

**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. 10684  
Order No. R-9890**

**APPLICATION OF SDX RESOURCES, INC.  
FOR APPROVAL OF A WATERFLOOD  
PROJECT, EDDY COUNTY, NEW MEXICO.**

**ORDER OF THE DIVISION**

**BY THE DIVISION:**

This cause came on for hearing at 8:15 a.m. on April 8, 1993, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 3rd day of May, 1993, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

**FINDS THAT:**

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) The applicant, SDX Resources, Inc., seeks authority to institute a waterflood project on its Leonard Federal and Leonard "B" Federal Leases located in a portion of Section 33, Township 17 South, Range 29 East, NMPM, Eddy County, New Mexico, by the injection of water into the Grayburg and San Andres formations, Grayburg-Jackson-Seven Rivers-Queen-Grayburg-San Andres Pool, through the gross interval from approximately 2,650 feet to 3,048 feet in the following described wells both located in Section 33:

**WELL NAME & NUMBER**

**WELL LOCATION**

Leonard "B" Federal No. 1  
Leonard Federal No. 3

330' FNL & 1650' FEL (Unit B)  
1980' FNL & 1980' FWL (Unit F)

(3) Within the Leonard "B" Federal Well No. 1, the applicant proposes to inject into the perforated interval from 2,650 feet to 2,754 feet and the open hole interval from 2,754 feet to 3,048 feet.

(4) Within the Leonard Federal Well No. 3 the applicant proposes to inject into the perforated intervals as follows: 2,654-2,670; 2,708-2,713; 2,944-2,949; and, 2,951-2,956.

(5) The Leonard Federal Lease comprises the NW/4 and the N/2 SW/4 of Section 33. The Leonard "B" Federal Lease comprises the NE/4 of Section 33.

(6) According to applicant's testimony, the working interest and royalty interest within the Leonard Federal and Leonard "B" Federal Leases is common.

(7) The wells within the proposed project area are in an advanced state of depletion and should therefore be properly classified as "stripper wells".

(8) The proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(9) There is a plugged and abandoned well within the "area of review" of the Leonard "B" Federal Well No. 1, this being the Leonard State Well No. 4 located in Unit D of Section 34, Township 17 South, Range 29 East, NMPM, that the applicant has been unable to locate plugging records on.

(10) The Division has been able to locate plugging records on the aforesaid Leonard State Well No. 4 and these records indicate that the subject well is not plugged in a manner which will prevent the migration of fluid from the proposed injection zone.

(11) Prior to commencing injection operations into the Leonard "B" Federal Well No. 1, the applicant should be required to re-enter and replug the Leonard State Well No. 4 in accordance with an approved Division plugging program as directed by the supervisor of the Division's Artesia District Office.

(12) There is also a well within the "area of review" of both proposed injection wells, this being the Central Resources Inc. Federal "33" Com Well No. 2 located in Unit C of Section 33, which may not be cased and cemented in a manner which will prevent the migration of fluid from the proposed injection zone.

(13) Evidence presented by the applicant indicates that the Federal "33" Com Well No. 2 is currently cased and cemented as follows:

<u>CASING SIZE</u>	<u>DEPTH SET</u>	<u>SX CEMENT</u>	<u>TOC</u>
13 3/8"	348'	325	Circulated
8 5/8"	2800'	1200	Circulated
5 1/2"	9200'	400	6850 by CBL

(14) Within the Federal "33" Com Well No. 2, a portion of the proposed injection interval, being the "Premier" zone, is protected by the intermediate string of casing; however, a portion of the proposed injection zone, being the San Andres interval, is not protected by casing or cement.

(15) At the time of the hearing, the applicant requested that it be allowed to inject only into the "Premier" interval until such time as remedial cement operations can be performed on the Federal "33" Com Well No. 2.

(16) This request is reasonable and should be granted.

(17) Prior to commencing injection operations, the applicant should consult with the supervisor of the Division's Artesia District Office in order to determine:

- a) the vertical location of the "Premier" and San Andres intervals within the proposed injection wells; and,
- b) a satisfactory method by which the injection wells may be completed in order to limit the injection interval to the "Premier" zone only.

(18) The applicant 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.

(19) The injection of water into the proposed injection wells should be accomplished through 2 3/8-inch internally plastic-lined tubing installed in a packer set within 100 feet of the uppermost injection perforation; the casing-tubing annulus should be filled with an inert fluid and a gauge or approved leak-detection device should be attached to the annulus in order to determine leakage in the casing, tubing or packer.

(20) Prior to commencing injection operations into the proposed injection wells, the casing in each well should be pressure tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(21) The injection wells or pressurization system should be initially equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 530 psi.

(22) The Division Director should have the authority to administratively authorize a pressure limitation in excess of the pressure limitation described above upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(23) The operator should give advance notification to the supervisor of the Artesia District Office of the Division of the date and time of the conductance of re-entry and replugging operations on the Leonard State Well No. 4, the installation of injection equipment and of the mechanical integrity pressure tests in order that the same may be witnessed.

(24) The proposed waterflood project should be approved and the project should be governed by the provisions of Rule Nos. 701 through 708 of the Oil Conservation Division Rules and Regulations.

(25) At the time of the hearing, the applicant requested that the subject waterflood project be approved by the Division as a qualified "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(26) The evidence presented indicates that the subject waterflood project meets all the criteria for approval.

(27) The approved "project area" should initially comprise the N/2 and N/2 SW/4 of Section 33.

(28) To be eligible for the EOR credit, prior to commencing injection operations, the operator must request from the Division a Certificate of Qualification, which certificate will specify the proposed project area as described above.

(29) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations, and identifying the specific wells which the operator believes are eligible for the credit. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to The Department of Taxation and Revenue those lands and wells which are eligible for the credit.

**IT IS THEREFORE ORDERED THAT:**

(1) The application of SDX Resources, Inc. for authority to institute a waterflood project on its Leonard Federal and Leonard "B" Federal Leases, comprising the N/2 and N/2 SW/4 of Section 33, Township 17 South, Range 29 East, NMPM, Grayburg-Jackson-Seven Rivers-Queen-Grayburg-San Andres Pool, Eddy County, New Mexico, by the injection of water into the Grayburg and San Andres formations through the gross interval from approximately 2,650 feet to 3,048 feet in the following described wells, both located in Section 33, is hereby approved:

<u>WELL NAME &amp; NUMBER</u>	<u>WELL LOCATION</u>
Leonard "B" Federal No. 1	330' FNL & 1650' FEL (Unit B)
Leonard Federal No. 3	1980' FNL & 1980' FWL (Unit F)

(2) Prior to commencing injection operations into the Leonard "B" Federal Well No. 1, the applicant shall re-enter and replug the Leonard State Well No. 4, located in Unit D of Section 34, Township 17 South, Range 29 East, NMPM, in accordance with an approved Division plugging program as directed by the supervisor of the Division's Artesia District Office.

(3) Injection into the above-described wells shall be limited to the "Premier" interval until such time as remedial cement operations are conducted on the Central Resources Inc. Federal "33" Com Well No. 2 located in Unit C of Section 33 in order to effectively isolate the San Andres formation.

(4) Prior to commencing injection operations, the applicant shall consult with the supervisor of the Division's Artesia District Office in order to determine:

- a) the vertical location of the "Premier" and San Andres intervals within the proposed injection wells; and,
- b) a satisfactory method by which the injection wells may be completed in order to limit the injection interval to the "Premier" zone only.

(5) The applicant 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.

(6) Injection shall be accomplished through 2 3/8-inch plastic-lined tubing installed in a packer set within 100 feet of the uppermost injection perforation; the casing-tubing annulus in each well shall be filled with an inert fluid and equipped with an approved pressure gauge or attention-attracting leak detection device.

(7) The injection wells or pressurization system shall be equipped with a pressure control device or acceptable substitute which will limit the surface injection pressure to no more than 530 psi.

(8) The Division Director shall have the authority to administratively authorize a pressure limitation in excess of the above upon a showing by the operator that such higher pressure will not result in the fracturing of the injection formation or confining strata.

(9) Prior to commencing injection operations, the casing in each injection well shall be pressure-tested throughout the interval from the surface down to the proposed packer setting depth, to assure the integrity of such casing.

(10) The operator shall give advance notification to the supervisor of the Artesia District Office of the Division of the date and time of the conductance of reentry and replugging operations on the Leonard State Well No. 4, the installation of injection equipment and of the mechanical integrity pressure tests of the injection wells in order that the same may be witnessed.

(11) The applicant shall immediately notify the supervisor of the Artesia District Office of the Division of the failure of the tubing, casing or packer in any of the injection wells, the leakage of water or oil from or around any producing well, or the leakage of water or oil from any plugged and abandoned well within the project area, and shall take such steps as may be timely and necessary to correct such failure or leakage.

(12) The subject waterflood project is hereby designated the SDX Leonard Grayburg-Jackson Waterflood Project, and the applicant shall conduct injection operations in accordance with Division Rule Nos. 701 through 708 and shall submit monthly progress reports in accordance with Division Rule Nos. 706 and 1115.

(13) The subject waterflood project is hereby approved as an "Enhanced Oil Recovery Project" pursuant to the "Enhanced Oil Recovery Act" (Laws 1992, Chapter 38, Sections 1 through 5).

(14) The approved "project area" shall initially comprise the N/2 and N/2 SW/4 of Section 33.

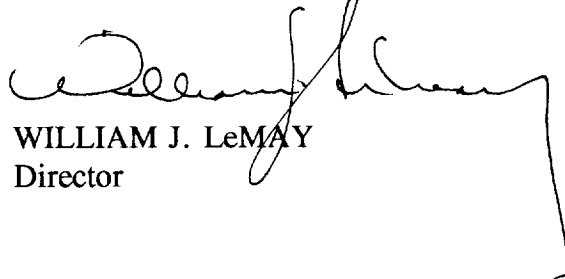
(15) To be eligible for the EOR credit, prior to commencing injection operations, the operator must request from the Division a Certificate of Qualification, which certificate will specify the proposed project area as described above.

(16) At such time as a positive production response occurs and within five years from the date of the Certificate of Qualification, the applicant must apply to the Division for certification of positive production response, which application shall identify the area actually benefitting from enhanced recovery operations, and identifying the specific wells which the operator believes are eligible for the credit. The Division may review the application administratively or set it for hearing. Based upon evidence presented, the Division will certify to the Department of Taxation and Revenue those lands and wells which are eligible for the credit.

(17) Jurisdiction of this cause is 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



WILLIAM J. LeMAY  
Director

S E A L