STATE OF NEW MEXICO
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATIONDIVISION FOR THE PURPOSE OF CONSIDERING:

CASE NO. 13812
ORDER NO. R-12820

APPLICATION OF COLEMAN OIL AND GAS, INC. FOR AMENDMENT OF ADMINISTRATIVE ORDER NO. SWD-806-B, SAN JUAN COUNTY, NEW MEXICO.

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on November 9, 2006, at Santa Fe, New Mexico, before Examiner David R. Catanach; however, the order was drafted by Examiner Richard I. Ezeanyim

NOW, on this 22nd day of October, 2007, 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) By Administrative Order SWD-806 dated July 20, 2001, the Oil Conservation Division ("Division") authorized Coleman Oil & Gas, Inc ("Coleman") to utilize its Juniper SWD Well No. 1 (**API No. 30-045-29732**) located 880 feet from the North line and 730 feet from the West line (Unit D) of Section 16, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico for the injection of produced water for disposal purposes into the Mesaverde formation from a depth of approximately 3,820 feet to 3,980 feet through 2-7/8 inch plastic lined tubing set in a packer located at approximately 3790 feet.

(3) In May 2002, Coleman requested that the Division change the approved injection interval from 3,820 feet to 3,980 feet to 2,176 feet to 3,974 feet also through 2-7/8 inch plastic-lined tubing set in a packer at approximately 2,125 feet. The request was approved by Administrative order SWD-806-A dated May 20, 2002.

(4) Pursuant to Administrative Order SWD-806-A, Coleman first perforated the Juniper well in the Lower Menefee and Point Lookout member of the Mesaverde formation from 3,036 feet to 3974 feet and hydraulically fractured in this interval.

(5) The Juniper well was next perforated in the upper Menefee and Cliff House members of the Mesaverde formation from 2,176 feet to 2,758 feet and hydraulically fractured in this interval.

(6) By letter dated October 28, 2005, the Division advised Coleman that the Division and the U.S. Environmental Protection Agency (USEPA) had determined that the upper Mesaverde injection interval contains protectable water. The Division proposed to amend Administrative Order SWD-806-A to limit the injection interval to depths of 3,820 feet to 3,980 feet and to require remedial cementing operations on offsetting wells located within one-half mile of this injection well in order to isolate the upper members of the Mesaverde formation from saltwater injection into the lower Mesaverde.

(7) By Administrative Order No. SWD-806-B issued on May 18, 2006, the Oil Conservation Division ("Division") authorized Coleman Oil & Gas, Inc. to utilize its Juniper SWD Well No. 1 **(API No. 30-045-29732)** located 880 feet from the North line and 730 feet from the West line (Unit D) of Section 16, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico, for injection of produced water for disposal purposes into the Point Lookout member of the Mesaverde formation from 3,036 feet to 3,974 feet through plastic-lined tubing set in a packer located within 100 feet above the top of the injection interval, with the following remedial work to be completed before commencing injection operations:

> **(a) The operator shall, under direction of the Aztec district office, re-enter and re-plug the Monument Well No. 1 (API No. 30-045-21912) located 1650 feet from the North line and 990 feet from the East line of Section 17, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico. The goal of this procedure shall be to place cement across all former and future intervals of injection within the Mesaverde in the Juniper Well No. 1 and to cover and isolate with cement any potential fresh water intervals. The work to re-enter this well must be commenced prior to January 1, 2007 or the permit to inject into the Juniper Well No. 1 will expire.**
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> **(b) The operator shall send to the Aztec district office, all available casing information and copies of electric logs for the Monument Well No. 2 (API No. 30-045-21463) located 800 feet from the North line and 800 feet from the West line of Section 16, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico.**

(8) The applicant, Coleman Oil & Gas, Inc. ("Coleman" or "Applicant"), now seeks an order amending Administrative Order SWD-806-B to delete the provisions requiring Coleman to re-enter and re-plug the Monument Well No. 1.

(9) The Oil Conservation Division (OCD) objects to granting Coleman's request to amend Administrative Order SWD-806-B to delete the provisions requiring that the Monument Well No. 1 be re-entered and re-plugged.

(10) In the Juniper SWD Well No. 1, the OCD also required Coleman to limit injection into the Point Lookout member of the Mesaverde formation only and squeeze off all perforations in the La Ventana, Cliff House, and Menefee members of the Mesaverde formation

(11) In his opening statement, the counsel for Coleman argued that the Monument Well No. 1 is an orphan well and should be plugged with the State reclamation funds.

(12) The OCD counsel argued that it is the entity who seeks to utilize a saltwater disposal well and will benefit from that saltwater disposal well who should be the entity responsible for taking care of any problem wells within the area of review (AOR), in order to get the permit the entity desires.

(13) The Applicant's witness testified that Coleman had already spent $500,000 building the saltwater disposal plant and it would be cost prohibitive for Coleman to re-enter and re-plug the Monument Well No.1, and squeeze off the perforations in the La Ventana, Cliff House, and the upper Menefee members of the Mesaverde formation in the Juniper SWD Well No.1.

(14) The Applicant's witnesses further presented the following testimony:

(a) It will be difficult to squeeze off the perforations in the La Ventana, Cliff House, and the upper Menefee members of the Mesaverde formation in the Juniper SWD Well No.1.

(b) There is approximately 270 feet of un-perforated interval (interburden) between the uppermost Menefee perforations and the lowermost Cliff House perforations. In addition, a series of small coals at the top of the Menefee and the base of the Cliff House serve effectively as fracture barriers so that the growth of the fractures should not communicate to two different zones.

(c) About 50 to 75 percent of production in the Juniper area would have to be shut-in if the Juniper SWD Well No.1 is shut-in.

(d) The completion report on the Monument Well No. 2 indicated a two-stage cement job with 100 percent excess cement which suggests that the well was cemented from total depth to the surface.

(e) It would cost $50,000 to $60,000 to re-enter the Monument Well No. 2 to determine the cement top, and that does not include any remedial work that may be required.

(f) It would also be too expensive to re-enter and re-plug the Monument Well No 1; further, the well is located on tribal surface which could be an additional expense.

(15) Coleman employed the services of a Hydrogeologist to conduct **a Radius-Of-Influence** study for the Juniper SWD Well No. 1. The study assumed that the Menefee and the Point Lookout members of the Mesaverde formation are homogeneous. The results of this study based on a maximum water injection rate of 2,000 barrels per day were presented at the hearing as follows:

(i) For water production through September 2006, the radius of injected water ranged from 231 feet to 292 feet with an overall average of 253 feet. The rate of radius change from December 2005 through September 2006 is 4.7 feet per month.

(ii) The area of injected water ranged from 3.8 acres to 6.1 acres with an overall average of 4.6 acres. The rate of area change from December 2005 through September 2006 is 0.16 acres per month.

(iii) It will take between 52 years and 74 years for Juniper SWD Well No.1 injection water to reach a radius of 1885 feet if the injection was confined to the Menefee and Point Lookout formations at a rate of 2,000 barrels of water per day.

(16) The OCD Geologist testified that the Menefee and Point Lookout members of the Mesaverde formation are not homogeneous; therefore the results of this study are questionable. However, the depths between 3912 feet to 3975 feet are the intervals where the sands tend to be continuous and homogeneous and therefore raises the possibility of fluid migration from the saltwater disposal well to the Monument wells.

(17) The OCD Engineer provided the following testimony:

(a) The Mesaverde formation is a very big pool and consists of several members with different salinities ranging on the average between 1,600 to 25,000 parts per million (ppm) total dissolved solids.

(b) The total dissolved solids concentration from 2,085 feet to 2,872 feet in the Juniper SWD Well No.1 ranges from 1,600 to 6,000 ppm.

(c) The U.S. Environmental Protection Agency (USEPA) is concerned that the waters in the Cliff House are fresh and should be protected because they contain TDS of 10,000 ppm or less.

(d) The Point Lookout member of the Mesaverde formation contain waters with TDS of 25,000 ppm or greater and if these waters are displaced into waters with TDS of 10,000 ppm or less, the latter will be contaminated.

Analysis

(18) The evidence presented demonstrates that the La Ventana and the Cliff House members of the Mesaverde formation appear to contain fresh waters as defined by OCD Rules and Regulations and the Federal Safe Drinking Water Act and should be protected.

(19) The Juniper SWD Well no. 1 should not be shut-in; otherwise about 50 to 75 percent of production from the Juniper area would be shut-in.

(20) The Monument Well No. 1 is an uncased dry hole which has been plugged and abandoned by merely placing cement plugs at several intervals. Coleman should re-enter the well and place a 200 foot cement plug from 2,836 feet to 3,036 feet.

(21) The evidence presented by the Applicant at the hearing indicates that the Monument Well No. 2 was properly plugged and abandoned.

(22) There is approximately 270 feet of interburden between the uppermost Menefee perforations and the lowermost Cliff House perforations in the Juniper SWD Well No. 1. Coleman should set an isolation packer at approximately 2950 feet to isolate the Cliff house perforations and monitor the annulus integrity with an electronic bottomhole pressure sensor.

(23) To prevent waste, protect correlative rights, and protect fresh waters in the Cliff House member of the Mesaverde formation, Administrative Order SWD-806-B should be amended.

IT IS THEREFORE ORDERED THAT:

(1) The application of Coleman Oil and Gas, Inc. to amend Division Administrative Order SWD-806-B to delete the requirement that it re-enter and re-plug the Monument Well No. 1 (API No. 30-045-21912) located 1650 feet from the North line and 990 feet from the East line of Section 17, Township 24 North, Range 10 West, NMPM, San Juan County, New Mexico, is hereby approved.

(2) Coleman Oil & Gas, Inc. is hereby authorized to utilize the existing perforations from 3,036 feet to 3,974 feet to dispose saltwater into the Lower Menefee and Point Lookout members of the Mesaverde formation, and the disposal shall be through a 2-7/8 inch plastic lined tubing set in a packer at approximately 2950 feet. However, Coleman shall perform the following remedial work before commencing and/or continuing injection operations into the Juniper SWD Well No.1.

(3) Coleman shall re-enter the Monument Well No.1 and place a 200-foot cement plug from 2,836 feet to 3,036 feet in order to protect fresh waters in the La Ventana and the Cliff House members of the Mesaverde formation.

(4) Coleman shall set an isolation packer at approximately 2950 feet to isolate the Cliff house perforations in the Juniper SWD Well No. 1, and monitor the annulus integrity with an electronic bottomhole pressure sensor. The bottomhole pressure in this well shall be monitored on a daily basis with the digital information sent to the office via internet. Data shall be collected and stored on a minimum of 6 hours intervals per day. Fluid levels shall be taken at least quarterly and shall be recorded and monitored for changes. Electronic Field Measurements as well as fluid levels shall be used to monitor tubing and packer integrity. Coleman shall immediately report any leakage in the tubing or packer to the Division.

(5) Before commencing and/or continuing injection operations into the Juniper SWD Well No. 1, the operator shall provide documentation to the Santa Fe and Aztec offices of the Division that the above remedial work have been successfully completed.

(6) 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.

(7) The injection well or system shall be equipped with a pressure limiting device which will limit the wellhead tubing pressure on the injection well to **no more than 607 psi**.

(8) The Director of the Division may authorize an increase in injection pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the injected fluid from the gross injection interval. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

(9) The operator shall notify the supervisor of the Aztec district office of the Division of the date and time of the installation of disposal equipment and of any mechanical integrity test so that the same may be inspected and witnessed.

(10) The operator shall immediately notify the supervisor of the Aztec district office of the Division of the failure of the tubing, casing, or packer in said well and shall take such steps as may be timely and necessary to correct such failure or leakage. In addition, the operator shall provide the Aztec district office with periodic pressure reports.

(11) The operator shall submit monthly reports of the disposal operations on Division Form C-120-A, in accordance with Rule Nos. 706 and 1120 of the Division Rules and Regulations.

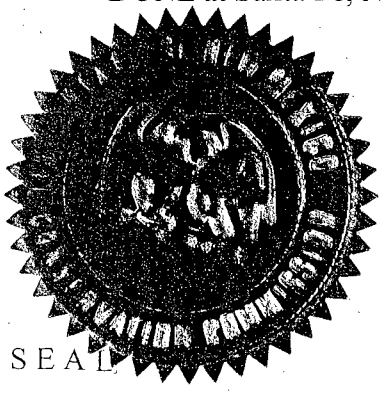
(12) This Order supersedes the Division Administrative Order SWD-806-B.

(13) This order does not relieve the operator of responsibility should its

operations cause any actual damage to protectible fresh water, human health or the environment, nor does it relieve the operator of responsibility for complying with applicable Division rules or other federal, state, or local laws or regulations.

(14) 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 water or (2) consistent with the requirements in this order, whereupon the Division may, after notice and hearing, terminate the injection authority granted herein.

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



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STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MARK E. FESMIRE, P.E.
Director