ATS-13-596

HOBBS OCD
AUG 07 2013
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Form 3160-3
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

OCD Hobbs

APPLICATION FOR PERMIT TO DRILL OR REENTER

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

5. Lease Serial No.
NMNM-106715 (unit: NMNM-101361X)

6. If Indian, Allotee or Tribe Name
N/A

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.
EAST SHUGART DELAWARE UNIT

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

8. Lease Name and Well No. (25743)
EAST SHUGART DELAWARE UNIT 31

2. Name of Operator SM ENERGY COMPANY (154903)

9. API Well No.
30-025- 41320

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

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

10. Field and Pool, or Exploratory
SHUGART DELAWARE, EAST (50419)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 1150' FNL & 1675' FWL Unit C
At proposed prod. zone SAME

11. Sec., T. R. M. or Blk. and Survey or Area
NENW 19-18S-32E NMPM

14. Distance in miles and direction from nearest town or post office*
8 AIR MILES SW OF MALJAMAR, NM

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)
170' to lease line
965' to unit line

16. No. of acres in lease
122.070

17. Spacing Unit dedicated to this well
NENW

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
490' (ESDU 8)

19. Proposed Depth
5,500'

20. BLM/BIA Bond No. on file
NMB000805

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3,714' UNGRADED

22. Approximate date work will start*
08/01/2013

23. Estimated duration
1 MONTH

24. Attachments

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

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

25. Signature BJ Wood

Name *(Printed/Typed)*
BRIAN WOOD (505 466-8120)

Date
06/11/2013

Title
CONSULTANT (FAX 505 466-9682)

Approved by *(Signature)* /s/George MacDonell

Name *(Printed/Typed)* /s/George MacDonell

Date
AUG - 2 2013

Title
FIELD MANAGER

Office
CARLSBAD FIELD OFFICE

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

KZ
08/09/13

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

AUG 16 2013

SM Energy Company
East Shugart Delaware Unit 31
1150' FNL & 1675' FWL
Sec. 19, T. 18 S., R. 32 E.
Lea County, NM

Drilling Program

1. ESTIMATED TOPS

Name	MD from KB (18')	Subsea Elevation	Fluid Content
Quaternary	18'	+3,714'	fresh water
Rustler*	911'	+2,821'	---
Top salt	1,058'	+2,674'	---
Base salt	2,241'	+1,491'	---
Yates	2,407'	+1,325'	water, brine
Seven Rivers	2,918'	+824'	oil, gas, water, brine
Queen	3,572'	+160'	oil, gas, water, brine
Cherry Canyon	4,302'	-570'	oil, gas, water, brine
Brushy Canyon	4,732'	-1,000'	oil, gas
Delaware	5,075'	-1,343'	oil, gas
TD	5,500'	-1,786'	oil, gas

*surface casing will be set at ~~≈960'~~ 1000'

2. NOTABLE ZONES

Water zones will be protected with casing, cement, and weighted mud. Fresh water found while drilling will be recorded. Closest water well (CP 00672) is 7,655' north. Water was reported in that well at a depth of 430'.

3. PRESSURE CONTROL

A 3,000 psi double ram BOP and 3,000 psi annular system will be installed after running the 8-5/8" casing. Pressure tests will be conducted before drilling out of the 8-5/8" casing. BOP controls will be installed before drilling out of the 8-

5/8" casing and will remain in use until completion of drilling operations. BOPE will be inspected and operated as required by Onshore Order 2.

A Kelly cock valve and sub equipped with a full opening valve sized to fit the drill pipe and collars will be available on the rig floor and in the open position when the Kelly is not in use. A third party testing company will test the 11" BOPE to 3,000 psi and the annular to 1,500 psi before drilling below the surface casing shoe. The BOP/BOPE test will include a low-pressure test from 250 psi to 300 psi. The test will be held for a minimum of 10 minutes if the test is done with a test-plug and at least 30 minutes without a test plug. (A cup or J-packer will not be used in the test.) All BOPs and related equipment will comply with well control requirements in Onshore Order 2 and API RP 53 Section 17.

4. CASING & CEMENT

See COA

Hole O. D.	Casing O. D.	Pounds/foot	Grade	Set Interval	Collar	Age
12.25"	8.625"	24	J-55	0' – 960'* (1000')	S T & C	New
7.785"	5.5"	15.5	J-55	0' – 5500'	L T & C	New

*Surface casing will be set at approximately 960' in a competent bed below the Magenta Dolomite, a member of the Rustler, and if salt is encountered, casing will be set at least 25' above the salt.

All casing is designed with a minimum of:
Burst = 1.0 Collapse = 1.125 Tensile Strength = 1.8

casing	casing depth	sacks	TOC	pounds per gallon	cubic feet per sack	total cubic feet	excess	blend
surface	960' (1000')	450	GL	14.8	1.34	603	100%	1
production	5500'	520	700'	12.5	1.96	1019	35%	2
		270		14.8	1.34	361		3

Blend 1: Surface casing will be cemented to the surface with 100% excess (≥450 sacks = 603 cubic feet) Class C light + 2% $CaCl_2$ + 4% bentonite + 81.4% fresh water mixed to yield 1.34 cubic feet per sack and 14.8 pounds per gallon. Centralizers will be installed as required by Onshore Order 2.

Production casing will be cemented to ~~7~~00' with >35% excess (1,380 cubic feet). There will be at least 200' of overlap. Blend 2: Lead with 520 sacks (1,019 cubic feet) 35:65 poz (fly ash) Class C with 5% sodium chloride + 1/8 pound per sack cell flake + 65 bentonite + 107.8% fresh water mixed to yield 1.96 cubic feet per sack and 12.5 pounds per gallon. Blend 3: Tail with 270 sacks (361 cubic feet) Class C with 5% sodium chloride + 1/8 pound per sack cello flake + 0.4% sodium metasilicate + 4% MPA-5 mixed to yield 1.34 cubic feet per sack and 14.8 pounds per gallon.

A flow up the backside after the production cement job has occurred in wells in the field. An external casing packer will be placed at 1,800' on the production casing. The purpose of the packer is to create a seal between the casing and the well bore to prevent the flow from communicating to the surface through any micro-annulus.

5. MUD PROGRAM

An electronic/mechanical mud monitor with a minimum pit volume totalizer, stroke counter, and flow sensor will be used. Circulation could be lost in any section of the hole. Lost circulation material (e.g., cedar bark) will be on location.

See COA

Interval 1000	Type	Weight	Viscosity	Fluid Loss
0' - ~~9~~60'	fresh water spud mud	8.6 - 9.4	32-34	no control
~~9~~60' - TD	brine	10	28-30	no control

A mud monitoring system will be in place to record slow pump rate, pit gain or loss, mud weight, viscosity, gel strength, filtration, and pH.

6. CORES, TESTS, & LOGS

No drill stem test or coring is planned. Mud log samples will be collected after drilling out from the surface casing. Samples will initially be collected every 20' until the Brushy Canyon is reached. Samples will be collected every 10' below the Brushy Canyon. Cased hole gamma ray/neutron logs will be run from surface to TD.

7. DOWN HOLE CONDITIONS

No abnormal pressure or temperature is expected. Maximum expected bottom hole pressure: 2,381 psi. Maximum expected bottom hole temperature: 110° F.

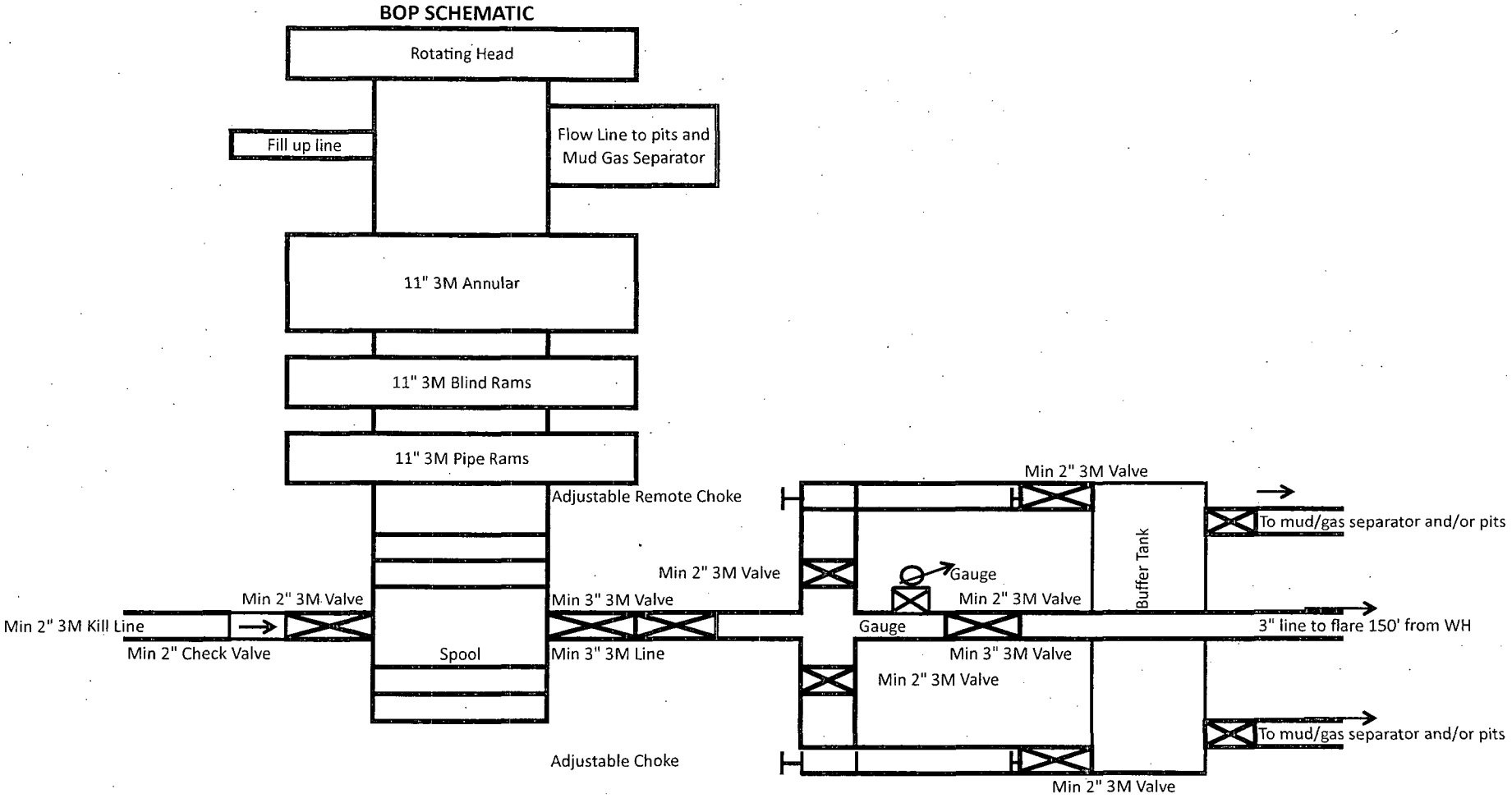
No H_2S is expected during the drilling phase. Nevertheless, H_2S monitoring equipment will be on the rig floor and air packs will be available before drilling out of the surface casing. The mud logger will be warned to use a gas trap to detect H_2S. If any H_2S is detected, then the mud weight will be increased and H_2S inhibitors will be added to control the gas. An H_2S drilling operations contingency plan is attached.

See COA

Lost circulation is expected in both the surface and production holes.

8. OTHER INFORMATION

The anticipated spud date is upon approval. It is expected it will take 1 month to drill and complete the well.


BOP SCHEMATIC
Rotating Head
Fill up line
Flow Line to pits and
Mud Gas Separator
11" 3M Annular
11" 3M Blind Rams
11" 3M Pipe Rams
Adjustable Remote Choke
Min 2" 3M Valve
To mud/gas separator and/or pits
Min 2" 3M Valve
Gauge
Buffer Tank
Min 2" 3M Valve
Min 2" 3M Kill Line
Min 2" 3M Valve
Min 3" 3M Valve
Gauge
Min 2" 3M Valve
3" line to flare 150' from WH
Min 2" Check Valve
Spool
Min 3" 3M Line
Min 3" 3M Valve
Min 2" 3M Valve
To mud/gas separator and/or pits
Adjustable Choke
Min 2" 3M Valve

Choke Manifold Schematic for Closed Loop System