



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

MAY 8 2018

DEPT OF ENVIRONMENT & NATURAL  
RESOURCES - RAPID CITY

## APPLICATION FOR PERMIT TO DRILL

Type of work:	Type of well:
<input checked="" type="checkbox"/> Drill New Well <input type="checkbox"/> Reenter Well <input type="checkbox"/> Drill Directional Well	<input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Injection
<input type="checkbox"/> Other: _____	<input type="checkbox"/> Other: _____

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

Name and Address of Surface Owner: Todd 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): SWNW, Sec. 14, T22N, R4E, Harding Co., 1800' FNL x 1000' FWL, Lat: 45° 52' 22.551" N, Long: 103° 35' 58.491" W

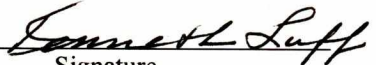
If Directional, top of pay and bottom hole location from nearest lines of section:  
TOP: 1346' FNL & 853' FWL, SWNW, Sec. 14, T22N, R4E BHL: 900' FNL & 1000' FEL, NENE, Sec. 10, T22N, R4E

Acres in Spacing (Drilling) Unit: 960 Description of Spacing Unit: E/2 Sec. 10, W/2 Sec. 11, NW/4 Sec. 14 & NE/4 Sec. 15, T22N, R4E


Well Name and Number:		Elevation:	Field and Pool, or Wildcat:		Proposed Depth and Formation:	
Nelson Butte E-14H		3209.6 ground	Buffalo, Red River B		15332' MD, 9038' 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'	482 sks Lite, Tail w/200 sks Premium		Surface
2) 8 3/4"	7"	23, 26, 29#	9311'	142 sks Lite, Tail w/517 sks Premium		4616'
3) 6 1/8"	None		15332'			
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 8561'. Drill build section with an azimuth of 342 degrees to 9311' MD (9038' TVD). Vertical and build section to be drilled with invert oil mud. Run 7" casing with shoe at BHL 1346' FNL & 853' FWL Sec 14-T22N-R4E and cement to 4616'. Drill one 6-1/8" horizontal lateral to 15332' MD (9038' TVD) and a BHL 900' FNL & 1000' FEL Sec 10-T22N-R4E with produced water. Estimated start date for location construction is 5/28/18. Estimated start date for drilling is 08/01/18.

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.  
 Kenneth D. Luff President 5/7/18  
Signature Name (Print) Title Date

### FOR OFFICE USE ONLY

Approved By:  Title: ADMINISTRATOR, MINERALS & MINING PROG  
Permit No.: 2079 API No.: 40 063 20786 Date Issued: 5-21-18  
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: Nelson Butte E-14H  
22N-4E-14 SWNW, Harding County

Permit: #2079  
API: 40 063 20786

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. A 12-mil woven, reinforced high-density polyethylene liner must be used on all pits.
3. If drilling does not commence within one year from the issuance date, this permit will expire.
4. Surface runoff must be diverted around the drill site.
5. The surface hole must be drilled with fresh water.
6. Cement must be circulated to the ground surface on the surface casing.
7. If horizontally drilled:
  - A. The coordinates of the production casing shoe and the well terminus must be filed with the department.
  - B. The azimuth of the horizontal segment of the well must be filed with the department along with the results of periodic down hole surveys.
8. If production casing (long string) is set:
  - A. The cement program submitted with the application shall be followed.
  - B. A cement bond log must be run and filed with the department within 60 days after completion of the well as required by Administrative Rules of South Dakota 74:12:02:12.
9. 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.
10. Surface reclamation of the site must be completed within one year of plugging and abandoning the well.
11. Interim reclamation must be conducted on all areas disturbed by a well drilling operation and not needed for production operations within 12 months after the well is completed in accordance with Administrative Rules of South Dakota 74:12:03:07.

12. 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

13. Please notify this office 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.