

**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 THE:**

**APPLICATION OF BC OPERATING, INC. FOR AUTHORIZATION TO
INJECT WATER FOR LEASE PRESSURE MAINTENANCE OPERATIONS
AND DESIGNATION OF A PROJECT AREA, LEA COUNTY, NEW MEXICO**

**CASE NO. 14571
ORDER NO. R-13361**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on December 2, 2010, at Santa Fe, New Mexico before Examiner William V. Jones.

NOW, on this 11th day of March, 2011, 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) BC Operating, Inc. ("BC Operating" or "applicant") seeks approval to implement pressure maintenance operations by injection of produced water into the San Andres formation within the Angell Lease containing 80 acres, more or less, of the following lands within Lea County, New Mexico:

Township 17 South, Range 36 East, NMPM

Section 11: E/2 NE/4

(3) The project would initially consist of one injection well and one producing well as follows:

30-025-39690	Angell Well No. 3	<u>Subject Well</u>	Unit H
30-025-37902	Angell Well No. 1	Producer	Unit A

(4) The vertical extent of the proposed Pressure Maintenance Project underlying the Angell Lease Area is the productive interval within the San Andres formation. The San Andres formation top is at approximately 4740 feet and it extends to the Glorieta formation at approximately 6150 feet. Injection is proposed into the Angell Well No. 3 from 4802 to 5432 feet.

(5) BC Operating presented exhibits and testimony from a professional engineer indicating the following:

(a) Vanguard Permian, LLC was not formally notified of this application, but is a business partner in the subject well and an operator of lands directly to the east.

(b) The offsetting lease operated by BC Operating is owned identically to the subject lease, the same owners in the same percentages.

(c) The Project Area should include the 80 acres consisting of the E/2 NE/4 of Section 11. These lands are under a common lease held by BC Operating.

(d) The San Andres formation in this area dips gently to the east. The San Andres is being waterflooded successfully in this area and has favorable reservoir and fluid characteristics for waterflooding. Re-injecting water into this reservoir downdip from the producing well is expected to improve oil recovery. Another benefit will be reduced water hauling costs from this lease, extending the life of the production well.

(e) The operator intends to only use the proposed injection well for re-injection of produced water. The source of this produced water is expected to be from the Angell B Well No. 2 and from the Angell Well No. 1.

(f) The fresh water aquifer in this area is the Ogallala reservoir and extends from 50 feet to 200 feet below surface.

(g) All wells within the ½ mile area of review are adequately cemented in order to isolate the injection to the intended injection interval. There are no faults or conduits which could transport injected waters out of the injection interval. Any fresh water sands will be protected from this injection operation, and fresh water will not be endangered.

(6) This area is on the southwestern edge of the productive San Andres reservoir. Chevron Midcontinent, L.P. operates the Lovington San Andres Unit waterflood located directly northeast in offsetting Section 1. BC Operating operates a San Andres/Paddock downhole commingled producer in Unit B of Section 11 called the Angell B Well No. 2. Vanguard Permian, LLC controls offsetting acreage within Section 12 containing an unsuccessful San Andres/Paddock well located in Unit E of Section 12. The Angell Federal Well No. 3 or "subject well" was drilled in 2010 as an unsuccessful

San Andres well.

(7) The subject well appears to be adequately cased and cemented, in order to confine injection to the proposed interval. Within the Area of Review, all five active wells and the one plugged well appear to be adequately cased, cemented, or plugged to prevent movement of injection fluids out of zone and to protect any underground sources of drinking water.

(8) The proposed Angell Lease Pressure Maintenance Project is wholly contained within the Lovington-Grayburg-San Andres Pool (Pool Code 40580). Wells completed within this pool are governed by statewide rules, including those specific to oil well spacing and setbacks.

(9) BC Operating, Inc. (OGRID 160825) is the operator of record of the wells located on this acreage. BC Operating is in compliance with Division Rule 5.9 and therefore eligible for approval of disposal and injection permits.

(10) The applicant has notified affected parties of the intent to inject into the proposed injection well and has received no objections. No other parties appeared in this case or otherwise opposed this application.

(11) The proposed Pressure Maintenance Project within this lease is feasible and should result in the recovery of additional oil and gas that would not otherwise be recovered.

(12) The estimated additional costs of the proposed Pressure Maintenance operations will not exceed the estimated value of the additional oil and gas recovered plus a reasonable profit.

(13) The Project Area should include the 80 acres consisting of the E/2 NE/4 of Section 11. The proposed project will prevent waste, protect correlative rights, and should be approved and called the Angell Lease Pressure Maintenance Project.

(14) BC Operating should be approved to inject into the San Andres formation within the Angell Federal Well No. 3 from depths of 4802 to 5432 feet. Provisions should be made for the operator of the Angell Lease to apply administratively for additional or alternative injection wells as needed within this lease.

IT IS THEREFORE ORDERED THAT:

(1) BC Operating, Inc. ("BC Operating") is hereby authorized to implement pressure maintenance operations within the Angell Lease by injection of produced water into the productive interval of the San Andres formation.

(2) The Angell Lease acreage, all of which is approved as the "Project Area", consists of 80 acres, more or less, defined as follows:

Township 17 South, Range 36 East, NMPM, Lea County, New Mexico

Section 11: E/2 NE/4

(3) BC Operating is approved to utilize the Angell Federal Well No. 3 (API No. 30-025-39690), located 1650 feet from the North line and 660 feet from the East line, Unit H, of Section 11, Township 17 South, Range 36 East, NMPM, Lea County, New Mexico, for injection of produced water (UIC Class II only) into the San Andres formation from 4802 feet to 5432 feet for purposes of pressure maintenance.

(4) The Division Director may administratively authorize an alternative injection well or additional injection wells within this lease as provided in 19.15.26.8F. NMAC.

(5) The Angell Lease Pressure Maintenance Project is hereby approved and shall initially consist of one injection well and one producing well, all contained in the 80-acre lease.

(6) The operator of the Angell Lease shall be BC Operating, Inc. (OGRID 160825).

(7) BC Operating shall take all steps necessary to ensure that the injected water enters only the permitted injection interval and is not permitted to escape to other formations or onto the surface from injection, production, or plugged and abandoned wells.

(8) Injection into any approved injection well or wells within this project shall be accomplished through plastic-lined tubing installed in a packer located within 100 feet of the uppermost injection perforation. The casing-tubing annulus shall be filled with an inert fluid, and a gauge or approved leak-detection device shall be attached to the annulus in order to detect any leakage in the casing, tubing, or packer.

(9) The injection well or pressurization system shall be equipped with a pressure control device or acceptable substitute that will limit the maximum surface injection pressure to 960 psi.

(10) The Division Director may administratively authorize a pressure limitation in excess of the above, upon a showing by the operator, supported by an approved Step Rate Test, that such higher pressure will not result in the fracturing of the injection formation or confining strata or damage to the reservoir.

(11) The operator shall provide notice, 72 hours in advance, to the supervisor of the Division's district office of the date and time of the installation of injection equipment and of any mechanical integrity test so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of injection to the Division's district office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules

26.13 and 7.24.

(12) Without limitation on the duties of the operator as provided in Division Rules 30 and 29, 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.

(13) 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.

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

(15) In accordance with Division Rule No 26.12.C., the disposal authority granted herein shall terminate one year 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. One year after injection into the Project Area has ceased or not been reported, the authority to inject will terminate *ipso facto*.

(16) 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.

(17) 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 without prior notice and hearing in case of emergency), terminate the injection 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, appearing to read "Daniel Sanchez".

DANIEL SANCHEZ
Acting Director