15-907

Form 3160-3
(March 2012)

OCD Hobbs
OCD
FEB 08 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 NORTHODOX LOCATION

5. Lease Serial No. NMNM116047

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. (315744) Smalls Federal #4H

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

9. API Well No. 30-025-43066

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

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

10. Field and Pool, or Exploratory (97922) WC-025 G-06 S223421L; Bone Spring

4. Location of Well (Report location clearly and in accordance with any State requirements.*)

At surface 190' FSL & 380' FWL Unit Letter M (SWSW) Sec. 28.T22S.R34E SHL

At proposed prod. Zone 330' FNL & 380' FWL Unit Letter D (NWNW) Sec 28.T22S.R34E BHL

11. Sec., T.R.M. or Blk and Survey or Area Sec. 28 - T22S - R34E

14. Distance in miles and direction from nearest town or post office* About 17 miles from Eunice

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
190'	960	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: 30' (Prop. Smalls #8H) BHL: 739'	TVD: 11,110' MD: 15,655'	NMB000740 &NMB000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
3416.5' GL	12/1/2015	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	7-22-15

Title: Regulatory Analyst

Approved by (Signature)	Name (Printed/Typed)	Date
Steve Caffey		JAN 29 2016
Title	**Office**	
FIELD MANAGER	CARLSBAD FIELD OFFICE	

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 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. 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)

Capitan Controlled Water Basin

KZ 2/10/16

Approval Subject to General Requirements & Special Stipulations Attached

SEE ATTACHED FOR CONDITIONS OF APPROVAL

FEB 11 2016

FID	Shape *	OPERATOR	WELL_NAME	LATITUDE	LONGITUDE	API	SECTION	TOWNSHIP	RANGE	FTG_NS	NS_CD	FTG_EW	EW_CD	TVD_DEPTH	COMPL_STAT
0	Point	DEVON ENERGY PRODUCTION COMPANY, LP	GAUCHO UNIT 001	32.365417	-103.488912	3002533440	29	22.0S	34E	1650	N	1650	E	15100	Active
1	Point	DEVON SFS OPERATING INC	GAUCHO UNIT 002	32.359994	-103.495277	3002533682	29	22.0S	34E	1650	S	1650	W	3783	Plugged
2	Point	DEVON ENERGY PRODUCTION COMPANY, LP	GAUCHO UNIT 004	32.37992	-103.491035	3002533930	20	22.0S	34E	1650	N	2310	E	13440	Active
3	Point	DEVON ENERGY PRODUCTION COMPANY, LP	GAUCHO UNIT 002Y	32.359994	-103.495032	3002534026	29	22.0S	34E	1650	S	1725	W	13340	Active
4	Point	DEVON ENERGY PRODUCTION COMPANY, LP	GAUCHO 21 FEDERAL 001	32.375386	-103.481376	3002534266	21	22.0S	34E	1980	S	660	W	13450	Active
5	Point	DEVON ENERGY PRODUCTION COMPANY, LP	GAUCHO UNIT 003	32.371774	-103.495251	3002534557	20	22.0S	34E	660	S	1650	W	13431	Active
6	Point	DEVON ENERGY PRODUCTION COMPANY, LP	RIO BLANCO 33 FEDERAL 001	32.343689	-103.478308	3002536359	33	22.0S	34E	1000	S	1620	W	14682	Active
7	Point	DEVON ENERGY PRODUCTION COMPANY, LP	RIO BLANCO 33 FEDERAL 002	32.349995	-103.477127	3002536360	33	22.0S	34E	1980	N	1980	W	14660	Active
8	Point	DEVON ENERGY PRODUCTION COMPANY, LP	RIO BLANCO 33 FEDERAL 003	32.346383	-103.477621	3002537860	33	22.0S	34E	1980	S	1830	W	8600	Active
9	Point	PETROGULF CORPORATION	FEDERAL 28 011D	32.368126	-103.480312	3002538732	28	22.0S	34E	661	N	991	W	0	
10	Point	DEVON ENERGY PRODUCTION COMPANY, LP	GAUCHO 21 FEDERAL 002H	32.370976	-103.482312	3002540626	21	22.0S	34E	375	S	375	W	12600	New (Not drilled or compl)
11	Point	DEVON ENERGY PRODUCTION COMPANY, LP	GAUCHO UNIT 020H	32.356009	-103.495773	3002541978	29	22.0S	34E	200	S	1500	W	0	New (Not drilled or compl)
12	Point	DEVON ENERGY PRODUCTION COMPANY, LP	GAUCHO UNIT 021H	32.356009	-103.495936	3002541979	29	22.0S	34E	200	S	1450	W	0	New (Not drilled or compl)
13	Point	DEVON ENERGY PRODUCTION COMPANY, LP	GAUCHO 21 FEDERAL 004H	32.37049	-103.478651	3002542137	21	22.0S	34E	200	S	1500	W	0	New (Not drilled or compl)
14	Point	DEVON ENERGY PRODUCTION COMPANY, LP	GAUCHO 21 FEDERAL 003H	32.370491	-103.478814	3002542136	21	22.0S	34E	200	S	1450	W	0	New (Not drilled or compl)

COG Operating LLC, Smalls Federal 4H

1. Geologic Formations

TVD of target	11110'	Pilot hole depth	NA
MD at TD:	15655'	Deepest expected fresh water:	605'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	1868'	Water	
Top of Salt	2148'	Salt	
Tansill	3605'	Barren	
Yates	3676'	Oil/Gas	
Capitan Reef	3980'	Water	Possible lost circ
Delaware Group	5177'	Oil/Gas	Possible lost circ
Bone Spring	8473'	Oil/Gas	
3rd Bone Spring Sand	10897'	Target Zone	
Wolfcamp	11174'	Oil/Gas	Will not penetrate

2. Casing Program

See COA

Hole Size	Casing Interval From	To	Csg. Size	Weight (lbs)	Grade	Conn.	SF Collapse	SF Burst	SF Tension
17.5"	0'	2160' ~~1980'~~	13.375"	54.5	J55	STC	1.21	1.05	4.76
12.25"	0'	5180' ~~5480'~~	9.625"	40	L80	BTC	1.19	1.09	4.18
8.75"	0'	15661'	5-1/2"	17	P110	LTC	1.42	2.02	1.67D
				BLM Minimum Safety Factor			1.125	1.00	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
- BLM standard formulas were used on all SF calculations.
- Used 9.1 PPG for pore pressure calculations.
- Will set DV tool within 100' of the top of the Capitan Reef. Estimated setting depth is 3880'.

	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?	Y
If yes, does production casing cement tie back a minimum of 50' above the Reef?	Y
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?	

2. Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H20 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	860	13.5	1.75	9.2	13	Lead: Class C + 4% Gel + 2% CaCl2
	275	14.8	1.34	6.4	6	Tail: Class C + 2% CaCl2
Inter. Stg 1	270	12.9	1.92	10.0	12	Lead: Class C Lite (65:35:6) + 4% Salt + 5# Kolseal
	200	14.8	1.34	6.4	6	Tail: Class C
Inter. Stg 2	935	12.9	1.92	10.0	12	Lead: Class C Lite (65:35:6) + 4% Salt + 5# Kolseal
	200	14.8	1.34	6.4	6	Tail: Class C
Prod.	1030	10.3	3.52	21.3	75	Lead: Halliburton Tuned Lite w/ 2# kolseal, 1.5# salt, 1/4# D-Air 5000, 1/8# PEF, etc
	1220	14.4	1.25	5.7	22	Tail:50:50:2 H blend (FR, Retarder, FL adds as necessary)

See COA

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

Casing String	TOC	% Excess
Surface	0'	36%
Intermediate – Stage 1	3880'	53%
Intermediate – Stage 2	0'	124%
Production	0'	39%

Pilot hole depth: NA
KOP: 10623'

4. Pressure Control Equipment

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"	13-5/8"	~~3M~~ 5M	Annular	x	50% testing pressure
			Blind Ram		~~3M~~ 5M
			Pipe Ram		
			Double Ram	x	
			Other *		

See COA

* Actual equipment is 13-5/8" 5M Hydril Annular, will use for 2M WP System.

** - Actual equipment is 13-5/8" 5M Hydril Annular & 13-5/8" 10M Cameron triple ram, will use for ~~3M~~ WP System.
5M must test to 5,000 psi

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/Y	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.
Y	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.
	Are anchors required by manufacturer? No.
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.

See COA

5. Mud Program

Depth		Type	Weight (ppg)	Viscosity	Water Loss
From	To				
0	Surf. shoe	FW Gel	8.6 – 9.0	28-34	N/C
Surf csg	Int shoe	*Saturated Brine	10.0 - 10.2	28-34	N/C
Int shoe	TMD	Cut Brine	8.6 - 9.3	28-34	N/C

See COA

*If lost circulation is encountered, will switch to fresh water.

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?	Pason PVT

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
X	Mud log	Production

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	5276 psi – 3rd Bone Spring Sand (11150' – Lateral TVD)
Abnormal Temperature	No

Mitigation measure for abnormal conditions.

- Lost circulation material/sweeps/mud scavengers.
- Maintain stock of LCM and weighting materials onsite.

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? Yes. See COA
Will be pre-setting casing? No.
Will well be hydraulically fractured? Yes.

Attachments

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