**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. 14979**
**ORDER NO. R-13735**

**APPLICATION OF MESQUITE SWD, INCORPORATED 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 May 2, 2013, at Santa Fe, New Mexico, before Examiner Phillip R. Goetze.

NOW, on this 26th day of August, 2013, 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 its subject matter.

(2) The applicant, Mesquite SWD, Incorporated ("applicant"), seeks authority to drill and utilize its Paducah Federal SWD Well No. 3 (API number pending; "subject well"), located 300 feet from the North line and 1760 feet from the West line, Unit letter C of Section 23, Township 25 South, Range 32 East, NMPM, Lea County, New Mexico, for oil field water disposal into the Bell Canyon and Cherry Canyon formations of the Delaware Mountain Group through an open-hole interval from approximately 4870 feet to 7250 feet.

(3) The applicant appeared through counsel and presented the following testimony:

a. The subject well is to be drilled to a total depth of 7250 feet with the seven (7) -inch production casing shoe at the top of the injection interval at approximately 4870 feet. The injection interval will be approximately

2379 feet of open hole with the packer set in the seven (7) -inch casing at approximately 4820 feet.

b. The proposed average injection rate is 3500 barrels of water per day (BWPD) with a maximum injection rate of 5000 BWPD.

c. The produced waters going into the subject well would be from horizontal production wells completed in the Bone Spring formation and wells completed in the lower Brushy Canyon formation.

d. The applicant operates a disposal well with a comparable injection interval in the same formations in the vicinity of the subject well: the Paducah SWD Well No. 1 (API No. 30-025-27616; Administrative Order SWD-1264-A) in Unit letter H of Section 22, Township 25 South, Range 32 East, NMPM.

e. Operation records for the Paducah SWD Well No. 1 show injection volumes ranging from 5000 BWPD to 12,000 BWPD with vacuum (negative) reservoir pressure.

f. Lost circulation is known to occur in the Delaware Mountain Group, especially in the Cherry Canyon formation, due to high porosity and permeability characteristics of the sands in this area. The general flow direction for reservoir fluids in this formation is towards the east-southeast.

g. Hydrocarbon production in this area is found above the injection interval in the Ramsey sand at the top of the Delaware Mountain Group and in the basal section of the Brushy Canyon formation at the base of the Delaware Mountain Group. Hydrocarbon shows have been identified in the Olds sand in the upper Bell Canyon formation.

h. Historical production and testing of the hydrocarbon zones in this area have been very high in water content resulting in abandonment of oil-producing wells.

i. The applicant does not expect any waste of oil or gas to occur as a result of disposal into the selected interval of the Bell Canyon and Cherry Canyon formations at this location. The casing program for the subject well is adequate to isolate potential hydrocarbon zones above and below the injection interval.

j. No fresh-water wells were identified within a two-mile radius of the subject well. The well will be adequately equipped and cemented to isolate any fresh water intervals.

k. The half-mile Area of Review around the subject well contains two plugged and abandoned wells that penetrated the disposal interval. The Area of Review wells are adequately cemented in order to isolate the disposal interval.

l. The Bureau of Land Management did not oppose the approval of the subject well.

(4) Yates Petroleum Corporation ("Yates"), Abo Petroleum Corporation, and Myco Industries, Incorporated appeared at the hearing through counsel in opposition to this application and presented the following testimony:

a. Yates is currently conducting an exploration program through its Farber Working Interest Unit which is in the same area as the subject well. The target of the exploration program is the Bone Spring formation which is stratigraphically below the injection interval in the Delaware Mountain Group.

b. Yates' geologic witness testified that the injection into the Delaware Mountain Group would increase the volume of fluids and change the physical characteristics of the reservoir fluids in the Bell Canyon and Cherry Canyon formations. These changes would adversely impact the drilling programs (including mud and casing programs) and increase cost for their exploratory wells in this area.

c. Yates' witnesses identified the potential for the generation of hydrogen sulfide gas in the injection interval as a result of the fluids to be injected by the subject well. This possible increase of hydrogen sulfide content would adversely impact the drilling program and increase costs for the completion of the wells.

d. Yates' witnesses also expressed concern that injection of the additional water disposal well might adversely impact their correlative rights for potential hydrocarbon zones such as the Olds sand or the lower Brushy Canyon formation.

e. Yates observed no major losses (seepage zones) in two horizontal wells drilled through the Cherry Creek formation in adjacent portions of the Farber Unit and that the occurrences of lost circulation were associated with the interval from base of the Brushy Canyon formation into the upper Bone Spring formation.

(5) Yates requested that the subject well should not be approved based on testimony and exhibits presented at hearing. Yates contended that approval of the subject well would increase well costs, reduce production efficiency of the completed wells, and

interfere with their correlative rights by impacting shallower potential hydrocarbon occurrences.

The Division Concludes As Follows:

(6) The application has been duly filed under the provisions of 19.15.26.8 NMAC.

(7) Division records indicate Mesquite SWD, Incorporated (OGRID 161968) as of the date of this order is in compliance with 19.15.5.9 NMAC.

(8) The applicant has presented satisfactory evidence that all requirements prescribed in 19.15.26.8 NMAC have been met.

(9) The proposed open-hole completion of the subject well has a high probability to permit migration of injected fluids to other formations. Therefore, the seven (7) -inch casing should be set at 7250 feet with cement circulated to surface. The disposal into the Bell Canyon and Cherry Canyon formations of the Delaware Mountain Group should be through perforations from 4870 feet to 7250 feet through lined tubing and a packer set within 100 feet of the permitted disposal interval.

(10) The application should be approved.

**IT IS THEREFORE ORDERED THAT:**

(1) Mesquite SWD, Incorporated ("Mesquite" or "operator"), is hereby authorized to utilize its proposed Paducah Federal SWD Well No. 3 (API number pending) located 300 feet from the North line and 1760 feet from the West line, Unit letter C of Section 23, Township 25 South, Range 32 East, NMPM, Lea County, New Mexico, for disposal of only UIC Class II fluids.

(2) Disposal shall be through perforations from approximately 4870 feet to 7250 feet into the Bell Canyon and Cherry Canyon formations of the Delaware Mountain Group. Injection is to be through lined tubing and a packer set within 100 feet above the permitted disposal interval.

(3) The operator shall take all steps necessary to ensure that the disposed water enters only the permitted disposal interval and is not permitted to escape to other formations or onto the surface.

(4) After installation of tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

(5) The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT testing procedures and schedules shall follow the requirements in Division Rule 19.15.26.11A. NMAC.

(6) The wellhead injection pressure on the well shall be limited to **no more than 974 psig**. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

(7) The Director of the Division may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

(8) The operator shall notify the supervisor of the Division's District I office of the date and time of the installation of disposal equipment and of any MIT test so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District I office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Rules 19.15.26.13 NMAC and 19.15.7.24 NMAC.

(9) Without limitation on the duties of the operator as provided in 19.15.29 NMAC and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's district office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from or around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

(10) The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

(11) The Division may revoke this injection permit after notice and hearing if the operator is in violation of 19.15.5.9 NMAC.

(12) The Division Director shall be authorized to amend this permit administratively after proper notice and opportunity for hearing.

(13) The disposal authority granted herein shall terminate two years after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request, mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

(14) One year after disposal into the well has ceased, the well will be considered abandoned and the authority to dispose will terminate *ipso facto.*

(15) Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

(16) Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing or prior to notice and hearing in event of an emergency, terminate the disposal authority granted herein.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

JAMI BAILEY
Director

SEAL