16-496

Form 3160-3
(March 2012)

UNORTHODOX LOCATION

HOBBS OCD

OCD Hobbs
APR 21 2016

RECEIVED

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

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

5. Lease Serial No.
SHL: Fed Surface, State Minerals
BHL: NMNM120908

6. If Indian, Allotee or Tribe Name

1a. Type of Work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.

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

8. Lease Name and Well No. (39881)
Azores Federal #11H

2. Name of Operator
COG Production LLC. (217955)

9. API Well No.
30-025- 43171

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

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

10. Field and Pool, or Exploratory
WC-025 G-06 S253206M;
Bone Spring (97899)

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 210' FNL & 2470' FEL Unit Letter B (NWNE) Sec 32-T24S-R32E
At proposed prod. Zone 330' FNL & 2310' FEL Unit Letter B (NWNE) Sec 29-T24S-R32E

11. Sec., T.R.M. or Blk and Survey or Area
Sec. 32 - T24S - R32E

14. Distance in miles and direction from nearest town or post office*
Approximately 21 miles East of Malaga

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)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
210'	NMNM120908: 1,891.72	160
18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft.	**19. Proposed Depth**	**20. BLM/BIA Bond No. on file**
SHL: 80' (Prop. Azores #7H) BHL: 2839'	TVD: 9,190' MD: 14,150'	NMB000860 &NMB000845
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
3491.7' GL	6/1/20016	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	2-10-16

Title: Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/S/ STEPHEN J. CAFFEY		APR 15 2016

Title	Office
FIELD MANAGER	CARLSBAD FIELD OFFICE

Application approval does not warrant or certify th se which would entitle the applicant to conduct operations theron.
Conditions of approval, if any, are attached. APPROVAL FOR TWO YEARS

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Sec ny department or agency of the United States any false, fictitious or fraudulent statement

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)

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

KZ 04/21/16

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Carlsbad Controlled Water Basin

Witness Surface Casing

APR 25 2016

COG Production LLC, Azores Federal 11H

1. Geologic Formations

TVD of target	9,190'	Pilot hole depth	-
MD at TD:	14,150'	Deepest expected fresh water:	380'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	781	Water	
Top of Salt	1101	Salt	
Fletcher Anhydrite	4378	Barren	
Lamar	4606	Barren	
Delaware Group	4645	Oil/Gas	
Bone Spring	8560	Oil/Gas	
Upper Avalon Shale	8627	Oil/Gas	
Lower Avalon Shale	9021	Oil/Gas – Target Zone	
First Bone Spring	9633	Oil/Gas	

2. Casing Program

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0	850'	13.375"	54.5	J55	STC	2.84	1.13	11.10
12.25"	0	4650'	9.625"	40	J55	LTC	1.06	0.89	2.80
8.75"	0	14150'	5.5"	17	P110	LTC	1.70	2.42	1.85
				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

- 9-5/8" 40# J-55: Pi = 3950; Pi/D = 3950 psi/4650 ft = 0.85, above the fracture gradient of 0.7 psi/ft at the shoe.
- 9-5/8" 40# J-55 LTC will be kept greater than 1/3 full while running to avoid approaching collapse pressure

See COA

Must have table for contingency casing

	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). (Assumption bulleted above)	N
Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?	Y

See COA

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?	
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?	N
(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.	350	13.5	1.75	6.4	8	Lead: Class C + 4% Gel + 2% CaCl2
	250	14.8	1.34	6.4	8	Tail: Class C + 2% CaCl2
Inter.	925	13.5	1.75	9.4	8	Lead: Class C + 4% Gel + 2% CaCl2
	250	14.8	1.34	6.4	6	Tail: Class C + 2% CaCl2
Prod.	500	10.4	3.38	19	72	Lead: Halliburton Tune Lite Blend
	1450	14.4	1.25	6.34	10	Tail: 50:50:2 Class H + 1% Salt + 0.5% Halad-9 + 0.05% SA-1015

Casing String	TOC	% Excess
Surface	0'	50%
Intermediate	0'	35% on OH
Production	4150'	35% on OH

Include Pilot Hole Cementing specs:

Pilot hole depth NA'

Plug top	Plug Bottom	% Excess	No. Sacks	Wt. lb/gal	Yld ft3/sack	Water gal/sk	Slurry Description and Cement Type

4. Pressure Control Equipment

	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	50% of working pressure
			Blind Ram		2M
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	11"	3M	Annular	x	50% testing pressure
			Blind Ram	x	3M
			Pipe Ram	x	
			Double Ram		
			Other*		

*Specify if additional ram is utilized.

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.

N	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. See attached schematic.

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.6-8.8	28-34	N/C
Surf shoe	Int shoe	Saturated Brine	9.9-10.2	28-34	N/C
Int shoe	TD	Cut Brine	8.5-9.3	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

See COA

6. Logging and Testing Procedures

Logging, Coring and Testing.	
x	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.
	No Logs are planned based on well control or offset log information.
	Drill stem test? If yes, explain
	Coring? If yes, explain –

Additional logs planned		Interval
	Resistivity	Int. shoe to KOP
	Density	Int. shoe to KOP
	CBL	Production casing
x	Mud log	Intermediate shoe to TD
	PEX	Intermediate shoe to TD

See COA

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4445 psi
Abnormal Temperature	No

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? Y - Walking with Azores Federal 7H
Will be pre-setting casing? N - If yes, describe.

See email conversation

Attachments

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