



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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AUG 4 2014

State of South Dakota  
 Department of Environment  
 and Natural Resources

APPLICATION FOR PERMIT TO DRILL

DEPT OF ENVIRONMENT & NATURAL  
 RESOURCES - RAPID CITY

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 Street, Suite 850, Denver, CO 80203 Telephone: 303-861-2468

Name and Address of Surface Owner: Y+ Ranch, Inc. 12601 Cox Road, Ludlow, SD 57755

Name and Address of Drilling Contractor and Rig Number: Cyclone Drilling, Inc., 5800 Mohan Road, Gillette, WY 82718; Rig #11

Surface Location of well: Qtr-Qtr, Sec, Twp, Rge, County, feet from nearest lines of section, and latitude and longitude (if available):  
 SESW, Sec. 13, T22N, R4E, Harding Co., 1200' FSL & 1400' FWL, Lat: 45° 51' 59.980" N, Long: 103° 34' 38.248" W

If Directional, top of pay and bottom hole location from nearest lines of section:  
 TOP: 753' FSL & 1567' FWL, SESW, Sec. 13, T22N, R4E BHL: 500' FSL & 1650' FEL, swse, Sec. 24, T22N, R4E

Acres in Spacing (Drilling) Unit: 960 Description of Spacing Unit: S/2 Sec. 13 & All Sec. 24, T22N, R4E

Well Name and Number:	Elevation:	Field and Pool, or Wildcat:	Proposed Depth and Formation:
Clarkson Ranch N-13H	3116.4'	Clarkson Ranch Field, Red River B	15028' MD, 8868' 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'	565 sks Lite, Tail w/200 sks Premium	Surface
2) 8 3/4"	7"	23, 26, 29#	9140'MD	143 sks Lite, Tail w/500 sks Premium	4500'
3) 6 1/8"	None		15028'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 8390'. Drill build section with an azimuth of 160 degrees to 9140' MD (8868' TVD). Vertical and build section to be drilled with invert oil mud. Run 7" casing with shoe at BHL 753' FSL & 1567' FWL Sec 13-T22N-R4E and cement to 4500'. Drill one 6-1/8" horizontal lateral with an azimuth of 160 degrees to 15028' MD (8868' TVD) and a BHL 500' FSL & 1650' FEL Sec 24-T22N-R4E with fresh water. Estimated start date for location construction is 8/10/14. Estimated start date for drilling is 9/7/14.  
 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: Kenneth D. Luff Name (Print): Kenneth D. Luff President Title: \_\_\_\_\_ Date: 8-1-14

FOR OFFICE USE ONLY

Approved By: Robert Townsend Title: Administrator Minerals Mining Program  
 Permit No.: 2054 API No.: 40 063 20767 Date Issued: 8/14/2014  
 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: Clarkson Ranch N-13H  
22N-4E-13 SESW, Harding County

Permit: #2054  
API: 40 063 20767

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 as 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 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:

Derric Iles  
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.