

Entered April 12, 1977
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BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE NO. 5778
Order No. R-5412

APPLICATION OF GAS COMPANY OF
NEW MEXICO FOR UNDERGROUND GAS
STORAGE FINDINGS, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on September 29, 1976, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 12th day of April, 1977, the Commission, a quorum being present, 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 Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant in the subject case, Gas Company of New Mexico, proposes the establishment of an underground gas storage project in Eddy County, New Mexico, to be known as the Duffield Gas Storage Project.

(3) That the applicant has conducted geological and engineering studies to confirm the existence of a geological structure underlying portions of the SW/4 Section 15, S/2 Section 16, SE/4 Section 17, E/2 Section 20, All Section 21, W/2 Section 22, NW/4 Section 27, N/2 Section 28 and NE/4 Section 29, all in Township 16 South, Range 27 East, NMPM, Eddy County, New Mexico, and to determine the suitability of said structure for the underground storage of natural gas.

(4) That gas storage within said structure would be in the Pennsylvanian formation from the top of the Morrow clastics to the top of the Barnett shale.

(5) That the aforesaid interval from the top of the Morrow clastics to the top of the Barnett shale within the geological structure underlying the lands described in Finding No. (3) above is a gas reservoir, having been designated by the Commission as the Duffield-Pennsylvanian Gas Pool comprising the SW/4 of Section 21, Township 16 South, Range 27 East, NMPM, by Commission Order No. R-928, dated December 13, 1956.

(6) That said Duffield-Pennsylvanian Gas Pool was discovered by the Continental Oil Company Gertrude M. Duffield Well No. 1 located in the NE/4 SW/4 of the aforesaid Section 21. Said well was completed in the Morrow formation within the interval described in Finding No. (4) above through perforations from 8616 feet to 8647 feet and from 8690 feet to 8715 feet on April 17, 1952.

(7) That although several other wells were drilled to the Pennsylvanian formation in the near vicinity to the aforesaid well, none was successful, and said Duffield-Pennsylvanian Gas Pool remained a one-well pool until its abandonment in December, 1967.

(8) That the original volume of gas in place in the aforesaid Duffield-Pennsylvanian is estimated to have been 5.245 billion cubic feet, with an original reservoir pressure of 3630 psia.

(9) That prior to its abandonment, the aforesaid Gertrude M. Duffield well produced 4.480 billion cubic feet of gas, or 85.4 percent of the original gas in place, and the reservoir pressure had declined to approximately 543 psia.

(10) That the remaining gas in the reservoir, some 0.765 billion cubic feet at approximately 543 psia, does not constitute economically recoverable gas reserves at the subject reservoir's depth.

(11) That during its final 11 months of production prior to its abandonment in December, 1967, the Gertrude M. Duffield Well No. 1 averaged approximately 18 MCF per day of production.

(12) That the Duffield-Pennsylvanian Gas Pool is substantially depleted of recoverable native gas in place.

(13) That although the areal extent of the permeability and porosity of the Duffield-Pennsylvanian Gas Pool as presently known is somewhat less than the entire area described in Finding No. (3) above, all of said lands should be included in the Duffield Gas Storage Project in order to protect the

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structure from drainage by non-project wells, in the event the areal extent of the structure is larger than presently known.

(14) That the applicant has attempted to acquire gas storage rights in the interval from the top of the Morrow clastics to the top of the Barnett shale underlying the SW/4 Section 15, S/2 Section 16, SE/4 Section 17, E/2 Section 20, All Section 21, W/2 Section 22, NW/4 Section 27, N/2 Section 28, and NE/4 Section 29, all in Township 16 South, Range 27 East, NMPM, Eddy County, New Mexico, and has indeed acquired such rights underlying 87.5 percent of said lands, and is in the process of acquiring such rights under the remaining lands.

(15) That pursuant to Section 65-9-5 NMSA 1953 Comp., this case was called to consider the propriety of utilization of the aforesaid interval underlying the above-described lands, and consequently thereto, the Commission finds:

- A. That the above-described sub-surface interval underlying the above described lands is suitable for the underground storage of natural gas and should be designated as the Duffield Gas Storage Project.
- B. That the Duffield Gas Storage Project is incapable of producing oil in paying quantities through any known recovery method.
- C. That the Duffield Gas Storage Project does not underlie any known commercial deposits of potash.
- D. That storage of natural gas in the Duffield Gas Storage Project will not cause injury to surface or underground water resources.
- E. That the underground strata constituting the Duffield Gas Storage Project formerly contained native gas capable of production in paying quantities, but are now substantially depleted of recoverable native gas, and such strata have a greater value as a gas storage reservoir than for the production of the remaining volumes of native gas therein.

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- F. That the horizontal extent of the displaced or injected gas in the above-described sub-surface interval will be within the outer boundaries of the above-described lands.
- G. That no portion of the above-described sub-surface interval underlying the above-described lands has been appropriated or is being utilized for the injection, storage and withdrawal of natural gas by any other party.

(16) That jurisdiction of this cause is retained for the entry of such further findings as may be necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



PHIL R. LUCERO, Chairman

EMERY C. ARNOLD, Member



JOE D. RAMEY, Member & Secretary

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