

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENTFORM APPROVED  
OMB NO. 1004-0135  
Expires: July 31, 2010

## SUNDRY NOTICES AND REPORTS ON WELLS

Do not use this form for proposals to drill or to re-enter an abandoned well. Use form 3160-3 (APD) for such proposals.

SUBMIT IN TRIPLICATE - Other instructions on reverse side.

5. Lease Serial No.  
NMNM15091

6. If Indian, Allottee or Tribe Name

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

1. Type of Well

☒ Oil Well ☐ Gas Well ☐ Other8. Well Name and No.  
R-7811 JV-P R-20 COM 2H  
Federal2. Name of Operator  
BTA OIL PRODUCERSContact: MAYTE X REYES  
E-Mail: mreyes1@concho.com9. API Well No.  
30-025-42414-00-X13a. Address  
104 SOUTH PECOS STREET  
MIDLAND, TX 797013b. Phone No. (include area code)  
Ph: 575-748-694510. Field and Pool, or Exploratory  
RED HILLS

4. Location of Well (Footage, Sec., T., R., M., or Survey Description)

Sec 22 T25S R33E SESE 50FSL 430FEL  
32.108792 N Lat, 103.552577 W Lon

11. County or Parish, and State

LEA COUNTY, NM

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

## TYPE OF SUBMISSION

## TYPE OF ACTION

☒ Notice of Intent☐ Subsequent Report☐ Final Abandonment Notice☐ Acidize☐ Alter Casing☐ Casing Repair☐ Change Plans☐ Convert to Injection☐ Deepen☐ Fracture Treat☐ New Construction☐ Plug and Abandon☐ Plug Back☐ Production (Start/Resume)☐ Reclamation☐ Recomplete☐ Temporarily Abandon☐ Water Disposal☐ Water Shut-Off☐ Well Integrity☒ Other  
Change to Original A  
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 recomplete 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 shall 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 shall be filed once testing has been completed. Final Abandonment Notices shall 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 on behalf of BTA Oil Producers, LLC, respectfully request approval for the following drilling changes to the original approved APD.

Request that in addition to drilling a lateral in the Upper Avalon Shale, as approved, request approval to drill a pilot hole to a depth of 12,700? MD/TVD or about 1202 into the Wolfcamp B to capture logs in the upper part of the Wolfcamp.

As result of the request to drill a pilot hole and adjustments to the geologic target within the Avalon Shale, the following tops of the geological markers are added and depths are as follows:

Avalon Was 9413? Now 9222?

Wolfcamp Not Previously Submitted Now 12,222?

Strawn Not Previously Submitted Now 14,196?

The End of Lateral Bottom Hole Location is changed as follows:

no pilot hole will  
be drilled per  
Alex Korzenewski:  
2/25/15

BHL change on  
sundry ES#292942  
next time combine sundries.

Original COAs still stand

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

Electronic Submission #292882 verified by the BLM Well Information System

For BTA OIL PRODUCERS, sent to the Hobbs

Committed to AFMSS for processing by JENNIFER MASON on 02/25/2015 (15JAM0079SE)

Name (Printed/Typed) MAYTE X REYES

Title REGULATORY ANALYST

Signature (Electronic Submission)

Date 02/24/2015

APPROVED

THIS SPACE FOR FEDERAL OR STATE OFFICE USE

Approved By

Title

Date

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

BUREAU OF LAND MANAGEMENT  
CARLSBAD FIELD OFFICE

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.

\*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\* BLM REVISED \*\*

MAR 04 2015

**Additional data for EC transaction #292882 that would not fit on the form**

**32. Additional remarks, continued**

Was 330? FNL X 430? FEL Sec 22 25S ? 33E Unit A

Now 330? FNL X 330? FEL Sec 22 25S ? 33E Unit A

Note: Surface Location as approved unchanged.

Revised Plat Attached ? Note: No change to previously approved surface location.

The Upper Avalon Shale target has been adjusted as follows:

End of Curve Target Was 9540.4? TVD Now 9410? TVD

End of Lateral Target Was 9540.4? TVD Now 9410? TVD

As result of change in End of Lateral Bottom Hole Location and adjustment of the geological target, a revised Directional Drilling Plan is submitted.

Proposed Casing and Cementing Program as follows:

13-3/8? Casing ? No Change

9-5/8? Casing ? No Change

5-1/2? Casing ? New

Setting Depth: Was 0 to 14,236? Now 0 to 14,107?

Weight: Was 20# Now 17#

Grade: P-110 Unchanged

Joint: LTC Unchanged

Design Factor Burst: 1.3

Design Factor Tension: 2.8

Design Factor Collapse: 1.68

Cementing Program

Surface Casing ? No Change

Intermediate Casing ? No Change

Production Casing

Lead: 500 sx of Halliburton Tune Light at 10.4 ppg ? / 19.06 gal/sx / 3.32 cf/sk)

Tail: 1165 sx of Versacem H + 0.3% CFR-3 + 1% Salt + 1% HR-601

(14.4 ppg ? 5.7 gal/sk 1.24 cf/sk)

Volume Factors ? Lead ? 50% OH from KOP to Intermediate Casing Point. Cement calculated to tie back 500? into intermediate casing.

Volume Factors Tail ? 10% hole excess from TD (14,107?) to KOP (8933?).

~~Pilot Hole Plug-Back Cement~~

~~Plug 1 12,700? - 11,200? 265 sx Econocem H at 11.9 ppg / 2.51 cf/sx~~

~~Plug 2 11,200? - 9,700? 265 sx Econocem H at 11.9 ppg / 2.51 cf/sx~~

~~Plug 3 9,700? - 8,700? 450 sx Class H @ 17.2 ppg / 0.98 cf/sx~~

~~Plug-Back Cement volumes based on 8-3/4? bit size + 5% - may be adjusted based on Open Hole Caliper~~

~~Logs and hole conditions -~~

*no pilot hole*

Pressure Control Equipment ? No Change. No abnormal pressure anticipated. Estimated BHP at PHTD:

5500 psi. Estimated BHT: 180 deg. No anticipated H2S.

Mud Program

8-3/4? Pilot Hole Section ? 8.6 ppg to 9.2 ppg controlled brine as in the previously approved -

8-3/4? Lateral Section. Will use lime for pH control in range of 10 to 11. Will sweep hole with salt gel slugs and polymer as previously approved.

Testing and Coring Program

~~Pilot Hole TD (12,700?) to surface: Gamma Ray/Compensated Neutron~~

~~Pilot Hole TD (12,700?) to Intermediate Casing: Dual Laterolog, Gamma Ray, Compensated Neutron,~~

~~Density~~

~~Request Contingency for Sidewall Cores if hole conditions allow.~~

~~Gyre from KOP (8933?) to Surface.~~

~~20? Samples from intermediate casing point to PH TD and Lateral TD.~~



COG Operating LLC  
Project: Lea County, NM  
Site: 7811 JV-P Rojo Com  
Well: #2H  
Wellbore: OH  
Plan: Design #1 (#2H/OH)

#### Section Details

| Sec | MD      | Inc   | Azi  | TVD    | +N/-S  | +E/-W | Dleg  | TFace | VSect  |
|-----|---------|-------|------|--------|--------|-------|-------|-------|--------|
| 1   | 0.0     | 0.00  | 0.00 | 0.0    | 0.0    | 0.0   | 0.00  | 0.00  | 0.0    |
| 2   | 8932.5  | 0.00  | 0.00 | 8932.5 | 0.0    | 0.0   | 0.00  | 0.00  | 0.0    |
| 3   | 9682.6  | 90.00 | 0.74 | 9410.0 | 477.5  | 6.2   | 12.00 | 0.74  | 477.5  |
| 4   | 14106.9 | 90.00 | 0.74 | 9410.0 | 4901.4 | 63.3  | 0.00  | 0.00  | 4901.8 |

PBHL(JVPROJO#2H)

#### WELL DETAILS: #2H

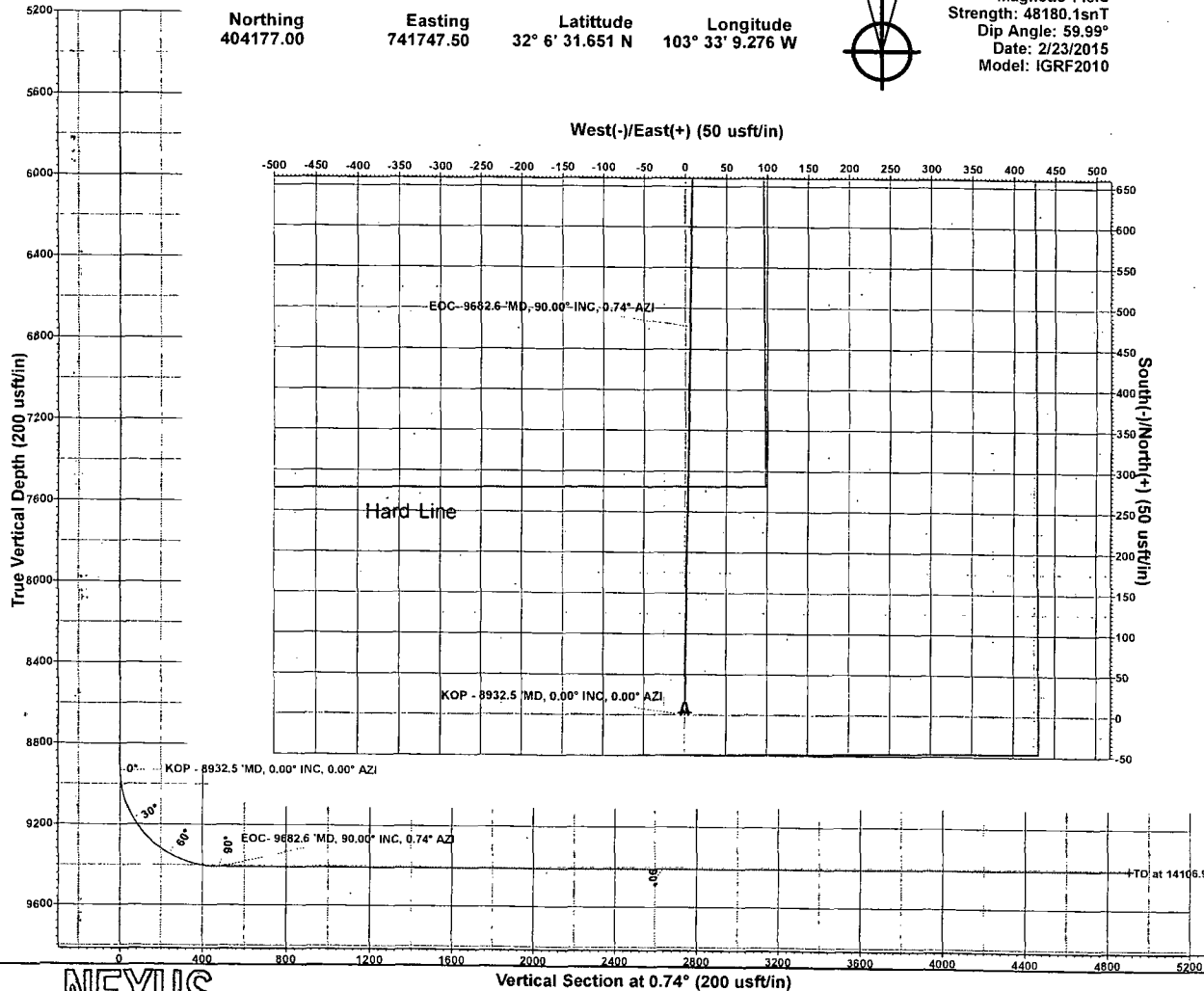
Ground Elevation:: 3345.0  
RKB Elevation: WELL @ 3363.0usft (Original Well Elev)  
Rig Name: Original Well Elev

Northing 404177.00 Easting 741747.50 Latitude 32° 6' 31.651 N Longitude 103° 33' 9.276 W



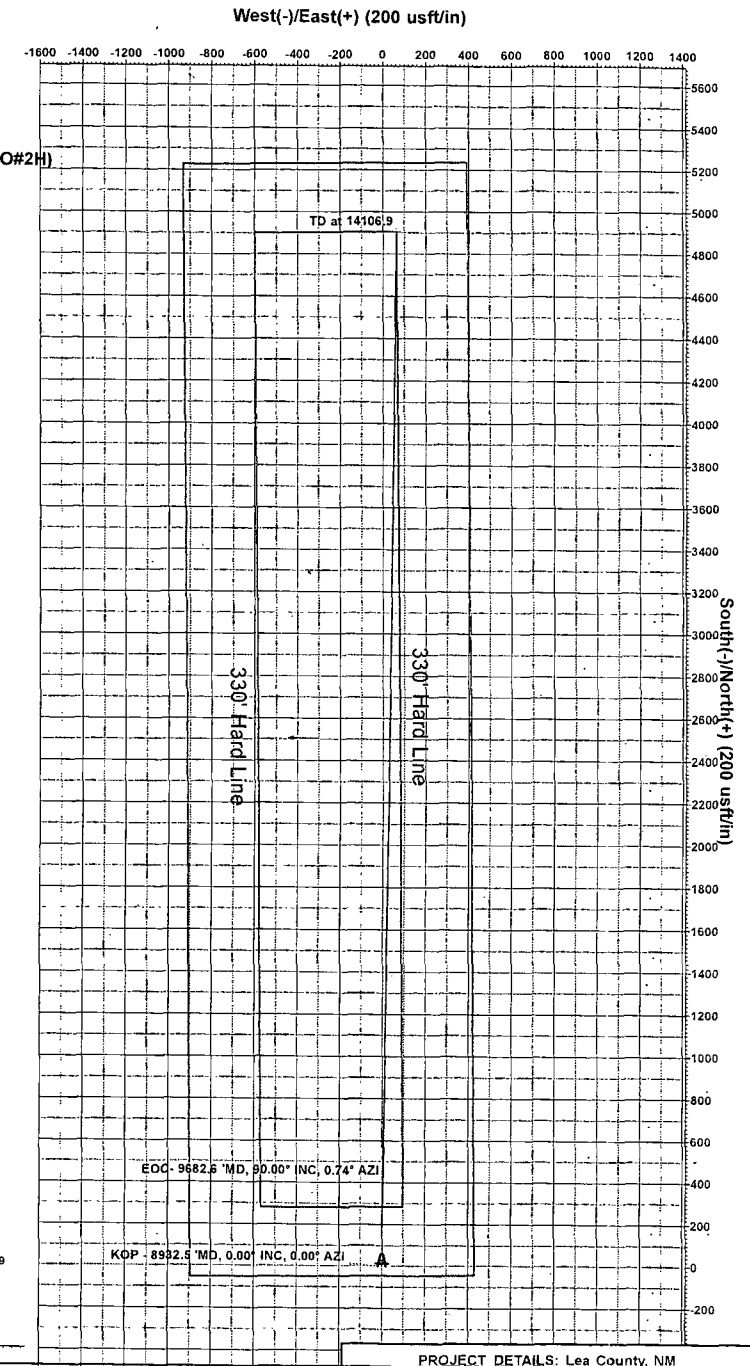
Azimuths to Grid North  
True North: -0.41°  
Magnetic North: 6.70°

Magnetic Field  
Strength: 48180.1snT  
Dip Angle: 59.99°  
Date: 2/23/2015  
Model: IGRF2010



Vertical Section at 0.74° (200 usft/in)

Nexus Directional Solutions



PROJECT DETAILS: Lea County, NM  
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

**NEXUS**  
DIRECTIONAL SOLUTIONS, L.P.



## **COG Operating LLC**

Lea County, NM

7811 JV-P Rojo Com

#2H

OH

Plan: Design #1

## **Standard Planning Report**

23 February, 2015



# Wellplanning Planning Report

|           |                           |                              |                                        |
|-----------|---------------------------|------------------------------|----------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well #2H                               |
| Company:  | COG Operating LLC         | TVD Reference:               | WELL @ 3363.0usft (Original Well Elev) |
| Project:  | Lea County, NM            | MD Reference:                | WELL @ 3363.0usft (Original Well Elev) |
| Site:     | 7811 JV-P Rojo Com        | North Reference:             | Grid                                   |
| Well:     | #2H                       | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | OH                        |                              |                                        |
| Design:   | Design #1                 |                              |                                        |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project     | Lea County, NM                       |               |                |
| 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                  | 7811 JV-P Rojo Com |                   |                  |
| Site Position:        | Map                | Northing:         | 404,177.00 usft  |
| From:                 |                    | Easting:          | 741,747.50 usft  |
| Position Uncertainty: | 0.0 usft           | Slot Radius:      | 13-3/16 "        |
|                       |                    | Latitude:         | 32° 6' 31.651 N  |
|                       |                    | Longitude:        | 103° 33' 9.276 W |
|                       |                    | Grid Convergence: | 0.42 °           |

|                      |          |                     |               |
|----------------------|----------|---------------------|---------------|
| Well                 | #2H      |                     |               |
| Well Position        | +N/-S    | 0.0 usft            | Northing:     |
|                      | +E/-W    | 0.0 usft            | Easting:      |
| Position Uncertainty | 0.0 usft | Wellhead Elevation: | Ground Level: |
|                      |          |                     | 3,345.0 usft  |

|           |            |             |                |
|-----------|------------|-------------|----------------|
| Wellbore  | OH         |             |                |
| Magnetics | Model Name | Sample Date | Declination    |
|           |            |             | (°)            |
|           | IGRF2010   | 2/23/2015   | 7.11           |
|           |            |             | Dip Angle      |
|           |            |             | (°)            |
|           |            |             | 59.99          |
|           |            |             | Field Strength |
|           |            |             | (nT)           |
|           |            |             | 48,180         |

|                   |                  |        |               |
|-------------------|------------------|--------|---------------|
| Design            | Design #1        |        |               |
| Audit Notes:      |                  |        |               |
| Version:          | Phase:           | PLAN   | Tie On Depth: |
|                   |                  |        | 0.0           |
| Vertical Section: | Depth From (TVD) | +N/-S  | +E/-W         |
|                   | (usft)           | (usft) | (usft)        |
|                   | 0.0              | 0.0    | 0.0           |
|                   |                  |        | Direction     |
|                   |                  |        | (°)           |
|                   |                  |        | 0.74          |

|                |             |         |                |         |        |             |             |             |      |                  |
|----------------|-------------|---------|----------------|---------|--------|-------------|-------------|-------------|------|------------------|
| Plan Sections  |             |         |                |         |        |             |             |             |      |                  |
| Measured Depth | Inclination | Azimuth | Vertical Depth | +N/-S   | +E/-W  | Dogleg Rate | Build Rate  | Turn Rate   | TFO  | Target           |
| (usft)         | (°)         | (°)     | (usft)         | (usft)  | (usft) | (°/100usft) | (°/100usft) | (°/100usft) | (°)  |                  |
| 0.0            | 0.00        | 0.00    | 0.0            | 0.0     | 0.0    | 0.00        | 0.00        | 0.00        | 0.00 |                  |
| 8,932.5        | 0.00        | 0.00    | 8,932.5        | 0.0     | 0.0    | 0.00        | 0.00        | 0.00        | 0.00 |                  |
| 9,682.6        | 90.00       | 0.74    | 9,410.0        | 477.5   | 6.2    | 12.00       | 12.00       | 0.00        | 0.74 |                  |
| 14,106.9       | 90.00       | 0.74    | 9,410.0        | 4,901.4 | 63.3   | 0.00        | 0.00        | 0.00        | 0.00 | PBHL(JVPROJO#2H) |



Wellplanning  
Planning Report

|           |                           |                              |                                        |
|-----------|---------------------------|------------------------------|----------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well #2H                               |
| Company:  | COG Operating LLC         | TVD Reference:               | WELL @ 3363.0usft (Original Well Elev) |
| Project:  | Lea County NM             | MD Reference:                | WELL @ 3363.0usft (Original Well Elev) |
| Site:     | 7811 JV-P Rojo Com        | North Reference:             | Grid                                   |
| Well:     | #2H                       | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | OH                        |                              |                                        |
| Design:   | Design #1                 |                              |                                        |

| Planned Survey        |                 |             |                       |              |              |                         |                         |                        |                       |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.0                   | 0.00            | 0.00        | 0.0                   | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 100.0                 | 0.00            | 0.00        | 100.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 200.0                 | 0.00            | 0.00        | 200.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 300.0                 | 0.00            | 0.00        | 300.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 400.0                 | 0.00            | 0.00        | 400.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 500.0                 | 0.00            | 0.00        | 500.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 600.0                 | 0.00            | 0.00        | 600.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 700.0                 | 0.00            | 0.00        | 700.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 800.0                 | 0.00            | 0.00        | 800.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 900.0                 | 0.00            | 0.00        | 900.0                 | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,000.0               | 0.00            | 0.00        | 1,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,100.0               | 0.00            | 0.00        | 1,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,200.0               | 0.00            | 0.00        | 1,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,300.0               | 0.00            | 0.00        | 1,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,400.0               | 0.00            | 0.00        | 1,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,500.0               | 0.00            | 0.00        | 1,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,600.0               | 0.00            | 0.00        | 1,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,700.0               | 0.00            | 0.00        | 1,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,800.0               | 0.00            | 0.00        | 1,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 1,900.0               | 0.00            | 0.00        | 1,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,000.0               | 0.00            | 0.00        | 2,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,100.0               | 0.00            | 0.00        | 2,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,200.0               | 0.00            | 0.00        | 2,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,300.0               | 0.00            | 0.00        | 2,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,400.0               | 0.00            | 0.00        | 2,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,500.0               | 0.00            | 0.00        | 2,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,600.0               | 0.00            | 0.00        | 2,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,700.0               | 0.00            | 0.00        | 2,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,800.0               | 0.00            | 0.00        | 2,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 2,900.0               | 0.00            | 0.00        | 2,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,000.0               | 0.00            | 0.00        | 3,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,100.0               | 0.00            | 0.00        | 3,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,200.0               | 0.00            | 0.00        | 3,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,300.0               | 0.00            | 0.00        | 3,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,400.0               | 0.00            | 0.00        | 3,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,500.0               | 0.00            | 0.00        | 3,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,600.0               | 0.00            | 0.00        | 3,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,700.0               | 0.00            | 0.00        | 3,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,800.0               | 0.00            | 0.00        | 3,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 3,900.0               | 0.00            | 0.00        | 3,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,000.0               | 0.00            | 0.00        | 4,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,100.0               | 0.00            | 0.00        | 4,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,200.0               | 0.00            | 0.00        | 4,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,300.0               | 0.00            | 0.00        | 4,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,400.0               | 0.00            | 0.00        | 4,400.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,500.0               | 0.00            | 0.00        | 4,500.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,600.0               | 0.00            | 0.00        | 4,600.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,700.0               | 0.00            | 0.00        | 4,700.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,800.0               | 0.00            | 0.00        | 4,800.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 4,900.0               | 0.00            | 0.00        | 4,900.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,000.0               | 0.00            | 0.00        | 5,000.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,100.0               | 0.00            | 0.00        | 5,100.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,200.0               | 0.00            | 0.00        | 5,200.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |
| 5,300.0               | 0.00            | 0.00        | 5,300.0               | 0.0          | 0.0          | 0.0                     | 0.00                    | 0.00                   | 0.00                  |



# Wellplanning Planning Report

|           |                           |                              |                                        |
|-----------|---------------------------|------------------------------|----------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well #2H                               |
| Company:  | COG Operating LLC         | TVD Reference:               | WELL @ 3363.0usft (Original Well Elev) |
| Project:  | Lea County, NM            | MD Reference:                | WELL @ 3363.0usft (Original Well Elev) |
| Site:     | 7811 JV-P, Rojo, Com      | North Reference:             | Grid                                   |
| Well:     | #2H                       | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | OH                        |                              |                                        |
| Design:   | Design #1                 |                              |                                        |

| Planned Survey:                        |                    |                |                             |                |                |                               |                               |                              |                             |
|----------------------------------------|--------------------|----------------|-----------------------------|----------------|----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| Measured<br>Depth<br>(usft)            | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N-S<br>(usft) | +E-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
| 5,400.0                                | 0.00               | 0.00           | 5,400.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 5,500.0                                | 0.00               | 0.00           | 5,500.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 5,600.0                                | 0.00               | 0.00           | 5,600.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 5,700.0                                | 0.00               | 0.00           | 5,700.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 5,800.0                                | 0.00               | 0.00           | 5,800.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 5,900.0                                | 0.00               | 0.00           | 5,900.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 6,000.0                                | 0.00               | 0.00           | 6,000.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 6,100.0                                | 0.00               | 0.00           | 6,100.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 6,200.0                                | 0.00               | 0.00           | 6,200.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 6,300.0                                | 0.00               | 0.00           | 6,300.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 6,400.0                                | 0.00               | 0.00           | 6,400.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 6,500.0                                | 0.00               | 0.00           | 6,500.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 6,600.0                                | 0.00               | 0.00           | 6,600.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 6,700.0                                | 0.00               | 0.00           | 6,700.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 6,800.0                                | 0.00               | 0.00           | 6,800.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 6,900.0                                | 0.00               | 0.00           | 6,900.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 7,000.0                                | 0.00               | 0.00           | 7,000.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 7,100.0                                | 0.00               | 0.00           | 7,100.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 7,200.0                                | 0.00               | 0.00           | 7,200.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 7,300.0                                | 0.00               | 0.00           | 7,300.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 7,400.0                                | 0.00               | 0.00           | 7,400.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 7,500.0                                | 0.00               | 0.00           | 7,500.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 7,600.0                                | 0.00               | 0.00           | 7,600.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 7,700.0                                | 0.00               | 0.00           | 7,700.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 7,800.0                                | 0.00               | 0.00           | 7,800.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 7,900.0                                | 0.00               | 0.00           | 7,900.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,000.0                                | 0.00               | 0.00           | 8,000.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,100.0                                | 0.00               | 0.00           | 8,100.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,200.0                                | 0.00               | 0.00           | 8,200.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,300.0                                | 0.00               | 0.00           | 8,300.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,400.0                                | 0.00               | 0.00           | 8,400.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,500.0                                | 0.00               | 0.00           | 8,500.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,600.0                                | 0.00               | 0.00           | 8,600.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,700.0                                | 0.00               | 0.00           | 8,700.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,800.0                                | 0.00               | 0.00           | 8,800.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,900.0                                | 0.00               | 0.00           | 8,900.0                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| 8,932.5                                | 0.00               | 0.00           | 8,932.5                     | 0.0            | 0.0            | 0.0                           | 0.00                          | 0.00                         | 0.00                        |
| KOP - 8932.5' MD, 0.00° INC, 0.00° AZI |                    |                |                             |                |                |                               |                               |                              |                             |
| 8,950.0                                | 2.10               | 0.74           | 8,950.0                     | 0.3            | 0.0            | 0.3                           | 12.00                         | 12.00                        | 0.00                        |
| 8,975.0                                | 5.10               | 0.74           | 8,974.9                     | 1.9            | 0.0            | 1.9                           | 12.00                         | 12.00                        | 0.00                        |
| 9,000.0                                | 8.10               | 0.74           | 8,999.8                     | 4.8            | 0.1            | 4.8                           | 12.00                         | 12.00                        | 0.00                        |
| 9,025.0                                | 11.10              | 0.74           | 9,024.4                     | 8.9            | 0.1            | 8.9                           | 12.00                         | 12.00                        | 0.00                        |
| 9,050.0                                | 14.10              | 0.74           | 9,048.8                     | 14.4           | 0.2            | 14.4                          | 12.00                         | 12.00                        | 0.00                        |
| 9,075.0                                | 17.10              | 0.74           | 9,072.9                     | 21.1           | 0.3            | 21.1                          | 12.00                         | 12.00                        | 0.00                        |
| 9,100.0                                | 20.10              | 0.74           | 9,096.6                     | 29.1           | 0.4            | 29.1                          | 12.00                         | 12.00                        | 0.00                        |
| 9,125.0                                | 23.10              | 0.74           | 9,119.8                     | 38.3           | 0.5            | 38.3                          | 12.00                         | 12.00                        | 0.00                        |
| 9,150.0                                | 26.10              | 0.74           | 9,142.6                     | 48.7           | 0.6            | 48.7                          | 12.00                         | 12.00                        | 0.00                        |
| 9,175.0                                | 29.10              | 0.74           | 9,164.7                     | 60.3           | 0.8            | 60.3                          | 12.00                         | 12.00                        | 0.00                        |
| 9,200.0                                | 32.10              | 0.74           | 9,186.2                     | 73.0           | 0.9            | 73.0                          | 12.00                         | 12.00                        | 0.00                        |
| 9,225.0                                | 35.10              | 0.74           | 9,207.0                     | 86.8           | 1.1            | 86.8                          | 12.00                         | 12.00                        | 0.00                        |
| 9,250.0                                | 38.10              | 0.74           | 9,227.1                     | 101.7          | 1.3            | 101.7                         | 12.00                         | 12.00                        | 0.00                        |
| 9,275.0                                | 41.10              | 0.74           | 9,246.4                     | 117.6          | 1.5            | 117.7                         | 12.00                         | 12.00                        | 0.00                        |
| 9,300.0                                | 44.10              | 0.74           | 9,264.8                     | 134.6          | 1.7            | 134.6                         | 12.00                         | 12.00                        | 0.00                        |



# Wellplanning Planning Report

|           |                           |                              |                                        |
|-----------|---------------------------|------------------------------|----------------------------------------|
| Database: | EDM 5000.1 Single User Db | Local Co-ordinate Reference: | Well #2H                               |
| Company:  | COG Operating LLC         | TVD Reference:               | WELL @ 3363.0usft (Original Well Elev) |
| Project:  | Lea County, NM            | MD Reference:                | WELL @ 3363.0usft (Original Well Elev) |
| Site:     | 7811 JV-P.Rojo Corn       | North Reference:             | Grid                                   |
| Well:     | #2H                       | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | OH                        |                              |                                        |
| Design:   | Design #1                 |                              |                                        |

| Planned Survey                        |                    |                |                             |                 |                 |                               |                               |                              |                             |  |
|---------------------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|--|
| Measured<br>Depth<br>(usft)           | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |  |
| 9,325.0                               | 47.10              | 0.74           | 9,282.3                     | 152.4           | 2.0             | 152.4                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,350.0                               | 50.10              | 0.74           | 9,298.8                     | 171.2           | 2.2             | 171.2                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,375.0                               | 53.10              | 0.74           | 9,314.3                     | 190.8           | 2.5             | 190.8                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,400.0                               | 56.10              | 0.74           | 9,328.8                     | 211.1           | 2.7             | 211.1                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,425.0                               | 59.10              | 0.74           | 9,342.2                     | 232.2           | 3.0             | 232.3                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,450.0                               | 62.10              | 0.74           | 9,354.5                     | 254.0           | 3.3             | 254.0                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,475.0                               | 65.10              | 0.74           | 9,365.6                     | 276.4           | 3.6             | 276.4                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,500.0                               | 68.09              | 0.74           | 9,375.5                     | 299.3           | 3.9             | 299.4                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,525.0                               | 71.09              | 0.74           | 9,384.2                     | 322.8           | 4.2             | 322.8                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,550.0                               | 74.09              | 0.74           | 9,391.7                     | 346.6           | 4.5             | 346.6                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,575.0                               | 77.09              | 0.74           | 9,397.9                     | 370.8           | 4.8             | 370.9                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,600.0                               | 80.09              | 0.74           | 9,402.9                     | 395.3           | 5.1             | 395.4                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,625.0                               | 83.09              | 0.74           | 9,406.5                     | 420.0           | 5.4             | 420.1                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,650.0                               | 86.09              | 0.74           | 9,408.9                     | 444.9           | 5.7             | 445.0                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,675.0                               | 89.09              | 0.74           | 9,409.9                     | 469.9           | 6.1             | 469.9                         | 12.00                         | 12.00                        | 0.00                        |  |
| 9,682.6                               | 90.00              | 0.74           | 9,410.0                     | 477.5           | 6.2             | 477.5                         | 12.00                         | 12.00                        | 0.00                        |  |
| EOC- 9682.6 'MD, 90.00° INC, 0.74° AZ |                    |                |                             |                 |                 |                               |                               |                              |                             |  |
| 9,700.0                               | 90.00              | 0.74           | 9,410.0                     | 494.9           | 6.4             | 494.9                         | 0.00                          | 0.00                         | 0.00                        |  |
| 9,800.0                               | 90.00              | 0.74           | 9,410.0                     | 594.9           | 7.7             | 594.9                         | 0.00                          | 0.00                         | 0.00                        |  |
| 9,900.0                               | 90.00              | 0.74           | 9,410.0                     | 694.9           | 9.0             | 694.9                         | 0.00                          | 0.00                         | 0.00                        |  |
| 10,000.0                              | 90.00              | 0.74           | 9,410.0                     | 794.9           | 10.3            | 794.9                         | 0.00                          | 0.00                         | 0.00                        |  |
| 10,100.0                              | 90.00              | 0.74           | 9,410.0                     | 894.9           | 11.6            | 894.9                         | 0.00                          | 0.00                         | 0.00                        |  |
| 10,200.0                              | 90.00              | 0.74           | 9,410.0                     | 994.9           | 12.8            | 994.9                         | 0.00                          | 0.00                         | 0.00                        |  |
| 10,300.0                              | 90.00              | 0.74           | 9,410.0                     | 1,094.9         | 14.1            | 1,094.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 10,400.0                              | 90.00              | 0.74           | 9,410.0                     | 1,194.8         | 15.4            | 1,194.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 10,500.0                              | 90.00              | 0.74           | 9,410.0                     | 1,294.8         | 16.7            | 1,294.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 10,600.0                              | 90.00              | 0.74           | 9,410.0                     | 1,394.8         | 18.0            | 1,394.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 10,700.0                              | 90.00              | 0.74           | 9,410.0                     | 1,494.8         | 19.3            | 1,494.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 10,800.0                              | 90.00              | 0.74           | 9,410.0                     | 1,594.8         | 20.6            | 1,594.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 10,900.0                              | 90.00              | 0.74           | 9,410.0                     | 1,694.8         | 21.9            | 1,694.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 11,000.0                              | 90.00              | 0.74           | 9,410.0                     | 1,794.8         | 23.2            | 1,794.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 11,100.0                              | 90.00              | 0.74           | 9,410.0                     | 1,894.8         | 24.5            | 1,894.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 11,200.0                              | 90.00              | 0.74           | 9,410.0                     | 1,994.8         | 25.8            | 1,994.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 11,300.0                              | 90.00              | 0.74           | 9,410.0                     | 2,094.8         | 27.1            | 2,094.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 11,400.0                              | 90.00              | 0.74           | 9,410.0                     | 2,194.8         | 28.3            | 2,194.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 11,500.0                              | 90.00              | 0.74           | 9,410.0                     | 2,294.8         | 29.6            | 2,294.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 11,600.0                              | 90.00              | 0.74           | 9,410.0                     | 2,394.7         | 30.9            | 2,394.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 11,700.0                              | 90.00              | 0.74           | 9,410.0                     | 2,494.7         | 32.2            | 2,494.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 11,800.0                              | 90.00              | 0.74           | 9,410.0                     | 2,594.7         | 33.5            | 2,594.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 11,900.0                              | 90.00              | 0.74           | 9,410.0                     | 2,694.7         | 34.8            | 2,694.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 12,000.0                              | 90.00              | 0.74           | 9,410.0                     | 2,794.7         | 36.1            | 2,794.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 12,100.0                              | 90.00              | 0.74           | 9,410.0                     | 2,894.7         | 37.4            | 2,894.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 12,200.0                              | 90.00              | 0.74           | 9,410.0                     | 2,994.7         | 38.7            | 2,994.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 12,300.0                              | 90.00              | 0.74           | 9,410.0                     | 3,094.7         | 40.0            | 3,094.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 12,400.0                              | 90.00              | 0.74           | 9,410.0                     | 3,194.7         | 41.3            | 3,194.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 12,500.0                              | 90.00              | 0.74           | 9,410.0                     | 3,294.7         | 42.6            | 3,294.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 12,600.0                              | 90.00              | 0.74           | 9,410.0                     | 3,394.7         | 43.8            | 3,394.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 12,700.0                              | 90.00              | 0.74           | 9,410.0                     | 3,494.7         | 45.1            | 3,494.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 12,800.0                              | 90.00              | 0.74           | 9,410.0                     | 3,594.6         | 46.4            | 3,594.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 12,900.0                              | 90.00              | 0.74           | 9,410.0                     | 3,694.6         | 47.7            | 3,694.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 13,000.0                              | 90.00              | 0.74           | 9,410.0                     | 3,794.6         | 49.0            | 3,794.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 13,100.0                              | 90.00              | 0.74           | 9,410.0                     | 3,894.6         | 50.3            | 3,894.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 13,200.0                              | 90.00              | 0.74           | 9,410.0                     | 3,994.6         | 51.6            | 3,994.9                       | 0.00                          | 0.00                         | 0.00                        |  |
| 13,300.0                              | 90.00              | 0.74           | 9,410.0                     | 4,094.6         | 52.9            | 4,094.9                       | 0.00                          | 0.00                         | 0.00                        |  |



# Wellplanning Planning Report

|           |                            |                              |                                        |
|-----------|----------------------------|------------------------------|----------------------------------------|
| Database: | EDM 5000.1, Single User Db | Local Co-ordinate Reference: | Well #2H                               |
| Company:  | COG Operating LLC          | TVD Reference:               | WELL @ 3363.0usft (Original Well Elev) |
| Project:  | Lea County, NM             | MD Reference:                | WELL @ 3363.0usft (Original Well Elev) |
| Site:     | 7811 JV-P. Rojo Com        | North Reference:             | Grid                                   |
| Well:     | #2H                        | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | OH                         |                              |                                        |
| Design:   | Design #1                  |                              |                                        |

| Planned Survey                   |                 |             |                       |              |              |                         |                         |                        |                       |  |
|----------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|--|
| Measured Depth (usft)            | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |  |
| 13,400.0                         | 90.00           | 0.74        | 9,410.0               | 4,194.6      | 54.2         | 4,194.9                 | 0.00                    | 0.00                   | 0.00                  |  |
| 13,500.0                         | 90.00           | 0.74        | 9,410.0               | 4,294.6      | 55.5         | 4,294.9                 | 0.00                    | 0.00                   | 0.00                  |  |
| 13,600.0                         | 90.00           | 0.74        | 9,410.0               | 4,394.6      | 56.8         | 4,394.9                 | 0.00                    | 0.00                   | 0.00                  |  |
| 13,700.0                         | 90.00           | 0.74        | 9,410.0               | 4,494.6      | 58.1         | 4,494.9                 | 0.00                    | 0.00                   | 0.00                  |  |
| 13,800.0                         | 90.00           | 0.74        | 9,410.0               | 4,594.6      | 59.3         | 4,594.9                 | 0.00                    | 0.00                   | 0.00                  |  |
| 13,900.0                         | 90.00           | 0.74        | 9,410.0               | 4,694.6      | 60.6         | 4,694.9                 | 0.00                    | 0.00                   | 0.00                  |  |
| 14,000.0                         | 90.00           | 0.74        | 9,410.0               | 4,794.5      | 61.9         | 4,794.9                 | 0.00                    | 0.00                   | 0.00                  |  |
| 14,106.9                         | 90.00           | 0.74        | 9,410.0               | 4,901.4      | 63.3         | 4,901.8                 | 0.00                    | 0.00                   | 0.00                  |  |
| TD at 14106.9 - PBHL(JVPROJO#2H) |                 |             |                       |              |              |                         |                         |                        |                       |  |

| Design Targets                                                                          |                 |               |              |            |              |              |                 |                |                 |                  |
|-----------------------------------------------------------------------------------------|-----------------|---------------|--------------|------------|--------------|--------------|-----------------|----------------|-----------------|------------------|
| Target Name                                                                             | hit/miss target | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude        | Longitude        |
| PBHL(JVPROJO#2H)                                                                        |                 | 0.00          | 0.00         | 9,410.0    | 4,901.4      | 63.2         | 409,078.40      | 741,810.70     | 32° 7' 20.149 N | 103° 33' 8.128 W |
| - plan misses target center by 0.1usft at 14106.9usft MD (9410.0 TVD, 4901.4 N, 63.3 E) |                 |               |              |            |              |              |                 |                |                 |                  |
| - Point                                                                                 |                 |               |              |            |              |              |                 |                |                 |                  |

| Plan Annotations      |                       |                   |              |                                         |  |
|-----------------------|-----------------------|-------------------|--------------|-----------------------------------------|--|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              |                                         |  |
|                       |                       | +N/-S (usft)      | +E/-W (usft) | Comment                                 |  |
| 8,932.5               | 8,932.5               | 0.0               | 0.0          | KOP - 8932.5 'MD, 0.00° INC, 0.00° AZI  |  |
| 9,682.6               | 9,410.0               | 477.5             | 6.2          | EOC - 9682.6 'MD, 90.00° INC, 0.74° AZI |  |
| 14,106.9              | 9,410.0               | 4,901.4           | 63.3         | TD at 14106.9                           |  |