

**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 BREITBURN OPERATING LP FOR APPROVAL OF A
WATER DISPOSAL WELL, HARDING COUNTY, NEW MEXICO.**

**CASE NO. 15431
ORDER NO. R-14131**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on January 7, 2016, and January 21, 2016, at Santa Fe, New Mexico, before Examiner Phillip R. Goetze.

NOW, on this 29th day of February, 2016, 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) Breitburn Operating LP ("Applicant" or "Breitburn") seeks authority to utilize its Breitburn Operating LP 1930 SWD Well No. 124G (API No. 30-021-20692; the "subject well"), located 2265 feet from the North line and 1493 feet from the East line (Unit G) of Section 12, Township 19 North, Range 30 East, NMPM, Harding County, New Mexico, for disposal of produced water into the San Andres and Glorieta formations through a perforated interval from 1480 feet to 1631 feet below surface.

(3) On November 3, 2015, Breitburn submitted an administrative application (Application No. pMAM1531359203) to the Division for approval of the subject well for disposal of produced water. After the submittal of the application, the Division received notifications of protest by Mr. Norman Libby, Jr. of the Libby Cattle Company, and by Ms. Loretta Hayoz, a royalty interest owner of Section 12, Township 19 North, Range 30 East, NMPM.

(4) On December 30, 2015, the Division received a request from Breitburn to place the application for the subject well on a hearing docket.

(5) Subsequently, the Libby Cattle Company filed a pre-hearing statement for appearance regarding the application.

(6) At hearing, the Libby Cattle Company appeared in opposition through legal counsel, but did not offer any testimony or exhibits.

(7) Ms. Hayoz and Mr. Paul Markovics appeared *pro se* in opposition to the application but did not offer expert testimony regarding the application's content. The testimony by Ms. Hayoz and Mr. Markovics presented concerns regarding the potential for environmental and seismic risk issues if the application were to be approved.

Applicant appeared at the hearing through counsel and presented the following testimony.

(8) Applicant seeks to utilize the subject well for injection of produced water through perforations from 1480 feet to 1631 feet below surface. The subject well was completed on October 16, 2015.

(9) The subject well is constructed with 8 $\frac{3}{4}$ -inch surface casing set at 700 feet below surface with cement circulated to surface. This depth will protect the deepest measured water well in the area. The second string of casing, the 5 $\frac{1}{2}$ -inch production casing, was set at the total depth of 2330 feet with cement placed in two stages and circulated to surface.

(10) Applicant provided a cement bond log for the 5 $\frac{1}{2}$ -inch production casing showing the final cement top at 44 feet below surface with continuous cemented casing to total depth.

(11) Applicant proposed an average injection rate of 350 barrels of water per day (BWPD), with a maximum injection rate not expected to exceed 700 BWPD, and a planned total volume of disposal of 1.28 million barrels of produced water.

(12) The primary source for disposal in the subject well would be produced water from carbon dioxide production of the Tubb formation within the Bravo Dome Carbon Dioxide Gas field. This source is compatible with existing formation fluids based on analytical results provided by Applicant and supplemental evidence requested by the Division regarding the proposed injection interval.

(13) No active fresh-water wells were identified within a two-mile radius of the subject well. Depth to water for domestic and livestock wells outside the two-mile radius varies from 26 feet to 80 feet below surface. The Applicant did not find any documentation in the vicinity of the subject well showing either the Glorieta formation or the San Andres formation being utilized as a fresh-water supply source.

(14) The results of the half-mile Area of Review (AOR) around the subject well found one active producing well that penetrated the proposed injection interval. The producing well is sufficiently cased and cemented to protect underground sources of protectable water and not allow migration of injected fluids from the proposed injection interval. The original disposal well, which was authorized under administrative order SWD-1567 (Breitburn Operating LP 1930 SWD Well No. 123G; API No. 30-021-20682) and was ten feet to the east of the subject well, encountered drilling problems and was plugged and abandoned. This abandoned well did not penetrate the proposed injection interval.

(15) Applicant identified the lower San Andres formation and the Glorieta formation for the disposal interval above the producing interval in the Bravo Dome Carbon Dioxide Gas field based on the absence of hydrocarbon and carbon dioxide resources.

(16) Applicant tested the Glorieta formation by swabbing and found no water present in this formation. Applicant presented additional evidence based on the resistivity log for the subject well that the fluids in the lower San Andres formation contained a salinity (sodium chloride) concentration of approximately 20,000 milligrams per liter.

(17) At the request of the Division, Applicant calculated a maximum radius of horizontal migration from the subject well in the proposed injection interval for the expected life of the well. Results of Applicant's model showed an estimated maximum radius of 2217 feet from the subject well using the maximum rate of 700 BWPD for the expected operational period of the well.

(18) Applicant stated the economic necessity for disposal in the subject well to support production of carbon dioxide resources containing higher water content more commonly found along the outer edges of the Bravo Dome field.

(19) Applicant provided evidence of proper notification including return receipts and affidavit of publication in a local newspaper of general circulation, the Harding County Leader.

Opponent, through counsel, presented the following testimony by cross-examination.

(20) Applicant's evidence for characterization of formation fluids in the Glorieta formation was limited to only the subject well and another well approximately 1000 feet to the west of the subject well. No other water quality information for this formation or the San Andres formation was offered in the application or testimony.

(21) Applicant acknowledged that the subject well was a replacement for an adjacent well, the Breitburn Operating LP 1930 SWD Well No. 123G, which was drilled prior to the subject well and encountered drilling problems that resulted in the well being plugged and abandoned.

The Division concludes as follows:

(22) The testimony of Ms. Hayoz, a surface property and royalty interest owner, presented environmental and surface use issues. Ms. Hayoz stated that the Applicant had not provided in its application any information on mitigation of potential spills from the subject well, the proposed access to the subject well, and potential loss of grazing resources due to the operation of the subject well. Though some environmental issues related to the operation of the subject well are under the Division's authority of the New Mexico Oil and Gas Act, NMSA 1978, the specific issues are not pertinent to the required content of this application and to the permitting process provided in the Underground Injection Control (UIC) program and Division Rule 19.15.26.8 NMAC.

(23) The testimony of Mr. Markovics presented concerns associated with seismic risk and the operation of the well if approved. Though clusters of seismic events have been identified for various parts of New Mexico, the Division has no historical evidence, through published reports or earthquake catalogues, that the subject well is located in an area of the state which is void of any seismic activity based on the available data. Therefore, the Division could not corroborate Mr. Markovics' concerns of the potential for an induced-seismicity event associated with the proposed disposal operation.

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

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

(26) Division records indicate Breitburn Operating LP (OGRID 370080) as of the date of this order is in compliance with Division Rule 19.15.5.9 NMAC.

(27) Applicant sufficiently demonstrated that the formation fluids found in the proposed injection interval contained greater than 10,000 parts per million total dissolved solids and are not protectable under the Division's definition as an underground source of drinking water.

(28) Approval of disposal in the subject well will enable Applicant to produce the carbon dioxide reserves in this area, thereby preventing waste, and will not impair correlative rights.

(29) The application should be approved.

IT IS THEREFORE ORDERED THAT:

(1) Breitburn Operating LP ("Breitburn" or "operator") is hereby authorized to utilize its Breitburn Operating LP 1930 SWD Well No. 124G (API No. 30-021-20692; the "subject well"), located 2265 feet from the North line and 1493 feet from the East line

(Unit G) of Section 12, Township 19 North, Range 30 East, NMPM, Harding County, New Mexico, as a disposal well for UIC Class II fluids.

(2) Disposal shall be through a perforated interval from 1480 feet to 1631 feet below surface in a permitted injection interval comprising the lower San Andres formation and the Glorieta formation. 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 Tubb formation or other formations directly related to the production from leases within the Bravo Dome Carbon Dioxide Gas field. Any change in the sources of disposal fluids shall require Division approval which may be granted only after hearing.

(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 296 psi**. In addition, 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 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 approved injection interval. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

(9) The operator shall notify the supervisor of the Division's District IV 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 IV 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.

(10) Without limitation on the duties of the operator as provided in Division 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.

(11) 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.

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

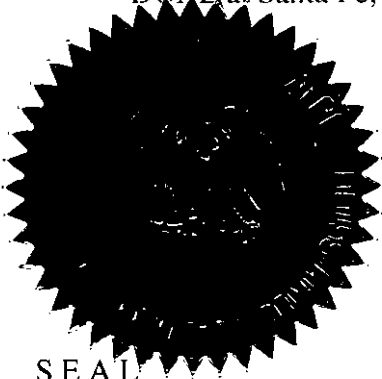
(13) The disposal authority granted herein shall terminate two years after the effective date of this order if the operator has not commenced injection operations into the subject well, provided however, the Division, upon written request, mailed by the operator prior to the termination date, may grant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

A handwritten signature in cursive script, reading "David R. Catanach".

DAVID R. CATANACH
Director