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DEPT OF ENVIRONMENT & NATURAL
RESOURCES - RAPID CITY

February 11, 2011

Via Federal Express Overnight Package

Mr. Sheldon Hamann
South Dakota Department of
Environment and Natural Resources
523 East Capitol Avenue
Pierre, South Dakota 57501

RE: Underground Injection Control Application
PCRRU F-9H
Pete's Creek Red River Unit
Pete's Creek Field
Harding County, South Dakota

Dear Mr. Hamann:

Enclosed is a UIC application for the above captioned well in the Pete's Creek Red River Unit. The applicable cement bond log section copies have been included.

Please let me know if you have questions or comments. If you need additional information of any kind, please let me know at your very earliest opportunity.

Very Truly Yours,

LUFF EXPLORATION COMPANY

A handwritten signature in black ink, appearing to read "Richard D. George", written over a horizontal line.

Richard D. George
Manager of Engineering

Cc Fred Steece, SD-DENR, Oil & Gas Program
John Morrison, Crowley Fleck Law Firm

General

Luff Exploration Company respectfully requests permission to inject water long-term into the PCRRU F-9H, a medium-radius horizontal Red River "B" well. This well is within the Pete's Creek Red River Unit (PCRRU) in the Pete's Creek Field, Harding County, South Dakota. This secondary recovery unit was approved, based on technical and economic merit, by the South Dakota Board of Minerals and Environment on October 15, 2009 (Oil & Gas Case Number 06-2009). The Bureau of Land Management approved the unit the next day. It became effective November 1, 2009.

This application is submitted pursuant to SDCL Chapter 45-9, Section 45-9-13.

Tab sections, reflecting South Dakota application requirements (outlined in 74:10:09:02) organize this application.

The PCRRU F-9H was drilled for the purpose of water injection, but has been producing for several months. Producing wells drilled for water injection purposes is standard procedure in secondary recovery projects operated by Luff Exploration Company. Converting this well to injection is the next logical step, and is consistent with the proposed Plan of Development presented at the October 15, 2009 unitization hearing.

The requested maximum injection rate and maximum surface injection pressure values are consistent with approved values for the adjacent East Harding Springs Red River Unit.

Luff may request a higher surface injection pressure at a later date.

The requested duration of this application is 4,930,000 barrels of cumulative water injection. This is a conservative (high) estimate of cumulative injection for the life of the secondary recovery project.

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

IN THE MATTER OF THE APPLICATION OF LUFF EXPLORATION CO., DENVER, COLORADO, FOR APPROVAL OF A PERMIT TO INJECT FOR THE EXISTING F-9H JOHNSON WELL, LOCATED IN THE SE ¼ NW ¼ SECTION 9, TOWNSHIP 22 NORTH, RANGE 6 EAST, PETE'S CREEK RED RIVER UNIT, HARDING COUNTY, ABOUT TWO MILES NORTH-NORTHWEST OF LUDLOW, SOUTH DAKOTA, TO ALLOW USE OF THE WELL AS A LONG-TERM HORIZONTAL WATER INJECTION WELL TO SUPPORT THE ONGOING WATER FLOOD IN THE "B" ZONE OF THE RED RIVER FORMATION IN THE PETE'S CREEK RED RIVER UNIT FOR THE ENHANCED RECOVERY OF OIL AND GAS.

NOTICE
OF
RECOMMENDATION
FOR A PERMIT TO INJECT

CASE NO. 4-2011

Notice is hereby given to the public and to all interested persons that pursuant to South Dakota Codified Laws (SDCL) Chapters 1-26 and 45-9 and further pursuant to the Administrative Rules of South Dakota (ARSD) 74:10:09 and 74:10:11.01 the following matter has come to the attention of the Secretary of the Department of Environment and Natural Resources, hereinafter "Secretary."

The F-9H Johnson well was completed with 2,000 feet of 9 5/8-inch steel surfacing casing, cemented to the land surface, and 9,079 feet of 7-inch steel production casing, cemented at intervals 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 come from the "B" zone of the Red River Formation from existing wells in the vicinity of the F-9H Johnson 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. No domestic water wells are located within these areas.

The requested maximum injection pressure is 1,700 pounds per square inch and the requested duration of this application is the time to inject 4,930,000 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 74:10 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 4,930,000 barrels of water;
- 3) The maximum injection rate may not exceed 2,000 barrels of water per day;
- 4) The life of the permit may not exceed 25 years;
- 5) The maximum injection pressure may 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 of the well is maintained, unless otherwise notified by the Secretary;
- 8) If an unsuccessful pressure test result occurs, the operator must cease operations immediately if it is deemed the injection may threaten any underground source of drinking water. If the failure does not threaten an underground source of drinking 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 a successful test result can be obtained, plugging and abandoning the well, or any other action approved by the Secretary.

Authority for the Secretary to approve this application is contained in ARSD 74:10:09 and 74:10:11.01. 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 April 20, 2011, the Secretary's recommendation will be considered final and the Secretary will approve the application in accordance with that recommendation. For additional information regarding the application, please contact Sheldon Hamann, Senior Hydrologist, Ground Water Quality Program, Department of Environment and Natural Resources, 523 East Capitol Avenue, Pierre, SD 57501-3182; telephone: 605-773-4589 or email at sheldon.hamann@state.sd.us.

March 21, 2011



Steven M. Pirner
Secretary

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