

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENTFORM APPROVED
OMB NO. 1004-0137
Expires: January 31, 2018**SUNDRY NOTICES AND REPORTS ON WELLS**
*Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.***SUBMIT IN TRIPLICATE - Other instructions on page 2**

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other		5. Lease Serial No. NMNM123532
2. Name of Operator COG OPERATING LLC		6. If Indian, Allottee or Tribe Name
3a. Address ONE CONCHO CENTER 600 W ILLINOIS AVENUE MIDLAND, TX 79701-4287		7. If Unit or CA/Agreement, Name and/or No.
3b. Phone No. (include area code) Ph: 575-748-6945		8. Well Name and No. BASEBALL CAP FEDERAL COM 707H
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 25 T24S R34E SWSW 340FSL 1000FWL 32.182133 N Lat, 103.429008 W Lon		9. API Well No. 30-025-45790-00-X1
		10. Field and Pool or Exploratory Area WILDCAT;WOLFCAMP
		11. County or Parish, State LEA COUNTY, NM

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

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

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

COG Operating LLC, respectfully requests approval for the following changes to the original APD.

BHL Change
From: 200' FNL & 760' FEL Section 24. T24S. R34E
To: 200' FNL & 450' FWL Section 24. T24S. R34E.

C102 attached.

Drilling changes attached.

New BHL well plan attached.

OCD Hobbs

All previous COAs shall apply. Expect changes to Casing & Cementing Program.

14. I hereby certify that the foregoing is true and correct.	
Electronic Submission #462263 verified by the BLM Well Information System For COG OPERATING LLC, sent to the Hobbs Committed to AFMSS for processing by ZOTA STEVENS on 04/24/2019 (19ZS0029SE)	
Name (Printed/Typed) MAYTE REYES	Title SENIOR REGULATORY ANALYST
Signature (Electronic Submission)	Date 04/22/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>ZOTA STEVENS</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>04/24/2019</u>
Conditions of approval, if any, are attached. Approval of this notice does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.		Office Hobbs

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.

(Instructions on page 2)

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

Additional data for EC transaction #462263 that would not fit on the form

32. Additional remarks, continued

Anti-collision report attached.

DISTRICT IV
1220 S. ST. FRANCIS DR., SANTA FE, NM 87505
Phone: (505) 478-3460 Fax: (505) 478-3463

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 30-025-45790	Pool Code 98116	Pool Name WC-025 G-09 S253402N; Wolfcamp
Property Code 319803	Property Name BASEBALL CAP FEDERAL COM	Well Number 707H
OGRID No. 229137	Operator Name COG OPERATING, LLC	Elevation 3423.0'

Surface Location

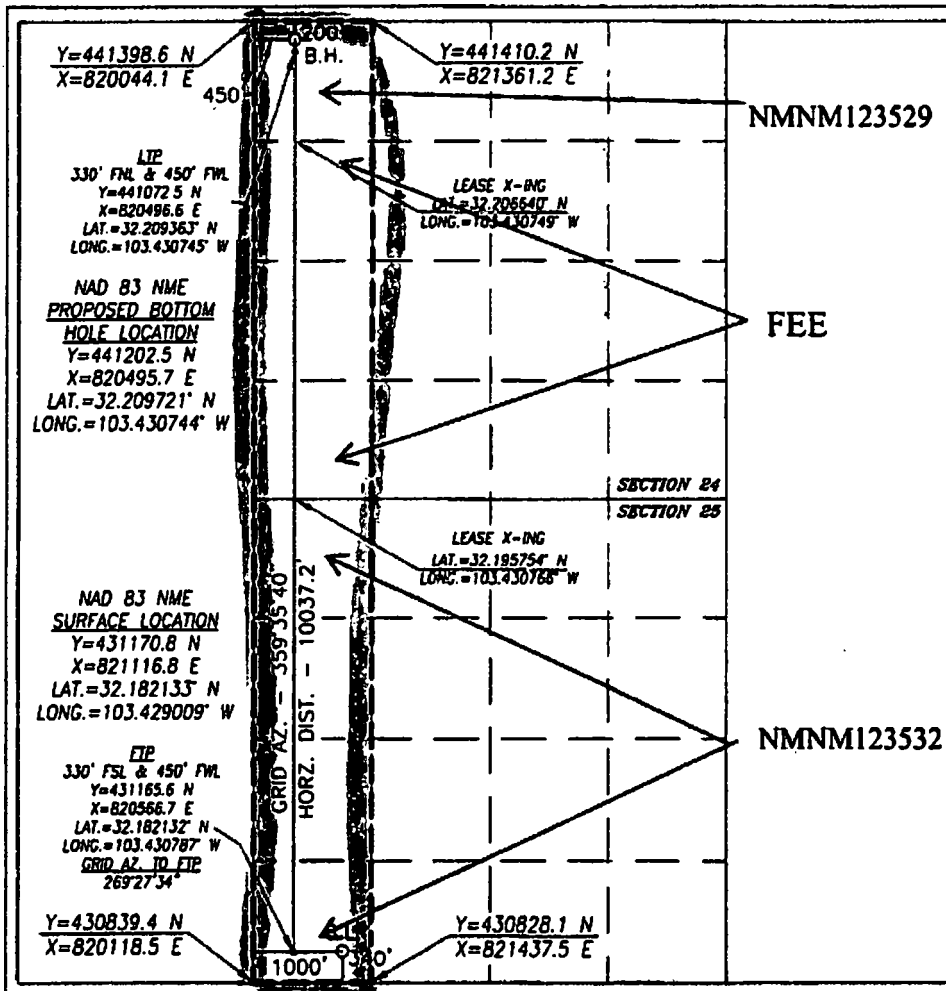
UL or lot No.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
M	25	24-S	34-E		340	SOUTH	1000	WEST	LEA

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
D	24	24-S	34-E		200	NORTH	450	WEST	LEA

Dedicated Acres	Joint or Infill	Consolidation Code	Order No.
320			

**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**



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.

Signature Mak Date 4-19

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.

MARCH 8, 2018

Date of Survey _____

Signature & Seal of Professional Surveyor



Chad HARCROW 3/28/19
Certificate No. CHAD HARCROW 1777
W.O. # 19-598 DRAWN BY: WN

Baseball Cap Federal Com 707H API 30-025-45790

The Operator respectfully requests the following changes to the originally approved APD.

New BHL (well plan attached)

Surface:

Drill 14.75" hole to 1,305'

Set 10.75" 45.5# L80 BTC casing @ 1,305'

Cement in one stage to surface:

Lead: 550 sx of Class C + 6% gel (13.5 ppg / 1.75 cuft/ sx)

Tail: 200 sx of Class C + 1% CaCl₂ (14.8 ppg/ 1.35 cuft/sx)

The Operator respectfully requests to preset the surface casing on the subject well.

Description of operations

1. Spudder rig will move in to drill the surface hole and pre-set surface casing on the well.
 - a. After drilling the surface hole section, the spudder rig will run casing and cement following all of the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations)
 - b. The spudder rig will utilize fresh water-based mud to drill the surface hole to TD. Solids control will be handled entirely on a closed loop basis. No earth pits will be used.
2. The wellhead will be installed and tested as soon as the surface casing is cut off and the WOC time has been reached.
3. A blind flange at the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on the wing valve.
4. Spudder rig operations are expected to take 2-3 days per well on the pad.
5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
6. Drilling operations will begin with a larger rig and a BOP stack equal to or greater than the pressure rating that was permitted will be nipped up and tested on the wellhead before drilling operations resume on each well.
 - a. The larger rig will move back onto the location with 90 days from the point at which the wells are secured and spudder rig is moved off location.
 - b. The BLM will be contacted / notified 24 hours before the larger rig moves back on the pre-set locations
7. Operator will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
8. Once the rig is removed, Operator will secure the wellhead area by placing a 1 inch steel plate over the cellar and wellhead.

Intermediate

5M BOP System

Drill 9.875" hole to 12,105'

Set 7.625" 29.7# HCL-80 BTC @ 12,105'

Cement in two stages to surface with DV tool and ECP @ 5,525'

First Stage:

Lead: 700 sx of Halliburton NeoCem (11.0 ppg / 2.81 cuft/ sx)

Tail: 300 sx of Class H (16.4 ppg/ 1.10 cuft/sx)

Second Stage:

Lead: 900 sx of Halliburton NeoCem (11.0 ppg / 2.81 cuft/ sx)

Tail: 150 sx of Class C + 2% CaCl₂ (14.8 ppg/ 1.35 cuft/sx)

Production

10M BOP System (5M Annular variance approved with original APD)

Drill 6.75" hole to 23,035'

Set 5.5" 23# P110 BTC from 0' to 11,605' (500' inside intermediate casing)

Set 5.5" 23# P110 HC TMK UP SF Torq (spec sheet attached) from 11,605' to 23,035'

Cement in one stage to surface

Lead: 550 sx of 35:36:6 Class C (12.7 ppg / 1.98 cuft/ sx)

Tail: 2700 sx of 50:50:2 Class H Blend (14.4 ppg / 1.25 cuft/sx)

RKB @ 3453.00usf (Scandill Quest)

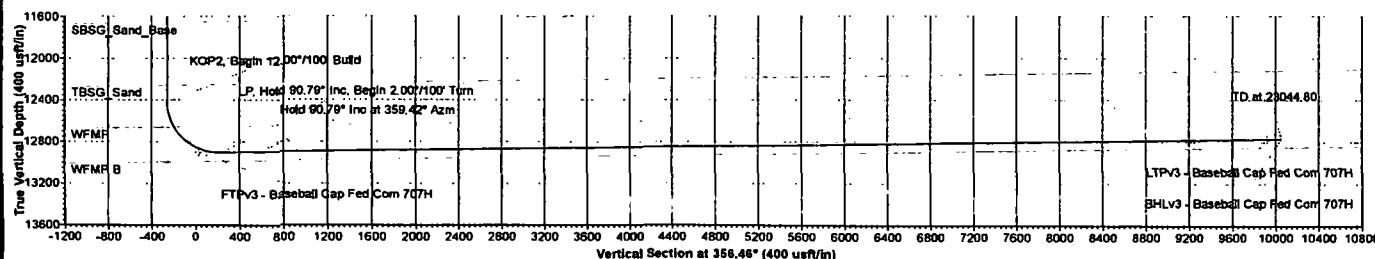
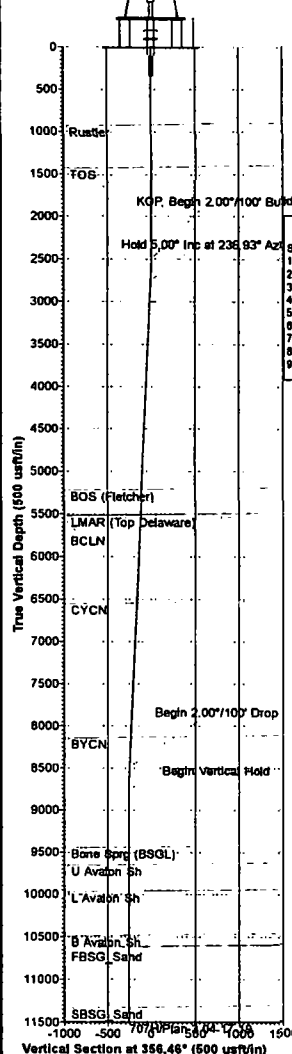
Ground Level 3423.00



Project: Lea County, NM (NAD27 NME)
Site: Baseball Cap Federal Com
Well: 707H
Wellbore: OH
Design: Plan 3 04-17-19
Rig: Scandill Quest



Azimuths to Grid North
True North: -0.48°
Magnetic North: 6.15°
Magnetic Field
Strength: 47788.9nT
Dip Angle: 59.82°
Date: 03/12/2019
Model: MVHD



WELL DETAILS					
	N-S	E-W	North	East	Latitude
	0.00	0.00	431112.20	779931.20	32° 10' 55.2292 N
					103° 25' 42.7387 W

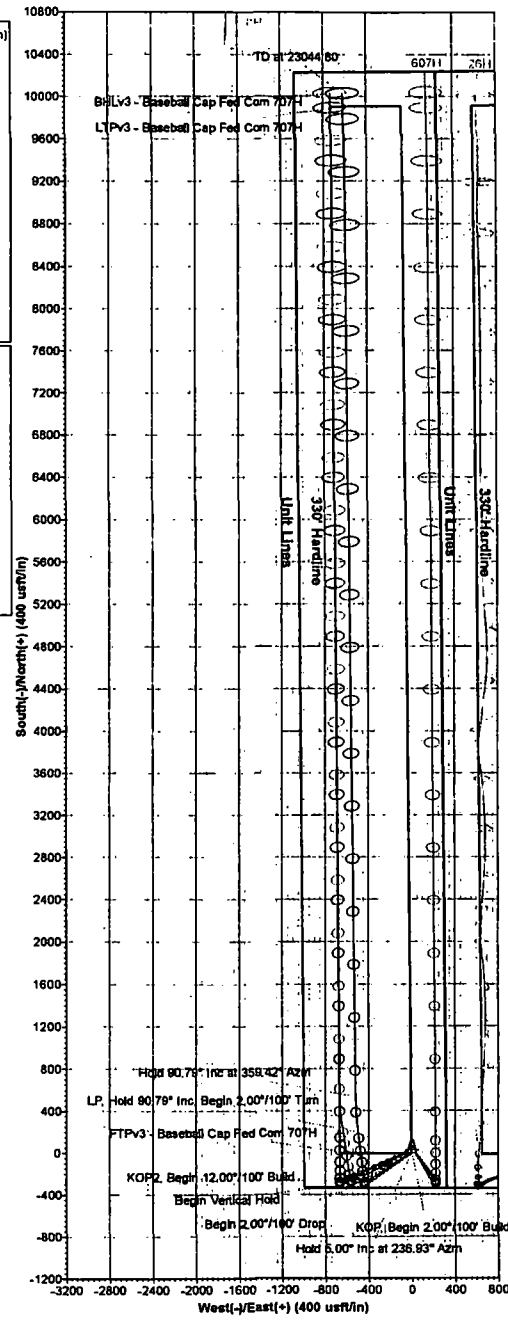
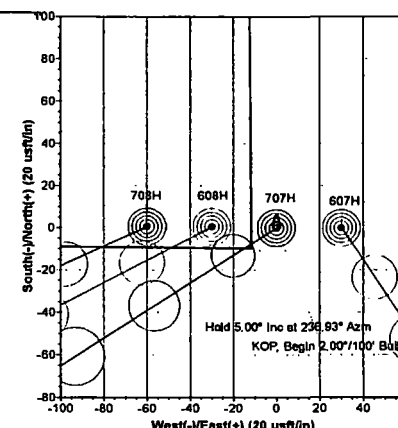
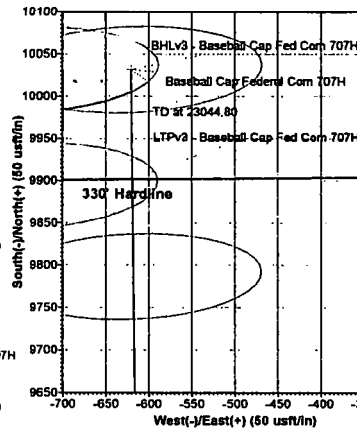
DESIGN TARGET DETAILS					
Name	TVD	N-S	E-W	North	East
BHLV3 - Baseball Cap Fed Com 707H	12789.00	10031.50	-820.50	441143.70	779310.70
LTPV3 - Baseball Cap Fed Com 707H	12770.00	8901.50	-818.00	441013.70	779311.60
FTPV3 - Baseball Cap Fed Com 707H	12904.00	-5.20	-559.00	431107.00	779331.20

SECTION DETAILS										
Sec	MD	Inc	Ati	TVD	N-S	E-W	Deg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	2500.00	0.00	0.00	2500.00	0.00	0.00	0.00	0.00	0.00	0.00
3	2749.77	5.00	238.93	2749.45	-5.94	-8.12	2.00	238.93	-5.38	0.00
4	8502.71	5.00	238.93	8480.55	-279.28	-428.91	0.00	0.00	-252.27	0.00
5	8752.48	0.00	0.00	8730.00	-285.22	-438.03	2.00	180.00	-257.83	0.00
6	12449.06	0.00	0.00	12428.58	-285.22	-438.03	0.00	0.00	-257.83	0.00
7	13205.65	90.79	352.60	12904.00	194.79	-500.37	12.00	352.60	225.31	0.00
8	13548.53	90.79	359.42	12899.31	534.62	-524.08	2.00	89.89	585.85	0.00
9	23044.80	90.79	359.42	12789.00	10031.50	-820.50	0.00	0.00	10050.67	0.00

LEGEND
24H, OH / 63008, Surveys (Scandill Quest) V0
24H, ST01 / 63008, Surveys (Scandill Quest) V0
708H, OH, Plan 2 10-19-18 V0
Well #5, Wellbore #1, Wellbore #1 V0
8H, ST01 / Job 1412203, Surveys (Ensign 153) V0
8H, OH / Job 1412203, Surveys (Ensign 153) V0
608H, OH, Plan 2 10-19-18 V0
607H, OH, Plan 2 10-19-18 V0
26H, OH, Surveys V0
Plan 3 04-17-19

Map System: US State Plane 1927 (Exact solution)
Datum: NAD 1927 (NADCON CONUS)
Ellipsoid: Clarke 1866
Zone Name: New Mexico East 3001
Local Origin: Well 707H, Grid North
Latitude: 32° 10' 55.2292 N
Longitude: 103° 25' 42.7387 W
Grid East: 779931.20
Grid North: 431112.20
Scale Factor: 1.000
Geomagnetic Model: MVHD
Sample Date: 31-May-19
Magnetic Declination: 6.63°
Dip Angle from Horizontal: 59.82°
Magnetic Field Strength: 47788.8949472nT
To convert a Magnetic Direction to a Grid Direction, Add 6.15°
To convert a Magnetic Direction to a True Direction, Add 6.63° East
To convert a True Direction to a Grid Direction, Subtract 0.48°

FORMATION TOP DETAILS				
TVDPath	MDPath	Formation	DipAngle	DipDir
820.00	820.00	Rusler	-0.79	358.23
1417.00	1417.00	TOS	-0.79	358.23
5218.82	5228.35	BOS (Fletcher)	-0.79	358.23
5513.81	5524.87	LMAR (Top Delaware)	-0.79	358.23
5549.83	5580.83	BCLN	-0.79	358.23
6547.48	6582.25	CYCN	-0.79	358.23
8134.45	8155.30	BYCN	-0.79	358.23
9438.74	9450.23	Bone Sprg (BSGL)	-0.79	358.23
9844.74	9887.23	U Avaton Sh	-0.79	358.23
9862.74	9885.23	L Avaton Sh	-0.79	358.23
10480.74	10503.23	B Avaton Sh	-0.79	358.23
10615.74	10638.23	FBSG Sand	-0.79	358.23
11327.74	11350.23	SBSG Sand	-0.79	358.23
11858.74	11881.23	SBSG Sand Base	-0.79	358.23
12257.74	12280.23	TBSG Sand	-0.79	358.23
12680.90	12693.99	WFMP	-0.79	358.23





PHOENIX
TECHNOLOGY SERVICES

COG Operating LLC

**Lea County, NM (NAD27 NME)
Baseball Cap Federal Com
707H**

OH

Plan: Plan 3 04-17-19

Standard Planning Report

17 April, 2019



Database: USA Compass
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Baseball Cap Federal Com
Well: 707H
Wellbore: OH
Design: Plan 3 04-17-19

Local Co-ordinate Reference: Well 707H
TVD Reference: RKB @ 3453.00usft (Scandril Quest)
MD Reference: RKB @ 3453.00usft (Scandril Quest)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Project	Lea County, NM (NAD27 NME)		
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		

Site Baseball Cap Federal Com

Site Position:	Northing:	431,112.90 usft	Latitude:	32° 10' 55.0443 N
From: Map	Easting:	782,226.20 usft	Longitude:	103° 25' 16.0370 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.49 °

Well 707H

Well Position	+N/-S	-0.70 usft	Northing:	431,112.20 usft	Latitude:	32° 10' 55.2292 N
	+E/-W	-2,295.00 usft	Easting:	779,931.20 usft	Longitude:	103° 25' 42.7387 W
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level:	3,423.00 usft	

Wellbore OH

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	5/31/2019	6.63	59.82	47,798.89494726

Design Plan 3 04-17-19

Audit Notes:

Version: Phase: PLAN Tie On Depth: 0.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	356.46

Plan Sections

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,749.77	5.00	236.93	2,749.45	-5.94	-9.12	2.00	2.00	0.00	236.93	
8,502.71	5.00	236.93	8,480.55	-279.28	-428.91	0.00	0.00	0.00	0.00	
8,752.48	0.00	0.00	8,730.00	-285.22	-438.03	2.00	-2.00	0.00	180.00	
12,449.06	0.00	0.00	12,426.58	-285.22	-438.03	0.00	0.00	0.00	0.00	
13,205.65	90.79	352.60	12,904.00	194.79	-500.37	12.00	12.00	0.00	352.60	
13,546.53	90.79	359.42	12,899.31	534.62	-524.08	2.00	0.00	2.00	89.99	
23,044.80	90.79	359.42	12,769.00	10,031.50	-620.50	0.00	0.00	0.00	0.00	BHLv3 - Baseball C



Planning Report



Database: USA Compass
 Company: COG Operating LLC
 Project: Lea County, NM (NAD27 NME)
 Site: Baseball Cap Federal Com
 Well: 707H
 Wellbore: OH
 Design: Plan 3 04-17-19

Local Co-ordinate Reference: Well 707H
 TVD Reference: RKB @ 3453.00usft (Scandril Quest)
 MD Reference: RKB @ 3453.00usft (Scandril Quest)
 North Reference: Grid
 Survey Calculation Method: Minimum Curvature

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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
920.00	0.00	0.00	920.00	0.00	0.00	0.00	0.00	0.00	0.00
Rustler									
1,417.00	0.00	0.00	1,417.00	0.00	0.00	0.00	0.00	0.00	0.00
TOS									
2,500.00	0.00	0.00	2,500.00	0.00	0.00	0.00	0.00	0.00	0.00
KOP, Begin 2.00°/100° Build									
2,600.00	2.00	236.93	2,599.98	-0.95	-1.46	-0.86	2.00	2.00	0.00
2,700.00	4.00	236.93	2,699.84	-3.81	-5.85	-3.44	2.00	2.00	0.00
2,749.77	5.00	236.93	2,749.45	-5.94	-9.12	-5.36	2.00	2.00	0.00
Hold 5.00° Inc at 236.93° Azm									
2,800.00	5.00	236.93	2,799.49	-8.32	-12.78	-7.52	0.00	0.00	0.00
2,900.00	5.00	236.93	2,899.11	-13.08	-20.08	-11.81	0.00	0.00	0.00
3,000.00	5.00	236.93	2,998.73	-17.83	-27.38	-16.10	0.00	0.00	0.00
3,100.00	5.00	236.93	3,098.35	-22.58	-34.67	-20.39	0.00	0.00	0.00
3,200.00	5.00	236.93	3,197.97	-27.33	-41.97	-24.69	0.00	0.00	0.00
3,300.00	5.00	236.93	3,297.59	-32.08	-49.27	-28.98	0.00	0.00	0.00
3,400.00	5.00	236.93	3,397.21	-36.83	-56.57	-33.27	0.00	0.00	0.00
3,500.00	5.00	236.93	3,496.83	-41.58	-63.86	-37.56	0.00	0.00	0.00
3,600.00	5.00	236.93	3,596.45	-46.34	-71.16	-41.85	0.00	0.00	0.00
3,700.00	5.00	236.93	3,696.07	-51.09	-78.46	-46.15	0.00	0.00	0.00
3,800.00	5.00	236.93	3,795.69	-55.84	-85.75	-50.44	0.00	0.00	0.00
3,900.00	5.00	236.93	3,895.31	-60.59	-93.05	-54.73	0.00	0.00	0.00
4,000.00	5.00	236.93	3,994.93	-65.34	-100.35	-59.02	0.00	0.00	0.00
4,100.00	5.00	236.93	4,094.56	-70.09	-107.65	-63.31	0.00	0.00	0.00
4,200.00	5.00	236.93	4,194.18	-74.84	-114.94	-67.61	0.00	0.00	0.00
4,300.00	5.00	236.93	4,293.80	-79.60	-122.24	-71.90	0.00	0.00	0.00
4,400.00	5.00	236.93	4,393.42	-84.35	-129.54	-76.19	0.00	0.00	0.00
4,500.00	5.00	236.93	4,493.04	-89.10	-136.83	-80.48	0.00	0.00	0.00
4,600.00	5.00	236.93	4,592.66	-93.85	-144.13	-84.77	0.00	0.00	0.00
4,700.00	5.00	236.93	4,692.28	-98.60	-151.43	-89.06	0.00	0.00	0.00
4,800.00	5.00	236.93	4,791.90	-103.35	-158.72	-93.36	0.00	0.00	0.00
4,900.00	5.00	236.93	4,891.52	-108.10	-166.02	-97.65	0.00	0.00	0.00
5,000.00	5.00	236.93	4,991.14	-112.86	-173.32	-101.94	0.00	0.00	0.00
5,100.00	5.00	236.93	5,090.76	-117.61	-180.62	-106.23	0.00	0.00	0.00
5,200.00	5.00	236.93	5,190.38	-122.36	-187.91	-110.52	0.00	0.00	0.00
5,226.35	5.00	236.93	5,216.62	-123.61	-189.83	-111.65	0.00	0.00	0.00
BOS (Fletcher)									
5,300.00	5.00	236.93	5,290.00	-127.11	-195.21	-114.82	0.00	0.00	0.00
5,400.00	5.00	236.93	5,389.62	-131.86	-202.51	-119.11	0.00	0.00	0.00
5,500.00	5.00	236.93	5,489.24	-136.61	-209.80	-123.40	0.00	0.00	0.00
5,524.67	5.00	236.93	5,513.81	-137.78	-211.60	-124.46	0.00	0.00	0.00
LMAR (Top Delaware)									
5,560.83	5.00	236.93	5,549.83	-139.50	-214.24	-126.01	0.00	0.00	0.00
BCLN									
5,600.00	5.00	236.93	5,588.86	-141.36	-217.10	-127.69	0.00	0.00	0.00
5,700.00	5.00	236.93	5,688.48	-146.12	-224.40	-131.98	0.00	0.00	0.00
5,800.00	5.00	236.93	5,788.10	-150.87	-231.69	-136.27	0.00	0.00	0.00
5,900.00	5.00	236.93	5,887.72	-155.62	-238.99	-140.57	0.00	0.00	0.00
6,000.00	5.00	236.93	5,987.34	-160.37	-246.29	-144.86	0.00	0.00	0.00
6,100.00	5.00	236.93	6,086.96	-165.12	-253.59	-149.15	0.00	0.00	0.00
6,200.00	5.00	236.93	6,186.58	-169.87	-260.88	-153.44	0.00	0.00	0.00
6,300.00	5.00	236.93	6,286.20	-174.62	-268.18	-157.73	0.00	0.00	0.00



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North Reference: Grid
Survey Calculation Method: Minimum Curvature

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)
6,400.00	5.00	236.93	6,385.82	-179.38	-275.48	-162.03	0.00	0.00	0.00
6,500.00	5.00	236.93	6,485.44	-184.13	-282.77	-166.32	0.00	0.00	0.00
6,562.25	5.00	236.93	6,547.46	-187.08	-287.32	-168.99	0.00	0.00	0.00
CYCN									
6,600.00	5.00	236.93	6,585.06	-188.88	-290.07	-170.61	0.00	0.00	0.00
6,700.00	5.00	236.93	6,684.68	-193.63	-297.37	-174.90	0.00	0.00	0.00
6,800.00	5.00	236.93	6,784.30	-198.38	-304.66	-179.19	0.00	0.00	0.00
6,900.00	5.00	236.93	6,883.92	-203.13	-311.96	-183.49	0.00	0.00	0.00
7,000.00	5.00	236.93	6,983.54	-207.88	-319.26	-187.78	0.00	0.00	0.00
7,100.00	5.00	236.93	7,083.16	-212.64	-326.56	-192.07	0.00	0.00	0.00
7,200.00	5.00	236.93	7,182.78	-217.39	-333.85	-196.36	0.00	0.00	0.00
7,300.00	5.00	236.93	7,282.40	-222.14	-341.15	-200.65	0.00	0.00	0.00
7,400.00	5.00	236.93	7,382.02	-226.89	-348.45	-204.94	0.00	0.00	0.00
7,500.00	5.00	236.93	7,481.64	-231.64	-355.74	-209.24	0.00	0.00	0.00
7,600.00	5.00	236.93	7,581.26	-236.39	-363.04	-213.53	0.00	0.00	0.00
7,700.00	5.00	236.93	7,680.88	-241.14	-370.34	-217.82	0.00	0.00	0.00
7,800.00	5.00	236.93	7,780.50	-245.90	-377.63	-222.11	0.00	0.00	0.00
7,900.00	5.00	236.93	7,880.12	-250.65	-384.93	-226.40	0.00	0.00	0.00
8,000.00	5.00	236.93	7,979.74	-255.40	-392.23	-230.70	0.00	0.00	0.00
8,100.00	5.00	236.93	8,079.36	-260.15	-399.53	-234.99	0.00	0.00	0.00
8,155.30	5.00	236.93	8,134.45	-262.78	-403.56	-237.36	0.00	0.00	0.00
BYCN									
8,200.00	5.00	236.93	8,178.98	-264.90	-406.82	-239.28	0.00	0.00	0.00
8,300.00	5.00	236.93	8,278.60	-269.65	-414.12	-243.57	0.00	0.00	0.00
8,400.00	5.00	236.93	8,378.22	-274.40	-421.42	-247.86	0.00	0.00	0.00
8,500.00	5.00	236.93	8,477.84	-279.15	-428.71	-252.15	0.00	0.00	0.00
8,502.71	5.00	236.93	8,480.55	-279.28	-428.91	-252.27	0.00	0.00	0.00
Begin 2.00°/100' Drop									
8,600.00	3.05	236.93	8,577.59	-283.01	-434.63	-255.63	2.00	-2.00	0.00
8,700.00	1.05	236.93	8,677.52	-284.96	-437.63	-257.40	2.00	-2.00	0.00
8,752.48	0.00	0.00	8,730.00	-285.22	-438.03	-257.63	2.00	-2.00	0.00
Begin Vertical Hold									
9,459.23	0.00	0.00	9,436.74	-285.22	-438.03	-257.63	0.00	0.00	0.00
Bone Sprg (BSGL)									
9,667.23	0.00	0.00	9,644.74	-285.22	-438.03	-257.63	0.00	0.00	0.00
U Avalon Sh									
9,985.23	0.00	0.00	9,962.74	-285.22	-438.03	-257.63	0.00	0.00	0.00
L Avalon Sh									
10,503.23	0.00	0.00	10,480.74	-285.22	-438.03	-257.63	0.00	0.00	0.00
B Avalon Sh									
10,638.23	0.00	0.00	10,615.74	-285.22	-438.03	-257.63	0.00	0.00	0.00
FBSG_Sand									
11,350.23	0.00	0.00	11,327.74	-285.22	-438.03	-257.63	0.00	0.00	0.00
SBSG_Sand									
11,681.23	0.00	0.00	11,658.74	-285.22	-438.03	-257.63	0.00	0.00	0.00
SBSG_Sand_Base									
12,280.23	0.00	0.00	12,257.74	-285.22	-438.03	-257.63	0.00	0.00	0.00
TBSG_Sand									
12,449.06	0.00	0.00	12,426.58	-285.22	-438.03	-257.63	0.00	0.00	0.00
KOP2, Begin 12.00°/100' Build									
12,500.00	6.11	352.60	12,477.42	-282.53	-438.38	-254.93	12.00	12.00	0.00
12,600.00	18.11	352.60	12,575.01	-261.76	-441.08	-234.03	12.00	12.00	0.00



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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)
12,693.99	29.39	352.60	12,660.90	-224.28	-445.94	-196.32	12.00	12.00	0.00
WFMP									
12,700.00	30.11	352.60	12,666.12	-221.32	-446.33	-193.34	12.00	12.00	0.00
12,800.00	42.11	352.60	12,746.76	-162.98	-453.91	-134.65	12.00	12.00	0.00
12,900.00	54.11	352.60	12,813.41	-89.29	-463.48	-60.51	12.00	12.00	0.00
13,000.00	66.11	352.60	12,863.15	-3.47	-474.62	25.84	12.00	12.00	0.00
13,100.00	78.11	352.60	12,893.81	90.73	-486.86	120.61	12.00	12.00	0.00
13,200.00	90.11	352.60	12,904.04	189.19	-499.65	219.68	12.00	12.00	0.00
13,205.65	90.79	352.60	12,904.00	194.79	-500.37	225.31	12.00	12.00	0.00
LP, Hold 90.79° Inc, Begin 2.00°/100' Turn									
13,300.00	90.79	354.49	12,902.70	288.54	-510.98	319.53	2.00	0.00	2.00
13,400.00	90.79	356.49	12,901.32	388.21	-518.85	419.50	2.00	0.00	2.00
13,500.00	90.79	358.49	12,899.94	488.10	-523.23	519.47	2.00	0.00	2.00
13,546.53	90.79	359.42	12,899.31	534.62	-524.08	565.95	2.00	0.00	2.00
Hold 90.79° Inc at 359.42° Azm									
13,600.00	90.79	359.42	12,898.57	588.08	-524.62	619.35	0.00	0.00	0.00
13,700.00	90.79	359.42	12,897.20	688.07	-525.64	719.20	0.00	0.00	0.00
13,800.00	90.79	359.42	12,895.83	788.05	-526.65	819.06	0.00	0.00	0.00
13,900.00	90.79	359.42	12,894.46	888.04	-527.67	918.92	0.00	0.00	0.00
14,000.00	90.79	359.42	12,893.08	988.02	-528.68	1,018.78	0.00	0.00	0.00
14,100.00	90.79	359.42	12,891.71	1,088.01	-529.70	1,118.63	0.00	0.00	0.00
14,200.00	90.79	359.42	12,890.34	1,187.99	-530.71	1,218.49	0.00	0.00	0.00
14,300.00	90.79	359.42	12,888.97	1,287.98	-531.73	1,318.35	0.00	0.00	0.00
14,400.00	90.79	359.42	12,887.60	1,387.96	-532.75	1,418.21	0.00	0.00	0.00
14,500.00	90.79	359.42	12,886.23	1,487.95	-533.76	1,518.06	0.00	0.00	0.00
14,600.00	90.79	359.42	12,884.85	1,587.93	-534.78	1,617.92	0.00	0.00	0.00
14,700.00	90.79	359.42	12,883.48	1,687.92	-535.79	1,717.78	0.00	0.00	0.00
14,800.00	90.79	359.42	12,882.11	1,787.91	-536.81	1,817.64	0.00	0.00	0.00
14,900.00	90.79	359.42	12,880.74	1,887.89	-537.82	1,917.49	0.00	0.00	0.00
15,000.00	90.79	359.42	12,879.37	1,987.88	-538.84	2,017.35	0.00	0.00	0.00
15,100.00	90.79	359.42	12,877.99	2,087.86	-539.85	2,117.21	0.00	0.00	0.00
15,200.00	90.79	359.42	12,876.62	2,187.85	-540.87	2,217.07	0.00	0.00	0.00
15,300.00	90.79	359.42	12,875.25	2,287.83	-541.88	2,316.92	0.00	0.00	0.00
15,400.00	90.79	359.42	12,873.88	2,387.82	-542.90	2,416.78	0.00	0.00	0.00
15,500.00	90.79	359.42	12,872.51	2,487.80	-543.91	2,516.64	0.00	0.00	0.00
15,600.00	90.79	359.42	12,871.13	2,587.79	-544.93	2,616.49	0.00	0.00	0.00
15,700.00	90.79	359.42	12,869.76	2,687.77	-545.94	2,716.35	0.00	0.00	0.00
15,800.00	90.79	359.42	12,868.39	2,787.76	-546.96	2,816.21	0.00	0.00	0.00
15,900.00	90.79	359.42	12,867.02	2,887.75	-547.97	2,916.07	0.00	0.00	0.00
16,000.00	90.79	359.42	12,865.65	2,987.73	-548.99	3,015.92	0.00	0.00	0.00
16,100.00	90.79	359.42	12,864.28	3,087.72	-550.00	3,115.78	0.00	0.00	0.00
16,200.00	90.79	359.42	12,862.90	3,187.70	-551.02	3,215.64	0.00	0.00	0.00
16,300.00	90.79	359.42	12,861.53	3,287.69	-552.03	3,315.50	0.00	0.00	0.00
16,400.00	90.79	359.42	12,860.16	3,387.67	-553.05	3,415.35	0.00	0.00	0.00
16,500.00	90.79	359.42	12,858.79	3,487.66	-554.06	3,515.21	0.00	0.00	0.00
16,600.00	90.79	359.42	12,857.42	3,587.64	-555.08	3,615.07	0.00	0.00	0.00
16,700.00	90.79	359.42	12,856.04	3,687.63	-556.09	3,714.93	0.00	0.00	0.00
16,800.00	90.79	359.42	12,854.67	3,787.61	-557.11	3,814.78	0.00	0.00	0.00
16,900.00	90.79	359.42	12,853.30	3,887.60	-558.12	3,914.64	0.00	0.00	0.00
17,000.00	90.79	359.42	12,851.93	3,987.59	-559.14	4,014.50	0.00	0.00	0.00
17,100.00	90.79	359.42	12,850.56	4,087.57	-560.15	4,114.36	0.00	0.00	0.00
17,200.00	90.79	359.42	12,849.18	4,187.56	-561.17	4,214.21	0.00	0.00	0.00
17,300.00	90.79	359.42	12,847.81	4,287.54	-562.18	4,314.07	0.00	0.00	0.00



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17,400.00	90.79	359.42	12,846.44	4,387.53	-563.20	4,413.93	0.00	0.00	0.00
17,500.00	90.79	359.42	12,845.07	4,487.51	-564.21	4,513.79	0.00	0.00	0.00
17,600.00	90.79	359.42	12,843.70	4,587.50	-565.23	4,613.64	0.00	0.00	0.00
17,700.00	90.79	359.42	12,842.32	4,687.48	-566.24	4,713.50	0.00	0.00	0.00
17,800.00	90.79	359.42	12,840.95	4,787.47	-567.26	4,813.36	0.00	0.00	0.00
17,900.00	90.79	359.42	12,839.58	4,887.45	-568.27	4,913.21	0.00	0.00	0.00
18,000.00	90.79	359.42	12,838.21	4,987.44	-569.29	5,013.07	0.00	0.00	0.00
18,100.00	90.79	359.42	12,836.84	5,087.42	-570.30	5,112.93	0.00	0.00	0.00
18,200.00	90.79	359.42	12,835.47	5,187.41	-571.32	5,212.79	0.00	0.00	0.00
18,300.00	90.79	359.42	12,834.09	5,287.40	-572.33	5,312.64	0.00	0.00	0.00
18,400.00	90.79	359.42	12,832.72	5,387.38	-573.35	5,412.50	0.00	0.00	0.00
18,500.00	90.79	359.42	12,831.35	5,487.37	-574.37	5,512.36	0.00	0.00	0.00
18,600.00	90.79	359.42	12,829.98	5,587.35	-575.38	5,612.22	0.00	0.00	0.00
18,700.00	90.79	359.42	12,828.61	5,687.34	-576.40	5,712.07	0.00	0.00	0.00
18,800.00	90.79	359.42	12,827.23	5,787.32	-577.41	5,811.93	0.00	0.00	0.00
18,900.00	90.79	359.42	12,825.86	5,887.31	-578.43	5,911.79	0.00	0.00	0.00
19,000.00	90.79	359.42	12,824.49	5,987.29	-579.44	6,011.65	0.00	0.00	0.00
19,100.00	90.79	359.42	12,823.12	6,087.28	-580.46	6,111.50	0.00	0.00	0.00
19,200.00	90.79	359.42	12,821.75	6,187.26	-581.47	6,211.36	0.00	0.00	0.00
19,300.00	90.79	359.42	12,820.37	6,287.25	-582.49	6,311.22	0.00	0.00	0.00
19,400.00	90.79	359.42	12,819.00	6,387.24	-583.50	6,411.08	0.00	0.00	0.00
19,500.00	90.79	359.42	12,817.63	6,487.22	-584.52	6,510.93	0.00	0.00	0.00
19,600.00	90.79	359.42	12,816.26	6,587.21	-585.53	6,610.79	0.00	0.00	0.00
19,700.00	90.79	359.42	12,814.89	6,687.19	-586.55	6,710.65	0.00	0.00	0.00
19,800.00	90.79	359.42	12,813.52	6,787.18	-587.56	6,810.50	0.00	0.00	0.00
19,900.00	90.79	359.42	12,812.14	6,887.16	-588.58	6,910.36	0.00	0.00	0.00
20,000.00	90.79	359.42	12,810.77	6,987.15	-589.59	7,010.22	0.00	0.00	0.00
20,100.00	90.79	359.42	12,809.40	7,087.13	-590.61	7,110.08	0.00	0.00	0.00
20,200.00	90.79	359.42	12,808.03	7,187.12	-591.62	7,209.93	0.00	0.00	0.00
20,300.00	90.79	359.42	12,806.66	7,287.10	-592.64	7,309.79	0.00	0.00	0.00
20,400.00	90.79	359.42	12,805.28	7,387.09	-593.65	7,409.65	0.00	0.00	0.00
20,500.00	90.79	359.42	12,803.91	7,487.08	-594.67	7,509.51	0.00	0.00	0.00
20,600.00	90.79	359.42	12,802.54	7,587.06	-595.68	7,609.36	0.00	0.00	0.00
20,700.00	90.79	359.42	12,801.17	7,687.05	-596.70	7,709.22	0.00	0.00	0.00
20,800.00	90.79	359.42	12,799.80	7,787.03	-597.71	7,809.08	0.00	0.00	0.00
20,900.00	90.79	359.42	12,798.42	7,887.02	-598.73	7,908.94	0.00	0.00	0.00
21,000.00	90.79	359.42	12,797.05	7,987.00	-599.74	8,008.79	0.00	0.00	0.00
21,100.00	90.79	359.42	12,795.68	8,086.99	-600.76	8,108.65	0.00	0.00	0.00
21,200.00	90.79	359.42	12,794.31	8,186.97	-601.77	8,208.51	0.00	0.00	0.00
21,300.00	90.79	359.42	12,792.94	8,286.96	-602.79	8,308.37	0.00	0.00	0.00
21,400.00	90.79	359.42	12,791.57	8,386.94	-603.80	8,408.22	0.00	0.00	0.00
21,500.00	90.79	359.42	12,790.19	8,486.93	-604.82	8,508.08	0.00	0.00	0.00
21,600.00	90.79	359.42	12,788.82	8,586.92	-605.83	8,607.94	0.00	0.00	0.00
21,700.00	90.79	359.42	12,787.45	8,686.90	-606.85	8,707.80	0.00	0.00	0.00
21,800.00	90.79	359.42	12,786.08	8,786.89	-607.86	8,807.65	0.00	0.00	0.00
21,900.00	90.79	359.42	12,784.71	8,886.87	-608.88	8,907.51	0.00	0.00	0.00
22,000.00	90.79	359.42	12,783.33	8,986.86	-609.89	9,007.37	0.00	0.00	0.00
22,100.00	90.79	359.42	12,781.96	9,086.84	-610.91	9,107.22	0.00	0.00	0.00
22,200.00	90.79	359.42	12,780.59	9,186.83	-611.92	9,207.08	0.00	0.00	0.00
22,300.00	90.79	359.42	12,779.22	9,286.81	-612.94	9,306.94	0.00	0.00	0.00
22,400.00	90.79	359.42	12,777.85	9,386.80	-613.95	9,406.80	0.00	0.00	0.00
22,500.00	90.79	359.42	12,776.47	9,486.78	-614.97	9,506.65	0.00	0.00	0.00
22,600.00	90.79	359.42	12,775.10	9,586.77	-615.98	9,606.51	0.00	0.00	0.00
22,700.00	90.79	359.42	12,773.73	9,686.76	-617.00	9,706.37	0.00	0.00	0.00

Database: USA Compass
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Baseball Cap Federal Com
Well: 707H
Wellbore: OH
Design: Plan 3 04-17-19

Local Co-ordinate Reference: Well 707H
TVD Reference: RKB @ 3453.00usft (Scandril Quest)
MD Reference: RKB @ 3453.00usft (Scandril Quest)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Bulld Rate (°/100usft)	Turn Rate (°/100usft)
22,800.00	90.79	359.42	12,772.36	9,786.74	-618.02	9,806.23	0.00	0.00	0.00
22,900.00	90.79	359.42	12,770.99	9,886.73	-619.03	9,906.08	0.00	0.00	0.00
23,000.00	90.79	359.42	12,769.61	9,986.71	-620.05	10,005.94	0.00	0.00	0.00
23,044.80	90.79	359.42	12,769.00	10,031.50	-620.50	10,050.67	0.00	0.00	0.00
TD at 23044.80									

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
BHLv3 - Baseball Cap - plan hits target center - Point	0.00	0.00	12,769.00	10,031.50	-620.50	441,143.70	779,310.70	32° 12' 34.5444 N 103° 25' 48.9778 W	
LTPv3 - Baseball Cap - plan misses target center by 0.42usft at 22914.78usft MD (12770.78 TVD, 9901.50 N, -619.18 E) - Point	0.00	0.00	12,770.80	9,901.50	-619.60	441,013.70	779,311.60	32° 12' 33.2580 N 103° 25' 48.9800 W	
FTPv3 - Baseball Cap - plan misses target center by 82.63usft at 13020.19usft MD (12870.93 TVD, 15.00 N, -477.02 E) - Point	0.00	0.00	12,904.00	-5.20	-550.00	431,107.00	779,381.20	32° 10' 55.2235 N 103° 25' 49.1383 W	

Formations

Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
920.00	920.00	Rustler		-0.79	358.23
1,417.00	1,417.00	TOS		-0.79	358.23
5,226.35	5,216.62	BOS (Fletcher)		-0.79	358.23
5,524.67	5,513.81	LMAR (Top Delaware)		-0.79	358.23
5,560.83	5,549.83	BCLN		-0.79	358.23
6,562.25	6,547.46	CYCN		-0.79	358.23
8,155.30	8,134.45	BYCN		-0.79	358.23
9,459.23	9,436.74	Bone Sprg (BSGL)		-0.79	358.23
9,667.23	9,644.74	U Avalon Sh		-0.79	358.23
9,985.23	9,962.74	L Avalon Sh		-0.79	358.23
10,503.23	10,480.74	B Avalon Sh		-0.79	358.23
10,638.23	10,615.74	FBSG_Sand		-0.79	358.23
11,350.23	11,327.74	SBSG_Sand		-0.79	358.23
11,681.23	11,658.74	SBSG_Sand_Base		-0.79	358.23
12,280.23	12,257.74	TBSG_Sand		-0.79	358.23
12,693.99	12,660.90	WFMP		-0.79	358.23

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North Reference: Grid
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
2,500.00	2,500.00	0.00	0.00	KOP, Begin 2.00°/100' Build
2,749.77	2,749.45	-5.94	-9.12	Hold 5.00° Inc at 236.93° Azm
8,502.71	8,480.55	-279.28	-428.91	Begin 2.00°/100' Drop
8,752.48	8,730.00	-285.22	-438.03	Begin Vertical Hold
12,449.06	12,426.58	-285.22	-438.03	KOP2, Begin 12.00°/100' Build
13,205.65	12,904.00	194.79	-500.37	LP, Hold 90.79° Inc, Begin 2.00°/100' Turn
13,546.53	12,899.31	534.62	-524.08	Hold 90.79° Inc at 359.42° Azm
23,044.80	12,769.00	10,031.50	-620.50	TD at 23044.80