

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. 11485*  
*ORDER NO. R-10594*

**APPLICATION OF ROBERT N. ENFIELD FOR SALT WATER DISPOSAL, LEA  
COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on March 7, 1996, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 10th day of May, 1996, 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) Robert N. Enfield ("Enfield") owns and operators the Hudson "31" Federal Well No. 1 (**API No. 30-025-31652**), located at a standard oil well location 2310 feet from the North line and 330 feet from the East line (Unit H) of Section 31, Township 18 South, Range 33 East, NMPM, Lea County, New Mexico. Said well was drilled in October 1992 to a total depth of 4,550 feet. On November 6, 1992 this well was completed as a producing oil well in the Buffalo-Queen Pool with perforations in the Penrose from 4,423 feet to 4,432 feet.

(3) Robert N. Enfield as the applicant in this case testified that the well is currently producing from the Buffalo-Queen Pool at a rate of two barrels per day or less, its cumulative production from this interval is approximately 6,200 barrels, and the well has reached its economic limit; therefore, the applicant proposes to convert said well into a disposal well and is requesting authority to inject produced salt water into said perforated

interval.

(4) Harvey E. Yates Company ("HEYCO"), operator of the following three producing Penrose oil wells within the NE/4 of adjacent Section 32, Township 18 South, Range 33 East, NMPM, Buffalo-Queen Pool, Lea County, New Mexico, appeared at the hearing in opposition to the application and presented testimony supporting its position:

- (a) the Atlantic "32" State Well No. 1 (**API No. 30-025-23388**), located 660 feet from the North line and 1980 feet from the West line (Unit C) of said Section 32, or approximately 2,834 feet from the proposed disposal well, is perforated from 4,438 feet to 4,446 feet;
- (b) the Atlantic "32" State Well No. 2 (**API No. 30-025-31222**), located 1980 feet from the North line and 990 feet from the West line (Unit E) of said Section 32, or approximately 1,351 feet from the proposed disposal well, is perforated from 4,428 feet to 4,434 feet; and,
- (c) the Atlantic "32" State Well No. 3 (**API No. 30-025-31378**), located 1650 feet from the North and West lines (Unit F) of said Section 32, or approximately 2,087 feet from the proposed disposal well, is perforated from 4,428 feet to 4,434 feet.

(5) HEYCO owns an overriding royalty interest in two other producing Penrose oil wells in said Section 32, both operated by Chi Operating, Inc., who neither appeared at the hearing nor filed an objection to this application:

- (a) the Bison State Well No. 1 (**API No. 30-025-31583**), located 2310 feet from the South line and 990 feet from the West line (Unit L) of said Section 32, or approximately 1,476 feet from the proposed disposal well, is perforated from 4,448 feet to 4,456 feet; and,
- (b) the Bison State Well No. 2 (**API No. 30-025-31697**), located 2310 feet from the South line and 2100 feet from the West line (Unit K) of said Section 32, or approximately 2,518 feet from the proposed disposal well, is perforated from 4,458 feet to 4,465 feet.

(6) Engineering and geologic evidence presented at the hearing indicates this thin producing interval to be from a solution gas drive reservoir with approximately 30% water cut, the proposed disposal well is up-dip of the Chi Operating, Inc. wells, slightly up-dip of the Atlantic "32" Well No. 4, slightly down-dip of the Atlantic "32" Well No. 1, and that both porosity and permeability increase in the reservoir east of the Hudson "31" Federal Well No. 1.

(7) It was HEYCO's position that any water injected up-dip of the Chi wells would naturally gravitate down-dip and would eventually be produced from the two "Bison State" wells. Also, channeling of produced water could cause increased water production and the eventual premature watering out of the three "Atlantic 32 State" wells.

(8) Enfield's position in this matter was: (i) the injected volume, approximately 250 barrels of water per day, would be insignificant to affect the offset producing wells; (ii) the two closest producing wells, the Bison State Well No. 1 and Atlantic "32" State Well No. 2 are too far away to be adversely effected; and, (iii) any effect would be a positive one due to the introduction of additional reservoir energy.

(9) While the injection of water into this still actively producing reservoir could possibly have a positive effect, it still is considered a disposal well, that is pressure is not controlled, water quality is not regulated, and the volumes are not held constant; therefore, while the likelihood of disposed water interfering with the offset producing wells appears to be small, it is nonetheless present and there exists a potential of water encroachment into a producing reservoir.

(10) HEYCO's concerns for the utilization by the applicant of the Hudson "31" Federal Well No. 1 for disposal of produced salt water into the Penrose formation of the Buffalo-Queen Pool through the perforated interval from 4,423 feet to 4,432 feet is warranted under Section 70-2-12.B(4) N.M.S.A. Laws of 1978, which requires the Division to prevent the drowning by water of any stratum or part thereof capable of producing oil in paying quantities and to prevent the premature and irregular encroachment of water or any other kind of water encroachment which reduces or tends to reduce the total ultimate recovery of oil from any pool.

(11) This application should therefore be denied.

**IT IS THEREFORE ORDERED THAT:**

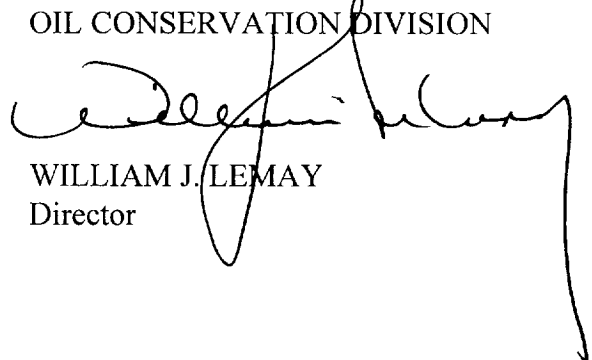
(1) The application of Robert N. Enfield ("Enfield"), to utilize its Hudson "31" Federal Well No. 1 (**API No. 30-025-31652**), located at a standard oil well location 2310 feet from the North line and 330 feet from the East line (Unit H) of Section 31, Township 18

South, Range 33 East, NMPM, Lea County, New Mexico, to dispose of produced salt water into the Penrose formation within the Buffalo-Queen Pool through the perforated interval from 4,423 feet to 4,432 feet, is hereby *denied*.

(2) 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

A handwritten signature in black ink, appearing to read 'William J. Lemay', is written over the typed name and title. The signature is fluid and cursive, with a long, sweeping tail that extends downwards and to the right.

WILLIAM J. LEMAY  
Director

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