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. 9387
ORDER NO. R-8698

APPLICATION OF EXXON CORPORATION
FOR AN UNORTHODOX GAS WELL LOCATION,
DOWNHOLE COMMINGLING, HYDROCARBON
STORAGE AUTHORITY AND RELIEF FROM THE
REPORTING REQUIREMENTS OF DIVISION RULE
1131, EDDY COUNTY, NEW MEXICO

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on May 25, 1988, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 1st day of August, 1988, 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, Exxon Corporation, seeks approval to downhole commingle gas production from the Happy Valley-Morrow Gas Pool with the Northeast Sheep Draw-Strawn Gas Pool in the wellbore of its Happy Valley Fed. Com. Well No. 1, located at a previously approved unorthodox gas well location for the Morrow zone 1780 feet from the North line and 1830 feet from the East line (Unit G) of Section 28, Township 22 South, Range 26 East, NMPM, Eddy County, New Mexico. Applicant further requests approval to utilize the Strawn zone in said well for storage of gas from the Morrow zone, for an exemption from the reporting requirements of Division Rule 1131, and approval of an unorthodox gas well location for the Strawn zone.

(3) Applicant drilled its Happy Valley Fed. Com. Well No. 1 in 1985 to a depth sufficient to test the Morrow formation. Said well is at a non-standard location approved as to the Morrow formation by Division Administrative Order No. NSL-2010, dated March 22, 1985.

(4) The well encountered substantial porosity in the Strawn formation and was completed as a Strawn producer on July 17, 1985, through perforations 10,294-10,316 feet and 10,326-10,338 feet subsurface.

(5) The well had a calculated absolute open flow potential of 33.3 MMCF of gas per day and could produce at a sustained rate of 10 MMCF of gas per day. After the well was placed on production in August 1987, production rapidly declined and it is now producing at a marginal rate. Pressure in the Strawn formation declined from 3693 PSIA in August 1987 to a current level of approximately 1000 PSIA.

(6) The well has produced approximately 690 MMCF of gas from the Strawn formation. The Strawn reserves are calculated, without compression and at a cut-off pressure of 900 PSIA, at 700 MMCF of gas. With compression an additional 130 MMCF of gas will be recovered from the Strawn reservoir. The remaining Strawn reserves are insufficient to justify compression without commingling.

(7) None of the offsetting wells have similar carbonate reservoir development and porosity in the Strawn formation. In addition, applicant's seismic data in the area indicates that the Strawn reservoir is very limited in extent.

(8) The Strawn reservoir is approximately 22.3 acres in areal extent, which would be the horizontal limits of the reservoir to be injected with gas. Assuming a disc-shaped reservoir, the Strawn reservoir has a radius of 556 feet and is located entirely within the proration unit of the subject well.

(9) Applicant proposes to recomplete the well in the Morrow formation with perforations located at 11,628-11,666 feet subsurface and downhole commingle production from the Morrow and Strawn formations. No additional perforations will be added in the Strawn formation.

(10) Ownership of the Strawn and Morrow reservoirs is common.

(11) The Strawn reservoir is capable of producing at a rate of 10.0 MMCF of gas per day.

(12) The estimated maximum production rate from the Morrow formation is approximately 3.1 MMCF of gas per day. When the well is shut-in or production therefrom is curtailed, gas from the Morrow formation will flow into and recharge the Strawn reservoir. When the well is producing at peak capacity it will produce at a maximum rate of approximately 13.0 MMCF of gas per day, permitting the well to produce at a higher rate than if it is completed in the Morrow formation alone.

(13) The proposed downhole commingling and storage configuration for the subject well will not result in average producing rates greater than the maximum average producing rate of the Morrow formation alone.

(14) Recharging the Strawn reservoir in periods of low demand will allow the well to produce at a higher rate in periods of peak demand, which will result in higher average gas prices.

(15) The estimated maximum bottom hole pressure in the Morrow reservoir is 4400 PSIA, which is substantially less than a calculated Strawn fracture pressure of 6700 PSIA.

(16) The Morrow reservoir is estimated to contain 3100 MMCF of gas, and (with compression) the Strawn reservoir is estimated to contain an additional 130 MMCF of gas. Therefore, gas production should be allocated 96% to the Happy Valley-Morrow Gas Pool and 4% to the Northeast Sheep Draw-Strawn Gas Pool.

(17) The Strawn reservoir produces some condensate, but the Morrow reservoir produces no condensate. Therefore, 100% of condensate production should be allocated to the Northeast Sheep Draw-Strawn Pool.

(19) The gas produced from both the Strawn and Morrow reservoirs is similar in analysis, and thus commingling will not devalue the gas.

(20) Administrative Order NSL-2010 should be amended to include the Strawn formation.

(21) The small Strawn reservoir:

(a) Is incapable of producing oil in paying quantities;

(b) Does not underlie lands known to contain commercial potash deposits;

(c) Has substantially depleted and has greater value as a gas storage reservoir than for production of its remaining reserves; and

(d) Is not being used by others for injection, storage or withdrawal of natural gas.

(22) The proposed operations will not injure surface or underground water resources.

(23) The small Strawn reservoir is suitable for underground storage of natural gas.

(24) The reporting requirements of Division Rule 1131 are inappropriate and unnecessary in this case and should be waived.

(25) The granting of this application will be in the interest of conservation and the prevention of waste and will protect correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) Applicant, Exxon Corporation, is hereby granted authority to downhole commingle production from the Happy Valley-Morrow Gas Pool and the Northeast Sheep Draw-Strawn Gas Pool in its Happy Valley Fed. Com. Well No. 1, located 1780 feet from the North line and 1830 feet from the East line of Section 28, Township 22 South, Range 26 East, NMPM, Eddy County, New Mexico.

(2) Applicant is further granted the authority to use the Strawn reservoir for underground hydrocarbon storage pursuant to New Mexico Statute Annotated §§ 70-6-1 et seq. (1987 Repl.).

(3) Administrative Order NSL-2010 is hereby amended to include the Strawn formation.

(4) Applicant is hereby granted a waiver from the reporting requirements of Division Rule 1131.

(5) Production from the subject well from the Morrow and Strawn formation shall be allocated as follows:

(a) Gas
Strawn..... 4%
Morrow.....96%

(b) Condensate
Strawn.....100%
Morrow..... 0%

(6) 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

WILLIAM J. LEMAY
Director

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