

**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. 13351
ORDER NO. R-3022-C**

**APPLICATION OF EDGE PETROLEUM EXPLORATION COMPANY TO
RESTRICT THE EFFECT OF THE SPECIAL RULES AND REGULATIONS
FOR THE DOS HERMANOS-MORROW GAS POOL, EDDY COUNTY, NEW
MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on October 7, 2004, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 8th day of November, 2004, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of this case and its subject matter.

(2) The Dos Hermanos-Morrow Gas Pool, which comprises Sections 21, 22, 27 and 28, Township 20 South, Range 30 East, NMPM, Eddy County, New Mexico, is currently governed by the "*Special Rules and Regulations for the Dos Hermanos-Morrow Gas Pool*" as established by Division Order No. R-3022, as amended, dated December 22, 1965, which require that:

- (a) all wells drilled within the Dos Hermanos-Morrow Gas Pool or in the Morrow formation within one mile of the pool boundaries shall be subject to the following special pool rules;

- (b) each well shall be located on a standard unit containing 640 acres and consisting of a governmental section; and
- (c) each well shall be located no closer than 1650 feet to the outer boundary of the proration unit nor closer than 330 feet to any governmental quarter-quarter section line or subdivision inner boundary.

(3) The applicant, Edge Petroleum Exploration Company ("Edge"), seeks an order that would limit the "*Special Pool Rules and Regulations for the Dos Hermanos-Morrow Gas Pool*" to that area within the current pool boundaries, as described above, thereby authorizing the drilling of a well, pursuant to Division Rule No. 104.B, to a bottomhole location 660 feet from the North and East lines (Unit A) of Section 29, Township 20 South, Range 30 East, NMPM, Eddy County, New Mexico. The N/2 of Section 29 is proposed to be dedicated to the well forming a 320-acre gas spacing and proration unit.

(4) V-F Petroleum, Inc., ("V-F"), the affected offset operator to the northeast in Section 21, appeared at the hearing in opposition to the application.

(5) The Dos Hermanos-Morrow Gas Pool was discovered in 1965 by the Pan American Petroleum Corporation USA Emperor Oil Company Well No. 1 (API No. 30-015-10465) located 1980 feet from the North and West lines (Unit F) of Section 28. This well cumulative produced approximately 9.4 BCF of gas from the Morrow formation prior to its being recompleted to the Strawn formation in 1982. The current operator of the well is McRae & Henry, LTD.

(6) The following-described four additional wells have previously produced or are currently producing from the Dos Hermanos-Morrow Gas Pool within Sections 21, 22, 27 and 29, Township 20 South, Range 30 East, NMPM:

<u>Current Operator</u>	<u>Well Name</u>	<u>API Number</u>	<u>Well Location</u>
M. Brad Bennett, Inc.	Hudson Fed. No. 1	30-015-20834	Unit J, Section 29
McRae & Henry, LTD	Federal "G" Gas Com No. 1	30-015-20848	Unit J, Section 21
V-F Petroleum, Inc.	Hale Federal Com No. 2	30-015-20556	Unit K, Section 22
Perry R. Bass	Big Eddy Unit No. 35	30-015-20819	Unit F, Section 27

(7) Division records and evidence presented demonstrates that:

- (a) the Hudson Federal No. 1 was completed in the Morrow formation in 1973. The well cumulatively produced .303 BCF of gas from the Morrow formation prior to its being recompleted to the Strawn formation in 1974. The well is currently an active well producing from the Golden Lane-Strawn Gas Pool;
- (b) the Federal "G" Gas Com No. 1 was completed in the Morrow formation in 1974. The well cumulatively produced 1.94 BCF of gas from the Morrow formation prior to its being recompleted to the Strawn formation in 1985. The well is currently an active well in the Golden Lane-Strawn Gas Pool;
- (c) the Hale Federal Com No. 2 was competed in the Morrow formation in 1972. The well has cumulatively produced 1.19 BCF of gas from the Morrow formation. The well is currently an active producing well in the Morrow formation; and
- (d) the Big Eddy Unit No. 35 was completed in the Morrow formation in 1973. The well cumulatively produced .024 BCF of gas from the Morrow formation prior to its being plugged and abandoned in 1978.

(8) Although the Hudson Federal Well No. 1 produced from the Dos Hermanos-Morrow Gas Pool from November, 1973 through June, 1974, the Division never extended the boundaries of the pool to include all of Section 29.

(9) Division records and testimony further demonstrate that V-F is currently drilling its Budge Federal Com Well No. 1 to test the Morrow formation from a surface location 1336 feet from the South line and 2160 feet from the East line (Unit J) of Section 21, to a bottomhole location 1650 feet from the South and West lines (Unit K) of Section 21.

(10) Edge testified that its proposed well in Section 29 is located within the "Potash Area" as defined by Division Order No. R-111, as amended, and as such, it is likely that the well will have to be directionally drilled from a surface location in Section 28.

(11) Three additional Morrow gas pools are present within Township 20 South, Range 30 East, NMPM. These pools are the: i) East Burton Flat-Morrow Gas Pool which comprises the W/2 of Section 6, SW/4 of Section 7 and the W/2 of Section 18; ii) the Golden Lane-Morrow Gas Pool which comprises the E/2 of Section 31; and the iii) Northeast Dos Hermanos-Morrow Gas Pool which comprises the S/2 of Section 11 and the N/2 and SW/4 of Section 12. All three of these Morrow gas pools are governed by Division Rule No. 104.C. which requires standard 320-acre gas spacing and proration units with wells to be located no closer than 660 feet to the outer boundary of the quarter section on which the well is located, and no closer than 10 feet to any quarter-quarter section line or subdivision inner boundary. Rule No. 104.C also provides that two wells may be drilled on a standard 320-acre spacing unit provided that the wells are not located within the same quarter section.

(12) Edge presented geologic and engineering evidence to support its position that the wells in the Dos Hermanos-Morrow Gas Pool are not capable of draining 640 acres and consequently, the N/2 of Section 29, which comprises a single state lease, should be developed on statewide 320-acre spacing within the Morrow formation.

(13) Edge presented geologic evidence that demonstrates that:

- (a) the primary producing intervals in the Dos Hermanos-Morrow Gas Pool are the Middle Morrow "A", "B" and "C" sands, and the Lower Morrow section;
- (b) the sands within the middle and lower Morrow intervals appear to be continuous and can be correlated throughout Sections 21, 22, 27, 28 and 29, and even into Section 31, where the Golden Lane-Morrow Gas Pool is present; and

- (c) there are no faults or other structural barriers separating Section 29 from the Dos Hermanos-Morrow Gas Pool in Sections 21, 22, 27 and 28; however, the reservoir quality, which varies significantly from well to well, may effectively cause Section 29 to be geologically isolated from the Dos Hermanos-Morrow Gas Pool.

(14) Edge presented engineering evidence that demonstrates that:

- (a) the Emperor Oil Company Well No. 1, which cumulatively produced 9.4 BCF of gas, drained an area of approximately 315 acres within Section 28. The Federal "G" Gas Com Well No. 1, which cumulatively produced 1.94 BCF of gas, drained an area of approximately 45 acres within Section 21. The Hale Federal Com Well No. 2, which cumulatively produced 1.19 BCF of gas, drained an area of approximately 80 acres within Section 22. The Hudson Federal Well No. 1, which cumulatively produced .303 BCF of gas, drained an area of approximately 50 acres within Section 29; and
- (b) in 1965, the original shut-in pressure for the Emperor Oil Company Well No. 1 in Section 28 was 3,828 psi. Seven years later in 1972, the initial shut-in pressure for the Hale Federal Com Well No. 2 was reported to be 3,260 psi. Two year later in 1974, the initial shut-in pressure for the Federal "G" Gas Com Well No. 1 was reported to be 3,679 psi.

(15) V-F's position in this case is that Edge's proposed well in Section 29 should be subject to the special pool rules for the Dos Hermanos-Morrow Gas Pool and that allowing Edge to drill at a location 660 feet from the North and East lines (Unit A) of Section 29 would violate V-F's correlative rights. In support of its position, V-F presented evidence that demonstrates that:

- (a) the various upper, middle and lower Morrow sand intervals present in the Dos Hermanos-Morrow Gas Pool are laterally continuous and present in Section 29;
- (b) there are no geologic barriers that would isolate the Morrow reservoir underlying Section 29 from the Dos Hermanos-Morrow Gas Pool in Sections 21, 22, 27 and 28;
- (c) the Morrow formation in this area is composed of fluvial northwest to southeast trending channel sands as well as southwest to northeast trending marine and deltaic sands, consequently, elliptical drainage patterns that coincide with sand body orientation are more realistic than radial drainage patterns;
- (d) the Morrow sands that will be produced in V-F's Budge Federal Com Well No. 1 in Section 21 will also likely be produced by Edge's proposed well in Section 29, consequently, these wells will be competing for the same gas reserves; and
- (e) the Budge Federal Com Well No. 1 was drilled at standard gas well location 1650 feet from the South and West lines (Unit K) of Section 21 in conformance with the special pool rules for the Dos Hermanos-Morrow Gas Pool.

(16) The geologic evidence presented by both parties in this case demonstrates that Sections 21, 22, 27, 28 and 29 represent a common source of supply in the Morrow formation.

(17) The wells within the Dos Hermanos-Morrow Gas Pool are not capable of draining an area of 640 acres, as demonstrated by Edge's engineering evidence which shows that the Emperor Oil Company Well No. 1, the best well drilled in the pool to date, only drained an area of approximately 315 acres.

(18) There is no evidence to show that the correlative rights of V-F or the interest owners within the S/2 of Section 29 would be harmed by approving that portion of Edge's request to develop its acreage in Section 29 in the Morrow formation on 320-acre spacing.

(19) M. Brad Bennett, Inc., the operator within the S/2 of Section 29, did not appear at the hearing in opposition to the application.

(20) The evidence shows that developing Section 29, and the remaining eleven-section area surrounding the Dos Hermanos-Morrow Gas Pool on 320-acre spacing in the Morrow formation is appropriate, will not violate correlative rights, and should therefore be approved.

(21) Edge conservatively estimated that its proposed well in Section 29 will drain an area of approximately 80 acres, but testified that the well may drain an area much larger than that. Based upon its assumption that the well will drain at least 80 acres, the estimated ultimate recovery from the well will be approximately 2.2 BCF of gas.

(22) A well that is located 660 feet from the North and East lines (Unit A) of Section 29 is approximately 933 feet from V-F's acreage in Section 21. Similarly, a well that is drilled at a standard gas well location for the Dos Hermanos-Morrow Gas Pool 1650 feet from the North and East lines (Unit G) of Section 29 is approximately 2,333 feet from V-F's acreage in Section 21.

(23) Assuming radial drainage, the drainage radius for an 80-acre drainage circle is 1,053 feet. The drainage radius for a 315-acre drainage circle, similar to the area drained by the offset Emperor Oil Company Well No. 1, is 2,090 feet.

(24) Based upon the proposed well's proximity to V-F's acreage in Section 21, and possible drainage scenarios, a well drilled at the location proposed by Edge will have an adverse effect on the correlative rights of V-F.

(25) V-F, having already drilled its Budge Federal Com Well No. 1 at a standard gas well location for the Dos Hermanos-Morrow Gas Pool, is now unable to adequately protect its acreage from offset drainage that may occur from Edge's proposed well.

(26) The geologic evidence presented does not condemn a well location 1650 feet from the North and East lines (Unit G) of Section 21.

(27) Approval of that portion of Edge's application to drill its well, pursuant to the setback requirements of Division Rule 104.C., 660 feet from the North and East lines (Unit A) of Section 29 will adversely affect the correlative rights of offset interest owners and should therefore be denied.

(28) In order to protect the correlative rights of V-F, Edge should be required to drill its proposed well in accordance with the setback requirements for the Dos Hermanos-Morrow Gas Pool.

(29) In the absence of correlative rights issues, it is appropriate within the twelve-section area surrounding the Dos Hermanos-Morrow Gas Pool to allow wells to be drilled pursuant to the setback requirements of Division Rule No. 104.C.; **provided however that**, offset operators within the Dos Hermanos-Morrow Gas Pool should be provided the opportunity to object to offset well locations that may result in the violation of its correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) The application of Edge Petroleum Exploration Company to limit the "*Special Pool Rules and Regulations for the Dos Hermanos-Morrow Gas Pool*" to that area within the current pool boundaries comprising Sections 21, 22, 27 and 28, Township 20 South, Range 30 East, NMPM, Eddy County, New Mexico, is hereby approved.

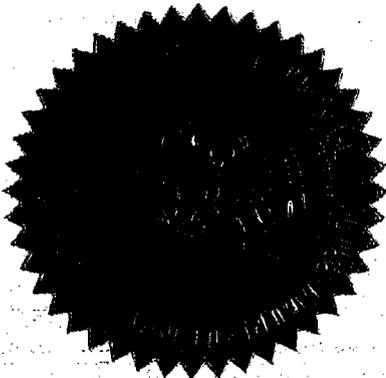
(2) Within the twelve-section area outside the Dos Hermanos-Morrow Gas Pool comprising Sections 14 through 17, 20, 23, 26, 29 and 32 through 35, Township 20 South, Range 30 East, NMPM, wells in the Morrow formation may be drilled and developed on 320-acre spacing and, pursuant to Division Rule No. 104.C, may be drilled no closer than 660 feet from the outer boundary of the quarter section on which the well is located, and no closer than 10 feet to any quarter-quarter section line or subdivision inner boundary; **provided however that**, the operator of any such well shall file an application with the Santa Fe Office of the Division and shall provide notice of its intent to drill the well to affected offset operators within the Dos Hermanos-Morrow Gas Pool. If no objection to the well location is received within 20-days of receipt of such application, the Santa Fe Office of the Division may authorize the approval of the application to drill.

(3) Edge Petroleum Exploration Company is hereby authorized to develop the N/2 of Section 29, Township 20 South, Range 30 East, NMPM, Eddy County, New Mexico, as a 320-acre gas spacing and proration unit in the Morrow formation.

(3) The applicant's request to drill a well 660 feet from the North and East lines (Unit A) of Section 29, Township 20 South, Range 30 East, NMPM, Eddy County, New Mexico, is hereby denied. Edge Petroleum Exploration Company shall be required to drill its well within the N/2 of Section 29 in conformance with the setback requirements for the Dos Hermanos-Morrow Gas Pool.

(4) 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.



SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MARK E. FESMIRE, PE
Director