15-982

Form 3160-3
(March 2012)

HOBBS OCD OCD Hobbs

APR 21 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

5. Lease Serial No.
SHL: NMNM104685
BHL: ~~NMNM099041~~

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. (308225)
Spruce Goose Federal Com #3H

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

9. API Well No.
30-025-43169

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

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

10. Field and Pool, or Exploratory (41450)
Lusk; Bone Spring, North

UNORTHODOX LOCATION

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface 1980' FNL & 210' FWL Lot 2 (SWNW) Sec. 7.T19S.R32E SHL
At proposed prod. Zone 1980' FNL & 330' FEL Unit Letter H (SENE) Sec 7.T19S.R32E BHL

11. Sec., T.R.M. or Blk and Survey or Area
Sec. 7 - T19S - R32E

14. Distance in miles and direction from nearest town or post office*
Approximately 14 miles from Maljamar

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
210'	NMNM104685: 443.40 NMNM099041: 160	160.86
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: 2230' BHL: 1653'	TVD: 13,689' MD: 9,300'	NMB000740 &NMB000215
21. Elevations (Show whether DF, KDB, RT, GL, etc.)	**22. Approximate date work will start***	**23. Estimated duration**
3623.7' GL	10/1/2015	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	8-18-15

Title
Regulatory Analyst

Approved by *(Signature)*	Name *(Printed/Typed)*	Date
/S/ STEPHEN J. CAFFEY		APR 14 2016

Title	Office
FOR FIELD MANAGER	BLM-CARLSBAD FIELD OFFICE

gan or equitable title to those rights in the subject lease which would entitle the applicant to
APPROVAL FOR TWO YEARS

e for any person knowingly and willfully to make to any department or agency of the United
o any matter within its jurisdiction.

*(Instructions on page 2)

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.

APPROVAL SUBJECT TO GENERAL REQUIREMENTS AND SPECIAL STIPULATIONS ATTACHED

KZ 04/21/16

SEE ATTACHED FOR CONDITIONS OF APPROVAL

Witness Surface Casing

Capitan Controlled Water Basin

APR 25 2016

FID	Shape *	OPERATOR	WELL_NAME	LATITUDE	LONGITUD	API	SECTION	TOWNSHIP	RANGE	FTG_NS	NS_CD	FTG_EW	EW_CD	TVD_DEPTI	COMPL_STAT
0	Point	CARPER DRILLING CO	CARPER QUILLIN 001	32.6805	-103.8208	3E+09	12	19.0S	31E	660	N	1980	E	0	Plugged
1	Point	PAN AMERICAN PETROLEUM CORP	GREENWOOD UT 007	32.67688	-103.8165	3E+09	12	19.0S	31E	1980	N	660	E	0	Plugged
2	Point	C W TRAINER	JOYCE COM 001	32.68412	-103.825	3E+09	1	19.0S	31E	660	S	1980	W	0	Plugged
3	Point	C W TRAINER	JOYCE 001	32.68049	-103.8293	3E+09	12	19.0S	31E	660	N	660	W	0	Plugged
4	Point	BTA OIL PRODUCERS	LUSK 9209 JV-P 001	32.67686	-103.8255	3E+09	12	19.0S	31E	1980	N	1820	W	0	Plugged
5	Point	COG OPERATING LLC	TRAPPER 13 FEDERAL COM 002	32.66598	-103.817	3E+09	13	19.0S	31E	660	N	840	E	12875	Active
6	Point	DEVON ENERGY PRODUCTION COMPANY, LP	KITTY HAWK FEDERAL 001	32.68776	-103.8204	3E+09	1	19.0S	31E	1980	S	1850	E	12270	Active
7	Point	COG OPERATING LLC	MALIBU FEDERAL 001	32.6687	-103.8164	3E+09	12	19.0S	31E	330	S	660	E	10875	Active
8	Point	COG OPERATING LLC	MALIBU FEDERAL COM 002	32.68141	-103.8165	3E+09	12	19.0S	31E	330	N	660	E	0	New (Not drilled or compl)
9	Point	APACHE CORP	APACHE FEDERAL 003C	32.66939	-103.8197	3E+09	12	19.0S	31E	580	S	1650	E	0	New (Not drilled or compl)
10	Point	COG OPERATING LLC	PIPER FEDERAL 001	32.67597	-103.8154	3E+09	12	19.0S	31E	2310	N	330	E	10224	Active
11	Point	COG OPERATING LLC	AIRBUS FEDERAL 001	32.67322	-103.8293	3E+09	12	19.0S	31E	1980	S	660	W	12700	Active
12	Point	COG OPERATING LLC	PIPER FEDERAL 003	32.67233	-103.8197	3E+09	12	19.0S	31E	1650	S	1650	E	10620	Active
13	Point	COG OPERATING LLC	PIPER FEDERAL 002	32.67959	-103.8197	3E+09	12	19.0S	31E	990	N	1650	E	0	New (Not drilled or compl)
14	Point	CORAL OIL & GAS CO	PRICE FEDERAL 002	32.68407	-103.7949	3E+09	5	19.0S	32E	660	S	660	W	11437	Plugged
15	Point	PAN AMERICAN PETROLEUM CORP	W N PRICE USA 001	32.67322	-103.8077	3E+09	7	19.0S	32E	1980	S	2007	W	3000	Plugged
16	Point	DEVON ENERGY PRODUCTION COMPANY, LP	HAWKEYE 7 FEDERAL 001	32.66961	-103.8121	3E+09	7	19.0S	32E	660	S	660	W	11840	Active
17	Point	CULBERTSON & IRWIN	J S LEA 001	32.68041	-103.782	3E+09	8	19.0S	32E	660	N	660	E	3151	Plugged
18	Point	SHELL OIL CO	MIDDELTON A FEDERAL 001	32.66231	-103.8002	3E+09	18	19.0S	32E	1980	N	990	E	12505	Plugged
19	Point	PIONEER ENTERPRISES INC	PRICE 5 FEDERAL 001	32.68495	-103.7852	3E+09	5	19.0S	32E	990	S	1650	E	11815	Plugged
20	Point	EL PASO NATURAL GAS	LUSK DEEP UNIT 009	32.66592	-103.7938	3E+09	17	19.0S	32E	660	N	990	W	11510	Plugged
21	Point	DEVON ENERGY PRODUCTION COMPANY, LP	CONTINENTAL COM FEDERAL 001	32.6841	-103.8035	3E+09	6	19.0S	32E	660	S	1980	E	11370	Active
22	Point	TENNECO OIL CO	TRIGG FEDERAL 001	32.67226	-103.7916	3E+09	8	19.0S	32E	1650	S	1650	W	12800	Plugged
23	Point	TENNECO OIL CO	TRIGG FEDERAL B 001	32.66953	-103.7863	3E+09	8	19.0S	32E	660	S	1980	E	11887	Plugged
24	Point	R & O WELDING & CONSTR	LLANO A FEDERAL 001	32.67681	-103.7949	3E+09	8	19.0S	32E	1980	N	660	W	12452	Plugged
25	Point	C & K PETROLEUM INC	GREENWOOD 6 FEDERAL 001	32.68411	-103.8078	3E+09	6	19.0S	32E	660	S	2012	W	12504	Plugged
26	Point	DAMSON OIL CO	GREENWOOD PRE-GRAYBU 001	32.68047	-103.8035	3E+09	7	19.0S	32E	660	N	1980	E	0	Plugged
27	Point	COQUINA OIL CORP	LLANO B FEDERAL 001	32.66957	-103.8024	3E+09	7	19.0S	32E	660	S	1650	E	2370	Plugged
28	Point	MACK ENERGY CORP	LLANO FEDERAL 001	32.68865	-103.8068	3E+09	6	19.0S	32E	2310	S	2310	W	4393	Plugged
29	Point	MARBOB ENERGY CORP	CRAZY HORSE 18 FEDERAL 001	32.66235	-103.8121	3E+09	18	19.0S	32E	1980	N	660	W	12650	Plugged
30	Point	SHACKELFORD OIL CO	MITCHELL FEDERAL 001	32.66957	-103.8027	3E+09	7	19.0S	32E	660	S	1750	E	2912	Plugged
31	Point	COG OPERATING LLC	CRAZY HORSE 18 FEDERAL 003	32.66596	-103.8081	3E+09	18	19.0S	32E	660	N	1880	W	12640	Active
32	Point	COG OPERATING LLC	WBP FEDERAL 001	32.66955	-103.7948	3E+09	8	19.0S	32E	660	S	660	W	12710	Active
33	Point	DEVON ENERGY PRODUCTION COMPANY, LP	HAWKEYE 7 FEDERAL 002	32.6723	-103.8035	3E+09	7	19.0S	32E	1650	S	1980	E	12580	Active
34	Point	COG OPERATING LLC	LUSK 8 FEDERAL 001	32.6768	-103.7906	3E+09	8	19.0S	32E	1980	N	1980	W	0	
35	Point	COG OPERATING LLC	TBM FEDERAL COM 001	32.67977	-103.7906	3E+09	8	19.0S	32E	900	N	1980	W	12940	Active
36	Point	COG OPERATING LLC	BONANZA FEDERAL 001	32.68769	-103.7916	3E+09	5	19.0S	32E	1980	S	1650	W	12960	Active
37	Point	COG OPERATING LLC	CESSNA FEDERAL COM 001	32.67728	-103.7831	3E+09	8	19.0S	32E	1800	N	990	E	13110	Active
38	Point	COG OPERATING LLC	CIRRUS FEDERAL COM 001	32.67316	-103.7863	3E+09	8	19.0S	32E	1980	S	1980	E	11810	Active
39	Point	COG OPERATING LLC	SPRUCE GOOSE FEDERAL 001	32.68136	-103.7984	3E+09	7	19.0S	32E	330	N	430	E	10673	Active
40	Point	COG OPERATING LLC	BEECHCRAFT FEDERAL 001H	32.67385	-103.782	3E+09	8	19.0S	32E	2235	S	660	E	10981	Active
41	Point	COG OPERATING LLC	KING AIR FEDERAL 001H	32.68133	-103.7874	3E+09	8	19.0S	32E	330	N	2310	E	11180	Active
42	Point	COG OPERATING LLC	KING AIR FEDERAL 002H	32.68106	-103.7874	3E+09	8	19.0S	32E	430	N	2310	E	11220	Active
43	Point	COG OPERATING LLC	KING AIR FEDERAL 003	32.66953	-103.7874	3E+09	8	19.0S	32E	660	S	2310	E	0	Active
44	Point	COG OPERATING LLC	PATTERSON B 52 FEDERAL 004H	32.6886	-103.7949	3E+09	5	19.0S	32E	2310	S	660	W	11091	Active
45	Point	COG OPERATING LLC	CITATION X FEDERAL COM 001H	32.67044	-103.7863	3E+09	8	19.0S	32E	990	S	1980	E	12983	New (Not drilled or compl)
46	Point	COG OPERATING LLC	LIBERATOR FEDERAL COM 001H	32.66689	-103.8155	3E+09	13	19.0S	31E	330	N	380	E	13680	New (Not drilled or compl)
47	Point	COG OPERATING LLC	LUSK DEEP UNIT A 022H	32.66682	-103.7912	3E+09	17	19.0S	32E	330	N	1770	W	13670	New (Not drilled or compl)
48	Point	DEVON ENERGY PRODUCTION COMPANY, LP	TAYLOR DRAW 7 FEDERAL 001H	32.67228	-103.7979	3E+09	7	19.0S	32E	1650	S	260	E	9173	New (Not drilled or compl)
49	Point	COG OPERATING LLC	CRAZY HORSE FEDERAL COM 002H	32.66299	-103.8129	3E+09	18	19.0S	32E	1750	N	420	W	9185	New (Not drilled or compl)
50	Point	COG OPERATING LLC	CRAZY HORSE FEDERAL 001H	32.66689	-103.8136	3E+09	18	19.0S	32E	330	N	190	W	9220	New (Not drilled or compl)
51	Point	COG OPERATING LLC	KING AIR 8 FEDERAL COM 003H	32.6666	-103.7906	3E+09	17	19.0S	32E	410	N	1960	W	0	New (Not drilled or compl)
52	Point	COG OPERATING LLC	POPTART 12 FEDERAL 004H	32.68049	-103.829	3E+09	12	19.0S	31E	660	N	760	W	10390	New (Not drilled or compl)
53	Point	DEVON ENERGY PRODUCTION COMPANY, LP	TAYLOR DRAW 7 FEDERAL COM 002H	32.66957	-103.7982	3E+09	7	19.0S	32E	665	S	375	E	0	New (Not drilled or compl)
54	Point	COG OPERATING LLC	AIRBUS 12 FEDERAL 003H	32.66831	-103.825	3E+09	12	19.0S	31E	190	S	1980	W	0	New (Not drilled or compl)
55	Point	COG OPERATING LLC	LUSK DEEP UNIT A 029H	32.66676	-103.7948	3E+09	17	19.0S	32E	355	N	660	W	9244	New (Not drilled or compl)
56	Point	COG OPERATING LLC	KING AIR 8 FEDERAL COM 004H	32.66789	-103.7938	3E+09	8	19.0S	32E	58	S	982	W	0	New (Not drilled or compl)

COG Operating LLC, Spruce Goose Federal Com 3H

1. Geologic Formations

TVD of target	9300'	Pilot hole depth	N/A
MD at TD:	13,689'	Deepest expected fresh water:	225'

Basin

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	812	Water	
Top of Salt	997	Salt	
Yates	2732		
Queen	3607		
Delaware	4252	Oil/Gas	
Bone Spring	6822	Oil/Gas	
1st BSS Sand	8092	Oil/Gas	
2nd BSS Sand	8942	Target Zone	
3rd BSS Sand	9672	Oil/Gas	

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	900	13.375"	54.5	J55	STC	2.41	1.7	10.48
12.25"	0	3100	9.625"	36	J55	LTC	1.77	1.14	4.19
8.75"	0	13689	5.5"	17	P110	LTC	2.01	2.42	1.91
				BLM Minimum Safety Factor			1.125	1.0	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 where used on all SF calculations, except burst of 9-5/8" SF is assuming a gas gradient 0.1 psi/ft.

	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.	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.	
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?	

3. Cementing Program

Csg	# sx	Density ppg	Yield ft3/sx	H_20 gal/sx	500# Comp Strength (hours)	Slurry Description
Sfc	400	13.5	1.75	9.2	12	Lead: Class C + 4% Gel + 1% CaCl2
	250	14.8	1.34	6.4	6	Tail: Class C + 2% CaCl2
Intrmd	675	13.5	1.75	9.2	12	Lead: Class C + 4% Gel
	250	14.8	1.34	6.4	6	Tail: Class C
Prod	1050	12.7	2	10.6	16	Lead: 65:35:6 H Blend
	1350	14.4	1.25	5.7	17	Tail:50:50:2 H Blend

Casing String	TOC	% Excess
Surface	0'	50% on OH volumes
Intermediate	0'	35% on OH volumes
Production	2600' (500' tie back)	30% on OH volumes EOC-EOL 40% on OH volumes EOC to 9-5/8" shoe

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?	System Rated WP	Type	✓	Tested to:
12-1/4"	13-5/8"	2M	Annular	X	50% of working pressure
			Blind Ram		WP
			Pipe Ram		
			Double Ram		
			Other*		
8-3/4"	11"	3M	Annular	X	50% working pressure
			Blind Ram	X	WP
			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.

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.
	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 & Description.

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 csg	Int shoe	Saturated Brine	10.0-10.2	28-34	N/C
Int shoe	TD	Cut Brine	8.6-9.1	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?	Pason PVT

6. Logging and Testing Procedures

See COA

	Logging, Coring and Testing.
X	Will run GR/CNL fromTD 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	
	Density	
	CBL	
	Mud log	
	PEX	

See COA

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	4400 psi
Abnormal Temperature	No

Mitigation measure for abnormal conditions. Describe:
No abnormal drilling conditions are expected to occur.

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.

y

X	H2S is present
X	H2S Contingency Plan Attached

8. Other Facets of Operation

Is this a walking operation? No
Will be pre-setting casing? No

Attachments:

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