

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

ATS-12-857  
FORM APPROVED  
OMB No. 1004-0137  
Expires October 31, 2014

RECEIVED  
HOBBS

JAN 09 2013

5. Lease Serial No.  
NM106715

6. If Indian, Allottee or Tribe Name

7. If Unit or CA Agreement, Name and No.  
NMNM101361X EAST SHUGART DEL

8. Lease Name and Well No. *aware unit*  
ESDU 30-257437

1a. Type of work: ☒ DRILL ☐ REENTER

1b. Type of Well: ☒ Oil Well ☐ Gas Well ☐ Other ☒ Single Zone ☐ Multiple Zone

2. Name of Operator  
SM ENERGY COMPANY

3a. Address 3300 N "A" ST BLDG 7-200  
MIDLAND, TX 79705

3b. Phone No. (include area code)  
(432)688-3125

9. API Well No.  
30-025-40913

10. Field and Pool, or Exploratory  
SHUGART; DELAWARE, EAST

4. Location of Well (Report location clearly and in accordance with any State requirements.)  
At surface 1165' FNL & 390' FWL LOT 1 - per Malcolm Kintzing 11-15-12 DM  
At proposed prod. zone SAME AS ABOVE

11. Sec., T. R. M. or Blk. and Survey or Area  
SEC 19 - T18S - R32E

14. Distance in miles and direction from nearest town or post office\*  
8 MILES SOUTH OF MALJAMAR

12. County or Parish  
LEA

13. State  
NM

15. Distance from proposed\* location to nearest property or lease line, ft.  
(Also to nearest drig. unit line, if any)

390'

16. No. of acres in lease  
122.07

17. Spacing Unit dedicated to this well  
41.03

18. Distance from proposed location\* to nearest well, drilling, completed, applied for, on this lease, ft.  
430'

19. Proposed Depth  
5500' MD

20. BLM/BIA Bond No. on file  
NMB000805

21. Elevations (Show whether DF, KDB, RT, GL, etc.)  
3710 GL

22. Approximate date work will start\*  
01/26/2013

23. Estimated duration  
30 Days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

- Well plat certified by a registered surveyor.
- A Drilling Plan.
- A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
- Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
- Operator certification
- Such other site specific information and/or plans as may be required by the BLM.

25. Signature *Malcolm Kintzing* Name (Printed/Typed) MALCOLM KINTZING Date 11/07/2012

Title RESERVOIR ENGINEER

Approved by (Signature) *James A. Amos* Name (Printed/Typed) Title Office CARLSBAD FIELD OFFICE

Date JAN 3 - 2013

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

Conditions of approval, if any, are attached.

APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

\*(Instructions on page 2)

Capitan Controlled Water Basin

Approval Subject to General Requirements  
& Special Stipulations Attached

SEE ATTACHED FOR  
CONDITIONS OF APPROVAL

# Drilling program

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SM Energy Company  
ESDU #30  
1165 FNL & 390 FWL  
Sec 19-T18S-R32E  
Lea County, New Mexico

## The estimated tops of geologic markers are as follows

Rustler	896'
Top of Salt	1606'
Base of Salt	2208'
Yates	2386'
*Seven Rivers	2878'
*Queen	3544'
*Cherry Canyon	4253'
*Brushy Canyon	4733'

## Estimated depths of anticipated fresh water, oil, or gas

Fresh water is anticipated @ 380' and will be protected by setting surface casing at <sup>960</sup>925'.

Oil and gas are anticipated in the above (\*) formations. These zones will be protected by casing as required.

## Pressure and control equipment

A 3M Double Ram BOP and 3M Annular will be installed after running the 8 -5/8" casing. Pressure tests will be conducted prior to drill out the surface casing. BOP controls will be installed prior to drilling out from under surface casing and will remain in use until completion of drilling operations. BOP's will be inspected and operated as regulated in Onshore Order #2. A Kelly cock valve and a sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the in the open position when the Kelly is not in use. SM Energy Company will have the 11" BOPE tested to 3000# and the annular tested to 1500# with a third party testing company before drilling below the surface casing shoe. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if the test is done with a test - plug. All blowout preventer are related equipment shall comply with well control requirements in Onshore Oil and Gas Order No. 2 and API RP 53 Sec 17.

see  
COA

## Proposed casing and cementing program

### A. Casing program:

see  
COA

<u>Hole Size</u>	<u>Casing Size</u>	<u>Casing #/foot</u>	<u>Grade</u>	<u>Setting Depth</u>	<u>Collar</u>
12-1/4"	8-5/8" (new)	24	J55	0-925' 960	STC
7-7/8"	5-1/2" (new)	15.5	J55	0-5500'	LTC

Minimum casing design factors: Collapse 1.125, Burst 1.0, Tensile strength 1.8.

\*Subject to casing availability

### A. Cementing Program:

- I. **Surface casing:** 425 sx Class C light cement + 2% bwoc Calcium Chloride + 0.125 lbs/sack Cello Flack + 4% bwoc Bentonite + 81.4% Fresh Water, 14.8 ppg. **Yield 1.34 cf/sk TOC @ SURFACE. 100% Excess**
- II. **Production Casing:** Lead 520 sks (35:65) Poz (fly Ash): Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs / Sack Cello Flake + 6% bwoc Bentonite + 107.8% Fresh Water, 12.5 ppg. **YIELD: 1.96 CF/SK. Tail 270 sks Class C Cement + 5% bwow Sodium Chloride + 0.125 lbs/sack Cello Flake + 0.4% bwoc Sodium Metasilicate + 4% bwoc MPA-5, 14.8 ppg YIELD 1.34 CF/SK. TOC @ 700'. 35% Excess**

\*SM Energy Company reserves the right to change cement designs as hole conditions may warrant.

## Mud Program

<u>Interval</u>	<u>mud type</u>	<u>weight</u>	<u>Viscosity</u>	<u>Fluid loss</u>
0-925' 960	Fresh water spud mud	8.6-9.4	32-34	No Control
925'-5500'	Brine	10	28-30	No Control

## Evaluation Program see COA

- I. Mud log samples will be taken after drilling out the surface casing.
- II. No Drill stem tests or coring is planned at this time
- III. Cased hole Gamma Ray/Neutron log from surface to TD (5,500')
- IV. Additional testing may be initiated based on geological sample shows

## **Downhole Conditions**

Zones of abnormal pressure:	None anticipated
Zones of lost circulation:	Anticipated in surface and production holes
Maximum bottom hole temperature:	110 degrees F
Maximum bottom hole pressure:	9.5 lbs/gal or less psi/ft gradient (2,700 psi)

## **Anticipated Starting Date**

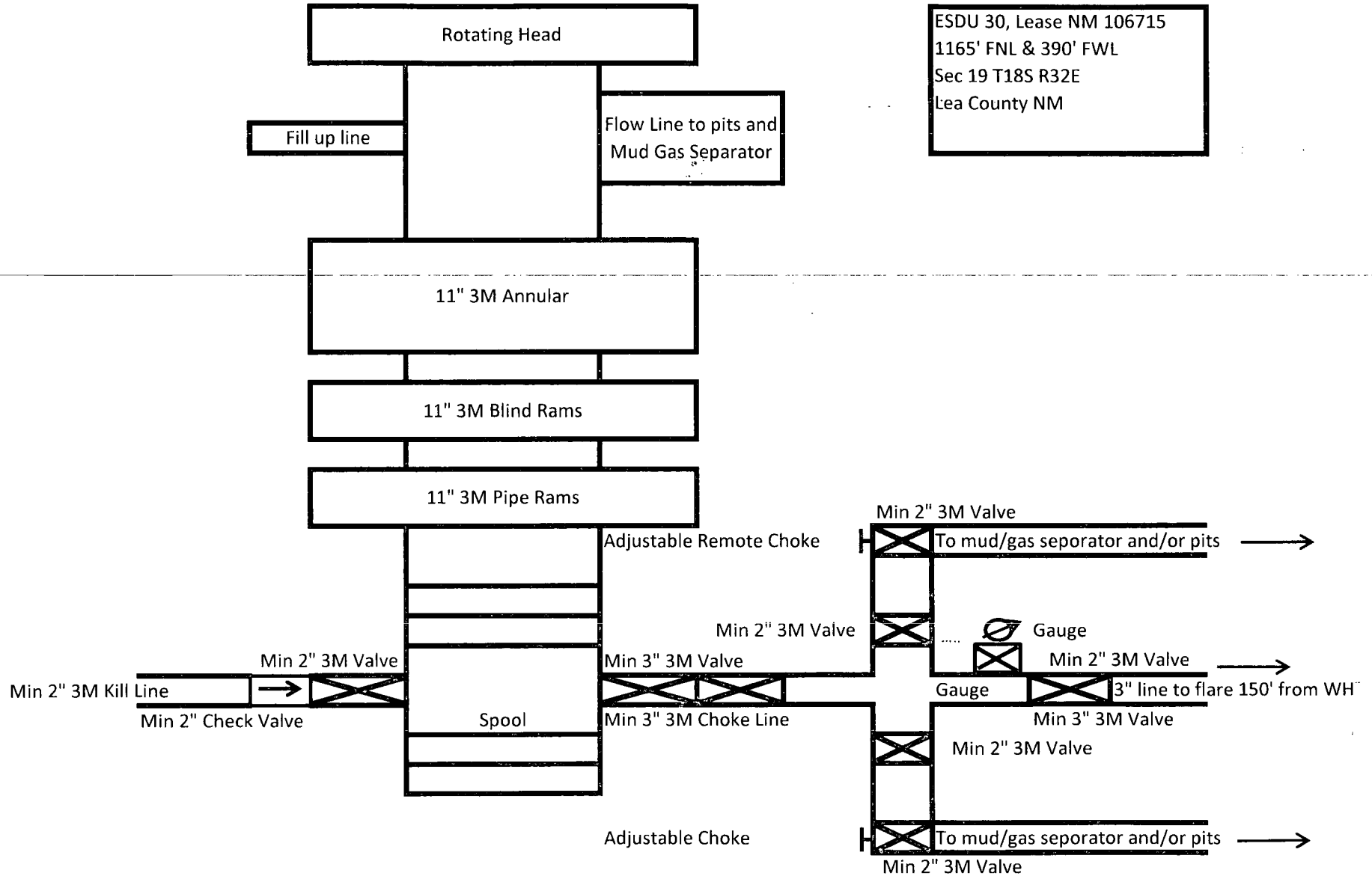
SM Energy Company intends to drill this well late 2012 with approximately 20 days involved in drilling operations and an additional 10 days involved in completion operations on the project.

## **Potential Hazards**

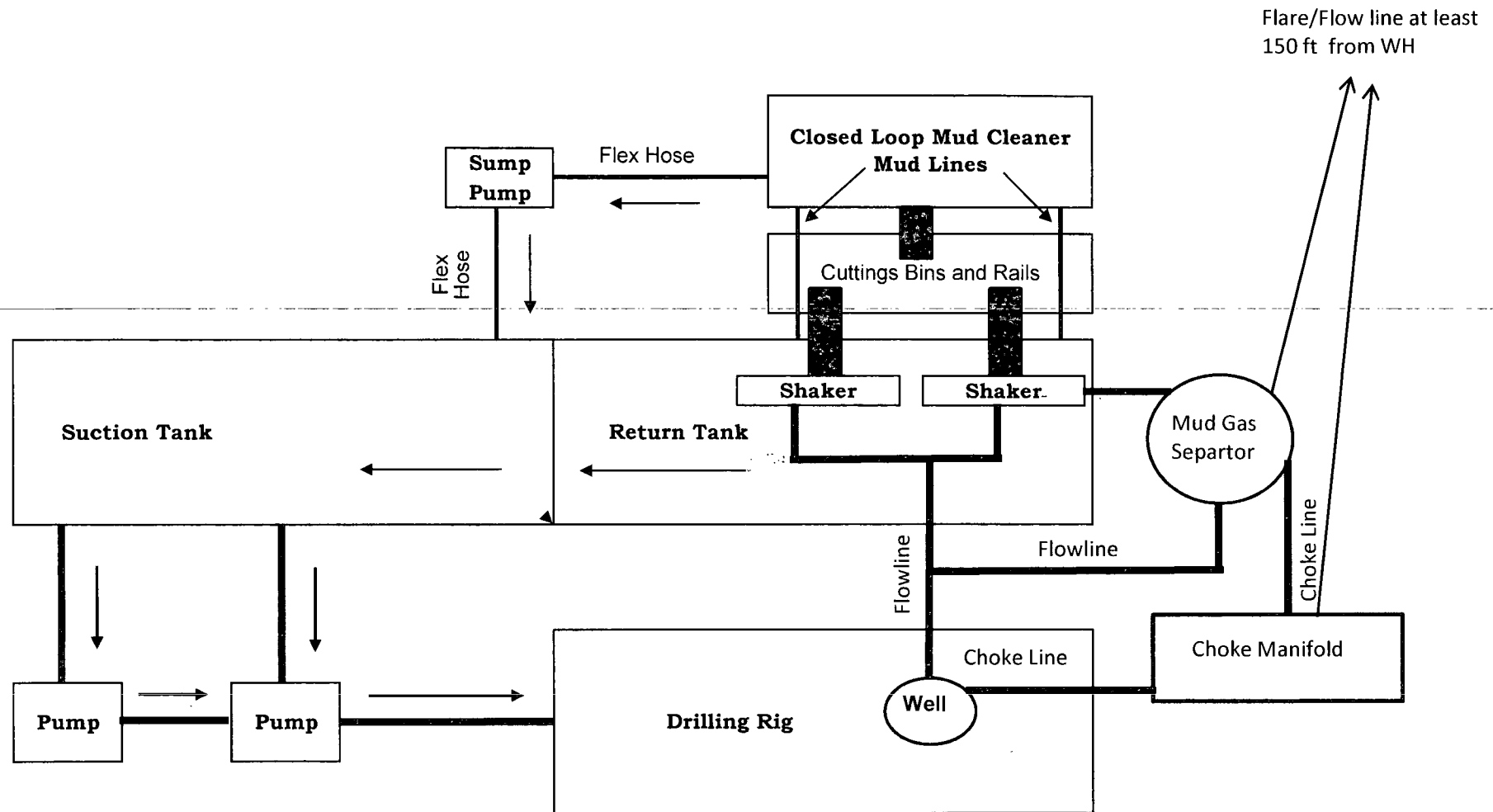
No abnormal pressures or temperatures are expected. No lost circulation is expected. SM Energy Company does not anticipate H<sub>2</sub>S during drilling operations but will start monitoring for H<sub>2</sub>S prior to drilling out the surface casing shoe. If H<sub>2</sub>S is encountered the operator will comply with the provisions of Onshore Order No 6. No lost circulation is expected.

# BOP SCHEMATIC

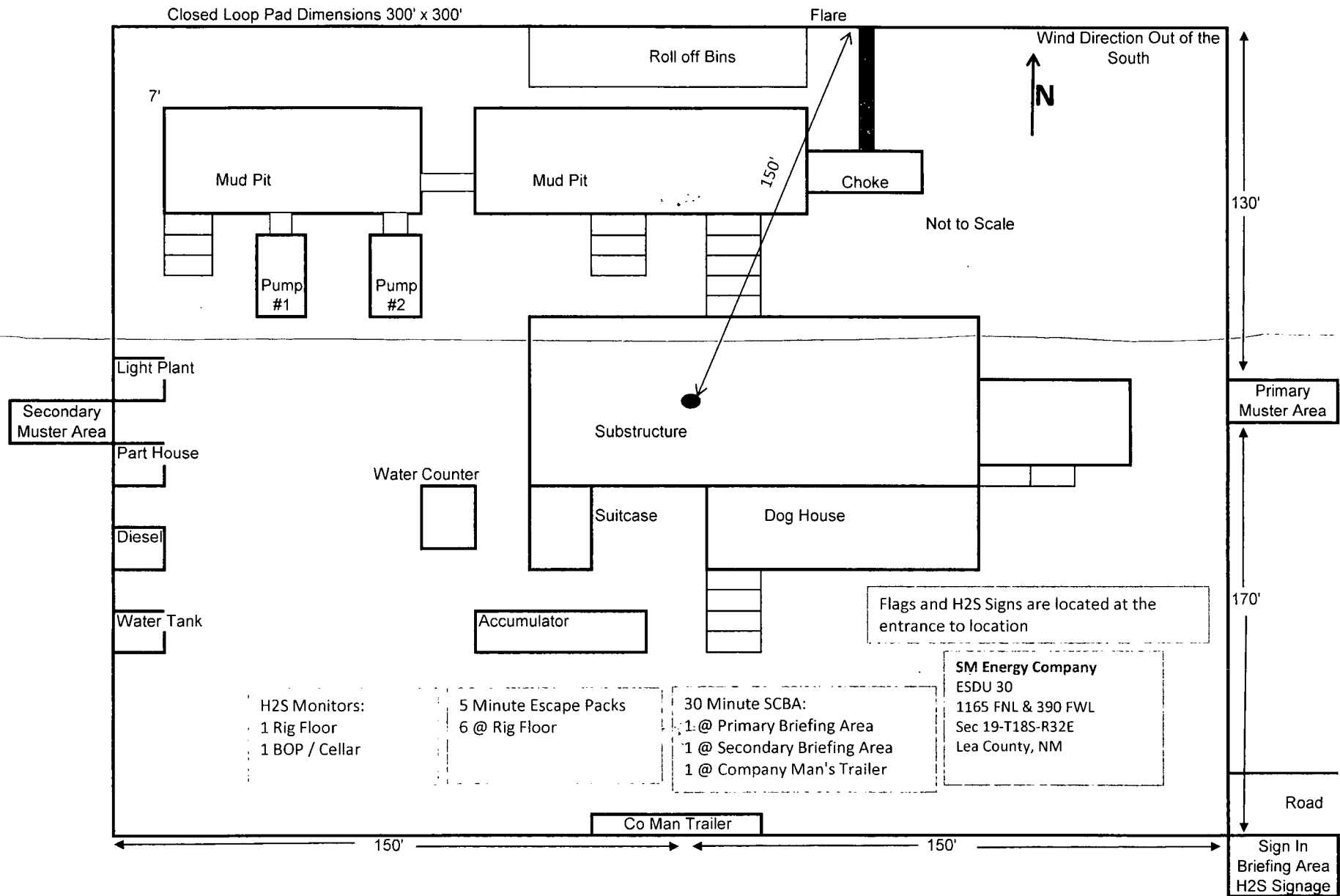
ESDU 30, Lease NM 106715  
1165' FNL & 390' FWL  
Sec 19 T18S R32E  
Lea County NM



## Choke Manifold Schematic for Closed Loop System

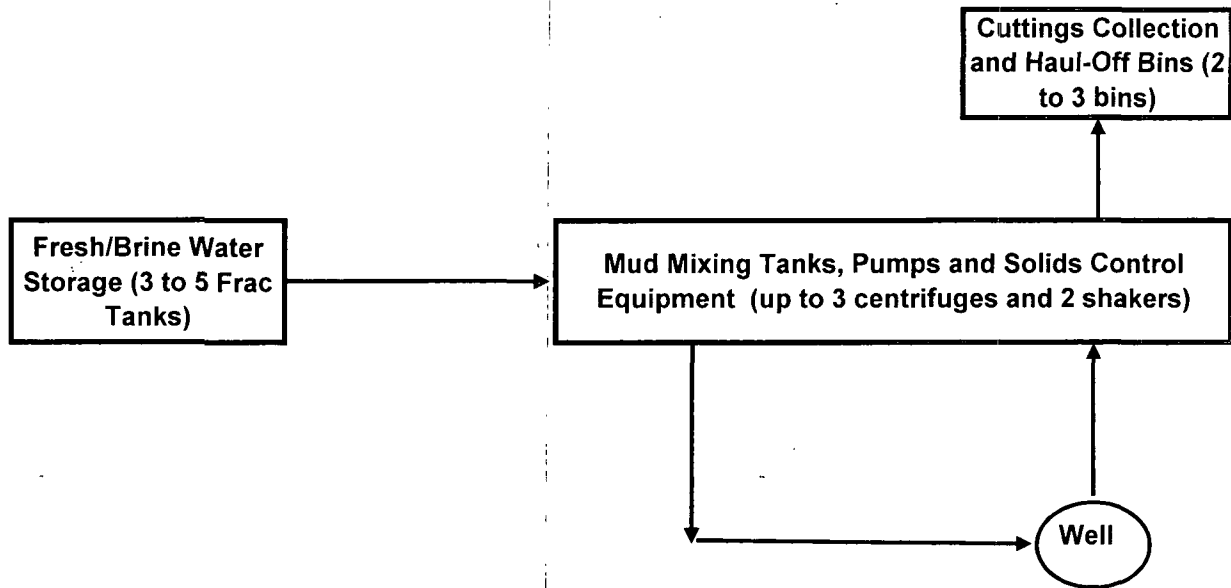


Closed Loop Pad Dimensions 300' x 300'



# **CLOSED-LOOP SYSTEM**

## **Design Plan:**



## **Operating and Maintenance Plan:**

During drilling operations, third party service companies will utilize solids control equipment to remove cuttings from the drilling fluid and collect it in haul-off bins. Equipment will be closely monitored at all times while drilling by the derrick man and the service company employees.

## **Closure Plan:**

During drilling operations, third party service companies will haul-off drill solids and fluids to an approved disposal facility as noted on the C-144 form. At the end of the well, all closed loop equipment will be removed from the location.