

**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. 14461  
ORDER NO. R-13274**

**APPLICATION OF BOPCO. L.P. FOR APPROVAL OF A SALT WATER  
DISPOSAL WELL, EDDY COUNTY, NEW MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This case came on for hearing at 8:15 a.m. on April 15, 2010, at Santa Fe, New Mexico, before Examiner Richard I. Ezeanyim.

NOW, on this 23<sup>rd</sup> day of June, 2010, 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, BOPCo, LP ("BOPCo" or "applicant"), seeks authority to utilize its Poker Lake Unit Well No. 213 (API No. 30-015-33859) located 860 feet from the South line and 660 feet from the East line, Section 18, Township 24 South, Range 30 East, NMPM, Eddy County, New Mexico, in such a manner as to permit the injection of produced water for disposal purposes into the Avalon Sand of the Bone Spring formation from 7,388 feet to 7,460 feet.

(3) At the time this case was included in the Division docket, BOPCo was in compliance with Division Rule 5.9 – **the inactive well rule**. At the hearing on April 15, 2010, the applicant was out of compliance with Division Rule 5.9. Before proceeding further with the hearing, the applicant was given thirty (30) days from the date of the hearing to comply with Division Rule 5.9 after which the case will be dismissed without prejudice for non-compliance. However, on May 14, 2010, just before the expiration of the deadline, the applicant demonstrated compliance with Division Rule 5.9. At the time of writing this order, the applicant is still in compliance with this rule.

(4) Interest ownership within one-half mile area of review of this injection well is identical; however, due public notice was given regarding this application. No other party appeared at the hearing to oppose this application.

(5) The applicant appeared at the hearing and presented the following testimony:

(a) The Poker Lake Unit wells in the Nash Draw Field are producing from the Delaware formation consisting of the Cherry Canyon, Upper, Middle, and Lower Brushy Canyon, and the Avalon Sand of the Bone Spring formation.

(b) The Avalon Sand is the deepest productive zone and is separated from the Lower Brushy Canyon by seventy (70) feet of Bone Spring limestone.

(c) The Avalon Sand contributes less than one (1) barrel of oil per day to the overall daily production from the wells. Because of carbon dioxide (CO<sub>2</sub>) production from the Avalon zone, the operator is experiencing extensive corrosive effects leading to costly constant tubing replacement from the wells. The cost of the treatment of the corrosion problems in the Avalon zone far exceeds the benefits of production from this zone.

(d) The shallower non-productive Bell Canyon zone of the Delaware formation is not suitable for water disposal, and the surrounding offset wells do not have adequate cement circulated to the surface.

(e) The applicant has an agreement with Chesapeake Operating Company to dispose the produced water into the deeper Avalon Sand as long as the disposal is at least one hundred (100) feet above the top of the First Bone Spring Sand. This agreement does not allow the applicant to dispose produced water into any of the sands of the Bone Spring formation.

(f) The Lower Brushy Canyon is a very productive zone in this area. The applicant will constantly monitor the water injection into the Avalon zone and use the results to study the possibility of conducting a waterflood project in this more productive Lower Brushy Canyon zone. Alternatively, if water starts showing up unexpectedly in the wells, the Avalon zone in those wells will be temporarily abandoned.

(g) There are no known faults or conduits in this area that could allow migration of injected fluids upwards to underground sources of drinking water.

**The Division concludes as follows:**

(6) The production tests conducted on the wells producing from the Nash Draw Field indicate that the contribution of the Avalon Sand to the overall daily production of the wells is minimal, actually in the order of 0 to 0.5 barrels of oil per day.

(7) The presence of carbon dioxide (CO<sub>2</sub>) in the Avalon sand creates corrosive environment. The cost of the chemical treatment, constant tubing replacements, and maintenance issues associated with the corrosive environment in the Avalon sand far exceeds the benefits of production from this zone. Waste is therefore not induced by injecting produced water into this zone based on the foregoing analysis.

(8) Correlative Rights is not an issue because interest ownership within the half-mile area of review of the injection well is identical, and BOPCo has no intention of harming its own production.

(9) There is at least six hundred (600) feet of overburden between the base of the Avalon Sand into which the produced water will be injected and the top of the First Bone Spring Sand. This will satisfy the agreement between BOPCo and Chesapeake in which BOPCo is not allowed to inject produced water closer than 100 feet to the top of the First Bone Spring Sand.

(10) A review of the water analysis provided by the applicant indicates that there are no compatibility problems between the produced water to be injected and the formation water.

(11) There are nine producing wells all operated by BOPCo within the half-mile Area of Review (AOR) of this proposed injection well and one (1) plugged and abandoned well which did not penetrate the injection zone. However, this well is properly plugged and abandoned.

(12) This application should be approved.

**IT IS THEREFORE ORDERED THAT:**

(1) The applicant, BOPCo, LP is hereby authorized to utilize its Poker Lake Unit Well No. 213 (API No. 30-015-33859) located 860 feet from the South line and 660 feet from the East line, Section 18, Township 24 South, Range 30 East, NMPM, Eddy County, New Mexico, in such a manner as to permit the injection of produced water for disposal purposes into the Avalon Sand of the Bone Spring formation from 7,388 feet to 7,460 feet. The injection shall be through 2-7/8 inch tubing set in a nickel plated packer at 7,370 feet above the injection interval.

(2) During the process of converting this producing well to injection well, and before commencing injection operations, the operator shall set another nickel plated packer at 7,150 feet to isolate the Lower Brushy Canyon perforations.

(3) After installation of the injection tubing prior to commencing injection operations, and at least once every five years thereafter, the operator shall pressure test the casing from the surface to the packer-setting depth to assure casing integrity.

**IT IS FURTHER ORDERED THAT:**

(4) The casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing, or packer.

(5) The wellhead injection pressure on the well shall be limited to **no more than 1478 psi**. In addition, the injection well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface injection pressure to the maximum allowable pressure for this well.

(6) The Division Director may administratively authorize a pressure limitation in excess of the above upon a showing by the operator that such higher pressure will not result in migration of fluids out of the injection formation or the fracturing of the injection formation or confining strata. Such showing can be demonstrated by an adequate Step-Rate Test conducted on the well.

(7) The operator shall notify in advance the supervisor of the Artesia District Office of the Division of the date and time of changes in packer, tubing, mechanical integrity tests, or any other work to be performed on this well.

(8) The operator shall immediately notify the Supervisor of the Division's Artesia District Office of the failure of the tubing, casing or packer in the disposal well or the leakage of water, oil or gas from or around this well or any producing or plugged and abandoned well within the area, and shall take all steps as may be timely and necessary to correct such failure or leakage.

(9) The operator shall take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface using any conduit such as fractures or wells.

(10) In accordance with Rule No. 19.15.26.12(B) NMAC, the operator shall provide written notice of the date of commencement of injection operations to the Artesia District Office of the Division.

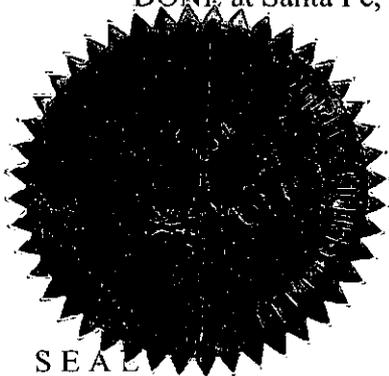
(11) In accordance with Rule No 19.15.26.12(C) NMAC, the injection authority granted herein shall terminate one year after the effective date of this order if the operator has not commenced injection operations into the well, and will terminate *ipso facto*, one year after injection operations have ceased.

(12) In accordance with Rule Nos. 19.15.26.13 NMAC and 19.15.7.28 NMAC, the operator shall submit monthly reports of the disposal operations on Division Form C-115.

(13) 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.

(14) Jurisdiction of this case is retained for the entry of such further orders as the Division may deem necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (i) to protect fresh water or (ii) in a manner consistent with the requirements of this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein, or without notice or hearing in case of emergency, subject to the provisions of NMSA 1978 Section 70-2-23.

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



STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

MARK E. FESMIRE, P.E.  
Acting Director