

**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. 10793
Order No. R-9976**

**APPLICATION OF YATES PETROLEUM
CORPORATION FOR A PILOT GAS
ENHANCED RECOVERY PROJECT, CHAVES
COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on August 12, 1993, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 24th day of September, 1993, 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, Yates Petroleum Corporation, seeks authority to implement a pilot infill drilling program within portions of the Pecos Slope-Abo Gas Pool, Chaves County, New Mexico, by drilling an additional gas well within the following described standard 160-acre gas spacing and proration units in order to gather data to determine if additional infill drilling is necessary to effectively and efficiently drain the Abo formation:

**BEFORE THE
OIL CONSERVATION DIVISION
Roswell, New Mexico**

Case Nos. 10793, 10981 and 11004 (Reopened)
and 11421 and 11422 Consolidated

Exhibit No. 1

Submitted by: Yates Petroleum Corporation

Hearing Date: November 2, 1995

TOWNSHIP 6 SOUTH, RANGE 25 EAST, NMPM

Section 8: NE/4
Section 11: SE/4
Section 15: SW/4
Section 24: SW/4
Section 26: NE/4
Section 35: NE/4

(3) In addition, the applicant seeks to include all of Irregular Section 1, Township 6 South, Range 25 East, NMPM, within the proposed pilot infill drilling area. Section 1 is a non-standard gas spacing and proration unit comprising some 201.29 acres.

(4) Within the subject gas proration units, the applicant proposes to produce both wells unrestricted for a temporary period of two years in order to gather geologic and engineering data.

(5) At the time of the hearing the applicant requested that the SW/4 of Section 15, Township 6 South, Range 25 East, NMPM, not be included within the proposed pilot infill drilling area.

(6) The Pecos Slope-Abo Gas Pool is currently governed by Division General Rules and Regulations which require 160-acre standard gas proration units and designated well locations. In addition, Division Rules and/or Policy currently generally prohibit the drilling of additional gas wells within standard proration units in non-prorated gas pools.

(7) According to evidence and testimony, Yates Petroleum Corporation drilled a number of infill wells in the Pecos Slope-Abo Gas Pool during 1992. Several of the wells encountered bottomhole pressures in the Abo formation in the range of 85-90 percent of original bottomhole reservoir pressure.

(8) Geologic evidence presented by the applicant indicates that the Abo formation in this area is comprised of three producing zones, each containing numerous distinct sand intervals. The sand intervals are generally vertically segregated and some are laterally discontinuous.

(9) Because of the nature of the sand intervals in this area, the applicant contends that some of the existing wells in the pool cannot efficiently and effectively drain the gas reserves in the Abo formation underlying their proration units.

(10) Engineering evidence presented by the applicant indicates that the drainage area for wells within the Pecos Slope-Abo Gas Pool varies considerably, and the average drainage area for wells within the specific area analyzed by the applicant is approximately 120 acres.

(11) The preliminary geologic and engineering evidence presented by the applicant indicates that there may be some areas within the Pecos Slope-Abo Gas Pool where infill drilling would be appropriate or necessary in order to efficiently and effectively recover gas reserves which would otherwise not be recovered.

(12) In selecting the proration units and well locations for the pilot project area, the applicant utilized the following criteria:

- a) the location must have good sand thickness as per Yates' geologic interpretation;
- b) the location must be on trend with good cumulative production; and,
- c) the location must be outside the calculated drainage areas of the existing wells.

(13) All of the proration units proposed to be included in the pilot project area, with the exception of the NE/4 of Section 8 and the SW/4 of Section 24, are completely offset by acreage owned or controlled by Yates Petroleum Corporation.

(14) The NE/4 of Section 8 is offset to the northeast by the Quail Federal Well No. 8, and the SW/4 of Section 24 is offset to the northwest by the Quail Federal Well No. 2, both Pecos Slope-Abo Gas Pool producing wells currently operated by Great Western Drilling Company.

(15) Notice of this application was provided to all operators in the Pecos Slope-Abo Gas Pool, including Great Western Drilling Company, and no operator and/or interest owner appeared in opposition to the application.

(16) Approval of the application will afford the applicant the opportunity to gather geologic and engineering data to:

- a) confirm its geologic interpretation of the reservoir;
- b) determine the extent of drainage within each respective proration unit by analyzing reservoir pressure and production data.

(17) Approval of the application should further enable the applicant to determine if the criteria it is using to select infill well locations is effective.

(18) Approval of the subject application and the implementation of the proposed pilot infill drilling project should result in the acquisition of information about the Pecos Slope-Abo Gas Pool which may aid in the ultimate determination as to the most effective method of developing the reservoir, thereby preventing waste.

(19) This case should be reopened at an examiner hearing in August, 1995, unless reopened at an earlier date at the request of the applicant or upon motion of the Division, at which time the applicant should be required to appear and present the geologic and engineering data it has acquired from the pilot project and make recommendations to the Division concerning amendments, if any are applicable, to the rules which currently govern the Pecos Slope-Abo Gas Pool.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Yates Petroleum Corporation, is hereby authorized to implement a pilot infill drilling program within portions of the Pecos Slope-Abo Gas Pool, Chaves County, New Mexico, by drilling an additional gas well within each of the following described standard 160-acre gas spacing and proration units:

TOWNSHIP 6 SOUTH, RANGE 25 EAST, NMPM

Section 8: NE/4

Section 11: SE/4

Section 24: SW/4

Section 26: NE/4

Section 35: NE/4

(2) In addition, the applicant is authorized to include within the pilot project area and drill an additional well within Irregular Section 1, Township 6 South, Range 25 East, NMPM, being a non-standard gas spacing and proration unit comprising some 201.29 acres.

(3) The applicant is further authorized to produce both wells within each of the proration units described above unrestricted for a temporary period of two years for the purpose of gathering geologic and engineering data.

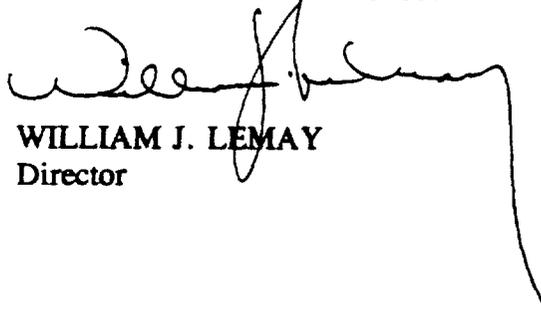
(4) This case shall be reopened at an examiner hearing in August, 1995, unless reopened at an earlier date at the request of the applicant or upon the motion of the Division, at which time the applicant shall appear and present the geologic and engineering data it has acquired from the pilot project and make recommendations to the Division concerning amendments, if any are applicable, to the rules which currently govern the Pecos Slope-Abo Gas Pool.

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Order No. R-9976
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(5) Jurisdiction of this cause 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.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION



WILLIAM J. LEMAY
Director

S E A L

**BEFORE THE
OIL CONSERVATION DIVISION
Roswell, New Mexico**

Case Nos. 10793, 10981 and 11004 (Reopened)
and 11421 and 11422 Consolidated

Exhibit No. 2

Submitted by: Yates Petroleum Corporation

**STATE OF NEW MEXICO
OIL AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION**

Hearing Date: November 2, 1995

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

**CASE NOS. 10981 and 11004
Order No. R-9976-A**

**APPLICATION OF YATES PETROLEUM CORPORATION
TO AMEND DIVISION ORDER NO. R-9976 TO EXPAND
ITS PILOT GAS ENHANCED RECOVERY PROJECT
WITHIN PORTIONS OF THE PECOS SLOPE-ABO GAS
POOL, CHAVES COUNTY, NEW MEXICO.**

**APPLICATION OF YATES PETROLEUM CORPORATION
FOR THIRTEEN UNORTHODOX INFILL GAS WELL
LOCATIONS, CHAVES COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

Case No. 10981 came on for hearing at 8:15 a.m. on May 26, 1994, at Santa Fe, New Mexico, before Examiner David R. Catanach.

Case No. 11004 came on for hearing at 8:15 a.m. on June 23, 1994, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 26th day of July, 1994, the Division Director, having considered the testimony, the record, and the recommendations of the Examiners, 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) By Order No. R-9976 issued in Case No. 10793 on September 24, 1993, the Division, upon application of Yates Petroleum Corporation, approved a pilot infill drilling program within portions of the Pecos Slope-Abo Gas Pool, Chaves County, New Mexico, for the purpose of allowing the applicant the opportunity to gather data to determine if infill drilling is necessary to effectively and efficiently drain the Abo formation.

CASE NOS. 10981 and 11004

Order No. R-9976-A

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(3) The applicant was initially authorized by said Order No. R-9976 to drill an infill gas well within each of the following described 160-acre standard gas proration units, and within a non-standard 201.29-acre gas spacing and proration unit comprising all of Irregular Section 1, Township 6 South, Range 25 East, NMPM:

TOWNSHIP 6 SOUTH, RANGE 25 EAST, NMPM

Section 8: NE/4
Section 11: SE/4
Section 24: SW/4
Section 26: NE/4
Section 35: NE/4

(4) Order No. R-9976 further authorized the applicant to produce both wells within each of the proration units described above unrestricted for a temporary period of two years for the purpose of gathering geologic and engineering data.

(5) The applicant in Case No. 10981, Yates Petroleum Corporation, seeks to amend Division Order No. R-9976 to expand its pilot infill drilling program within the Pecos Slope-Abo Gas Pool by drilling an additional gas well on each of the following existing 160-acre standard gas proration units, and on a 166.0-acre non-standard gas proration unit comprising all of Irregular Section 5, Township 6 South, Range 26 East, NMPM:

TOWNSHIP 5 SOUTH, RANGE 25 EAST, NMPM

Section 16: NE/4
Section 32: SW/4

TOWNSHIP 6 SOUTH, RANGE 26 EAST, NMPM

Section 7: NE/4
Section 18: SE/4
Section 19: SE/4
Section 31: NE/4

TOWNSHIP 7 SOUTH, RANGE 25 EAST, NMPM

Section 3: SE/4
Section 10: NW/4
Section 11: SE/4
Section 13: NW/4
Section 15: NW/4
Section 22: NW/4
Section 25: NW/4
Section 27: SE/4
Section 33: SE/4

TOWNSHIP 7 SOUTH, RANGE 26 EAST, NMPM

Section 6: NE/4

Section 18: SE/4

Section 19: SW/4

Section 21: SE/4

(6) The applicant further seeks authority to produce both wells within the above-described proration units unrestricted until August, 1995, at which time Case No. 10793 is to be reopened pursuant to the provisions of Order No. R-9976, to allow the applicant to appear and present the results of the pilot infill drilling program and make recommendations, if applicable, to the rules which currently govern the Pecos-Slope Abo Gas Pool.

(7) In companion Case No. 11004, Yates Petroleum Corporation, seeks approval of thirteen unorthodox gas well locations within the existing or proposed expanded pilot infill drilling area in the Pecos Slope-Abo Gas Pool.

(8) Inasmuch as the subject matter of Case Nos. 10981 and 11004 are related, one order should be entered for both cases.

(9) The applicant presented the initial geologic and engineering results it obtained in the drilling of the six infill wells approved by Order No. R-9976. According to applicant's evidence and testimony, five of the six wells were deemed to have been geologically successful in terms of predicting and encountering sufficient sand thickness so as to establish commercial gas production.

(10) The engineering evidence and testimony presented by the applicant indicates that:

- a) all six wells encountered a reservoir pressure higher than the reservoir pressure within the existing well on the proration unit. Of the six, four wells encountered significantly higher reservoir pressures;
- b) four of the wells are currently producing at rates significantly higher than the average rate of the wells offsetting the proration unit;
- c) four of the wells should recover an average of 570 MMCF of gas reserves which would otherwise not be recovered by the existing well on the proration unit.

(11) The geologic and engineering data presented by the applicant indicates that four of the subject wells have encountered pay sands or low permeability portions of the reservoir which were not encountered and/or drained by the original well on the proration unit.

(12) The applicant contends that the results of the infill drilling conducted thus far are very encouraging but are inconclusive in determining whether infill drilling is necessary in the Pecos Slope-Abo Gas Pool.

(13) Division records indicate that the Pecos Slope-Abo Gas Pool embraces a substantially large area in portions of Townships 4 and 5 South, Ranges 24 and 25 East, and Townships 6, 7 and 8 South, Ranges 24, 25, 26 and 27 East, NMPM.

(14) The initial pilot infill drilling program was limited to areas within Township 6 South, Range 25 East, NMPM.

(15) The applicant's proposed expanded infill drilling program will encompass a much broader area of the pool than was tested in the initial pilot area.

(16) The reservoir characteristics are generally not consistent within the Pecos Slope-Abo Gas Pool and therefore additional geologic and engineering data reflecting a larger cross sectional area of the pool will be beneficial in determining the necessity of infill drilling.

(17) All of the proration units proposed to be included within the expanded pilot project area, with the exception of the SE/4 of Section 21, are completely offset by acreage owned or controlled by Yates Petroleum Corporation.

(18) The Catterson "SS" Federal Well No. 7, proposed to be drilled at an unorthodox location in the SE/4 of Section 21, will encroach on a tract owned by Merit Energy Company. The applicant presented, as evidence, a waiver of objection to the drilling of this infill well at the unorthodox location from Merit Energy Company.

(19) Notice of this application was provided to all operators in the Pecos Slope-Abo Gas Pool, and no operator and/or interest owner appeared in opposition to the application.

(20) Approval of the expansion of the pilot infill drilling program should result in the acquisition of additional and more thorough geologic and engineering data regarding the Pecos Slope-Abo Gas Pool which may ultimately aid in the determination as to the most effective method of developing the reservoir, thereby preventing waste.

(21) The applicant further seeks unorthodox location approval for the following described wells which are located within the original infill drilling pilot area:

<u>WELL NAME & NUMBER</u>	<u>WELL LOCATION</u>
Kilgore "SO" No. 3	2310' FSL & 1980' FWL (Unit K) 24-6S-25E
Sacra "SA" Com No. 11	2310' FNL & 2310' FEL (Unit G) 35-6S-25E

(22) In addition, the applicant seeks unorthodox location approval for the following eleven wells to be located within the expanded infill drilling pilot area:

<u>WELL NAME & NUMBER</u>	<u>WELL LOCATION</u>
Paulette "PV" State No. 5	2310' FNL & 1650' FEL (Unit G) 16-5S-25E
Dee "OQ" State No. 5	2310' FSL & 2310' FWL (Unit K) 32-5S-25E
Hansel "ANH" Federal Com No. 1	2110' FNL & 790' FEL (Unit H) 7-6S-26E
Savage "NI" Federal No. 5	2310' FSL & 990' FEL (Unit I) 19-6S-26E
Federal "HJ" No. 11	2080' FNL & 1650' FEL (Unit G) 31-6S-26E
Thorpe "MI" Federal No. 15	990' FNL & 2310' FWL (Unit C) 22-7S-25E
Federal "HY" No. 13	2310' FSL & 460' FEL (Unit I) 33-7S-25E
Crandall "UD" No. 2	510' FNL & 1980' FEL (Unit B) 6-7S-26E
Leeman "OC" Federal No. 5	2310' FSL & 1980' FEL (Unit J) 18-7S-26E
Nickey "RF" Federal No. 3	2310' FSL & 2310' FWL (Unit K) 19-7S-26E
Catterson "SS" Federal No. 7	2310' FSL & 790' FEL (Unit I) 21-7S-26E

(23) Applicant's testimony indicates that the above-described unorthodox gas well locations are geologically necessary in order to maximize sand thickness within the various pay intervals. In addition, the unorthodox locations are adjacent to and on trend with existing gas wells exhibiting substantial cumulative production.

(24) All of the affected offset acreage to the proposed unorthodox gas well locations is owned and controlled by Yates Petroleum Corporation with the exception of the SE/4 of Section 21 as described in Finding No. (18) above.

(25) No offset operator and/or interest owner appeared at the hearing(s) in opposition to the proposed unorthodox locations.

(26) The proposed unorthodox gas well locations should be approved.

(27) Case No. 10981 should be reopened in conjunction with Case No. 10793 at an examiner hearing in August, 1995, unless reopened at an earlier date at the request of the applicant or upon motion of the Division, at which time the applicant should be required to appear and present the geologic and engineering data it has acquired from the pilot project and make recommendations to the Division concerning amendments, if any are applicable, to the rules which currently govern the Pecos Slope-Abo Gas Pool.

IT IS THEREFORE ORDERED THAT:

(1) The applicant, Yates Petroleum Corporation, is hereby authorized to expand its pilot infill drilling program within the Pecos Slope-Abo Gas Pool by drilling an additional gas well on each of the following existing 160-acre standard gas proration units, and on a 166.0-acre non-standard gas proration unit comprising all of Irregular Section 5, Township 6 South, Range 26 East, NMPM:

TOWNSHIP 5 SOUTH, RANGE 25 EAST, NMPM

Section 16: NE/4

Section 32: SW/4

TOWNSHIP 6 SOUTH, RANGE 26 EAST, NMPM

Section 7: NE/4

Section 18: SE/4

Section 19: SE/4

Section 31: NE/4

TOWNSHIP 7 SOUTH, RANGE 25 EAST, NMPM

Section 3: SE/4

Section 10: NW/4

Section 11: SE/4

Section 13: NW/4

Section 15: NW/4

Section 22: NW/4

Section 25: NW/4

Section 27: SE/4

Section 33: SE/4

TOWNSHIP 7 SOUTH, RANGE 26 EAST, NMPM

Section 6: NE/4

Section 18: SE/4

Section 19: SW/4

Section 21: SE/4

(2) Each of the gas proration units described above shall be simultaneously dedicated to the existing well and to an infill well to be drilled by the applicant.

(3) The applicant is further authorized to produce both wells within the above-described proration units unrestricted until August, 1995.

(4) This case shall be reopened in conjunction with Case No. 10793 at an examiner hearing in August, 1995, unless reopened at an earlier date at the request of the applicant or upon motion of the Division, at which time the applicant shall appear and present the geologic and engineering data it has acquired from the pilot project and make recommendations to the Division concerning amendments, if any are applicable, to the rules which currently govern the Pecos Slope-Abo Gas Pool.

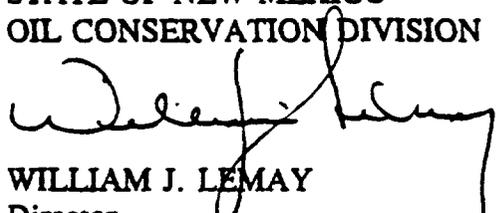
(5) The applicant is further authorized to drill the following infill gas wells at unorthodox locations:

<u>WELL NAME & NUMBER</u>	<u>WELL LOCATION</u>
Kilgore "SO" No. 3	2310' FSL & 1980' FWL (Unit K) 24-6S-25E
Sacra "SA" Com No. 11	2310' FNL & 2310' FEL (Unit G) 35-6S-25E
Paulette "PV" State No. 5	2310' FNL & 1650' FEL (Unit G) 16-5S-25E
Dee "OQ" State No. 5	2310' FSL & 2310' FWL (Unit K) 32-5S-25E
Hansel "ANH" Federal Com No. 1	2110' FNL & 790' FEL (Unit H) 7-6S-26E
Savage "NI" Federal No. 5	2310' FSL & 990' FEL (Unit D) 19-6S-26E
Federal "HJ" No. 11	2080' FNL & 1650' FEL (Unit G) 31-6S-26E
Thorpe "MI" Federal No. 15	990' FNL & 2310' FWL (Unit C) 22-7S-25E
Federal "HY" No. 13	2310' FSL & 460' FEL (Unit D) 33-7S-25E
Crandall "UD" No. 2	510' FNL & 1980' FEL (Unit B) 6-7S-26E
Leeman "OC" Federal No. 5	2310' FSL & 1980' FEL (Unit J) 18-7S-26E
Nickey "RF" Federal No. 3	2310' FSL & 2310' FWL (Unit K) 19-7S-26E
Catterson "SS" Federal No. 7	2310' FSL & 790' FEL (Unit I) 21-7S-26E

(6) Jurisdiction of this cause 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.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


WILLIAM J. LEMAY
Director

S E A L