

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM 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.**

|                                                                                                                                                    |                                                       |                                                    |
|----------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------|----------------------------------------------------|
| 1. Type of Well<br><input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other                   |                                                       | 5. Lease Serial No.<br>NMNM7752                    |
| 2. Name of Operator<br>COG OPERATING LLC<br>Contact: KELLY J HOLLY<br>E-Mail: kholly@concho.com                                                    |                                                       | 6. If Indian, Allottee or Tribe Name               |
| 3a. Address<br>ONE CONCHO CENTER 600 W ILLINOIS AVENUE<br>MIDLAND, TX 79701                                                                        | 3b. Phone No. (include area code)<br>Ph: 432-685-4384 | 7. If Unit or CA/Agreement, Name and/or No.        |
| 4. Location of Well (Footage, Sec., T., R., M., or Survey Description)<br>Sec 12 T17S R29E NENE 990FNL 150FEL<br>32.853440 N Lat, 104.019660 W Lon |                                                       | 8. Well Name and No.<br>FAT TIRE 12 FEDERAL LBB 2H |
|                                                                                                                                                    |                                                       | 9. API Well No.<br>30-015-41790-00-X1              |
|                                                                                                                                                    |                                                       | 10. Field and Pool, or Exploratory<br>EMPIRE       |
|                                                                                                                                                    |                                                       | 11. County or Parish, and State<br>EDDY COUNTY, NM |

**12. CHECK 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"/> Fracture Treat   | <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 shall be filed within 30 days following completion of the involved operations. If the operation results in a multiple completion or recompleat in a new interval, a Form 3160-4 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 LLC respectfully requests to change the TVD and name of this well:

FROM: Fat Tire 12 Federal LBB #2H  
TO: Fat Tire 12 Federal UBB #2H 313344

FROM: 5426' TVD; 10070' MD  
TO: .4876' TVD; 9520' MD

Attached is the revised C-102 and directional plan.

Accepted for record

NMOCD 105  
6-6-14

*Original COGs still apply*

|                                                                                                                                                                                                                                                                                            |                       |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| 14. I hereby certify that the foregoing is true and correct.                                                                                                                                                                                                                               |                       |
| Electronic Submission #246784 verified by the BLM Well Information System<br>For COG OPERATING LLC, sent to the Carlsbad<br>Committed to AFMSS for processing by CATHY QUEEN on 05/28/2014 (14CQ0050SE)                                                                                    |                       |
| Name (Printed/Typed) KELLY J HOLLY                                                                                                                                                                                                                                                         | Title PERMITTING TECH |
| Signature (Electronic Submission)                                                                                                                                                                                                                                                          | Date 05/23/2014       |
| THIS SPACE FOR FEDERAL OR STATE OFFICE USE                                                                                                                                                                                                                                                 |                       |
| Approved By                                                                                                                                                                                                                                                                                | Title                 |
| 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                                                                                                                                                                                                                                                                                     |                       |
| 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. |                       |

APPROVED

JUN 2 2014

BUREAU OF LAND MANAGEMENT  
CARLSBAD FIELD OFFICE

District I  
 1625 N French Dr., Hobbs, NM 88240  
 Phone: (575) 393-6161 Fax: (575) 393-0720  
 District II  
 811 S. First St., Artesia, NM 88210  
 Phone: (505) 748-1283 Fax: (505) 748-9720  
 District III  
 1000 Rio Hondo Road, Aztec, NM 87410  
 Phone: (505) 334-6178 Fax: (505) 334-6170  
 District IV  
 1220 S. St. Francis Dr., Santa Fe, NM 87505  
 Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico  
 Energy, Minerals & Natural Resources Department  
 OIL CONSERVATION DIVISION  
 1220 South St. Francis Dr.  
 Santa Fe, NM 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>30-015-41790</b> | Pool Code<br><b>96610</b>                    | Pool Name<br><b>Empire Glorieta YESo, East</b> |
| Property Code<br><b>40221</b>     | Property Name<br><b>FAT TIRE 12 FED. UBB</b> | Well Number<br><b>2H</b>                       |
| GRID No.<br><b>229137</b>         | Operator Name<br><b>COG OPERATING, LLC</b>   | Elevation<br><b>3656</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      |
|---------------|-----------|-------------|-------------|---------|---------------|------------------|---------------|----------------|-------------|
| <b>A</b>      | <b>12</b> | <b>17-S</b> | <b>29-E</b> |         | <b>990</b>    | <b>NORTH</b>     | <b>150</b>    | <b>EAST</b>    | <b>EDDY</b> |

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      |
|---------------|-----------|-------------|-------------|---------|---------------|------------------|---------------|----------------|-------------|
| <b>D</b>      | <b>12</b> | <b>17-S</b> | <b>29-E</b> |         | <b>990</b>    | <b>NORTH</b>     | <b>330</b>    | <b>WEST</b>    | <b>EDDY</b> |

|                                |                 |                    |           |
|--------------------------------|-----------------|--------------------|-----------|
| Dedicated Acres<br><b>1.60</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>Project Area</b></p> <p>S 89°59'04" W (GRID)</p> <p>Project Area 4793.46' (HORIZ.)</p> <p><b>Estimated Completed Interval:</b><br/>985 FNL<br/>330 FEL</p> <p><b>CORNER DATA</b><br/>NAD 27 GRID - NM EAST</p> <p>A: BRASS CAP "1914"<br/>N 670041.9 - E 591216.3</p> <p>B: FND 1" STL PIPE<br/>N 672682.3 - E 591209.8</p> <p>C: BRASS CAP "1914"<br/>N 675322.5 - E 591200.4</p> <p>D: BRASS CAP "1914"<br/>N 675326.5 - E 593844.9</p> <p>E: BRASS CAP "1914"<br/>N 675324.2 - E 596474.6</p> <p>F: BRASS CAP "1914"<br/>N 672688.0 - E 596478.6</p> <p>G: BRASS CAP "1914"<br/>N 670054.6 - E 596494.2</p> <p>H: BRASS CAP "1914"<br/>N 670048.4 - E 593857.0</p> | <p><b>OPERATOR CERTIFICATION</b></p> <p>I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or released mineral interest in this 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 a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling authorization issued by the division.</p> <p>Signature: <i>[Signature]</i> Date: <b>5-23-14</b></p> <p>Printed Name: <b>Kelly J. Holly</b></p> <p>Email Address: <b>kholly@concho.com</b></p> |
| <p><b>GEODETIC DATA</b><br/>NAD 27 GRID - NM EAST</p> <p><b>SURFACE LOCATION</b><br/>N 674334.5 - E 596326.1</p> <p>LAT: 32.85344° N<br/>LONG: 104.01966° W</p> <p><b>BOTTOM LOCATION</b><br/>N 674333.2 - E 591533.9</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

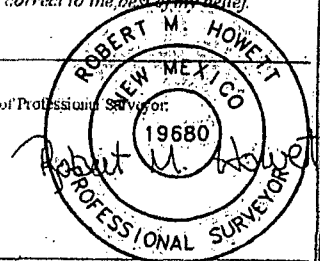
SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

1/30/13

Date of Survey

Signature and Seal of Professional Surveyor:



19680

Certificate Number

Revised: 5/5/14 NAME

# COG OPERATING, LLC

Field: Eddy County, NM  
Site: Fat Tire 12 Federal UBB #2H  
Well: 2H  
Wellbore: Lateral  
Plan: Plan #2

## SECTION DETAILS

| Sec | MD      | Inc   | Azi    | TVD     | +N-S  | +E-W     | Dleg  | TFace  | VSec    | Target           |
|-----|---------|-------|--------|---------|-------|----------|-------|--------|---------|------------------|
| 1   | 0.00    | 0.00  | 0.00   | 0.00    | 0.00  | 0.00     | 0.00  | 0.00   | 0.00    |                  |
| 2   | 4429.21 | 0.00  | 0.00   | 4429.21 | 0.00  | 0.00     | 0.00  | 0.00   | 0.00    |                  |
| 3   | 5256.48 | 91.00 | 271.50 | 4950.00 | 13.87 | -529.78  | 11.00 | 271.50 | 529.77  |                  |
| 4   | 5342.54 | 91.00 | 269.78 | 4948.50 | 14.83 | -615.81  | 2.00  | -89.97 | 615.81  |                  |
| 5   | 9519.59 | 91.00 | 269.78 | 4875.57 | -1.30 | -4792.20 | 0.00  | 0.00   | 4792.20 | Fat Tire 2H PBHL |

## TARGET DETAILS

| Name                | TVD     | +N-S  | +E-W     | Northing  | Easting   | Latitude        | Longitude       | Shape |
|---------------------|---------|-------|----------|-----------|-----------|-----------------|-----------------|-------|
| Fat Tire 2H PP      | 0.00    | 4.71  | -180.01  | 674339.21 | 596146.09 | 32° 51' 12.42 N | 104° 1' 12.88 W | Point |
| Fat Tire 2H Surface | 0.00    | 0.00  | 0.00     | 674334.50 | 596326.10 | 32° 51' 12.37 N | 104° 1' 10.77 W | Point |
| Fat Tire 2H PBHL    | 4875.57 | -1.30 | -4792.20 | 674333.20 | 591533.90 | 32° 51' 12.50 N | 104° 2' 6.95 W  | Point |

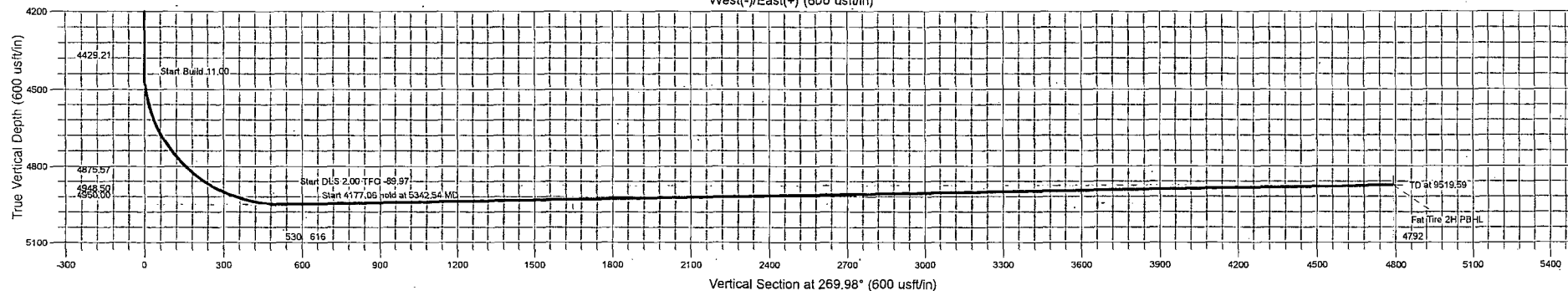
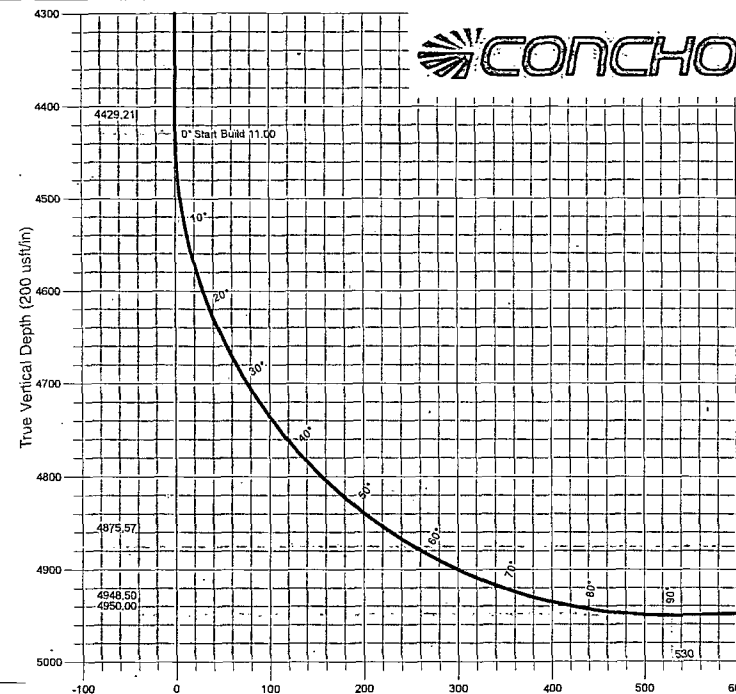
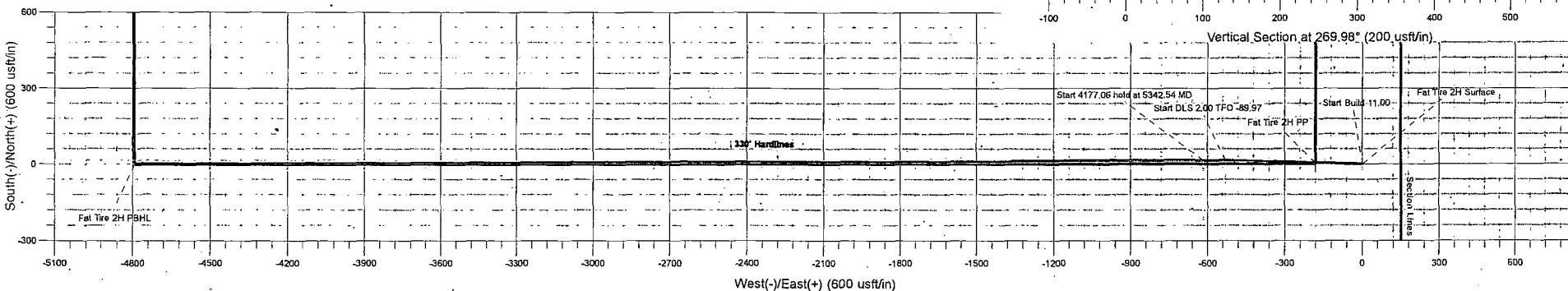
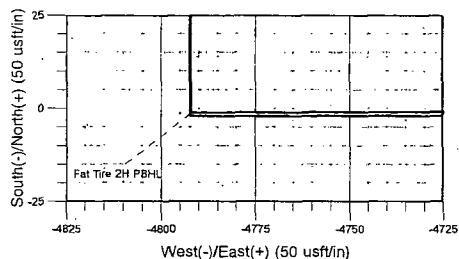
## Section Distances

Sec12.T17S.R29E  
SHL - Unit A  
990°FNL, 150°FEL  
PP  
985°FNL, 330°FEL  
PBHL - Unit D  
990°FNL, 330°FEL



Azimuths to Grid North  
True North: -0.17°  
Magnetic North: 7.32°

Magnetic Field  
Strength: 48653.9nT  
Dip Angle: 60.62°  
Date: 5/8/2014  
Model: IGRF2010



# Archer

ARCHER DIRECTIONAL DRILLING SERVICES  
12101 Cutten Rd. Houston, Texas 77066  
Phone: 281-301-2600 Fax: 281-301-2795

Design: Plan #2 (2H/Lateral)  
Created By: Ivonne Gonzalez  
Date: 14:46, May 08 2014

# COG OPERATING, LLC

Eddy County, NM

Fat Tire 12 Federal UBB #2H

2H

Lateral

Plan: Plan #2

## Standard Planning Report

08 May, 2014

Section Distances

Sec12,T17S,R29E

SHL - Unit A

990'FNL, 150'FEL

PP

985'FNL, 330'FEL

PBHL - Unit D

990'FNL, 330'FWL

# Archer

## Planning Report

|           |                             |                              |                                        |
|-----------|-----------------------------|------------------------------|----------------------------------------|
| Database: | EDM/5000.1 Single User Db   | Local Co-ordinate Reference: | Well: 2H                               |
| Company:  | COG OPERATING LLC           | TVD Reference:               | 3656'GL+17'KB @ 3673.00usft (Planning) |
| Project:  | Eddy County, NM             | MD Reference:                | 3656'GL+17'KB @ 3673.00usft (Planning) |
| Site:     | Fat Tire 12 Federal UBB #2H | North Reference:             | Grid:                                  |
| Well:     | 2H                          | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | Lateral                     |                              |                                        |
| Design:   | Plan #2                     |                              |                                        |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project:    | Eddy 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:                 | Fat Tire 12 Federal UBB #2H |                   |                 |
| Site Position:        |                             | Northing:         | 674,334.50 usft |
| From:                 | Map                         | Easting:          | 596,326.10 usft |
| Position Uncertainty: | 0.00 usft                   | Slot Radius:      | 13.200 in       |
|                       |                             | Grid Convergence: | 0.17 °          |

|                      |       |           |                     |                 |               |                 |
|----------------------|-------|-----------|---------------------|-----------------|---------------|-----------------|
| Well:                | 2H    |           |                     |                 |               |                 |
| Well Position        | +N/-S | 0.00 usft | Northing:           | 674,334.50 usft | Latitude:     | 32° 51' 12.37 N |
|                      | +E/-W | 0.00 usft | Easting:            | 596,326.10 usft | Longitude:    | 104° 1' 10.77 W |
| Position Uncertainty |       | 0.00 usft | Wellhead Elevation: |                 | Ground Level: | 3,656.00 usft   |

|           |            |             |                    |                  |                        |
|-----------|------------|-------------|--------------------|------------------|------------------------|
| Wellbore  | Lateral    |             |                    |                  |                        |
| Magnetics | Model Name | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|           | IGRF2010   | 5/8/2014    | 7.48               | 60.62            | 48,654                 |

|                   |                  |         |           |                    |
|-------------------|------------------|---------|-----------|--------------------|
| Design:           |                  | Plan #2 |           |                    |
| Audit Notes:      |                  |         |           |                    |
| Version:          |                  | Phase:  | PROTOTYPE | Tie On Depth: 0.00 |
| Vertical Section: | Depth From (TVD) | +N-S    | +E-W      | Direction          |
|                   | (usft)           | (usft)  | (usft)    | (°)                |
|                   | 0.00             | 0.00    | 0.00      | 269.98             |

| Measured | Inclination | Azimuth | Vertical | +N-S   | +E-W      | Dogleg      | Build       | Turn        | TFO    | Target           |
|----------|-------------|---------|----------|--------|-----------|-------------|-------------|-------------|--------|------------------|
| Depth    | (°)         | (°)     | Depth    | (usft) | (usft)    | Rate        | Rate        | Rate        | (°)    |                  |
| (usft)   |             |         | (usft)   |        |           | (°/100usft) | (°/100usft) | (°/100usft) |        |                  |
| 0.00     | 0.00        | 0.00    | 0.00     | 0.00   | 0.00      | 0.00        | 0.00        | 0.00        | 0.00   |                  |
| 4,429.21 | 0.00        | 0.00    | 4,429.21 | 0.00   | 0.00      | 0.00        | 0.00        | 0.00        | 0.00   |                  |
| 5,256.48 | 91.00       | 271.50  | 4,950.00 | 13.87  | -529.78   | 11.00       | 11.00       | 0.00        | 271.50 |                  |
| 5,342.54 | 91.00       | 269.78  | 4,948.50 | 14.83  | -615.81   | 2.00        | 0.00        | -2.00       | -89.97 |                  |
| 9,519.59 | 91.00       | 269.78  | 4,875.57 | -1.30  | -4,792.20 | 0.00        | 0.00        | 0.00        | 0.00   | Fat Tire 2H PBHL |

# Archer

## Planning Report

|           |                             |                              |                                        |
|-----------|-----------------------------|------------------------------|----------------------------------------|
| Database: | EDM 5000.1 Single User Db   | Local Co-ordinate Reference: | Well 2H                                |
| Company:  | COG OPERATING, LLC          | TVD Reference:               | 3656 GL+17 KB @ 3673.00usft (Planning) |
| Project:  | Eddy County NM              | MD Reference:                | 3656 GL+17 KB @ 3673.00usft (Planning) |
| Site:     | Fat Tire 12 Federal UBB #2H | North Reference:             | Grid                                   |
| Well:     | 2H                          | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | Lateral                     |                              |                                        |
| Design:   | Plan #2                     |                              |                                        |

| Planned Survey        |                 |             |                       |              |              |                         |                         |                        |                       |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 0.00                  | 0.00            | 0.00        | 0.00                  | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| 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                  |
| 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                  |
| 4,429.21              | 0.00            | 0.00        | 4,429.21              | 0.00         | 0.00         | 0.00                    | 0.00                    | 0.00                   | 0.00                  |
| Start Build 11.00     |                 |             |                       |              |              |                         |                         |                        |                       |
| 4,450.00              | 2.29            | 271.50      | 4,449.99              | 0.01         | -0.41        | 0.41                    | 11.00                   | 11.00                  | 0.00                  |
| 4,500.00              | 7.79            | 271.50      | 4,499.78              | 0.13         | -4.80        | 4.80                    | 11.00                   | 11.00                  | 0.00                  |
| 4,550.00              | 13.29           | 271.50      | 4,548.92              | 0.36         | -13.94       | 13.94                   | 11.00                   | 11.00                  | 0.00                  |
| 4,600.00              | 18.79           | 271.50      | 4,596.96              | 0.73         | -27.74       | 27.74                   | 11.00                   | 11.00                  | 0.00                  |
| 4,650.00              | 24.29           | 271.50      | 4,643.45              | 1.21         | -46.08       | 46.08                   | 11.00                   | 11.00                  | 0.00                  |
| 4,700.00              | 29.79           | 271.50      | 4,687.97              | 1.80         | -68.79       | 68.79                   | 11.00                   | 11.00                  | 0.00                  |
| 4,750.00              | 35.29           | 271.50      | 4,730.10              | 2.51         | -95.67       | 95.67                   | 11.00                   | 11.00                  | 0.00                  |

# Archer

## Planning Report

|           |                             |                              |                                        |
|-----------|-----------------------------|------------------------------|----------------------------------------|
| Database: | EDM 5000.1 Single User Db   | Local Co-ordinate Reference: | Well 2H                                |
| Company:  | COG OPERATING LLC           | TVD Reference:               | 3656 GL+17 KB @ 3673.00usft (Planning) |
| Project:  | Eddy County, NM             | MD Reference:                | 3656 GL+17 KB @ 3673.00usft (Planning) |
| Site:     | Fat Tire 12 Federal UBB #2H | North Reference:             | Grid                                   |
| Well:     | 2H                          | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | Lateral                     |                              |                                        |
| Design:   | Plan #2                     |                              |                                        |

| 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) |  |
| 4,800.00                         | 40.79           | 271.50      | 4,769.47              | 3.31         | -126.45      | 126.45                  | 11.00                   | 11.00                  | 0.00                  |  |
| 4,850.00                         | 46.29           | 271.50      | 4,805.70              | 4.21         | -160.87      | 160.87                  | 11.00                   | 11.00                  | 0.00                  |  |
| 4,900.00                         | 51.79           | 271.50      | 4,838.47              | 5.20         | -198.60      | 198.60                  | 11.00                   | 11.00                  | 0.00                  |  |
| 4,950.00                         | 57.29           | 271.50      | 4,867.46              | 6.27         | -239.29      | 239.29                  | 11.00                   | 11.00                  | 0.00                  |  |
| 5,000.00                         | 62.79           | 271.50      | 4,892.43              | 7.40         | -282.58      | 282.58                  | 11.00                   | 11.00                  | 0.00                  |  |
| 5,050.00                         | 68.29           | 271.50      | 4,913.12              | 8.59         | -328.06      | 328.05                  | 11.00                   | 11.00                  | 0.00                  |  |
| 5,100.00                         | 73.79           | 271.50      | 4,929.37              | 9.83         | -375.31      | 375.31                  | 11.00                   | 11.00                  | 0.00                  |  |
| 5,150.00                         | 79.29           | 271.50      | 4,941.00              | 11.10        | -423.90      | 423.90                  | 11.00                   | 11.00                  | 0.00                  |  |
| 5,200.00                         | 84.79           | 271.50      | 4,947.93              | 12.40        | -473.38      | 473.38                  | 11.00                   | 11.00                  | 0.00                  |  |
| 5,250.00                         | 90.29           | 271.50      | 4,950.07              | 13.70        | -523.30      | 523.29                  | 11.00                   | 11.00                  | 0.00                  |  |
| 5,256.48                         | 91.00           | 271.50      | 4,950.00              | 13.87        | -529.78      | 529.77                  | 11.00                   | 11.00                  | 0.00                  |  |
| Start DLS 2.00 TFO -89.97        |                 |             |                       |              |              |                         |                         |                        |                       |  |
| 5,300.00                         | 91.00           | 270.63      | 4,949.24              | 14.68        | -573.28      | 573.28                  | 2.00                    | 0.00                   | -2.00                 |  |
| 5,342.54                         | 91.00           | 269.78      | 4,948.50              | 14.83        | -615.81      | 615.81                  | 2.00                    | 0.00                   | -2.00                 |  |
| Start 4177.06 hold at 5342.54 MD |                 |             |                       |              |              |                         |                         |                        |                       |  |
| 5,400.00                         | 91.00           | 269.78      | 4,947.50              | 14.61        | -673.27      | 673.26                  | 0.00                    | 0.00                   | 0.00                  |  |
| 5,500.00                         | 91.00           | 269.78      | 4,945.75              | 14.22        | -773.25      | 773.24                  | 0.00                    | 0.00                   | 0.00                  |  |
| 5,600.00                         | 91.00           | 269.78      | 4,944.00              | 13.84        | -873.23      | 873.23                  | 0.00                    | 0.00                   | 0.00                  |  |
| 5,700.00                         | 91.00           | 269.78      | 4,942.26              | 13.45        | -973.22      | 973.21                  | 0.00                    | 0.00                   | 0.00                  |  |
| 5,800.00                         | 91.00           | 269.78      | 4,940.51              | 13.07        | -1,073.20    | 1,073.20                | 0.00                    | 0.00                   | 0.00                  |  |
| 5,900.00                         | 91.00           | 269.78      | 4,938.77              | 12.68        | -1,173.19    | 1,173.18                | 0.00                    | 0.00                   | 0.00                  |  |
| 6,000.00                         | 91.00           | 269.78      | 4,937.02              | 12.29        | -1,273.17    | 1,273.17                | 0.00                    | 0.00                   | 0.00                  |  |
| 6,100.00                         | 91.00           | 269.78      | 4,935.27              | 11.91        | -1,373.15    | 1,373.15                | 0.00                    | 0.00                   | 0.00                  |  |
| 6,200.00                         | 91.00           | 269.78      | 4,933.53              | 11.52        | -1,473.14    | 1,473.13                | 0.00                    | 0.00                   | 0.00                  |  |
| 6,300.00                         | 91.00           | 269.78      | 4,931.78              | 11.13        | -1,573.12    | 1,573.12                | 0.00                    | 0.00                   | 0.00                  |  |
| 6,400.00                         | 91.00           | 269.78      | 4,930.04              | 10.75        | -1,673.11    | 1,673.10                | 0.00                    | 0.00                   | 0.00                  |  |
| 6,500.00                         | 91.00           | 269.78      | 4,928.29              | 10.36        | -1,773.09    | 1,773.09                | 0.00                    | 0.00                   | 0.00                  |  |
| 6,600.00                         | 91.00           | 269.78      | 4,926.54              | 9.98         | -1,873.07    | 1,873.07                | 0.00                    | 0.00                   | 0.00                  |  |
| 6,700.00                         | 91.00           | 269.78      | 4,924.80              | 9.59         | -1,973.06    | 1,973.05                | 0.00                    | 0.00                   | 0.00                  |  |
| 6,800.00                         | 91.00           | 269.78      | 4,923.05              | 9.20         | -2,073.04    | 2,073.04                | 0.00                    | 0.00                   | 0.00                  |  |
| 6,900.00                         | 91.00           | 269.78      | 4,921.31              | 8.82         | -2,173.03    | 2,173.02                | 0.00                    | 0.00                   | 0.00                  |  |
| 7,000.00                         | 91.00           | 269.78      | 4,919.56              | 8.43         | -2,273.01    | 2,273.01                | 0.00                    | 0.00                   | 0.00                  |  |
| 7,100.00                         | 91.00           | 269.78      | 4,917.81              | 8.05         | -2,372.99    | 2,372.99                | 0.00                    | 0.00                   | 0.00                  |  |
| 7,200.00                         | 91.00           | 269.78      | 4,916.07              | 7.66         | -2,472.98    | 2,472.98                | 0.00                    | 0.00                   | 0.00                  |  |
| 7,300.00                         | 91.00           | 269.78      | 4,914.32              | 7.27         | -2,572.96    | 2,572.96                | 0.00                    | 0.00                   | 0.00                  |  |
| 7,400.00                         | 91.00           | 269.78      | 4,912.58              | 6.89         | -2,672.95    | 2,672.94                | 0.00                    | 0.00                   | 0.00                  |  |
| 7,500.00                         | 91.00           | 269.78      | 4,910.83              | 6.50         | -2,772.93    | 2,772.93                | 0.00                    | 0.00                   | 0.00                  |  |
| 7,600.00                         | 91.00           | 269.78      | 4,909.09              | 6.11         | -2,872.91    | 2,872.91                | 0.00                    | 0.00                   | 0.00                  |  |
| 7,700.00                         | 91.00           | 269.78      | 4,907.34              | 5.73         | -2,972.90    | 2,972.90                | 0.00                    | 0.00                   | 0.00                  |  |
| 7,800.00                         | 91.00           | 269.78      | 4,905.59              | 5.34         | -3,072.88    | 3,072.88                | 0.00                    | 0.00                   | 0.00                  |  |
| 7,900.00                         | 91.00           | 269.78      | 4,903.85              | 4.96         | -3,172.87    | 3,172.86                | 0.00                    | 0.00                   | 0.00                  |  |
| 8,000.00                         | 91.00           | 269.78      | 4,902.10              | 4.57         | -3,272.85    | 3,272.85                | 0.00                    | 0.00                   | 0.00                  |  |
| 8,100.00                         | 91.00           | 269.78      | 4,900.36              | 4.18         | -3,372.83    | 3,372.83                | 0.00                    | 0.00                   | 0.00                  |  |
| 8,200.00                         | 91.00           | 269.78      | 4,898.61              | 3.80         | -3,472.82    | 3,472.82                | 0.00                    | 0.00                   | 0.00                  |  |
| 8,300.00                         | 91.00           | 269.78      | 4,896.86              | 3.41         | -3,572.80    | 3,572.80                | 0.00                    | 0.00                   | 0.00                  |  |
| 8,400.00                         | 91.00           | 269.78      | 4,895.12              | 3.02         | -3,672.79    | 3,672.79                | 0.00                    | 0.00                   | 0.00                  |  |
| 8,500.00                         | 91.00           | 269.78      | 4,893.37              | 2.64         | -3,772.77    | 3,772.77                | 0.00                    | 0.00                   | 0.00                  |  |
| 8,600.00                         | 91.00           | 269.78      | 4,891.63              | 2.25         | -3,872.75    | 3,872.75                | 0.00                    | 0.00                   | 0.00                  |  |
| 8,700.00                         | 91.00           | 269.78      | 4,889.88              | 1.87         | -3,972.74    | 3,972.74                | 0.00                    | 0.00                   | 0.00                  |  |
| 8,800.00                         | 91.00           | 269.78      | 4,888.13              | 1.48         | -4,072.72    | 4,072.72                | 0.00                    | 0.00                   | 0.00                  |  |
| 8,900.00                         | 91.00           | 269.78      | 4,886.39              | 1.09         | -4,172.71    | 4,172.71                | 0.00                    | 0.00                   | 0.00                  |  |
| 9,000.00                         | 91.00           | 269.78      | 4,884.64              | 0.71         | -4,272.69    | 4,272.69                | 0.00                    | 0.00                   | 0.00                  |  |
| 9,100.00                         | 91.00           | 269.78      | 4,882.90              | 0.32         | -4,372.67    | 4,372.67                | 0.00                    | 0.00                   | 0.00                  |  |
| 9,200.00                         | 91.00           | 269.78      | 4,881.15              | -0.07        | -4,472.66    | 4,472.66                | 0.00                    | 0.00                   | 0.00                  |  |

# Archer Planning Report

|           |                             |                              |                                        |
|-----------|-----------------------------|------------------------------|----------------------------------------|
| Database: | EDM/5000.M*Single User Db   | Local Co-ordinate Reference: | Well: 2H                               |
| Company:  | COG OPERATING, LLC          | TVD Reference:               | 3656 GL+17 KB @ 3673.00usft (Planning) |
| Project:  | Eddy County, NM             | MD Reference:                | 3656 GL+17 KB @ 3673.00usft (Planning) |
| Site:     | Fat Tire 12/Federal UBB #2H | North Reference:             | Grid                                   |
| Well:     | 2H                          | Survey Calculation Method:   | Minimum Curvature                      |
| Wellbore: | Lateral                     |                              |                                        |
| Design:   | Plan #2                     |                              |                                        |

| Planned Survey        |                 |             |                       |              |              |                         |                         |                        |                       |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 9,300.00              | 91.00           | 269.78      | 4,879.40              | -0.45        | -4,572.64    | 4,572.64                | 0.00                    | 0.00                   | 0.00                  |
| 9,400.00              | 91.00           | 269.78      | 4,877.66              | -0.84        | -4,672.63    | 4,672.63                | 0.00                    | 0.00                   | 0.00                  |
| 9,500.00              | 91.00           | 269.78      | 4,875.91              | -1.22        | -4,772.61    | 4,772.61                | 0.00                    | 0.00                   | 0.00                  |
| 9,519.59              | 91.00           | 269.78      | 4,875.57              | -1.30        | -4,792.20    | 4,792.20                | 0.00                    | 0.00                   | 0.00                  |
| TD at 9519.59         |                 |             |                       |              |              |                         |                         |                        |                       |

| Design Targets      |                                                                                                |               |             |            |              |              |                 |                |                                 |
|---------------------|------------------------------------------------------------------------------------------------|---------------|-------------|------------|--------------|--------------|-----------------|----------------|---------------------------------|
| Target Name         | hit/miss target                                                                                | Dip Angle (°) | Dip Dir (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) |                                 |
| Fat Tire 2H Surface | - plan hits target center<br>- Point                                                           | 0.00          | 0.00        | 0.00       | 0.00         | 0.00         | 674,334.50      | 596,326.10     | 32° 51' 12.37 N 104° 1' 10.77 W |
| Fat Tire 2H PP      | - plan misses target center by 180.07usft at 0.00usft MD (0.00 TVD, 0.00 N, 0.00 E)<br>- Point | 0.00          | 0.00        | 0.00       | 4.71         | -180.01      | 674,339.21      | 596,146.10     | 32° 51' 12.42 N 104° 1' 12.88 W |
| Fat Tire 2H PBHL    | - plan hits target center<br>- Point                                                           | 0.00          | 0.00        | 4,875.57   | -1.30        | -4,792.20    | 674,333.20      | 591,533.90     | 32° 51' 12.50 N 104° 2' 6.95 W  |

| Plan Annotations      |                       |                   |              |                                  |
|-----------------------|-----------------------|-------------------|--------------|----------------------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              | Comment                          |
|                       |                       | +N/-S (usft)      | +E/-W (usft) |                                  |
| 4,429.21              | 4,429.21              | 0.00              | 0.00         | Start Build 11.00                |
| 5,256.48              | 4,950.00              | 13.87             | -529.78      | Start DLS 2.00 TFO -89.97        |
| 5,342.54              | 4,948.50              | 14.83             | -615.81      | Start 4177.06 hold at 5342.54 MD |
| 9,519.59              | 4,875.57              | -1.30             | -4,792.20    | TD at 9519.59                    |