

15-704

OCD Hobbs

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

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**HOBBS OCD**  
**MAR 21 2016**  
**RECEIVED**

**APPLICATION FOR PERMIT TO DRILL OR REENTER**

5. Lease Serial No.  
SHL: NMNM013422B  
BHL: NMNM013422A (#)

1a. Type of Work:  DRILL  REENTER  
1b. Type of Well:  Oil Well  Gas Well  Other  Single Zone  Multiple Zone

7. If Unit or CA Agreement, Name and No.  
8. Lease Name and Well No. (316045)  
Tin Man Federal Com #1H

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

9. API Well No.  
30-025-43133

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

4. Location of Well (Report location clearly and in accordance with any State requirements. \*)  
At surface 190' FNL & 1980' FEL Unit Letter B (NENE) SHL  
At proposed prod. Zone 330' FSL & 1980' FEL Unit Letter O (SESE) BHL

11. Sec., T.R.M. or Blk and Survey or Area  
Sec. 9 - T19S - R32E

14. Distance in miles and direction from nearest town or post office\*  
About 12 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)  
190'

16. No. of acres in lease  
SHL: 600  
BHL: 160

17. Spacing Unit dedicated to this well  
160

18. Distance from location\* to nearest well, drilling, completed, applied for, on this lease, ft. SHL: 1650' (Prop. Tin Man #2H) BHL: 1361'

19. Proposed Depth  
TVD: 9,440' MD: 13,948'

20. BLM/BIA Bond No. on file  
NMB000740 & NMB000215

21. Elevations (Show whether DF, KDB, RT, GL, etc.)  
3653.7' GL

22. Approximate date work will start\*  
9/1/2015

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.
- 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  
*Mayte Reyes*

Name (Printed/Typed)  
Mayte Reyes

Date  
5-18-15

Title  
Regulatory Analyst

Approved by (Signature)  
**Steve Caffey**

Name (Printed/Typed)

Date  
MAR 17 2016

Title  
FIELD MANAGER

Office  
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 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)

**Capitan Controlled Water Basin**

*K2*  
*03/22/16*

Approval Subject to General Requirements & Special Stipulations Attached

**SEE ATTACHED FOR CONDITIONS OF APPROVAL**

## COG Operating LLC, Tin Man Federal Com 1H

### 1. Geologic Formations

|               |         |                               |      |
|---------------|---------|-------------------------------|------|
| TVD of target | 9440'   | Pilot hole depth              | N/A  |
| MD at TD:     | 13,948' | Deepest expected fresh water: | 225' |

#### Basin

| Formation                | Depth (TVD) from KB | Water/Mineral Bearing/Target Zone? | Hazards* |
|--------------------------|---------------------|------------------------------------|----------|
| Quaternary Fill          | Surface             | Water                              |          |
| Rustler                  | 1135                | Water                              |          |
| Top of Salt              | 1216                | Salt                               |          |
| Yates                    | 2986                |                                    |          |
| Seven Rivers             | 3250                |                                    |          |
| Delaware                 | 5478                | Oil/Gas                            |          |
| Bone Spring              | 9577                | Oil/Gas                            |          |
| Upper Avalon             | 7490                | Oil/Gas                            |          |
| Lower Avalon             | 7752                | Oil/Gas                            |          |
| 1 <sup>st</sup> BSS Sand | 8410                | Oil/Gas                            |          |
| 2 <sup>nd</sup> BSS Sand | 9180                | Target Zone                        |          |
| 3 <sup>rd</sup> BSS Sand | 9930                | Oil/Gas                            |          |
| Wolfcamp                 | 10305               | Oil/Gas                            |          |

### 2. Casing Program

*See COA*

| Hole Size                 | Casing Interval |                      | Csg. Size | Weight (lbs) | Grade | Conn. | SF Collapse | SF Burst | SF Tension         |
|---------------------------|-----------------|----------------------|-----------|--------------|-------|-------|-------------|----------|--------------------|
|                           | From            | To                   |           |              |       |       |             |          |                    |
| 17.5"                     | 0               | <del>1160</del> 1275 | 13.375"   | 54.5         | J55   | STC   | 2.08        | 1.7      | 8.13               |
| 12.25"                    | 0               | <del>3100</del> 3350 | 9.625"    | 36           | J55   | LTC   | 1.25        | 1.0      | 5.05               |
| 8.75"                     | 0               | 13948                | 5.5"      | 17           | P110  | LTC   | 1.52        | 2.38     | 1.88               |
| BLM Minimum Safety Factor |                 |                      |           |              |       |       | 1.125       | 1.0      | 1.6 Dry<br>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

**COG Operating LLC, Tin Man Federal Com 1H**

|  | 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 3 <sup>rd</sup> 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 <sup>nd</sup> 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 ft <sup>3</sup> /sx | H <sub>2</sub> O gal/sx | 500# Comp. Strength (hours) | Slurry Description                            |
|--------|------|-------------|---------------------------|-------------------------|-----------------------------|---|
| Sfc    | 500  | 13.5        | 1.75                      | 9.2                     | 12                          | Lead: Class C + 4% Gel + 1% CaCl <sub>2</sub> |
|        | 250  | 14.8        | 1.34                      | 6.4                     | 6                           | Tail: Class C + 2% CaCl <sub>2</sub>          |
| Intrmd | 550  | 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                         |
|        | 1400 | 14.4        | 1.25                      | 5.7                     | 17                          | Tail: 50:50:2 H Blend                         |

*See COA*

| Casing String | TOC  | % Excess  |
|---------------|--|---|
| Surface       | 0'   | 50% on OH volumes   |
| Intermediate  | 0'   | 35% on OH volumes   |
| Production    | <del>2600'</del> (500' tie back)<br><i>See COA</i> | 25% on OH volumes EOC-EOL<br>40% on OH volumes EOC to 9-5/8" shoe |

**COG Operating LLC, Tin Man Federal Com 1H**

**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<br><br>WP |
|  |         |                 | Blind Ram  |   |                                   |
|  |         |                 | Pipe Ram   |   |                                   |
|  |         |                 | Double Ram |   |                                   |
|  |         |                 | Other*     |   |                                   |
| 8-3/4"   | 11"     | 3M              | Annular    | X | 50% working pressure<br><br>WP    |
|  |         |                 | Blind Ram  | X |                                   |
|  |         |                 | 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.   |

**COG Operating LLC, Tin Man Federal Com 1H**

**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       | 8.5-9.3      | 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? | 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 |
|-------------------------|----------|
| Resistivity             |          |
| Density                 |          |
| CBL                     |          |
| Mud log                 |          |
| PEX                     |          |

**7. Drilling Conditions**

| Condition                  | Specify what type and where? |
|----------------------------|------------------------------|
| BH Pressure at deepest TVD | 4470 psi                     |
| Abnormal Temperature       | No                           |

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

*See COA*

|  |  |
|--|--|
| Hydrogen Sulfide (H <sub>2</sub> S) monitors will be installed prior to drilling out the surface shoe. If H <sub>2</sub> 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 <sub>2</sub> S is present                |
| Y  | H <sub>2</sub> S 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