HOBBS OCD

16-184

OCD Hobbs

DEC 30 2015

RECEIVED

Form 3160-3
(March 2012)

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.
SL:LC-029509B BL:LC-054687

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

1a. Type of work: ☑ DRILL ☐ REENTER

7. If Unit or CA Agreement, Name and No.
N/A

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

8. Lease Name and Well No.
Ivar the Boneless Federal #22H (314751)

2. Name of Operator COG Operating LLC (229137)

9. API Well No.
30-025- 42998

3a. Address One Concho Center, 600 W. Illinois Ave
Midland, TX 79701

3b. Phone No. (include area code)
432-685-4385

10. Field and Pool, or Exploratory
Maljamar; Yeso, West (44500)

4. Location of Well (Report location clearly and in accordance with any State requirements.*)
At surface SHL: 105' FNL & 1423' FWL, Unit C, Sec 22
At proposed prod. zone BHL: 330' FNL & 989' FWL, Unit D, Sec 15

UNORTHODOX LOCATION

11. Sec., T. R. M. or Blk. and Survey or Area
Sec 22 & 15, T17S, R32E

14. Distance in miles and direction from nearest town or post office*
2 miles from Loco Hills, 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)	16. No. of acres in lease	17. Spacing Unit dedicated to this well
105'	SHL: 520 BHL: 400	160
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	**19. Proposed Depth**	**20. BLM/BIA Bond No. on file**
347.3'	TVD: 6269' MD: 11288' EOC: 6350' TVD	NMB000740; NMB000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
4014' GL	01/31/2016	15 Days

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	Name (Printed/Typed)	Date
	Kelly J. Holly	10/16/2015

Title
Permitting Tech

Approved by (Signature) Steve Caffey	Name (Printed/Typed)	Date DEC 22 2015
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)

Roswell Controlled Water Basin

KZ 12/31/15

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

JAN 04 2016

COG Operating LLC
Ivar the Boneless Federal #22H

1. Geologic Formations

TVD of target	6350'	Pilot hole depth	NA
MD at TD:	11288'	Deepest expected fresh water:	132'

Back Reef

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Fresh Water	
Rustler	829'	Brackish Water	
Top of Salt	1035'	Salt	
Tansill	2041'	Barren	
Yates	2147'	Oil/Gas	
Seven Rivers	2503'	Oil/Gas	
Queen	3112'	Oil/Gas	
Grayburg	3499'	Oil/Gas	
San Andres	3885'	Oil/Gas	
Glorieta	5369'	Oil/Gas	
Paddock	5439'	Oil/Gas	
Blinebry	5940'	Target	
Tubb	6887'	Will not penetrate	

*H2S, water flows, loss of circulation, abnormal pressures, etc.

See COA

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	~~857'~~ 920	13.375"	48	H40/J55	STC	1.89	3.28	7.83
12.25"	0	~~2062'~~ 2170	9.625"	40	J55	LTC	2.40	1.30	6.30
8.75"	0	5829'	7.0"	29	L80	LTC	3.17	1.33	2.25
8.75"	5829'	6656'	5.5"	17	L80	LTC	2.55	1.26	3.70
7.875"	6656'	~~11208'~~ 11288	5.5"	17	L80	LTC	2.55	1.26	7.59
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet

Per Sundry 3160-3

All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h
BLM standard formulas where used on all SF calculations
Assumed 9.2 ppg MW equivalent pore pressure from 9 5/8" shoe to Deepest TVD in wellbore.

COG Operating LLC
Ivar the Boneless Federal #22H

	Y or N
Is casing new? If used, attach certification as required in Onshore Order #1	Y
Is casing API approved? 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 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.	N
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?	
(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?	

See COA

3. Cementing Program

Casing	# Sks	Wt. lb/gal	Yld ft3/sk	H_20 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf. Single Stage	275	13.5	1.75	9.2	13	Lead: Class C + 4% Gel +2% $CaCl_2$ + 0.25 pps CF
	375	14.8	1.32	6.3	6	Tail: Class C + 2% $CaCl_2$ + 0.25 pps Celloflake
Inter. Single stage	300	11.8	2.45	14.4	72	Lead: 50:50:10 C: Poz:Gel w/ 5% Salt + 5 pps LCM + 0.25 pps Cello flake
	275	14.8	1.32	6.3	6	Tail: Class C w/ 2% $CaCl_2$
	IF DV Tool +/- ~~907'~~ 970					
Inter. Multi-Stage	150	11.8	2.45	14.4	72	1st stage Lead: 50:50:10 C: Poz:Gel w/ 5% Salt + 5 pps Lcm + 0.25 pps Cello flake
	225	14.8	1.32	6.3	6	1st stage Tail: Class C w/ 2% CaCl2
	200	11.8	2.45	14.4	72	2nd stage Lead: 50:50:10 C: Poz:Gel w/ 5% Salt + 5 pps LCM + 0.25 pps Cello flake

See COA

Prod. Single Stage	625	12.5	2.01	11.4	22	Lead: 35:65:6 C:Poz Gel w/5% salt + 5 pps LCM + 0.2% SMS + 1% FL-25 + 1% Ba-58+0.3% FL-52A + 0.125 pps CF
	1000	14	1.37	6.4	10	Tail: 50:50:2 C:Pox Gel w/5% salt+3 pps LCM + 0.6% SMS + 1% FL-25 +1% BA-58+ 0.125 pps CF
	IF DV/ECP Tool +/- 3982'					
Prod Multi-Stage	400	12.5	2.01	11.4	22	2nd Stage Lead: 35:65;6 C:Poz Gel w/5% salt+5 pps LCM+0.2% SMS + 1% FL-25+1% BA-58+0.3% FL-52A+ 0.125 pps CF
	150	16.8	.99	4.8	6	2nd Stage Tail: Class"C" w/0.3% R-3 + 1.5% CD-32
	200	12.5	2.01	11.4	22	1st stage Lead: 35:65:6 C: PozGel w/5% salt + 5 pps LCM + 0.2% SMS + 1% FL-25+ 1% BA-58 + 0.3% FL-52A + 0.125 pps CF
	1000	14	1.37	6.4	10	1st stage Tail: 50:50:2 C: PozGel w/5% salt + 3 pps LCM + 0.6% SMS + 1% FL-25 + 1% BA-58 + 0.125 pps CF

Extremely Low Cement! See COA

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

4. Pressure Control Equipment * See attachment for further details*****

See COA

No	A variance is requested for the use of a diverter on the surface casing. See attached for schematic.

OP 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		
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4" & 7 7/8"	13-5/8"	2M	Annular	X	2000 psi
			Blind Ram		
			Pipe Ram		
			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.

NA	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.
NA	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.
	NA — Are anchors required by manufacturer?
NA	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. • Provide description here 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	10.0-10.2	28-34	N/C
Int shoe	TD	FW-Cut Brine	8.5-9.2	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.	
X	Will run Cased hole GR/CNL from KOP to surface. Stated logs run will be in the Completion Report and submitted to the BLM.
No	Open hole logs are planned from KOP to Intermediate casing shoe.
No	Drill stem test? If yes, explain
No	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
X	PEX/HRLA/HNGS	Intermediate shoe to KOP

See COA

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	2794 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions.

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.	
~~NO~~	H2S is present
Yes	H2S Plan attached

See COA

Yes

8. Other facets of operation

Is this a walking operation? No.
Will be pre-setting casing? No
The completed intervals will be fracture stimulated

Attachments:
Directional Plan
Multi-stage Cement details
BOP description

13 5/8" 2K ANNULAR

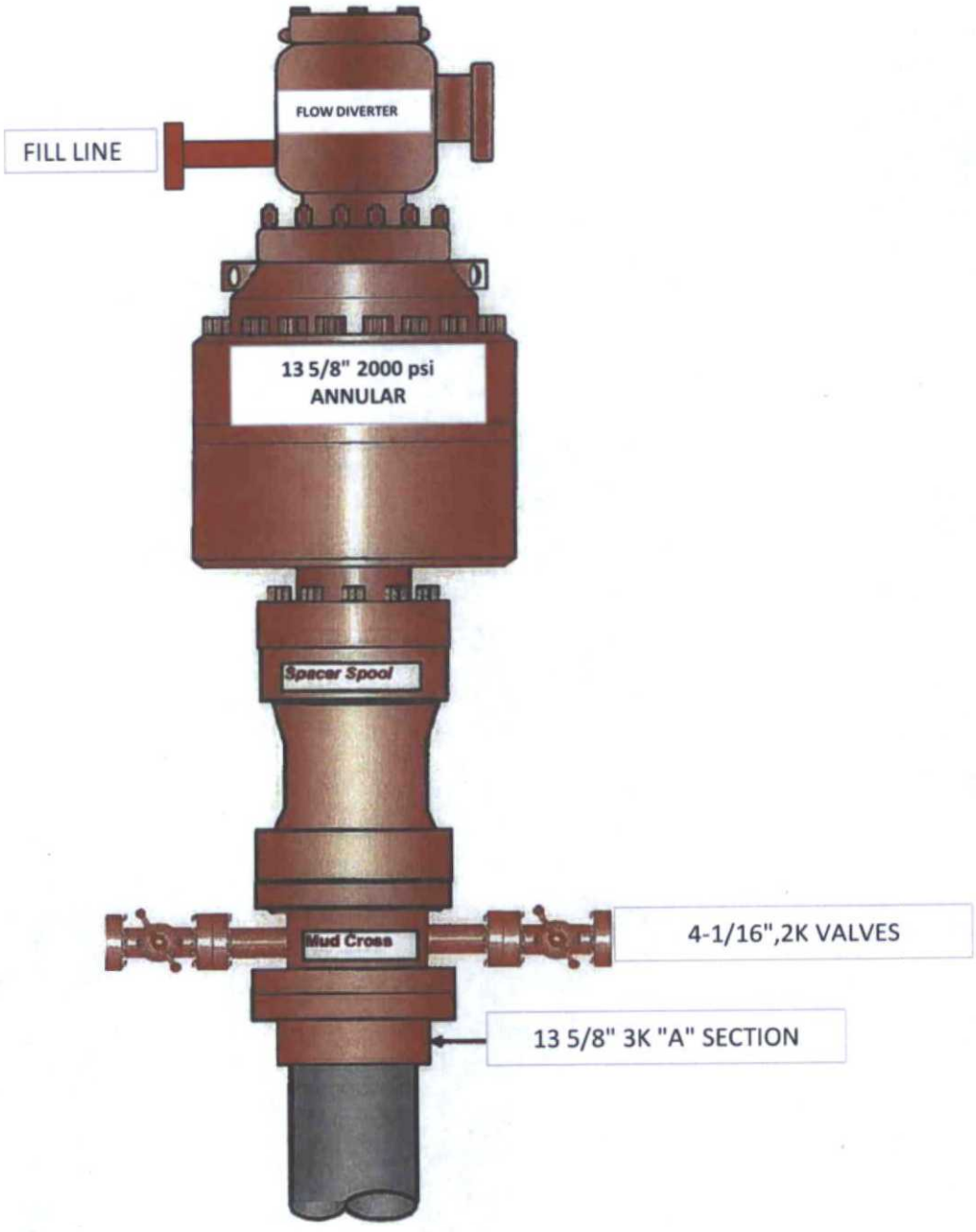

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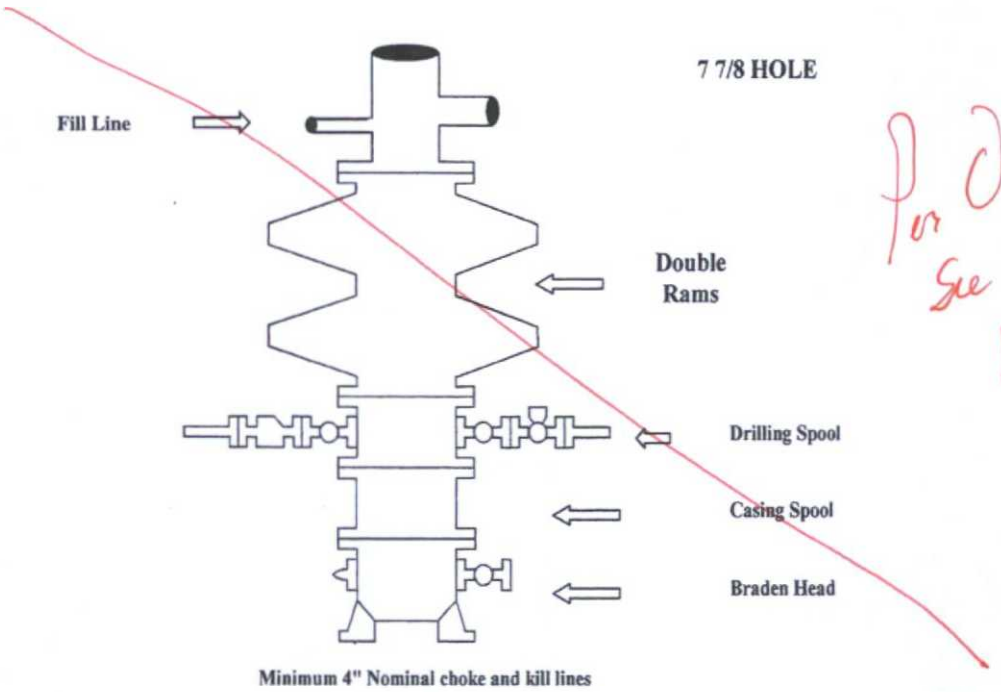
Exhibit #9

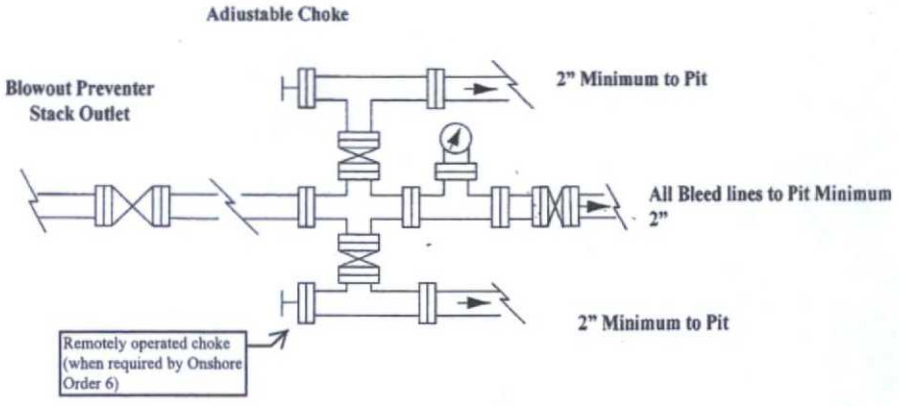
BOPE and Choke Schematic



Per Operator See Email KGR

Minimum 4" Nominal choke and kill lines

Choke Manifold Requirement (2000 psi WP)
No Annular Required



Adjustable Choke

NOTES REGARDING THE BLOWOUT PREVENTERS
Master Drilling Plan
Eddy County, New Mexico

1. Drilling nipple to be so constructed that it can be removed without use of a welder through rotary table opening, with minimum I.D. equal to preventer bore.
2. Wear ring to be properly installed in head.
3. Blow out preventer and all fittings must be in good condition, 2000 psi WP minimum.
4. All fittings to be flanged.
5. Safety valve must be available on rig floor at all times with proper connections, valve to be full 2000 psi WP minimum.
6. All choke and fill lines to be securely anchored especially ends of choke lines.
7. Equipment through which bit must pass shall be at least as large as the diameter of the casing being drilled through.
8. Kelly cock on Kelly.
9. Extension wrenches and hands wheels to be properly installed.
10. Blow out preventer control to be located as close to driller's position as feasible.
11. Blow out preventer closing equipment to include minimum 40-gallon accumulator, two independent sources of pump power on each closing unit installation all API specifications.

Closed Loop Operation & Maintenance Procedure

All drilling fluid circulated over shaker(s) with cuttings discharged into roll off container.

Fluid and fines below shaker(s) are circulated with transfer pump through centrifuge(s) or solids separator with cuttings and fines discharged into roll off container.

Fluid is continuously re-circulated through equipment with polymer added to aid separation of cutting fines.

Roll off containers are lined and de-watered with fluids re-circulated into system.

Additional tank is used to capture unused drilling fluid or cement returns from casing jobs.

This equipment will be maintained 24 hrs./day by solids control personnel and or rig crews that stay on location.

Cuttings will be hauled to either:

CRI (permit number R9166)
or
GMI (permit number 711-019-001)

dependent upon which rig is available to drill this well.

COG Operating LLC

Closed Loop Equipment Diagram