

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

FORM 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.*

5. Lease Serial No.  
NMNM0897

6. If Indian, Allottee or Tribe Name

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

8. Well Name and No.  
MAS FEDERAL COM 1H

9. API Well No.  
30-025-44092-00-X1

10. Field and Pool or Exploratory Area  
WILDCAT BONE SPRING

11. County or Parish, State  
LEA COUNTY, NM

SUBMIT IN TRIPLICATE - Other instructions on page 2

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 35 T20S R34E NWNW 190FNL 660FWL

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

| TYPE OF SUBMISSION                                   | TYPE OF ACTION                                |                                               |                                                    |                                           |
|------------------------------------------------------|-----------------------------------------------|-----------------------------------------------|----------------------------------------------------|-------------------------------------------|
| <input checked="" type="checkbox"/> Notice of Intent | <input type="checkbox"/> Acidize              | <input type="checkbox"/> Deepen               | <input type="checkbox"/> Production (Start/Resume) | <input type="checkbox"/> Water Shut-Off   |
| <input type="checkbox"/> Subsequent Report           | <input type="checkbox"/> Alter Casing         | <input type="checkbox"/> Hydraulic Fracturing | <input type="checkbox"/> Reclamation               | <input type="checkbox"/> Well Integrity   |
| <input type="checkbox"/> Final Abandonment Notice    | <input type="checkbox"/> Casing Repair        | <input type="checkbox"/> New Construction     | <input type="checkbox"/> Recomplete                | <input checked="" type="checkbox"/> Other |
|                                                      | <input type="checkbox"/> Change Plans         | <input type="checkbox"/> Plug and Abandon     | <input type="checkbox"/> Temporarily Abandon       | Change to Original A                      |
|                                                      | <input type="checkbox"/> Convert to Injection | <input type="checkbox"/> Plug Back            | <input type="checkbox"/> 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 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 approved APD.

Formation:  
From: WC-025 G-09 S203435D; Wolfcamp  
To: Wildcat; Bone Spring

Well is being shifted up in TVD by 65ft.  
C102 Attached.

Well will be drilled to land in bottom of 3rd Bone Spring sand, and be drilled to a total TD depth

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

Electronic Submission #397327 verified by the BLM Well Information System  
For COG OPERATING LLC, sent to the Hobbs  
Committed to AFMSS for processing by PRISCILLA PEREZ on 12/18/2017 (18PP0395SE)

Name (Printed/Typed) MAYTE X REYES

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 12/07/2017

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By MUSTAFA HAQUE

Title PETROLEUM ENGINEER

Date 01/09/2018

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 #397327 that would not fit on the form**

**32. Additional remarks, continued**

of 15939ft MD.  
Directional plan attached.

DISTRICT I  
1025 N. FRENCH DR., HOBBBS, NM 88240  
Phone: (575) 393-0181 Fax: (575) 393-0720

DISTRICT II  
811 S. FIRST ST., ARTESIA, NM 88210  
Phone: (575) 748-1283 Fax: (575) 748-0720

DISTRICT III  
1000 RIO BRAZOS RD., AZTEC, NM 87410  
Phone: (505) 334-8178 Fax: (505) 334-8179

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<br><b>30-025-44092</b> | Pool Code                                  | Pool Name<br><b>Wildcat; Bone Spring</b> |
| Property Code<br><b>319724</b>    | Property Name<br><b>MAS FED COM</b>        | Well Number<br><b>1H</b>                 |
| OGRID No.<br><b>229137</b>        | Operator Name<br><b>COG OPERATING, LLC</b> | Elevation<br><b>3722.0'</b>              |

**Surface Location**

| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
|---------------|---------|----------|-------|---------|---------------|------------------|---------------|----------------|--------|
| D             | 35      | 20-S     | 34-E  |         | 190           | NORTH            | 660           | 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             | 35      | 20-S     | 34-E  |         | 200           | SOUTH            | 660           | WEST           | LEA    |

|                               |                 |                    |           |
|-------------------------------|-----------------|--------------------|-----------|
| Dedicated Acres<br><b>160</b> | Joint or Infill | Consolidation Code | Order No. |
|-------------------------------|-----------------|--------------------|-----------|

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

|  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | <p><b>OPERATOR CERTIFICATION</b></p> <p>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.</p> <p><i>Mayte Reyes</i> 12/7/2017<br/>Signature Date<br/><b>Mayte Reyes</b><br/>Printed Name<br/><b>mreyes1@concho.com</b><br/>E-mail Address</p> <p><b>SURVEYOR CERTIFICATION</b></p> <p>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.</p> <p>JULY 2, 2015<br/>Date of Survey</p> <p>Signature &amp; Seal of Professional Surveyor</p> <p><b>CHAD L. HARCROW</b><br/>NEW MEXICO<br/>17777<br/>LICENSED PROFESSIONAL SURVEYOR</p> <p><i>Chad L. Harcrow</i> 5/27/17<br/>Certificate No. CHAD HARCROW 17777<br/>W.O. #17-812 DRAWN BY: CD</p> |
|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

# **COG Operating L L C**

Lea County, NM (NAD27 NME)

Sec. 35, T 20 S. , R 34 E

Mas Fed Com 1H

Wellbore #1

Plan: Plan #2

## **Standard Survey Report**

07 December, 2017

# Survey Report

**Company:** COG Operating L L C  
**Project:** Lea County, NM (NAD27 NME)  
**Site:** Sec. 35, T 20 S. , R 34 E  
**Well:** Mas Fed Com 1H  
**Wellbore:** Wellbore #1  
**Design:** Plan #2

**Local Co-ordinate Reference:** Well Mas Fed Com 1H  
**TVD Reference:** KB=26' @ 3748.00ft (Scandril Freedom)  
**MD Reference:** KB=26' @ 3748.00ft (Scandril Freedom)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1

**Project** Lea County, NM (NAD27 NME)

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

**System Datum:** Mean Sea Level

**Site** Sec. 35, T 20 S. , R 34 E

|                              |         |                     |                   |                          |             |
|------------------------------|---------|---------------------|-------------------|--------------------------|-------------|
| <b>Site Position:</b>        |         | <b>Northing:</b>    | 559,699.5000 usft | <b>Latitude:</b>         | 32.536200   |
| <b>From:</b>                 | Map     | <b>Easting:</b>     | 745,455.6000 usft | <b>Longitude:</b>        | -103.536869 |
| <b>Position Uncertainty:</b> | 0.00 ft | <b>Slot Radius:</b> | 13-3/16 "         | <b>Grid Convergence:</b> | 0.43 °      |

**Well** Mas Fed Com 1H

|                             |              |         |                            |                   |                      |             |
|-----------------------------|--------------|---------|----------------------------|-------------------|----------------------|-------------|
| <b>Well Position</b>        | <b>+N/-S</b> | 0.00 ft | <b>Northing:</b>           | 559,699.5000 usft | <b>Latitude:</b>     | 32.536200   |
|                             | <b>+E/-W</b> | 0.00 ft | <b>Easting:</b>            | 745,455.6000 usft | <b>Longitude:</b>    | -103.536869 |
| <b>Position Uncertainty</b> |              | 0.00 ft | <b>Wellhead Elevation:</b> | 0.00 ft           | <b>Ground Level:</b> | 3,722.00 ft |

**Wellbore** Wellbore #1

| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|-----------|------------|-------------|--------------------|------------------|------------------------|
|           | HDGM       | 12/5/2017   | 6.73               | 60.48            | 48,259                 |

**Design** Plan #2

**Audit Notes:**

**Version:** Phase: PLAN Tie On Depth: 0.00

| Vertical Section: | Depth From (TVD)<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Direction<br>(°) |
|-------------------|--------------------------|---------------|---------------|------------------|
|                   | 11,348.00                | 0.00          | 0.00          | 179.64           |

**Survey Tool Program** Date 12/7/2017

| From<br>(ft) | To<br>(ft) | Survey (Wellbore)     | Tool Name | Description    |
|--------------|------------|-----------------------|-----------|----------------|
| 0.00         | 15,939.00  | Plan #2 (Wellbore #1) | MWD       | MWD - Standard |

**Planned Survey**

| Measured<br>Depth<br>(ft)                      | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Vertical<br>Section<br>(ft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
|------------------------------------------------|--------------------|----------------|---------------------------|---------------|---------------|-----------------------------|-------------------------------|------------------------------|-----------------------------|
| 0.00                                           | 0.00               | 0.00           | 0.00                      | 0.00          | 0.00          | 0.00                        | 0.00                          | 0.00                         | 0.00                        |
| <b>Mas Fed Com #1 LTP - Mas Fed Com #1 FTP</b> |                    |                |                           |               |               |                             |                               |                              |                             |
| 100.00                                         | 0.00               | 0.00           | 100.00                    | 0.00          | 0.00          | 0.00                        | 0.00                          | 0.00                         | 0.00                        |
| 200.00                                         | 0.00               | 0.00           | 200.00                    | 0.00          | 0.00          | 0.00                        | 0.00                          | 0.00                         | 0.00                        |
| 300.00                                         | 0.00               | 0.00           | 300.00                    | 0.00          | 0.00          | 0.00                        | 0.00                          | 0.00                         | 0.00                        |
| 400.00                                         | 0.00               | 0.00           | 400.00                    | 0.00          | 0.00          | 0.00                        | 0.00                          | 0.00                         | 0.00                        |
| 500.00                                         | 0.00               | 0.00           | 500.00                    | 0.00          | 0.00          | 0.00                        | 0.00                          | 0.00                         | 0.00                        |
| 600.00                                         | 0.00               | 0.00           | 600.00                    | 0.00          | 0.00          | 0.00                        | 0.00                          | 0.00                         | 0.00                        |
| 700.00                                         | 0.00               | 0.00           | 700.00                    | 0.00          | 0.00          | 0.00                        | 0.00                          | 0.00                         | 0.00                        |
| 800.00                                         | 0.00               | 0.00           | 800.00                    | 0.00          | 0.00          | 0.00                        | 0.00                          | 0.00                         | 0.00                        |
| 900.00                                         | 0.00               | 0.00           | 900.00                    | 0.00          | 0.00          | 0.00                        | 0.00                          | 0.00                         | 0.00                        |

# Survey Report

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**Database:** EDM 5000.1

## Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| 1,000.00            | 0.00            | 0.00        | 1,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,100.00            | 0.00            | 0.00        | 1,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,200.00            | 0.00            | 0.00        | 1,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,300.00            | 0.00            | 0.00        | 1,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,400.00            | 0.00            | 0.00        | 1,400.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,500.00            | 0.00            | 0.00        | 1,500.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,600.00            | 0.00            | 0.00        | 1,600.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,700.00            | 0.00            | 0.00        | 1,700.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,800.00            | 0.00            | 0.00        | 1,800.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 1,900.00            | 0.00            | 0.00        | 1,900.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,000.00            | 0.00            | 0.00        | 2,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,100.00            | 0.00            | 0.00        | 2,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,200.00            | 0.00            | 0.00        | 2,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,300.00            | 0.00            | 0.00        | 2,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,400.00            | 0.00            | 0.00        | 2,400.00            | 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                  |
| 2,600.00            | 0.00            | 0.00        | 2,600.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,700.00            | 0.00            | 0.00        | 2,700.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,800.00            | 0.00            | 0.00        | 2,800.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 2,900.00            | 0.00            | 0.00        | 2,900.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 3,000.00            | 0.00            | 0.00        | 3,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 3,100.00            | 0.00            | 0.00        | 3,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 3,200.00            | 0.00            | 0.00        | 3,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 3,300.00            | 0.00            | 0.00        | 3,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 3,400.00            | 0.00            | 0.00        | 3,400.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 3,500.00            | 0.00            | 0.00        | 3,500.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 3,600.00            | 0.00            | 0.00        | 3,600.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 3,700.00            | 0.00            | 0.00        | 3,700.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 3,800.00            | 0.00            | 0.00        | 3,800.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 3,900.00            | 0.00            | 0.00        | 3,900.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 4,000.00            | 0.00            | 0.00        | 4,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 4,100.00            | 0.00            | 0.00        | 4,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 4,200.00            | 0.00            | 0.00        | 4,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 4,300.00            | 0.00            | 0.00        | 4,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 4,400.00            | 0.00            | 0.00        | 4,400.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 4,500.00            | 0.00            | 0.00        | 4,500.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 4,600.00            | 0.00            | 0.00        | 4,600.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 4,700.00            | 0.00            | 0.00        | 4,700.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 4,800.00            | 0.00            | 0.00        | 4,800.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 4,900.00            | 0.00            | 0.00        | 4,900.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 5,000.00            | 0.00            | 0.00        | 5,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 5,100.00            | 0.00            | 0.00        | 5,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 5,200.00            | 0.00            | 0.00        | 5,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |

# Survey Report

**Company:** COG Operating L L C  
**Project:** Lea County, NM (NAD27 NME)  
**Site:** Sec. 35, T 20 S., R 34 E  
**Well:** Mas Fed Com 1H  
**Wellbore:** Wellbore #1  
**Design:** Plan #2

**Local Co-ordinate Reference:** Well Mas Fed Com 1H  
**TVD Reference:** KB=26' @ 3748.00ft (Scandrill Freedom)  
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**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1

## Planned Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| 5,300.00            | 0.00            | 0.00        | 5,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 5,400.00            | 0.00            | 0.00        | 5,400.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 5,500.00            | 0.00            | 0.00        | 5,500.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 5,600.00            | 0.00            | 0.00        | 5,600.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 5,700.00            | 0.00            | 0.00        | 5,700.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 5,800.00            | 0.00            | 0.00        | 5,800.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 5,900.00            | 0.00            | 0.00        | 5,900.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 6,000.00            | 0.00            | 0.00        | 6,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 6,100.00            | 0.00            | 0.00        | 6,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 6,200.00            | 0.00            | 0.00        | 6,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 6,300.00            | 0.00            | 0.00        | 6,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 6,400.00            | 0.00            | 0.00        | 6,400.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 6,500.00            | 0.00            | 0.00        | 6,500.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 6,600.00            | 0.00            | 0.00        | 6,600.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 6,700.00            | 0.00            | 0.00        | 6,700.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 6,800.00            | 0.00            | 0.00        | 6,800.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 6,900.00            | 0.00            | 0.00        | 6,900.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 7,000.00            | 0.00            | 0.00        | 7,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 7,100.00            | 0.00            | 0.00        | 7,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 7,200.00            | 0.00            | 0.00        | 7,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 7,300.00            | 0.00            | 0.00        | 7,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 7,400.00            | 0.00            | 0.00        | 7,400.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 7,500.00            | 0.00            | 0.00        | 7,500.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 7,600.00            | 0.00            | 0.00        | 7,600.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 7,700.00            | 0.00            | 0.00        | 7,700.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 7,800.00            | 0.00            | 0.00        | 7,800.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 7,900.00            | 0.00            | 0.00        | 7,900.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 8,000.00            | 0.00            | 0.00        | 8,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 8,100.00            | 0.00            | 0.00        | 8,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 8,200.00            | 0.00            | 0.00        | 8,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 8,300.00            | 0.00            | 0.00        | 8,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 8,400.00            | 0.00            | 0.00        | 8,400.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 8,500.00            | 0.00            | 0.00        | 8,500.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 8,600.00            | 0.00            | 0.00        | 8,600.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 8,700.00            | 0.00            | 0.00        | 8,700.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 8,800.00            | 0.00            | 0.00        | 8,800.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 8,900.00            | 0.00            | 0.00        | 8,900.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9,000.00            | 0.00            | 0.00        | 9,000.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9,100.00            | 0.00            | 0.00        | 9,100.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9,200.00            | 0.00            | 0.00        | 9,200.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9,300.00            | 0.00            | 0.00        | 9,300.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9,400.00            | 0.00            | 0.00        | 9,400.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9,500.00            | 0.00            | 0.00        | 9,500.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |

# Survey Report

**Company:** COG Operating L L C  
**Project:** Lea County, NM (NAD27 NME)  
**Site:** Sec. 35, T 20 S. , R 34 E  
**Well:** Mas Fed Com 1H  
**Wellbore:** Wellbore #1  
**Design:** Plan #2

**Local Co-ordinate Reference:** Well Mas Fed Com 1H  
**TVD Reference:** KB=26' @ 3748.00ft (Scandril Freedom)  
**MD Reference:** KB=26' @ 3748.00ft (Scandril Freedom)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1

## Planned Survey

| Measured Depth (ft)                      | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|------------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| 9,600.00                                 | 0.00            | 0.00        | 9,600.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9,700.00                                 | 0.00            | 0.00        | 9,700.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9,800.00                                 | 0.00            | 0.00        | 9,800.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 9,900.00                                 | 0.00            | 0.00        | 9,900.00            | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 10,000.00                                | 0.00            | 0.00        | 10,000.00           | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 10,100.00                                | 0.00            | 0.00        | 10,100.00           | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 10,200.00                                | 0.00            | 0.00        | 10,200.00           | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 10,300.00                                | 0.00            | 0.00        | 10,300.00           | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 10,400.00                                | 0.00            | 0.00        | 10,400.00           | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 10,500.00                                | 0.00            | 0.00        | 10,500.00           | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 10,600.00                                | 0.00            | 0.00        | 10,600.00           | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 10,700.00                                | 0.00            | 0.00        | 10,700.00           | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| 10,775.63                                | 0.00            | 0.00        | 10,775.63           | 0.00       | 0.00       | 0.00                  | 0.00                    | 0.00                   | 0.00                  |
| <b>Start Build 12.00</b>                 |                 |             |                     |            |            |                       |                         |                        |                       |
| 10,800.00                                | 2.92            | 179.64      | 10,799.99           | -0.62      | 0.00       | 0.62                  | 12.00                   | 12.00                  | 0.00                  |
| 10,900.00                                | 14.92           | 179.64      | 10,898.60           | -16.11     | 0.10       | 16.11                 | 12.00                   | 12.00                  | 0.00                  |
| 11,000.00                                | 26.92           | 179.64      | 10,991.83           | -51.75     | 0.33       | 51.75                 | 12.00                   | 12.00                  | 0.00                  |
| 11,100.00                                | 38.92           | 179.64      | 11,075.62           | -106.01    | 0.67       | 106.01                | 12.00                   | 12.00                  | 0.00                  |
| 11,200.00                                | 50.92           | 179.64      | 11,146.29           | -176.49    | 1.12       | 176.50                | 12.00                   | 12.00                  | 0.00                  |
| 11,300.00                                | 62.92           | 179.64      | 11,200.77           | -260.13    | 1.65       | 260.14                | 12.00                   | 12.00                  | 0.00                  |
| 11,400.00                                | 74.92           | 179.64      | 11,236.66           | -353.27    | 2.24       | 353.28                | 12.00                   | 12.00                  | 0.00                  |
| 11,500.00                                | 86.92           | 179.64      | 11,252.41           | -451.84    | 2.86       | 451.85                | 12.00                   | 12.00                  | 0.00                  |
| 11,515.77                                | 88.82           | 179.64      | 11,253.00           | -467.59    | 2.96       | 467.60                | 12.00                   | 12.00                  | 0.00                  |
| <b>Start 2032.83 hold at 11515.77 MD</b> |                 |             |                     |            |            |                       |                         |                        |                       |
| 11,600.00                                | 88.82           | 179.64      | 11,254.74           | -551.80    | 3.50       | 551.82                | 0.00                    | 0.00                   | 0.00                  |
| 11,700.00                                | 88.82           | 179.64      | 11,256.80           | -651.78    | 4.13       | 651.79                | 0.00                    | 0.00                   | 0.00                  |
| 11,800.00                                | 88.82           | 179.64      | 11,258.87           | -751.76    | 4.77       | 751.77                | 0.00                    | 0.00                   | 0.00                  |
| 11,900.00                                | 88.82           | 179.64      | 11,260.93           | -851.73    | 5.40       | 851.75                | 0.00                    | 0.00                   | 0.00                  |
| 12,000.00                                | 88.82           | 179.64      | 11,263.00           | -951.71    | 6.03       | 951.73                | 0.00                    | 0.00                   | 0.00                  |
| 12,100.00                                | 88.82           | 179.64      | 11,265.07           | -1,051.69  | 6.67       | 1,051.71              | 0.00                    | 0.00                   | 0.00                  |
| 12,200.00                                | 88.82           | 179.64      | 11,267.13           | -1,151.66  | 7.30       | 1,151.69              | 0.00                    | 0.00                   | 0.00                  |
| 12,300.00                                | 88.82           | 179.64      | 11,269.20           | -1,251.64  | 7.93       | 1,251.67              | 0.00                    | 0.00                   | 0.00                  |
| 12,400.00                                | 88.82           | 179.64      | 11,271.27           | -1,351.62  | 8.57       | 1,351.64              | 0.00                    | 0.00                   | 0.00                  |
| 12,500.00                                | 88.82           | 179.64      | 11,273.33           | -1,451.59  | 9.20       | 1,451.62              | 0.00                    | 0.00                   | 0.00                  |
| 12,600.00                                | 88.82           | 179.64      | 11,275.40           | -1,551.57  | 9.84       | 1,551.60              | 0.00                    | 0.00                   | 0.00                  |
| 12,700.00                                | 88.82           | 179.64      | 11,277.47           | -1,651.55  | 10.47      | 1,651.58              | 0.00                    | 0.00                   | 0.00                  |
| 12,800.00                                | 88.82           | 179.64      | 11,279.53           | -1,751.52  | 11.10      | 1,751.56              | 0.00                    | 0.00                   | 0.00                  |
| 12,900.00                                | 88.82           | 179.64      | 11,281.60           | -1,851.50  | 11.74      | 1,851.54              | 0.00                    | 0.00                   | 0.00                  |
| 13,000.00                                | 88.82           | 179.64      | 11,283.66           | -1,951.48  | 12.37      | 1,951.52              | 0.00                    | 0.00                   | 0.00                  |
| 13,100.00                                | 88.82           | 179.64      | 11,285.73           | -2,051.45  | 13.01      | 2,051.50              | 0.00                    | 0.00                   | 0.00                  |
| 13,200.00                                | 88.82           | 179.64      | 11,287.80           | -2,151.43  | 13.64      | 2,151.47              | 0.00                    | 0.00                   | 0.00                  |
| 13,300.00                                | 88.82           | 179.64      | 11,289.86           | -2,251.41  | 14.27      | 2,251.45              | 0.00                    | 0.00                   | 0.00                  |
| 13,400.00                                | 88.82           | 179.64      | 11,291.93           | -2,351.38  | 14.91      | 2,351.43              | 0.00                    | 0.00                   | 0.00                  |
| 13,500.00                                | 88.82           | 179.64      | 11,294.00           | -2,451.36  | 15.54      | 2,451.41              | 0.00                    | 0.00                   | 0.00                  |

# Survey Report

**Company:** COG Operating L L C  
**Project:** Lea County, NM (NAD27 NME)  
**Site:** Sec. 35, T 20 S. , R 34 E  
**Well:** Mas Fed Com 1H  
**Wellbore:** Wellbore #1  
**Design:** Plan #2

**Local Co-ordinate Reference:** Well Mas Fed Com 1H  
**TVD Reference:** KB=26' @ 3748.00ft (Scandrell Freedom)  
**MD Reference:** KB=26' @ 3748.00ft (Scandrell Freedom)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1

## Planned Survey

| Measured Depth (ft)                                            | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|----------------------------------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-------------------------|------------------------|-----------------------|
| 13,548.60                                                      | 88.82           | 179.64      | 11,295.00           | -2,499.95  | 15.85      | 2,500.00              | 0.00                    | 0.00                   | 0.00                  |
| <b>Start DLS 2.00 TFO -179.98 - Mas Fed Com #1 T @ 2500'VS</b> |                 |             |                     |            |            |                       |                         |                        |                       |
| 13,552.93                                                      | 88.73           | 179.64      | 11,295.09           | -2,504.28  | 15.88      | 2,504.33              | 2.00                    | -2.00                  | 0.00                  |
| <b>Start 2386.07 hold at 13552.93 MD</b>                       |                 |             |                     |            |            |                       |                         |                        |                       |
| 13,600.00                                                      | 88.73           | 179.64      | 11,296.14           | -2,551.34  | 16.17      | 2,551.39              | 0.00                    | 0.00                   | 0.00                  |
| 13,700.00                                                      | 88.73           | 179.64      | 11,298.35           | -2,651.31  | 16.81      | 2,651.36              | 0.00                    | 0.00                   | 0.00                  |
| 13,800.00                                                      | 88.73           | 179.64      | 11,300.57           | -2,751.28  | 17.44      | 2,751.34              | 0.00                    | 0.00                   | 0.00                  |
| 13,900.00                                                      | 88.73           | 179.64      | 11,302.79           | -2,851.26  | 18.08      | 2,851.31              | 0.00                    | 0.00                   | 0.00                  |
| 14,000.00                                                      | 88.73           | 179.64      | 11,305.01           | -2,951.23  | 18.71      | 2,951.29              | 0.00                    | 0.00                   | 0.00                  |
| 14,100.00                                                      | 88.73           | 179.64      | 11,307.22           | -3,051.20  | 19.34      | 3,051.26              | 0.00                    | 0.00                   | 0.00                  |
| 14,200.00                                                      | 88.73           | 179.64      | 11,309.44           | -3,151.18  | 19.98      | 3,151.24              | 0.00                    | 0.00                   | 0.00                  |
| 14,300.00                                                      | 88.73           | 179.64      | 11,311.66           | -3,251.15  | 20.61      | 3,251.22              | 0.00                    | 0.00                   | 0.00                  |
| 14,400.00                                                      | 88.73           | 179.64      | 11,313.88           | -3,351.12  | 21.25      | 3,351.19              | 0.00                    | 0.00                   | 0.00                  |
| 14,500.00                                                      | 88.73           | 179.64      | 11,316.09           | -3,451.10  | 21.88      | 3,451.17              | 0.00                    | 0.00                   | 0.00                  |
| 14,600.00                                                      | 88.73           | 179.64      | 11,318.31           | -3,551.07  | 22.51      | 3,551.14              | 0.00                    | 0.00                   | 0.00                  |
| 14,700.00                                                      | 88.73           | 179.64      | 11,320.53           | -3,651.04  | 23.15      | 3,651.12              | 0.00                    | 0.00                   | 0.00                  |
| 14,800.00                                                      | 88.73           | 179.64      | 11,322.74           | -3,751.02  | 23.78      | 3,751.09              | 0.00                    | 0.00                   | 0.00                  |
| 14,900.00                                                      | 88.73           | 179.64      | 11,324.96           | -3,850.99  | 24.41      | 3,851.07              | 0.00                    | 0.00                   | 0.00                  |
| 15,000.00                                                      | 88.73           | 179.64      | 11,327.18           | -3,950.96  | 25.05      | 3,951.04              | 0.00                    | 0.00                   | 0.00                  |
| 15,100.00                                                      | 88.73           | 179.64      | 11,329.40           | -4,050.94  | 25.68      | 4,051.02              | 0.00                    | 0.00                   | 0.00                  |
| 15,200.00                                                      | 88.73           | 179.64      | 11,331.61           | -4,150.91  | 26.32      | 4,150.99              | 0.00                    | 0.00                   | 0.00                  |
| 15,300.00                                                      | 88.73           | 179.64      | 11,333.83           | -4,250.88  | 26.95      | 4,250.97              | 0.00                    | 0.00                   | 0.00                  |
| 15,400.00                                                      | 88.73           | 179.64      | 11,336.05           | -4,350.86  | 27.58      | 4,350.94              | 0.00                    | 0.00                   | 0.00                  |
| 15,500.00                                                      | 88.73           | 179.64      | 11,338.27           | -4,450.83  | 28.22      | 4,450.92              | 0.00                    | 0.00                   | 0.00                  |
| 15,600.00                                                      | 88.73           | 179.64      | 11,340.48           | -4,550.80  | 28.85      | 4,550.90              | 0.00                    | 0.00                   | 0.00                  |
| 15,700.00                                                      | 88.73           | 179.64      | 11,342.70           | -4,650.78  | 29.49      | 4,650.87              | 0.00                    | 0.00                   | 0.00                  |
| 15,800.00                                                      | 88.73           | 179.64      | 11,344.92           | -4,750.75  | 30.12      | 4,750.85              | 0.00                    | 0.00                   | 0.00                  |
| 15,900.00                                                      | 88.73           | 179.64      | 11,347.14           | -4,850.72  | 30.75      | 4,850.82              | 0.00                    | 0.00                   | 0.00                  |
| 15,939.00                                                      | 88.73           | 179.64      | 11,348.00           | -4,889.71  | 31.00      | 4,889.81              | 0.00                    | 0.00                   | 0.00                  |
| <b>TD at 15939.00 - Mas Fed Com #1 BHL</b>                     |                 |             |                     |            |            |                       |                         |                        |                       |

## Design Targets

| Target Name               | Dip Angle (°) | Dip Dir. (°) | TVD (ft)  | +N/-S (ft) | +E/-W (ft) | Northing (usft) | Easting (usft) | Latitude  | Longitude   |
|---------------------------|---------------|--------------|-----------|------------|------------|-----------------|----------------|-----------|-------------|
| - hit/miss target         |               |              |           |            |            |                 |                |           |             |
| - Shape                   |               |              |           |            |            |                 |                |           |             |
| Mas Fed Com #1 T @        | 0.00          | 0.00         | 11,295.00 | -2,499.95  | 15.85      | 557,199.5550    | 745,471.4488   | 32.529329 | -103.536878 |
| - plan hits target center |               |              |           |            |            |                 |                |           |             |
| - Point                   |               |              |           |            |            |                 |                |           |             |
| Mas Fed Com #1 BHL        | 0.00          | 0.00         | 11,348.00 | -4,889.71  | 31.00      | 554,809.8000    | 745,486.6000   | 32.522760 | -103.536887 |
| - plan hits target center |               |              |           |            |            |                 |                |           |             |
| - Point                   |               |              |           |            |            |                 |                |           |             |

## Survey Report

**Company:** COG Operating L L C  
**Project:** Lea County, NM (NAD27 NME)  
**Site:** Sec. 35, T 20 S. , R 34 E  
**Well:** Mas Fed Com 1H  
**Wellbore:** Wellbore #1  
**Design:** Plan #2

**Local Co-ordinate Reference:** Well Mas Fed Com 1H  
**TVD Reference:** KB=26' @ 3748.00ft (Scandrill Freedom)  
**MD Reference:** KB=26' @ 3748.00ft (Scandrill Freedom)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1

### Formations

| Measured Depth (ft) | Vertical Depth (ft) | Name                | Lithology | Dip (°) | Dip Direction (°) |
|---------------------|---------------------|---------------------|-----------|---------|-------------------|
| 1,623.00            | 1,623.00            | Rustler             |           | 0.00    |                   |
| 1,713.00            | 1,713.00            | TOS                 |           | 0.00    |                   |
| 3,348.00            | 3,348.00            | BOS (Castile)       |           | 0.00    |                   |
| 3,498.00            | 3,498.00            | Yates               |           | 0.00    |                   |
| 3,838.00            | 3,838.00            | Reef                |           | 0.00    |                   |
| 5,738.00            | 5,738.00            | Base of Reef (BLCN) |           | 0.00    |                   |
| 5,793.00            | 5,793.00            | CYCN                |           | 0.00    |                   |
| 6,748.00            | 6,748.00            | BYCN                |           | 0.00    |                   |
| 8,588.00            | 8,588.00            | Bone Sprg (BSGL)    |           | 0.00    |                   |
| 9,048.00            | 9,048.00            | U Avalon Sh         |           | 0.00    |                   |
| 9,168.00            | 9,168.00            | L Avalon Sh         |           | 0.00    |                   |
| 9,708.00            | 9,708.00            | FBSG_sand           |           | 0.00    |                   |
| 10,291.00           | 10,291.00           | SBSG_sand           |           | 0.00    |                   |
| 11,129.52           | 11,098.00           | TBSG_sand           |           | 0.00    |                   |
| 12,725.88           | 11,278.00           | WFMP                |           | 0.00    |                   |

### Plan Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            | Comment                           |
|---------------------|---------------------|-------------------|------------|-----------------------------------|
|                     |                     | +N/-S (ft)        | +E/-W (ft) |                                   |
| 10,776              | 10,776              | 0                 | 0          | Start Build 12.00                 |
| 11,516              | 11,253              | -468              | 3          | Start 2032.83 hold at 11515.77 MD |
| 13,549              | 11,295              | -2500             | 16         | Start DLS 2.00 TFO -179.98        |
| 13,553              | 11,295              | -2504             | 16         | Start 2386.07 hold at 13552.93 MD |
| 15,939              | 11,348              | -4890             | 31         | TD at 15939.00                    |

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_



COG Operating L L C  
 Project: Lea County, NM (NAD27 NME)  
 Site: Sec. 35, T 20 S., R 34 E  
 Well: Mas Fed Com 1H  
 Wellbore: Wellbore #1  
 Plan: Plan #2 (Mas Fed Com 1H/Wellbore #1)  
 Scandrill Freedom

# WELL DETAILS: Mas Fed Com 1H

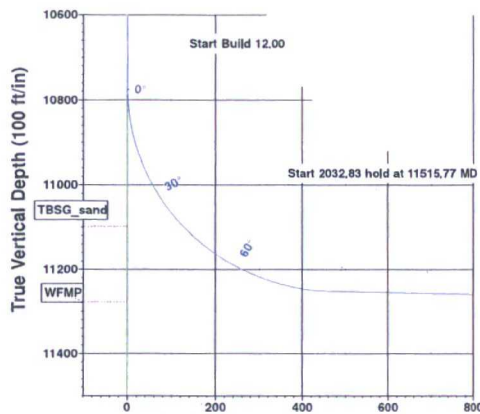
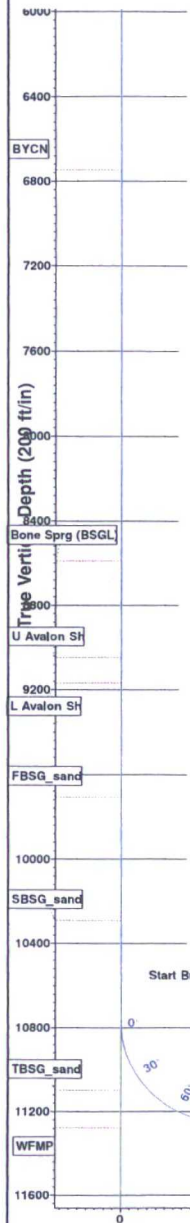
Ground Elevation:: 3722.00  
 RKB Elevation: KB=26' @ 3748.00ft (Scandrill Freedom)  
 Rig Name: Scandrill Freedom

Northing 559699.5000 Easting 745455.6000 Latitude 32.536200 Longitude -103.536869

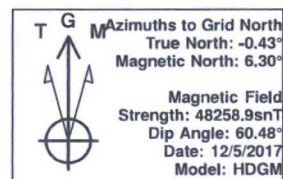


## Planned Section Details

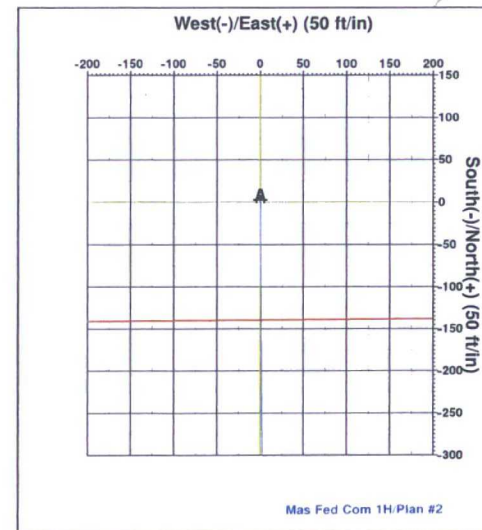
| Sec | MD       | Inc   | Azi    | TVD      | +N/-S    | +E/-W | Dleg  | TFace   | Vsect   |
|-----|----------|-------|--------|----------|----------|-------|-------|---------|---------|
| 1   | 0.00     | 0.00  | 0.00   | 0.00     | 0.00     | 0.00  | 0.00  | 0.00    | 0.00    |
| 2   | 10775.63 | 0.00  | 0.00   | 10775.63 | 0.00     | 0.00  | 0.00  | 0.00    | 0.00    |
| 3   | 11515.77 | 88.82 | 179.64 | 11253.00 | -467.59  | 2.96  | 12.00 | 179.64  | 467.60  |
| 4   | 13548.60 | 88.82 | 179.64 | 11295.00 | -2499.95 | 15.85 | 0.00  | 0.00    | 2500.00 |
| 5   | 13552.93 | 88.73 | 179.64 | 11295.09 | -2504.28 | 15.88 | 2.00  | -179.98 | 2504.33 |
| 6   | 15939.00 | 88.73 | 179.64 | 11348.00 | -4889.71 | 31.00 | 0.00  | 0.00    | 4889.81 |



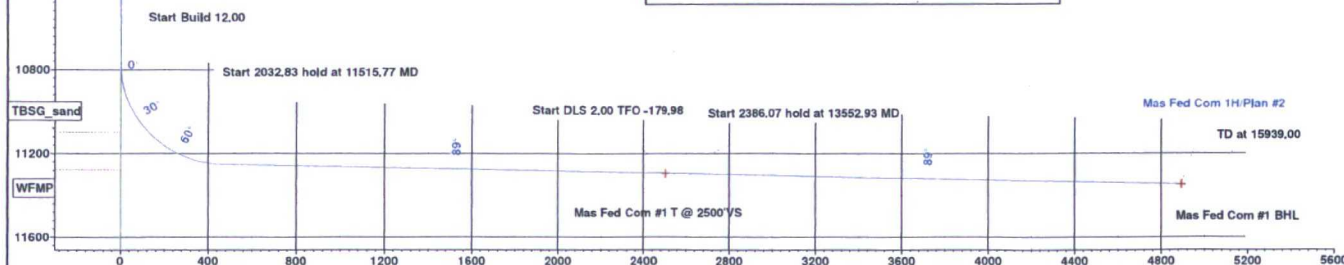
Vertical Section at 179.64° (100 ft/in)



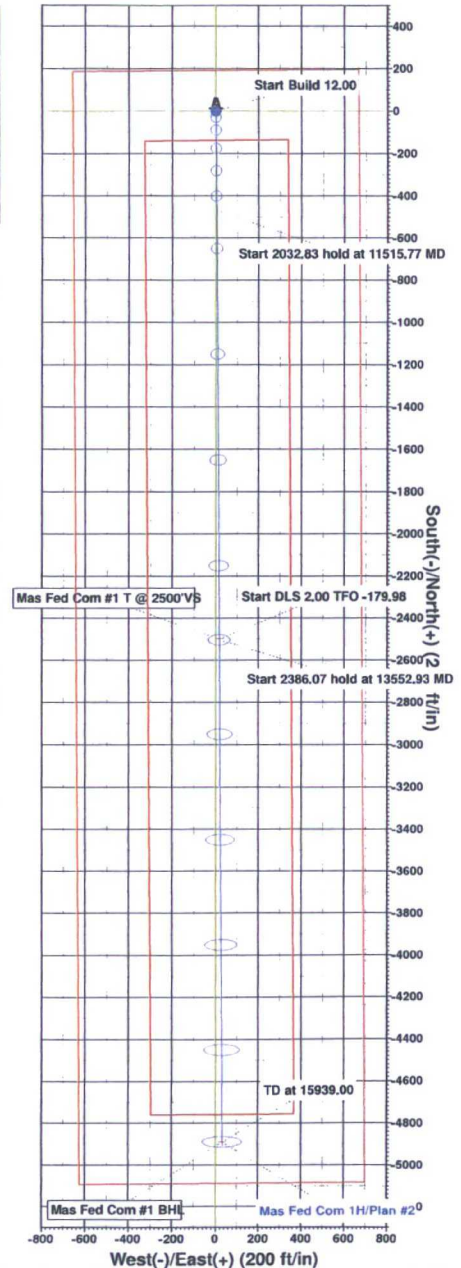
PROJECT DETAILS: Lea County, NM (NAD27 NME)  
 Geodetic System: US State Plane 1927 (Exact solution)  
 Datum: NAD 1927 (NADCON CONUS)  
 Ellipsoid: Clarke 1866  
 Zone: New Mexico East 3001  
 System Datum: Mean Sea Level  
 Local North: Grid



Mas Fed Com 1H/Plan #2



Vertical Section at 179.64° (200 ft/in)



West(-)/East(+) (200 ft/in)