



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

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GOVERNOR

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SANTA FE, NEW MEXICO 87504  
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*ADMINISTRATIVE ORDER NO. WFX-605*

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

ADMINISTRATIVE ORDER  
OF THE OIL CONSERVATION DIVISION

Under the provisions of Division Order No. R-3124, Greenhill Petroleum Corporation has made application to the Division on November 13, 1990 for permission to expand its Bluit Waterflood Project in the Lovington Paddock Unit Associated Pool in Lea County, New Mexico.

NOW, on this 11th day of March, 1991, 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 wells are eligible for conversion to water 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 Paddock formation at approximately 6017 feet to 6350 feet through 2 3/8-inch plastic lined tubing set in a packer located approximately within 100 feet of the uppermost injection perforation in the wells shown on Exhibit "A" attached hereto for purposes of secondary recovery.

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 be 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 that 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 wells that such higher pressure will not result in migration of the injected fluid from the Paddock 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.

The subject wells shall be governed by all provisions of Division Order No. R-3124 and Rules 701-708 of the Division Rules and Regulations not inconsistent herewith.

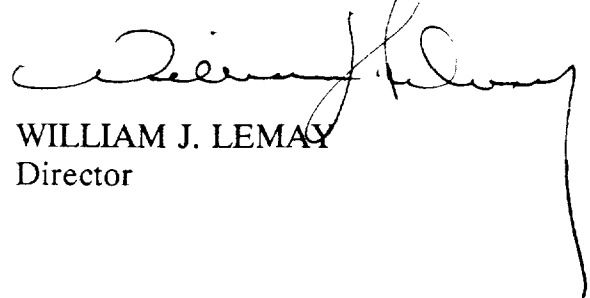
PROVIDED FURTHER THAT, jurisdiction of this cause is hereby retained by the Division for the entry of such further order or orders as may be deemed necessary or convenient for the prevention of waste and/or protection of correlative rights; upon Mwilure of the operator to conduct operations in a manner 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.

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The operator shall submit monthly progress reports of the project in accordance with Rules 706 and 1115 of the Division Rules and Regulations.

Approved at Santa Fe, New Mexico, on this 11th day of March, 1991.

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A handwritten signature in cursive script, appearing to read 'William J. Lemay', is written over the printed name and title.

WILLIAM J. LEMAY  
Director

S E A L

**EXHIBIT "A"**  
**DIVISION ORDER NO. WFX-605**  
**LOVINGTON PADDOCK UNIT**  
**APPROVED INJECTION WELLS**

<i>Well Number</i>	<i>Location</i>	<i>Unit</i>	<i>S-T-R</i>	<i>Injection Perforations</i>	<i>Packer Depth</i>	<i>Tubing Size</i>	<i>Injection Pressure</i>
12	781' FNL - 660' FWL	D	31-16S-37E	6115' - 6248'	6100'	2 3/8	1223 PSIG
14	940' FNL - 1741' FEL	B	36-16S-36E	6100' - 6300'	6025'	2 3/8	1220 PSIG
20	1830' FNL - 2130' FWL	F	36-16S-36E	6080' - 6300'	6000'	2 3/8	1216 PSIG
22	2080' FNL - 660' FEL	H	36-16S-36E	6073' - 6350'	6000'	2 3/8	1215 PSIG
24	2310' FNL - 1968' FWL	F	31-16S-37E	6111' - 6280'	6050'	2 3/8	1222 PSIG
28	2108' FSL - 624' FWL	L	31-16S-37E	6110' - 6252'	6025'	2 3/8	1222 PSIG
31	1650' FSL - 890' FWL	L	36-16S-36E	6080' - 6295'	6050'	2 3/8	1216 PSIG
32	1750' FSL - 1650' FEL	J	36-16S-36E	6060' - 6199'	6000'	2 3/8	1212 PSIG
39	810' FSL - 660' FEL	P	36-16S-36E	6017' - 6280'	5950'	2 3/8	1203 PSIG
46	660' FNL - 990' FWL	D	1-17S-36E	6034' - 6300'	6000'	2 3/8	1207 PSIG
48	660' FNL - 2080' FEL	B	1-17S-36E	6030' - 6260'	5980'	2 3/8	1206 PSIG
50	660' FNL - 902' FWL	D	6-17S-37E	6036' - 6292'	6000'	2 3/8	1207 PSIG
52	510' FNL - 2190' FEL	B	6-17S-37E	6090' - 6250'	6000'	2 3/8	1218 PSIG
54	1650' FNL - 660' FEL	H	6-17S-37E	6135' - 6250'	6075'	2 3/8	1227 PSIG
60	1980' FNL - 2310' FWL	F	1-17S-36E	6060' - 6290'	6000'	2 3/8	1212 PSIG