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. 15262
ORDER NO. R-14034

APPLICATION OF MESQUITE SWD, INC. FOR APPROVAL OF A SALT WATER DISPOSAL WELL, LEA COUNTY, NEW MEXICO

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on April 16, 2015, at Santa Fe, New Mexico, before Examiner William V. Jones.

NOW, on this 12th day of August, 2015, the Division Director, having considered the testimony, the record and the recommendations of the Examiner,

FINDS THAT:

(1) Due public notice has been given, and the Division has jurisdiction of this case and of the subject matter.

(2) Pursuant to the provisions of Division Rule 19.15.26 NMAC, Mesquite SWD, Inc. (the "Applicant") seeks an order allowing disposal of produced water into its proposed Johnny East SWD Well No. 1 (API No. 30-025-Pending) to be located 300 feet from the South line and 2340 feet from the West line, Unit letter N of Section 11, Township 25 South, Range 36 East, NMPM, Lea County, New Mexico.

(3) Applicant proposes to set conductor and surface pipe at 800 feet, then drill into the Seven Rivers formation at a total depth of approximately 3525 feet and run 7-inch casing. Applicant proposes to dispose commercially through perforations at approximately 3378 feet to 3388 feet in the basal Yates and upper Seven Rivers formations through 4-1/2 inch lined tubing set in a packer located no more than 100 feet above the perforations.

(4) Mesquite SWD, Inc. had submitted an administrative application for Salt Water Disposal to the Division in December of 2014. After protests, that application was set to hearing by Mesquite SWD, Inc. on January 22, 2015. The hearing application was

noticed to the surface and mineral owner, the Bureau of Land Management ("BLM"), to the surface lessee, Gregg H. Fulfer DBA Fulfer Oil & Cattle, LLC, and to affected parties within the half mile Area of Review (Chevron USA, Inc., Mariah Resources, Inc., COG Operating, LLC, OXY USA WTP, LP, Driftwood Oil, LLC, and Topat Oil Corp.)

(5) On February 19, 2015, Fulfer Oil & Cattle, LLC ("Fulfer") and Driftwood Oil, LLC ("Driftwood") entered appearances in the case. Both respondent parties subsequently filed pre-hearing statements indicating opposition to the case presuming that (i) ownership of hydrocarbon reserves would be adversely affected by the proposed disposal, and that (ii) the location of the proposed disposal well would be within the Capitan Reef Complex.

(6) No other parties appeared or indicated opposition to this case.

(7) Applicant appeared at the hearing through counsel and presented testimony as follows:

(a) This will be a 10,000 barrel per day, commercial (primarily sourced from the Bone Spring formation) salt water disposal well that will remain under the Division's required maximum pressure limit. There are no active or plugged wells within the one half mile Area of Review.

(b) The presence of the Yates and Seven Rivers formations indicate this proposed well will not be located within the Capitan Reef but will be located within the "back reef" area of the Capitan Reef Complex. The basin-ward side of the Reef contains rocks of higher porosity than the very dense carbonates which make up the back side of the Reef.

(c) The Application could not include an analysis of local fresh water, since no wells could be found within two miles of this location.

(d) Any fresh water interval will be protected by the proposed 9-5/8 inch surface casing to be installed in this well.

(e) The proposed disposal interval will be geologically located significantly down dip from the nearest Driftwood oil wells.

(f) A copy of the application has been supplied to the BLM. The proposed well site would be located on federal surface and minerals. The APD will be submitted to the BLM if and when the disposal permit is granted by the Division.

(g) The proposed disposal well is expected to be similar in performance to the West Jal Disposal Well No. 1 (30-025-26676) which is located approximately one mile northwest of this proposed location and is completed for disposal in the Lower Seven Rivers. That well is taking,

according to Division records, up to 8,000 barrels of waste water per day at a last reported pressure of 200 psi.

(h) The proposed 10 feet completion and disposal interval is expected to have significant porosity and ability to take a high rate of waste water based on the offsetting West Jal Disposal Well No. 1. The maximum expected disposal rate is 10,000 barrels of water per day.

(i) The overlying Salado formation is expected to drill quickly and be protected by using cement diverter tool(s) in the 7-inch casing.

(j) The Yates formation consists of sands or alternating silty sands interbedded with dolomites. The Seven Rivers formation consists of dolomite.

(k) The Capitan water aquifer is confined within the Capitan Reef rocks and the connected portion of that aquifer is found near the basin-ward edge of the Reef.

(l) There is adequate well control to ensure this proposed well is not within the Reef.

(m) The well location was picked because it is near the highway and will not interfere with oil development in this area, if it occurs.

(8) Respondents Fulfer and Driftwood appeared at the hearing and presented testimony as follows:

(a) The only oil and gas activity within two miles of the proposed well lies to the east. The Yates formation is currently produced through perforations in producing wells located east of the proposed disposal interval, which perforations are correlative to the proposed disposal interval.

(b) There also are planned wells to be located even closer to the proposed disposal well which would target oil production from the Lower Yates formation.

(c) Commercial disposal into the Lower Yates formation in this proposed well could possibly adversely affect oil and gas reserves located to the east of the proposed disposal within the Lower Yates formation.

(d) The J.A. Koontz Well No. 1 (API No 30-025-28127) is operated by Driftwood Oil LLC and located just over one half mile east-southeast of the proposed well. That well produces from the basal Yates formation. The well was inactive during 2014 due to mechanical and well conditions and has recently been put back, beginning of March, 2015. An analysis or estimate of future recovery of this well which is based on assumed control

of operating costs and assumed prices, indicates a possible 36,000 barrels of oil reserves.

(e) Respondent estimated that disposal into the proposed well would most likely prematurely end production from the J.A. Koontz Well No. 1 which may be already influenced by water encroachment from the east.

(f) Another well operated by Driftwood Oil LLC and located almost two miles northeast has an estimated 124,000 barrels of oil remaining to be produced from the Yates formation.

(g) The proposed well is located within the eastern edge of the mapped Capitan Reef. Up to nine sources indicate this area is part of the Capitan water aquifer. Exhibit No. 5 on page 156 provides a reference indicating groundwater interaction does occur between the Tansill/Yates formations and the Capitan Reef (reference Bjorklund and Motts report to USGS in 1959).

(h) The I.C. Potash Corp. is considering a new potash mining operation to be called the Ochoa Mine which would be located within two miles. I.C. Potash is considering the use of fresh or brackish waters from aquifers including the Capitan Aquifer. Such use would depend on water rights or permission from the State Engineer.

The Division concludes as follows:

(9) Division records indicate that the J.A. Koontz Well No. 1 (API No 30-025-28127) operated by Driftwood Oil, LLC and located just over one half mile east-southeast of the proposed well was completed for production in March of 1983. That well has produced a total of 22,600 barrels of oil since completion. The respondent's estimation of an additional 36,000 barrels of reserves from that well is assuming low operating costs and low rate, flat production for a very long time.

(10) To dispose of the estimated 10,000 barrels per day of water trucked in commercially into a 10 feet interval of perforations would either laterally extend the area of influence much beyond normal or would result in an increase vertically in the disposal interval as the water leaves the wellbore. The former possibility would mean that this well would have an increased risk to offsetting reserves within the Yates formation. The latter possibility would mean this well would not be staying vertically within its permitted 10-foot interval and would enter either the Salado formation or the Capitan Reef.

(11) Applicant testified that Respondent's nearest well was more than one half mile from the proposed disposal well and Respondent was only a grazing lessee within the one half mile Area of Review. The Division is charged with preventing waste of oil and gas whether within a one half mile Area of Review or further away than that distance. The

40-acre dedicated acreage of the Respondent's nearest well is partially within the one half mile Area of Review.

(12) Despite the testimony related to hydrology, there were no witnesses on either side that were qualified as hydrologists. Applicant stated that the Capitan Reef formation contains the aquifer water inside that Reef. However, Respondent presented numerous documents in which the authors maintained that the geologic stratigraphy from the top of the Artesia Group to the bottom of the Capitan Reef rock does not limit the thickness of the Capitan water aquifer. This position is supported with the very low chloride concentrations in the area of the proposed well [by published map of the Capitan Reef (Hiss, 1975)].

(13) Disposal waters from horizontal drilling targets below the Capitan Reef conservatively average 100,000 milligrams per liter or more of TDS. Commercial disposal of those waters into the Artesia Group could threaten and degrade the salinity within the Capitan Aquifer.

(14) Observed salinity from years ago, and found in the cited references, sometimes differs from, or is lower than, currently measured salinities. One possibility for this is oil field disposal of high salinity waste waters from below the Capitan Reef into the Artesia Group or Reef from wells permitted in the past, most of them prior to the Safe Drinking Water Act. One example of this would be the offsetting commercial West Jal Disposal Well No. 1 which has itself disposed of almost 10 million barrels of waste water at low pressures into an interval within 50 feet above the Capitan Reef.

(15) To fulfill the Division's charge of protecting fresh water from degradation, commercial disposal of oil field waste waters into the Artesia Group of formations located vertically below the Salado formation and above the Capitan Reef (or sandwiched between the Salado and the Reef) should not be allowed.

(16) The oil and associated gas reserves from the Yates formation could be threatened by allowing commercial disposal of waste water into the proposed disposal well.

(17) The nearest existing wells within this Yates formation are almost depleted; however potential may still exist in this shallow reservoir for increased density or delineation drilling and those wells would be relatively inexpensive to drill.

(18) Introducing additional reservoir pressure by the disposal of high volumes of water sourced from other, deeper formations will likely condemn this portion of the Yates reservoir to higher operating costs and lower recovery of oil.

(19) This proposed commercial disposal well should not be allowed in order to prevent waste, protect correlative rights, and protect the environment.

IT IS THEREFORE ORDERED THAT:

(1) The application of Mesquite SWD, Inc. for approval of an order allowing disposal of produced water into its proposed Johnny East SWD Well No. 1 to be located 300 feet from the South line and 2340 feet from the West line, Unit letter N of Section 11, Township 25 South, Range 36 East, NMPM, Lea County, New Mexico, is hereby denied.

(2) Jurisdiction of this case 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 designated above.

SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

David R. Catanach

DAVID R. CATANACH
Director