IS-726

OCD Hobbs

Form 3160-3
(March 2012)

HOBBS OCD

APR 25 2016

RECEIVED

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
SHL:NMNM0319697 BHL: NMNM0309376
UL's F & G: NMNM114980

6. If Indian, Allotee or Tribe Name

1a. Type of Work: [✓] DRILL [ ] REENTER

7. If Unit or CA Agreement, Name and No.
(39802)

1b. Type of Well: [✓] Oil Well [ ] Gas Well [ ] Other [✓] Single Zone [ ] Multiple Zone

8. Lease Name and Well No.
Haas 6 Federal Com #4H

2. Name of Operator
COG Operating LLC. (229137)

9. API Well No.
30-025-43181

3a. Address
2208 West Main Street
Artesia, NM 88210

3b. Phone No. *(include area code)*
575-748-6940

10. Field and Pool, or Exploratory
(41450)
Lusk; Bone Spring, North

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 1930' FNL & 450' FEL Unit Letter H (SENE) SHL Sec 6-T19S-R32E
At proposed prod. Zone 2260' FNL & 330' FWL Lot #2 (SWNW) BHL Sec 6-T19S-R32E

11. Sec., T.R.M. or Blk and Survey or Area
Sec. 6 - T19S - R32E

14. Distance in miles and direction from nearest town or post office*
About 19 miles from Carlsbad

12. County or Parish
Lea County

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
330'	NMNM0319697: 160 NMNM0309376: 202.68 NMNM114980: 200	161.26
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL: 140' (Prop. Haas #2H) BHL: 1634' Closest to wellbore: 140'	TVD: 8,290' MD: 12,655'	NMB000740 & NMB00215
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3660' GL	22. Approximate date work will start* 9/1/2015	23. Estimated duration 30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall 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 shall 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 authorized officer.

25. Signature	Name *(Printed/Typed)*	Date
Mayte Reyes	Mayte Reyes	6-9-15

Title
Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/s/George MacDonell		APR 19 2016

Title	Office
FIELD MANAGER	CARLSBAD FIELD OFFICE

Applic... uitable title to those rights in the subject lease which would entitle the applicant to conduc... Condi... APPROVAL FOR TWO YEARS

Title 1... person knowingly and willfully to make to any department or agency of the United States... ter within its jurisdiction.

The NMOCD Gas Capture Plan notice has been posted on the web site under Announcements/Notice to Operators. A copy of the GCP form is included with the notice and is also in the Forms section under Unnumbered forms. Please submit accordingly in a timely manner.

(Continued on page 2)

*(Instructions on page 2)

Capitan Controlled Water Basin

KZ
04/25/16

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

Approval Subject to General Requirements & Special Stipulations Attached

APR 25 2016

COG Operating LLC – Haas 6 Federal Com 4H

1. Geologic Formations

TVD of target	8290'	Pilot hole depth	NA
MD at TD:	12,655'	Deepest expected fresh water:	345

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	1057	Water	
Top of Salt	1136	Salt	
Bottom of Salt	2808	Salt	
Yates	2833	Oil/Gas	
7 Rivers	3155	Oil/Gas	
Queen	3678	Oil/Gas	
Delaware	4618	Oil/Gas	
Brushy Canyon	5287	Oil/Gas	
Bone Spring Lime	6878	Oil/Gas	
1st Bone Spring Sand	8188	Oil/Gas Target Zone	
2nd Bone Spring Sand	9018	Oil/Gas	
3rd Bone Spring Sand	9721	Oil/Gas	

2. Casing Program

Hole Size	Casing Interval From	Casing Interval To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0	1100	13.375"	54.5	J55	STC	1.33	1.85	8.57
12.25"	0	3180	9.625"	36	J55	BTC	1.2	1.08	3.9
8.75"	0	12,655'	5.5"	17	P110	LTC	1.8	3.3	2.90
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Does casing meet API specifications? If no, attach casing specification sheet.	Y
Is premium or uncommon casing planned? If yes attach casing specification sheet.	N
Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria).	Y
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y
Is well located within Capitan Reef?	N
If yes, does production casing cement tie back a minimum of 50' above the Reef?	

Is well within the designated 4 string boundary.	
Is well located in SOPA but not in R-111-P?	N
If yes, are the first 2 strings cemented to surface and 3rd string cement tied back 500' into previous casing?	N
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2nd string set 100' to 600' below the base of salt?	
Is well located in high Cave/Karst?	N
If yes, are there two strings cemented to surface?	
(For 2 string wells) If yes, is there a contingency casing if lost circulation occurs?	
Is well located in critical Cave/Karst?	N
If yes, are there three strings cemented to surface?	

3. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	470	13.5	1.75	9	12	Lead: Class C + 4% Gel + 2% CaCl2
	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl2
Int. 1st Stage	600	13.5	1.75	9.11	12	1st stage Lead: Econocem HLC 65:35:6 + 5% Salt
	250	14.8	1.34	6.34	8	1st stage Tail: Class C + 2% CaCl
Prod	920	12.7	2	10.6	18	Lead: 35:65:6 H Blend
	1160	14.4	1.24	5.7	18	Tail: Versacem 50:50:2 Class H + 1% Salt

Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results

Casing String	TOC	% Excess
Surface	0'	50% OH
Intermediate 1st Stage	0'	50% OH
Production Lead	2650'	45% OH (ICP – KOP) + 500' 9-5/8" x 5-1/2"
Production Tail	7813'	17% OH (KOP 7813' – EOL 12,655')

4. Pressure Control Equipment

N	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

BOP installed and tested before drilling which hole?	Size?	Min. Required WP	Type	✓	Tested to:
12-1/4"	13-5/8"	2M	Annular	x	2000 psi
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	13-5/8"	3M	Annular	x	50% testing pressure
			Blind Ram	x	3M
			Pipe Ram	x	
			Double Ram		
			Other *		

BOP/BOPE will be tested by an independent service company to 250 psi low and the high pressure indicated above per Onshore Order 2 requirements. The System may be upgraded to a higher pressure but still tested to the working pressure listed in the table above. If the system is upgraded all the components installed will be functional and tested.

Pipe rams will be operationally checked each 24 hour period. Blind rams will be operationally checked on each trip out of the hole. These checks will be noted on the daily tour sheets. Other accessories to the BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold. See attached schematics.

X	Formation integrity test will be performed per Onshore Order #2. On Exploratory wells or on that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.i.	
N	A variance is requested for the use of a flexible choke line from the BOP to Choke Manifold. See attached for specs and hydrostatic test chart.	
	N	Are anchors required by manufacturer?
N	A multibowl wellhead is being used. The BOP will be tested per Onshore Order #2 after installation on the surface casing which will cover testing requirements for a maximum of 30 days. If any seal subject to test pressure is broken the system must be tested.	

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	1100'	FW Gel	8.6-8.8	28-34	N/C
1100'	3180'	Saturated Brine	10.0-10.2	28-34	N/C
3180'	12,655'	Cut Brine	8.4-9.2	28-34	N/C

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times.

What will be used to monitor the loss or gain of fluid?	PVT/Pason/Visual Monitoring

6. Logging and Testing Procedures

Logging, Coring and Testing.	
Y	Will run GR/CNL from TD to surface (horizontal well – vertical portion of hole). Stated logs run will be in the Completion Report and submitted to the BLM.
N	No Logs are planned based on well control or offset log information.
N	Drill stem test? If yes, explain
N	Coring? If yes, explain

Additional logs planned		Interval
N	Resistivity	
N	Density	
Y	CBL	Production casing (If cement not circulated to surface)
Y	Mud log	Intermediate shoe to TD
N	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	3880 psi at 8290' TVD (EOC - Lateral)
Abnormal Temperature	NO (140 F)

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times. Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

Anticollision Plan –

The Haas 6 Federal Com 2H (1930' FNL X 310' FEL) and Haas 6 Federal Com 4H (1930' FNL X 450' FEL) Surface Locations are spotted 140' from each other. The Haas 6 Federal Com 2H is 140' East of the 4H. Straight Hole Control will be used to keep both of these wells at a safe distance from each other in the vertical. Both well's curve and laterals will be to the West. The Haas 2H Kick Off Point, Curve and Lateral will be approximately 1000' deeper than the Haas 4H (2H Lateral 9280' TVD, 4H Lateral 8290' TVD). The Haas 4H, which is the shallower lateral is spotted 150' West of the 2H and hence, no part of the curve and lateral should be in conflict, provided the vertical part of both wells are kept at a safe distance from each other.

Potential for Collision with the Fina Continental Unit A 1 (API 30-025-20913 – Plugged and Abandoned) and the USA – Continental B Unit 1 (API 30-025-20914 – Plugged and Abandoned). The Fina Continental Unit A 1 had inclination only surveys that indicated a maximum displacement of 225' at depth of passage. The USA – Continental B Unit 1 did not have any inclination surveys in available well files, the same 225' radius calculated from the Fina Continental Unit A 1 was a reasonable assumption for the maximum radius for this well.

Hydrogen Sulfide (H2S) monitors will be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the operator will comply with the provisions of Onshore Oil and Gas Order #6. If Hydrogen Sulfide is encountered, measured values and formations will be provided to the BLM.	
N	H2S is present
Y	H2S Plan attached

8. Other facets of operation

Is this a walking operation? NO If yes, describe.
Will be pre-setting casing? NO If yes, describe.

Attachments

- Directional Plan
- Anti-collision Report
- BOP & Choke Schematics
- C102 and supporting maps
- Rig plat
- H2S schematic
- H2S contingency plan
- Interim reclamation plat