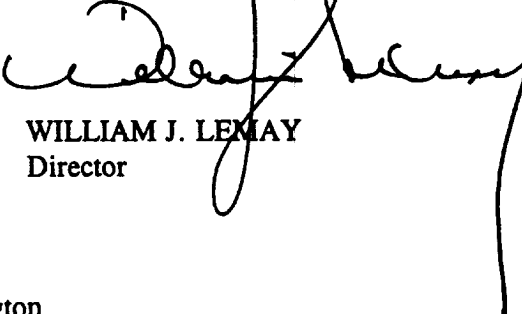
(5) The operator shall comply with all requirements and conditions set forth in Division General Rule 111.E(2) and any applicable requirements in 111.D and F.

(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

cc: Oil Conservation Division - Aztec ✓
U. S. Bureau of Land Management - Farmington