

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. 10772
Order No. R-10032*

**APPLICATION OF BARBER OIL, INC. FOR SALT WATER DISPOSAL, EDDY
COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 A.M. on November 4, 1993, at Santa Fe, New Mexico, before Examiner Michael E. Stogner.

NOW, on this 8th of December, 1993, 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, Barber Oil, Inc. ("Barber"), seeks an order authorizing it to continue utilizing the Stovall-Wood Well No. 5, located 880 feet from the North line and 1580 feet from the West line (Unit C) of Section 20, Township 20 South, Range 30 East, NMPM, Eddy County, New Mexico, to dispose of produced salt water into the Rustler Lime formation through the open-hole interval from approximately 195 feet to 255 feet.
- (3) Snyder Ranches, Inc. ("Snyder"), surface owner of the NE/4 NW/4 of said Section 20, which is known as the "Wood's Ranch", appeared at the hearing in opposition to the subject application and submitted evidence and testimony in support of its position.
- (4) The Stovall-Wood Well No. 5 was drilled by Barber's predecessor, Neil H. Wills et. al., in 1943 for the purpose of disposing of produced salt water from the Barber (Yates) Pool, which comprises the S/2 of Section 17 and all of Section 20, Township 20

South, Range 30 East, NMPM, Eddy County, New Mexico, and has been used for this purpose since that time with approximately 44,473,098 barrels of produced salt water having been disposed of in this well as of September 30, 1993.

(5) A geological report on ground water resources in Eddy County, New Mexico from the New Mexico Bureau of Mines & Mineral Resources, which was submitted as evidence at the time of the hearing, indicates the presence of two water supply wells within the NW/4 of said Section 20. Snyder presented testimony on one of these domestic water wells as being located approximately 800 feet from the subject disposal well, also known as the "Wood's Ranch House Well". Further testimony, based upon data collected from that water well on May 1, 1950, reported water used for domestic and stock purposes with a water level at 45 feet below land surface and analyzed to contain 3,050 parts per million ("ppm") of total dissolved solids ("TDS").

(6) The New Mexico Oil & Gas Act (Section 70-2-12(15) NMSA-1978) requires the New Mexico Oil Conservation Division ("Division") to regulate the disposition of water produced or used in connection with the drilling for or producing of oil or gas or both and to direct surface or subsurface disposal of the water in a manner that will afford reasonable protection against contamination of fresh water supplies designated by the state engineer.

(7) The State Engineer, by letter dated April 13, 1967, has designated all underground water in the State of New Mexico containing less than 10,000 part per million or less total dissolved solids as "fresh water" for which there is presently or reasonably foreseeable future beneficial use as fresh water supplies to be afforded reasonable protection against contamination.

(8) By New Mexico Oil Conservation Commission ("Commission") Order No. 850, issued in Case 189, dated December 9, 1949, and made effective January 1, 1950, the Commission, predecessor agency to the Division, promulgated Rule 701 - "Permit for Injection of Gas, Air or Water". Sub-part (a) of said Rule provided for:

"The injection of gas or air or water into any reservoir for the purpose of maintaining reservoir pressure for secondary recovery for water disposal, shall be permitted only by order of the Commission after a hearing."

Said Order 850 also provided, by Decretory Paragraph No. (3), that:

"An exception from the rules and regulations hereby adopted is granted until March 31, 1950, as to all presently existing oil and gas wells that have been in the past and are presently operated or the products thereof utilized in a manner differing from the requirements herein, but in compliance with former rules and regulations. If during said period the operator of any such well files with the Commission an application for a permanent exception for such well from the requirements of these rules and regulations, the temporary exception herein granted shall continue in force until the Commission has acted on such application."

(9) Since the time said Rule 701 was made effective, the Commission and Division have authorized salt water disposal wells utilizing this rule to accomplish that objective. Rule 701 has been amended several times over the years to include provisions for easier permitting of disposal wells:

- (a) Order No. R-930, dated December 28, 1956, first authorized an administrative procedure;
- (b) On November 9, 1959, Order No. R-1525 was issued revising the administrative procedure;
- (c) On May 28, 1963, Order No. R-2490 was issued again revising the process;
- d) On September 16, 1964, Order No. R-2761 was issued making certain changes to Rule 701 concerning the method for filing application with accompanying data for salt water disposal wells and adopted Form C-108; and,
- (d) On February 14, 1968, Order No. R-3375 was issued revising said Form C-108.

(10) On December 16, 1974 the "Safe Drinking Water Act" was signed into federal law (Public Law 93-523) and provides that any disposal well must have a permit and further provides that failure to obtain a permit, even for formerly authorized disposal wells, results in violations of the Act and potential for three years imprisonment in a federal penitentiary, \$250,000 fine to individuals and \$500,000 for corporation (See

42 USC 300). The "Safe Drinking Water Act" required the Administrator of the Environmental Protection Agency (EPA) to adopt minimum regulations for State programs to control the underground injection of fluids to protect underground sources of drinking water. The final EPA regulations were published in the spring of 1980.

(11) In order for the State of New Mexico through the Oil Conservation Division to apply for and obtain primary enforcement authority for control of oil and gas related injection wells in New Mexico under the Safe Drinking Water Act, it was necessary for the Division to amend Rule 701 and modify Form C-108. On June 17, 1981, the Commission issued Order R-6702 which revised Division Rule 701 and again revised Form C-108, renaming it the "Application For Authorization To Inject" and required all salt water disposal wells to have an approved permit for disposal.

(12) On March 7, 1982, The EPA granted primacy to the State of New Mexico.

(13) On January 26, 1987, Order No. R-8390 was issued, again revising the administrative process for applications to dispose of salt water in a well.

(14) There is no record of this well having ever been properly authorized by either the Division or Commission for approval to dispose of produced salt water under the provisions of said Rule 701.

(15) By letter dated May 12, 1993 the Division notified Barber Oil, Inc. to submit an application on the current Division Form C-108 and obtain Division approval.

(16) The witness for the applicant testified that:

- (a) The subject salt water disposal well ("SWD Well") was drilled in 1943 to a depth of 227 feet, the well was completed with 195 feet of 8-5/8 inch casing and cemented with "25 sacks". The original injection interval was from 195 feet to 207 feet, or 12 feet open-hole;
- (b) the average injection rate of produced water into said well has remained at a somewhat constant 6,000 barrels of water per day ("BPWPD") since its inception;

- (c) in 1990, Barber Oil, Inc., after experiencing a back flow of the injected fluid and a reduction in the injection rate of said well, made repairs by installing 128 feet of 6-inch plastic schedule 80 ("PVC") pipe and then resumed injection;
- (d) in February/March, 1991, as directed by the Division's district office in Artesia, the PVC pipe was removed and the well was recompleted with a 114 foot string of 7-inch casing cemented (circulated) inside the existing 8-5/8 inch string, the well was then deepened to a depth of 255 feet and a string of 5-1/2 inch casing was set in a "5-1/2 inch by 7-inch" packer at a depth of 114 feet; and,
- (e) in August, 1991 Barber again recommenced injection of produced water into the Stovall-Wood Well No. 5.

(17) Currently, Barber has nine producing oil wells in the Barber (Yates) Pool that yields a combined total of approximately 50 barrels of oil per day ("BOPD") with produced water constituting 99% of the total fluid brought to the surface.

(18) Barber has conducted no geologic, engineering or hydrologic studies to determine:

- (a) the porosity, permeability, saturation, thickness of the receiving formation (injection zone);
- (b) how large an area has been or will be affected by injection into the subject SWD well;
- (c) if there is any barrier to vertical migration from the injection zone into any other zone or to the surface.

(19) Snyder Ranches, Inc. presented a geohydrologist as its expert witness, this testimony was tendered to show that the Barber SWD well has contaminated the Wood's Ranch House Water Well and that continued use of the SWD Well could pose further risks to the environment, fresh water, and health and safety.

(20) The Snyder witness's opinion was based upon:

- (a) an extensive ground water study he had personally conducted for the United States Bureau of Land Management ("BLM") in 1978 in this area identifying some 30 sources of fresh water including the Wood's Ranch House Well;
 - (b) New Mexico Bureau of Mines & Minerals Resources tabulation of reported ground water analysis in the area;
 - (c) personal inspection of the area;
 - (d) water analysis for water in the area;
 - (e) Division records; and,
 - (f) specific study of the lithology in the area.
- (21) The evidence presented by Snyder's witness indicates that:
- (a) in 1950, the Wood's Ranch House (domestic) Water Well, as referenced in Finding Paragraph No. (5) above, was capable of producing fresh water from an underground source of drinking water in amounts sufficient to domestic and stock needs;
 - (b) the SWD Well was injecting produced water into the Rustler formation which may have been in communication with the Wood's Ranch Water Well;
 - (c) the Rustler formation is an aquifer used for domestic and stock purposes and does contain zones of "fresh water" with less than 10,000 ppm TDS;
 - (d) the Salado formation which occurs immediately below the Rustler formation acts as an effective aquitard to trap the Rustler water;
 - (e) because of the lithology of the Rustler formation, there is no integrity of the stratigraphic units of the Rustler and no continuous impermeable barriers to keep the produced water injected into the SWD Well from contaminating the Wood's Ranch Domestic Water Well; and,

- (f) further examination of the various water analysis shows an increased level of TDS in the Wood's Water Well since 1950 and that the subject disposal well is a possible source of contamination.

(22) If the subject SWD Well has contaminated the Wood's Ranch House Well, any additional or continued use of said SWD well for disposal purposes would only serve to deteriorate further the water resources in the Rustler formation.

(23) Testimony by Snyder also shows that if the source of contamination to the Wood's Ranch Water Well were stopped, then there exists the possibility that the quality of the Wood's Ranch House water would improve over time and could once again be a source of fresh water in the area.

(24) There is a hydrologic connection between the disposal zone and the underground sources of fresh water in this area.

(25) Any further injection into the SWD Well could pose a danger of contamination to other fresh water in the Rustler formation in this immediate area.

(26) The application should be denied and any further injection into the Stovall-Wood Well No. 5, located 880 feet from the North line and 1580 feet from the West line (Unit C) of Section 20, Township 20 South, Range 30 East, NMPM, Eddy County, New Mexico, should cease immediately.

(27) Barber Oil, Inc. should further take the necessary steps to have this well properly plugged and abandoned in accordance with a plugging program that is acceptable with the supervisor of the Division's district office in Artesia. Said plugging should be complete within a period of 60 days from the date of this order. An extension of time may be granted by the Division Director for good cause shown.

IT IS THEREFORE ORDERED THAT:

(1) The application of Barber Oil, Inc. ("Barber"), for an order authorizing it to continue utilizing the Stovall-Wood Well No. 5, located 880 feet from the North line and 1580 feet from the West line (Unit C) of Section 20, Township 20 South, Range 30 East, NMPM, Eddy County, New Mexico, to dispose of produced salt water into the Rustler Lime formation through the open-hole interval from approximately 195 feet to 255 feet, is hereby denied.

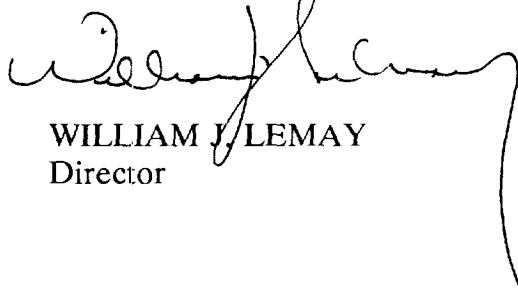
IT IS FURTHER ORDERED THAT:

(2) The operator shall cause said well to be properly plugged and abandoned in accordance with a plugging program that is acceptable with the supervisor of the Division's district office in Artesia. Further, said plugging must be completed within a period of 60 days from the date of this order; however, an extension of time may be granted by the Division Director for good cause shown.

(3) 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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