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]
703H

2. Name of Operator
COG OPERATING LLC [229137]

9. API Well No. 30-025-48115

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 / 680 FWL / LAT 32.085952 / LONG -103.566541
At proposed prod. zone SWSW / 50 FSL / 1000 FWL / LAT 32.065392 / LONG -103.565489

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
12380 feet / 19999 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
11/02/2020

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: 11/02/2020

(Continued on page 2)

*(Instructions on page 2)

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	**COG Operating LLC**
LEASE NO.:	**NMNM-0005792**
WELL NAME & NO.:	**Columbus Federal Com 703H**
SURFACE HOLE FOOTAGE:	**2250' FSL & 0680' FWL**
BOTTOM HOLE FOOTAGE	**0050' FSL & 1000' 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

Operator Certification Data Report

11/03/2020

APD ID: 10400057141 **Submission Date:** 05/20/2020

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 703H

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

Highlighted data reflects the most recent changes

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Section 1 - General

APD ID: 10400057141 **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:** 703H **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:** 703H

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_703H_C102_20200520212753.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	680	FWL	25S	33E	34	Aliquot NWSW	32.085952	-103.566541	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0005792	3324	0	0	Y
KOP Leg #1	2250	FSL	680	FWL	25S	33E	34	Aliquot NWSW	32.085952	-103.566541	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0005792	3324	0	0	Y
PPP Leg #1-1	2540	FSL	1000	FWL	25S	33E	34	Aliquot NWSW	32.086747	-103.565509	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 0005792	-8560	11900	11884	Y

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 703H

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	1	FNL	1000	FWL	26S	33E	3	Aliquot NWNW	32.079765	-103.565503	LEA	NEW MEXICO	NEW MEXICO	F	NMNM 119278	-9047	14900	12371	Y
EXIT Leg #1	100	FSL	1000	FWL	26S	33E	3	Aliquot SWSW	32.065529	-103.565489	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-9028	19900	12352	Y
BHL Leg #1	50	FSL	1000	FWL	26S	33E	3	Aliquot SWSW	32.065392	-103.565489	LEA	NEW MEXICO	NEW MEXICO	F	FEE	-9056	19999	12380	Y

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

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		Wildcat; Wolfcamp

Property Code	Property Name	Well Number
	COLUMBUS FEDERAL COM	703H

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3323.9'

Surface Location

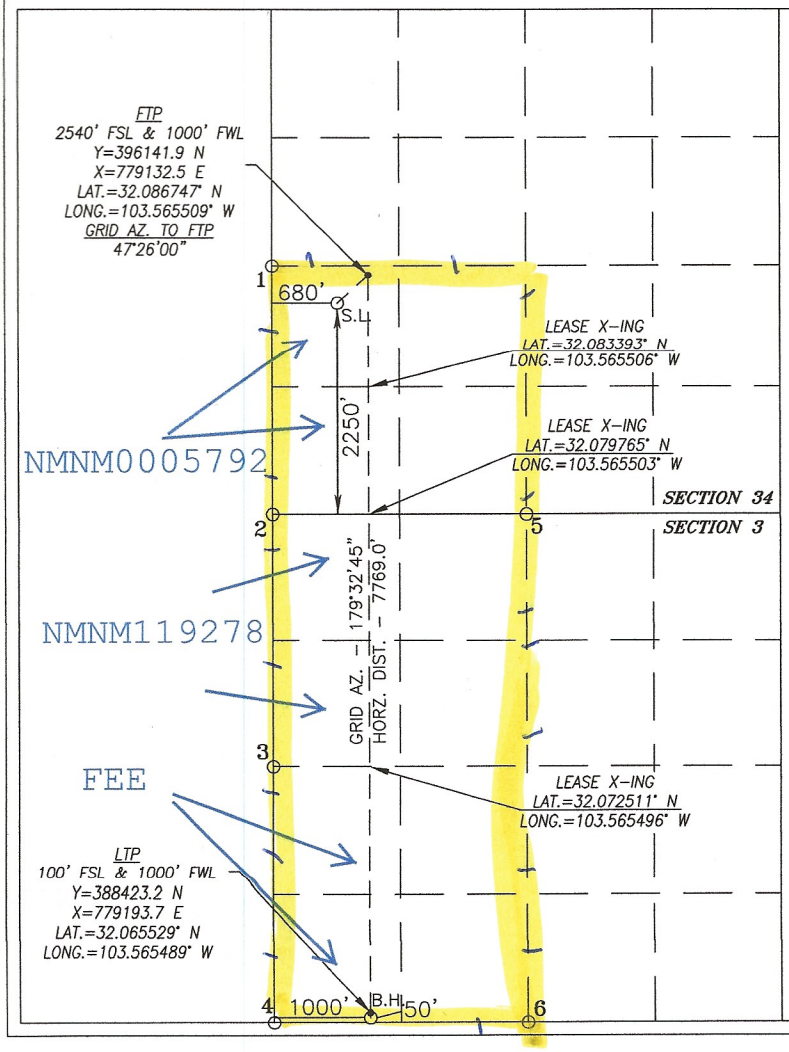
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	34	25-S	33-E		2250	SOUTH	680	WEST	LEA

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	1000	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=395850.3 N
X=778815.0 E
LAT.=32.085952° N
LONG.=103.566541° 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

NAD 83 NME
PROPOSED BOTTOM
HOLE LOCATION
Y=388373.2 N
X=779194.1 E
LAT.=32.065392° N
LONG.=103.565489° 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. #20-654 DRAWN BY: WN

APD ID: 10400057141

Submission Date: 05/20/2020

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM

Well Number: 703H

Well Type: OIL WELL

Well Work Type: Drill

Highlighted data reflects the most recent changes

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Section 1 - Geologic Formations

Formation ID	Formation Name	Elevation	True Vertical Depth	Measured Depth	Lithologies	Mineral Resources	Producing Formation
737005	UNKNOWN	3324	0	0	ALLUVIUM	NONE	N
737009	RUSTLER	2364	960	960	ALLUVIUM	NONE	N
737010	TOP SALT	1996	1328	1328	SALT	NONE	N
737011	BASE OF SALT	-1421	4745	4745	ANHYDRITE	NONE	N
737016	LAMAR	-1615	4939	4939	LIMESTONE	NONE	N
737017	BELL CANYON	-1665	4989	4989	LIMESTONE	NONE	N
737012	CHERRY CANYON	-2683	6007	6007	SANDSTONE	NATURAL GAS, OIL	N
737018	BRUSHY CANYON	-4243	7567	7567	SANDSTONE	NATURAL GAS, OIL	N
737013	BONE SPRING LIME	-5711	9035	9035	SHALE	NATURAL GAS, OIL	N
737014	BONE SPRING 1ST	-6727	10051	10051	SANDSTONE	NATURAL GAS, OIL	N
737015	BONE SPRING 2ND	-7291	10615	10615	SANDSTONE	NATURAL GAS, OIL	N
737008	BONE SPRING 3RD	-8369	11693	11693	SANDSTONE	NATURAL GAS, OIL	N
737019	WOLFCAMP	-8835	12159	12159	SILTSTONE	NATURAL GAS, OIL	Y
737020	WOLFCAMP	-9016	12340	12340	SILTSTONE	NATURAL GAS, OIL	N
737021	WOLFCAMP	-9327	12651	12651	SILTSTONE	NATURAL GAS, OIL	N

Section 2 - Blowout Prevention

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 703H

Pressure Rating (PSI): 10M **Rating Depth:** 12380

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_703H_10M_Choke_20200520085533.pdf

BOP Diagram Attachment:

COG_Columbus_703H_10M_BOP_20200520085743.pdf

COG_Columbus_703H_Flex_Hose_20200520085816.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_703H_5M_Choke_20200520085847.pdf

BOP Diagram Attachment:

COG_Columbus_703H_5M_BOP_20200520085903.pdf

COG_Columbus_703H_Flex_Hose_20200520085921.pdf

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 703H

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	19999	0	12380	-6907	-9056	19999	P-110	18	OTHER - BTC	1.8	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_703H_Casing_Prog_20200520090247.pdf

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 703H

Casing Attachments

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

Inspection Document:

Spec Document:

Tapered String Spec:

COG_Columbus_703H_Casing_Prog_20200520090355.pdf

Casing Design Assumptions and Worksheet(s):

COG_Columbus_703H_Casing_Prog_20200520090427.pdf

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

Inspection Document:

Spec Document:

Tapered String Spec:

COG_Columbus_703H_Casing_Prog_20200520090613.pdf

Casing Design Assumptions and Worksheet(s):

COG_Columbus_703H_Casing_Prog_20200520090642.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	19999	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:** 703H

String Type	Lead/Tail	Stage Tool Depth	Top MD	Bottom MD	Quantity(sx)	Yield	Density	Cu Ft	Excess%	Cement type	Additives
PRODUCTION	Tail		0	19999	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	19999	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:** 703H

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: 8050 **Anticipated Surface Pressure:** 5326

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_703H_H2S_SUP_20200520091340.pdf
COG_Columbus_703H_H2S_Schem_20200520140124.pdf

Section 8 - Other Information

Proposed horizontal/directional/multi-lateral plan submission:

COG_Columbus_703H_AC_RPT_20200520140202.pdf
COG_Columbus_703H_Directional_Plan_20200520140210.pdf
COG_Columbus_703H_Plot_20200520140218.pdf

Other proposed operations facets description:

Drilling Program.
Cement Program.
GCP.

Other proposed operations facets attachment:

COG_Columbus_703H_Drilling_Prog_20200520140248.pdf
COG_Columbus_703H_GCP_20200520140256.pdf
COG_Columbus_703H_Cement_Prog_20200520140436.pdf

Other Variance attachment:

COG_5M_Variance_Well_Plan_20200513161353.pdf

DELAWARE BASIN WEST

LEA COUNTY, NM (NM - E)
COLUMBUS FEDERAL COM PROJECT
COLUMBUS FEDERAL COM #703H

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 #703H
Project:	LEA COUNTY, NM (NM - E)	**TVD Reference:**	KB=26' @ 3350.0usft (MCVAY 8)
Site:	COLUMBUS FEDERAL COM PROJECT	**MD Reference:**	KB=26' @ 3350.0usft (MCVAY 8)
Well:	COLUMBUS FEDERAL COM #703H	**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 #703H

Well Position	**+N/-S**	0.0 usft	**Northing:**	395,792.80 usft	**Latitude:**	32° 5' 9.426 N
	+E/-W	0.0 usft	**Easting:**	737,628.40 usft	**Longitude:**	103° 33' 59.548 W
Position Uncertainty		3.0 usft	**Wellhead Elevation:**	usft	**Ground Level:**	3,324.0 usft

Wellbore OWB

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	5/11/2020	6.63	59.90	47,559.72328873

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	177.10

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

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
0.0	11,893.6	PWP1 (OWB)	Standard Keeper 104	Standard Wireline Keeper ver 1.0.4
11,893.6	19,999.1	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

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Well:	COLUMBUS FEDERAL COM #703H	**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
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	0.00
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	0.00
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	0.00
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	0.00
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	0.00
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	0.00
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	0.00
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	0.00
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	0.00
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	0.00
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	0.00
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	0.00
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	0.00
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	0.00
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	0.00
4,100.0	0.00	0.00	4,100.0	0.0	0.0	0.0	0.00	0.00	0.00
4,200.0	0.00	0.00	4,200.0	0.0	0.0	0.0	0.00	0.00	0.00
4,300.0	0.00	0.00	4,300.0	0.0	0.0	0.0	0.00	0.00	0.00
4,400.0	0.00	0.00	4,400.0	0.0	0.0	0.0	0.00	0.00	0.00
4,500.0	0.00	0.00	4,500.0	0.0	0.0	0.0	0.00	0.00	0.00
4,600.0	0.00	0.00	4,600.0	0.0	0.0	0.0	0.00	0.00	0.00
4,700.0	0.00	0.00	4,700.0	0.0	0.0	0.0	0.00	0.00	0.00
4,800.0	0.00	0.00	4,800.0	0.0	0.0	0.0	0.00	0.00	0.00
4,900.0	0.00	0.00	4,900.0	0.0	0.0	0.0	0.00	0.00	0.00
5,000.0	0.00	0.00	5,000.0	0.0	0.0	0.0	0.00	0.00	0.00
5,100.0	0.00	0.00	5,100.0	0.0	0.0	0.0	0.00	0.00	0.00
5,200.0	0.00	0.00	5,200.0	0.0	0.0	0.0	0.00	0.00	0.00
5,300.0	0.00	0.00	5,300.0	0.0	0.0	0.0	0.00	0.00	0.00
5,400.0	0.00	0.00	5,400.0	0.0	0.0	0.0	0.00	0.00	0.00
5,500.0	0.00	0.00	5,500.0	0.0	0.0	0.0	0.00	0.00	0.00
Start Build 2.00									
5,600.0	2.00	41.60	5,600.0	1.3	1.2	-1.2	2.00	2.00	0.00

Concho Resources LLC

Survey Report

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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)
5,700.0	4.00	41.60	5,699.8	5.2	4.6	-5.0	2.00	2.00	0.00
5,701.1	4.02	41.60	5,700.9	5.3	4.7	-5.0	2.00	2.00	0.00
Start 6192.6 hold at 5701.1 MD									
5,800.0	4.02	41.60	5,799.6	10.5	9.3	-10.0	0.00	0.00	0.00
5,900.0	4.02	41.60	5,899.3	15.7	13.9	-15.0	0.00	0.00	0.00
6,000.0	4.02	41.60	5,999.1	20.9	18.6	-20.0	0.00	0.00	0.00
6,100.0	4.02	41.60	6,098.9	26.2	23.3	-25.0	0.00	0.00	0.00
6,200.0	4.02	41.60	6,198.6	31.4	27.9	-30.0	0.00	0.00	0.00
6,300.0	4.02	41.60	6,298.4	36.7	32.6	-35.0	0.00	0.00	0.00
6,400.0	4.02	41.60	6,398.1	41.9	37.2	-40.0	0.00	0.00	0.00
6,500.0	4.02	41.60	6,497.9	47.2	41.9	-45.0	0.00	0.00	0.00
6,600.0	4.02	41.60	6,597.6	52.4	46.5	-50.0	0.00	0.00	0.00
6,700.0	4.02	41.60	6,697.4	57.7	51.2	-55.0	0.00	0.00	0.00
6,800.0	4.02	41.60	6,797.1	62.9	55.8	-60.0	0.00	0.00	0.00
6,900.0	4.02	41.60	6,896.9	68.1	60.5	-65.0	0.00	0.00	0.00
7,000.0	4.02	41.60	6,996.6	73.4	65.2	-70.0	0.00	0.00	0.00
7,100.0	4.02	41.60	7,096.4	78.6	69.8	-75.0	0.00	0.00	0.00
7,200.0	4.02	41.60	7,196.1	83.9	74.5	-80.0	0.00	0.00	0.00
7,300.0	4.02	41.60	7,295.9	89.1	79.1	-85.0	0.00	0.00	0.00
7,400.0	4.02	41.60	7,395.7	94.4	83.8	-90.0	0.00	0.00	0.00
7,500.0	4.02	41.60	7,495.4	99.6	88.4	-95.0	0.00	0.00	0.00
7,600.0	4.02	41.60	7,595.2	104.9	93.1	-100.0	0.00	0.00	0.00
7,700.0	4.02	41.60	7,694.9	110.1	97.8	-105.0	0.00	0.00	0.00
7,800.0	4.02	41.60	7,794.7	115.3	102.4	-110.0	0.00	0.00	0.00
7,900.0	4.02	41.60	7,894.4	120.6	107.1	-115.0	0.00	0.00	0.00
8,000.0	4.02	41.60	7,994.2	125.8	111.7	-120.0	0.00	0.00	0.00
8,100.0	4.02	41.60	8,093.9	131.1	116.4	-125.0	0.00	0.00	0.00
8,200.0	4.02	41.60	8,193.7	136.3	121.0	-130.0	0.00	0.00	0.00
8,300.0	4.02	41.60	8,293.4	141.6	125.7	-135.0	0.00	0.00	0.00
8,400.0	4.02	41.60	8,393.2	146.8	130.3	-140.0	0.00	0.00	0.00
8,500.0	4.02	41.60	8,492.9	152.0	135.0	-145.0	0.00	0.00	0.00
8,600.0	4.02	41.60	8,592.7	157.3	139.7	-150.0	0.00	0.00	0.00
8,700.0	4.02	41.60	8,692.5	162.5	144.3	-155.0	0.00	0.00	0.00
8,800.0	4.02	41.60	8,792.2	167.8	149.0	-160.0	0.00	0.00	0.00
8,900.0	4.02	41.60	8,892.0	173.0	153.6	-165.0	0.00	0.00	0.00
9,000.0	4.02	41.60	8,991.7	178.3	158.3	-170.0	0.00	0.00	0.00
9,100.0	4.02	41.60	9,091.5	183.5	162.9	-175.0	0.00	0.00	0.00
9,200.0	4.02	41.60	9,191.2	188.8	167.6	-180.0	0.00	0.00	0.00
9,300.0	4.02	41.60	9,291.0	194.0	172.2	-185.0	0.00	0.00	0.00
9,400.0	4.02	41.60	9,390.7	199.2	176.9	-190.0	0.00	0.00	0.00
9,500.0	4.02	41.60	9,490.5	204.5	181.6	-195.0	0.00	0.00	0.00
9,600.0	4.02	41.60	9,590.2	209.7	186.2	-200.0	0.00	0.00	0.00
9,700.0	4.02	41.60	9,690.0	215.0	190.9	-205.0	0.00	0.00	0.00
9,800.0	4.02	41.60	9,789.7	220.2	195.5	-210.0	0.00	0.00	0.00

Concho Resources LLC

Survey Report

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Well:	COLUMBUS FEDERAL COM #703H	**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)
9,900.0	4.02	41.60	9,889.5	225.5	200.2	-215.0	0.00	0.00	0.00
10,000.0	4.02	41.60	9,989.3	230.7	204.8	-220.0	0.00	0.00	0.00
10,100.0	4.02	41.60	10,089.0	235.9	209.5	-225.0	0.00	0.00	0.00
10,200.0	4.02	41.60	10,188.8	241.2	214.1	-230.0	0.00	0.00	0.00
10,300.0	4.02	41.60	10,288.5	246.4	218.8	-235.1	0.00	0.00	0.00
10,400.0	4.02	41.60	10,388.3	251.7	223.5	-240.1	0.00	0.00	0.00
10,500.0	4.02	41.60	10,488.0	256.9	228.1	-245.1	0.00	0.00	0.00
10,600.0	4.02	41.60	10,587.8	262.2	232.8	-250.1	0.00	0.00	0.00
10,700.0	4.02	41.60	10,687.5	267.4	237.4	-255.1	0.00	0.00	0.00
10,800.0	4.02	41.60	10,787.3	272.7	242.1	-260.1	0.00	0.00	0.00
10,900.0	4.02	41.60	10,887.0	277.9	246.7	-265.1	0.00	0.00	0.00
11,000.0	4.02	41.60	10,986.8	283.1	251.4	-270.1	0.00	0.00	0.00
11,100.0	4.02	41.60	11,086.5	288.4	256.1	-275.1	0.00	0.00	0.00
11,200.0	4.02	41.60	11,186.3	293.6	260.7	-280.1	0.00	0.00	0.00
11,300.0	4.02	41.60	11,286.1	298.9	265.4	-285.1	0.00	0.00	0.00
11,400.0	4.02	41.60	11,385.8	304.1	270.0	-290.1	0.00	0.00	0.00
11,500.0	4.02	41.60	11,485.6	309.4	274.7	-295.1	0.00	0.00	0.00
11,600.0	4.02	41.60	11,585.3	314.6	279.3	-300.1	0.00	0.00	0.00
11,700.0	4.02	41.60	11,685.1	319.8	284.0	-305.1	0.00	0.00	0.00
11,800.0	4.02	41.60	11,784.8	325.1	288.6	-310.1	0.00	0.00	0.00
11,893.6	4.02	41.60	11,878.2	330.0	293.0	-314.8	0.00	0.00	0.00
Start DLS 12.00 TFO 137.86									
11,900.0	3.49	50.08	11,884.6	330.3	293.3	-315.0	12.00	-8.30	132.71
12,000.0	10.14	164.27	11,984.1	323.7	298.0	-308.3	12.00	6.65	114.19
12,100.0	21.94	172.82	12,080.0	296.6	302.8	-280.9	12.00	11.80	8.55
12,200.0	33.88	175.51	12,168.2	250.1	307.3	-234.3	12.00	11.94	2.69
12,300.0	45.84	176.91	12,244.8	186.3	311.4	-170.3	12.00	11.97	1.40
12,400.0	57.82	177.84	12,306.5	107.9	315.0	-91.8	12.00	11.98	0.92
12,500.0	69.81	178.54	12,350.6	18.4	317.8	-2.3	12.00	11.98	0.71
12,600.0	81.79	179.15	12,375.1	-78.4	319.7	94.4	12.00	11.99	0.60
12,670.3	90.22	179.55	12,380.0	-148.4	320.5	164.5	12.00	11.99	0.57
Start 7328.8 hold at 12670.3 MD									
12,700.0	90.22	179.55	12,379.8	-178.1	320.8	194.1	0.00	0.00	0.00
12,800.0	90.22	179.55	12,379.5	-278.1	321.5	294.0	0.00	0.00	0.00
12,900.0	90.22	179.55	12,379.1	-378.1	322.3	393.9	0.00	0.00	0.00
13,000.0	90.22	179.55	12,378.7	-478.1	323.1	493.9	0.00	0.00	0.00
13,100.0	90.22	179.55	12,378.3	-578.1	323.9	593.8	0.00	0.00	0.00
13,200.0	90.22	179.55	12,377.9	-678.1	324.7	693.7	0.00	0.00	0.00
13,300.0	90.22	179.55	12,377.6	-778.1	325.5	793.6	0.00	0.00	0.00
13,400.0	90.22	179.55	12,377.2	-878.1	326.3	893.5	0.00	0.00	0.00
13,500.0	90.22	179.55	12,376.8	-978.1	327.1	993.4	0.00	0.00	0.00
13,600.0	90.22	179.55	12,376.4	-1,078.1	327.9	1,093.3	0.00	0.00	0.00
13,700.0	90.22	179.55	12,376.0	-1,178.1	328.7	1,193.2	0.00	0.00	0.00

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	**Local Co-ordinate Reference:**	Well COLUMBUS FEDERAL COM #703H
Project:	LEA COUNTY, NM (NM - E)	**TVD Reference:**	KB=26' @ 3350.0usft (MCVAY 8)
Site:	COLUMBUS FEDERAL COM PROJECT	**MD Reference:**	KB=26' @ 3350.0usft (MCVAY 8)
Well:	COLUMBUS FEDERAL COM #703H	**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)
13,800.0	90.22	179.55	12,375.7	-1,278.1	329.5	1,293.1	0.00	0.00	0.00
13,900.0	90.22	179.55	12,375.3	-1,378.1	330.3	1,393.0	0.00	0.00	0.00
14,000.0	90.22	179.55	12,374.9	-1,478.1	331.1	1,492.9	0.00	0.00	0.00
14,100.0	90.22	179.55	12,374.5	-1,578.1	331.9	1,592.8	0.00	0.00	0.00
14,200.0	90.22	179.55	12,374.1	-1,678.1	332.7	1,692.8	0.00	0.00	0.00
14,300.0	90.22	179.55	12,373.7	-1,778.1	333.5	1,792.7	0.00	0.00	0.00
14,400.0	90.22	179.55	12,373.4	-1,878.1	334.2	1,892.6	0.00	0.00	0.00
14,500.0	90.22	179.55	12,373.0	-1,978.1	335.0	1,992.5	0.00	0.00	0.00
14,600.0	90.22	179.55	12,372.6	-2,078.1	335.8	2,092.4	0.00	0.00	0.00
14,700.0	90.22	179.55	12,372.2	-2,178.1	336.6	2,192.3	0.00	0.00	0.00
14,800.0	90.22	179.55	12,371.8	-2,278.1	337.4	2,292.2	0.00	0.00	0.00
14,900.0	90.22	179.55	12,371.5	-2,378.0	338.2	2,392.1	0.00	0.00	0.00
15,000.0	90.22	179.55	12,371.1	-2,478.0	339.0	2,492.0	0.00	0.00	0.00
15,100.0	90.22	179.55	12,370.7	-2,578.0	339.8	2,591.9	0.00	0.00	0.00
15,200.0	90.22	179.55	12,370.3	-2,678.0	340.6	2,691.8	0.00	0.00	0.00
15,300.0	90.22	179.55	12,369.9	-2,778.0	341.4	2,791.7	0.00	0.00	0.00
15,400.0	90.22	179.55	12,369.5	-2,878.0	342.2	2,891.7	0.00	0.00	0.00
15,500.0	90.22	179.55	12,369.2	-2,978.0	343.0	2,991.6	0.00	0.00	0.00
15,600.0	90.22	179.55	12,368.8	-3,078.0	343.8	3,091.5	0.00	0.00	0.00
15,700.0	90.22	179.55	12,368.4	-3,178.0	344.6	3,191.4	0.00	0.00	0.00
15,800.0	90.22	179.55	12,368.0	-3,278.0	345.4	3,291.3	0.00	0.00	0.00
15,900.0	90.22	179.55	12,367.6	-3,378.0	346.2	3,391.2	0.00	0.00	0.00
16,000.0	90.22	179.55	12,367.3	-3,478.0	347.0	3,491.1	0.00	0.00	0.00
16,100.0	90.22	179.55	12,366.9	-3,578.0	347.7	3,591.0	0.00	0.00	0.00
16,200.0	90.22	179.55	12,366.5	-3,678.0	348.5	3,690.9	0.00	0.00	0.00
16,300.0	90.22	179.55	12,366.1	-3,778.0	349.3	3,790.8	0.00	0.00	0.00
16,400.0	90.22	179.55	12,365.7	-3,878.0	350.1	3,890.7	0.00	0.00	0.00
16,500.0	90.22	179.55	12,365.3	-3,978.0	350.9	3,990.6	0.00	0.00	0.00
16,600.0	90.22	179.55	12,365.0	-4,078.0	351.7	4,090.6	0.00	0.00	0.00
16,700.0	90.22	179.55	12,364.6	-4,178.0	352.5	4,190.5	0.00	0.00	0.00
16,800.0	90.22	179.55	12,364.2	-4,278.0	353.3	4,290.4	0.00	0.00	0.00
16,900.0	90.22	179.55	12,363.8	-4,378.0	354.1	4,390.3	0.00	0.00	0.00
17,000.0	90.22	179.55	12,363.4	-4,478.0	354.9	4,490.2	0.00	0.00	0.00
17,100.0	90.22	179.55	12,363.1	-4,578.0	355.7	4,590.1	0.00	0.00	0.00
17,200.0	90.22	179.55	12,362.7	-4,678.0	356.5	4,690.0	0.00	0.00	0.00
17,300.0	90.22	179.55	12,362.3	-4,778.0	357.3	4,789.9	0.00	0.00	0.00
17,400.0	90.22	179.55	12,361.9	-4,877.9	358.1	4,889.8	0.00	0.00	0.00
17,500.0	90.22	179.55	12,361.5	-4,977.9	358.9	4,989.7	0.00	0.00	0.00
17,600.0	90.22	179.55	12,361.2	-5,077.9	359.7	5,089.6	0.00	0.00	0.00
17,700.0	90.22	179.55	12,360.8	-5,177.9	360.4	5,189.5	0.00	0.00	0.00
17,800.0	90.22	179.55	12,360.4	-5,277.9	361.2	5,289.5	0.00	0.00	0.00
17,900.0	90.22	179.55	12,360.0	-5,377.9	362.0	5,389.4	0.00	0.00	0.00
18,000.0	90.22	179.55	12,359.6	-5,477.9	362.8	5,489.3	0.00	0.00	0.00
18,100.0	90.22	179.55	12,359.2	-5,577.9	363.6	5,589.2	0.00	0.00	0.00

Concho Resources LLC

Survey Report

Company:	DELAWARE BASIN WEST	**Local Co-ordinate Reference:**	Well COLUMBUS FEDERAL COM #703H
Project:	LEA COUNTY, NM (NM - E)	**TVD Reference:**	KB=26' @ 3350.0usft (MCVAY 8)
Site:	COLUMBUS FEDERAL COM PROJECT	**MD Reference:**	KB=26' @ 3350.0usft (MCVAY 8)
Well:	COLUMBUS FEDERAL COM #703H	**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)
18,200.0	90.22	179.55	12,358.9	-5,677.9	364.4	5,689.1	0.00	0.00	0.00
18,300.0	90.22	179.55	12,358.5	-5,777.9	365.2	5,789.0	0.00	0.00	0.00
18,400.0	90.22	179.55	12,358.1	-5,877.9	366.0	5,888.9	0.00	0.00	0.00
18,500.0	90.22	179.55	12,357.7	-5,977.9	366.8	5,988.8	0.00	0.00	0.00
18,600.0	90.22	179.55	12,357.3	-6,077.9	367.6	6,088.7	0.00	0.00	0.00
18,700.0	90.22	179.55	12,357.0	-6,177.9	368.4	6,188.6	0.00	0.00	0.00
18,800.0	90.22	179.55	12,356.6	-6,277.9	369.2	6,288.5	0.00	0.00	0.00
18,900.0	90.22	179.55	12,356.2	-6,377.9	370.0	6,388.4	0.00	0.00	0.00
19,000.0	90.22	179.55	12,355.8	-6,477.9	370.8	6,488.3	0.00	0.00	0.00
19,100.0	90.22	179.55	12,355.4	-6,577.9	371.6	6,588.3	0.00	0.00	0.00
19,200.0	90.22	179.55	12,355.0	-6,677.9	372.4	6,688.2	0.00	0.00	0.00
19,300.0	90.22	179.55	12,354.7	-6,777.9	373.2	6,788.1	0.00	0.00	0.00
19,400.0	90.22	179.55	12,354.3	-6,877.9	373.9	6,888.0	0.00	0.00	0.00
19,500.0	90.22	179.55	12,353.9	-6,977.9	374.7	6,987.9	0.00	0.00	0.00
19,600.0	90.22	179.55	12,353.5	-7,077.9	375.5	7,087.8	0.00	0.00	0.00
19,700.0	90.22	179.55	12,353.1	-7,177.9	376.3	7,187.7	0.00	0.00	0.00
19,800.0	90.22	179.55	12,352.8	-7,277.9	377.1	7,287.6	0.00	0.00	0.00
19,900.0	90.22	179.55	12,352.4	-7,377.9	377.9	7,387.5	0.00	0.00	0.00
19,999.1	90.22	179.55	12,352.0	-7,476.9	378.7	7,486.5	0.00	0.00	0.00
TD at 19999.1									

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 - plan hits target center - Rectangle (sides W100.0 H7,768.8 D20.0)	0.22	359.55	12,352.0	-7,476.9	378.7	388,315.90	738,007.10	32° 3' 55.410 N	103° 33' 55.760 W
LTP (COLUMBUS FE - plan misses target center by 49.1usft at 19900.0usft MD (12352.4 TVD, -7377.9 N, 377.9 E) - Point	0.00	0.00	12,352.0	-7,426.9	378.3	388,365.90	738,006.70	32° 3' 55.905 N	103° 33' 55.761 W
FTP (COLUMBUS FE - plan misses target center by 171.3usft at 12301.0usft MD (12245.6 TVD, 185.6 N, 311.5 E) - Circle (radius 50.0)	0.00	0.00	12,380.0	291.6	317.5	396,084.40	737,945.90	32° 5' 12.289 N	103° 33' 55.833 W

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates +N/-S (usft)	Local Coordinates +E/-W (usft)	Comment
5500	5500	0	0	Start Build 2.00
5701	5701	5	5	Start 6192.6 hold at 5701.1 MD
11,894	11,878	330	293	Start DLS 12.00 TFO 137.86
12,670	12,380	-148	321	Start 7328.8 hold at 12670.3 MD
19,999	12,352	-7477	379	TD at 19999.1

Company:	DELAWARE BASIN WEST	**Local Co-ordinate Reference:**	Well COLUMBUS FEDERAL COM #703H
Project:	LEA COUNTY, NM (NM - E)	**TVD Reference:**	KB=26' @ 3350.0usft (MCVAY 8)
Site:	COLUMBUS FEDERAL COM PROJECT	**MD Reference:**	KB=26' @ 3350.0usft (MCVAY 8)
Well:	COLUMBUS FEDERAL COM #703H	**North Reference:**	Grid
Wellbore:	OWB	**Survey Calculation Method:**	Minimum Curvature
Design:	PWP1	**Database:**	edm

Checked By: _____ Approved By: _____ Date: _____

CONCHO

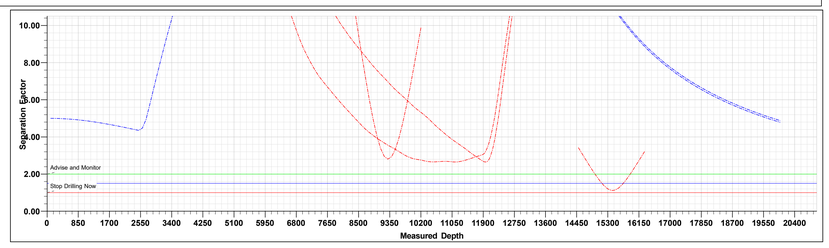
Project:	LEA COUNTY, NM (NM - E)
Site:	COLUMBUS FEDERAL COM PROJECT
Well:	COLUMBUS FEDERAL COM #703H
Wellbore:	OWB
Design:	PWP1
GL:	3324.0
KB=26' @ 3350.0usft (MCVAY 8)	

WELL DETAILS: COLUMBUS FEDERAL COM #703H

+N/-S	+E/-W	Northing	Easting	Latittude	Longitude
0.0	0.0	395792.80	737628.40	32° 5' 9.426 N	103° 33' 59.548 W

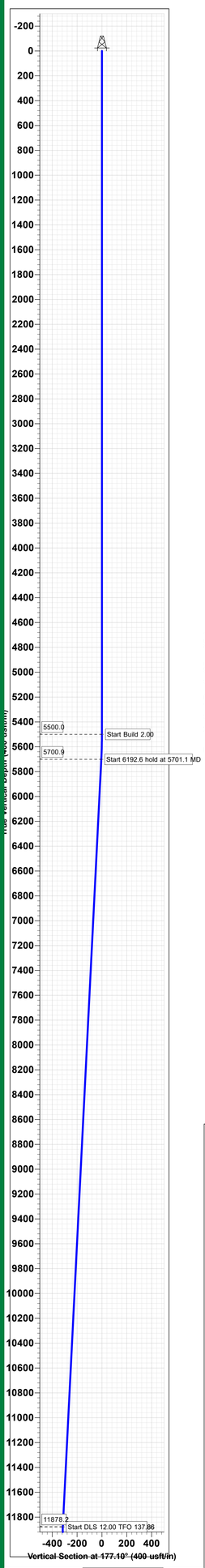
DESIGN TARGET DETAILS

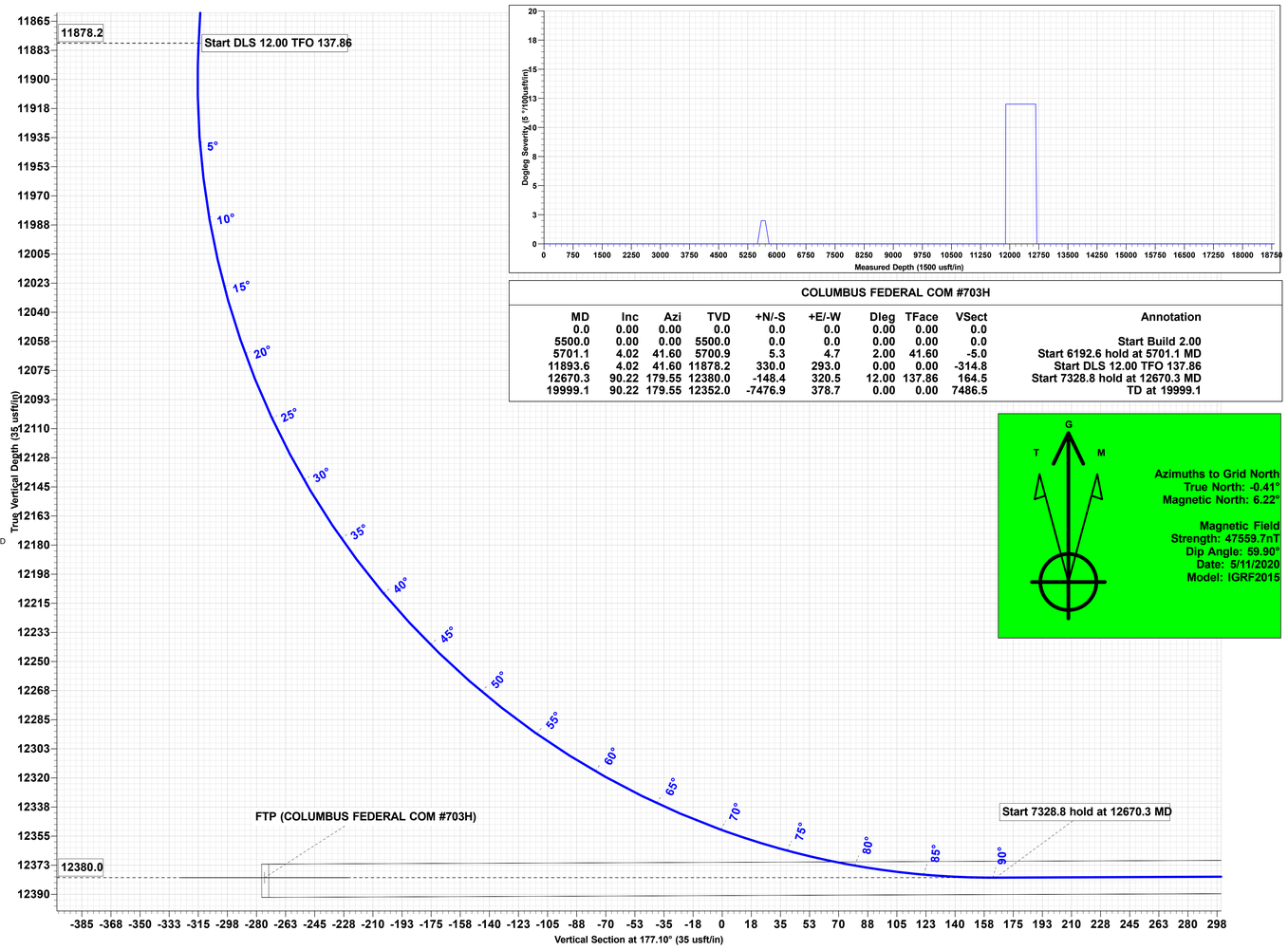
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
LTP (COLUMBUS FEDERAL COM #703H)	12352.0	-7426.9	378.3	388365.90	738006.70	32° 3' 55.905 N	103° 33' 55.761 W
PBHL (COLUMBUS FEDERAL COM #703H)	12352.0	-7476.9	378.7	388315.90	738007.10	32° 3' 55.410 N	103° 33' 55.760 W
FTP (COLUMBUS FEDERAL COM #703H)	12380.0	291.6	317.5	396084.40	737945.90	32° 5' 12.289 N	103° 33' 55.833 W

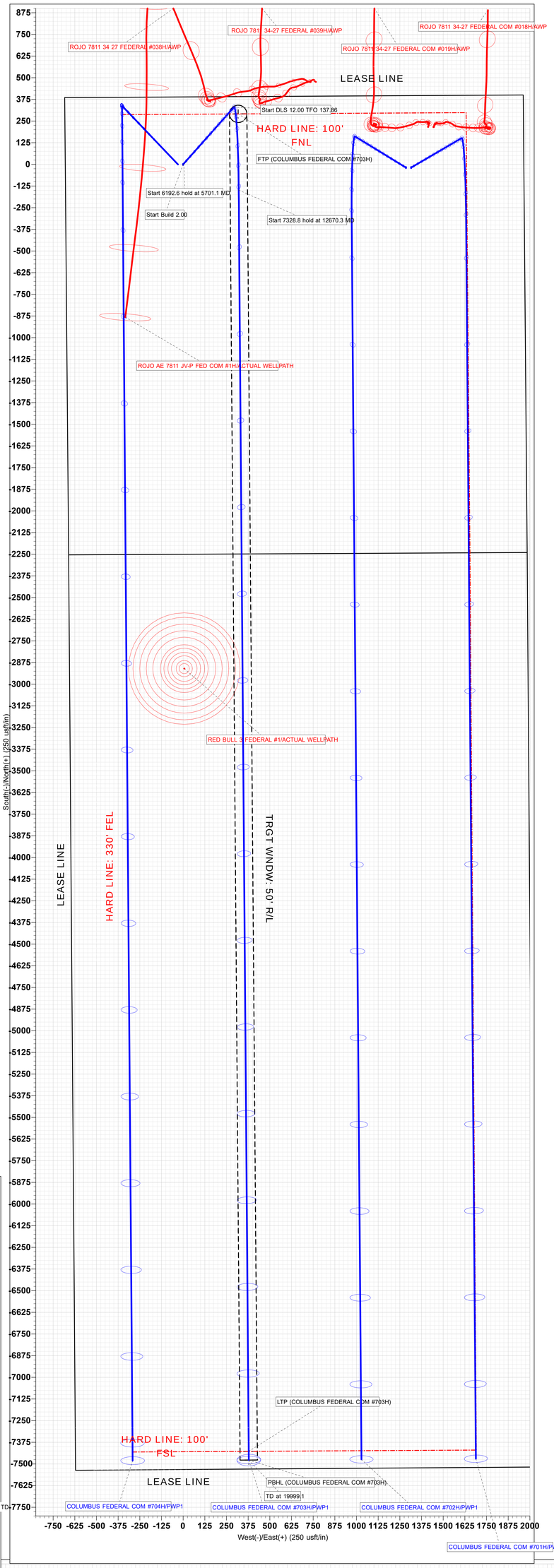


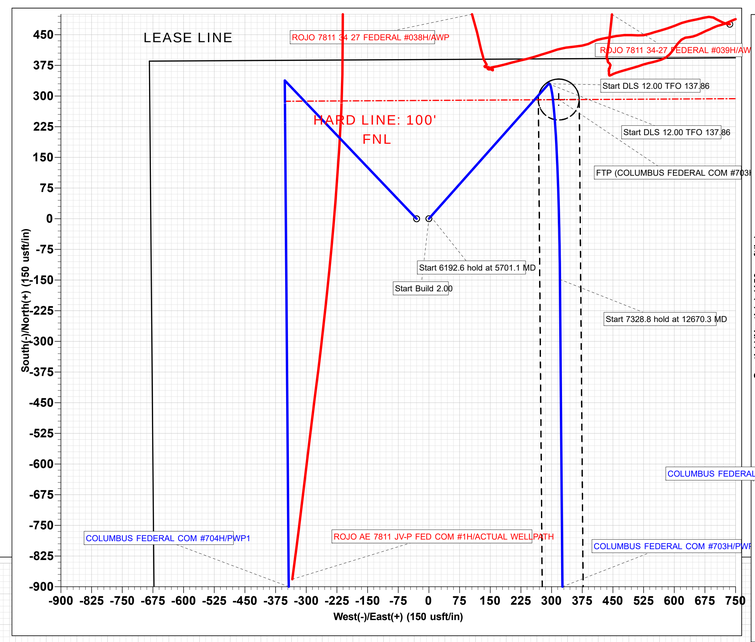
COLUMBUS FEDERAL COM #703H

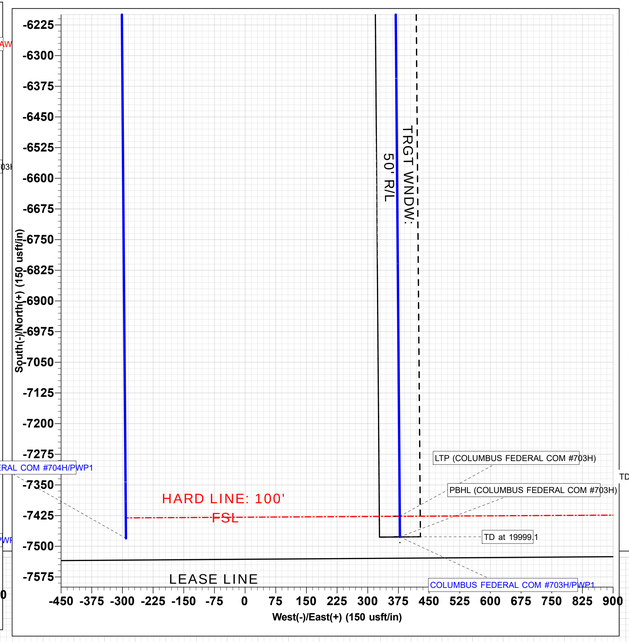
MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Annotation
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
5500.0	0.00	0.00	5500.0	0.0	0.0	0.00	0.00	0.0	Start Build 2.00
5701.1	4.02	41.60	5700.9	5.3	4.7	2.00	41.60	-5.0	Start 6192.6 hold at 5701.1 MD
11893.6	4.02	41.60	11878.2	330.0	293.0	0.00	0.00	-314.8	Start DLS 12.00 TFO 137.86
12670.3	90.22	179.55	12380.0	-148.4	320.5	12.00	137.86	164.5	Start 7328.8 hold at 12670.3 MD
19999.1	90.22	179.55	12352.0	-7476.9	378.7	0.00	0.00	7486.5	TD at 19999.1

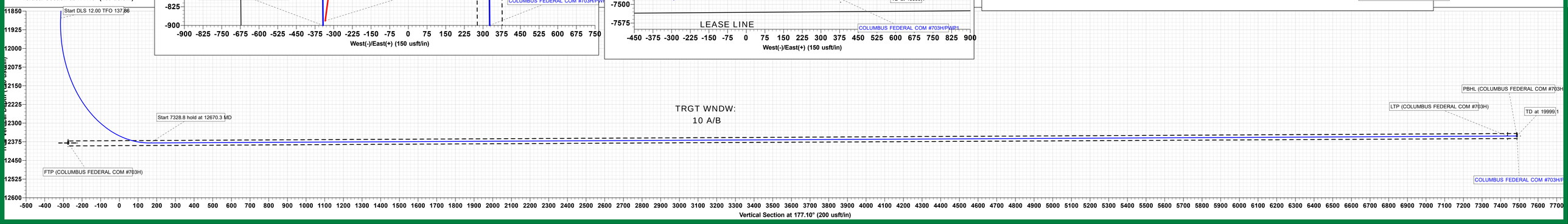












COG Operating, LLC - Columbus Federal Com 703H

1. Geologic Formations

TVD of target	12,380' EOL	Pilot hole depth	NA
MD at TD:	19,999'	Deepest expected fresh water:	185'

Formation	Depth (TVD) from KB	Water/Mineral Bearing/ Target Zone?	Hazards*
Quaternary Fill	Surface	Water	
Rustler	960	Water	
Top of Salt	1328	Salt	
Base of Salt	4745	Salt	
Lamar	4939	Salt Water	
Bell Canyon	4989	Salt Water	
Cherry Canyon	6007	Oil/Gas	
Brushy Canyon	7567	Oil/Gas	
Bone Spring Lime	9035	Oil/Gas	
1st Bone Spring Sand	10051	Oil/Gas	
2nd Bone Spring Sand	10615	Oil/Gas	
3rd Bone Spring Sand	11693	Oil/Gas	
Wolfcamp	12159	Target Oil/Gas	
Wolfcamp A Shale	12340	Not Penetrated	
Wolfcamp B	12651	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	1.80	1.86	3.27	3.25
6.75"	11600	19,999	5"	18	P110	BTC	1.80	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 703H

	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	8050 psi at 12380' 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

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

GAS CAPTURE PLAN

Date: **5/13/2020**

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

☐ Amended - Reason for Amendment:_____

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 703H	**30-025-**	**L-34-25S-33E**	**2250' FSL & 680' 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

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.	840	10.3	3.3	22	24	Halliburton tunded light
Stage 1	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)

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: 10400057141 **Submission Date:** 05/20/2020

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 703H

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_703H_Existing_Road_20200520080058.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_703H_Access_Rd._20200520080302.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:** 703H

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_703H_1_Mile_Data_20200520081741.pdf

COG_Columbus_703H_1_Mile_Map_20200520081749.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_703H_Flowline_Gasline_20200520081815.pdf

COG_Columbus_703H_Powerline_20200520081826.pdf

COG_Columbus_703H_CTB_20200520135747.pdf

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 703H

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:** 703H

Water source and transportation map:

COG_Columbus_703H_Brine_H2O_20200520081855.pdf

COG_Columbus_703H_Fresh_H2O_20200520081907.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:** 703H

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:** 703H

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_703H_Layout_20200520081933.pdf

Comments:

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 703H

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_703H_Reclamation_20200520081947.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:** 703H

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:** 703H

COG_Columbus_703H__Closed_Loop_20200520082000.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:** 703H

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

Other SUPO Attachment

COG_Columbus_703H_Access_Rd._20200520082047.pdf
COG_Columbus_703H_Flowline_Gasline_20200520082102.pdf
COG_Columbus_703H_Powerline_20200520082113.pdf
COG_Columbus_703H_Existing_Road_20200520082134.pdf
COG_Columbus_703H_CTB_20200520135820.pdf
COG_Columbus_703H_SUP_20200520212843.pdf

APD ID: 10400057141 **Submission Date:** 05/20/2020

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM **Well Number:** 703H

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:** 703H

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:** 703H

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:** 703H

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

11/03/2020

APD ID: 10400057141

Submission Date: 05/20/2020

Operator Name: COG OPERATING LLC

Well Name: COLUMBUS FEDERAL COM

Well Number: 703H

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

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

OCD – HOBBS
11/30/2020
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☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

API Number	Pool Code	Pool Name
30-025 30-025-48115	98094	BOBCAT DRAW;UPPER WOLFCAMP

Property Code	Property Name	Well Number
317530	COLUMBUS FEDERAL COM	703H

OGRID No.	Operator Name	Elevation
229137	COG OPERATING, LLC	3323.9'

Surface Location

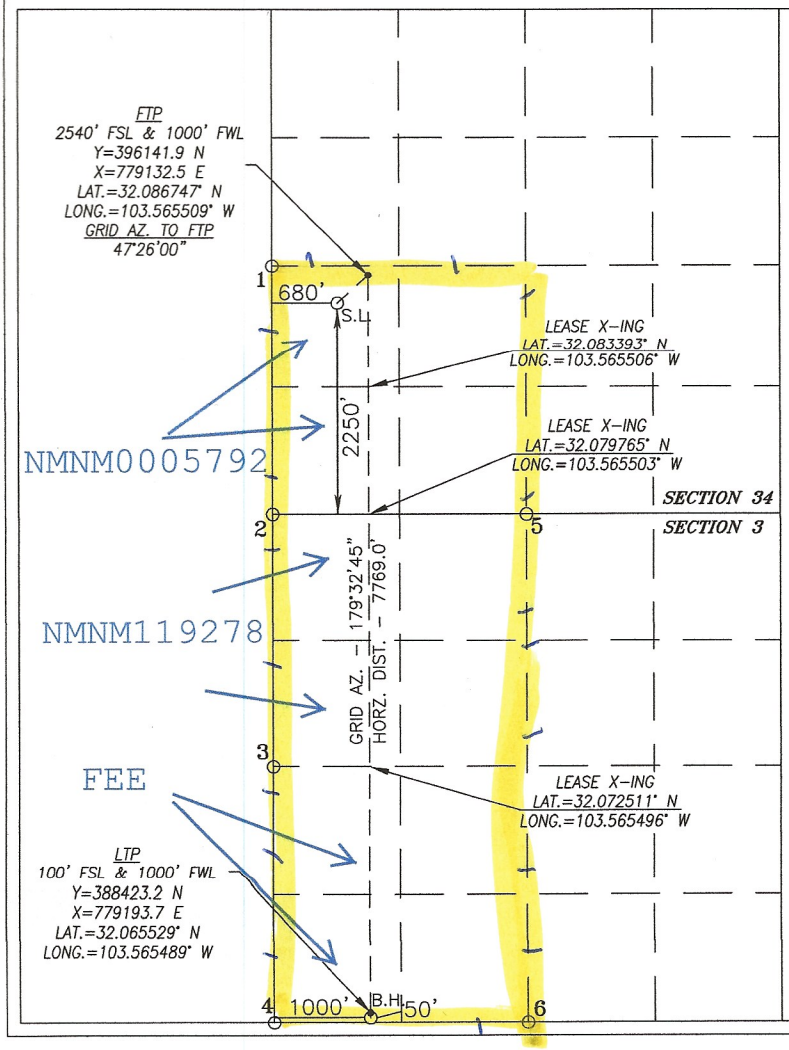
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
L	34	25-S	33-E		2250	SOUTH	680	WEST	LEA

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	1000	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=395850.3 N
X=778815.0 E
LAT.=32.085952° N
LONG.=103.566541° 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

NAD 83 NME
PROPOSED BOTTOM HOLE LOCATION
Y=388373.2 N
X=779194.1 E
LAT.=32.065392° N
LONG.=103.565489° 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. #20-654 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 703H	30-025-30-025-48115	L-34-25S-33E	2250' FSL & 680' 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