

**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. 11514 (DeNovo)
Order No. R-10622-A**

**APPLICATION OF READ & STEVENS, INC.
FOR AN UNORTHODOX INFILL GAS WELL LOCATION
AND FOR SIMULTANEOUS DEDICATION,
CHAVES COUNTY, NEW MEXICO**

**READ & STEVENS, INC.'S
PROPOSED ORDER OF THE COMMISSION**

BY THE COMMISSION:

This cause came on for hearing at 9:00 a.m. on October 29, 1996, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this ____ day of November, 1996, the Commission, a quorum being present, having considered the testimony presented and exhibits received at said hearing, 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.

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(2) The applicant, Read & Stevens, Inc. ("Read & Stevens"), seeks approval to drill its Harris Federal Well No. 11 at a location of 990 feet from the South line and 1980 feet from the West line (Unit N) of Section 26, T15S, R27E, to test the Pennsylvanian formation, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico, to be dedicated to a standard 320-acre gas spacing and proration unit consisting of the S/2 of said Section 26.

(3) Read & Stevens is the operator of the existing Harris Federal Well No. 4 (Unit P) and the Harris Federal Well No. 8 (Unit F) which are both lower Pennsylvanian interval gas wells in Section 26 in the Buffalo Valley-Pennsylvanian Gas Pool.

(4) The Buffalo Valley-Pennsylvanian Gas Pool is a prorated gas pool with the following special rules:

Rule 2(a): a standard gas proration unit ("GPU") in the pool contains 320 acres

Rule 2(b) wells shall be located in either the NW/4 or the SE/4 section and shall be no nearer than 990 feet to an outer boundary nor nearer than 330 feet to any interior quarter-quarter section line.

(5) The Read & Stevens' proposed Harris Federal Well No. 11 is at a standard footage location for this pool but because it is to be located in the SW/4 of Section 26 it will be "off-pattern" and will require an exception to Rule 2 of the special rules and regulations of the Buffalo Valley Pennsylvanian Gas Pool.

(6) Matador Petroleum Company, an offset operator, appeared at the hearing in support of Read & Steven's application.

(7) UMC Petroleum Corporation ("UMC") appeared at the hearing in opposition to the applicant.

(8) UMC is the operator of the existing White State Well No. 1 (Unit O) and the White State Well No. 2 (Unit F) both of which are lower Pennsylvanian interval gas wells in Section 35 in the Diamond Mound-Morrow Gas Pool which is not a prorated gas pool and is subject to the following general state-wide rules:

320-acre gas spacing units with wells located not closer than 1980 feet to the end boundary nor closer than 660 feet to the side boundary of its spacing unit.

(9) While Section 26 and Section 35 are in different pools subject to different rules, these four wells are in fact competing among each other for gas reserves from the same common Pennsylvanian volumetric gas drive reservoir.

(10) At the Examiner hearing, Read & Stevens presented geologic interpretations and petroleum engineering estimated drainage areas based upon decline curve analysis and volumetrics from which it contended that:

(a) the existing Harris Federal Well No. 4, located at a standard gas well location within the SE/4 of Section 26, encountered a thinner and less productive portion of the reservoir and as a result, will be unable to adequately drain and develop its proration unit

(b) a well located within the SW/4 of Section 26 should penetrate the Lower Pennsylvanian formation in a thicker and better producing portion of the reservoir; and

(c) applicant's engineering data indicates that there is an area of approximately 94 acres within the SW/4 of Section 26 which will ultimately not be drained by the existing Harris Federal Well Nos 4 and 8.

(11) At the Examiner Hearing, UMC presented geologic interpretations and petroleum engineering estimated drainage areas based upon decline curve analysis from which it contended that:

(a) there remained an estimated 8.42 BCF of gas to be recovered by the existing four wells in Sections 26 and 35;

(b) assuming that the Harris Federal Well No. 11 produced at a rate of 900 MCFGPD, it would affect only the White State Well No. 1 and 2 and would reduce the ultimate recovery of gas from the White State wells in Section 35 by approximately 1.39 BCF.

(c) the Harris Federal Well No. 11 should be restricted to a maximum allowable of 350 MCFGPD (a 65 % penalty) while allowing the White State Well No 2 to produce unrestricted at an estimated rate in excess of 1000 MCFGPD.

(12) At the time of the Examiner hearing, neither Read & Stevens nor UMC attempted to utilize petroleum engineering calculations in order to verify the accuracy of their respective geological interpretations of the size and shape of the reservoir presented to the Examiner

(13) Neither Read & Stevens nor UMC presented to the Examiner any estimates of original gas in place or current gas in place for Section 26 and for Section 35.

(14) Pursuant to Section 70-2-33.H. NMSA (1978) it is essential that estimates of original gas in place and current gas in place for Section 26 and for Section 35 be presented to the Division in order to afford each owner an opportunity to produce its share of recoverable gas by determining the percentage of recoverable gas underlying each tract in relation to the amount of recoverable gas remaining to be recovered from all affected tracts.

(15) In the absence of such evidence, the Division found that:

(a) the Harris Federal Well No. 4 will not adequately drain and develop the S/2 of Section 26;

(b) it is highly likely that the Harris Federal Well No. 8 has drained a portion of the SW/4 of Section 26, however, the engineering evidence presented is not sufficient to determine whether this well can ultimately recover all of the remaining gas reserves within this quarter section;

(c) drainage of the SW/4 of Section 26 from the White State Well No. 2 is likely occurring;

(d) the correlative rights of Read & Stevens may be impaired if it is not allowed to drill a well

within the SW/4 of Section 26 to recover gas reserves which may ultimately not be recovered by its existing wells.

(16) The Division Examiner, without evidence from which to determine if the Read & Steven's Harris 11 would adversely affected UMC, imposed a 50 % production penalty on the Harris 11 well.

(17) At the Commission hearing, Read & Stevens presented the testimony of a consulting petroleum engineer who had completed a reservoir study of an area of 9,600 acres including volumetric analysis of gas in place, decline curve analysis of estimated ultimate recovery, and a reservoir simulation of the expected performance of all existing wells, both with and without the proposed Harris 11 well, who concluded that:

(a) there was an estimated 86 BCF of gas originally in place within a study area containing 9,600 acres and covering some 22 wells including the four subject wells;

(b) UMC's geologic interpretation presented to the Examiner showed a reservoir which originally contained only 80 BCF of gas in place which was too small to contain the estimated 86 BCF of gas in place determined by petroleum engineering calculations;

(c) Read & Stevens' geologic interpretation submitted to the Examiner was too large;

(d) Read & Stevens introduced to the Commission its revised geologic interpretation which contains an estimated 86 BCF of gas originally in place and therefore "balances" with petroleum engineering estimates;

(e) based upon decline curve analysis, the estimated ultimate recovery for Section 26 and Section 35 will be 22.90 BCF of gas with individual well recoveries as follows:

Harris 8	8.0 BCF
Harris 4	0.7 BCF
White State 1	5.2 BCF
White State 2	9.0 BCF

(f) currently, there is 10.5 BCF of gas in place with 6.2 BCF allocated to Section 26 and 4.3 BCF allocated to Section 35;

(g) Section 26 currently has 6.2 BCF of gas in place of which 5.0 BCF is recoverable;

(h) Section 35 currently has 4.3 BCF of gas in place of which 3.4 BCF is recoverable;

(i) without the Harris Federal Well No. 11, the two existing Read & Stevens wells will only recovery 2.5 BCF from Section 26 resulting in a "loss" of 2.5 BCF of gas;

(j) without the Harris Federal Well No. 11, the two UMC wells will recover 6.4 BCF of gas or 3.0 BCF of gas **more** than the 3.4 BCF of gas currently recoverable from Section 35;

(k) **with** the Harris Well No. 11, Section 26 will recover only 4.9 BCF of its 5.0 BCF remaining recoverable gas attributed to Section 26 and **therefore no penalty is necessary**;

(l) **with** the Harris Well No. 11, Section 35 will still recover 6.1 BCF which is 2.7 BCF more than the 3.4 BCF remaining recoverable gas attributed to Section 35.

(18) At the Commission hearing, UMC presented the testimony of a petroleum engineer who had made volumetric estimates of gas in place, and prepared decline curves estimates of ultimate recovery and who concluded that:

(a) an ultimate recovery of 23.70 BCF of gas (compared to 22.90 BCF of gas calculated by Read & Stevens) for Section 26 and 35 based upon decline curve analysis as follows:

Harris 8	9.6 BCF
Harris 4	0.6 BCF
White State 1	5.1 BCF
White State 2	8.4 BCF

(b) volumetric estimates of original gas in place of 22.08 BCF for Sections 26 and 35 with 11.8 BCF for Section 26 and 10.2 BCF for Section 35;

(c) the White State wells are expected to recover 3.0 BCF of gas more than UMC had estimated were in place for Section 35;

(d) that UMC had not made any estimates of current gas in place for either Section 26 and 35 but if it had done so, UMC would have used a method similar to that utilized by Read & Stevens' expert petroleum engineer;

(e) the Commission should affirm the Examiner order and retain the 50 % production penalty of the Harris Federal Well No. 11;

(19) Commission finds that Read & Stevens' reservoir study introduced at the Commission hearing has been adequately verified and validated by history matching and accurately forecasts performance and should be relied upon by the Commission in reaching a decision in this case.

(20) The Commission further finds that:

(a) Read & Stevens' reservoir engineering study which was not available to the Division Examiner, demonstrates the necessity for approving the proposed Read & Stevens' Harris Federal Well No. 11 at its proposed location, **without a penalty**, in order to afford Read & Stevens the opportunity to produce its just and equitable share of the remaining recoverable gas to which it is entitled and thereby protect correlative rights.

(b) Read & Stevens' reservoir engineering study which was not available to the Division Examiner, demonstrates the necessity for approving the proposed Read & Stevens' Harris Federal Well No. 11 at its proposed location, **without a penalty**, in order to recover an additional 500 MMCF of gas which would not otherwise be recovered thereby preventing waste.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Read & Stevens. Inc., is hereby authorized to drill its Harris Federal Well No. 11 at an unorthodox gas well location 990 feet from the South line and 1980 feet from the West line (Unit N) Section 26, Township 15 South, Range 27 East, NMPM, Chaves County, New Mexico.

(2) The S/2 of Section 26 shall be simultaneously dedicated to the aforesaid Harris Federal Well No. 11 and the existing Harris Federal Well No. 4, located at a standard gas well location 990 feet from the South and East lines (Unit P) of Section 26 in the Buffalo Valley-Pennsylvanian Gas Pool.

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

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JAMIE BAILEY, Member

WILLIAM W. WEISS, Member

WILLIAM J. LEMAY, Chairman
and Secretary

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Results of Reservoir Simulation Study Buffalo Valley (Penn) Field Study Area

Without Proposed Well

Section	Original Gas In Place (BCF)	Cumulative Production (BCF)	Current Gas In Place (BCF)	Current Recoverable Gas In Place (BCF)	Remaining Reserves For Existing Wells (BCF)	Reserves Unrecovered By Existing Wells (BCF)
26	18.6	6.1	6.2	5.0	2.5	2.5
35	12.9	9.1	4.3	3.4	6.4	-3.0

With Proposed Well

Section	Original Gas In Place (BCF)	Cumulative Production (BCF)	Current Gas In Place (BCF)	Current Recoverable Gas In Place (BCF)	Remaining Reserves For Existing Wells and Proposed Well (BCF)	Reserves Unrecovered by Existing Wells and Proposed Well (BCF)
26	18.6	6.1	6.2	5.0	4.9	0.1
35	12.9	9.1	4.3	3.4	6.1	-2.7

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