



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
RECEIVED
JUN 15 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: _____ Telephone: _____
 Luff Exploration Company 1580 Lincoln Street, Suite 850, Denver, CO 80203 303-861-2468

Name and Address of Surface Owner:
 Todd L. Stearns & Roberta L. Stearns, PO Box 890, 14 6th Avenue NW, Bowman, ND 58623

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):
 NENW, Sec. 22, T22N, R4E, Harding Co., 480' FNL x 1965' FWL, Lat: 45° 51' 43.662" N, Long: 103° 37' 01.05" W

If Directional, top of pay and bottom hole location from nearest lines of section:
 TOP: 925' FNL & 2139' FWL, NENW, Sec. 22, T22N, R4E BHL: 1980' FNL & 660' FEL, SENE, Sec. 27, T22N, R4E

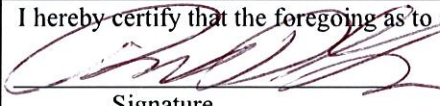
Acres in Spacing (Drilling) Unit: 960 Description of Spacing Unit: All Sec. 22, N/2 Sec. 27, T22N, R4E

Well Name and Number:	Elevation:	Field and Pool, or Wildcat:	Proposed Depth and Formation:
Middle Creek C-22H	3100' GL (Graded)	Buffalo, Red River B	15964' MD, 8885' TVD, Red River B


Size of Hole:	Size of Casing:	Weight per Foot:	Depth:	Cementing Program (amount, type, yield, additives)	Depth:
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#	9158' MD	131 sks Lite, Tail w/501 sks Premium	4475'
3) 6 1/8"	None		15964' 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 8408'. Drill build section with an azimuth of 159 degrees to 9158' MD (8885' TVD). Vertical and build section to be drilled with invert oil mud. Run 7" casing with shoe at BHL 925' FNL & 2139' FWL Sec 22-T22N-R4E and cement to 4475'. Drill one 6-1/8" horizontal lateral to 15964' MD (8885' TVD) and a BHL 1980' FNL & 660' FEL Sec 27-T22N-R4E with produced water. Estimated start date for location construction is July 5, 2018. Estimated start date for drilling is 08/15/18.
 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 Richard D. George Name (Print) Manager of Engineering Title 6/12/18 Date

FOR OFFICE USE ONLY

Approved By:  Title: **ADMINISTRATOR, MINERALS & MINING PROGRAM**

Permit No.: **2081** API No.: **40 063 20788** Date Issued: **7-6-18**

Conditions, if any, on attached page.



DEPARTMENT of ENVIRONMENT
and NATURAL RESOURCES

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

denr.sd.gov

PERMIT CONDITIONS

Luff: Middle Creek C-22H
22N-4E-22 NENW, Harding County

Permit: # 2081
API: 40 063 20788

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. At minimum 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 oil-based mud is used during drilling, the pit must be reclaimed with the following requirements:
 - A. Fly ash must be thoroughly mixed with any cuttings to ensure adequate solidification of all pit contents. Hay bales or other organic substances may not be used for solidification.
 - B. A sundry notice describing the source and approximate quantity of the fly ash to be used and verifying the cuttings solidification activities meet the conditions for beneficial use of coal combustion residue (CCR) under 40 CFR 257.53 must be provided to the department.
 - C. An additional synthetic liner must be placed over the encapsulated pit prior to restoring the location to ground level.
 - D. Please notify this office at least 72 hours prior to pit burial so a witness can confirm solidification.
6. 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 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.
7. Surface reclamation of the site must be completed within one year of plugging and abandoning the well.
8. A washed and dried 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

9. 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.