

Entered February 17, 1982
JLR

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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

CASE NO. 7352
Order No. R-6904

APPLICATION OF YATES PETROLEUM
CORPORATION FOR DESIGNATION OF
A TIGHT FORMATION, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9:00 A.M. on October 21, 1981, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 15th day of February, 1982, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Yates Petroleum Corporation, requests that the Division recommend to the Federal Energy Regulatory Commission that the Permo-Penn formation underlying the lands situated in Eddy County, New Mexico, described in Exhibit "A" attached hereto and incorporated by reference ("the Subject Area"), be designated as a tight formation in accordance with Section 107 of the Natural Gas Policy Act of 1978, and 18 C.F.R. Section 271.701, et seq.

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(3) That the Permo-Penn formation underlying the Subject Area is that stratigraphic interval between the top of a marker named the Third Sister Cycle of the Wolfcamp series of the Permian system and the top of the Canyon series of the Pennsylvanian system.

(4) That the type section for the Permo-Penn formation is found at a depth of from approximately 5860 feet to 7060 feet on the Sonic log dated July 22, 1963, from the Sun (Tom Brown) Antelope Sink Unit Well No. 1, located in Unit G of Section 18, Township 19 South, Range 24 East, Eddy County, New Mexico.

(5) That the Permo-Penn formation in the Subject Area is a complex of shelf, bank and basin facies reflecting three major environments of deposition, trending basinward from the west and northwest and dipping to the east and southeast at approximately 100 feet per mile in most of the Subject Area. The shelf facies to the northwest is composed of deposits of interbedded limestones, shales, siltstones and sandstones, and is effectively non-porous and impermeable and acts as an up-dip seal to the bank facies; that the bank facies is composed mostly of marine limestones made up in large part of bioherms and their associated debris aprons with a few intercalated marine shales; that the basin facies to the southeast consists mainly of thin-bedded, fine-grained sandstones, siltstones and shales, within which are scattered isolated mounds of built-up carbonates, in some of which porosity occurs but many of which are effectively non-porous and impermeable.

(6) That as of January 1, 1981, the Permo-Penn formation underlying the Subject Area has been penetrated by 333 wells, 50 of which were completed in the Permo-Penn formation as of January 1, 1981; that the average depth to the top of the pay zone in these 50 wells is 6490 feet, and the productive interval in said wells begins several hundred feet below the top of the marker named the Third Sister Cycle; and from all available data there appears to be no other productive zones within the Permo-Penn formation; that the large number of wells drilled through the Permo-Penn formation in the Subject Area gives reasonably effective control over both the vertical limits of said formation, and the areal extent of the Subject Area.

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(7) That the depth to the top of the Permo-Penn formation in the Subject Area varies from 4927 feet in the highest well drilled to 6717 feet in the lowest with an average depth to the top of such formation of 5822 feet.

(8) The thickness of the Permo-Penn formation in the Subject Area varies from 1000 to 1400 feet, much of which is non-productive; the markers picked to define the Permo-Penn formation are the only ones which can be accurately picked throughout the Subject Area to most closely isolate the productive zones for which tight formation designation is sought; that recognition of said markers will facilitate industry and regulatory analysis of the formation in question.

(9) That the average insitu permeability calculated from all available drill stem test data is 0.031 millidarcy. The average insitu permeability from the only core data available is 0.035 millidarcy, thus confirming the drill stem test data.

(10) That the average production rate in the 10 available drill stem tests was 105 Mcf per day and the average production rate against atmospheric pressure for the 34 completed and stimulated wells that have approached stabilized conditions was 146 Mcf per day; that the drill stem test data should more closely represent average production rates inasmuch as the actual production figures are from wells in which production has been enhanced by stimulation.

(11) That maximum liquid production in any well at stabilized conditions is 4.1 barrels of oil per day and average production is 0.6 barrels of oil per day.

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(12) That the data available indicate that the Permo-Penn formation in the Subject Area meets all the criteria set forth in 18 C.F.R. Section 271.701, et seq, viz:

- (a) the estimated average insitu permeability throughout the pay section is expected to be less than 0.1 millidarcy;
- (b) the stabilized production rate, against atmospheric pressure, of wells completed for production in the formation, without stimulation, is not expected to exceed 188 Mcf per day at the average depth to the top of the formation of 5822 feet;
- (c) no well drilled into the formation is expected to produce without stimulation more than five barrels of oil per day; and
- (d) the Division has not authorized the formation or any portion thereof to be developed by infill drilling.

(13) That the Artesian aquifer within the proposed area has its base at depths from 1000 feet to 1400 feet or approximately 4500 feet above the Permo-Penn formation.

(14) That existing State of New Mexico and Federal Regulations relating to casing and cementing of wells will assure that development of the Permo-Penn formation will not adversely affect the Artesian aquifer or other shallower aquifers.

(15) That the Permo-Penn formation within the Subject Area should be designated as a tight formation.

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IT IS THEREFORE ORDERED:

(1) That it be, and hereby is recommended to the Federal Energy Regulatory Commission pursuant to Section 107 of the Natural Gas Policy Act of 1978, and 18 C.F.R. Section 271.701, et seq, that the Permo-Penn formation underlying the Subject Area be designated as a tight formation.

(2) That jurisdiction of this cause be 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



JOE D. RAMEY
Director

S E A L

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EXHIBIT "A"

Township 17 South, Range 24 East, N.M.P.M.

All Sections

Township 17 South, Range 25 East, N.M.P.M.

All Sections

Township 17 South, Range 26 East, N.M.P.M.

All Sections

Township 18 South, Range 24 East, N.M.P.M.

All Sections

Township 18 South, Range 25 East, N.M.P.M.

All Sections

Township 19 South, Range 23 East, N.M.P.M.

All Sections

Township 19 South, Range 24 East, N.M.P.M.

All Sections

Township 19 South, Range 25 East, N.M.P.M.

All Sections

Township 20 South, Range 21 East, N.M.P.M.

All Sections

Township 20 South, Range 23 East, N.M.P.M.

All Sections

Township 20 South, Range 24 East, N.M.P.M.

All Sections

Township 20-1/2 South, Range 21 East, N.M.P.M.

All Sections

Township 20-1/2 South, Range 22 East, N.M.P.M.

All Sections

Township 21 South, Range 21 East, N.M.P.M.

All Sections

Township 21 South, Range 22 East, N.M.P.M.

All Sections

Township 22 South, Range 21 East, N.M.P.M.

Sections 1 through 12

Township 22 South, Range 22 East, N.M.P.M.

Sections 1 through 12

containing 318,187.13 acres, more or less,
in Eddy County, New Mexico.