



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

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OIL CONSERVATION DIVISION  
DEPT. OF ENERGY, MINERALS & NATURAL RESOURCES

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

*Administrative Order DD-144(H)*  
High Angle/Horizontal

Dear Mr. Sharpe:

Reference is made to your application dated March 12, 1996 for authorization to initiate a high angle/horizontal directionally drilling project in the Entrada formation within a single 160-acre Navajo Allotted Lease (No. NOO-C-4402) to be operated by Merrion Oil & Gas Corporation comprising the NE/4 of Section 13, Township 20 North, Range 6 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 above-described acreage is further then two miles from any designated Entrada oil pool and is therefore classified as "wildcat". This area 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) Further, pursuant to Division General Rule 505.A, the Entrada formation in this area is subject to a depth bracket oil allowable of 80 barrels of oil per day per 40-acre unit;

- (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. It is anticipated by the applicant that this portion of the Entrada formation 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 is to correspond to the above-described 160 acres;
- (6) Within this project area Merrion seeks:
  - a) the ability to traverse 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 drill a vertical Entrada wildcat well at a standard oil well location in the SW/4 NW/4 (Unit G) of said Section 13 and, depending on the results, Merrion would plug back the well and initiate a horizontal wellbore to the north through the Entrada formation a lateral distance of approximately 1,000 feet;

- (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 any horizontal wellbore drilled within the project area 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 "wildcat" Entrada formation on its Navajo Allotted Lease (No. NOO-C-4402) underlying the following described acreage in McKinley County, New Mexico, is hereby approved:

**TOWNSHIP 20 NORTH, RANGE 6 WEST, NMPM**

Section 13: NE/4.

(2) Merrion is further authorized to proceed with their initial plans to drill a vertical Entrada wildcat well at a standard oil well location in the SW/4 NW/4 (Unit G) of said Section 13 and, depending on the results, initiate a horizontal wellbore to the north through the Entrada formation a lateral distance of approximately 1,000 feet.

**PROVIDED HOWEVER THAT** any drainhole drilled from said well may traverse 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 unit designated to said well in the Entrada formation shall be assigned by the supervisor of the Division's Aztec district office and shall be equal to 80 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.

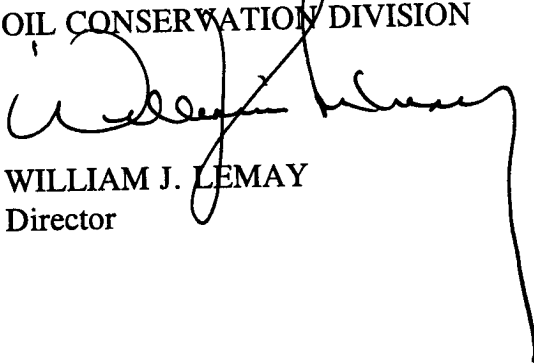
(5) The operator shall comply with all requirements and conditions set forth in Division General Rule 111.E(2) and any applicable requirements in 111.D and F.

(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