

**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:**

**APPLICATION OF ROCKCLIFF OPERATING NEW MEXICO LLC FOR
APPROVAL OF A SALT WATER DISPOSAL WELL, EDDY COUNTY, NEW
MEXICO.**

**CASE NO. 15791
ORDER NO. R-14456**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on August 17, 2017, at Santa Fe, New Mexico, and again on September 14, 2017, before Examiner Michael A. McMillan.

NOW, on this 1st day of November, 2017, 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 the subject matter.

(2) Rockcliff Operating New Mexico LLC ("Applicant" or "Rockcliff") seeks authority to utilize its South Culebra Bluff Unit Well No. 1 (API No. 30-015-22320; the "subject well"), located 1980 feet from the North line and 1650 feet from the East line (Unit G) of Section 23, Township 23 South, Range 28 East, NMPM, Eddy County, New Mexico, for disposal of produced water into the Atoka formation through an open hole interval from 11,750 feet to 11,879 feet below surface.

(3) On July 3, 2017, Rockcliff submitted an administrative application (Application No. pKSC1718727107) to the Division for approval of the subject well for disposal of produced water.

(4) On July 6, 2017, Kaiser-Francis Oil Company filed a protest of that application. Kaiser-Francis Oil Company withdrew their protest on July 12, 2017.

(5) On July 12, 2017, the Oil Conservation Division informed Rockcliff that the subject well could not be approved administratively, and must go to hearing to be approved because the Atoka formation is a known hydrocarbon producing horizon.

(6) Applicant appeared through counsel and presented the following engineering and geologic evidence to the effect that:

- (a) The South Culebra Bluff Unit Well No. 1 was spud on November 1, 1977. The subject well is constructed with the following casing strings: a 13 $\frac{3}{8}$ -inch surface casing set at 418 feet, with cement circulated to surface. The 9-5/8-inch intermediate casing was set at 6,355 feet with a DV tool set at 2,875 feet. Cement for the intermediate casing was set using two stages and was circulated to surface;
- (b) On January 3, 1978, the subject well blew out and caught fire in the proposed injection interval. Well control specialist Red Adair assumed operations to contain the fire and control the well;
- (c) On September 15, 1978, a plug was set at 11,270 feet, and the well was directionally drilled to 11,750 feet and a 7-inch production casing was run, with a DV tool set at 6,609 feet. Cement for production casing was set using two stages with final top of cement at 572 feet, based on a cement bond log;
- (d) Subject well was drilled to a total depth of 11,879 feet and completed open hole from 11,750 feet to 11,879 feet, which is the proposed injection interval;
- (e) Well was recompleted in the Culebra Bluff; Bone Spring, South Pool (Pool code 15011) in 2005;
- (f) Currently, the subject well is shut-in. The tubing and packer have been removed. The Bone Spring perforations have been squeezed;
- (g) All wells within the $\frac{1}{2}$ -Mile Area of Review (AOR) were properly cased and cemented to prevent movement of fluids between zones. One well penetrated the injection zone, but was recompleted to the Loving; Brushy Canyon, East Pool (Pool code 40350), the Rockcliff Operating New Mexico LLC Donaldson Com A Well No. 1, Unit F, Section 23, Township 23 South, Range 28 East (API 30-015-22404);
- (h) Applicant plans to inject between 10,000 and 20,000 Barrels of water per day;

- (i) The injection pressure will not exceed the Division approved injection pressure gradient of .2 psi/foot calculated based on the depth to the top of the perforated interval, which is 2350 psi at the top of the proposed injection interval;
- (j) Applicant identified the Atoka formation for the disposal interval due to the high average porosity of 20 percent and the lack of hydrocarbon production in the formation within a two-mile radius of the subject well;
- (k) The proposed injection interval is a depleted gas reservoir, at zero pounds pressure for a very long time. The subject well is incapable of maintaining line pressure to produce the Atoka formation. The well is not loading up with liquids, which would curtail production;
- (l) The only well within a 2-mile radius has only produced two thousand cubic feet per day the last 13 years from the Atoka formation, the Chevron Midcontinent, L.P. Nymere Well No. 1, located in (Unit F), Section 15, Township 23 South, Range 28 East, (API 30-015-23675). Further the operator of this well is a working interest owner in the subject well, and did not oppose granting of this application;
- (m) Applicant provided analysis of formation waters for the Bone Spring formation, Delaware Mountain group, and Wolfcamp formations, which are the primary producing sources of injected fluids;
- (n) At hearing the Applicant agreed to the following conditions for approval of the salt water disposal permit;
 - i. Applicant agreed to run a cement integrity log prior to injection, and meet with the Artesia District Office to discuss results of the log. Applicant further agreed to submit a sundry notice to the Artesia District Office and Santa Fe Office to detail any required workover for the subject well;
 - ii. Applicant agreed to obtain an initial reservoir pressure prior to injection, and provide reports to District II and the Santa Fe Engineering Bureau;
 - iii. Applicant agreed to run a fall off test two years after commencing injection and provide the results of the test at examiner hearing;
 - iv. Applicant agreed to go to hearing and provide notice for any Injection Pressure Increase (IPI) requests;

- v. Applicant agreed that the subject well is for the Applicant's use only. Therefore, the permit cannot be transferred to another operator;
- (o) The depth of the deepest known source of fresh water in the vicinity of the subject well was approximately 1,100 feet below surface and was identified as the Santa Rosa sandstone of the lower Dockum group;
- (p) Applicant's engineering witness testified that he has examined the available geological and engineering data and found no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water;
- (q) Applicant showed vertical barriers exist above and below the injection interval in the Donaldson Com A Well No. 1, located in (Unit F) Section 23, Township 23 South, Range 28 East (API 30-015-22404), the closest well to the subject well with a complete log package; and
- (r) Applicant at the time of the hearing was out of compliance for inactive wells by having greater than three inactive wells, for an operator with less than 100 wells. However, the subject well is one of the inactive wells, and with approval of this application the Applicant would be in 19.15.5.9 compliance;
- (s) Applicant provided a drainage map that shows between 80 percent and 100 percent of the reservoir has been drained; and
- (t) Applicant provided evidence of proper notification including return receipts and affidavit of publication in a local newspaper of general circulation in the county where the proposed injection well is located.

The Division concludes as follows:

(7) The Atoka formation is a known gas reservoir in Southeast New Mexico. As a result, to prevent waste and protect correlative rights, the Division should place additional requirements for salt water injection into this formation.

(8) The South Culebra Bluff Unit SWD Well No. 1 (API 30-015-23220) should be approved for salt water disposal into the Atoka formation (SWD; Atoka, Pool code 96169), with the conditions agreed upon at hearing. However, the requirement to run a fall off test two years after commencing injection and provide the results of the test at examiner hearing is not applicable based on finding (16).

(9) The Applicant provided a summary of oil and gas production in the Atoka formation in the area. It can be reasonably assumed with the requirements in the previous paragraph that indicate correlative rights will be protected if the disposal operation is limited.

(10) The disposal fluids are compatible with existing formation fluids based on analytical results provided by Applicant.

(11) The application has been duly filed under the provisions of Division Rule 19.15.26.8 NMAC.

(12) Applicant has presented satisfactory evidence that all requirements prescribed in Division Rule 19.15.26.8 NMAC have been met.

(13) Division records indicate Rockcliff (OGRID 371115) as of the date of this order is in compliance with Division Rule 19.15.5.9 NMAC.

(14) Division records indicate that the Chevron Midcontinent, L.P. Nymere Well No. 1 (API 30-015-23675) has only produced 9 thousand cubic feet from the Atoka formation during January 2017. This is an indication that this is a depleted reservoir.

(15) Applicant's South Culebra Bluff Unit Well No. 2, which penetrated the Atoka formation, and was recompleted into the Delaware Mountain group, contains vertical barriers above the injection interval which will prevent migration of injection fluids into known hydrocarbon producing strata.

(16) Subsequent to the Hearing, the Applicant and Mewbourne Oil Company agreed to the following stipulations: The injection authority is only good for one year after commencing injection. The daily injection rate shall not exceed 2,000 BWPD. Consequently, the requirement to run a fall off test two years after commencing injection and provide the results of the test at examiner hearing is not applicable since injection will not occur at that time.

(17) Approval of disposal in the subject well will enable Applicant to support existing production and future exploration in this area, thereby preventing waste, and will not impair correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) Rockcliff Operating New Mexico LLC ("Rockcliff" or "Operator") is hereby authorized to re-enter and utilize its South Culebra Bluff Unit Well No. 1 (API No. 30-015-22320; the "subject well"), located 1980 feet from the North line and 1650 feet from the East line (Unit G) of Section 23, Township 23 South, Range 28 East, NMPM, Eddy County, New Mexico, for disposal of UIC Class II fluids, **with the conditions described in findings paragraph 8, paragraph 16, and testimony.**

(2) Disposal shall be through an open hole interval from 11,750 feet to 11,879 feet below surface comprising the Atoka formation only. Injection is to be through plastic-lined tubing and a packer set within 100 feet above the top perforation of the permitted interval.

(3) Sources of the UIC Class II fluids for disposal in the subject well shall be limited to the production from leases operated by Rockcliff.

(4) 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.

(5) 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.

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

(7) The wellhead injection pressure on the well shall be limited to no more than 2350 psi, or .2 psi at the top of the injection interval. The disposal well 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. The operator shall install and maintain a chart recorder (or equivalent data logging system) showing casing and tubing pressures during disposal operations.

(8) The operator shall notify the supervisor of the Division's District II 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 II office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 NMAC and 19.15.7.24 NMAC.

(9) Without limitation on the duties of the operator as provided in Rules 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.

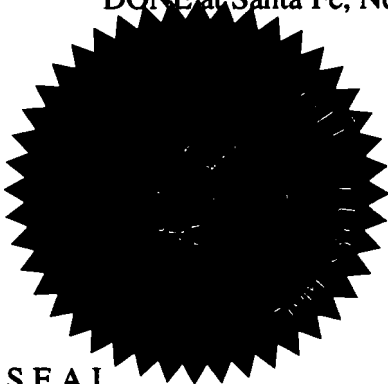
(10) The disposal authority granted herein shall terminate two years after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request, mailed by the operator

prior to the termination date, may grant an extension thereof for good cause.

(11) 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.

(12) 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.



SEAL

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

DAVID R. CATANACH
Director