

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Chinbad Field Office

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

SUNDRY NOTICES AND REPORTS ON HOBBS COO
Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

MAR 16 2020

SUBMIT IN TRIPLICATE - Other instructions on page 2

RECEIVED

5. Lease Serial No. NMNM120913
6. If Indian, Allottee or Tribe Name
7. If Unit or CA/Agreement, Name and/or No.
8. Well Name and No. STOVE PIPE FEDERAL COM 702H
9. API Well No. 30-025-46557-00-X1
10. Field and Pool or Exploratory Area RATTLESNAKE FLAT
11. County or Parish, State LEA COUNTY, NM

1. Type of Well ☒ Oil Well ☐ Gas Well ☐ Other	
2. Name of Operator COG OPERATING LLC	Contact: MAYTE X REYES E-Mail: mreyes1@concho.com
3a. Address ONE CONCHO CENTER 600 W ILLINOIS AVENUE MIDLAND, TX 79701-4287	3b. Phone No. (include area code) Ph: 575-748-6945
4. Location of Well (Footage, Sec., T., R., M., or Survey Description) Sec 31 T24S R35E SESW 270FSL 2190FWL 32.167461 N Lat, 103.408020 W Lon	

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 A
	☐ Convert to Injection	☐ Plug Back	☐ Water Disposal	PD

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 recompleat 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 respectfully requests approval for the following changes to the originally approved APD.

Dedicated acres.

BHL Change
From: 50' FSL & 2130' FWL Section 7. T25S. R35E.
To: 50' FSL & 2310' FWL Section 7. T25S. R35E.

C102 attached.
Drilling changes attached.
AC report attached.

besides casing size changes, all previous conditions of Approval still apply

14. I hereby certify that the foregoing is true and correct.

Electronic Submission #496042 verified by the BLM Well Information System
For COG OPERATING LLC, sent to the Hobbs
Committed to AFMSS for processing by PRISCILLA PEREZ on 12/17/2019 (20PP0674SE)

Name (Printed/Typed) MAYTE X REYES	Title SENIOR REGULATORY ANALYST
Signature (Electronic Submission)	Date 12/16/2019

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By <u>DYLAN ROSSMANGO</u>	Title <u>PETROLEUM ENGINEER</u>	Date <u>12/18/2019</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 ****

[Handwritten signature]

Additional data for EC transaction #496042 that would not fit on the form

32. Additional remarks, continued

Directional plan attached.

Stove Pipe Federal Com 702H

The Operator respectfully requests the following changes to the originally approved APD. A new directional plan and plat is included for the revised BHL.

Wellhead

The operator request to use multi-bowl wellhead assembly.

Surface

Drill 14.75" hole to 1,200'

Set 10.75" 45.5# L80 BTC casing @ 1,200'

Cement in one stage to surface:

Lead: 500 sx of Class C + 6% gel (13.5 ppg / 1.75 cuft/ sx)

Tail: 350 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 12,000'

Set 7.625" 29.7# HCL-80 BTC @ 12,000'

Cement in two stages to surface with DV tool and ECP @ 5,450'

First Stage:

Lead: 550 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: 800 sx of Halliburton NeoCem (11.0 ppg / 2.81 cuft/ sx)

Tail: 250 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 23,395'

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

Set 5.5" 23# P110 HC TecLock FJ (spec sheet attached) from 11,500' to 23,395'

Cement in one stage to surface

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

Tail: 1000 sx of 50:50:2 Class H Blend (14.4 ppg / 1.25 cuft/sx)



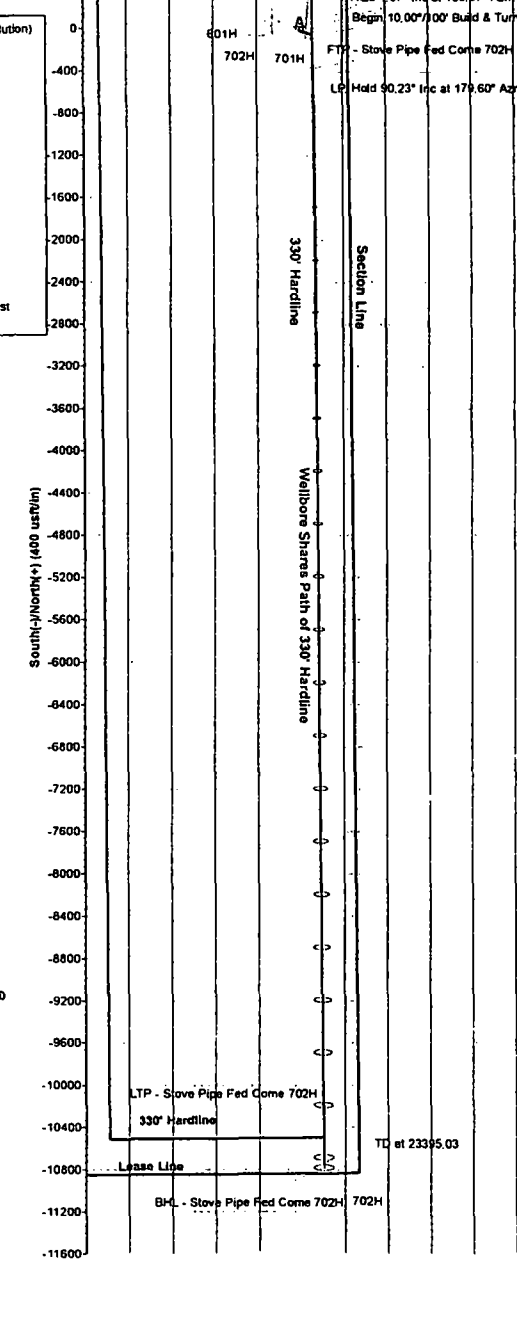
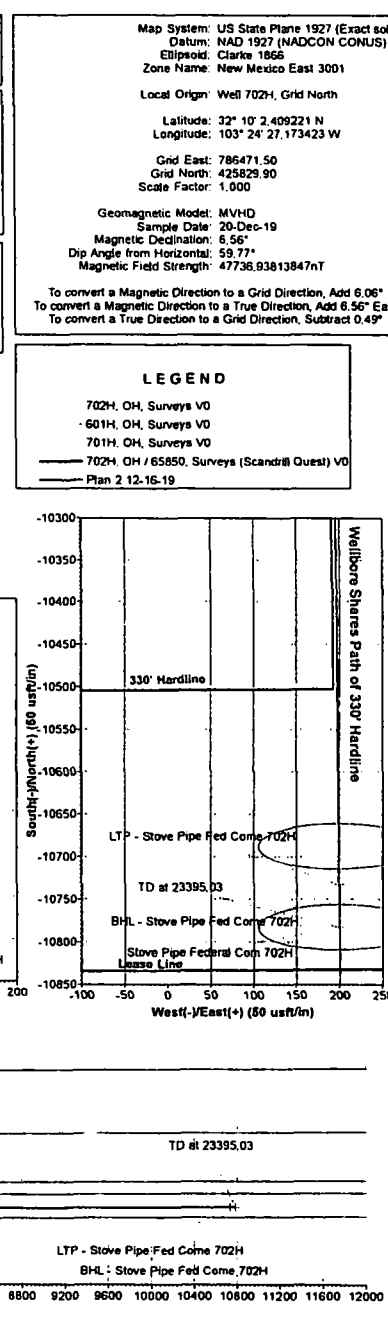
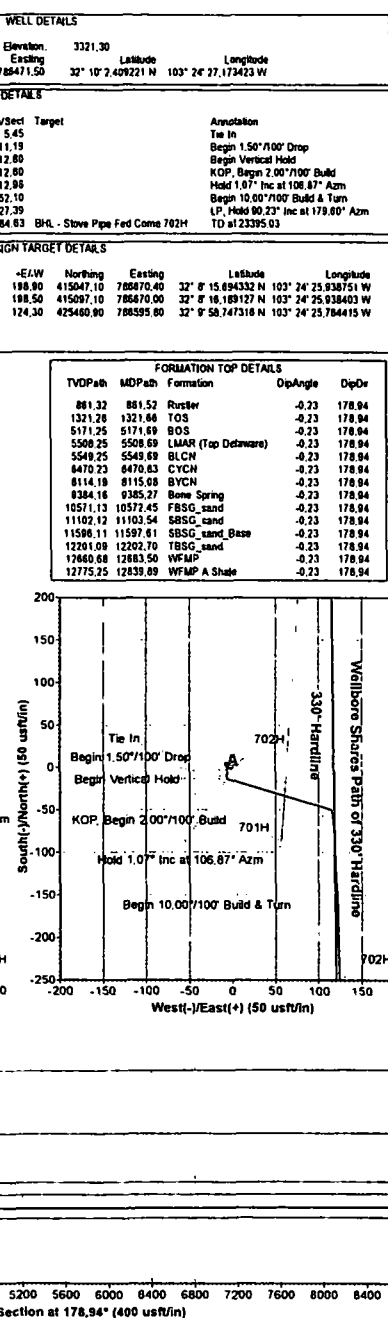
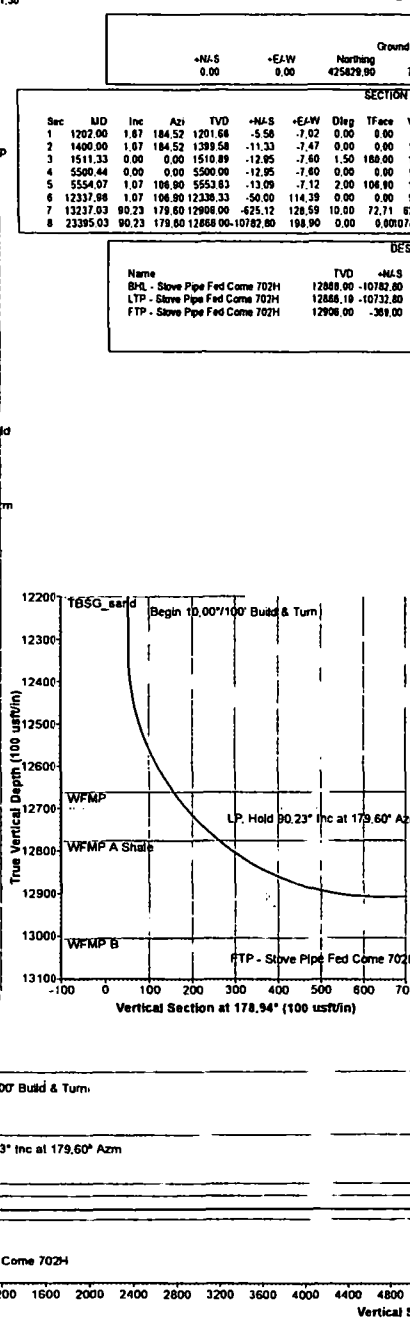
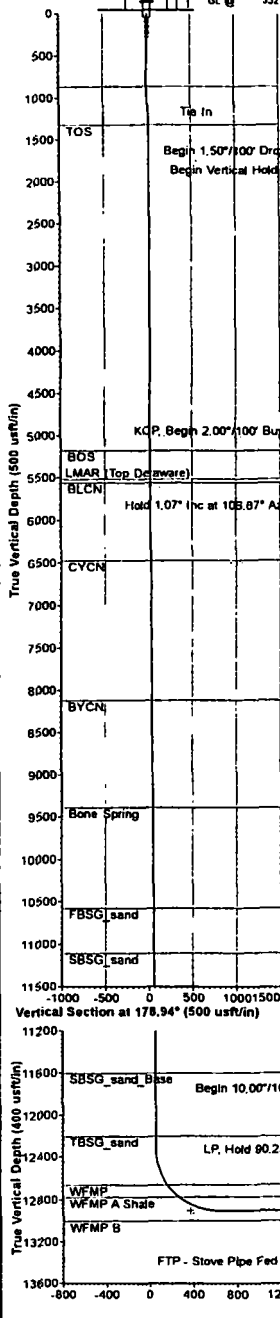
Project: Lea County, NM (NAD27 NME)
Site: Stove Pipe Federal Com
Well: 702H
Wellbore: OH / 65850
Design: Plan 2 12-16-19
Rig: Scandril Quest



PHOENIX
TECHNOLOGY SERVICES



Azimuths to Grid North
True North: -0.49°
Magnetic North: 6.06°
Magnetic Field
Strength: 47736.9nT
Dip Angle: 59.77°
Date: 12/20/2019
Model: NVHD



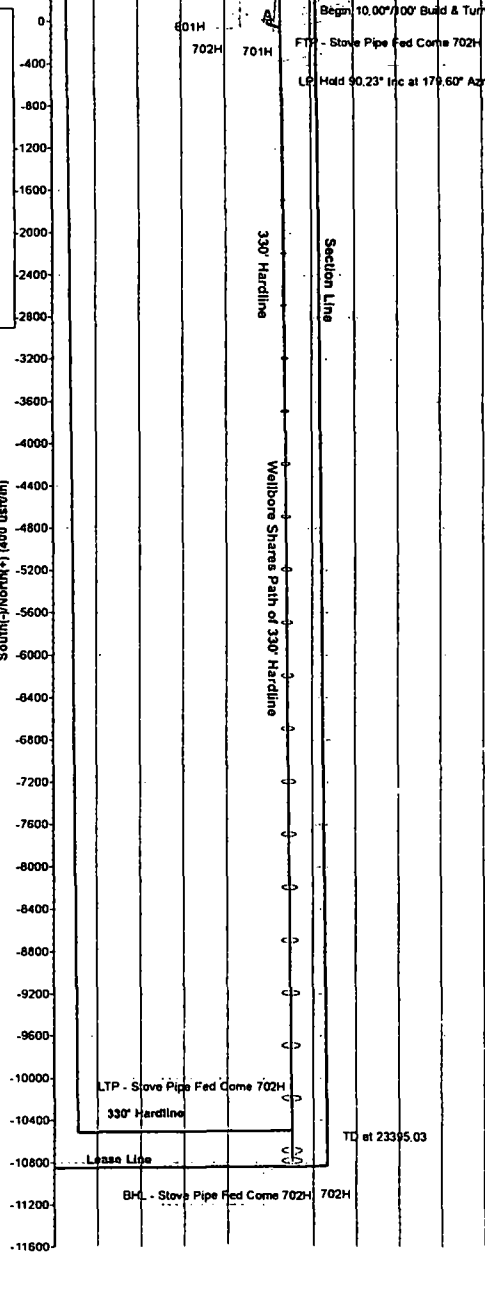
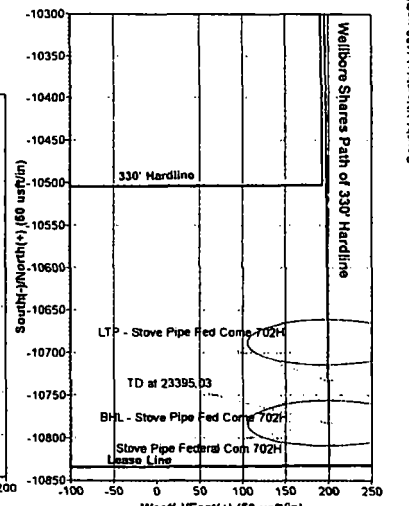
WELL DETAILS									
		Ground Elevation		3321.30					
-N/E	-E/W	Northing	Existing	Latitude	Longitude				
0.00	0.00	425829.90	786471.50	32° 10' 2.409221 N	103° 24' 27.173423 W				

SECTION DETAILS									
Sec	MD	Inc	Azi	TVD	+N/E	-E/W	Dip	TFace	VFace
1	1202.00	1.87	184.52	1201.66	-5.56	-7.02	0.00	0.00	5.45
2	1400.00	1.07	184.52	1389.58	-11.33	-7.47	0.00	0.00	11.19
3	1511.33	0.00	0.00	1510.89	-12.95	-7.60	1.50	168.00	12.80
4	5500.44	0.00	0.00	5500.00	-12.95	-7.60	0.00	0.00	12.80
5	5554.07	1.07	106.90	5553.83	-13.09	-7.12	2.00	106.90	12.86
6	12337.98	1.07	106.90	12336.33	-50.00	114.39	0.00	0.00	52.10
7	13237.03	90.23	179.60	12908.00	-625.12	126.59	10.00	72.71	627.39
8	23395.03	90.23	179.60	12868.00	-10782.80	198.90	0.00	0.00	0.00

DESIGN TARGET DETAILS									
Name	TVD	+N/E	-E/W	Northing	Existing	Latitude	Longitude		
BHL - Stove Pipe Fed Come 702H	12868.00	-10782.80	198.90	415047.10	786470.40	32° 8' 15.894332 N	103° 24' 25.938751 W		
LTP - Stove Pipe Fed Come 702H	12868.19	-10782.80	198.50	415097.10	786470.00	32° 8' 16.189127 N	103° 24' 25.938403 W		
FTP - Stove Pipe Fed Come 702H	12908.00	-369.00	124.30	425460.80	786595.80	32° 8' 58.747316 N	103° 24' 25.784415 W		

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 702H, Grid North
Latitude: 32° 10' 2.409221 N
Longitude: 103° 24' 27.173423 W
Grid East: 786471.50
Grid North: 425829.90
Scale Factor: 1.000
Geomagnetic Model: MVHD
Sample Date: 20-Dec-19
Magnetic Declination: 6.56°
Dip Angle from Horizontal: 59.77°
Magnetic Field Strength: 47736.93813847nT
To convert a Magnetic Direction to a Grid Direction, Add 6.06°
To convert a Magnetic Direction to a True Direction, Add 6.56° East
To convert a True Direction to a Grid Direction, Subtract 0.49°

LEGEND
702H, OH, Surveys V0
601H, OH, Surveys V0
701H, OH, Surveys V0
702H, OH / 65850, Surveys (Scandril Quest) V0
Plan 2 12-16-19





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COG Operating LLC

**Lea County, NM (NAD27 NME)
Stove Pipe Federal Com
702H**

OH / 65850

Plan: Plan 2 12-16-19

Standard Planning Report

16 December, 2019





Planning Report



Database: USA Compass
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Stove Pipe Federal Com
Well: 702H
Wellbore: OH / 65850
Design: Plan 2 12-16-19

Local Co-ordinate Reference: Well 702H
TVD Reference: RKB @ 3351.30usft (Scandril Quest)
MD Reference: RKB @ 3351.30usft (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 Stove Pipe Federal Com

Site Position:		Northing:	425,164.50 usft	Latitude:	32° 9' 55.604318 N
From:	Map	Easting:	789,052.00 usft	Longitude:	103° 23' 57.222328 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.50 °

Well	702H					
Well Position	+N/-S	665.40 usft	Northing:	425,829.90 usft	Latitude:	32° 10' 2.409221 N
	+E/-W	-2,580.50 usft	Easting:	786,471.50 usft	Longitude:	103° 24' 27.173423 W
Position Uncertainty		1.00 usft	Wellhead Elevation:		Ground Level:	3,321.30 usft

Wellbore OH / 65850

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	MVHD	12/20/2019	6.56	59.77	47,736.93813847

Design Plan 2 12-16-19

Audit Notes:

Version: Phase: PLAN Tie On Depth: 1,202.00

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	178.94

Plan Survey Tool Program Date 12/16/2019

Depth From (usft)	Depth To (usft)	Survey (Wellbore)	Tool Name	Remarks
1	50.00	1,202.00	Integrity MWD Surveys (OH / 65850)	MWD
			OWSG MWD - Standard	
2	1,202.00	12,250.00	Plan 2 12-16-19 (OH / 65850)	Scientific Keeper
				Scientific Drilling Intl. Stand:
3	12,250.00	23,395.03	Plan 2 12-16-19 (OH / 65850)	MWD+IFR1+FDIR
				OWSG MWD + IFR1 + FDIR



Planning Report



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Site: Stove Pipe Federal Com
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Wellbore: OH / 65850
Design: Plan 2 12-16-19

Local Co-ordinate Reference: Well 702H
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MD Reference: RKB @ 3351.30usft (Scandril Quest)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

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
1,202.00	1.67	184.52	1,201.66	-5.58	-7.02	0.00	0.00	0.00	0.00	
1,400.00	1.67	184.52	1,399.58	-11.33	-7.47	0.00	0.00	0.00	0.00	
1,511.33	0.00	0.00	1,510.89	-12.95	-7.60	1.50	-1.50	0.00	180.00	
5,500.44	0.00	0.00	5,500.00	-12.95	-7.60	0.00	0.00	0.00	0.00	
5,554.07	1.07	106.90	5,553.63	-13.09	-7.12	2.00	2.00	199.32	106.90	
12,337.96	1.07	106.90	12,336.33	-50.00	114.39	0.00	0.00	0.00	0.00	
13,237.03	90.23	179.60	12,906.00	-625.12	128.59	10.00	9.92	8.09	72.71	
23,395.03	90.23	179.60	12,866.00	-10,782.80	198.90	0.00	0.00	0.00	0.00	BHL - Stove Pipe F.



Planning Report



Database: USA Compass
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Stove Pipe Federal Com
Well: 702H
Wellbore: OH / 65850
Design: Plan 2 12-16-19

Local Co-ordinate Reference: Well 702H
TVD Reference: RKB @ 3351.30usft (Scandril Quest)
MD Reference: RKB @ 3351.30usft (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)
1,202.00	1.67	184.52	1,201.66	-5.58	-7.02	5.45	0.00	0.00	0.00
Tie In									
1,300.00	1.67	184.52	1,299.62	-8.42	-7.24	8.29	0.00	0.00	0.00
1,321.66	1.67	184.52	1,321.27	-9.05	-7.29	8.92	0.00	0.00	0.00
TOS									
1,400.00	1.67	184.52	1,399.58	-11.33	-7.47	11.19	0.00	0.00	0.00
Begin 1.50°/100' Drop									
1,500.00	0.17	184.52	1,499.56	-12.93	-7.60	12.79	1.50	-1.50	0.00
1,511.33	0.00	0.00	1,510.89	-12.95	-7.60	12.80	1.50	-1.50	0.00
Begin Vertical Hold									
1,600.00	0.00	0.00	1,599.56	-12.95	-7.60	12.80	0.00	0.00	0.00
1,700.00	0.00	0.00	1,699.56	-12.95	-7.60	12.80	0.00	0.00	0.00
1,800.00	0.00	0.00	1,799.56	-12.95	-7.60	12.80	0.00	0.00	0.00
1,900.00	0.00	0.00	1,899.56	-12.95	-7.60	12.80	0.00	0.00	0.00
2,000.00	0.00	0.00	1,999.56	-12.95	-7.60	12.80	0.00	0.00	0.00
2,100.00	0.00	0.00	2,099.56	-12.95	-7.60	12.80	0.00	0.00	0.00
2,200.00	0.00	0.00	2,199.56	-12.95	-7.60	12.80	0.00	0.00	0.00
2,300.00	0.00	0.00	2,299.56	-12.95	-7.60	12.80	0.00	0.00	0.00
2,400.00	0.00	0.00	2,399.56	-12.95	-7.60	12.80	0.00	0.00	0.00
2,500.00	0.00	0.00	2,499.56	-12.95	-7.60	12.80	0.00	0.00	0.00
2,600.00	0.00	0.00	2,599.56	-12.95	-7.60	12.80	0.00	0.00	0.00
2,700.00	0.00	0.00	2,699.56	-12.95	-7.60	12.80	0.00	0.00	0.00
2,800.00	0.00	0.00	2,799.56	-12.95	-7.60	12.80	0.00	0.00	0.00
2,900.00	0.00	0.00	2,899.56	-12.95	-7.60	12.80	0.00	0.00	0.00
3,000.00	0.00	0.00	2,999.56	-12.95	-7.60	12.80	0.00	0.00	0.00
3,100.00	0.00	0.00	3,099.56	-12.95	-7.60	12.80	0.00	0.00	0.00
3,200.00	0.00	0.00	3,199.56	-12.95	-7.60	12.80	0.00	0.00	0.00
3,300.00	0.00	0.00	3,299.56	-12.95	-7.60	12.80	0.00	0.00	0.00
3,400.00	0.00	0.00	3,399.56	-12.95	-7.60	12.80	0.00	0.00	0.00
3,500.00	0.00	0.00	3,499.56	-12.95	-7.60	12.80	0.00	0.00	0.00
3,600.00	0.00	0.00	3,599.56	-12.95	-7.60	12.80	0.00	0.00	0.00
3,700.00	0.00	0.00	3,699.56	-12.95	-7.60	12.80	0.00	0.00	0.00
3,800.00	0.00	0.00	3,799.56	-12.95	-7.60	12.80	0.00	0.00	0.00
3,900.00	0.00	0.00	3,899.56	-12.95	-7.60	12.80	0.00	0.00	0.00
4,000.00	0.00	0.00	3,999.56	-12.95	-7.60	12.80	0.00	0.00	0.00
4,100.00	0.00	0.00	4,099.56	-12.95	-7.60	12.80	0.00	0.00	0.00
4,200.00	0.00	0.00	4,199.56	-12.95	-7.60	12.80	0.00	0.00	0.00
4,300.00	0.00	0.00	4,299.56	-12.95	-7.60	12.80	0.00	0.00	0.00
4,400.00	0.00	0.00	4,399.56	-12.95	-7.60	12.80	0.00	0.00	0.00
4,500.00	0.00	0.00	4,499.56	-12.95	-7.60	12.80	0.00	0.00	0.00
4,600.00	0.00	0.00	4,599.56	-12.95	-7.60	12.80	0.00	0.00	0.00
4,700.00	0.00	0.00	4,699.56	-12.95	-7.60	12.80	0.00	0.00	0.00
4,800.00	0.00	0.00	4,799.56	-12.95	-7.60	12.80	0.00	0.00	0.00
4,900.00	0.00	0.00	4,899.56	-12.95	-7.60	12.80	0.00	0.00	0.00
5,000.00	0.00	0.00	4,999.56	-12.95	-7.60	12.80	0.00	0.00	0.00
5,100.00	0.00	0.00	5,099.56	-12.95	-7.60	12.80	0.00	0.00	0.00
5,171.69	0.00	0.00	5,171.25	-12.95	-7.60	12.80	0.00	0.00	0.00
BOS									
5,200.00	0.00	0.00	5,199.56	-12.95	-7.60	12.80	0.00	0.00	0.00
5,300.00	0.00	0.00	5,299.56	-12.95	-7.60	12.80	0.00	0.00	0.00
5,400.00	0.00	0.00	5,399.56	-12.95	-7.60	12.80	0.00	0.00	0.00
5,500.00	0.00	0.00	5,499.56	-12.95	-7.60	12.80	0.00	0.00	0.00
5,500.44	0.00	0.00	5,500.00	-12.95	-7.60	12.80	0.00	0.00	0.00



Planning Report



Database: USA Compass
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Stove Pipe Federal Com
Well: 702H
Wellbore: OH / 65850
Design: Plan 2 12-16-19

Local Co-ordinate Reference: Well 702H
TVD Reference: RKB @ 3351.30usft (Scandrill Quest)
MD Reference: RKB @ 3351.30usft (Scandrill 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)
KOP, Begin 2.00°/100' Build									
5,508.69	0.17	106.90	5,508.25	-12.95	-7.59	12.81	2.00	2.00	0.00
LMAR (Top Delaware)									
5,549.69	0.99	106.90	5,549.25	-13.07	-7.19	12.94	2.00	2.00	0.00
BLCN									
5,554.07	1.07	106.90	5,553.63	-13.09	-7.12	12.96	2.00	2.00	0.00
Hold 1.07° Inc at 106.87° Azm									
5,600.00	1.07	106.90	5,599.55	-13.34	-6.30	13.22	0.00	0.00	0.00
5,700.00	1.07	106.90	5,699.53	-13.89	-4.50	13.80	0.00	0.00	0.00
5,800.00	1.07	106.90	5,799.51	-14.43	-2.71	14.38	0.00	0.00	0.00
5,900.00	1.07	106.90	5,899.50	-14.98	-0.92	14.96	0.00	0.00	0.00
6,000.00	1.07	106.90	5,999.48	-15.52	0.87	15.53	0.00	0.00	0.00
6,100.00	1.07	106.90	6,099.46	-16.06	2.66	16.11	0.00	0.00	0.00
6,200.00	1.07	106.90	6,199.44	-16.61	4.45	16.69	0.00	0.00	0.00
6,300.00	1.07	106.90	6,299.43	-17.15	6.24	17.26	0.00	0.00	0.00
6,400.00	1.07	106.90	6,399.41	-17.70	8.03	17.84	0.00	0.00	0.00
6,470.83	1.07	106.90	6,470.23	-18.08	9.30	18.25	0.00	0.00	0.00
CYCN									
6,500.00	1.07	106.90	6,499.39	-18.24	9.82	18.42	0.00	0.00	0.00
6,600.00	1.07	106.90	6,599.37	-18.78	11.62	18.99	0.00	0.00	0.00
6,700.00	1.07	106.90	6,699.36	-19.33	13.41	19.57	0.00	0.00	0.00
6,800.00	1.07	106.90	6,799.34	-19.87	15.20	20.15	0.00	0.00	0.00
6,900.00	1.07	106.90	6,899.32	-20.42	16.99	20.73	0.00	0.00	0.00
7,000.00	1.07	106.90	6,999.30	-20.96	18.78	21.30	0.00	0.00	0.00
7,100.00	1.07	106.90	7,099.29	-21.50	20.57	21.88	0.00	0.00	0.00
7,200.00	1.07	106.90	7,199.27	-22.05	22.36	22.46	0.00	0.00	0.00
7,300.00	1.07	106.90	7,299.25	-22.59	24.15	23.03	0.00	0.00	0.00
7,400.00	1.07	106.90	7,399.23	-23.14	25.94	23.61	0.00	0.00	0.00
7,500.00	1.07	106.90	7,499.22	-23.68	27.74	24.19	0.00	0.00	0.00
7,600.00	1.07	106.90	7,599.20	-24.22	29.53	24.76	0.00	0.00	0.00
7,700.00	1.07	106.90	7,699.18	-24.77	31.32	25.34	0.00	0.00	0.00
7,800.00	1.07	106.90	7,799.16	-25.31	33.11	25.92	0.00	0.00	0.00
7,900.00	1.07	106.90	7,899.15	-25.86	34.90	26.50	0.00	0.00	0.00
8,000.00	1.07	106.90	7,999.13	-26.40	36.69	27.07	0.00	0.00	0.00
8,100.00	1.07	106.90	8,099.11	-26.94	38.48	27.65	0.00	0.00	0.00
8,115.09	1.07	106.90	8,114.19	-27.03	38.75	27.74	0.00	0.00	0.00
BYCN									
8,200.00	1.07	106.90	8,199.09	-27.49	40.27	28.23	0.00	0.00	0.00
8,300.00	1.07	106.90	8,299.08	-28.03	42.07	28.80	0.00	0.00	0.00
8,400.00	1.07	106.90	8,399.06	-28.58	43.86	29.38	0.00	0.00	0.00
8,500.00	1.07	106.90	8,499.04	-29.12	45.65	29.96	0.00	0.00	0.00
8,600.00	1.07	106.90	8,599.02	-29.66	47.44	30.53	0.00	0.00	0.00
8,700.00	1.07	106.90	8,699.01	-30.21	49.23	31.11	0.00	0.00	0.00
8,800.00	1.07	106.90	8,798.99	-30.75	51.02	31.69	0.00	0.00	0.00
8,900.00	1.07	106.90	8,898.97	-31.30	52.81	32.26	0.00	0.00	0.00
9,000.00	1.07	106.90	8,998.95	-31.84	54.60	32.84	0.00	0.00	0.00
9,100.00	1.07	106.90	9,098.94	-32.38	56.39	33.42	0.00	0.00	0.00
9,200.00	1.07	106.90	9,198.92	-32.93	58.19	34.00	0.00	0.00	0.00
9,300.00	1.07	106.90	9,298.90	-33.47	59.98	34.57	0.00	0.00	0.00
9,385.28	1.07	106.90	9,384.17	-33.94	61.50	35.06	0.00	0.00	0.00
Bone Spring									
9,400.00	1.07	106.90	9,398.88	-34.02	61.77	35.15	0.00	0.00	0.00
9,500.00	1.07	106.90	9,498.87	-34.56	63.56	35.73	0.00	0.00	0.00



Planning Report



Database: USA Compass
Company: COG Operating LLC
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Site: Stove Pipe Federal Com
Well: 702H
Wellbore: OH / 65850
Design: Plan 2 12-16-19

Local Co-ordinate Reference: Well 702H
TVD Reference: RKB @ 3351.30usft (Scandril Quest)
MD Reference: RKB @ 3351.30usft (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)
9,600.00	1.07	106.90	9,598.85	-35.10	65.35	36.30	0.00	0.00	0.00
9,700.00	1.07	106.90	9,698.83	-35.65	67.14	36.88	0.00	0.00	0.00
9,800.00	1.07	106.90	9,798.81	-36.19	68.93	37.46	0.00	0.00	0.00
9,900.00	1.07	106.90	9,898.80	-36.74	70.72	38.03	0.00	0.00	0.00
10,000.00	1.07	106.90	9,998.78	-37.28	72.51	38.61	0.00	0.00	0.00
10,100.00	1.07	106.90	10,098.76	-37.82	74.31	39.19	0.00	0.00	0.00
10,200.00	1.07	106.90	10,198.74	-38.37	76.10	39.77	0.00	0.00	0.00
10,300.00	1.07	106.90	10,298.73	-38.91	77.89	40.34	0.00	0.00	0.00
10,400.00	1.07	106.90	10,398.71	-39.46	79.68	40.92	0.00	0.00	0.00
10,500.00	1.07	106.90	10,498.69	-40.00	81.47	41.50	0.00	0.00	0.00
10,572.46	1.07	106.90	10,571.14	-40.40	82.77	41.91	0.00	0.00	0.00
FBSG_sand									
10,600.00	1.07	106.90	10,598.67	-40.54	83.26	42.07	0.00	0.00	0.00
10,700.00	1.07	106.90	10,698.65	-41.09	85.05	42.65	0.00	0.00	0.00
10,800.00	1.07	106.90	10,798.64	-41.63	86.84	43.23	0.00	0.00	0.00
10,900.00	1.07	106.90	10,898.62	-42.18	88.63	43.80	0.00	0.00	0.00
11,000.00	1.07	106.90	10,998.60	-42.72	90.43	44.38	0.00	0.00	0.00
11,100.00	1.07	106.90	11,098.58	-43.27	92.22	44.96	0.00	0.00	0.00
11,103.54	1.07	106.90	11,102.13	-43.28	92.28	44.98	0.00	0.00	0.00
SBSG_sand									
11,200.00	1.07	106.90	11,198.57	-43.81	94.01	45.54	0.00	0.00	0.00
11,300.00	1.07	106.90	11,298.55	-44.35	95.80	46.11	0.00	0.00	0.00
11,400.00	1.07	106.90	11,398.53	-44.90	97.59	46.69	0.00	0.00	0.00
11,500.00	1.07	106.90	11,498.51	-45.44	99.38	47.27	0.00	0.00	0.00
11,597.62	1.07	106.90	11,596.12	-45.97	101.13	47.83	0.00	0.00	0.00
SBSG_sand_Base									
11,600.00	1.07	106.90	11,598.50	-45.99	101.17	47.84	0.00	0.00	0.00
11,700.00	1.07	106.90	11,698.48	-46.53	102.96	48.42	0.00	0.00	0.00
11,800.00	1.07	106.90	11,798.46	-47.07	104.75	49.00	0.00	0.00	0.00
11,900.00	1.07	106.90	11,898.44	-47.62	106.55	49.57	0.00	0.00	0.00
12,000.00	1.07	106.90	11,998.43	-48.16	108.34	50.15	0.00	0.00	0.00
12,100.00	1.07	106.90	12,098.41	-48.71	110.13	50.73	0.00	0.00	0.00
12,200.00	1.07	106.90	12,198.39	-49.25	111.92	51.31	0.00	0.00	0.00
12,202.71	1.07	106.90	12,201.10	-49.26	111.97	51.32	0.00	0.00	0.00
TBSG_sand									
12,300.00	1.07	106.90	12,298.37	-49.79	113.71	51.88	0.00	0.00	0.00
12,337.96	1.07	106.90	12,336.33	-50.00	114.39	52.10	0.00	0.00	0.00
Begin 10.00°/100' Build & Turn									
12,400.00	6.60	170.71	12,398.22	-53.69	115.52	55.81	10.00	8.91	102.87
12,500.00	16.55	176.15	12,496.06	-73.63	117.41	75.78	10.00	9.95	5.44
12,600.00	26.54	177.55	12,588.96	-110.26	119.33	112.44	10.00	9.99	1.40
12,683.53	34.89	178.13	12,660.70	-152.85	120.91	155.06	10.00	9.99	0.70
WFMP									
12,700.00	36.54	178.22	12,674.08	-162.46	121.21	164.67	10.00	10.00	0.52
12,800.00	46.53	178.63	12,748.84	-228.66	123.01	230.89	10.00	10.00	0.41
12,839.96	50.53	178.76	12,775.30	-258.59	123.70	260.82	10.00	10.00	0.32
WFMP A Shale									
12,900.00	56.53	178.92	12,810.97	-306.84	124.67	309.08	10.00	10.00	0.28
13,000.00	66.53	179.15	12,858.59	-394.62	126.14	396.88	10.00	10.00	0.23
13,100.00	76.52	179.35	12,890.23	-489.33	127.36	491.60	10.00	10.00	0.20
13,200.00	86.52	179.54	12,904.95	-588.11	128.32	590.38	10.00	10.00	0.18
13,237.03	90.23	179.60	12,906.00	-625.12	128.59	627.39	10.00	10.00	0.18
LP, Hold 90.23° Inc at 179.60° Azm									



Planning Report



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13,300.00	90.23	179.60	12,905.76	-688.09	129.03	690.35	0.00	0.00	0.00
13,400.00	90.23	179.60	12,905.36	-788.09	129.72	790.34	0.00	0.00	0.00
13,500.00	90.23	179.60	12,904.97	-888.08	130.41	890.34	0.00	0.00	0.00
13,600.00	90.23	179.60	12,904.57	-988.08	131.11	990.33	0.00	0.00	0.00
13,700.00	90.23	179.60	12,904.18	-1,088.08	131.80	1,090.32	0.00	0.00	0.00
13,800.00	90.23	179.60	12,903.79	-1,188.07	132.49	1,190.31	0.00	0.00	0.00
13,900.00	90.23	179.60	12,903.39	-1,288.07	133.18	1,290.31	0.00	0.00	0.00
14,000.00	90.23	179.60	12,903.00	-1,388.07	133.88	1,390.30	0.00	0.00	0.00
14,100.00	90.23	179.60	12,902.61	-1,488.06	134.57	1,490.29	0.00	0.00	0.00
14,200.00	90.23	179.60	12,902.21	-1,588.06	135.26	1,590.28	0.00	0.00	0.00
14,300.00	90.23	179.60	12,901.82	-1,688.06	135.95	1,690.28	0.00	0.00	0.00
14,400.00	90.23	179.60	12,901.42	-1,788.05	136.64	1,790.27	0.00	0.00	0.00
14,500.00	90.23	179.60	12,901.03	-1,888.05	137.34	1,890.26	0.00	0.00	0.00
14,600.00	90.23	179.60	12,900.64	-1,988.05	138.03	1,990.25	0.00	0.00	0.00
14,700.00	90.23	179.60	12,900.24	-2,088.04	138.72	2,090.25	0.00	0.00	0.00
14,800.00	90.23	179.60	12,899.85	-2,188.04	139.41	2,190.24	0.00	0.00	0.00
14,900.00	90.23	179.60	12,899.45	-2,288.04	140.10	2,290.23	0.00	0.00	0.00
15,000.00	90.23	179.60	12,899.06	-2,388.03	140.80	2,390.22	0.00	0.00	0.00
15,100.00	90.23	179.60	12,898.67	-2,488.03	141.49	2,490.22	0.00	0.00	0.00
15,200.00	90.23	179.60	12,898.27	-2,588.03	142.18	2,590.21	0.00	0.00	0.00
15,300.00	90.23	179.60	12,897.88	-2,688.02	142.87	2,690.20	0.00	0.00	0.00
15,400.00	90.23	179.60	12,897.49	-2,788.02	143.57	2,790.20	0.00	0.00	0.00
15,500.00	90.23	179.60	12,897.09	-2,888.02	144.26	2,890.19	0.00	0.00	0.00
15,600.00	90.23	179.60	12,896.70	-2,988.02	144.95	2,990.18	0.00	0.00	0.00
15,700.00	90.23	179.60	12,896.30	-3,088.01	145.64	3,090.17	0.00	0.00	0.00
15,800.00	90.23	179.60	12,895.91	-3,188.01	146.33	3,190.17	0.00	0.00	0.00
15,900.00	90.23	179.60	12,895.52	-3,288.01	147.03	3,290.16	0.00	0.00	0.00
16,000.00	90.23	179.60	12,895.12	-3,388.00	147.72	3,390.15	0.00	0.00	0.00
16,100.00	90.23	179.60	12,894.73	-3,488.00	148.41	3,490.14	0.00	0.00	0.00
16,200.00	90.23	179.60	12,894.34	-3,588.00	149.10	3,590.14	0.00	0.00	0.00
16,300.00	90.23	179.60	12,893.94	-3,687.99	149.79	3,690.13	0.00	0.00	0.00
16,400.00	90.23	179.60	12,893.55	-3,787.99	150.49	3,790.12	0.00	0.00	0.00
16,500.00	90.23	179.60	12,893.15	-3,887.99	151.18	3,890.11	0.00	0.00	0.00
16,600.00	90.23	179.60	12,892.76	-3,987.98	151.87	3,990.11	0.00	0.00	0.00
16,700.00	90.23	179.60	12,892.37	-4,087.98	152.56	4,090.10	0.00	0.00	0.00
16,800.00	90.23	179.60	12,891.97	-4,187.98	153.25	4,190.09	0.00	0.00	0.00
16,900.00	90.23	179.60	12,891.58	-4,287.97	153.95	4,290.08	0.00	0.00	0.00
17,000.00	90.23	179.60	12,891.18	-4,387.97	154.64	4,390.08	0.00	0.00	0.00
17,100.00	90.23	179.60	12,890.79	-4,487.97	155.33	4,490.07	0.00	0.00	0.00
17,200.00	90.23	179.60	12,890.40	-4,587.96	156.02	4,590.06	0.00	0.00	0.00
17,300.00	90.23	179.60	12,890.00	-4,687.96	156.72	4,690.05	0.00	0.00	0.00
17,400.00	90.23	179.60	12,889.61	-4,787.96	157.41	4,790.05	0.00	0.00	0.00
17,500.00	90.23	179.60	12,889.22	-4,887.96	158.10	4,890.04	0.00	0.00	0.00
17,600.00	90.23	179.60	12,888.82	-4,987.95	158.79	4,990.03	0.00	0.00	0.00
17,700.00	90.23	179.60	12,888.43	-5,087.95	159.48	5,090.02	0.00	0.00	0.00
17,800.00	90.23	179.60	12,888.03	-5,187.95	160.18	5,190.02	0.00	0.00	0.00
17,900.00	90.23	179.60	12,887.64	-5,287.94	160.87	5,290.01	0.00	0.00	0.00
18,000.00	90.23	179.60	12,887.25	-5,387.94	161.56	5,390.00	0.00	0.00	0.00
18,100.00	90.23	179.60	12,886.85	-5,487.94	162.25	5,490.00	0.00	0.00	0.00
18,200.00	90.23	179.60	12,886.46	-5,587.93	162.94	5,589.99	0.00	0.00	0.00
18,300.00	90.23	179.60	12,886.07	-5,687.93	163.64	5,689.98	0.00	0.00	0.00
18,400.00	90.23	179.60	12,885.67	-5,787.93	164.33	5,789.97	0.00	0.00	0.00
18,500.00	90.23	179.60	12,885.28	-5,887.92	165.02	5,889.97	0.00	0.00	0.00
18,600.00	90.23	179.60	12,884.88	-5,987.92	165.71	5,989.96	0.00	0.00	0.00



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18,700.00	90.23	179.60	12,884.49	-6,087.92	166.40	6,089.95	0.00	0.00	0.00
18,800.00	90.23	179.60	12,884.10	-6,187.91	167.10	6,189.94	0.00	0.00	0.00
18,900.00	90.23	179.60	12,883.70	-6,287.91	167.79	6,289.94	0.00	0.00	0.00
19,000.00	90.23	179.60	12,883.31	-6,387.91	168.48	6,389.93	0.00	0.00	0.00
19,100.00	90.23	179.60	12,882.91	-6,487.90	169.17	6,489.92	0.00	0.00	0.00
19,200.00	90.23	179.60	12,882.52	-6,587.90	169.87	6,589.91	0.00	0.00	0.00
19,300.00	90.23	179.60	12,882.13	-6,687.90	170.56	6,689.91	0.00	0.00	0.00
19,400.00	90.23	179.60	12,881.73	-6,787.89	171.25	6,789.90	0.00	0.00	0.00
19,500.00	90.23	179.60	12,881.34	-6,887.89	171.94	6,889.89	0.00	0.00	0.00
19,600.00	90.23	179.60	12,880.95	-6,987.89	172.63	6,989.88	0.00	0.00	0.00
19,700.00	90.23	179.60	12,880.55	-7,087.89	173.33	7,089.88	0.00	0.00	0.00
19,800.00	90.23	179.60	12,880.16	-7,187.88	174.02	7,189.87	0.00	0.00	0.00
19,900.00	90.23	179.60	12,879.76	-7,287.88	174.71	7,289.86	0.00	0.00	0.00
20,000.00	90.23	179.60	12,879.37	-7,387.88	175.40	7,389.85	0.00	0.00	0.00
20,100.00	90.23	179.60	12,878.98	-7,487.87	176.09	7,489.85	0.00	0.00	0.00
20,200.00	90.23	179.60	12,878.58	-7,587.87	176.79	7,589.84	0.00	0.00	0.00
20,300.00	90.23	179.60	12,878.19	-7,687.87	177.48	7,689.83	0.00	0.00	0.00
20,400.00	90.23	179.60	12,877.80	-7,787.86	178.17	7,789.82	0.00	0.00	0.00
20,500.00	90.23	179.60	12,877.40	-7,887.86	178.86	7,889.82	0.00	0.00	0.00
20,600.00	90.23	179.60	12,877.01	-7,987.86	179.56	7,989.81	0.00	0.00	0.00
20,700.00	90.23	179.60	12,876.61	-8,087.85	180.25	8,089.80	0.00	0.00	0.00
20,800.00	90.23	179.60	12,876.22	-8,187.85	180.94	8,189.79	0.00	0.00	0.00
20,900.00	90.23	179.60	12,875.83	-8,287.85	181.63	8,289.79	0.00	0.00	0.00
21,000.00	90.23	179.60	12,875.43	-8,387.84	182.32	8,389.78	0.00	0.00	0.00
21,100.00	90.23	179.60	12,875.04	-8,487.84	183.02	8,489.77	0.00	0.00	0.00
21,200.00	90.23	179.60	12,874.64	-8,587.84	183.71	8,589.77	0.00	0.00	0.00
21,300.00	90.23	179.60	12,874.25	-8,687.83	184.40	8,689.76	0.00	0.00	0.00
21,400.00	90.23	179.60	12,873.86	-8,787.83	185.09	8,789.75	0.00	0.00	0.00
21,500.00	90.23	179.60	12,873.46	-8,887.83	185.78	8,889.74	0.00	0.00	0.00
21,600.00	90.23	179.60	12,873.07	-8,987.83	186.48	8,989.74	0.00	0.00	0.00
21,700.00	90.23	179.60	12,872.68	-9,087.82	187.17	9,089.73	0.00	0.00	0.00
21,800.00	90.23	179.60	12,872.28	-9,187.82	187.86	9,189.72	0.00	0.00	0.00
21,900.00	90.23	179.60	12,871.89	-9,287.82	188.55	9,289.71	0.00	0.00	0.00
22,000.00	90.23	179.60	12,871.49	-9,387.81	189.24	9,389.71	0.00	0.00	0.00
22,100.00	90.23	179.60	12,871.10	-9,487.81	189.94	9,489.70	0.00	0.00	0.00
22,200.00	90.23	179.60	12,870.71	-9,587.81	190.63	9,589.69	0.00	0.00	0.00
22,300.00	90.23	179.60	12,870.31	-9,687.80	191.32	9,689.68	0.00	0.00	0.00
22,400.00	90.23	179.60	12,869.92	-9,787.80	192.01	9,789.68	0.00	0.00	0.00
22,500.00	90.23	179.60	12,869.53	-9,887.80	192.71	9,889.67	0.00	0.00	0.00
22,600.00	90.23	179.60	12,869.13	-9,987.79	193.40	9,989.66	0.00	0.00	0.00
22,700.00	90.23	179.60	12,868.74	-10,087.79	194.09	10,089.65	0.00	0.00	0.00
22,800.00	90.23	179.60	12,868.34	-10,187.79	194.78	10,189.65	0.00	0.00	0.00
22,900.00	90.23	179.60	12,867.95	-10,287.78	195.47	10,289.64	0.00	0.00	0.00
23,000.00	90.23	179.60	12,867.56	-10,387.78	196.17	10,389.63	0.00	0.00	0.00
23,100.00	90.23	179.60	12,867.16	-10,487.78	196.86	10,489.62	0.00	0.00	0.00
23,200.00	90.23	179.60	12,866.77	-10,587.77	197.55	10,589.62	0.00	0.00	0.00
23,300.00	90.23	179.60	12,866.37	-10,687.77	198.24	10,689.61	0.00	0.00	0.00
23,395.03	90.23	179.60	12,866.00	-10,782.80	198.90	10,784.63	0.00	0.00	0.00
TD at 23395.03									

Database: USA Compass
Company: COG Operating LLC
Project: Lea County, NM (NAD27 NME)
Site: Stove Pipe Federal Com
Well: 702H
Wellbore: OH / 65850
Design: Plan 2 12-16-19

Local Co-ordinate Reference: Well 702H
TVD Reference: RKB @ 3351.30usft (Scandril Quest)
MD Reference: RKB @ 3351.30usft (Scandril Quest)
North Reference: Grid
Survey Calculation Method: Minimum Curvature

Design Targets

Target Name

- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
BHL - Stove Pipe Fed	0.00	0.00	12,866.00	-10,782.80	198.90	415,047.10	786,670.40	32° 8' 15.694332 N	3° 24' 25.938751 W
- plan hits target center									
- Point									
LTP - Stove Pipe Fed	0.00	0.00	12,866.19	-10,732.80	198.50	415,097.10	786,670.00	32° 8' 16.189127 N	3° 24' 25.938403 W
- plan misses target center by 45.03usft at 23300.00usft MD (12866.37 TVD, -10687.77 N, 198.24 E)									
- Point									
FTP - Stove Pipe Fed	0.00	0.00	12,906.00	-369.00	124.30	425,460.90	786,595.80	32° 9' 58.747317 N	3° 24' 25.764415 W
- plan misses target center by 53.92usft at 13000.00usft MD (12858.58 TVD, -394.62 N, 126.14 E)									
- Point									

Formations

Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction
(usft)	(usft)			(°)	(°)
861.52	861.32	Rustler		-0.22	178.94
1,321.66	1,321.27	TOS		-0.22	178.94
5,171.69	5,171.25	BOS		-0.22	178.94
5,508.69	5,508.25	LMAR (Top Delaware)		-0.22	178.94
5,549.69	5,549.25	BLCN		-0.22	178.94
6,470.83	6,470.23	CYCN		-0.22	178.94
8,115.09	8,114.19	BYCN		-0.22	178.94
9,385.28	9,384.17	Bone Spring		-0.22	178.94
10,572.46	10,571.14	FBSG_sand		-0.22	178.94
11,103.54	11,102.13	SBSG_sand		-0.22	178.94
11,597.62	11,596.12	SBSG_sand_Base		-0.22	178.94
12,202.71	12,201.10	TBSG_sand		-0.22	178.94
12,683.53	12,660.70	WFMP		-0.22	178.94
12,839.96	12,775.30	WFMP A Shale		-0.22	178.94

Plan Annotations

Measured Depth	Vertical Depth	Local Coordinates		Comment
(usft)	(usft)	+N/-S (usft)	+E/-W (usft)	
1,202.00	1,201.66	-5.58	-7.02	Tie In
1,400.00	1,399.58	-11.33	-7.47	Begin 1.50°/100' Drop
1,511.33	1,510.89	-12.95	-7.60	Begin Vertical Hold
5,500.44	5,500.00	-12.95	-7.60	KOP, Begin 2.00°/100' Build
5,554.07	5,553.63	-13.09	-7.12	Hold 1.07° Inc at 106.87° Azm
12,337.96	12,336.33	-50.00	114.39	Begin 10.00°/100' Build & Turn
13,237.03	12,906.00	-625.12	128.59	LP, Hold 90.23° Inc at 179.60° Azm
23,395.03	12,866.00	-10,782.80	198.90	TD at 23395.03