

ATS-16-404

OCD Hobbs

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

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
HOBBS OCD
MAY 05 2016
APPLICATION FOR PERMIT TO DRILL OR REENTER

1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER		RECEIVED	5. Lease Serial No. NMNM120908
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			6. If Indian, Allottee or Tribe Name
2. Name of Operator COG Production LLC. (217955)			7. If Unit or CA Agreement, Name and No.
3a. Address 2208 West Main Street Artesia, NM 88210	3b. Phone No. (include area code) 575-748-6940		8. Lease Name and Well No. Azores Federal #8H (39887)
4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 210' FSL & 1780' FWL Unit Letter N (SESW) Sec 29-T24S-R32E At proposed prod. Zone 330' FNL & 1440' FWL Unit Letter C (NENW) Sec 29-T24S-R32E			9. API Well No. 30-025-43212
14. Distance in miles and direction from nearest town or post office* Approximately 21 miles East of Malaga			10. Field and Pool, or Exploratory WC-025 G-06 S253206M; Bone Spring (97899)
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any) 210'		16. No. of acres in lease 1891.72	11. Sec., T.R.M. or Blk and Survey or Area Sec. 29 - T24S - R32E
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL: 100' (Prop. Azores #12H) BHL: 1825'		19. Proposed Depth TVD: 9,175' MD: 13,860'	12. County or Parish Lea
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3494.8' GL		22. Approximate date work will start* 6/1/20016	13. State NM
17. Spacing Unit dedicated to this well 160			
20. BLM/BIA Bond No. on file NMB000860 & NMB000845			
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 3-17-16
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Title Regulatory Analyst	
Approved by (Signature) <i>/s/George MacDonell</i>	Name (Printed/Typed) Office CARLSBAD FIELD OFFICE
Date MAY 2 2016	

Application approval does not warrant or certify that the applicant holds legan 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)

Carlsbad Controlled Water Basin

KZ
04/06/16

Approval Subject to General Requirements
& Special Stipulations Attached

**SEE ATTACHED FOR
CONDITIONS OF APPROVAL**

MAY 10 2016

COG Production LLC – Azores Federal #8H

1. Geologic Formations

TVD of target	9,175' (EOC)	Pilot hole depth	No
MD at TD:	13,860'	Deepest expected fresh water:	380

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/Target Zone?	Hazards*
Rustler	775	Water	
Top of Salt	1093	Salt	
Base of Salt - Fletcher	4352	Salt	
Delaware - Lamar	4579	Salt Water	
Bell Canyon	4603	Salt Water	Seepage/Loss Cir
Cherry Canyon	5517	Oil/Gas	Seepage/Loss Cir
Brushy Canyon	6751	Oil/Gas	Seepage/Loss Cir
Bone Spring Lime	8494	Barren	
Upper Avalon Shale	8772	Oil/Gas	
Lower Avalon Shale	8992	Oil/Gas – Target Zone	
1st Bone Spring Sand	9627	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	800'	13.375"	54.5	J55	STC	1.835	1.268	11.789
12.25"	0	4300'	9.625"	40	J55	LTC	1.127	1.152	2.857
12.25"	4300'	4550'	9.625	40	HCL80	LTC	1.753	1.323	3.995
8.75"	0	13,860'	5.5"	17	P110	LTC	1.716	2.448	2.85
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 Intermediate and Production Burst based on Pore Pressure (9.1 ppge) at Lateral TVD minus Gas Gradient (0.1 psi/ft).

Intermediate casing will always be kept 1/3 full while running as additional collapse protection:

	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.	

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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	# Sk	Wt lb/ gal	Yld ft3/ sack	H ₂ O gal/sk	500# Comp Strength (hours)	Slurry Description
Surf.	400	13.5	1.75	9.2	12	Lead: Class C + 4% Gel + 2% CaCl ₂
	285	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl ₂
Intermediate	1250	12.8	1.9	10	18	Lead: Class C + 4% Gel + 2% CaCl ₂
	200	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl
Production	460	10.3	3.62	21.9	72	Lead: Halliburton Tune Lite + adds
	1200	14.4	1.24	5.6	8	Tail: Versacem H + 2% Gel + 1% Salt

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. Casing String	TOC	% Excess
Surface	0'	85%
1 st Intermediate	0'	100%
Production	4050' (500' Tie-in to Int Casing)	Lead: 45% OH in KOP to ICP. 0% in 5.5" x 9.625" Intermediate Casing x Casing Annulus Tail: 15% OH from KOP to EOL

4. Pressure Control Equipment

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

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5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. Shoe (800')	FW Gel	8.6-8.8	28-34	N/C
Surf csg (800')	9-5/8" Int shoe (4550')	Saturated Brine	10.0-10.2	28-34	N/C
9-5/8" Int Shoe (4550')	13,860' MD 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
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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
Y	Mud log
N	PEX

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4342 psi at 9175' TVD (EOC)
Abnormal Temperature	NO (148 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 (H ₂ S) monitors will be installed prior to drilling out the surface shoe. If H ₂ S 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

Directional Drilling and Anticollision Considerations

The directional plan and anti-collision plan(s) for this well is attached.

This will be a walking operation to drill the proposed Azores Federal 8H and the future Azores Federal 12H (to be proposed). The future Azores Federal 12H surface location is 100' West of the proposed Azores Federal 8H. The nearest existing well at this time is the Corvo Federal 3H, 100' East of the proposed Azores Federal 8H and 200' East of the future Azores Federal 12H. To the north, near the planned lateral track of the Azores Federal 12H, is the Stanolind – Erle Payne #1 (API 30-025-12715), a PXA well drilled to 4811' and is not a collision hazard. The anticollision assessment reports for these wells (future Azores Federal 12H and existing Corvo Federal 3H) are included in the directional plan.

Is this a walking operation? YES – Described in Directional Drilling and Anticollision Considerations above.

Will be pre-setting casing? NO If yes, describe.

Attachments

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