

**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. 11481
Order No. R-10601**

**APPLICATION OF NEARBURG EXPLORATION
COMPANY FOR AN UNORTHODOX GAS WELL
LOCATION, EDDY COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on April 18, 1996, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 21st day of May, 1996, 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, Nearburg Exploration Company, seeks authority to drill its Black River "10" Federal Com Well No. 1 at an unorthodox gas well location 1330 feet from the North line and 990 feet from the West line (Unit E) of Section 10, Township 24 South, Range 26 East, NMPM, to test the Morrow formation, Undesignated South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico.

(3) The applicant proposes to dedicate the W/2 of Section 10 to the proposed Black River "10" Federal Com Well No. 1 thereby forming a standard 320-acre gas spacing and proration unit for said pool.

(4) The subject well is located within one mile of the South Carlsbad-Morrow Gas Pool which is currently governed by the General Rules and Regulations for the Prorated Gas Pools of New Mexico/Special Rules and Regulations for the South Carlsbad-Morrow Gas Pool as promulgated by Division Order No. R-8170, as amended, which require standard 320-acre gas spacing and proration units with wells to be located no closer than 1980 feet from the end boundary nor closer than 660 feet from the side boundary of the proration unit, nor closer than 330 feet from any quarter-quarter section line or subdivision inner boundary.

(5) Although currently classified as a "Prorated Gas Pool", gas proration was suspended in the South Carlsbad-Morrow Gas Pool by Oil Conservation Commission Order No. R-10328, issued in Case No. 11211 on March 27, 1995, due to the fact that there are currently no "prorated wells" in the pool.

(6) The subject well is also located within one mile of the White City-Pennsylvanian Gas Pool which is currently governed by Special Rules and Regulations as promulgated by Division Order No. R-2429, as amended, which require standard 640-acre gas spacing and proration units with wells to be located no closer than 1650 feet from the outer boundary of the spacing unit nor closer than 330 feet from any quarter-quarter section line or subdivision inner boundary.

(7) Inasmuch as the E/2 of Section 10 is currently within the South Carlsbad-Morrow Gas Pool, it is projected that the Black River "10" Federal Com Well No. 1 will also be classified within this pool.

(8) Read & Stevens, Inc., who currently operates a South Carlsbad-Morrow Gas Pool well in Section 4, Township 24 South, Range 26 East, NMPM, being the Crystal Federal Well No. 1 located 1150 feet from the South line and 1650 feet from the East line (Unit O), appeared at the hearing in opposition to the application. The E/2 of Section 4 is currently dedicated to the aforesaid Crystal Federal Well No. 1 forming a standard 320-acre gas spacing and proration unit.

(9) The applicant presented extensive geologic evidence and testimony in support of its proposed unorthodox gas well location and in its attempt to demonstrate that:

- a) the primary objectives within the subject well are what the applicant has termed the Early Middle Morrow and Late Middle Morrow intervals (For discussion purposes, the Early and Late Middle Morrow intervals will hereinafter be referred to as the "C" Sand interval and "B" Sand interval, respectively);

- b) the "C" Sand interval is a typical Morrow sand channel which traverses Section 10 in a northwest to southeast direction. The "B" Sand interval is an elongated reservoir which traverses the N/2 of Section 10 in an east-west direction;
- c) within the "C" Sand interval, the proposed unorthodox location has both a structural advantage (net 20 feet structural gain) and net sand thickness advantage (net 10 feet gain) over the closest standard well location in the NW/4 of Section 10;
- d) within the "B" Sand interval, the proposed unorthodox location has both a structural advantage (net 20 feet structural gain) and net sand thickness advantage (net 5 feet gain) over the closest standard well location in the NW/4 of Section 10;
- e) within the "C" Sand interval there is significant risk of encountering water production. Applicant has determined that the gas-water contact in this reservoir occurs at a depth of approximately -8318 feet. Based upon this interpretation, applicant contends that the Crystal Federal Well No. 1 and the Mallon Oil Company O'Neill "B" Com Well No. 1, located in Unit J of Section 10, are located below the gas-water contact in this reservoir and are therefore non-productive;
- f) a well at a standard gas well location in the NW/4 of Section 10 would place the well much closer to the C & K Petroleum Pennzoil Federal Well No. 2, located in Unit L, which was drill stem tested as non-productive in the "C" Sand interval by C & K Petroleum who failed to establish commercial production and who abandoned the well as a dry hole.

(10) The applicant proposed that in order to offset any advantage gained by drilling the Black River "10" Federal Com Well No. 1 at the proposed unorthodox gas well location, the well should be assessed a production penalty of 3.35 percent (96.65 percent allowable).

(11) Applicant's proposed production penalty was derived by calculating the distance the subject well encroaches towards the corner of Sections 3, 4, 9 and 10 in the following manner:

Distance from the above-described corner point to the closest standard well location in the NW/4 of Section 10, (utilizing well setbacks of 1650 feet from the end boundary and 660 feet from the side boundary) = 1777 feet;

Distance from the above-described corner point to the proposed unorthodox location = 1658 feet;

Percentage Encroachment = $1 - (1658/1777) = 6.70$ percent

(12) Applicant further contends that in Oil Conservation Commission Case No. 9954 (De Novo) which resulted in the issuance of Order No. R-9050-C on December 31, 1990, a precedent was set whereby it was determined that production penalties based upon encroachment should be reduced by 50 percent in cases where the objecting party was a diagonal offset as opposed to a direct offset. Utilizing this 50 percent reduction factor reduces the percentage encroachment to 3.35 percent.

(13) Read & Stevens, Inc. also presented geologic evidence and testimony in its attempt to demonstrate that:

- a) the Crystal Federal Well No. 1 is currently producing from the "B" Sand interval as well as various Upper Morrow Sand intervals;
- b) the "C" Sand interval can be differentiated into two distinct producing sands. The Upper "C" Sand interval is wet and non-productive at the location of the Crystal Federal Well No. 1, however, the Lower "C" Sand interval should be productive at this well location. Read & Stevens, Inc. is precluded from producing the Lower "C" Sand interval in the Crystal Federal Well No. 1 due to pre-existing mechanical conditions in the wellbore, namely perforations in the Upper "C" Sand interval shot by BTA Oil Producers, previous operator of the well;
- c) at some point in the future, Read & Stevens, Inc. plans to drill an additional well within the SE/4 of Section 4 to recover the gas reserves from the Lower "C" Sand interval;
- d) in mapping both the "B" and "C" Sand intervals, Read & Stevens, Inc. utilized a cross-plot porosity cutoff of 5 percent. Applicant utilized a cross-plot porosity cutoff of 8 percent in mapping the "C" Sand interval and utilized an 8 percent density porosity cutoff in mapping the "B" Sand interval.

- e) a cross-plot porosity cutoff of 5 percent is a more appropriate number to use in mapping the Morrow sands in the area of the South Carlsbad-Morrow Gas Pool. Read & Stevens, Inc. has utilized these porosity numbers in three successful well re-entries which will result in the recovery of gas that would otherwise not have been recovered;
- f) utilizing cross-plot porosity cutoffs of 5 percent in mapping the "B" and "C" Sand intervals significantly shifts the geometry of the reservoirs as presented by the applicant;
- g) a well located at a standard gas well location in the NW/4 of Section 10 would encounter a greater amount of net sand in the "B" and "C" Sand intervals and at a structurally higher position in the reservoir than a well drilled at the proposed unorthodox gas well location;
- h) as a result of using a cross-plot porosity of 8 percent, applicant failed to honor any data from the C & K Petroleum Pennzoil Federal Well No. 2 which was tested at a rate of 1,700 MCF gas per day with no water.

(14) Read & Stevens, Inc. did not propose the assessment of a production penalty against the subject well but rather requested that the proposed unorthodox location be denied.

(15) The evidence and testimony presented by both parties in this case indicates that:

- a) the cross-plot porosities utilized by Read & Stevens, Inc. to map the subject Morrow reservoirs appear to be more accurate than those utilized by the applicant;
- b) Read & Stevens, Inc. appears to have a better geologic understanding of the Morrow reservoirs underlying Sections 3, 4, 9 and 10;
- c) a well drilled at the proposed unorthodox location could adversely affect Read & Stevens, Inc.'s ability to recover its gas reserves in the "B" and "C" Sand intervals underlying the E/2 of Section 4.

(16) Although the evidence and testimony indicates that a standard well location within the NW/4 of Section 10 appears to be geologically superior to the proposed unorthodox well location, the geologic interpretation of the Morrow reservoirs underlying Sections 3, 4, 9 and 10 is highly subjective.

(17) The applicant should not be precluded from drilling the Black River "10" Federal Com Well No. 1 at the location it believes, based upon its geologic interpretation, to be the best available location within the NW/4 of Section 10.

(18) The application of Nearburg Exploration Company to drill its Black River "10" Federal Com Well No. 1 at an unorthodox gas well location 1330 feet from the North line and 990 feet from the West line (Unit E) of Section 10 should be approved.

(19) In order to protect the correlative rights of Read & Stevens, Inc., a production penalty should be assessed against the subject well.

(20) A production penalty based upon the distance the subject well encroaches towards the corner of Sections 3, 4, 9 and 10 is fair and reasonable and should be adopted.

(21) Inasmuch as the South Carlsbad-Morrow Gas Pool is currently governed by Special Rules and Regulations as described in Finding No. (4) above, the standard gas well setback requirements of 1650 feet from the end boundary and 660 feet from the side boundary of the proration unit, as contained within Division General Rule No. 104 (C)(2), do not apply.

(22) The distance from the above-described corner point to the closest standard well location in the NW/4 of Section 10, (utilizing well setbacks of 1980 feet from the end boundary and 660 feet from the side boundary) equals 2,087 feet. The distance from the above-described corner point to the proposed unorthodox location equals 1658 feet.

(23) The percentage encroachment equals:

$$1 - (1658/2087) = 20.6 \text{ percent (79.4 percent allowable)}$$

(24) Contrary to applicant's position, the subject encroachment percentage should not be discounted by 50 percent for the following reasons:

- a) the reduction of a production penalty by 50 percent in cases where the diagonal offset operator objects assumes theoretical circular drainage; and,

- b) due to the geometry of the Morrow reservoir, one of the primary directions of drainage from the Black River "10" Federal Com Well No. 1 will likely be along the channel sand axis towards the SE/4 of Section 4.

(25) Approval of the subject application with a 20.6 percent production penalty will afford the applicant the opportunity to produce its just and equitable share of the gas in the affected pool, will prevent the economic loss caused by the drilling of unnecessary wells, avoid the augmentation of risk arising from the drilling of an excessive number of wells and will otherwise prevent waste and protect correlative rights.

(26) The production penalty should be applied towards the Black River "10" Federal Com Well No. 1's ability to produce into a pipeline as determined from a deliverability test to be conducted on the well on a semi-annual basis.

(27) The applicant should advise the supervisor of the Artesia district office of the Division of the date and time of conductance of the above-described production test(s) in order that they may be witnessed.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Nearburg Exploration Company, is hereby authorized to drill its Black River "10" Federal Com Well No. 1 at an unorthodox gas well location 1330 feet from the North line and 990 feet from the West line (Unit E) of Section 10, Township 24 South, Range 26 East, NMPM, to test the Morrow formation, Undesignated South Carlsbad-Morrow Gas Pool, Eddy County, New Mexico.

(2) The W/2 of Section 10 shall be dedicated to the subject well forming a standard 320-acre gas spacing and proration unit for said pool.

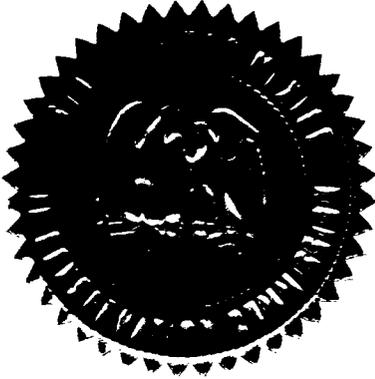
(3) The Black River "10" Federal Com Well No. 1 is hereby assessed a production penalty of 20.6 percent (79.4 percent allowable). The production penalty shall be applied towards the well's ability to produce into a pipeline as determined from a deliverability test to be conducted on the well on a semi-annual basis.

(4) The applicant shall advise the supervisor of the Artesia district office of the Division of the date and time of conductance of the above-described production test(s) in order that they may be witnessed.

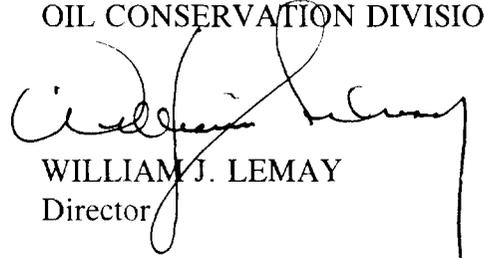
(5) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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



STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY
Director