



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

JOE FOSS BUILDING
523 EAST CAPITOL
PIERRE, SOUTH DAKOTA 57501-3182

denr.sd.gov

June 10, 2019

Richard D. George, P.E.
Manager of Engineering
Luff Exploration Company
1580 Lincoln Street, Suite 850
Denver, CO 80203

Re: Case No. 4-2019 – Approval of Permit to Inject, State I-14H well, NE/4 SE/4 Section 14,
Township 22N, Range 4E, Harding County

Dear Mr. George:

Thank you for your application filed April 17, 2019, requesting a permit to inject for the State I-14H well to support the water flood in the "B" zone of the Red River Formation in the Clarkson Ranch Red River Unit for enhanced recovery of oil and gas. Your application indicates the injection water for the State I-14H well will consist of fresh water produced from the Alyce K-24 well, as well as produced water from the 34-24 Travers well, both in the Clarkson Ranch Field.

The department published a Notice of Recommendation for Case No. 4-2019 recommending approval of the application. The final date for intervention was June 5, 2019, and no parties petitioned the Board of Minerals and Environment for a hearing on the application by the deadline.

Therefore, in accordance with the Administrative Rules of South Dakota (ARSD) 74:12:07 and 74:12:09, approval of the application is hereby granted. The permit is conditioned on compliance with all applicable requirements of South Dakota Codified Laws 45-9 and ARSD 74:12. Please refer to the enclosed Notice of Recommendation for specific terms and conditions.

Thank you for your interest in protecting the water resources of the state.

Sincerely,

Steven M. Pirner
Secretary

Enclosure

STATE OF SOUTH DAKOTA
SECRETARY OF THE
DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

IN THE MATTER OF THE APPLICATION OF LUFF EXPLORATION COMPANY, DENVER, CO, FOR APPROVAL OF A PERMIT TO INJECT INTO THE EXISTING STATE I-14H WELL LOCATED IN THE NE¼ SE¼ SECTION 14, TOWNSHIP 22 NORTH, RANGE 4 EAST, IN THE CLARKSON RANCH RED RIVER UNIT OF THE CLARKSON RANCH FIELD, HARDING COUNTY, ABOUT 20 MILES NORTH OF BUFFALO, SD, TO SUPPORT THE WATER FLOOD IN THE "B" ZONE OF THE RED RIVER FORMATION IN THE CLARKSON RANCH RED RIVER UNIT FOR ENHANCED RECOVERY OF OIL AND GAS.

NOTICE
OF
RECOMMENDATION
FOR A PERMIT TO INJECT

OIL AND GAS
CASE NO. 4-2019

Notice is hereby given to the public and to all interested persons that pursuant to South Dakota Codified Laws (SDCL) Chapter 1-26 and Chapter 45-9 and further pursuant to the Administrative Rules of South Dakota (ARSD) 74:12:07 and 74:12:09, the following matter has come to the attention of the Secretary of the Department of Environment and Natural Resources, hereinafter "Secretary."

The State I-14H well was completed with 2,000 feet of 9 5/8-inch steel surface casing, cemented to protect underground sources of drinking water, and 9,259 feet of 7-inch steel production casing, cemented to protect underground sources of drinking water. The injection zone will be in the "B" zone of the Red River Formation. All injection water will be produced water from the Red River "D" zone and Inyan Kara water from the Alyce K-24 water supply well. All wells within the one-half mile area of review, and maximum calculated radius of influence, are constructed such that the injection into this well will not affect any underground sources of drinking water.

The requested maximum injection pressure is 1,700 pounds per square inch and the requested duration of this application is the time to inject 4,700,000 cumulative barrels of water.

The Secretary recommends approval of the application with the following conditions:

- 1) Injection operations authorized under the permit to inject must be conducted in accordance with SDCL Chapter 45-9, ARSD 74:12 and any applicable orders or rules promulgated by the board;
- 2) The total number of barrels injected during the life of this permit may not exceed 4,700,000 barrels of water;
- 3) The maximum injection rate must not exceed 1,250 barrels of water per day;
- 4) The life of the permit may not exceed 25 years;
- 5) The maximum pressure must not exceed 1,700 pounds per square inch during injection operations;
- 6) A mechanical integrity test must be successfully conducted prior to the commencement of injection activity. The well must pass the mechanical integrity test at 1,000 pounds per

square inch surface pressure. The operator is required to notify the Secretary a minimum of 72 hours prior to running a mechanical integrity test;

- 7) Once mechanical integrity is established, the well must be retested at least once every five years to ensure that mechanical integrity is maintained, unless the department indicates differently;
- 8) If an unsuccessful pressure test occurs, the operator must cease operations immediately if it is determined the injection will threaten any underground source of drinking water. If the failure is not threatening ground water, the operator must cease operations within 48 hours after receipt of the department secretary's notice, and take corrective action on the well as soon as feasible. Corrective action options include repairing the well so that a successful test result can be obtained, plugging and abandoning the well, or any other action approved by the department.

Authority for the Secretary to approve this application is contained in ARSD 74:12:07 and 74:12:09. Unless a person files a petition requesting a hearing on the above application pursuant to the provisions of ARSD 74:09:01 on or before June 5, 2019, the Secretary's recommendation will be considered final and the Secretary will approve the application in accordance with that recommendation.

The application and notice of recommendation are also posted on the department's website at: <http://denr.sd.gov/des/og/pubhearing.aspx> and <http://denr.sd.gov/public>. Additional information about this application is available from Mike Lees, Administrator, Minerals and Mining Program, Department of Environment and Natural Resources, 523 East Capitol Avenue, Pierre, SD 57501, telephone (605) 773-4201, email michael.lees@state.sd.us.

May 10, 2019



Steven M. Pirner
Secretary

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