

Entered November 30, 1982
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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. 7586
Order No. R-7145

APPLICATION OF STANDARD RESOURCES
CORP. FOR DESIGNATION OF A TIGHT
FORMATION, CHAVES AND EDDY
COUNTIES, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 9 a.m. on May 12 and June 9, 1982, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 30th day of November, 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 pursuant to Section 107 of the Natural Gas Policy Act of 1978 and CFR Section 271.703, applicant, Standard Resources Corp., seeks the designation as a "tight formation" of the Abo-Wolfcamp Formation underlying those lands described on Exhibit "A" attached to this order.

(3) That the lower 200 feet of the Abo formation and the upper Wolfcamp formation are of the same lithology, being a back reef facies situated between the lagoonal deposits of the northwest shelf and the transgressive Abo barrier reef to the southeast, consisting of limestone which is shaley, slightly fossiliferous and interbedded with thin dolomite and anhydrite stringers. The upper 800 feet of the Abo formation consists of dolomite interspersed with shales and some sands. The foregoing are hereinafter collectively referred to as the "Abo-Wolfcamp formation."

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(4) That the Abo-Wolfcamp formation underlies all of the area requested for tight formation designation.

(5) That the depth to the top of the Abo-Wolfcamp formation in the aforesaid lands varies from approximately 3,000 feet in the western portion to approximately 5,400 feet in the east, the relief dipping from north-northwest to south-southeast in the area of interest.

(6) The average depth to the top of said formation is some 3,615 feet, calculated on the basis of the wells which have been or at the time of hearing were being completed in the Abo-Wolfcamp formation.

(7) That the known thickness of the Abo-Wolfcamp formation in the aforesaid lands (as shown by the cross-sectional diagrams presented in Case No. 7586) varies from some 750 feet to some 1,400 feet.

(8) That only 149 wells have been drilled into or through the Abo-Wolfcamp formation on said lands, and of these, 21 were completed or are being completed as gas wells in said formation as of April 26, 1982. One hundred and six (106) of these wells were completed in deeper horizons but had no definitive shows in the Abo-Wolfcamp and in some cases may have actually been plugged without testing the Abo-Wolfcamp formation. However, most if not all of these 106 wells were drilled with rotary tools and do not condemn the formation for commercial gas production. The remaining 22 wells were not successfully completed in the Abo-Wolfcamp formation.

(9) Although none of the aforesaid 21 wells is known to have encountered what could be termed as "good" natural in situ permeability or high reservoir pressures, some of said wells have, after massive stimulatory treatment, yielded gas on initial potential test in what appears to be commercial quantities, while others continue to produce at low rates even after stimulation.

(10) That of the 43 wells in the area of interest which have tested or been completed to produce from the Abo-Wolfcamp formation, prestimulation flow rate data is available on six wells.

(11) That of the six zone tests conducted, four were swabbed dry or could not be made to flow or flowed gas TSTM (too small to measure), while two flowed gas at rates varying from 5 to 30 Mcf of gas per day.

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(12) That the average rate of flow from the two wells that were actually tested was 10.3 Mcf of gas per day.

(13) That the average depth to the top of the Abo formation in the proposed area is 3,615 feet, and the maximum stabilized production rates for wells of this depth set forth in 18 CFR Section 271.703(b)(2)(b) is 105 Mcf per day.

(14) That of the 43 wells in the area which have been tested in the Abo formation, none was capable of sustained commercial production without substantial reservoir stimulation to enhance the poor natural permeability of the Abo-Wolfcamp.

(15) That the stimulation required to produce a commercial flow of gas from Abo-Wolfcamp wells in the area often consists of two separate treatments, the first consisting of an acid treatment of from 500 to 5,000 gallons of acid, and the second consisting of a fracture treatment with from 15,000 to 120,000 gallons of gel, water, and sand.

(16) That only two wells have been cored in the Abo-Wolfcamp in the area, and of these, only one (which is considered typical) was cored in a gas productive interval. This routine core analysis indicated a permeability in the Abo-Wolfcamp of 0.5425 millidarcies.

(17) That said routine permeability for the aforesaid well, when corrected for the over-burden pressure of some 2,000 pounds, indicates an in situ Abo-Wolfcamp permeability of 0.0799 millidarcies.

(18) That the in situ permeability of the Abo-Wolfcamp formation underlying the area, as calculated from multi-rate pressure draw down data on two wells in the area, ranges from a low of 0.0061 millidarcies to a high of 0.0425 millidarcies, and averages 0.0243 millidarcies.

(19) That all of the technical evidence presented at the hearing dealt only with that portion of the Abo-Wolfcamp formation found at depths equivalent to the interval from 4722 feet to 5122 feet on the type log for the proposed area being Exhibit 2-A in this case.

(20) That any recommendation as to designation of the proposed Abo-Wolfcamp area should be limited only to an amended equivalent interval throughout the area.

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(21) That Exhibit 2-A at the hearing was the Induction-Electrical Log of the Yates Petroleum Corporation State DF (formerly Max M. Wilson State) Well No. 1 located 660 feet from the North line and 660 feet from the West line of Section 35, Township 17 South, Range 24 East, Eddy County, New Mexico, dated November 28, 1963.

(22) That the technical evidence presented in this case demonstrated that the wells which are and which may be completed in the Abo-Wolfcamp formation as amended within the proposed tight formation area may reasonably be presumed to exhibit permeability, gas productivity, or crude oil productivity not in excess of the following parameters:

- (a) average in situ gas permeability throughout the pay section of 0.1 millidarcy; and
- (b) stabilized production rates, without stimulation, against atmospheric pressure, as found in the table set out in 18 C.F.R. §271.703(c) (2)(B) of the regulations; and
- (c) production of more than five barrels of crude oil per day.

(23) That the usually required casing and cementing programs for oil and gas wells in the area require surface casing to be set below the uppermost of water sands with cement circulated to the surface and a string of intermediate casing to be set anywhere from 1200 to 1700 feet with cement circulated to the surface. Production casing is usually set at a total depth and cemented back to the intermediate casing.

(24) That the above described casing and cementing programs for oil and gas wells drilled in the area are in conformance with existing state and federal regulations and will assure that development of the Abo-Wolfcamp formation in the area will not adversely affect any fresh water aquifers (during both hydraulic fracture and waste disposal operations) that are or are expected to be used as a domestic or agricultural water supply.

(25) That the Abo-Wolfcamp formation, as amended, underlying the lands described herein should be recommended to the Federal Energy Regulatory Commission for designation 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 CFR Section 271.703, that that portion of the Abo-Wolfcamp formation equivalent to the interval from 4722 feet to 5122 feet on the Induction-Electrical Log of the Yates Petroleum Corporation State DF Well No. 1 (formerly the Max M. Wilson State Well No. 1) located 660 feet from the North line and 660 feet from the West line of Section 35, Township 17 South, Range 24 East, NMPM, Eddy County, New Mexico, and as depicted on Exhibit 2-A in Case No. 7586, underlying approximately 460,800 acres, more or less, in Chaves and Eddy Counties, New Mexico, as described herein, be designated as a tight formation.

(2) That jurisdiction of this cause is 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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CHAVES COUNTY

All of the following described Real Properties:

Township 15 South, Range 23 East, NMPM, Sections 1 through 36
 Township 15 South, Range 24 East, NMPM, Sections 1 through 36
 Township 15 South, Range 25 East, NMPM, Sections 1 through 36
 Township 19 South, Range 20 East, NMPM, Sections 1 through 36
 Township 20 South, Range 20 East, NMPM, Sections 1 through 36

EDDY COUNTY

All of the following described Real Properties:

Township 16 South, Range 23 East, NMPM, Sections 1 through 36
 Township 16 South, Range 24 East, NMPM, Sections 1 through 36
 Township 16 South, Range 25 East, NMPM, Sections 1 through 36
 Township 16 South, Range 26 East, Sections 4 through 9, 16
 through 21, and 28 through 33
 Township 17 South, Range 21 East, NMPM, Sections 1 through 36
 Township 17 South, Range 23 East, NMPM, Sections 1 through 36
 Township 17 South, Range 24 East, NMPM, Sections 1 through 36
 Township 17 South, Range 25 East, NMPM, Sections 1 through 12,
 16 through 21, and 30 and 31
 Township 18 South, Range 21 East, NMPM, Sections 1 through 36
 Township 18 South, Range 23 East, NMPM, Sections 1 through 36
 Township 18 South, Range 24 East, NMPM, Sections 1 through 36
 Township 18 South, Range 25 East, NMPM, Sections 6 and 7, 18
 and 19 and 30 and 31
 Township 19 South, Range 21 East, NMPM, Sections 1 through 36
 Township 19 South, Range 23 East, NMPM, Sections 1 through 36
 Township 19 South, Range 24 East, NMPM, Sections 1 through 20,
 and 29 through 32
 Township 20 South, Range 21 East, NMPM, Sections 1 through 36
 Township 20 South, Range 23 East, NMPM, Sections 1 through 36
 Township 20 South, Range 24 East, NMPM, Sections 5 through 8

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 Exhibit "A"