

**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. 10439  
Order No. R-9790**

**APPLICATION OF ANADARKO PETROLEUM  
CORPORATION 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 February 6, 1992, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 24th day of November, 1992, 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, Anadarko Petroleum Corporation, seeks authority to re-enter and deepen the previously plugged and abandoned Hudson & Hudson, Inc. Saunders "A" Well No. 1, located 660 feet from the North line and 1980 feet from the West line (Unit C) of Section 19, Township 19 South, Range 33 East, NMPM, Lea County, New Mexico, to the Capitan Reef and dispose of produced salt water in the open hole interval from approximately 3500 feet to 4300 feet.

(3) The applicant proposes to inject up to 1,000 barrels of water per day into the proposed disposal well. The source of the injected fluid is Delaware formation water produced in conjunction with oil and gas operations.

(4) The Capitan Formation, or Capitan Reef as it is commonly referred to, is an organic carbonate buildup along the margins of the Delaware Basin. This formation in New Mexico outcrops on the northern side of the Delaware Basin in southern Eddy County and extends into the subsurface to the north and east in an arc shape to the southern portion of Lea County.

(5) The Capitan Reef, in the southern portion of Eddy County, contains fresh water and is a major source of water for the City of Carlsbad.

(6) According to applicant's evidence, it currently operates the Teas Yates Unit Water Supply Well No. 1 located in Section 14, Township 20 South, Range 33 East, NMPM, which is completed in and producing from the Capitan Reef.

(7) An analysis of the water being produced from the Teas Yates Unit Water Supply Well No. 1, submitted as evidence in this case, indicates that the total dissolved solids are approximately 105,000 mg/l.

(8) An analysis of the water being produced from the Delaware formation in this area indicates that the total dissolved solids are approximately 219,000 mg/l.

(9) The applicant contends that the Capitan Reef in the area of the proposed disposal well does not contain fresh water and is suitable for injection purposes.

(10) The applicant further contends that there may exist a subsurface barrier located east of Carlsbad within the Capitan Reef which separates the potable water in the western portion of the reef from the non-potable water in the eastern portion of the reef.

(11) Rule No. 701 (E)(2) of the Division Rules and Regulations states that "Disposal will not be permitted into zones containing waters having total dissolved solids concentrations of 10,000 mg/l or less except after notice and hearing, provided however, that the Division may establish exempted aquifers for such zones wherein such injection may be approved administratively".

(12) In order to supplement the evidence presented in this case, the Division, subsequent to the hearing, consulted with the State Engineer for the State of New Mexico, whose responsibilities include, among other things, the designation of underground sources of drinking water within the state.

(13) Technical literature available to the Division, namely a map of Chloride Ion Concentration in Ground Water in Permian Guadalupian Rocks, Southeast New Mexico, prepared by the USGS and New Mexico State Engineer and published in 1975, indicates that while there are areas of high chloride concentration within the Capitan Reef, there are also numerous areas south and east of the proposed disposal site which contain water with chloride concentrations less than 10,000 mg/l.

(14) Other technical literature indicates that there is a shortage of data regarding the quality of the water in the Capitan Reef in some areas of Eddy and especially Lea County.

(15) The evidence presented by the applicant in this case is insufficient and does not establish:

- a) that the Capitan Reef should be subdivided into two distinct areas, one that contains potable water and one that does not contain potable water;
- b) the existence of a subsurface barrier within the Capitan Reef which would effectively isolate potable water from non-potable water;
- c) that the area of the proposed disposal well is hydrologically disconnected from other areas of the Capitan Reef which may contain fresh water;
- d) the overall hydrologic system within the Capitan Reef is such that injection into the proposed well will not cause the degradation of fresh water within those areas of the Capitan Reef which do contain fresh water.

(16) The application of Anadarko Petroleum Corporation should be denied.

**IT IS THEREFORE ORDERED THAT:**

(1) The application of Anadarko Petroleum Corporation to re-enter and deepen the previously plugged and abandoned Hudson & Hudson, Inc. Saunders "A" Well No. 1, located 660 feet from the North line and 1980 feet from the West line (Unit C) of Section 19, Township 19 South, Range 33 East, NMPM, Lea County, New Mexico, for the purpose of disposal of produced water into the Capitan Reef from approximately 3500 feet to 4300 feet is hereby denied.

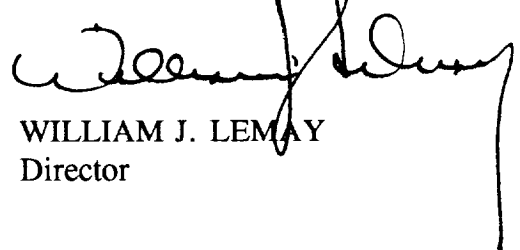
(2) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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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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