

OCD Hobbs

ATS-16-972

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

HOBBS OCD

MAY 27 2016

APPLICATION FOR PERMIT TO DRILL OR REENTER

RECEIVED

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		7. If Unit or CA Agreement, Name and No.	
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone		8. Lease Name and Well No. (316267) Deerstalker Federal Com #4H	
2. Name of Operator COG Operating LLC. 229137		9. API Well No. 30025-47281	
3a. Address 2208 West Main Street Artesia, NM 88210	3b. Phone No. (include area code) 575-748-6940	10. Field and Pool, or Exploratory (98098) WC-025 G-09 S243532M;WOLFBONE	
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 25' FNL & 430' FWL (NWNW) Section 8-T25S-R35E At proposed prod. Zone 330' FNL & 380' FWL (NWNW) Section 5-T25S-R35E		11. Sec., T.R.M. or Blk and Survey or Area Section 8 - T25S - R35E	
14. Distance in miles and direction from nearest town or post office* Approximately 12 miles south of Jal		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) 25'	16. No. of acres in lease NMNM132948: 361.40	17. Spacing Unit dedicated to this well 160.46	
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL: 1500' (Deerstalker #3H) BHL: 4299'	19. Proposed Depth TVD: 12,511' MD: 17,294' PH: 12,950'	20. BLM/BIA Bond No. on file NMB000740 & NMB000215	
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3293.8' GL	22. Approximate date work will start* 7/1/2016	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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan | 5. Operator certification |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

25. Signature <i>Mayte Reyes</i>	Name (Printed/Typed) Mayte Reyes	Date 4-14-16
Title Regulatory Analyst		
Approved by (Signature) James A. Amos	Name (Printed/Typed)	Date MAY 25 2016
Title FIELD MANAGER		
Office CARLSBAD FIELD OFFICE		

Application approval does not warrant or certify that the applicant holds a loan 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.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it States any false, fictitious or fraudulent statements or representation

(Continued on page 2)

Carlsbad Controlled Water Basin

**Approval Subject to General Requirements
& Special Stipulations Attached**

See attached NMOCD
Conditions of Approval

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

APPROVAL FOR TWO YEARS
any department or agency of the United

KZ 8/1/16
*Instructions on page 2)

COG Operating LLC – Deerstalker Federal Com 4H

1. Geologic Formations

TVD of target	12,511' (EOL)	Pilot hole depth	12950'
MD at TD:	17,294'	Deepest expected fresh water:	350

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Rustler	799	Water	
Top of Salt	1212	Salt	
Base of Salt - Fletcher	5186	Salt	
Delaware - Lamar	5396	Salt Water	
Bell Canyon	5429	Salt Water	Seepage/Loss Cir
Cherry Canyon	6373	Oil/Gas	Seepage/Loss Cir
Brushy Canyon	7982	Oil/Gas	Seepage/Loss Cir
Bone Spring Lime	9241	Barren	
1st Bone Spring Sand	10,519	Oil/Gas	
2 nd Bone Spring Sand	11,033	Oil/Gas	
3 rd Bone Spring Sand	12,171	Oil/Gas	
Wolfcamp	12,540	Oil/Gas	
Wolfcamp Lith	12,666	Oil/Gas	
Pennsylvanian	13,510	Not Penetrated	

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
	From	To							
17.5"	0	825 870'	13.375"	54.5	J55	STC	1.78	1.068	11.432
12.25"	0	4500	9.625"	40	J55	LTC	1.077	1.045	2.889
12.25"	4500	5400	9.625"	40	N80	LTC	1.079	1.521	13.364
8.75	0	12,780	7.0"	29	P110	LTC	1.282	1.281	2.197
6.125"	11,900	17,294'	4.5"	13.5	P110	BTC	1.802	1.417	2.623
BLM Minimum Safety Factor							1.125	1	1.6 Dry 1.8 Wet

Intermediate casing(s) will be kept at least ½ full while running casing to mitigate collapse.

Intermediate casing(s) burst based on 0.8 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface.

Liner Burst SF based on 0.8 frac gradient in Lateral – no back up.

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

COG Operating LLC – Deerstalker Federal Com 4H

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 3 rd string cement tied back 500' into previous casing?	
Is well located in R-111-P and SOPA?	N
If yes, are the first three strings cemented to surface?	
Is 2 nd 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 ft ³ /sack	H ₂ O gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	355	13.5	1.75	9.2	12	Lead: Class C + 4% Gel + 2% CaCl ₂
	300	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl ₂
Inter 1	1625	13.5	1.75	9.2	12	Lead: Class C + 4% Gel + 2% CaCl ₂
	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl
Inter 2	945	12.7	2	10	18	Lead: HLH 65:35:6
	200	16.4	1.06	4.3	8	Tail: Halcem Class H
4.5 Prod Liner	555	14.4	1.24	5.7	18	Versacem 50:50:2 Class H
1000' Pilot Hole TD Plug/KO Plug	450	17.2	.98	4	8	Class H Neat (Plug Back 12,950' – 11,950' – Dress Off Plug to Kick Off at ~12,000).

Pilot Hole Plug Back Volumes based on Bit Size + 5% Excess. Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results.

Lab reports with the 500 psi compressive strength time for the cement will be onsite for review.

COG Operating LLC – Deerstalker Federal Com 4H

Casing String	TOC	% Excess
Surface	0'	75%
1 st Intermediate	0'	100%
2 nd Intermediate	3400'	60% OH Below 9-5/8" Casing (5400') to EOC (12,780'). Then cement to tie in 2000' inside 9-5/8" Casing Shoe @ 5400'
Production Liner	11,900'	40% OH in Lateral (EOC to EOL); 5% in 7" x 4.5" Casing x Casing Annulus

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"	5M	Annular	x	50% testing pressure
			Blind Ram	x	5M
			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.
---	---

COG Operating LLC – Deerstalker Federal Com 4H

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	Surf. Shoe (825')	FW Gel	8.6-8.8	28-34	N/C
Surf csg (800') 870'	9-5/8" Int shoe (5400')	Saturated Brine	10.0-10.2	28-34	N/C
9-5/8" Int shoe (5400')	12,950' (Pilot Hole TD)	Cut Brine	8.6 – 10.2	28-34	N/C
KOP (~12,000)	7" 2 nd Int shoe (12,781)	Cut Brine	8.6 – 9.4	28-34	N/C
7" 2 nd Int shoe (12,781)	17,294' (Lateral TD)	Cut Brine	8.6 – 9.4	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.
Y	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
Y	Resistivity	Pilot Hole TD to ICP
Y	Density	Pilot Hole TD to ICP
Y	CBL	Production casing (If cement not circulated to surface)
Y	Mud log	Intermediate shoe to TD
N	PEX	

COG Operating LLC – Deerstalker Federal Com 4H

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	5921 psi at 12,511' TVD (EOL)
Abnormal Temperature	NO (180 deg 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.

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	H ₂ S is present
Y	H ₂ S 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
- BOP & Choke Schematics
- C102 and supporting maps
- Rig plat
- H₂S schematic
- H₂S contingency plan
- Interim reclamation plat