

**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. 12265
Order No. R-11328**

**APPLICATION OF OXY USA, INC. FOR SALT WATER DISPOSAL, EDDY COUNTY,
NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on October 21, 1999, at Santa Fe, New Mexico, before Examiner Mark W. Ashley.

NOW, on this 16th day of February, 2000, 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, OXY USA, Inc., seeks authority to convert its Government AB Well No. 9 (API No. 30-015-27964), which is located at a surface location 330 feet from the North line and 230 feet from the East line (Unit A) and a subsurface location 772 feet from the North line and 660 feet from the East line (Unit A) of Section 10, Township 20 South, Range 28 East, NMPM, Eddy County, New Mexico, for disposal of produced salt water into the Bone Springs formation through the perforated interval from approximately 6,378 feet to 6,619 feet.

(3) The record was supplemented by OXY USA, Inc. with letters dated January 10, 2000 and January 20, 2000 clarifying its position regarding injection into the Government AB Well No. 9 and the effects of injection on the Government S Well No. 2 and the Government AB Well No. 2.

(4) Division records indicate that the Government AB Well No. 9 was drilled in May, 1994 to a total depth of 6,725 feet to test the Bone Springs formation. The well was perforated in the Bone Springs interval from 6,378 feet to 6,619 feet and is currently

**BEFORE THE
OIL CONSERVATION DIVISION
Case No.12265 Exhibit No. 3
Submitted By:
OXY USA, Inc.
Hearing Date: April 5, 2001**

producing 8 barrels of oil per day, 47 barrels of water per day, and 47 MCF of gas per day from the Old Millman Ranch-Bone Springs Pool.

(5) The applicant is the operator of all the wells that penetrate the Bone Springs formation within the "Area of Review," the area within a ½-mile radius of the proposed injection well.

(6) The applicant originally submitted an application for administrative approval. During review of the application the Division discovered that the Government S Well No. 2 (**API No. 30-015-22999**) located 660 feet from the South Line and 1980 feet from the East line (Unit O) of Section 3, which currently produces from the Morrow formation, and the Government AB Well No. 2 (**API No. 30-015-21480**) located 1980 feet from the South line and 660 feet from the East line (Unit I) of Section 10, which currently produces from the Wolfcamp formation, were not adequately cemented behind the production casing across and above the proposed injection zone.

(7) The top of cement in the Government S Well No. 2 is at a depth of approximately 7,400 feet as determined by cement bond log. The top of cement in the Government AB Well No. 2 is at a depth of approximately 7,600 feet as determined by temperature survey.

(8) The applicant presented geologic evidence indicating that:

(a) the Government S Well No. 2 is located up dip from the proposed injection well and has approximately 27 feet of porosity. The Government S Well No. 2 is offset to the north by the Government S Well No. 3 (**API No. 30-015-27839**) in Unit O of Section 3, to the east by the Government S Well No. 7 (**API No. 30-015-28504**) in Unit P of Section 3, to the southwest by the Government AB Well No. 7 (**API No. 30-015-27847**) in Unit C of Section 10 and to the south by the Government AB Well No. 8 (**API No. 30-015-27863**) in Unit B of Section 10. All of the above-mentioned offsets currently produce from the Bone Springs formation; and

(b) the Government AB Well No. 2 is located structurally down dip of the proposed injection well and at the edge of porosity for the Bone Springs reservoir. Additionally, the Government AB Well No. 2 is located at the outer limit of the "Area of Review."

(9) As a secondary purpose, the applicant proposes to use the Government AB Well No. 9 to determine the feasibility of waterflooding the Bone Springs formation in the

Old Millman Ranch-Bone Springs Pool.

(10) The applicant testified that based upon its engineering interpretation, the current producing zones in the Government S Well No. 2 and the Government AB Well No. 2 could be lost if the Division requires both wells to be cemented across and above the proposed injection zone.

(11) The applicant proposed an alternative to the Division's casing and cementing requirements for wells within the "Area of Review." Under the proposed monitoring program, the applicant would:

- (a) perform and record monthly well tests on the Government S Well No. 3, Government S Well No. 7, Government AB Well No. 7 and Government AB Well No. 8 to monitor production volumes of gas, oil and water;
- (b) install 0-1000 psi pressure gauges between the intermediate and production casings on the Government S Well No. 2 and the Government AB Well No. 2;
- (c) record baseline pressure readings on the Government S Well No. 2 and the Government AB Well No. 2;
- (d) observe and record pressures on the annulus between the intermediate and production casings on the Government S Well No. 2 and the Government AB Well No. 2 once a week;
- (e) observe and record the injection pressure and injection rate on the Government AB Well No. 9 once a week; and
- (f) report all observations to the Division's Artesia District Office on the monitoring report included as Exhibit "A" by the 15th of the month following the month in which the pressures are recorded.

(12) The applicant further proposed that if any of the following conditions occur, injection operations in the Government AB Well No. 9 would cease and the Division's Artesia District Office would be notified:

- (a) water breakthrough of 100 BWPD or more in the Government S Well No. 3, Government S Well No. 7, Government AB Well No. 7 or Government AB Well No. 8; or

(b) detection of a pressure increase of 250 psi or more above the baseline on the annulus between the intermediate and production casings on the Government S Well No. 2 or the Government AB Well No. 2.

(13) The evidence indicates that the Government AB Well No. 9 is cased and cemented adequately to preclude the migration of fluid from the proposed injection zone.

(14) Because the Government AB Well No. 2 is located structurally down dip of the proposed injection well and at the edge of porosity for the Bone Springs reservoir and the Government S Well No. 2 is offset by three wells that currently produce from the Bone Springs formation, the subject application should be approved provided that, prior to commencing injection operations into the Government AB Well No. 9, the applicant should be required to implement the applicant's proposed monitoring program.

(15) Additionally, the applicant calculated short-term pressure increases due to injection operations in the reservoir at various distances from the Government AB Well No. 9 to determine if injection operations might cause flow behind pipe in the Government S Well No. 2 or the Government AB Well No. 2. The results indicated that flow behind pipe is not likely to occur in the short term.

(16) The operator should 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 from injection, production or plugged and abandoned wells.

(17) The injection of water into the Government AB Well No. 9 should be accomplished through 2 7/8 inch plastic-lined tubing set in a packer located at approximately 6,378 feet.

(18) The casing-tubing annulus should be filled with an inert fluid and a pressure gauge or approved leak-detection device should be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(19) Prior to commencing injection operations into the Government AB Well No. 9, the casing should be pressure tested throughout the interval from the surface to the proposed packer setting depth to verify the integrity of the casing.

(20) The injection well or pressurization system should be equipped with a pressure limiting device that will limit the wellhead pressure on the injection well to no more than 1276 psi.

(21) The Director of the Division should be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected fluid from the Bone Springs formation.

(22) The applicant should immediately notify the supervisor of the Division's Artesia District Office of the failure of the tubing, casing or packer in the injection well or the leakage of water or oil from or around any producing or plugged and abandoned well within the "Area of Review," and should take such steps as may be necessary and timely to correct the failure or leakage.

(23) The operator should submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules No. 706 and 1120.

(24) The injection authority granted herein for the Government AB Well No. 9 should terminate one year after the effective date of this order if the applicant has not commenced injection operations into the subject well, provided, however, the Division may grant an extension thereof for good cause shown upon written request by the applicant.

(25) This case should be reopened at an examiner hearing in February, 2001, at which time OXY USA, Inc. should be prepared to appear and show cause why the Government S Well No. 2 and the Government AB Well No. 2 should not be properly cemented across and above the injection zone.

IT IS THEREFORE ORDERED THAT:

(1) The application of OXY USA, Inc. to utilize its Government AB Well No. 9 (**API No. 30-015-27964**), which is located at a surface location 330 feet from the North line and 230 feet from the East line (Unit A) and a subsurface location 772 feet from the North line and 660 feet from the East line (Unit A) of Section 10, Township 20 South, Range 28 East, NMPM, Eddy County, New Mexico, to dispose of produced salt water into the Bone Springs formation through the perforated interval from approximately 6,378 feet to 6,619 feet is hereby approved.

(2) 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 from injection, production or plugged and abandoned wells.

(3) The injection of water into the Government AB Well No. 9 shall be accomplished through 2 7/8 inch plastic-lined tubing set in a packer located at approximately

6,378 feet.

(4) The casing-tubing annulus shall be filled with an inert fluid and a pressure gauge or approved leak-detection device shall be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(5) Prior to commencing injection operations into the Government AB Well No. 9, the casing shall be pressure tested throughout the interval from the surface to the proposed packer setting depth to verify the integrity of the casing.

(6) Prior to commencing injection operations into the Government AB Well No. 9, the Government S Well No. 2 (**API No. 30-015-22999**) located 660 feet from the South Line and 1980 feet from the East line (Unit O) of Section 3, which currently produces from the Morrow formation, and the Government AB Well No. 2 (**API No. 30-015-21480**) located 1980 feet from the South line and 660 feet from the East line (Unit I) of Section 10, which currently produces from the Wolfcamp formation, shall be equipped with 0-1000 psi pressure gauges between the intermediate and production casings and baseline pressure shall be recorded.

(7) The operator shall:

(a) perform and record monthly well tests on the Government S Well No. 3 (**API No. 30-015-27839**) in Unit O of Section 3, the Government S Well No. 7 (**API No. 30-015-28504**) in Unit P of Section 3, the Government AB Well No. 7 (**API No. 30-015-27847**) in Unit C of Section 10 and the Government AB Well No. 8 (**API No. 30-015-27863**) in Unit B of Section 10 to monitor production volumes of gas, oil and water;

(d) observe and record pressures on the annulus between the intermediate and production casings on the Government S Well No. 2 and the Government AB Well No. 2 once a week;

(c) observe and record the injection pressure and injection rate on the Government AB Well No. 9 once a week;

(d) report all observations to the Division's Artesia District Office on the monitoring report included as Exhibit "A" by the 15th of the month following the month in which the pressures are recorded.

(8) If any pressure increase is detected above baseline on the annulus between the intermediate and production casings on the Government S Well No. 2 or the Government AB Well No. 2, the operator shall notify the Division's Artesia District Office immediately.

(9) If any of the following conditions occur, injection operations in the Government AB Well No. 9 shall cease and the Division's Artesia District Office shall be notified immediately:

(a) water breakthrough of 100 BWPD or more in the Government S Well No. 3, the Government S Well No. 7, the Government AB Well No. 7 or the Government AB Well No. 8; or

(b) detection of a pressure increase of 50 psi or more above baseline on the annulus between the intermediate and production casings on the Government S Well No. 2 or the Government AB Well No. 2.

(10) The injection well or pressurization system shall be equipped with a pressure limiting device that will limit the wellhead pressure on the injection well to no more than 1276 psi.

(11) The Director of the Division shall be authorized to administratively approve an increase in the injection pressure upon a proper showing by the operator that such higher pressure will not result in migration of the injected fluid from the Bone Springs formation.

(12) 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 injection well or the leakage of water or oil from or around any producing or plugged and abandoned well within the "Area of Review," and shall take such steps as may be necessary and timely to correct the failure or leakage.

(13) The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules No. 706 and 1120.

(14) The injection authority granted herein for the Government AB Well No. 9 shall terminate one year after the effective date of this order if the applicant has not commenced injection operations into the subject well, provided, however, the Division may grant an extension thereof for good cause shown upon written request by the applicant.

(15) This case shall be reopened at an examiner hearing in February, 2001, at which time OXY USA, Inc. shall appear and show cause the Government S Well No. 2 and

the Government AB Well No. 2 should not be properly cemented across and above the injection zone.

(16) Jurisdiction is hereby retained for the entry of such further orders as the Division may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

LORI WROTENBERY
Director

S E A L