

HOBBS OCD

OCD Hobbs

ATS-14-317

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

APR 21 2016

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT**RECEIVED**

APPLICATION FOR PERMIT TO DRILL OR REENTER

| | | | |
|--|--|---|--|
| 1a. Type of Work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER | | 5. Lease Serial No. SHL: NMNM120907 BHL: NMLC0061936 | |
| 1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone | | 6. If Indian, Allottee or Tribe Name | |
| 2. Name of Operator COG Production LLC. (217955) | | 7. If Unit or CA Agreement, Name and No. | |
| 3a. Address 2208 West Main Street Artesia, NM 88210 | | 8. Lease Name and Well No. (38538) Dos XX 27 Federal Com #4H | |
| 3b. Phone No. (include area code) 575-748-6940 | | 9. API Well No. 30-025-43175 | |
| 4. Location of Well (Report location clearly and in accordance with any State requirements. *) At surface 190' FNL & 2180' FEL Unit Letter B (NWNE) Sec 27-T24S-R32E At proposed prod. Zone 330' FSL & 2260' FEL Unit Letter O (SWSE) Sec 27-T24S-R32E | | 10. Field and Pool, or Exploratory (97784) WC-025 G-06 S253201M; Bone Spring | |
| 14. Distance in miles and direction from nearest town or post office* Approximately 23 miles from Malaga | | 11. Sec., T.R.M. or Blk and Survey or Area Sec. 27 - T24S - R32E | |
| 15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. Unit line, if any) 190' | | 12. County or Parish Lea | |
| 16. No. of acres in lease SHL: 1840 BHL: 1879.24 | | 13. State NM | |
| 17. Spacing Unit dedicated to this well 160 | | 18. Distance from location* to nearest well, drilling, completed, applied for, on this lease, ft. SHL: 80' Proposed Dos XX #2H BHL: 3302' | |
| 19. Proposed Depth TVD: 15462' MD: 10,910' MD: 12,550' | | 20. BLM/BIA Bond No. on file NMB000860 & NMB000845 | |
| 21. Elevations (Show whether DF, KDB, RT, GL, etc.) 3589.4' GL | | 22. Approximate date work will start* 6/1/2016 | |
| 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. | 4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above). |
| 2. A Drilling Plan | 5. Operator certification |
| 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). | 6. Such other site specific information and/or plans as may be required by the authorized officer. |

| | | |
|---|-------------------------------------|---------------------|
| 25. Signature <i>Mayte Reyes</i> | Name (Printed/Typed) Mayte Reyes | Date 12-15-15 |
| Title Regulatory Analyst | | |
| Approved by (Signature) <i>/s/George MacDonell</i> | Name (Printed/Typed) | Date APR 18 2016 |
| Title FIELD MANAGER | | |
| Office CARLSBAD FIELD OFFICE | | |

Application approval does not warrant
conduct operations thereon.

Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 4
States any false, fictitious or fraudulent

(Continued 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.

subject lease which would entitle the applicant to

APPROVAL FOR TWO YEARS

make to any department or agency of the United

*(Instructions on page 2)

Carlsbad Controlled Water Basin

Approval Subject to General Requirements
& Special Stipulations AttachedSEE ATTACHED FOR
CONDITIONS OF APPROVAL

APR 22 2016

COG Production LLC – Dos XX 27 Fed Com 4H

1. Geologic Formations

| | | | |
|---------------|---------|-------------------------------|--------|
| TVD of target | 10,910' | Pilot hole depth | 12,550 |
| MD at TD: | 15,462' | Deepest expected fresh water: | 541 |

Basin

| Formation | Depth (TVD) from KB | Water/Mineral Bearing/Target Zone? | Hazards* |
|----------------------------------|---------------------|------------------------------------|----------|
| Quaternary Fill | Surface | Water | |
| Rustler | 1018 | Water | |
| Top of Salt | 1317 | Salt | |
| Base of Salt | 4622 | Salt | |
| Delaware - Lamar | 4854 | Salt Water | |
| Bell Canyon | 4889 | Salt Water | |
| Cherry Canyon | 5792 | Oil/Gas | |
| Brushy Canyon | 7142 | Oil/Gas | |
| Bone Spring Lime | 8770 | Oil/Gas | |
| U. Avalon Shale | 9173 | Oil/Gas | |
| L. Avalon Shale | 9301 | Oil/Gas | |
| 1 st Bone Spring Sand | 9902 | Oil/Gas | |
| 2 nd Bone Spring Sand | 10,445 | Oil/Gas Target Zone | |
| 3 rd Bone Spring Sand | 11,752 | Oil/Gas | |
| Wolfcamp | 12,059' | Oil/Gas | |
| Penn | 13,389' | Not Penetrated | |

2. Casing Program

| Hole Size | Casing Interval | | Csg. Size | Weight (lbs) | Grade | Conn. | SF Collapse | SF Burst | SF Tension |
|---------------------------|-----------------|---------|-----------|--------------|-------|-------|-------------|----------|--------------------|
| | From | To | | | | | | | |
| 17.5" | 0 | 1150 | 13.375" | 54.5 | J55 | STC | 1.277 | 1.19 | 8.3 |
| 12.25" | 0 | 3500 | 9.625" | 36 | J55 | LTC | 1.09 | 1.215 | 3.6 |
| 12.25" | 3500 | 4860 | 9.625" | 40 | J55 | LTC | .997 | 1.355 | 9.56 |
| 8.75" | 0 | 15,462' | 5.5" | 17 | P110 | LTC | 1.445 | 2.061 | 2.399 |
| BLM Minimum Safety Factor | | | | | | | 1.125 | 1 | 1.6 Dry 1.8 Wet |

See Cor Intermediate casing will be kept at ~~least~~ 1/2 full while running casing to mitigate collapse.
Intermediate burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface.
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

| | 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 |

COG Production LLC – Dos XX 27 Fed Com 4H

See
COA

| | |
|---|---|
| Does the above casing design meet or exceed BLM's minimum standards? If not provide justification (loading assumptions, casing design criteria). | Y |
| <u>Will the intermediate pipe be kept at a minimum 1/3 fluid filled to avoid approaching the collapse pressure rating of the casing?</u> | 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 rd 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 nd 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

See COA

| Casing | #Sks | Wt. lb/ gal | Yld ft ³ / sack | H ₂ O gal/s k | 500# Comp. Strength (hours) | Slurry Description |
|----------|------|-------------------|----------------------------------|--------------------------------|--------------------------------------|---|
| Surf. | 510 | 13.5 | 1.75 | 9 | 12 | Lead: Class C + 4% Gel + 2% CaCl ₂ |
| | 250 | 14.8 | 1.34 | 6.34 | 8 | Tail: Class C + 2% CaCl ₂ |
| Inter. | 1080 | 12.7 | 1.98 | 10.6 | 16 | Lead: Econocem HLC 65:35:6 + 5% Salt |
| | 250 | 14.8 | 1.34 | 6.34 | 8 | Tail: Class C + 2% CaCl |
| 5.5 Prod | 640 | 10.3 | 3.5 | 21 | 72 | Lead: Halliburton Tune Lite Blend |
| | 1195 | 14.4 | 1.24 | 5.7 | 19 | Tail: Versacem 50:50:2 Class H + 1% Salt |

See

COA

8-3/4" Pilot Hole will be plugged back with the following cement plugs:

12,550' to 11,350' – 470 sx. Class H @ 16.4 ppg/1.07 cuft/sx yield (8-3/4" Hole Size)

11,350' to 10,350' – 425 sx. Class H @ 17.2 ppg / 0.98 cuft/sx yield (8-3/4" Hole Size)

(Note: 10,433' Calculated KOP)

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Volumes Subject to Observed Hole Conditions and/or Fluid Caliper Results

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

| Casing String | TOC | % Excess |
|------------------------------|-------|---|
| Surface | 0' | 50% |
| 1 st Intermediate | 0' | 75% |
| Production | 3860' | 17% OH in Lateral (KOP to EOL) – 40% OH in Vertical - KOP then Tie In 1000' Inside 9-5/8" Casing Shoe @ 4860' |

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? | Min. Required WP | Type | ✓ | Tested to: |
|--|---------|------------------|------------|---|----------------------|
| 12-1/4" | 13-5/8" | 2M | Annular | x | 2000 psi |
| | | | Blind Ram | | 2M |
| | | | Pipe Ram | | |
| | | | Double Ram | | |
| | | | Other* | | |
| 8-3/4" | 13-5/8" | 5M | Annular | x | 50% testing pressure |
| | | | Blind Ram | x | 5M |
| | | | 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.

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| | |
|---|---|
| X | 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. |

5. Mud Program

| Depth | | Type | Weight (ppg) | Viscosity | Water Loss |
|------------------|-------------------------|-----------------|--------------|-----------|------------|
| From | To | | | | |
| 0 | Surf. Shoe (1150') | FW Gel | 8.6-8.8 | 28-34 | N/C |
| Surf csg (1150') | 9-5/8" Int shoe (4860') | Saturated Brine | 10.0-10.2 | 28-34 | N/C |
| 9-5/8" Int shoe | 15,462' (Lateral TD) | Cut Brine | 8.6 – 9.4 | 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 | |
|-----------------------------|---|
| Y | 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. |
| Y | No Logs are planned based on well control or offset log information. |
| N | Drill stem test? If yes, explain |
| N | Coring? If yes, explain |

| Additional logs planned | Interval |
|-------------------------|-------------|
| Y | Resistivity |
| Y | Density |
| Y | CBL |
| Y | Mud log |
| N | PEX |

See
COA

7. Drilling Conditions

| Condition | Specify what type and where? |
|----------------------------|---|
| BH Pressure at deepest TVD | 5940 psi at 12,550' TVD (TD Pilot Hole) |
| Abnormal Temperature | NO |

No abnormal pressure or temperature conditions are anticipated. Sufficient mud materials to maintain mud properties and weight increase requirements will be kept on location at all times.

Sufficient supplies of Paper/LCM for periodic sweeps to control seepage and losses will be maintained on location.

Offset Wellbore Proximity – Anticollision Considerations: The Dos XX 27 Fed 4H will be drilled 80' East of the future Dos XX 27 Federal Com 2H. Due to the proximity of both of these wells, directional straight hole control tools will be utilized to keep each wellbore as straight as practicable. The TVD of each well's laterals are separated by approximately 1300' and therefore, the curve and lateral drilling operations will not be in conflict with each other provided the vertical sections of each hole is monitored and kept reasonably straight. All other wells along or in the vicinity of the project well path are shallow and pose no collision threat.

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 | H ₂ S is present |
| Y | H ₂ S Plan attached |

8. Other facets of operation

Is this a walking operation? NO If yes, describe.

Will be pre-setting casing? NO If yes, describe.

Attachments

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