Form 3160-3
(June 2015)

OCD – HOBBS
11/30/2020
RECEIVED

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM0005792

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

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

8. Lease Name and Well No.
COLUMBUS FEDERAL COM [317530]
704H

2. Name of Operator
COG OPERATING LLC [229137]

9. API Well No.
30-025-48116

3a. Address
600 West Illinois Ave, Midland, TX 79701

3b. Phone No. *(include area code)*
(432) 683-7443

10. Field and Pool, or Exploratory
WILDCAT/Wolfcamp [98094]

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface NWSW / 2250 FSL / 650 FWL / LAT 32.085952 / LONG -103.566638
At proposed prod. zone SWSW / 50 FSL / 330 FWL / LAT 32.065394 / LONG -103.567652

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 34/T25S/R33E/NMP

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

12. County or Parish
LEA

13. State
NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)
50 feet

16. No of acres in lease

17. Spacing Unit dedicated to this well
480.0

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.
30 feet

19. Proposed Depth
12367 feet / 20001 feet

20. BLM/BIA Bond No. in file
FED: NMB000215

21. Elevations (Show whether DF, KDB, RT, GL, etc.)
3324 feet

22. Approximate date work will start*
12/01/2020

23. Estimated duration
30 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

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 must 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 requested by the BLM.

25. Signature
(Electronic Submission)

Name *(Printed/Typed)*
MAYTE REYES / Ph: (432) 683-7443

Date
05/20/2020

Title
Regulatory Analyst

Approved by *(Signature)*
(Electronic Submission)

Name *(Printed/Typed)*
Cody Layton / Ph: (575) 234-5959

Date
11/10/2020

Title
Assistant Field Manager Lands & Minerals

Office
Carlsbad Field Office

Application approval 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.
Conditions of approval, if any, are attached.

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.

GCP Rec 11/30/2020

SL

APPROVED WITH CONDITIONS

KZ
12/07/2020

Approval Date: 11/10/2020

(Continued on page 2)

*(Instructions on page 2)

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	COG Operating LLC
LEASE NO.:	NMNM119277 & NMNM0005792
COUNTY:	Lea

Wells:

Well Pad 1
Columbus Federal Com 701H
Surface Hole Location: 2225' FSL & 1995' FWL, Section 34, T. 25 S., R. 33 E.
Bottom Hole Location: 50' FSL & 2310' FWL, Section 3, T. 26 S, R 33 E.

Columbus Federal Com 702H
Surface Hole Location: 2225' FSL & 1965' FWL, Section 34, T. 25 S., R. 33 E.
Bottom Hole Location: 50' FSL & 1650' FWL, Section 3, T. 26 S, R 33 E.

Well Pad 2
Columbus Federal Com 703H
Surface Hole Location: 2250' FSL & 680' FWL, Section 34, T. 25 S., R. 33 E.
Bottom Hole Location: 50' FSL & 1000' FWL, Section 3, T. 26 S, R 33 E.

Columbus Federal Com 704H
Surface Hole Location: 2250' FSL & 650' FWL, Section 34, T. 25 S., R. 33 E.
Bottom Hole Location: 50' FSL & 330' FWL, Section 3, T. 26 S, R 33 E.

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See information below discussing NAGPRA.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

SPECIAL REQUIREMENT(S)

Watershed:
The entire well pad(s) will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. The compacted berm shall be constructed at a minimum of 12 inches with impermeable mineral material (e.g. caliche). Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The integrity of the berm shall be maintained around the surfaced pad throughout the life of the well and around the downsized pad after interim reclamation has been completed. Any water erosion that may occur due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion. Stockpiling of topsoil is required. The topsoil shall be stockpiled in an appropriate location to prevent loss of soil due to water or wind erosion and not used for berming or erosion control. If fluid collects within the bermed area, the fluid must be vacuumed into a safe container and disposed of properly at a state approved facility.

TANK BATTERY:
Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

BURIED/SURFACE LINE(S):
When crossing ephemeral drainages the pipeline(s) will be buried to a minimum depth of 48 inches from the top of pipe to ground level. Erosion control methods such as gabions and/or rock aprons should be placed on both up and downstream sides of the pipeline crossing. In addition, curled (weed free) wood/straw fiber wattles/logs and/or silt fences should be placed on the downstream side for sediment control during construction and maintained until soils and vegetation have stabilized. Water bars should be placed within the ROW to divert and dissipate surface runoff. A pipeline access road is not permitted to cross these ephemeral drainages. Traffic should be diverted to a preexisting route. Additional seeding may be required in floodplains and drainages to restore energy dissipating vegetation.

Prior to pipeline installation/construction a leak detection plan will be developed. The method(s) could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present.

The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

ELECTRIC LINE(S):
Any water erosion that may occur due to the construction of overhead electric line and during the life of the power line will be quickly corrected and proper measures will be taken to prevent future erosion. A power pole should not be placed in drainages, playas, wetlands, riparian areas, or floodplains and must span across the features at a distance away that would not promote further erosion.

VRM IV:

Above-ground structures including meter housing that are not subject to safety requirements are painted a flat non-reflective paint color, Shale Green from the BLM Standard Environmental Color Chart (CC-001: June 2008).

Short-term mitigation measures include painting all above-ground structures that are not subject to safety requirements (including meter housing) Shale Green, which is a flat non-reflective paint color listed in the BLM Standard Environmental Color Chart (CC-001: June 2013). Long-term mitigation measures include the removal of wells and associated infrastructure following abandonment (end of cost-effective production). Previously impacted areas will be reclaimed by removing structures and caliche pads, returning disturbed areas to natural grade, and revegetating with an approved BLM seed mixture; thereby eliminating visual impacts.

V. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

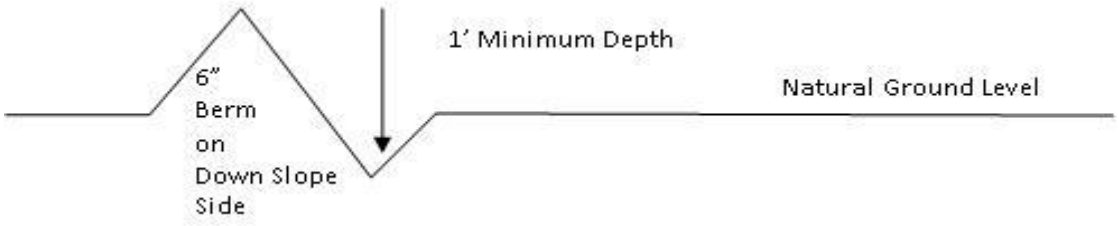
Ditching
Ditching shall be required on both sides of the road.

Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

400 foot road with 4% road slope: $\frac{400'}{4\%} + 100' = 200'$ lead-off ditch interval

Cattle guards
An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement
Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access
Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

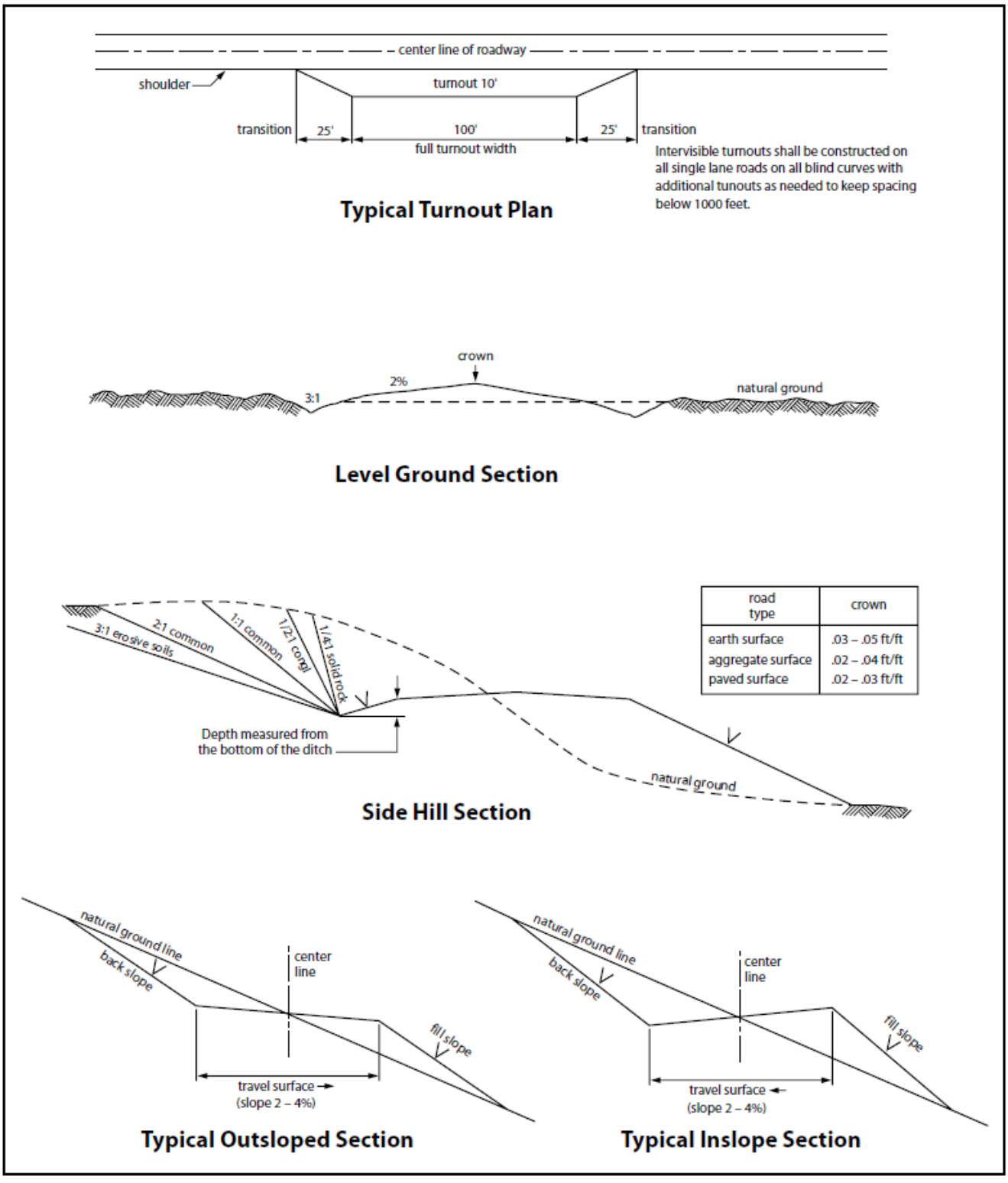


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VI. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone*.) Production equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES

- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, passages, or voids are intersected by trenching, and no pipe will be laid in the trench at that point until clearance has been issued by the Authorized Officer.
- If a void is encountered alignments may be rerouted to avoid the karst feature and lessen; the potential of subsidence or collapse of karst features, buildup of toxic or combustible gas, or other possible impacts to cave and karst resources from the buried pipeline.
- Special restoration stipulations or realignment may be required at such intersections, if any.
- A leak detection plan **will be submitted to the BLM Carlsbad Field Office for approval** prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating values and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.
- Regular monitoring is required to quickly identify leaks for their immediate and proper treatment.
- All spills or leaks will be reported to the BLM immediately for their immediate and proper treatment.

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the

Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation*.)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately ___6___ inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

( ) seed mixture 1	( ) seed mixture 3
(X) seed mixture 2	( ) seed mixture 4
( ) seed mixture 2/LPC	( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 17 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

17. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

18. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

19. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

20. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.

b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

C. ELECTRIC LINES

- Smaller powerlines will be routed around sinkholes and other karst features to avoid or lessen the possibility of encountering near surface voids and to minimize changes to runoff or possible leaks and spills from entering karst systems. Larger powerlines will adjust their pole spacing to avoid cave and karst features.
- The BLM, Carlsbad Field Office, will be informed immediately if any subsurface drainage channels, cave passages, or voids are penetrated during construction.
- No further construction will be done until clearance has been issued by the Authorized Officer.
- Special restoration stipulations or realignment may be required.

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards outlined in

"Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

OR

If the entire project is covered under the Permian Basin Programmatic Agreement (cultural resources only):

The proponent has contributed funds commensurate to the undertaking into an account for offsite mitigation. Participation in the PA serves as mitigation for the effects of this project on cultural resources. If any human skeletal remains, funerary objects, sacred objects, or objects of cultural patrimony are discovered at any time during construction, all construction activities shall halt and the BLM will be notified as soon as possible within 24 hours. Work shall not resume until a Notice to Proceed is issued by the BLM. See Stipulation 11 for more information.

If the proposed project is split between a Class III inventory and a Permian Basin Programmatic

Agreement contribution, the portion of the project covered under Class III inventory should default to the first paragraph stipulations.

11. The holder is hereby obligated to comply with procedures established in the Native American Graves Protection and Repatriation Act (NAGPRA) to protect such cultural items as human remains, associated funerary objects, sacred objects, and objects of cultural patrimony discovered inadvertently during the course of project implementation. In the event that any of the cultural items listed above are discovered during the course of project work, the proponent shall immediately halt the disturbance and contact the BLM within 24 hours for instructions. The proponent or initiator of any project shall be held responsible for protecting, evaluating, reporting, excavating, treating, and disposing of these cultural items according to the procedures established by the BLM in consultation with Indian Tribes."

12. Any paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on the holder's behalf, on public or Federal land shall be immediately reported to the Authorized Officer. The holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to the proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

13. Special Stipulations:
For reclamation remove poles, lines, transformer, etc. and dispose of properly.
Fill in any holes from the poles removed.

VII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

VIII. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture 2, for Sandy Sites

The holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed will be done in accordance with State law (s) and within nine (9) months prior to purchase. Commercial seed will be either certified or registered seed. The seed container will be tagged in accordance with State law(s) and available for inspection by the authorized officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). The holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. The seeding will be repeated until a satisfactory stand is established as determined by the authorized officer. Evaluation of growth will not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Sand dropseed (Sporobolus cryptandrus)	1.0
Sand love grass (Eragrostis trichodes)	1.0
Plains bristlegrass (Setaria macrostachya)	2.0

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

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PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**COG Operating LLC**
LEASE NO.:	**NMNM-0005792**
WELL NAME & NO.:	**Columbus Federal Com 704H**
SURFACE HOLE FOOTAGE:	**2250' FSL & 0650' FWL**
BOTTOM HOLE FOOTAGE	**0050' FSL & 0330' FWL Sec. 03, T.26 S., R.33 E.**
LOCATION:	**Section 34, T.25 S., R.33 E., NMPM**
COUNTY:	**Lea County, New Mexico**

COA

H2S	○ Yes	◉ No	
Potash	◉ None	○ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Cave/Karst Potential	○ Critical		
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	◉ Conventional	○ Multibowl	○ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☑ COM	☐ Unit

Possible water flows in the Salado and Castile.
Possible lost circulation in the Rustler and Delaware.
The basin is deep in this area and not well exploited so pressures could be unusually high near the base of Third Bone Spring Sandstone and Wolfcamp Formation.

A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

1. The **10-3/4** inch surface casing shall be set at approximately **1170** feet (a minimum of 25 feet (Lea County) into the Rustler Anhydrite and above the salt) 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 will be a minimum of **8 hours** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)
    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.

2. The minimum required fill of cement behind the **7-5/8** inch intermediate casing is:

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

3. The minimum required fill of cement behind the **5** inch production casing is:

    - Cement should tie-back at least **200 feet** into previous casing string. Operator shall provide method of verification.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).

2. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

3. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **10,000 (10M)** psi. **Variance approved to use a 5M annular. The annular must be tested to 3500 psi.**

D. SPECIAL REQUIREMENT (S)

Communitization Agreement

- The operator will submit a Communitization Agreement to the Santa Fe Office, 301 Dinosaur Trail Santa Fe, New Mexico 87508, at least 90 days before the anticipated date of first production from a well subject to a spacing order issued by the New Mexico Oil Conservation Division. The Communitization Agreement will include the signatures of all working interest owners in all Federal and Indian leases subject to the Communitization Agreement (i.e., operating rights owners and lessees of record), or certification that the operator has obtained the written signatures of all such owners and will make those signatures available to the BLM immediately upon request.
- If the operator does not comply with this condition of approval, the BLM may take enforcement actions that include, but are not limited to, those specified in 43 CFR 3163.1.
- In addition, the well sign shall include the surface and bottom hole lease numbers. When the Communitization Agreement number is known, it shall also be on the sign.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

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

5. 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. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

6. 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. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: The flex line must meet the requirements of API 16C. Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

    b. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

c. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

d. The results of the test shall be reported to the appropriate BLM office.

e. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

f. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

g. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. 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.

JAM 10232020

APD ID: 10400057311 **Submission Date:** 05/20/2020

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

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Section 1 - General

APD ID: 10400057311 **Tie to previous NOS?** N **Submission Date:** 05/20/2020

BLM Office: CARLSBAD **User:** MAYTE REYES **Title:** Regulatory Analyst

Federal/Indian APD: FED **Is the first lease penetrated for production Federal or Indian?** FED

Lease number: NMNM0005792 **Lease Acres:**

Surface access agreement in place? **Allotted?** **Reservation:**

Agreement in place? NO **Federal or Indian agreement:**

Agreement number:

Agreement name:

Keep application confidential? YES

Permitting Agent? NO **APD Operator:** COG OPERATING LLC

Operator letter of designation:

Operator Info

Operator Organization Name: COG OPERATING LLC

Operator Address: 600 West Illinois Ave **Zip:** 79701

Operator PO Box:

Operator City: Midland **State:** TX

Operator Phone: (432)683-7443

Operator Internet Address: RODOM@CONCHO.COM

Section 2 - Well Information

Well in Master Development Plan? NO **Master Development Plan name:**

Well in Master SUPO? NO **Master SUPO name:**

Well in Master Drilling Plan? NO **Master Drilling Plan name:**

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H **Well API Number:**

Field/Pool or Exploratory? Field and Pool **Field Name:** WILDCAT **Pool Name:** Wolfcamp

Is the proposed well in an area containing other mineral resources? POTASH

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Is the proposed well in an area containing other mineral resources? POTASH

Is the proposed well in a Helium production area? N **Use Existing Well Pad?** N **New surface disturbance?**

Type of Well Pad: MULTIPLE WELL **Multiple Well Pad Name:** COLUMBUS FEDERAL COM **Number:** 703H and 704H

Well Class: HORIZONTAL **Number of Legs:** 1

Well Work Type: Drill

Well Type: OIL WELL

Describe Well Type:

Well sub-Type: EXPLORATORY (WILDCAT)

Describe sub-type:

Distance to town: 20 Miles **Distance to nearest well:** 30 FT **Distance to lease line:** 50 FT

Reservoir well spacing assigned acres Measurement: 480 Acres

Well plat: COG_Columbus_704H_C102_20200520213645.pdf

Well work start Date: 12/01/2020 **Duration:** 30 DAYS

Section 3 - Well Location Table

Survey Type: RECTANGULAR

Describe Survey Type:

Datum: NAD83 **Vertical Datum:** NAVD88

Survey number: **Reference Datum:** GROUND LEVEL

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
SHL Leg #1	2250	FSL	650	FWL	25S	33E	34	Aliquot NWSW	32.085952	-103.566638	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0005792	3324	0	0	Y
KOP Leg #1	2250	FSL	650	FWL	25S	33E	34	Aliquot NWSW	32.085952	-103.566638	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0005792	3324	0	0	Y
PPP Leg #1-1	1	FNL	330	FWL	26S	33E	3	Aliquot NWNW	32.079769	-103.567666	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 119278	-9035	14850	12359	Y

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Wellbore	NS-Foot	NS Indicator	EW-Foot	EW Indicator	Twsp	Range	Section	Aliquot/Lot/Tract	Latitude	Longitude	County	State	Meridian	Lease Type	Lease Number	Elevation	MD	TVD	Will this well produce from this lease?
PPP Leg #1-2	2540	FSL	330	FWL	25S	33E	34	Aliquot NWSW	32.086751	-103.567673	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0005792	-4456	7800	7780	Y
EXIT Leg #1	100	FSL	330	FWL	26S	33E	3	Aliquot SWSW	32.072514	-103.567659	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-9016	19951	12340	Y
BHL Leg #1	50	FSL	330	FWL	26S	33E	3	Aliquot SWSW	32.065394	-103.567652	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-9043	20001	12367	Y

APD ID: 10400057311

Submission Date: 05/20/2020

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM

Well Number: 704H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
741646	UNKNOWN	3324	0	0	ALLUVIUM	NONE	N
741650	RUSTLER	2373	951	951	ALLUVIUM	NONE	N
741651	TOP SALT	2009	1315	1315	SALT	NONE	N
741652	BASE OF SALT	-1408	4732	4732	ANHYDRITE	NONE	N
741657	LAMAR	-1606	4930	4930	LIMESTONE	NONE	N
741658	BELL CANYON	-1655	4979	4979	LIMESTONE	NONE	N
741653	CHERRY CANYON	-2677	6001	6001	SANDSTONE	NATURAL GAS, OIL	N
741659	BRUSHY CANYON	-4226	7550	7550	SANDSTONE	NATURAL GAS, OIL	N
741654	BONE SPRING LIME	-5699	9023	9023	SHALE	NATURAL GAS, OIL	N
741655	BONE SPRING 1ST	-6718	10042	10042	SANDSTONE	NATURAL GAS, OIL	N
741656	BONE SPRING 2ND	-7282	10606	10606	SANDSTONE	NATURAL GAS, OIL	N
741649	BONE SPRING 3RD	-8359	11683	11683	SANDSTONE	NATURAL GAS, OIL	N
741660	WOLFCAMP	-8824	12148	12148	SILTSTONE	NATURAL GAS, OIL	Y
741661	WOLFCAMP	-9003	12327	12327	SILTSTONE	NATURAL GAS, OIL	N
741662	WOLFCAMP	-9318	12642	12642	SILTSTONE	NATURAL GAS, OIL	N

Section 2 - Blowout Prevention

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Pressure Rating (PSI): 10M **Rating Depth:** 12367

Equipment: Annular. The BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.
Requesting Variance? YES

Variance request: Request a 5M variance on a 10M system. (5M variance attached in section 8). 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.
Testing Procedure: 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 of the components installed will be functional and tested.
Choke Diagram Attachment:

COG_Columbus_704H_10M_Choke_20200520144017.pdf

BOP Diagram Attachment:

COG_Columbus_704H_10M_BOP_20200520144026.pdf

COG_Columbus_704H_Flex_Hose_20200520144036.pdf

Pressure Rating (PSI): 5M **Rating Depth:** 11800

Equipment: Annular. The BOP equipment will include a Kelly cock and floor safety valve (inside BOP) and choke lines and choke manifold.
Requesting Variance? NO

Variance request: 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.
Testing Procedure: 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 of the components installed will be functional and tested.
Choke Diagram Attachment:

COG_Columbus_704H_5M_Choke_20200520143920.pdf

BOP Diagram Attachment:

COG_Columbus_704H_5M_BOP_20200520143928.pdf

COG_Columbus_704H_Flex_Hose_20200520143940.pdf

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Section 3 - Casing

Casing ID	String Type	Hole Size	Csg Size	Condition	Standard	Tapered String	Top Set MD	Bottom Set MD	Top Set TVD	Bottom Set TVD	Top Set MSL	Bottom Set MSL	Calculated casing length MD	Grade	Weight	Joint Type	Collapse SF	Burst SF	Joint SF Type	Joint SF	Body SF Type	Body SF
1	SURFACE	14.75	10.75	NEW	API	N	0	1170	0	1170	3324	2154	1170	N-80	45.5	OTHER - BTC	4.61	1.67	DRY	20.61	DRY	19.54
2	INTERMEDIATE	8.75	7.625	NEW	API	Y	0	11800	0	8500	-6907	-5176	11800	HCP-110	29.7	OTHER - TL-FJ	1.28	1.11	DRY	1.88	DRY	2.68
3	PRODUCTION	6.75	5.0	NEW	API	Y	0	20001	0	12367	-6907	-9043	20001	P-110	18	OTHER - BTC	1.81	1.86	DRY	3.25	DRY	3.27

Casing Attachments

Casing ID: 1 **String Type:** SURFACE

Inspection Document:

Spec Document:

Tapered String Spec:

Casing Design Assumptions and Worksheet(s):

COG_Columbus_704H_Casing_Prog_20200520144148.pdf

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Casing Attachments

Casing ID: 2 **String Type:** INTERMEDIATE

Inspection Document:

Spec Document:

Tapered String Spec:

COG_Columbus_704H_Casing_Prog_20200520144223.pdf

Casing Design Assumptions and Worksheet(s):

COG_Columbus_704H_Casing_Prog_20200520144244.pdf

Casing ID: 3 **String Type:** PRODUCTION

Inspection Document:

Spec Document:

Tapered String Spec:

COG_Columbus_704H_Casing_Prog_20200520144339.pdf

Casing Design Assumptions and Worksheet(s):

COG_Columbus_704H_Casing_Prog_20200520144406.pdf

Section 4 - Cement

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
SURFACE	Lead	1	0	1170	558	1.75	13.5	976	50	Class C	4% Gel + 1% CaCl2
SURFACE	Tail		0	1170	250	1.34	14.8	335	50	C	2% CaCl2
INTERMEDIATE	Lead	1	0	11800	840	3.3	10.3	2772	50	Halliburton Tunded Light	No additives
INTERMEDIATE	Tail		0	11800	250	1.35	14.8	337	50	Class H	No additives
PRODUCTION	Lead	1	8000	20001	538	2	12.7	1076	35	Lead: 50:50:10 H Blend	No additives

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Tail		0	20001	1064	1.24	14.4	1319	35	Tail: 50:50:2 Class H Blend	No additives

Section 5 - Circulating Medium

Mud System Type: Closed

Will an air or gas system be Used? NO

Description of the equipment for the circulating system in accordance with Onshore Order #2:

Diagram of the equipment for the circulating system in accordance with Onshore Order #2:

Describe what will be on location to control well or mitigate other conditions: Sufficient mud materials to maintain mud properties and meet minimum lost circulation and weight increase requirements will be kept on location at all times

Describe the mud monitoring system utilized: PVT/Pason/Visual Monitoring

Circulating Medium Table

Top Depth	Bottom Depth	Mud Type	Min Weight (lbs/gal)	Max Weight (lbs/gal)	Density (lbs/cu ft)	Gel Strength (lbs/100 sqft)	PH	Viscosity (CP)	Salinity (ppm)	Filtration (cc)	Additional Characteristics
1170	11800	OTHER : Brine Diesel Emulsion	8.4	9							Brine Diesel Emulsion
11800	20001	OIL-BASED MUD	9.6	12.5							OBM
0	1170	OTHER : Fresh water gel	8.6	8.8							

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Section 6 - Test, Logging, Coring

List of production tests including testing procedures, equipment and safety measures:

None planned

List of open and cased hole logs run in the well:

COMPENSATED NEUTRON LOG,GAMMA RAY LOG,

Coring operation description for the well:

None planned

Section 7 - Pressure

Anticipated Bottom Hole Pressure: 8040 **Anticipated Surface Pressure:** 5319

Anticipated Bottom Hole Temperature(F): 180

Anticipated abnormal pressures, temperatures, or potential geologic hazards? NO

Describe:

Contingency Plans geoharzards description:

Contingency Plans geohazards attachment:

Hydrogen Sulfide drilling operations plan required? YES

Hydrogen sulfide drilling operations plan:

COG_Columbus_704H_H2S_Schem_20200520144721.pdf
COG_Columbus_704H_H2S_SUP_20200520144729.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

COG_Columbus_704H_AC_RPT_20200520144856.pdf
COG_Columbus_704H_Directional_Plan_20200520144903.pdf
COG_Columbus_704H_Plot_20200520144911.pdf

Other proposed operations facets description:

Drilling Program.
Cement Program.
GCP.

Other proposed operations facets attachment:

COG_Columbus_704H_Cement_Prog_20200520144926.pdf
COG_Columbus_704H_GCP_20200520144933.pdf
COG_Columbus_704H_Drilling_Prog_20200520144945.pdf

Other Variance attachment:

COG_5M_Variance_Well_Plan_20200513161353.pdf

COG OPERATING LLC
HYDROGEN SULFIDE DRILLING OPERATIONS PLAN

1. HYDROGEN SULFIDE TRAINING

All personnel, whether regularly assigned, contracted, or employed on an unscheduled basis, will receive training from a qualified instructor in the following areas prior to commencing drilling operations on this well:

a. The hazards and characteristics of hydrogen sulfide (H_2S).
b. The proper use and maintenance of personal protective equipment and life support systems.
c. The proper use of H_2S detectors, alarms, warning systems, briefing areas, evacuation procedures, and prevailing winds.
d. The proper techniques for first aid and rescue procedures.

In addition, supervisory personnel will be trained in the following areas:

a. The effects of H2S on metal components. If high tensile tubulars are to be used, personnel will be trained in their special maintenance requirements.
b. Corrective action and shut-in procedures when drilling or reworking a well and blowout prevention and well control procedures.
c. The contents and requirements of the H_2S Drilling Operations Plan and the Public Protection Plan.

There will be an initial training session just prior to encountering a known or probable H2S zone (within 3 days or 500 feet) and weekly H2S and well control drills for all personnel in each crew. The initial training session shall include a review of the site specific H2S Drilling Operations Plan and the Public Protection Plan. This plan shall be available at the well site. All personnel will be required to carry documentation that they have received the proper training.

2. H_2S SAFETY EQUIPMENT AND SYSTEMS

Note: All H_2S safety equipment and systems will be installed, tested, and operational when drilling reaches a depth of 500 feet above, or three days prior to penetrating the first zone containing or reasonably expected to contain H2S. If H2S greater than 100 ppm is encountered in the gas stream we will shut in and install H2S equipment.

a. Well Control Equipment:
   Flare line.
   Choke manifold with remotely operated choke.
   Blind rams and pipe rams to accommodate all pipe sizes with properly sized closing unit.
   Auxiliary equipment to include: annular preventer, mud-gas separator, rotating head.

b. Protective equipment for essential personnel:
Mark II Surviveair 30-minute units located in the dog house and at briefing areas.

c. H2S detection and monitoring equipment:
2 - portable H2S monitor positioned on location for best coverage and response. These units have warning lights and audible sirens when H2S levels of 20 ppm are reached.

d. Visual warning systems:
Caution/Danger signs shall be posted on roads providing direct access to location. Signs will be painted a high visibility yellow with black lettering of sufficient size to be readable at a reasonable distance from the immediate location. Bilingual signs will be used, when appropriate. See example attached.

e. Mud Program:
The mud program has been designed to minimize the volume of H2S circulated to the surface.

f. Metallurgy:
All drill strings, casings, tubing, wellhead, blowout preventers, drilling spool, kill lines, choke manifold and lines, and valves shall be suitable for H2S service.

g. Communication:
Company vehicles equipped with cellular telephone.

COG OPERATING LLC has conducted a review to determine if an H2S contingency plan is required for the above referenced well. We were able to conclude that any potential hazardous volume would be minimal. H2S concentrations of wells in this area from surface to TD are low enough; therefore, we do not believe that an H2S contingency plan is necessary.

W A R N I N G

YOU ARE ENTERING AN H_2S AREA
AUTHORIZED PERSONNEL ONLY

1. ***BEARDS OR CONTACT LENSES NOT ALLOWED***
2. ***HARD HATS REQUIRED***
3. ***SMOKING IN DESIGNATED AREAS ONLY***
4. ***BE WIND CONSCIOUS AT ALL TIMES***
5. ***CK WITH COG OPERATING LLC FOREMAN AT MAIN OFFICE***

COG OPERATING LLC

1-575-748-6940

EMERGENCY CALL LIST

	OFFICE	MOBILE
COG OPERATING LLC OFFICE	575-748-6940	
SETH WILD	432-683-7443	432-528-3633
WALTER ROYE	575-748-6940	432-934-1886

EMERGENCY RESPONSE NUMBERS

	OFFICE
STATE POLICE	575-748-9718
EDDY COUNTY SHERIFF	575-746-2701
EMERGENCY MEDICAL SERVICES (AMBULANCE)	911 or 575-746-2701
EDDY COUNTY EMERGENCY MANAGEMENT (HARRY BURGESS)	575-887-9511
STATE EMERGENCY RESPONSE CENTER (SERC)	575-476-9620
CARLSBAD POLICE DEPARTMENT	575-885-2111
CARLSBAD FIRE DEPARTMENT	575-885-3125
NEW MEXICO OIL CONSERVATION DIVISION	575-748-1283
INDIAN FIRE & SAFETY	800-530-8693
HALLIBURTON SERVICES	800-844-8451

DELAWARE BASIN WEST

LEA COUNTY, NM (NM - E)
COLUMBUS FEDERAL COM PROJECT
COLUMBUS FEDERAL COM #704H

OWB

Plan: PWP1

Standard Survey Report

12 May, 2020

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	**Local Co-ordinate Reference:**	Well COLUMBUS FEDERAL COM #704H
Project:	LEA COUNTY, NM (NM - E)	**TVD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Site:	COLUMBUS FEDERAL COM PROJECT	**MD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Well:	COLUMBUS FEDERAL COM #704H	**North Reference:**	Grid
Wellbore:	OWB	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP1	**Database:**	edm

Project LEA COUNTY, NM (NM - E)

Map System:	US State Plane 1927 (Exact solution)	**System Datum:**	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	New Mexico East 3001		

Well COLUMBUS FEDERAL COM #704H

Well Position	**+N/-S**	0.0 usft	**Northing:**	395,792.60 usft	**Latitude:**	32° 5' 9.426 N
	+E/-W	0.0 usft	**Easting:**	737,598.40 usft	**Longitude:**	103° 33' 59.897 W
Position Uncertainty		3.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,323.8 usft

Wellbore OWB

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/11/2020	6.63	59.90	47,559.71480844

Design PWP1

Audit Notes:

Version:		**Phase:**	PLAN	**Tie On Depth:**	0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	182.00

Survey Tool Program **Date** 5/12/2020

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,909.6	PWP1 (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
11,876.6	20,001.3	PWP1 (OWB)	MWD+IFR1+FDIR	OWSG MWD + IFR1 + FDIR Correction

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	0.00
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	0.00
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	0.00
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	0.00
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	0.00
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	0.00
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	0.00
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	0.00
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	0.00
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	0.00
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	0.00
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	0.00
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	0.00
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	0.00

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	**Local Co-ordinate Reference:**	Well COLUMBUS FEDERAL COM #704H
Project:	LEA COUNTY, NM (NM - E)	**TVD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Site:	COLUMBUS FEDERAL COM PROJECT	**MD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Well:	COLUMBUS FEDERAL COM #704H	**North Reference:**	Grid
Wellbore:	OWB	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP1	**Database:**	edm

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	0.00
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	0.00
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	0.00
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	0.00
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	0.00
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	0.00
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	0.00
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	0.00
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	0.00
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	0.00
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 2.00									
2,600.0	2.00	316.38	2,600.0	1.3	-1.2	-1.2	2.00	2.00	0.00
2,700.0	4.00	316.38	2,699.8	5.1	-4.8	-4.9	2.00	2.00	0.00
2,750.2	5.00	316.38	2,749.9	7.9	-7.5	-7.6	2.00	2.00	0.00
Start 5109.2 hold at 2750.2 MD									
2,800.0	5.00	316.38	2,799.5	11.0	-10.5	-10.7	0.00	0.00	0.00
2,900.0	5.00	316.38	2,899.1	17.4	-16.5	-16.8	0.00	0.00	0.00
3,000.0	5.00	316.38	2,998.7	23.7	-22.6	-22.9	0.00	0.00	0.00
3,100.0	5.00	316.38	3,098.3	30.0	-28.6	-29.0	0.00	0.00	0.00
3,200.0	5.00	316.38	3,198.0	36.3	-34.6	-35.1	0.00	0.00	0.00
3,300.0	5.00	316.38	3,297.6	42.6	-40.6	-41.2	0.00	0.00	0.00
3,400.0	5.00	316.38	3,397.2	48.9	-46.6	-47.3	0.00	0.00	0.00
3,500.0	5.00	316.38	3,496.8	55.2	-52.7	-53.4	0.00	0.00	0.00
3,600.0	5.00	316.38	3,596.4	61.6	-58.7	-59.5	0.00	0.00	0.00
3,700.0	5.00	316.38	3,696.1	67.9	-64.7	-65.6	0.00	0.00	0.00
3,800.0	5.00	316.38	3,795.7	74.2	-70.7	-71.7	0.00	0.00	0.00
3,900.0	5.00	316.38	3,895.3	80.5	-76.7	-77.8	0.00	0.00	0.00
4,000.0	5.00	316.38	3,994.9	86.8	-82.7	-83.9	0.00	0.00	0.00
4,100.0	5.00	316.38	4,094.5	93.1	-88.8	-90.0	0.00	0.00	0.00
4,200.0	5.00	316.38	4,194.2	99.4	-94.8	-96.1	0.00	0.00	0.00
4,300.0	5.00	316.38	4,293.8	105.8	-100.8	-102.2	0.00	0.00	0.00
4,400.0	5.00	316.38	4,393.4	112.1	-106.8	-108.3	0.00	0.00	0.00
4,500.0	5.00	316.38	4,493.0	118.4	-112.8	-114.4	0.00	0.00	0.00
4,600.0	5.00	316.38	4,592.6	124.7	-118.8	-120.5	0.00	0.00	0.00
4,700.0	5.00	316.38	4,692.3	131.0	-124.9	-126.6	0.00	0.00	0.00
4,800.0	5.00	316.38	4,791.9	137.3	-130.9	-132.7	0.00	0.00	0.00
4,900.0	5.00	316.38	4,891.5	143.6	-136.9	-138.8	0.00	0.00	0.00
5,000.0	5.00	316.38	4,991.1	150.0	-142.9	-144.9	0.00	0.00	0.00
5,100.0	5.00	316.38	5,090.7	156.3	-148.9	-151.0	0.00	0.00	0.00
5,200.0	5.00	316.38	5,190.3	162.6	-154.9	-157.1	0.00	0.00	0.00
5,300.0	5.00	316.38	5,290.0	168.9	-161.0	-163.2	0.00	0.00	0.00
5,400.0	5.00	316.38	5,389.6	175.2	-167.0	-169.3	0.00	0.00	0.00

Concho Resources LLC

Survey Report

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Well:	COLUMBUS FEDERAL COM #704H	**North Reference:**	Grid
Wellbore:	OWB	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP1	**Database:**	edm

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,500.0	5.00	316.38	5,489.2	181.5	-173.0	-175.4	0.00	0.00	0.00
5,600.0	5.00	316.38	5,588.8	187.8	-179.0	-181.5	0.00	0.00	0.00
5,700.0	5.00	316.38	5,688.4	194.2	-185.0	-187.6	0.00	0.00	0.00
5,800.0	5.00	316.38	5,788.1	200.5	-191.0	-193.7	0.00	0.00	0.00
5,900.0	5.00	316.38	5,887.7	206.8	-197.1	-199.8	0.00	0.00	0.00
6,000.0	5.00	316.38	5,987.3	213.1	-203.1	-205.9	0.00	0.00	0.00
6,100.0	5.00	316.38	6,086.9	219.4	-209.1	-212.0	0.00	0.00	0.00
6,200.0	5.00	316.38	6,186.5	225.7	-215.1	-218.1	0.00	0.00	0.00
6,300.0	5.00	316.38	6,286.2	232.0	-221.1	-224.2	0.00	0.00	0.00
6,400.0	5.00	316.38	6,385.8	238.3	-227.2	-230.3	0.00	0.00	0.00
6,500.0	5.00	316.38	6,485.4	244.7	-233.2	-236.4	0.00	0.00	0.00
6,600.0	5.00	316.38	6,585.0	251.0	-239.2	-242.5	0.00	0.00	0.00
6,700.0	5.00	316.38	6,684.6	257.3	-245.2	-248.6	0.00	0.00	0.00
6,800.0	5.00	316.38	6,784.2	263.6	-251.2	-254.7	0.00	0.00	0.00
6,900.0	5.00	316.38	6,883.9	269.9	-257.2	-260.8	0.00	0.00	0.00
7,000.0	5.00	316.38	6,983.5	276.2	-263.3	-266.9	0.00	0.00	0.00
7,100.0	5.00	316.38	7,083.1	282.5	-269.3	-273.0	0.00	0.00	0.00
7,200.0	5.00	316.38	7,182.7	288.9	-275.3	-279.1	0.00	0.00	0.00
7,300.0	5.00	316.38	7,282.3	295.2	-281.3	-285.2	0.00	0.00	0.00
7,400.0	5.00	316.38	7,382.0	301.5	-287.3	-291.3	0.00	0.00	0.00
7,500.0	5.00	316.38	7,481.6	307.8	-293.3	-297.4	0.00	0.00	0.00
7,600.0	5.00	316.38	7,581.2	314.1	-299.4	-303.5	0.00	0.00	0.00
7,700.0	5.00	316.38	7,680.8	320.4	-305.4	-309.6	0.00	0.00	0.00
7,800.0	5.00	316.38	7,780.4	326.7	-311.4	-315.7	0.00	0.00	0.00
7,859.4	5.00	316.38	7,839.6	330.5	-315.0	-319.3	0.00	0.00	0.00
Start Drop -2.00									
7,900.0	4.19	316.38	7,880.1	332.9	-317.2	-321.6	2.00	-2.00	0.00
8,000.0	2.19	316.38	7,979.9	336.9	-321.1	-325.5	2.00	-2.00	0.00
8,100.0	0.19	316.38	8,079.9	338.4	-322.5	-326.9	2.00	-2.00	0.00
8,109.6	0.00	0.00	8,089.5	338.4	-322.5	-326.9	2.00	-2.00	454.08
Start 3800.0 hold at 8109.6 MD									
8,200.0	0.00	0.00	8,179.9	338.4	-322.5	-326.9	0.00	0.00	0.00
8,300.0	0.00	0.00	8,279.9	338.4	-322.5	-326.9	0.00	0.00	0.00
8,400.0	0.00	0.00	8,379.9	338.4	-322.5	-326.9	0.00	0.00	0.00
8,500.0	0.00	0.00	8,479.9	338.4	-322.5	-326.9	0.00	0.00	0.00
8,600.0	0.00	0.00	8,579.9	338.4	-322.5	-326.9	0.00	0.00	0.00
8,700.0	0.00	0.00	8,679.9	338.4	-322.5	-326.9	0.00	0.00	0.00
8,800.0	0.00	0.00	8,779.9	338.4	-322.5	-326.9	0.00	0.00	0.00
8,900.0	0.00	0.00	8,879.9	338.4	-322.5	-326.9	0.00	0.00	0.00
9,000.0	0.00	0.00	8,979.9	338.4	-322.5	-326.9	0.00	0.00	0.00
9,100.0	0.00	0.00	9,079.9	338.4	-322.5	-326.9	0.00	0.00	0.00
9,200.0	0.00	0.00	9,179.9	338.4	-322.5	-326.9	0.00	0.00	0.00
9,300.0	0.00	0.00	9,279.9	338.4	-322.5	-326.9	0.00	0.00	0.00
9,400.0	0.00	0.00	9,379.9	338.4	-322.5	-326.9	0.00	0.00	0.00

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	**Local Co-ordinate Reference:**	Well COLUMBUS FEDERAL COM #704H
Project:	LEA COUNTY, NM (NM - E)	**TVD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Site:	COLUMBUS FEDERAL COM PROJECT	**MD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Well:	COLUMBUS FEDERAL COM #704H	**North Reference:**	Grid
Wellbore:	OWB	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP1	**Database:**	edm

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,500.0	0.00	0.00	9,479.9	338.4	-322.5	-326.9	0.00	0.00	0.00
9,600.0	0.00	0.00	9,579.9	338.4	-322.5	-326.9	0.00	0.00	0.00
9,700.0	0.00	0.00	9,679.9	338.4	-322.5	-326.9	0.00	0.00	0.00
9,800.0	0.00	0.00	9,779.9	338.4	-322.5	-326.9	0.00	0.00	0.00
9,900.0	0.00	0.00	9,879.9	338.4	-322.5	-326.9	0.00	0.00	0.00
10,000.0	0.00	0.00	9,979.9	338.4	-322.5	-326.9	0.00	0.00	0.00
10,100.0	0.00	0.00	10,079.9	338.4	-322.5	-326.9	0.00	0.00	0.00
10,200.0	0.00	0.00	10,179.9	338.4	-322.5	-326.9	0.00	0.00	0.00
10,300.0	0.00	0.00	10,279.9	338.4	-322.5	-326.9	0.00	0.00	0.00
10,400.0	0.00	0.00	10,379.9	338.4	-322.5	-326.9	0.00	0.00	0.00
10,500.0	0.00	0.00	10,479.9	338.4	-322.5	-326.9	0.00	0.00	0.00
10,600.0	0.00	0.00	10,579.9	338.4	-322.5	-326.9	0.00	0.00	0.00
10,700.0	0.00	0.00	10,679.9	338.4	-322.5	-326.9	0.00	0.00	0.00
10,800.0	0.00	0.00	10,779.9	338.4	-322.5	-326.9	0.00	0.00	0.00
10,900.0	0.00	0.00	10,879.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,000.0	0.00	0.00	10,979.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,100.0	0.00	0.00	11,079.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,200.0	0.00	0.00	11,179.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,300.0	0.00	0.00	11,279.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,400.0	0.00	0.00	11,379.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,500.0	0.00	0.00	11,479.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,600.0	0.00	0.00	11,579.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,700.0	0.00	0.00	11,679.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,800.0	0.00	0.00	11,779.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,900.0	0.00	0.00	11,879.9	338.4	-322.5	-326.9	0.00	0.00	0.00
11,909.6	0.00	0.00	11,889.5	338.4	-322.5	-326.9	0.00	0.00	0.00
Start DLS 12.00 TFO 179.55									
12,000.0	10.85	179.55	11,979.4	329.9	-322.4	-318.4	12.00	12.00	0.00
12,100.0	22.85	179.55	12,074.9	300.9	-322.2	-289.5	12.00	12.00	0.00
12,200.0	34.85	179.55	12,162.3	252.8	-321.8	-241.4	12.00	12.00	0.00
12,300.0	46.85	179.55	12,237.8	187.5	-321.3	-176.2	12.00	12.00	0.00
12,400.0	58.85	179.55	12,298.1	107.9	-320.7	-96.7	12.00	12.00	0.00
12,500.0	70.85	179.55	12,340.5	17.6	-320.0	-6.4	12.00	12.00	0.00
12,600.0	82.85	179.55	12,363.2	-79.6	-319.2	90.7	12.00	12.00	0.00
12,661.4	90.21	179.55	12,367.0	-140.8	-318.7	151.8	12.00	12.00	0.00
Start 7340.0 hold at 12661.4 MD									
12,700.0	90.21	179.55	12,366.8	-179.4	-318.4	190.4	0.00	0.00	0.00
12,800.0	90.21	179.55	12,366.5	-279.4	-317.7	290.4	0.00	0.00	0.00
12,900.0	90.21	179.55	12,366.1	-379.4	-316.9	390.3	0.00	0.00	0.00
13,000.0	90.21	179.55	12,365.7	-479.4	-316.1	490.2	0.00	0.00	0.00
13,100.0	90.21	179.55	12,365.4	-579.4	-315.3	590.1	0.00	0.00	0.00
13,200.0	90.21	179.55	12,365.0	-679.4	-314.5	690.0	0.00	0.00	0.00
13,300.0	90.21	179.55	12,364.6	-779.4	-313.8	789.9	0.00	0.00	0.00
13,400.0	90.21	179.55	12,364.2	-879.4	-313.0	889.8	0.00	0.00	0.00

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	**Local Co-ordinate Reference:**	Well COLUMBUS FEDERAL COM #704H
Project:	LEA COUNTY, NM (NM - E)	**TVD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Site:	COLUMBUS FEDERAL COM PROJECT	**MD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Well:	COLUMBUS FEDERAL COM #704H	**North Reference:**	Grid
Wellbore:	OWB	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP1	**Database:**	edm

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,500.0	90.21	179.55	12,363.9	-979.4	-312.2	989.7	0.00	0.00	0.00
13,600.0	90.21	179.55	12,363.5	-1,079.4	-311.4	1,089.6	0.00	0.00	0.00
13,700.0	90.21	179.55	12,363.1	-1,179.4	-310.6	1,189.5	0.00	0.00	0.00
13,800.0	90.21	179.55	12,362.8	-1,279.4	-309.8	1,289.4	0.00	0.00	0.00
13,900.0	90.21	179.55	12,362.4	-1,379.4	-309.1	1,389.3	0.00	0.00	0.00
14,000.0	90.21	179.55	12,362.0	-1,479.4	-308.3	1,489.3	0.00	0.00	0.00
14,100.0	90.21	179.55	12,361.7	-1,579.4	-307.5	1,589.2	0.00	0.00	0.00
14,200.0	90.21	179.55	12,361.3	-1,679.4	-306.7	1,689.1	0.00	0.00	0.00
14,300.0	90.21	179.55	12,360.9	-1,779.4	-305.9	1,789.0	0.00	0.00	0.00
14,400.0	90.21	179.55	12,360.6	-1,879.4	-305.1	1,888.9	0.00	0.00	0.00
14,500.0	90.21	179.55	12,360.2	-1,979.4	-304.4	1,988.8	0.00	0.00	0.00
14,600.0	90.21	179.55	12,359.8	-2,079.4	-303.6	2,088.7	0.00	0.00	0.00
14,700.0	90.21	179.55	12,359.5	-2,179.4	-302.8	2,188.6	0.00	0.00	0.00
14,800.0	90.21	179.55	12,359.1	-2,279.4	-302.0	2,288.5	0.00	0.00	0.00
14,900.0	90.21	179.55	12,358.7	-2,379.4	-301.2	2,388.4	0.00	0.00	0.00
15,000.0	90.21	179.55	12,358.4	-2,479.4	-300.4	2,488.3	0.00	0.00	0.00
15,100.0	90.21	179.55	12,358.0	-2,579.4	-299.7	2,588.2	0.00	0.00	0.00
15,200.0	90.21	179.55	12,357.6	-2,679.3	-298.9	2,688.1	0.00	0.00	0.00
15,300.0	90.21	179.55	12,357.3	-2,779.3	-298.1	2,788.1	0.00	0.00	0.00
15,400.0	90.21	179.55	12,356.9	-2,879.3	-297.3	2,888.0	0.00	0.00	0.00
15,500.0	90.21	179.55	12,356.5	-2,979.3	-296.5	2,987.9	0.00	0.00	0.00
15,600.0	90.21	179.55	12,356.2	-3,079.3	-295.7	3,087.8	0.00	0.00	0.00
15,700.0	90.21	179.55	12,355.8	-3,179.3	-295.0	3,187.7	0.00	0.00	0.00
15,800.0	90.21	179.55	12,355.4	-3,279.3	-294.2	3,287.6	0.00	0.00	0.00
15,900.0	90.21	179.55	12,355.1	-3,379.3	-293.4	3,387.5	0.00	0.00	0.00
16,000.0	90.21	179.55	12,354.7	-3,479.3	-292.6	3,487.4	0.00	0.00	0.00
16,100.0	90.21	179.55	12,354.3	-3,579.3	-291.8	3,587.3	0.00	0.00	0.00
16,200.0	90.21	179.55	12,354.0	-3,679.3	-291.1	3,687.2	0.00	0.00	0.00
16,300.0	90.21	179.55	12,353.6	-3,779.3	-290.3	3,787.1	0.00	0.00	0.00
16,400.0	90.21	179.55	12,353.2	-3,879.3	-289.5	3,887.0	0.00	0.00	0.00
16,500.0	90.21	179.55	12,352.9	-3,979.3	-288.7	3,987.0	0.00	0.00	0.00
16,600.0	90.21	179.55	12,352.5	-4,079.3	-287.9	4,086.9	0.00	0.00	0.00
16,700.0	90.21	179.55	12,352.1	-4,179.3	-287.1	4,186.8	0.00	0.00	0.00
16,800.0	90.21	179.55	12,351.8	-4,279.3	-286.4	4,286.7	0.00	0.00	0.00
16,900.0	90.21	179.55	12,351.4	-4,379.3	-285.6	4,386.6	0.00	0.00	0.00
17,000.0	90.21	179.55	12,351.0	-4,479.3	-284.8	4,486.5	0.00	0.00	0.00
17,100.0	90.21	179.55	12,350.7	-4,579.3	-284.0	4,586.4	0.00	0.00	0.00
17,200.0	90.21	179.55	12,350.3	-4,679.3	-283.2	4,686.3	0.00	0.00	0.00
17,300.0	90.21	179.55	12,349.9	-4,779.3	-282.4	4,786.2	0.00	0.00	0.00
17,400.0	90.21	179.55	12,349.6	-4,879.3	-281.7	4,886.1	0.00	0.00	0.00
17,500.0	90.21	179.55	12,349.2	-4,979.3	-280.9	4,986.0	0.00	0.00	0.00
17,600.0	90.21	179.55	12,348.8	-5,079.3	-280.1	5,085.9	0.00	0.00	0.00
17,700.0	90.21	179.55	12,348.5	-5,179.3	-279.3	5,185.8	0.00	0.00	0.00

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	**Local Co-ordinate Reference:**	Well COLUMBUS FEDERAL COM #704H
Project:	LEA COUNTY, NM (NM - E)	**TVD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Site:	COLUMBUS FEDERAL COM PROJECT	**MD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Well:	COLUMBUS FEDERAL COM #704H	**North Reference:**	Grid
Wellbore:	OWB	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP1	**Database:**	edm

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
17,800.0	90.21	179.55	12,348.1	-5,279.3	-278.5	5,285.8	0.00	0.00	0.00
17,900.0	90.21	179.55	12,347.7	-5,379.2	-277.7	5,385.7	0.00	0.00	0.00
18,000.0	90.21	179.55	12,347.4	-5,479.2	-277.0	5,485.6	0.00	0.00	0.00
18,100.0	90.21	179.55	12,347.0	-5,579.2	-276.2	5,585.5	0.00	0.00	0.00
18,200.0	90.21	179.55	12,346.6	-5,679.2	-275.4	5,685.4	0.00	0.00	0.00
18,300.0	90.21	179.55	12,346.2	-5,779.2	-274.6	5,785.3	0.00	0.00	0.00
18,400.0	90.21	179.55	12,345.9	-5,879.2	-273.8	5,885.2	0.00	0.00	0.00
18,500.0	90.21	179.55	12,345.5	-5,979.2	-273.1	5,985.1	0.00	0.00	0.00
18,600.0	90.21	179.55	12,345.1	-6,079.2	-272.3	6,085.0	0.00	0.00	0.00
18,700.0	90.21	179.55	12,344.8	-6,179.2	-271.5	6,184.9	0.00	0.00	0.00
18,800.0	90.21	179.55	12,344.4	-6,279.2	-270.7	6,284.8	0.00	0.00	0.00
18,900.0	90.21	179.55	12,344.0	-6,379.2	-269.9	6,384.7	0.00	0.00	0.00
19,000.0	90.21	179.55	12,343.7	-6,479.2	-269.1	6,484.7	0.00	0.00	0.00
19,100.0	90.21	179.55	12,343.3	-6,579.2	-268.4	6,584.6	0.00	0.00	0.00
19,200.0	90.21	179.55	12,342.9	-6,679.2	-267.6	6,684.5	0.00	0.00	0.00
19,300.0	90.21	179.55	12,342.6	-6,779.2	-266.8	6,784.4	0.00	0.00	0.00
19,400.0	90.21	179.55	12,342.2	-6,879.2	-266.0	6,884.3	0.00	0.00	0.00
19,500.0	90.21	179.55	12,341.8	-6,979.2	-265.2	6,984.2	0.00	0.00	0.00
19,600.0	90.21	179.55	12,341.5	-7,079.2	-264.4	7,084.1	0.00	0.00	0.00
19,700.0	90.21	179.55	12,341.1	-7,179.2	-263.7	7,184.0	0.00	0.00	0.00
19,800.0	90.21	179.55	12,340.7	-7,279.2	-262.9	7,283.9	0.00	0.00	0.00
19,900.0	90.21	179.55	12,340.4	-7,379.2	-262.1	7,383.8	0.00	0.00	0.00
20,000.0	90.21	179.55	12,340.0	-7,479.2	-261.3	7,483.7	0.00	0.00	0.00
20,001.3	90.21	179.55	12,340.0	-7,480.5	-261.3	7,485.1	0.00	0.00	0.00
TD at 20001.3									

Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL (COLUMBUS F	0.21	359.55	12,340.0	-7,480.5	-261.3	388,312.10	737,337.10	32° 3' 55.420 N	103° 34' 3.547 W
- plan hits target center									
- Rectangle (sides W100.0 H7,769.0 D20.0)									
LTP (COLUMBUS FE	0.00	0.00	12,340.0	-7,430.5	-261.7	388,362.10	737,336.70	32° 3' 55.915 N	103° 34' 3.547 W
- plan misses target center by 0.2usft at 19951.3usft MD (12340.2 TVD, -7430.5 N, -261.7 E)									
- Point									
FTP (COLUMBUS FE	0.00	0.00	12,367.0	288.4	-322.5	396,081.00	737,275.90	32° 5' 12.303 N	103° 34' 3.621 W
- plan misses target center by 163.9usft at 12300.0usft MD (12237.8 TVD, 187.5 N, -321.3 E)									
- Circle (radius 50.0)									

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	**Local Co-ordinate Reference:**	Well COLUMBUS FEDERAL COM #704H
Project:	LEA COUNTY, NM (NM - E)	**TVD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Site:	COLUMBUS FEDERAL COM PROJECT	**MD Reference:**	KB=26' @ 3349.8usft (MCVAY 8)
Well:	COLUMBUS FEDERAL COM #704H	**North Reference:**	Grid
Wellbore:	OWB	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP1	**Database:**	edm

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
2500	2500	0	0	Start Build 2.00
2750	2750	8	-8	Start 5109.2 hold at 2750.2 MD
7859	7840	330	-315	Start Drop -2.00
8110	8090	338	-322	Start 3800.0 hold at 8109.6 MD
11,910	11,890	338	-322	Start DLS 12.00 TFO 179.55
12,661	12,367	-141	-319	Start 7340.0 hold at 12661.4 MD
20,001	12,340	-7480	-261	TD at 20001.3

Checked By: _____ Approved By: _____ Date: _____

CONCHO

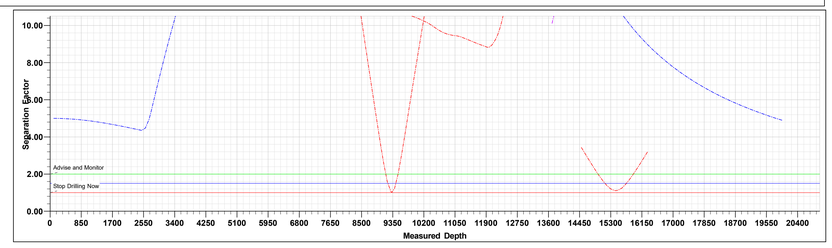
Project:	LEA COUNTY, NM (NM - E)
Site:	COLUMBUS FEDERAL COM PROJECT
Well:	COLUMBUS FEDERAL COM #704H
Wellbore:	OWB
Design:	PWP1
GL:	3323.8
KB=26' @ 3349.8usft (MCVAY 8)	

WELL DETAILS: COLUMBUS FEDERAL COM #704H

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.0	0.0	395792.60	737598.40	32° 5' 9.426 N	103° 33' 59.897 W

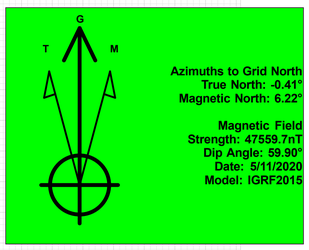
DESIGN TARGET DETAILS

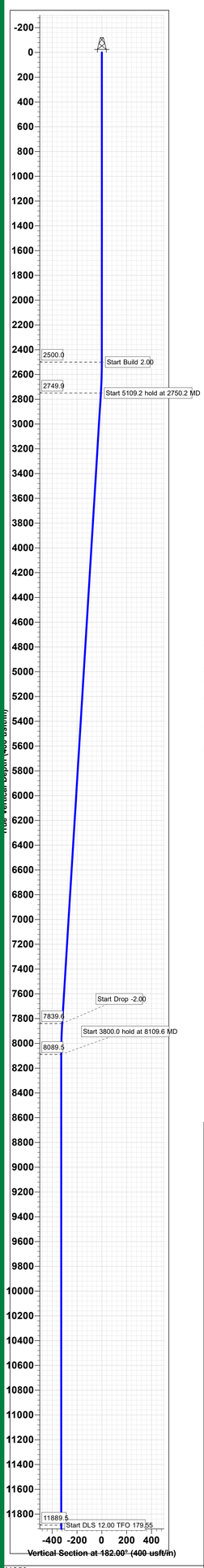
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LTP (COLUMBUS FEDERAL COM #704H)	12340.0	-7430.5	-261.7	388362.10	737336.70	32° 3' 55.915 N	103° 34' 3.547 W
PBHL (COLUMBUS FEDERAL COM #704H)	12340.0	-7480.5	-261.3	388312.10	737337.10	32° 3' 55.420 N	103° 34' 3.547 W
FTP (COLUMBUS FEDERAL COM #704H)	12367.0	288.4	-322.5	396081.00	737275.90	32° 5' 12.303 N	103° 34' 3.621 W

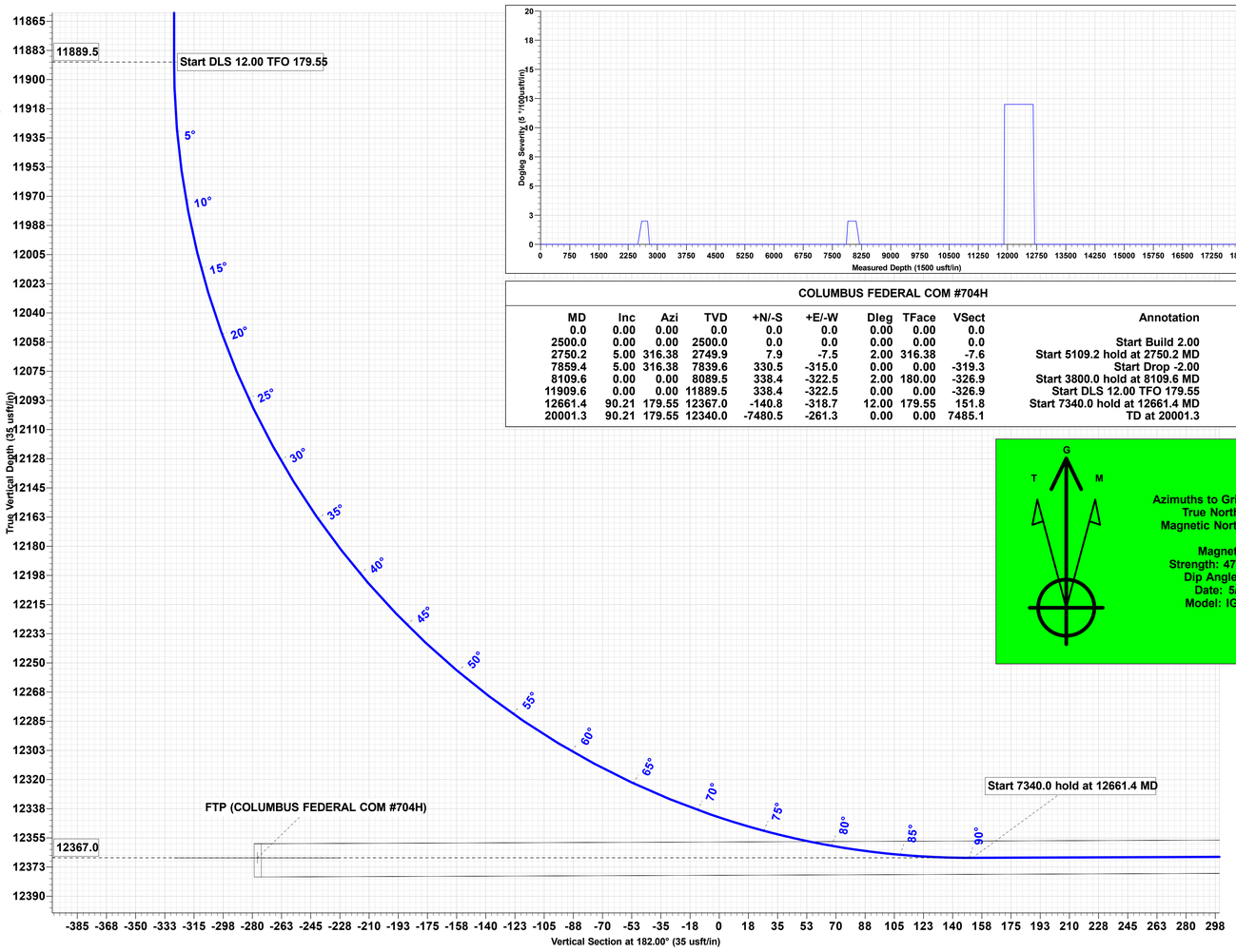


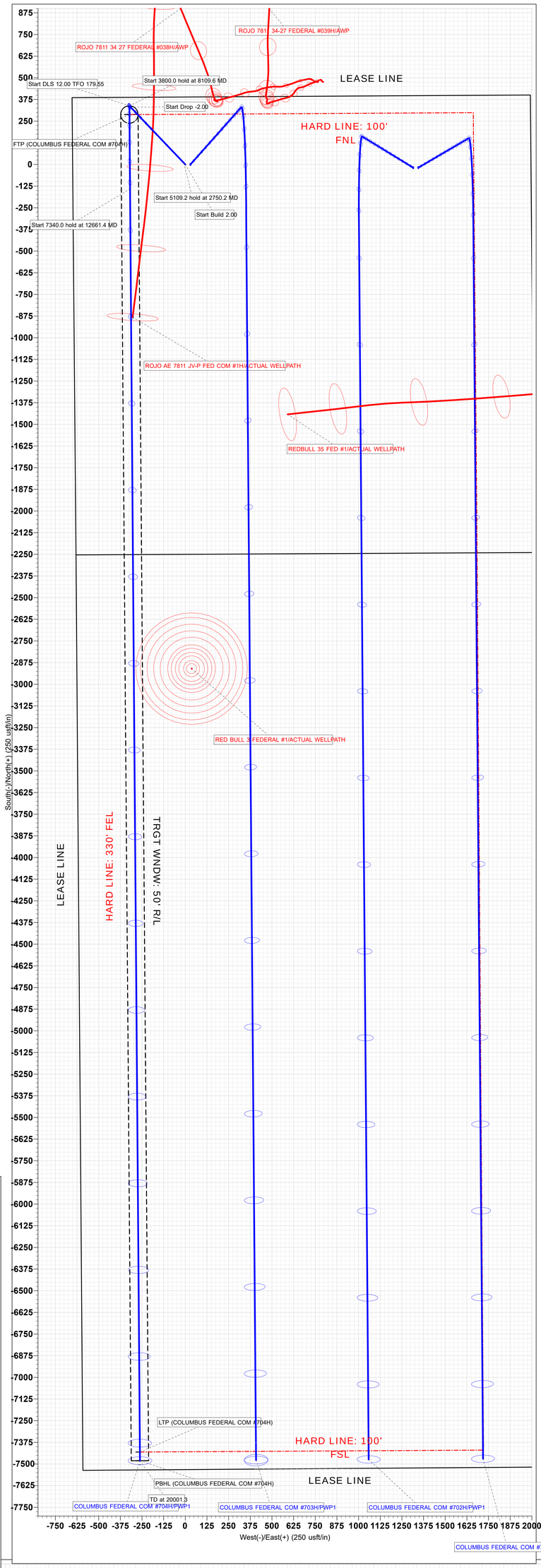
COLUMBUS FEDERAL COM #704H

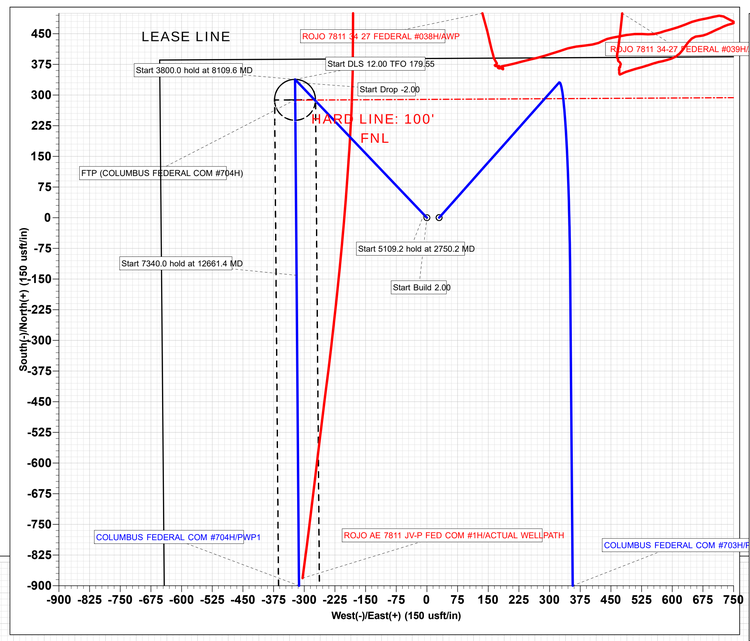
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2500.0	0.00	0.00	2500.0	0.0	0.0	0.00	0.00	0.0	Start Build 2.00
2750.2	5.00	316.38	2749.9	7.9	-7.5	2.00	316.38	-7.6	Start 5109.2 hold at 2750.2 MD
7859.4	5.00	316.38	7839.6	330.5	-315.0	0.00	0.00	-319.3	Start Drop -2.00
8109.6	0.00	0.00	8089.5	338.4	-322.5	2.00	180.00	-326.9	Start 3800.0 hold at 8109.6 MD
11909.6	0.00	0.00	11889.5	338.4	-322.5	0.00	0.00	-326.9	Start DLS 12.00 TFO 179.55
12661.4	90.21	179.55	12367.0	-140.8	-318.7	12.00	179.55	151.8	Start 7340.0 hold at 12661.4 MD
20001.3	90.21	179.55	12340.0	-7480.5	-261.3	0.00	0.00	7485.1	TD at 20001.3

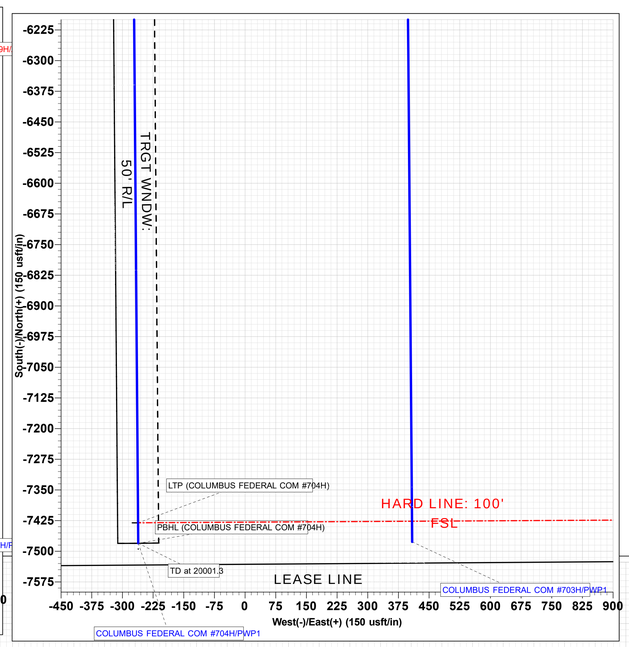


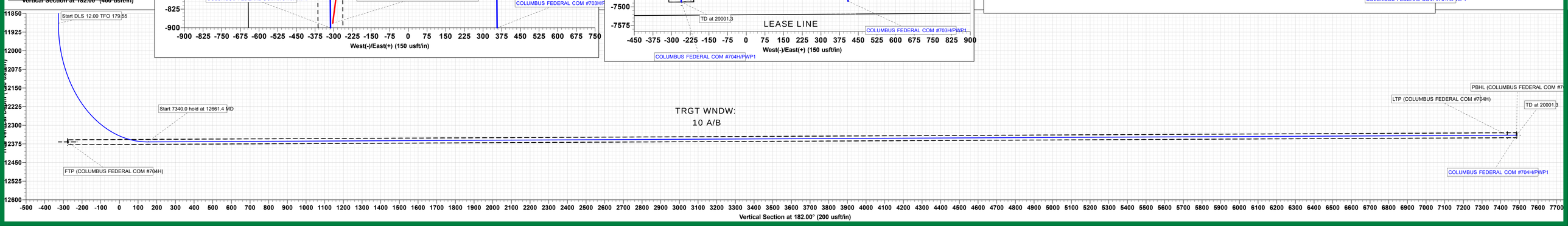












Cementing Program

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	558	13.5	1.75	9	12	Lead: Class C + 4% Gel + 1% CaCl2
	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl2
Inter. Stage 1	840	10.3	3.3	22	24	Halliburton tunded light
	250	14.8	1.35	6.6	8	Tail: Class H
Prod	538	12.7	2	10.7	72	Lead: 50:50:10 H Blend
	1064	14.4	1.24	5.7	19	Tail: 50:50:2 Class H Blend

If losses are encountered in the intermediate section a DV/ECP tool will be run ~50' above the Lamar Lime top, cement will be adjusted accordingly if this contingency is necessary.

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%
1st Intermediate	0’	50%
Production	8,000'	35% OH in Lateral (KOP to EOL)

COG Operating, LLC - Columbus Federal Com 704H

1. Geologic Formations

TVD of target	12,367' EOL	Pilot hole depth	NA
MD at TD:	20,001'	Deepest expected fresh water:	185'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	951	Water	
Top of Salt	1315	Salt	
Base of Salt	4732	Salt	
Lamar	4930	Salt Water	
Bell Canyon	4979	Salt Water	
Cherry Canyon	6001	Oil/Gas	
Brushy Canyon	7550	Oil/Gas	
Bone Spring Lime	9023	Oil/Gas	
1st Bone Spring Sand	10042	Oil/Gas	
2nd Bone Spring Sand	10606	Oil/Gas	
3rd Bone Spring Sand	11683	Oil/Gas	
Wolfcamp	12148	Target Oil/Gas	
Wolfcamp A Shale	12327	Not Penetrated	
Wolfcamp B	12642	Not Penetrated	

2. Casing Program

Hole Size	Casing Interval		Csg. Size	Weight	Grade	Conn.	SF	SF Burst	SF	SF
	From	To		(lbs)			Collapse		Body	Joint
14.75"	0	1170	10.75"	45.5	N80	BTC	4.61	1.67	19.54	20.61
9.875"	0	8500	7.625"	29.7	HCL80	BTC	1.56	1.07	2.88	2.90
8.750"	8500	11800	7.625"	29.7	HCP110	TL-FJ	1.28	1.11	2.68	1.88
6.75"	0	11600	5.5"	23	P110	BTC	1.81	1.86	3.27	3.25
6.75"	11600	20,001	5"	18	P110	BTC	1.81	1.86	3.27	3.25
				BLM Minimum Safety Factor			1.125	1	1.6 Dry 1.8 Wet	1.6 Dry 1.8 Wet

Intermediate casing will be kept at least 1/3 full while running casing.to mitigate collapse. Surface burst based on 0.7 frac gradient at the shoe with Gas Gradient 0.1 psi/ft to surface and
All casing strings will be tested in accordance with Onshore Oil and Gas Order #2 III.B.1.h

The 5" casing will be run back 200' into the intermediate casing to ensure the coupling OD clearance is greater than .422" for the cement bond tie in.

COG Operating, LLC - Columbus Federal Com 704H

	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.	Y
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?	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

Casing	# Sks	Wt. lb/ gal	Yld ft3/ sack	H_20 gal/sk	500# Comp. Strength (hours)	Slurry Description
Surf.	558	13.5	1.75	9	12	Lead: Class C + 4% Gel + 1% CaCl2
	250	14.8	1.34	6.34	8	Tail: Class C + 2% CaCl2
Inter. Stage 1	840	10.3	3.3	22	24	Halliburton tunded light
	250	14.8	1.35	6.6	8	Tail: Class H
Prod	538	12.7	2	10.7	72	Lead: 50:50:10 H Blend
	1064	14.4	1.24	5.7	19	Tail: 50:50:2 Class H Blend

If losses are encountered in the intermediate section a DV/ECP tool will be run ~50' above the Lamar Lime top, cement will be adjusted accordingly if this contingency is necessary.

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%
1st Intermediate	0’	50%
Production	8,000'	35% OH in Lateral (KOP to EOL)

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	x	Tested to:
9-7/8"	13-5/8"	5M	Annular	x	2500psi
			Blind Ram	x	5000psi
			Pipe Ram	x	
			Double Ram	x	
			Other*		
6-3/4"	13-5/8"	10M	5M Annular	x	5000psi
			Blind Ram	x	10000psi
			Pipe Ram	x	
			Double Ram	x	
			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.

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.
	N Are anchors required by manufacturer?
Y	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	FW Gel	8.6 - 8.8	28-34	N/C
Surf csg	9-5/8" Int shoe	Brine Diesel Emulsion	8.4 - 9	28-34	N/C
7-5/8" Int shoe	Lateral TD	OBM	9.6 - 12.5	35-45	<20

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

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
N	Resistivity	Pilot Hole TD to ICP
N	Density	Pilot Hole TD to ICP
Y	CBL	Production casing (If cement not circulated to surface)
Y	Mud log	Intermediate shoe to TD
N	PEX	

7. Drilling Conditions

Condition	Specify what type and where?
BH Pressure at deepest TVD	8040 psi at 12367' TVD
Abnormal Temperature	NO 180 Deg. F.

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.

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

Y	Is it a walking operation?
Y	Is casing pre-set?

x	H2S Plan.
x	BOP & Choke Schematics.
x	Directional Plan

1. Component and Preventer Compatibility Table

The table below covers drilling and casing of the 10M MASP portion of the well and outlines the tubular and the compatible preventers in use. Combined with the mud program, the below documents that two barriers to flow can be maintained at all times, independent of the rating of the annular preventer.

Component	OD	Preventer	RWP
Drill pipe	5”	Upper 4.5-7” VBR Lower 4.5-7” VBR	10M
HWDP	5”		
Jars	5”		
Drill collars and MWD tools	6.25-6.75”		
Mud Motor	6.75”		
Production casing	5.5”		
ALL	0-13-5/8”	Annular	5M
Open-hole	-	Blind Rams	10M

VBR = Variable Bore Ram with compatible range listed in chart.

2. Well Control and Shut-In Procedures

Well control procedures are specific to the rig equipment and the operation at the time the kick occurs. Below are minimum tasks prescribed to assure a proper shut-in while drilling, tripping, running casing, pipe out of the hole (open hole), and moving the BHA through the BOPs. The maximum pressure at which well control is transferred from the annular to another compatible ram is 2500 psi.

Drilling:

1. Sound the alarm (alert rig crew)
2. Space out the drill string
3. Shut down pumps and stop the rotary
4. Shut-in the well with the annular with HCR and choke in closed position
5. Confirm the well is shut-in
6. Notify contractor and company representatives
7. Read and record the following data
    - Time of shut-in
    - SIDPP and SICP
    - Pit gain
8. If pressure has increased to or is anticipated to increase to 2500 psi, confirm spacing and close the upper pipe rams.
9. Prepare for well kill operation.

Tripping:

1. Sound alarm (alert rig crew)
2. Stab full opening safety valve and close the valve
3. Space out the drill string
4. Shut-in the well with the annular with HCR and choke in closed position
5. Confirm shut-in
6. Notify contractor and company representatives
7. Read and record the following data:

- Time of shut-in
- SIDPP and SICP
- Pit gain

8. If pressure has increased to or is anticipated to increase to 2500 psi, confirm spacing and close the upper pipe rams.
9. Prepare for well kill operation.

Running Casing

1. Sound alarm (alert rig crew)
2. Stab crossover and valve and close the valve
3. Shut-in the well with annular with HCR and choke in closed position
4. Confirm shut-in
5. Notify contractor and company representatives
6. Read and record the following data
    - Time of shut-in
    - SIDPP and SICP
    - Pit gain
7. If pressure has increased to or is anticipated to increase to 2500 psi, confirm spacing and close the upper pipe rams.
8. Prepare for well kill operation

No Pipe in Hole (Open Hole)

1. At any point when pipe or BHA are not in BOP stack, well will be shut in with blind rams, HCR will be open and choke will be closed. If pressure increase is observed:
2. Sound alarm (alert crew)
3. Confirm shut-in
4. Notify contractor and company representatives
5. Read and record the following data
    - Time of shut-in
    - Time of pressure increase
    - SICP
6. Prepare for well kill operation

Pulling BHA through BOP Stack

1. Prior to pulling last joint/stand of drillpipe through the stack, perform a flow check. If well is flowing:
    a. Sound alarm (alert crew)
    b. Stab full opening safety valve and close the valve
    c. Space out drill string with tool joint just beneath the upper pipe ram.
    d. Shut-in the well with upper pipe ram with HCR and choke in closed position
    e. Confirm shut-in
    f. Notify contractor and company representatives
    g. Read and record the following data
        - Time of shut-in
        - SIDPP and SICP
        - Pit gain
    h. Prepare for well kill operation.

2. With BHA in the stack:
    a. If possible to pick up high enough, pull BHA clear of the stack
        i. Follow "Open Hole" procedure above
    b. If impossible to pick up high enough to pull BHA clear of the stack:
        i. Stab crossover, make up one joint/stand of drill pipe, and full opening safety valve and close
        ii. Space out drill string with tool joint just beneath the upper pipe ram.
        iii. Shut-in the well with upper pipe ram with HCR and choke in closed position
        iv. Confirm shut-in
        v. Notify contractor and company representatives
        vi. Read and record the following:
            - Time of shut-in
            - SIDPP and SICP
            - Pit gain
        vii. Prepare for well kill operation.

3. Well Control Drills

Well control drills are specific to the rig equipment, personnel and operation at the time a kick occurs. Each crew will execute one drill weekly relevant to ongoing operations, but will make a reasonable attempt to vary the type of drills. The drills will be recorded in the daily drilling log. Below are minimum tasks for respective well control drills.

Drilling/Pit:

Action	Responsible Party
Initiate Drill • Lift Flow Sensor or Pit Float to indicate a kick • Immediately record start time	Company Representative / Rig Manager
Recognition • Driller and/or Crew recognizes indicator • Driller stop drilling, pick up off bottom and spaces out drill string, stop pumps and rotary • Conduct flow check	Driller
Initiate Action • Sound alarm, notify rig crew that the well is flowing	Company Representative / Rig Manager
Reaction • Driller moves BOP remote and stands by • Crew is at their assigned stations • Time is stopped • Record time and drill type in the Drilling Report	Driller / Crew

Tripping Pit Drills (either in the hole or out of the hole)

Action	Responsible Party
Initiate Drill • Lift Flow Sensor or Pit Float to indicate a kick • Immediately record start time	Company Representative / Rig Manager
Recognition • Driller recognizes indicator • Suspends tripping operations • Conduct Flow Check	Driller
Initiate Action • Sound alarm, notify rig crew that the well is flowing	Company Representative / Rig Manager
Reaction • Position tool joint above rotary and set slips • Stab FOSV and close valve • Driller moves to BOP remote and stands by • Crew is at their assigned stations • Time is stopped • Record time and drill type in the Drilling Report	Driller / Crew

Choke

Action	Responsible Party
• Have designated choke operator on station at the choke panel • Close annular preventer • Pressure annulus up 200-300 psi • Pump slowly to bump the float and obtain SIDPP • At choke operator instruction, slowly bring pumps online to slow pump rate while holding casing pressure constant at the SICP. • Allow time for the well to stabilize. Mark and record circulating drillpipe pressure. • Measure time lag on drillpipe gauge after choke adjustments. • Hold casing pressure constant as pumps are slowed down while choke is closed. • Record time and drill type in the Drilling Report	Company Man / Rig Manager & Rig Crew

APD ID: 10400057311 **Submission Date:** 05/20/2020

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Well Type: OIL WELL **Well Work Type:** Drill

Highlighted data reflects the most recent changes

Show Final Text

Section 1 - Existing Roads

Will existing roads be used? YES

Existing Road Map:

COG_Columbus_704H_Existing_Road_20200520145002.pdf

Existing Road Purpose: ACCESS **Row(s) Exist?** YES

ROW ID(s)

ID:

Do the existing roads need to be improved? NO

Existing Road Improvement Description:

Existing Road Improvement Attachment:

Section 2 - New or Reconstructed Access Roads

Will new roads be needed? YES

New Road Map:

COG_Columbus_704H_Access_Rd._20200520145023.pdf

New road type: RESOURCE

Length: 60.6 Feet **Width (ft.):** 30

Max slope (%): 33 **Max grade (%):** 1

Army Corp of Engineers (ACOE) permit required? N

ACOE Permit Number(s):

New road travel width: 14

New road access erosion control: Water will be diverted where necessary to avoid ponding, prevent erosion, maintain good drainage and to be consistent with local drainage patterns.

New road access plan or profile prepared? N

New road access plan attachment:

Access road engineering design? N

Access road engineering design attachment:

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Turnout? N

Access surfacing type: OTHER

Access topsoil source: OFFSITE

Access surfacing type description: Caliche

Access onsite topsoil source depth:

Offsite topsoil source description: Caliche

Onsite topsoil removal process:

Access other construction information:

Access miscellaneous information:

Number of access turnouts: **Access turnout map:**

Drainage Control

New road drainage crossing: OTHER

Drainage Control comments: None needed.

Road Drainage Control Structures (DCS) description: None needed.

Road Drainage Control Structures (DCS) attachment:

Access Additional Attachments

Section 3 - Location of Existing Wells

Existing Wells Map? YES

Attach Well map:

COG_Columbus_704H_1_Mile_Data_20200520145051.pdf

COG_Columbus_704H_1_Mile_Map_20200520145057.pdf

Section 4 - Location of Existing and/or Proposed Production Facilities

Submit or defer a Proposed Production Facilities plan? SUBMIT

Production Facilities description: The Columbus Fed 34L CTB. This CTB will be built to accommodate the Columbus Fed Com #701H, #702, #703H, #704. We plan to install (1) buried 4 FP 601HT production flowline from each wellhead to the inlet manifold of the proposed CTB (4 lines total); the route for these flowlines will follow the flowlines route as shown in the diagram below. We will install (2) buried 4 gas lines for gas lift supply from the CTB to each well pad (2 lines total); the route for the gas lift lines will follow the gas lift route as shown in the attached layout.

Production Facilities map:

COG_Columbus_704H_Flowline_Gasline_20200520145127.pdf

COG_Columbus_704H_Powerline_20200520145135.pdf

COG_Columbus_704H_CTB_20200520145144.pdf

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Section 5 - Location and Types of Water Supply

Water Source Table

Water source type: OTHER

Describe type: Fresh Water. See Below.

Water source use type: ICE PAD CONSTRUCTION & MAINTENANCE
SURFACE CASING
STIMULATION

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Water source transport method: PIPELINE

Source land ownership: PRIVATE

Source transportation land ownership: PRIVATE

Water source volume (barrels): 450000 **Source volume (acre-feet):** 58.001892

Source volume (gal): 18900000

Water source type: OTHER

Describe type: Brine Water. See Below.

Water source use type: INTERMEDIATE/PRODUCTION CASING

Source latitude: **Source longitude:**

Source datum:

Water source permit type: PRIVATE CONTRACT

Water source transport method: TRUCKING

Source land ownership: COMMERCIAL

Source transportation land ownership: COMMERCIAL

Water source volume (barrels): 30000 **Source volume (acre-feet):** 3.866793

Source volume (gal): 1260000

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Water source and transportation map:

COG_Columbus_704H_Brine_H2O_20200520145302.pdf

COG_Columbus_704H_Fresh_H2O_20200520145334.pdf

Water source comments: Fresh water will be obtained from the Battle Axe Frac Pond located in Section 3. T26S. R33E. Brine water will be obtained from the Malaga II Brine station in Section 12. T23S. R28E.

New water well? N

New Water Well Info

Well latitude: **Well Longitude:** **Well datum:**

Well target aquifer:

Est. depth to top of aquifer(ft): **Est thickness of aquifer:**

Aquifer comments:

Aquifer documentation:

Well depth (ft): **Well casing type:**

Well casing outside diameter (in.): **Well casing inside diameter (in.):**

New water well casing? **Used casing source:**

Drilling method: **Drill material:**

Grout material: **Grout depth:**

Casing length (ft.): **Casing top depth (ft.):**

Well Production type: **Completion Method:**

Water well additional information:

State appropriation permit:

Additional information attachment:

Section 6 - Construction Materials

Using any construction materials: YES

Construction Materials description: Caliche will be obtained from the actual well site if available. If not available onsite, caliche will be obtained from Intrepid's Cottonwood caliche pit located in Section 3, T26S, R33E.

Construction Materials source location attachment:

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Section 7 - Methods for Handling Waste

Waste type: GARBAGE

Waste content description: Garbage and trash produced during drilling and completion operations.

Amount of waste: 500 pounds

Waste disposal frequency : One Time Only

Safe containment description: Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly at a state approved disposal facility

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

Disposal type description:

Disposal location description: Trucked to an approved disposal facility.

Waste type: DRILLING

Waste content description: Drilling fluids and produced oil land water while drilling and completion operations

Amount of waste: 6000 barrels

Waste disposal frequency : One Time Only

Safe containment description: All drilling waste will be stored safely and disposed of properly

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** COMMERCIAL

Disposal type description:

Disposal location description: Trucked to an approved disposal facility

Waste type: SEWAGE

Waste content description: Human waste and gray water

Amount of waste: 1000 gallons

Waste disposal frequency : One Time Only

Safe containment description: Waste will be properly contained and disposed of properly at a state approved disposal facility.

Safe containmant attachment:

Waste disposal type: HAUL TO COMMERCIAL FACILITY **Disposal location ownership:** PRIVATE

Disposal type description:

Disposal location description: Trucked to an approved disposal facility

Reserve Pit

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Reserve Pit being used? NO

Temporary disposal of produced water into reserve pit? NO

Reserve pit length (ft.) **Reserve pit width (ft.)**

Reserve pit depth (ft.) **Reserve pit volume (cu. yd.)**

Is at least 50% of the reserve pit in cut?

Reserve pit liner

Reserve pit liner specifications and installation description

Cuttings Area

Cuttings Area being used? NO

Are you storing cuttings on location? Y

Description of cuttings location Roll off cutting containers on tracks

Cuttings area length (ft.) **Cuttings area width (ft.)**

Cuttings area depth (ft.) **Cuttings area volume (cu. yd.)**

Is at least 50% of the cuttings area in cut?

WCuttings area liner

Cuttings area liner specifications and installation description

Section 8 - Ancillary Facilities

Are you requesting any Ancillary Facilities?: N

Ancillary Facilities attachment:

Comments:

Section 9 - Well Site Layout

Well Site Layout Diagram:

COG_Columbus_704H_Layout_20200520145420.pdf

Comments:

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Section 10 - Plans for Surface Reclamation

Type of disturbance: New Surface Disturbance

Multiple Well Pad Name: COLUMBUS FEDERAL COM

Multiple Well Pad Number: 703H and 704H

Recontouring attachment:

COG_Columbus_704H_Reclamation_20200520145441.pdf

Drainage/Erosion control construction: Immediately following construction, straw waddles will be placed as necessary at the well site to reduce sediment impacts to fragile/sensitive soils.

Drainage/Erosion control reclamation: South 50'. East 50'.

Well pad proposed disturbance (acres): 3.67

Road proposed disturbance (acres): 0.3

Powerline proposed disturbance (acres): 3.63

Pipeline proposed disturbance (acres): 1.61

Other proposed disturbance (acres): 3.67

Total proposed disturbance: 12.879999999999999

Well pad interim reclamation (acres): 0.06

Road interim reclamation (acres): 0.03

Powerline interim reclamation (acres): 3.63

Pipeline interim reclamation (acres): 1.61

Other interim reclamation (acres): 3.67

Total interim reclamation: 9

Well pad long term disturbance (acres): 2.81

Road long term disturbance (acres): 0.03

Powerline long term disturbance (acres): 3.63

Pipeline long term disturbance (acres): 1.61

Other long term disturbance (acres): 3.67

Total long term disturbance: 11.75

Disturbance Comments:

Reconstruction method: Portions of the pad not needed for production operations will be re-contoured to its original state as much as possible. The caliche that is removed will be reused. The stockpiled topsoil will be spread out over reclaimed area and reseeded with BLM approved seed mixture.

Topsoil redistribution: South 50'. East 50',

Soil treatment: None

Existing Vegetation at the well pad: Shinnery Oak/Mesquite grassland

Existing Vegetation at the well pad attachment:

Existing Vegetation Community at the road: Shinnery Oak/Mesquite grassland

Existing Vegetation Community at the road attachment:

Existing Vegetation Community at the pipeline: Shinnery Oak/Mesquite grassland

Existing Vegetation Community at the pipeline attachment:

Existing Vegetation Community at other disturbances: N/A

Existing Vegetation Community at other disturbances attachment:

Non native seed used? N

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Non native seed description:

Seedling transplant description:

Will seedlings be transplanted for this project? N

Seedling transplant description attachment:

Will seed be harvested for use in site reclamation? N

Seed harvest description:

Seed harvest description attachment:

Seed Management

Seed Table

Seed Summary

Total pounds/Acre:

Seed Type	Pounds/Acre

Seed reclamation attachment:

Operator Contact/Responsible Official Contact Info

First Name: **Last Name:**

Phone: **Email:**

Seedbed prep:

Seed BMP:

Seed method:

Existing invasive species? N

Existing invasive species treatment description:

Existing invasive species treatment attachment:

Weed treatment plan description: N/A

Weed treatment plan attachment:

Monitoring plan description: N/A

Monitoring plan attachment:

Success standards: N/A

Pit closure description: N/A

Pit closure attachment:

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

COG_Columbus_704H__Closed_Loop_20200520145454.pdf

Section 11 - Surface Ownership

Disturbance type: WELL PAD

Describe:

Surface Owner: BUREAU OF LAND MANAGEMENT

Other surface owner description:

BIA Local Office:

BOR Local Office:

COE Local Office:

DOD Local Office:

NPS Local Office:

State Local Office:

Military Local Office:

USFWS Local Office:

Other Local Office:

USFS Region:

USFS Forest/Grassland: **USFS Ranger District:**

Section 12 - Other Information

Right of Way needed? N **Use APD as ROW?**

ROW Type(s):

ROW Applications

SUPO Additional Information: SUP Attached

Use a previously conducted onsite? Y

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Previous Onsite information: Onsite completed on April 22nd, 2020 by Gerald Herrera (COG) and Zane Kirsch (BLM).

Other SUPO Attachment

COG_Columbus_704H_CTB_20200520145531.pdf
COG_Columbus_704H_Flowline_Gasline_20200520145542.pdf
COG_Columbus_704H_Powerline_20200520145553.pdf
COG_Columbus_704H_Existing_Road_20200520145604.pdf
COG_Columbus_704H_Access_Rd._20200520145616.pdf
COG_Columbus_704H_SUP_20200520213726.pdf

APD ID: 10400057311 **Submission Date:** 05/20/2020

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Well Type: OIL WELL **Well Work Type:** Drill

Section 1 - General

Would you like to address long-term produced water disposal? NO

Section 2 - Lined Pits

Would you like to utilize Lined Pit PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Lined pit PWD on or off channel:

Lined pit PWD discharge volume (bbl/day):

Lined pit specifications:

Pit liner description:

Pit liner manufacturers information:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Lined pit precipitated solids disposal schedule:

Lined pit precipitated solids disposal schedule attachment:

Lined pit reclamation description:

Lined pit reclamation attachment:

Leak detection system description:

Leak detection system attachment:

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Lined pit Monitor description:

Lined pit Monitor attachment:

Lined pit: do you have a reclamation bond for the pit?

Is the reclamation bond a rider under the BLM bond?

Lined pit bond number:

Lined pit bond amount:

Additional bond information attachment:

Section 3 - Unlined Pits

Would you like to utilize Unlined Pit PWD options? N

Produced Water Disposal (PWD) Location:

PWD disturbance (acres): **PWD surface owner:**

Unlined pit PWD on or off channel:

Unlined pit PWD discharge volume (bbl/day):

Unlined pit specifications:

Precipitated solids disposal:

Decribe precipitated solids disposal:

Precipitated solids disposal permit:

Unlined pit precipitated solids disposal schedule:

Unlined pit precipitated solids disposal schedule attachment:

Unlined pit reclamation description:

Unlined pit reclamation attachment:

Unlined pit Monitor description:

Unlined pit Monitor attachment:

Do you propose to put the produced water to beneficial use?

Beneficial use user confirmation:

Estimated depth of the shallowest aquifer (feet):

Does the produced water have an annual average Total Dissolved Solids (TDS) concentration equal to or less than that of the existing water to be protected?

TDS lab results:

Geologic and hydrologic evidence:

State authorization:

Unlined Produced Water Pit Estimated percolation:

Unlined pit: do you have a reclamation bond for the pit?

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Is the reclamation bond a rider under the BLM bond?

Unlined pit bond number:

Unlined pit bond amount:

Additional bond information attachment:

Section 4 - Injection

Would you like to utilize Injection PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Injection PWD discharge volume (bbl/day):

Injection well mineral owner:

Injection well type:

Injection well number: **Injection well name:**

Assigned injection well API number? **Injection well API number:**

Injection well new surface disturbance (acres):

Minerals protection information:

Mineral protection attachment:

Underground Injection Control (UIC) Permit?

UIC Permit attachment:

Section 5 - Surface Discharge

Would you like to utilize Surface Discharge PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Surface discharge PWD discharge volume (bbl/day):

Surface Discharge NPDES Permit?

Surface Discharge NPDES Permit attachment:

Surface Discharge site facilities information:

Surface discharge site facilities map:

Section 6 - Other

Would you like to utilize Other PWD options? N

Produced Water Disposal (PWD) Location:

PWD surface owner: **PWD disturbance (acres):**

Other PWD discharge volume (bbl/day):

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 704H

Other PWD type description:

Other PWD type attachment:

Have other regulatory requirements been met?

Other regulatory requirements attachment:

AFMSS

U.S. Department of the Interior
BUREAU OF LAND MANAGEMENT

Bond Info Data Report

11/12/2020

APD ID: 10400057311

Submission Date: 05/20/2020

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM

Well Number: 704H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data reflects the most recent changes

Show Final Text

Bond Information

Federal/Indian APD: FED

BLM Bond number: NMB000215

BIA Bond number:

Do you have a reclamation bond? NO

Is the reclamation bond a rider under the BLM bond?

Is the reclamation bond BLM or Forest Service?

BLM reclamation bond number:

Forest Service reclamation bond number:

Forest Service reclamation bond attachment:

Reclamation bond number:

Reclamation bond amount:

Reclamation bond rider amount:

Additional reclamation bond information attachment:

DISTRICT I
1625 N. FRENCH DR., HOBBS, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

DISTRICT II
811 S. FIRST ST., ARTESIA, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

DISTRICT III
1000 RIO BRAZOS RD., AZTEC, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION

1220 SOUTH ST. FRANCIS DR.
Santa Fe, New Mexico 87505

OCD – HOBBS
11/30/2020
RECEIVED

Form C-102
Revised August 1, 2011
Submit one copy to appropriate District Office

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025- 30-025-48116	98094	BOBCAT DRAW;UPPER WOLFCAMP

Property Code	Property Name	Well Number
317530	COLUMBUS FEDERAL COM	704H

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3323.8'

Surface Location

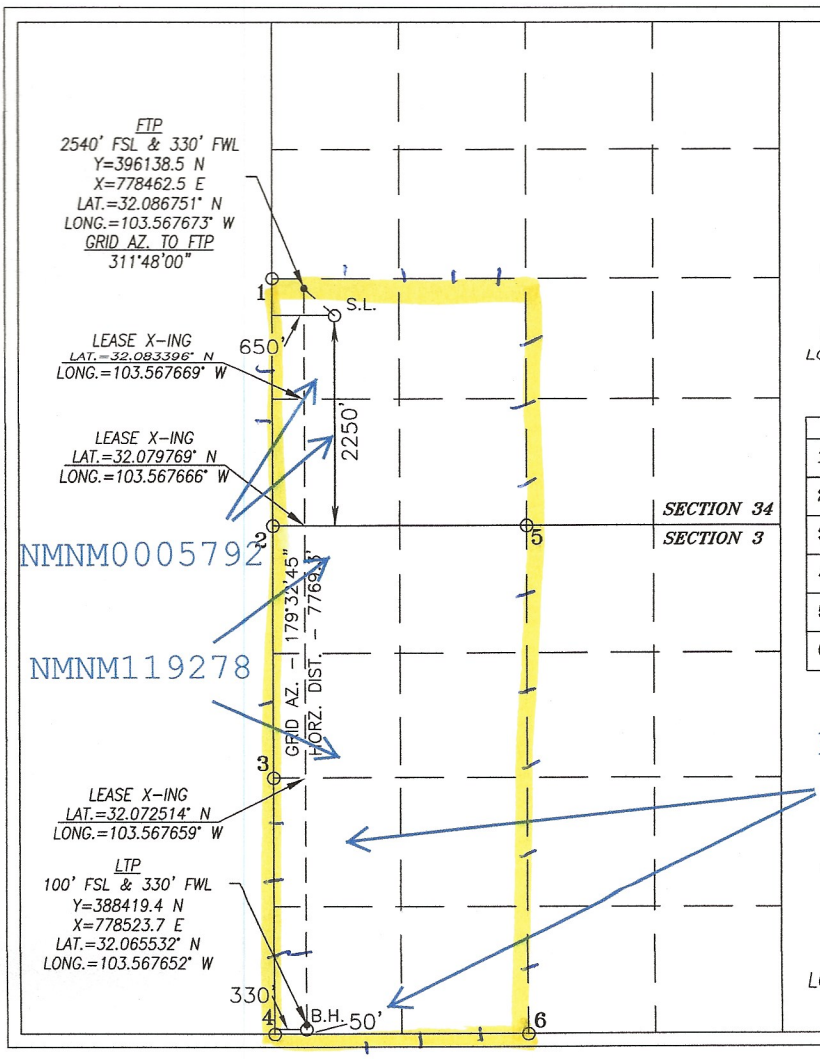
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	34	25-S	33-E		2250	SOUTH	650	WEST	LEA

Bottom Hole Location If Different From Surface

UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	3	26-S	33-E		50	SOUTH	330	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
480			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION



NAD 83 NME
SURFACE LOCATION
Y=395850.2 N
X=778785.0 E
LAT.=32.085952° N
LONG.=103.566638° W

POINT LEGEND	
1	Y=396235.8 N X=778131.7 E
2	Y=393596.9 N X=778154.7 E
3	Y=390957.8 N X=778175.6 E
4	Y=388317.6 N X=778194.5 E
5	Y=393610.3 N X=780799.7 E
6	Y=388332.4 N X=780837.5 E

FEE

NAD 83 NME
PROPOSED BOTTOM HOLE LOCATION
Y=388369.4 N
X=778524.1 E
LAT.=32.065394° N
LONG.=103.567652° W

OPERATOR CERTIFICATION

I hereby certify that the information herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Mayte Reyes 5-20-2020
Signature Date

Mayte Reyes
Printed Name

mreyes1@concho.com
E-mail Address

SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

APRIL 27, 2020
Date of Survey

Signature & Seal of Professional Surveyor

CHAD L. HARCROW
NEW MEXICO
17777
LICENSED PROFESSIONAL SURVEYOR

Chad Harcrow 5/5/20
Certificate No. CHAD HARCROW 17777

W.O. #20-653 DRAWN BY: WN

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Submit Original to Appropriate District Office

OCD – HOBBS
11/30/2020
RECEIVED

GAS CAPTURE PLAN

Date: **5/13/2020**

☒ Original
☐ Amended - Reason for Amendment:

Operator & OGRID No.: **COG Operating LLC, OGRID 229137**

This Gas Capture Plan outlines actions to be taken by the Operator to reduce well/production facility flaring/venting for new completion (new drill, recomplete to new zone, re-frac) activity.

Note: Form C-129 must be submitted and approved prior to exceeding 60 days allowed by Rule (Subsection A of 19.15.18.12 NMAC).

Well(s)/Production Facility – Name of facility

The well(s) that will be located at the production facility are shown in the table below.

Well Name	API	Well Location (ULSTR)	Footages	Expected MCF/D	Flared or Vented	Comments
Columbus Federal Com 704H	**30-025-30-025-48116**	**L-34-25S-33E**	**2250' FSL & 650' FWL**	**3,797 MCFD**		**Gas will connect on well pad.**

Gathering System and Pipeline Notification

Well(s) will be connected to a production facility after flowback operations are complete, if gas transporter system is in place. The gas produced from production facility is dedicated to **ETC** and will be connected to **Red Bluff** **low**/high pressure gathering system located in **Culberson County, Texas**. It will require approximately **0'** of pipeline on lease to connect the facility to **low**/high pressure gathering system. **COG Operating LLC** provides (periodically) to **ETC** a drilling, completion and estimated first production date for wells that are scheduled to be drilled in the foreseeable future. In addition, **COG Operating LLC** and **ETC** have periodic conference calls to discuss changes to drilling and completion schedules. Gas from these wells will be processed at **Red Bluff** Processing Plant located in **Sec 35-Blk 57-T2 Culberson, Texas**. The actual flow of the gas will be based on compression operating parameters and gathering system pressures.

Flowback Strategy

After the fracture treatment/completion operations, well(s) will be produced to temporary production tanks and gas will be flared or vented. During flowback, the fluids and sand content will be monitored. When the produced fluids contain minimal sand, the wells will be turned to production facilities. Gas sales should start as soon as the wells start flowing through the production facilities, unless there are operational issues on Gas Transporter system at that time. Based on current information, it is Operator's belief the system can take this gas upon completion of the well(s).

Safety requirements during cleanout operations from the use of underbalanced air cleanout systems may necessitate that sand and non-pipeline quality gas be vented and/or flared rather than sold on a temporary basis.

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared
- Compressed Natural Gas – On lease
  - Gas flared would be minimal, but might be uneconomical to operate when gas volume declines
- NGL Removal – On lease
  - Plants are expensive, residue gas is still flared, and uneconomical to operate when gas volume declines