Form 3160-5
(August 2007)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

~~OCD Hobbs~~

FORM APPROVED
OMB NO. 1004-0135
Expires: July 31, 2010

## SUNDRY NOTICES AND REPORTS ON WELLS

***Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***

OCD Artesia

***SUBMIT IN TRIPLICATE - Other instructions on reverse side.***

5. Lease Serial No
NMNM100844

6 If Indian, Allottee or Tribe Name

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

1. Type of Well
☒ Oil Well ☐ Gas Well ☐ Other

8 Well Name and No.
REINDEER 21 FEDERAL 4

2. Name of Operator
COG OPERATING LLC
Contact. ROBYN ODOM
E-Mail: rodom@conchoresources.com

9. API Well No
30-015-36542-00-X1

3a. Address
550 WEST TEXAS AVENUE SUITE 100
MIDLAND, TX 79701

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

10. Field and Pool, or Exploratory
CROW FLATS

4. Location of Well *(Footage, Sec., T., R., M., or Survey Description)*
Sec 21 T16S R28E NWSW 1980FSL 430FWL
32.905862 N Lat, 104.188027 W Lon

11. County or Parish, and State
EDDY COUNTY, NM

12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

| TYPE OF SUBMISSION | TYPE OF ACTION | | | |
|---|---|---|---|---|
| ☒ Notice of Intent | ☐ Acidize | ☐ Deepen | ☐ Production (Start/Resume) | ☐ Water Shut-Off |
| ☐ Subsequent Report | ☐ Alter Casing | ☐ Fracture Treat | ☐ Reclamation | ☐ Well Integrity |
| ☐ Final Abandonment Notice | ☐ Casing Repair | ☐ New Construction | ☐ Recomplete | ☒ Other Change to Original APD |
| | ☐ Change Plans | ☐ Plug and Abandon | ☐ Temporarily Abandon | |
| | ☐ Convert to Injection | ☐ Plug Back | ☐ Water Disposal | |

13 Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recomplete horizontally, give subsurface locations and measured and true vertical depths of all pertinent markers and zones Attach the Bond under which the work will be performed or provide the Bond No. on file with BLM/BIA. Required subsequent reports shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompletion in a new interval, a Form 3160-4 shall be filed once testing has been completed Final Abandonment Notices shall be filed only after all requirements, including reclamation, have been completed, and the operator has determined that the site is ready for final inspection.)

COG Operating LLC respectfully requests permission to update the current drilling practices.

An updated drilling plan is attached for your review.

RECEIVED
OCT 20 2011
NMOCD ARTESIA

SEE ATTACHED FOR
CONDITIONS OF APPROVAL

14. I hereby certify that the foregoing is true and correct.
**Electronic Submission #119494 verified by the BLM Well Information System**
**For COG OPERATING LLC, sent to the Carlsbad**
**Committed to AFMSS for processing by DEBORAH MCKINNEY on 10/11/2011 (12DLM0040SE)**

Name *(Printed/Typed)* ROBYN ODOM — Title PERSON RESPONSIBLE

Signature (Electronic Submission) — Date 10/07/2011

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved By CHRISTOPHER WALLS — Title PETROLEUM ENGINEER — Date 10/14/2011

Conditions of approval, if any, are attached. Approval of this notice 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.

Office Carlsbad

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.

**** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ** BLM REVISED ****

**ATTACHMENT TO FORM 3160-3**
**COG Operating, LLC**
**Reindeer 21 Federal #4**
**SL: 1980' FSL & 430' FWL, Unit H**
**BHL: 1980' FSL & 990' FEL, Unit E**
**Sec 21, T16S, R28E**
**Eddy County, NM**

1. Proration Unit Spacing: 120 Acres

2. Ground Elevation: 3596'

3. Proposed Depths: Pilot hole TD = 6800', Horizontal TVD = 6604', MD = 10,152'

4. Estimated tops of geological markers:

| | |
|---|---|
| Quaternary | Surface |
| Yates | 350' |
| Seven Rivers | 550' |
| Queen | 1065' |
| Grayburg | 1550' |
| San Andres | 1885' |
| Glorieta | 3365' |
| Paddock | 3500' |
| Blinebry | 3700' |
| Tubb | 4615' |
| Abo Shale | 5355' |
| Lower Abo/Wolfcamp | 6524' |

5. Possible mineral bearing formations:

| | | |
|---|---|---|
| Water Sand | 150' | Fresh Water |
| Yates | 340' | Oil / Gas |
| Queen | 1065' | Oil / Gas |
| San Andres | 1885' | Oil / Gas |
| Glorieta | 3365' | Oil / Gas |
| Tubb | 4615' | Oil / Gas |
| Lower Abo/Wolfcamp | 6524' | Oil / Gas |

6. Casing Program - Proposed

| Hole size | Interval | OD of Casing | Weight | Cond. | Collar | Grade |
|---|---|---|---|---|---|---|
| 17-1/2" | 0' - +/-350' | 13-3/8" | 48# | New | STC | H40/J55 |
| Collapse sf – 3.87, Burst sf – 8.7, Tension sf – 14.91 | | | | | | |
| 8-3/4" | 0' – 6000'MD | 7" | 26# | New | LTC | P110 |
| Collapse sf - 2.19, Burst sf – 3.51, Tension sf – 4.44 | | | | | | |
| 6-1/8" | 6000' – 10,152'MD | 4-1/2" | 11.6# | New | LTC | P110 |
| Collapse sf – 2.31, Burst sf – 3.27, Tension sf – 3.63 | | | | | | |

If wellbore integrity cannot be maintained, then the 8-3/4" hole will be reamed out to 12-1/4" and new 9-5/8" casing contingency will be run as follows:

| | | | | | | |
|---|---|---|---|---|---|---|
| 12-1/4" | 0' - +/- 2000' | 9-5/8" | 40# | New | LTC | J/K-55 |
| Collapse sf – 3.02, Burst sf – 4.64, Tension sf – 7.22 | | | | | | |

Respectfully request permission for 100' liner overlap to set pump as deep as possible.

7. Cement Program

13 3/8" Surface Casing set at +/- 350', Circ to Surf with +/- 400 sx Class "C" w/ 2% CaCl2 w/0.25 pps CF, 14.8 ppg, 1.35 cf/sk, 1.35 yd. 138% excess calculated to surface.

7" Production Casing set at +/- 6000', Circ. to Surf with +/- 900 sx Class "C" w/ 4% gel 13.5 ppg, 1.72 cf/sk, 2.45 yd. & 200 sx Class "C" w/ 0.35% R-3 14.8 ppg, 1.33 cf/sk, 1.35 yd. 88% excess calculated to surface.

6-1/8" Pilot hole 6000' to 6800' plugged back completely with 250 sx Class "C" with 0.3% R-3, 1.5% CD-32, 0.99 yd. 50% excess calculated to bottom of 7" at 6000'.

4 ½" Production Liner set at +/- 10,152' MD, 6604' TVD, Uncemented, with packers for isolation, and requesting permission for only 100' liner overlap.

8. Pressure Control Equipment:

After setting 13 3/8" casing and installing 3000 psi casing head, NU 13 5/8" 3000 psi annular BOP. Test annular BOP, casing and manifold with clear fluid to 1000 psi w/ rig pump.

After setting 7" casing and installing 3000 psi casing spool, NU 3000 psi double ram BOP and 3000 psi annular BOP. Test double ram BOP and manifold to 3000# with clear fluid and annular to 1500 psi using an independent tester, this equipment will be used continuously until TD is reached. Blind rams will be operationally checked on each trip out of hole. Pipe rams will be operationally checked each 24 hour period. These checks will be noted on daily tour sheets. Other accessories to the BOP equipment include a Kelly cock and floor safety valves, choke lines and choke manifold with 3000 psi WP rating.

9. Proposed Mud Circulating System

| Interval | Mud Wt. | Visc. | FL | Type Mud System |
|---|---|---|---|---|
| 0' - 350' | 8.5 | 28 | NC | Fresh water native mud w/ paper for seepage and sweeps. Lime for PH. |
| 350'- 6000' | 9.1 | 29 | NC | Drill section with fresh water/cut brine circulating the reserve utilizing periodic sweeps of paper as needed for seepage control and solids removal. |
| 6000' – 10,152' | 9.5 | 36 | 10 | Drill pilot hole, curve and horizontal section with XCD polymer / cut brine / starch. |

Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept at the well site at all times.

10. Auxiliary Well Control and Monitoring Equipment

A. Kelly cock will be kept in the drill string at all times.

B. A full opening drill pipe-stabbing valve with proper drill pipe connections will be on the rig floor at all times.

11. Production Hole Drilling Summary:

Set 7" production casing at 6000'. Drill 6-1/8" pilot hole thru Top Lower Abo to +/- 6800', run open hole logs. Spot +/-250 sx. "C" Kick off plug from +/- 6000' to +/- 6800'. Kick off 6-1/8" hole at +/- 6076' MD, building curve over +/- 475' to horizontal at +/-6554' TVD. Drill horizontal section in a easterly direction for +/-3,332' lateral to TD @ +/-10,152' MD, 6604' TVD. Run 4-1/2" production liner in open hole lateral and set isolation packers and liner top packer @ +/-5900' MD.

12. Logging, Testing and Coring Program:

A. The electric logging program will consist of GR-Dual Laterolog, Spectral Density, Dual Spaced Neutron, CSNG Log and will be run from T.D. in vertical pilot hole inside 7" csng shoe.

B. The mud logging program will consist of lagged 10' samples from intermediate casing point to T.D. in vertical pilot hole and from Kick off point to TD in Horizontal hole.

C. Drill Stem test is not anticipated.

D. No conventional coring is anticipated.

E. Further testing procedures will be determined after the 4 ½" production casing has been run to TD based on drill shows and log evaluation.

13. Abnormal Conditions, Pressures, Temperatures and Potential Hazards:

No abnormal pressures or temperatures are anticipated. The estimated bottom hole at TD is 120 degrees and estimated maximum bottom hole pressure is 3160 psig. Low levels of Hydrogen sulfide have been monitored in producing wells in the area, so H2S may be present while drilling of the well. An H2S plan is attached to the Drilling Program. No major loss of circulation zones has been reported in offsetting wells.

14. Anticipated Starting Date

Drilling operations will commence approximately on October 12, 2011 with drilling and completion operations lasting approximately 45 days.

# CONDITIONS OF APPROVAL

| | |
|---|---|
| **OPERATOR'S NAME:** | **COG Operating** |
| **API NO.:** | **30-015-36542** |
| **WELL NAME & NO.:** | **Reindeer 21 Federal Com 4H** |
| **SURFACE HOLE FOOTAGE:** | **1980' FSL & 4300 ' FNL** |
| **LOCATION:** | **Section 21, T. 16 S., R 28 E., NMPM** |
| **COUNTY:** | **Eddy County, New Mexico** |

## A. CASING

**Changes to the approved APD casing and cement program require submitting a sundry and receiving approval prior to work. Failure to obtain approval prior to work will result in an Incident of Non-Compliance being issued.**

**Centralizers required on surface casing per Onshore Order 2.III.B.1.f.**

**Wait on cement (WOC) time prior to drilling out for a primary cement job will be a minimum 18 hours for a water basin, 24 hours in the potash area, or 500 pounds compressive strength, whichever is greater for all casing strings. DURING THIS WOC TIME, NO DRILL PIPE, ETC. SHALL BE RUN IN THE HOLE. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. See individual casing strings for details regarding lead cement slurry requirements.**

**No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.**

**High Cave/Karst**
**Possible Lost Circulation in the Grayburg and San Andres formations.**
**Possible high pressure gas bursts in the Wolfcamp**

1. The **13-3/8** inch surface casing shall be set at **approximately 350 feet** and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after completing the cement job.

    **b. Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry.**

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

**Contengency Casing—9-5/8" Casing**

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is: **Cement from APD to be used for this since sundry did not propose a change.**

   ☒ Cement to surface. If cement does not circulate see B.1.a, c-d above.

3. The minimum required fill of cement behind the **7** inch production casing is:

   ☒ Cement to surface. If cement does not circulate, contact the appropriate BLM office.

4. Cement not required on the **4-1/2"** casing. **Packer system being used. Approved for 100' overlap into previous string.**

5. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

## B. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

**CRW 101411**