STATE OF NEW MEXICO
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION COMMISSION FOR THE PURPOSE OF CONSIDERING:

DE NOVO
CASE NO. 11514
Order No. R-10622-A

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

ORDER OF THE COMMISSION

BY THE DIVISION:

This cause came on for hearing at 9 o'clock 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 12th day of December, 1996, the Commission, a quorum being present, having considered the testimony, the 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.

(2) The applicant, Read & Stevens, Inc., seeks approval 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) of Section 26, Township 15 South, Range 27 East, NMPM, to test the Pennsylvanian formation, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico.

(3) The applicant further proposes to simultaneously dedicate the proposed Harris Federal Well No. 11 and its 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, to a standard 320-acre gas spacing and proration unit in the Buffalo Valley-Pennsylvanian Gas Pool comprising the S/2 of Section 26.

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

(5) UMC Petroleum Corporation (UMC), operator of the following described Diamond Mound-Morrow Gas Pool producing wells in Section 35, Township 15 South, Range 27 East, appeared at the hearing as an affected offset operator in opposition to the application:

> White State Well No. 1, located 660 feet from the South line and 1980 feet from the East line (Unit O), said well currently dedicated to the S/2 of Section 35; and,
>
> White State Well No. 2, located 1980 feet from the North and West lines (Unit F), said well currently dedicated to the N/2 of Section 35.

(6) The proposed Harris Federal Well No. 11 is located within the Buffalo Valley-Pennsylvanian Gas Pool which is a prorated gas pool currently governed by the General Rules for the Prorated Gas Pools of New Mexico/Special Rules and Regulations for the Buffalo Valley-Pennsylvanian Gas Pool as contained within Division Order No. R-8170, as amended, which require standard 320-acre gas spacing and proration units with wells to be located in the NW/4 or SE/4 of a standard section no closer than 990 feet from the outer boundary of the quarter section nor closer than 330 feet from any governmental quarter-quarter section line or subdivision inner boundary.

(7) The proposed Harris Federal Well No. 11 is standard with respect to the setback requirements, but is unorthodox with respect to the quarter section location requirement.

(8) In addition to the Harris Federal Well No. 4, applicant currently operates the Harris Federal Well No. 8, located at a standard gas well location in Unit F of Section 26. The N/2 of Section 26 is currently dedicated to this well.

(9) Both the applicant and UMC presented geologic evidence and testimony in support of their respective positions. This geologic evidence and testimony is generally in agreement that:

> a) the Buffalo Valley-Pennsylvanian and Diamond Mound-Morrow Gas Pools, in the area of Sections 26 and 35, represent a single common source of supply in the Pennsylvanian formation;

b) the Lower Pennsylvanian interval being produced in the Harris Federal Well Nos. 4 and 8 and the White State Well Nos. 1 and 2 is a correlatable channel sand which traverses Sections 26 and 35 in a north-south direction;

c) the reservoir sand has its axis transversing and maximum buildup within both Sections 26 and 35;

d) applicant's Harris Federal Well No. 8, which encountered approximately 30 feet of net sand, and UMC's White State Well No. 2, which encountered approximately 22 feet of net sand within the reservoir, are the best producing wells within Sections 26 and 35, respectively;

e) applicant's Harris State Well No. 4 and UMC's White State Well No. 1 each encountered less than 10 feet of net pay sand, which places these wells on the flank of the main axis of sand buildup.

f) the Harris Federal Well No. 11, which will be completed in the Lower Pennsylvanian interval, is projected to encounter between 22-30 feet of net sand in the reservoir.

(10) Both parties presented engineering evidence and testimony with regards to calculated gas-in-place under Sections 26 and 35 and estimated ultimate recoveries for the wells in Sections 26 and 35. The engineering evidence is generally in agreement for estimated ultimate recoveries, but there is disagreement concerning the calculated gas-in-place under Section 26.

ESTIMATED ULTIMATE RECOVERY

UMC Petroleum Corporation		**Read and Stevens**
Well Name		
Harris Fed. No. 8	9.6 BCFG	8.0 BCFG
Harris Fed. No. 4	0.6 BCFG	0.7 BCFG
White State No. 1	5.1 BCFG	5.2 BCFG
White State No. 2	8.4 BCFG	9.0 BCFG

ORIGINAL GAS-IN-PLACE (BCF)

	UMC Petroleum Corporation	**Read and Stevens**
Section		
26	11.8	18.6
35	10.2	12.9

The significance of the variation in gas-in-place relates to the percentage of gas-in-place recovered by existing wells and projected to be recovered in the future and the inference that allowing Read and Stevens to drill their proposed well would allow them to drain gas reserves from under Section 35 (UMC's position).

Conversely Read and Stevens maintains that the only way for Read and Stevens to recover the gas-in-place under Section 26 is to drill their proposed Harris Federal Well No. 11. Accepting that 18.6 BCF is the gas-in-place under Section 26, the Read and Stevens proposed location would produce only the gas under their tract and not the gas under UMC's acreage in Section 35.

The Read and Stevens analysis had better scientific validity being derived from their "Reservoir Simulation Study", validated by history matching gas production as compared to the UMC study which resulted from planimetered gas-in-place derived from their "Net Sand Thickness Isopach Map".

(11) UMC proposed that the Harris Federal Well No. 11, if allowed to be drilled at the proposed unorthodox location, should be assessed a production penalty of 65 percent or, in the alternative, should be assigned an allowable of 350 MCF gas per day. UMC's proposed allowable is based upon the fact that the proposed Harris Federal Well No. 11 will be located 50 percent closer to the common lease line than its White State Well No. 2, and therefore, should be allowed to produce 50 percent of the White State Well No. 2's current rate of production of 700 MCFGD.

(12) The evidence and testimony presented in this case indicates that:

a) the Harris Federal Well No. 4, which will ultimately recover only 0.6 BCF of gas, will not adequately drain and develop the S/2 of Section 26;

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

c) the correlative rights of the applicant 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; and,

d) by locating the Harris Federal Well No. 11 990 feet off the common lease line, the applicant will be gaining an advantage over UMC, whose White State Well No. 2 is located 1980 feet off the common lease line.

(13) The applicant should be authorized to drill the Harris Federal Well No. 11 at a location no closer than 1830 feet from the South line (standard 1980 feet setback with 150 feet flexibility) without penalty. However, if Read and Stevens elects to drill their proposed unorthodox location, in order to protect the correlative rights of UMC, the well should be assessed a production penalty.

(14) Applicant testified that it expects the Harris Federal Well No. 11 to initially produce at a rate of approximately 1,500 MCF gas per day.

(15) A production penalty of 50 percent, which is based upon the well's distance from the common lease line relative to the White State Well No. 2's distance from the common lease line, is fair and reasonable and should be adopted in this case.

(16) Approval of the subject application with a 50 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.

(17) The production penalty should be applied towards the Harris Federal Well No. 11's ability to produce into a pipeline as determined from a deliverability test to be conducted on the well on a semi-annual basis.

(18) 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, Read & Stevens, Inc., is hereby authorized to drill its Harris Federal Well No. 11 at an unorthodox gas well location at a minimum distance of 1830 feet from the South line without penalty or 990 feet from the South line and 1980 feet from the West line (Unit N) of Section 26, Township 15 South, Range 27 East, NMPM, to test the Pennsylvanian formation, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico with the assessment of a production penalty of 50 percent. 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.

(2) The S/2 of Section 26 shall be simultaneously dedicated to the aforesaid Harris Federal Well No. 11 and to 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) 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 if Read and Stevens drills the Harris Federal No. 11 at the penalized location.

(4) 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

JAMI BAILEY, Member

WILLIAM W. WEISS, Member

WILLIAM J. LEMAY, Chairman

S E A L

STATE OF NEW MEXICO
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT
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ORDER OF THE COMMISSION

BY THE DIVISION:

This cause came on before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission" from remand from District Court for additional findings. (New findings are in bold).

NOW, on this 26th day of February, 1998, the Commission, a quorum being present, having considered the testimony, the 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.

(2) The applicant, Read & Stevens, Inc., seeks approval 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) of Section 26, Township 15 South, Range 27 East, NMPM, to test the Pennsylvanian formation, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico.

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(6) The proposed Harris Federal Well No. 11 is located within the Buffalo Valley-Pennsylvanian Gas Pool which is a prorated gas pool currently governed by the General Rules for the Prorated Gas Pools of New Mexico/Special Rules and Regulations for the Buffalo Valley-Pennsylvanian Gas Pool as contained within Division Order No. R-8170, as amended, which require standard 320-acre gas spacing and proration units with wells to be located in the NW/4 or SE/4 of a standard section no closer than 990 feet from the outer boundary of the quarter section nor closer than 330 feet from any governmental quarter-quarter section line or subdivision inner boundary.

(7) The proposed Harris Federal Well No. 11 is standard with respect to the setback requirements, but is unorthodox with respect to the quarter section location requirement.

(8) In addition to the Harris Federal Well No. 4, applicant currently operates the Harris Federal Well No. 8, located at a standard gas well location in Unit F of Section 26. The N/2 of Section 26 is currently dedicated to this well.

(9) Both the applicant and UMC presented geologic evidence and testimony in support of their respective positions. This geologic evidence and testimony is generally in agreement that:

> a) the Buffalo Valley-Pennsylvanian and Diamond Mound-Morrow Gas Pools, in the area of Sections 26 and 35, represent a single common source of supply in the Pennsylvanian formation;

b) the Lower Pennsylvanian interval being produced in the Harris Federal Well Nos. 4 and 8 and the White State Well Nos. 1 and 2 is a correlatable channel sand which traverses Sections 26 and 35 in a north-south direction;

c) the reservoir sand has its axis transversing and maximum buildup within both Sections 26 and 35;

d) applicant's Harris Federal Well No. 8, which encountered approximately 30 feet of net sand, and UMC's White State Well No. 2, which encountered approximately 22 feet of net sand within the reservoir, are the best producing wells within Sections 26 and 35, respectively;

e) applicant's Harris State Well No. 4 and UMC's White State Well No. 1 each encountered less than 10 feet of net pay sand, which places these wells on the flank of the main axis of sand buildup.

f) the Harris Federal Well No. 11, which will be completed in the Lower Pennsylvanian interval, is projected to encounter between 22-30 feet of net sand in the reservoir.

(10) Both parties presented engineering evidence and testimony with regards to calculated gas-in-place under Sections 26 and 35 and estimated ultimate recoveries for the wells in Sections 26 and 35. The engineering evidence is generally in agreement for estimated ultimate recoveries, but there is disagreement concerning the calculated gas-in-place under Section 26.

ESTIMATED ULTIMATE RECOVERY

UMC Petroleum Corporation		**Read and Stevens**
Well Name		
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ORIGINAL GAS-IN-PLACE (BCF)

	UMC Petroleum Corporation	**Read and Stevens**
Section		
26	11.8	18.6
35	10.2	12.9

The significance of the variation in gas-in-place relates to the percentage of gas-in-place recovered by existing wells and projected to be recovered in the future and the inference that allowing Read and Stevens to drill their proposed well would allow them to drain gas reserves from under Section 35 (UMC's position).

Conversely Read and Stevens maintains that the only way for Read and Stevens to recover the gas-in-place under Section 26 is to drill their proposed Harris Federal Well No. 11. Accepting that 18.6 BCF is the gas-in-place under Section 26, the Read and Stevens proposed location would produce only the gas under their tract and not the gas under UMC's acreage in Section 35.

The Read and Stevens analysis had better scientific validity being derived from their "Reservoir Simulation Study", validated by history matching gas production as compared to the UMC study which resulted from planimetered gas-in-place derived from their "Net Sand Thickness Isopach Map".

(11) UMC proposed that the Harris Federal Well No. 11, if allowed to be drilled at the proposed unorthodox location, should be assessed a production penalty of 65 percent or, in the alternative, should be assigned an allowable of 350 MCF gas per day. UMC's proposed allowable is based upon the fact that the proposed Harris Federal Well No. 11 will be located 50 percent closer to the common lease line than its White State Well No. 2, and therefore, should be allowed to produce 50 percent of the White State Well No. 2's current rate of production of 700 MCFGD.

(12) The evidence and testimony presented in this case indicates that:

a) the Harris Federal Well No. 4, which will ultimately recover only 0.6 BCF of gas, will not adequately drain and develop the S/2 of Section 26;

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

c) the correlative rights of the applicant 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; and,

d) The calculated original gas-in-place under Section 26 is probably more than 11.8 BCF but not as much as 18.6 BCF. Even though the Read & Steven's analysis had better scientific validity, the Commission declines to adopt either Read & Stevens' specific calculation or UMC's specific calculation. The evidence presented by UMC cannot be entirely disregarded, and it militates against determining the amount of the original gas-in-place to be as much as 18.6 BCF. Read & Stevens did not present any long-term pressure data to support their claims. Many of the net pay, or net thickness, numbers used by Read & Stevens changed between the time of the Oil Conservation Division examiner hearing (the record of which was incorporated into the Commission hearing) and the Commission hearing. These changes consistently resulted in higher figures for Read & Stevens and lower figures for UMC. Even so, the original gas-in-place is probably a figure closer to 18.6 BCF than 11.8 BCF.

e) The two existing wells in Section 26 are producing one million cubic feet of natural gas per day; the two existing wells in Section 35 are producing one million cubic feet of natural gas per day. The proposed Read & Stevens well is expected to produce over one million a day, so that Read & Stevens with the new well will be producing over two times as much in Section 26 as UMC is producing in Section 35. Thus, the equilibrium that formerly existed between the two sections will be changed.

f) The standard set back for the Buffalo Valley-Pennsylvanian Gas Pool, in which Section 26 is located, is 990 feet from the outer boundary. However, this set back figure is only for wells

located in either the northwest or southeast quarter of a standard section. Read & Stevens' proposed location is in the southwest quarter, so that the proposed location is unorthodox irrespective of the set back.

g) **The standard set back for the Diamond Mound-Morrow Gas Pool, in which Section 35 is located, is 1980 feet from the outer boundary, and UMC's White State Well No. 2 is located 1980 feet from the outer boundary and is in the northwest quarter.**

h) **Read & Steven's proposed unorthodox location is 50% closer to the common boundary with UMC than is UMC's White State Well No. 2 and thus would gain an unfair advantage unless penalized.**

i) **While Read & Stevens presented sufficient evidence to prove that a third well located off-pattern in the southwest quarter is required to drain the gas in Section 26, Read & Stevens did not present sufficient evidence to prove that a well located at an equal distance from the common boundary with UMC as UMC's White State Well No. 2 would not drain the Section 26. Therefore, while Read & Stevens has justified a third well to be placed in the southwest quarter of Section 26 to prevent waste, it has not justified crowding its neighbor, UMC in Section 35, without the imposition of a penalty on production to protect UMC's correlative rights. Because Read & Stevens wants to crowd its neighbor by locating this third well 50% closer to the common boundary than UMC's well, Read & Stevens will gain an unfair competitive advantage and the imposition of a penalty is appropriate. Read & Steven's can drill its third well in the southwest quarter without any penalty if the well is at least 1980 feet from the common boundary with UMC.**

j) **As there are between 11.8 BCF and 18.6 BCF of gas-in-place under Section 26 and the proposed well will increase production from Section 26 to over two million cubic feet per day, Read & Stevens' proposed location, 50% closer to the common boundary line than UMC's well, will lower daily production and drain some gas reserves from under Section 35 if the proposed well produces without penalty.**

k) by locating the Harris Federal Well No. 11, 990 feet off the common lease line, the applicant will be gaining an advantage over UMC, whose White State Well No. 2 is located 1980 feet off the common lease line.

(13) The applicant should be authorized to drill the Harris Federal Well No. 11 at a location no closer than 1830 feet from the South line (standard 1980 feet setback with 150 feet flexibility) without penalty. However, if Read and Stevens elects to drill their proposed unorthodox location, in order to protect the correlative rights of UMC, the well should be assessed a production penalty.

(14) Applicant testified that it expects the Harris Federal Well No. 11 to initially produce at a rate of approximately 1,500 MCF gas per day.

(15) A production penalty of 50 percent, which is based upon the well's distance from the common lease line relative to the White State Well No. 2's distance from the common lease line, is fair and reasonable and should be adopted in this case.

The standard penalty is based on the distance from the common boundary; or in a case such as this where two sections have different set-back requirements, the penalty is based on the relative distance each well is from the lease line. Having a standard formula for a penalty for crowding a common boundary has provided predictability and consistency for industry and is an important tool in protecting correlative rights.

(16) Approval of the subject application with a 50 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.

(17) The production penalty should be applied towards the Harris Federal Well No. 11's ability to produce into a pipeline as determined from a deliverability test to be conducted on the well on a semi-annual basis.

(18) 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, Read & Stevens, Inc., is hereby authorized to drill its Harris Federal Well No. 11 at an unorthodox gas well location at a minimum distance of 1830 feet from the South line without penalty or 990 feet from the South line and 1980 feet from the West line (Unit N) of Section 26, Township 15 South, Range 27 East, NMPM, to test the Pennsylvanian formation, Buffalo Valley-Pennsylvanian Gas Pool, Chaves County, New Mexico with the assessment of a production penalty of 50 percent. 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.

(2) The S/2 of Section 26 shall be simultaneously dedicated to the aforesaid Harris Federal Well No. 11 and to 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) 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 if Read and Stevens drills the Harris Federal No. 11 at the penalized location.

(4) 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

JAMI BAILEY, Member

WILLIAM J. LEMAY, Member

LORI WROTENBERY, Chairman

Commissioner Wrotenberry was not on the Commission when this Case was heard on October 30, 1997, and did not participate in the adoption of additional findings on remand.

S E A L