



BRUCE KING  
GOVERNOR

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



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SANTA FE, NEW MEXICO 87504  
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CORRECTED  
*ADMINISTRATIVE ORDER NO. WFX-632*

*APPLICATION OF GREENHILL PETROLEUM CORPORATION TO EXPAND ITS  
WATERFLOOD PROJECT IN THE LOVINGTON GRAYBURG SAN ANDRES POOL IN  
LEA COUNTY, NEW MEXICO*

ADMINISTRATIVE ORDER  
OF THE OIL CONSERVATION DIVISION

Under the provisions of Division Order No. R-2278, Greenhill Petroleum Corporation has made application to the Division on March 20, 1992, for permission to expand its Lovington San Andres Unit Waterflood Project in the Lovington Grayburg San Andres Pool in Lea County, New Mexico.

THE DIVISION DIRECTOR FINDS THAT:

- (1) The application has been filed in due form.
- (2) Satisfactory information has been provided that all offset operators have been duly notified of the application.
- (3) No objection has been received within the waiting period as prescribed by Rule 701(B).
- (4) The proposed injection well is eligible for conversion to injection under the terms of Rule 701.
- (5) The proposed expansion of the above referenced Waterflood Project will not cause waste nor impair correlative rights.
- (6) The application should be approved.

IT IS THEREFORE ORDERED THAT:

The applicant, Greenhill Petroleum Corporation, be and the same is hereby authorized to inject water into the San Andres formation at approximately 4530 feet to approximately 5130 feet through 2 3/8 inch plastic lined tubing set in a packer located within 100 feet of the uppermost injection perforations or openhouse interval in the wells shown on Exhibit "A" attached hereto for purposes of secondary recovery to wit.

IT IS FURTHER ORDERED THAT:

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.

Prior to commencing injection operations into the wells the casing in each well shall pressure tested from the surface to the packer setting depth to assure the integrity of said casing.

The casing-tubing annulus in each well shall be loaded with an inert fluid and equipped with a pressure gauge at the surface or left open to the atmosphere to facilitate detection of leakage in the casing, tubing or packer.

The injection wells or system shall be equipped with a pressure limiting device which will limit the wellhead pressure on the injection wells to no more than .2 psi/ft. of depth to the uppermost perforation and shown on Exhibit "A".

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 San Andres formation. Such proper showing shall consist of a valid step-rate test run in accordance with and acceptable to this office.

The operator shall notify the supervisor of the Hobbs district office of the Division of the date and time of the installation of injection equipment and of the mechanical integrity tests so that the same may be inspected and witnessed.

The operator shall immediately notify the supervisor of the Hobbs district office of the Division of the failure of the tubing, casing or packer in said wells and shall take such steps as may be timely and necessary to correct such failure or leakage.

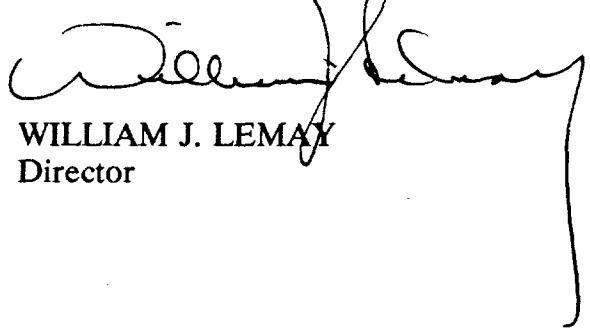
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The subject wells shall be governed by all provisions of Division Order No. R-2278, as amended and Rules 702-706 of the Division Rules and Regulations not inconsistent herewith.

PROVIDED FURTHER THAT, jurisdiction of this cause is hereby retained by the Division for the entry of such further order or orders as may be deemed necessary or convenient for the prevention of waste and/or protection of correlative rights; upon failure of the operator to conduct operations in a manner which will ensure the protection of fresh water or in a manner inconsistent with the requirements set forth in this order, the Division may, after notice and hearing, terminate the injection authority granted herein.

DONE at Santa Fe, New Mexico, on this 27th day of April, 1992.

STATE OF NEW MEXICO  
OIL CONSERVATION DIVISION

A handwritten signature in black ink, appearing to read 'William J. Lemay', is written over the printed name and title. The signature is fluid and cursive, with a long vertical line extending downwards from the end of the signature.

WILLIAM J. LEMAY  
Director

S E A L

jc/

cc: Oil Conservation Division - Hobbs

**EXHIBIT "A"**  
**DIVISION ORDER NO. WFX-632**  
**LOVINGTON SAN ANDRES UNIT WATERFLOOD PROJECT**  
**APPROVED INJECTION WELLS**

| <i>Well Number</i> | <i>Location</i>       | <i>Unit</i> | <i>S-T-R</i> | <i>Injection Perforations<br/>or Openhole Interval</i> | <i>Packer Depth</i> | <i>Tubing<br/>Size</i> | <i>Injection<br/>Pressure</i> |
|--------------------|-----------------------|-------------|--------------|--|---------------------|------------------------|-------------------------------|
| LSAU No. 8         | 2130' FNL & 1980' FWL | F           | 31-16S-37E   | 4610' to 4978'   | 4510'               | 2 3/8"                 | 922 PSIG                      |
| LSAU No. 11        | 1980' FNL & 1980' FWL | F           | 36-16S-36E   | 4575' to 5130'   | 4475'               | 2 3/8"                 | 915 PSIG                      |
| LSAU No. 20        | 660' FSL & 660' FEL   | P           | 31-16S-37E   | 4580' to 4945'   | 4480'               | 2 3/8"                 | 916 PSIG                      |
| LSAU No. 23        | 660' FSL & 900' FWL   | M           | 31-16S-37E   | 4530' to 5081'   | 4430'               | 2 3/8"                 | 906 PSIG                      |
| LSAU No. 38        | 1650' FNL & 1980' FWL | F           | 6-17S-36E    | 4590' to 4945'   | 4490'               | 2 3/8"                 | 918 PSIG                      |
| LSAU No. 42        | 1980' FNL & 1980' FWL | F           | 1-17S-36E    | 4536' to 4938'   | 4436'               | 2 3/8"                 | 907 PSIG                      |
|                    |                       |             |              |  |                     |                        |                               |

All in Lea County, New Mexico