



DEPARTMENT of ENVIRONMENT and NATURAL RESOURCES
 Minerals & Mining Program
 2050 West Main, Suite #1, Rapid City, SD 57702-2493
 Telephone: 605-773-4201, FAX: 605-394-5317

FORM 2
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APR 11 2018

DEPT OF ENVIRONMENT & NATURAL RESOURCES - RAPID CITY



APPLICATION FOR PERMIT TO DRILL

Type of work: Drill New Well Reenter Well Drill Directional Well Other: _____
 Type of well: Oil Well Gas Well Injection Other: _____

Name and Address of Operator: Luff Exploration Company, 1580 Lincoln, Suite 850, Denver, CO 80203
 Telephone: 303-861-2468

Name and Address of Surface Owner: Gilbert Cattle Company 10101 Eagles Nest Road, Ludlow, SD 57755

Name and Address of Drilling Contractor and Rig Number: Key Energy Services, 5077 141st Avenue NW, Williston, ND 58801; Rig 887

Surface Location of well: Qtr-Qtr, Sec, Twp, Rge, County, feet from nearest lines of section, and latitude and longitude (if available):
 SENW, Section 3, T22N, R6E; Harding; 1800' FNL & 1540' FWL; Lat 45° 54' 06.637"; Long 103°, 22' 14.862"

If Directional, top of pay and bottom hole location from nearest lines of section:
 TOP: 1467' FSL & 1880' FWL, SENW, Sec. 3, T22N, R6E BHL: 2160' FSL & 300' FWL, NWSW, Sec. 35, T23N, R6E

Acres in Spacing (Drilling) Unit: 1600 Description of Spacing Unit: All Sec 3, T22N, R6E; All Sec 34, W/2, Sec 35, all in T23N, R6E

Well Name and Number:	Elevation:	Field and Pool, or Wildcat:	Proposed Depth and Formation:
Crooked Creek RRU F-3H	2861' GL (Graded)	Pete's Creek, Red River B	14356' MD, 8904' TVD, Red River B

Size of Hole:	Size of Casing:	Weight per Foot:	Depth:	Cementing Program (amount, type, yield, additives)	Top of Cement:
1) 13-1/2"	9-5/8"	36#	2000'	400 sks Lite, Tail w/ 206 sks Premium	Surface
2) 8-3/4"	7"	23, 26, 29#	9177' MD	131 sks Lite, Tail w/ 503 sks Premium	4392'
3) 6-1/8"	None		14356' MD		
4)					

Describe Proposed Operations (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work). Use additional page(s) if appropriate.
 Drill a medium radius horizontal well that has one lateral in the Red River "B" formation. Drill 13-1/2" surface hole to 2000' with fresh water. Run 9-5/8" casing and cement to surface. Drill 8-3/4" vertical hole to KOP at 8427'. Drill build section with an azimuth of 46 degrees to 9177' MD (8904' TVD). Vertical and build section to be drilled with invert oil mud. Run 7" casing with shoe at BHL 1467' FNL & 1880' FWL Sec. 3, T22N, R6E and cement to 4392'. Drill one 6 1/8" horizontal lateral with an azimuth of 46 degrees to 14356' MD (8904' TVD) and a BHL 2160' FSL & 300' FWL, Sec 35, T23N, R6E with fresh water. Estimated start date for location construction is 5/01/18. Estimated start date for drilling is 7/10/18.
 Pit Liner Specifications: All drilling fluids and cuttings will be contained in a pit lined with a 12 mil plastic liner

I hereby certify that the foregoing as to any work or operation performed is a true and correct report of such work or operation.
 Signature: [Signature] Name (Print): Richard D. George Title: Manager of Operations Date: 4/10/2018

FOR OFFICE USE ONLY

Approved By: [Signature] Title: ADMINISTRATOR, MINERALS & MINING PROGRAM
 Permit No.: 2080 API No.: 40 063 20787 Date Issued: 5-23-18
 Conditions, if any, on attached page. **"SEE ATTACHED"**



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

PERMIT CONDITIONS

Luff: Crooked Creek RRU F-3H
22N-6E-3 SENW, Harding County

Permit: 2080
API: 40 063 20787

Approval has been granted to drill this location as detailed on the attached Application for Permit to Drill (Form #2) with the following additional conditions:

1. This permit is conditioned on compliance with all applicable requirements of South Dakota Codified Laws 45-9 and Administrative Rules of South Dakota 74:12.
2. If drilling does not commence within one year from the issuance date, this permit will expire.
3. A 12-mil woven, reinforced high-density polyethylene liner must be used on all pits.
4. Surface runoff must be diverted around the drill site.
5. If abandoned, a plugging plan must be submitted to the department for review and approval. The plugging plan should address all requirements found in Administrative Rules of South Dakota 74:12:03.
 - A. If production casing is left in the wellbore, a mechanical integrity test (MIT) must be conducted to verify the integrity of the casing as required by rule 74:12:03:02(4)(b)(ii).
 - B. The casing string must be cut off at least three feet below the final ground surface contour. A plate with the name of the operator, well name and number, and legal location by quarter-quarter section, township and range must be welded to the casing stub. The location of the abandoned well must be surveyed with high resolution global positioning system equipment or other appropriate survey methods sufficient to accurately locate the well. Survey coordinates must be included in the final abandonment report.
6. Surface reclamation of the site must be completed within one year of plugging and abandoning the well.
7. A washed set of sample cuttings (or cores, if cut) must be shipped, free of charge, to:

Tim Cowman
Geological Survey Program
Akeley-Lawrence Science Center
University of South Dakota
414 E. Clark Street
Vermillion, SD 57069-2390

8. Please notify this office at least 72 hours prior to plugging or MIT so a witness can be on location. If plugging or MIT will occur after regular business hours, call Jeff Klenner at (605) 929-1414.