

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>NMNM057239                    |
| 2. Name of Operator<br>COG OPERATING LLC                                                                                         |                                                      | 6. If Indian, Allottee or Tribe Name                |
| Contact DEBORA WILBOURN<br>E-Mail: dwilbourn@concho.com                                                                          |                                                      | 7. If Unit or CA/Agreement, Name and/or No          |
| 3a. Address<br>ONE CONCHO CENTER 600 W ILLINOIS AVENUE<br>MIDLAND, TX 79701                                                      | 3b. Phone No. (include area code)<br>Ph 575-748-6958 | 8. Well Name and No<br>LIZARD POT FEDERAL COM 4H    |
| 4. Location of Well (Footage, Sec., T., R., M., or Survey Description)<br>Sec 36 T19S R31E SESE 1650FSL 750FEL                   |                                                      | 9. API Well No<br>30-015-38236-00-X1                |
|                                                                                                                                  |                                                      | 10. Field and Pool, or Exploratory<br>WILLIAMS SINK |
|                                                                                                                                  |                                                      | 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 <input type="checkbox"/> Change to Original APD |
|                                                      | <input type="checkbox"/> Convert to Injection <input type="checkbox"/> Plug Back <input type="checkbox"/> Water Disposal                                                     |

13. Describe Proposed or Completed Operation (clearly state all pertinent details, including estimated starting date of any proposed work and approximate duration thereof. If the proposal is to deepen directionally or recompleting 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 recompleting 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 REQUEST TO MAKE THE FOLLOWING CHGS TO THE PROD STRG CMT JOB FROM THE ORIGINAL APD:

LEAD: 900 SX 50:50:10 H + SALT + GILSONITE + CF+ CFR-3 @11.8 PPG/2 5 YLD  
TAIL: 1300 SX 50:50:2 H + 1% SALT + 0.4% GASSTOP + 0.3% CFR-3 + HR-601 @14.4 PPG/1 25 YLD

MINIMUM TIE BACK TO 2800' W/35% EXCESS ON OH

NEW DIRECTIONAL PLAN ATTACHED:  
MD 15777'  
TVD 9430'

Accepted for record  
10/2/2012 MOCD

RECEIVED  
SEP 21 2012

APPROVED  
SEP 20 2012  
BUREAU OF LAND MANAGEMENT  
CARLSBAD FIELD OFFICE

|                                                                                                                       |                             |
|-----------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 14. I hereby certify that the foregoing is true and correct                                                           |                             |
| Electronic Submission #147616 verified by the BLM Well Information System For COG OPERATING LLC, sent to the Carlsbad |                             |
| Committed to AFMSS for processing by WESLEY INGRAM on 09/06/2012 (12WWI0163SE)                                        |                             |
| Name (Printed/Typed) DEBORA WILBOURN                                                                                  | Title DRLG ENGINEERING TECH |
| Signature (Electronic Submission)                                                                                     | Date 08/27/2012             |

**THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

|                                                                                                                                                                                                                                                           |                          |                 |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|-----------------|
| Approved By EDWARD FERNANDEZ                                                                                                                                                                                                                              | Title PETROLEUM ENGINEER | Date 09/20/2012 |
| 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 Carlsbad                                                                                                                                                                                                                                           |                          |                 |

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 \*\***

# **COG Operating LLC**

**Eddy County, NM**

**Lizard Pot Fed #4**

**Lizard Pot Fed #4**

**Original Hole**

**Plan: Plan #2**

## **Standard Planning Report**

**27 August, 2012**

# Planning Report

|           |                        |                              |                        |
|-----------|------------------------|------------------------------|------------------------|
| Database: | Houston R5000 Database | Local Co-ordinate Reference: | Site Lizard Pot Fed #4 |
| Company:  | COG Operating LLC      | TVD Reference:               | RKB @ 3522.00ft        |
| Project:  | Eddy County, NM        | MD Reference:                | RKB @ 3522.00ft        |
| Site:     | Lizard Pot Fed #4      | North Reference:             | Grid                   |
| Well:     | Lizard Pot Fed #4      | Survey Calculation Method:   | Minimum Curvature      |
| Wellbore: | Original Hole          |                              |                        |
| 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                  | Lizard Pot Fed #4 |                         |                          |
| Site Position:        | From: Map         | Northing: 587,517 30 ft | Latitude: 32.614121      |
|                       |                   | Easting: 659,269 50 ft  | Longitude: -103.816082   |
| Position Uncertainty: | 0 00 ft           | Slot Radius: 13 200 in  | Grid Convergence: 0 28 ° |

|                      |                   |                         |                           |
|----------------------|-------------------|-------------------------|---------------------------|
| Well                 | Lizard Pot Fed #4 |                         |                           |
| Well Position        | +N/-S 0.00 ft     | Northing: 587,517 30 ft | Latitude: 32.614121       |
|                      | +E/-W 0.00 ft     | Easting: 659,269 50 ft  | Longitude: -103.816082    |
| Position Uncertainty | 0.00 ft           | Wellhead Elevation:     | Ground Level: 3,500 00 ft |

|           |               |             |                    |                  |                        |
|-----------|---------------|-------------|--------------------|------------------|------------------------|
| Wellbore  | Original Hole |             |                    |                  |                        |
| Magnetics | Model Name    | Sample Date | Declination<br>(°) | Dip Angle<br>(°) | Field Strength<br>(nT) |
|           | IGRF2010      | 8/4/2012    | 7.59               | 60.48            | 48,710                 |

|                   |                          |               |               |                        |
|-------------------|--------------------------|---------------|---------------|------------------------|
| Design            |                          | Plan #2       |               |                        |
| Audit Notes:      |                          |               |               |                        |
| Version:          |                          | Phase:        | PLAN          | Tie On Depth: 8,751.00 |
| Vertical Section: | Depth From (TVD)<br>(ft) | +N/-S<br>(ft) | +E/-W<br>(ft) | Direction<br>(°)       |
|                   | 0.00                     | 0.00          | 0.00          | 178.93                 |

| Plan Sections       |                 |             |                     |            |            |                       |                      |                     |         |                      |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|----------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target               |
| 8,751 00            | 0.44            | 225.51      | 8,748 90            | 29.13      | -63.63     | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |
| 8,877 18            | 0.44            | 225.51      | 8,875 08            | 28.45      | -64.32     | 0.00                  | 0.00                 | 0.00                | 0.00    |                      |
| 9,618 48            | 89.26           | 178.36      | 9,350 00            | -442.69    | -53.46     | 12.00                 | 11.98                | -6.36               | -47.16  |                      |
| 15,776 54           | 89.26           | 178.36      | 9,430 00            | -6,597.70  | 122.90     | 0.00                  | 0.00                 | 0.00                | 0.00    | Lizard Pot Fed #4H P |

# Planning Report

|           |                        |                              |                        |
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| Company:  | COG Operating LLC      | TVD Reference:               | RKB @ 3522.00ft        |
| Project:  | Eddy County, NM        | MD Reference:                | RKB @ 3522.00ft        |
| Site:     | Lizard Pot Fed #4      | North Reference:             | Grid                   |
| Well:     | Lizard Pot Fed #4      | Survey Calculation Method:   | Minimum Curvature      |
| Wellbore: | Original Hole          |                              |                        |
| Design:   | Plan #2                |                              |                        |

| Planned Survey                                                                                  |                 |             |                     |            |            |                       |                       |                      |                     |  |
|-------------------------------------------------------------------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|--|
| Measured Depth (ft)                                                                             | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |  |
| 8,751.00                                                                                        | 0.44            | 225.51      | 8,748.90            | 29.13      | -63.63     | -30.31                | 0.00                  | 0.00                 | 0.00                |  |
| Tie-On to Gyro Surveys - 8751.00' MD, 8748.90' TVD                                              |                 |             |                     |            |            |                       |                       |                      |                     |  |
| 8,800.00                                                                                        | 0.44            | 225.51      | 8,797.90            | 28.86      | -63.90     | -30.05                | 0.00                  | 0.00                 | 0.00                |  |
| 8,877.18                                                                                        | 0.44            | 225.51      | 8,875.08            | 28.45      | -64.32     | -29.64                | 0.00                  | 0.00                 | 0.00                |  |
| Straight line Projection to KOP @ 8877.18' MD, 8875.08' TVD. - Start Build & Turn @ 12.00°/100' |                 |             |                     |            |            |                       |                       |                      |                     |  |
| 8,900.00                                                                                        | 3.05            | 184.41      | 8,897.88            | 27.78      | -64.43     | -28.97                | 12.00                 | 11.46                | -180.10             |  |
| 9,000.00                                                                                        | 15.04           | 179.56      | 8,996.46            | 12.09      | -64.53     | -13.29                | 12.00                 | 11.99                | -4.86               |  |
| 9,100.00                                                                                        | 27.04           | 178.99      | 9,089.62            | -23.74     | -64.03     | 22.55                 | 12.00                 | 12.00                | -0.57               |  |
| 9,200.00                                                                                        | 39.04           | 178.75      | 9,173.30            | -78.15     | -62.94     | 76.97                 | 12.00                 | 12.00                | -0.23               |  |
| 9,300.00                                                                                        | 51.04           | 178.62      | 9,243.83            | -148.76    | -61.30     | 147.60                | 12.00                 | 12.00                | -0.14               |  |
| 9,400.00                                                                                        | 63.04           | 178.52      | 9,298.14            | -232.49    | -59.21     | 231.34                | 12.00                 | 12.00                | -0.10               |  |
| 9,500.00                                                                                        | 75.04           | 178.44      | 9,333.85            | -325.67    | -56.73     | 324.55                | 12.00                 | 12.00                | -0.08               |  |
| 9,600.00                                                                                        | 87.04           | 178.37      | 9,349.40            | -424.23    | -53.99     | 423.15                | 12.00                 | 12.00                | -0.07               |  |
| 9,618.48                                                                                        | 89.26           | 178.36      | 9,350.00            | -442.69    | -53.46     | 441.62                | 12.00                 | 12.00                | -0.07               |  |
| Landing Point - Hold @ 89.26° INC, 178.36° AZ                                                   |                 |             |                     |            |            |                       |                       |                      |                     |  |
| 9,700.00                                                                                        | 89.26           | 178.36      | 9,351.08            | -524.17    | -51.12     | 523.12                | 0.00                  | 0.00                 | 0.00                |  |
| 9,800.00                                                                                        | 89.26           | 178.36      | 9,352.36            | -624.12    | -48.26     | 623.11                | 0.00                  | 0.00                 | 0.00                |  |
| 9,900.00                                                                                        | 89.26           | 178.36      | 9,353.66            | -724.07    | -45.40     | 723.10                | 0.00                  | 0.00                 | 0.00                |  |
| 10,000.00                                                                                       | 89.26           | 178.36      | 9,354.96            | -824.02    | -42.53     | 823.08                | 0.00                  | 0.00                 | 0.00                |  |
| 10,100.00                                                                                       | 89.26           | 178.36      | 9,356.26            | -923.97    | -39.67     | 923.07                | 0.00                  | 0.00                 | 0.00                |  |
| 10,200.00                                                                                       | 89.26           | 178.36      | 9,357.55            | -1,023.92  | -36.81     | 1,023.06              | 0.00                  | 0.00                 | 0.00                |  |
| 10,300.00                                                                                       | 89.26           | 178.36      | 9,358.85            | -1,123.87  | -33.94     | 1,123.04              | 0.00                  | 0.00                 | 0.00                |  |
| 10,400.00                                                                                       | 89.26           | 178.36      | 9,360.15            | -1,223.82  | -31.08     | 1,223.03              | 0.00                  | 0.00                 | 0.00                |  |
| 10,500.00                                                                                       | 89.26           | 178.36      | 9,361.45            | -1,323.77  | -28.21     | 1,323.02              | 0.00                  | 0.00                 | 0.00                |  |
| 10,600.00                                                                                       | 89.26           | 178.36      | 9,362.75            | -1,423.72  | -25.35     | 1,423.00              | 0.00                  | 0.00                 | 0.00                |  |
| 10,700.00                                                                                       | 89.26           | 178.36      | 9,364.05            | -1,523.67  | -22.49     | 1,522.99              | 0.00                  | 0.00                 | 0.00                |  |
| 10,800.00                                                                                       | 89.26           | 178.36      | 9,365.35            | -1,623.62  | -19.62     | 1,622.98              | 0.00                  | 0.00                 | 0.00                |  |
| 10,900.00                                                                                       | 89.26           | 178.36      | 9,366.65            | -1,723.57  | -16.76     | 1,722.96              | 0.00                  | 0.00                 | 0.00                |  |
| 11,000.00                                                                                       | 89.26           | 178.36      | 9,367.95            | -1,823.52  | -13.89     | 1,822.95              | 0.00                  | 0.00                 | 0.00                |  |
| 11,100.00                                                                                       | 89.26           | 178.36      | 9,369.25            | -1,923.48  | -11.03     | 1,922.94              | 0.00                  | 0.00                 | 0.00                |  |
| 11,200.00                                                                                       | 89.26           | 178.36      | 9,370.55            | -2,023.43  | -8.17      | 2,022.92              | 0.00                  | 0.00                 | 0.00                |  |
| 11,300.00                                                                                       | 89.26           | 178.36      | 9,371.84            | -2,123.38  | -5.30      | 2,122.91              | 0.00                  | 0.00                 | 0.00                |  |
| 11,400.00                                                                                       | 89.26           | 178.36      | 9,373.14            | -2,223.33  | -2.44      | 2,222.90              | 0.00                  | 0.00                 | 0.00                |  |
| 11,500.00                                                                                       | 89.26           | 178.36      | 9,374.44            | -2,323.28  | 0.42       | 2,322.88              | 0.00                  | 0.00                 | 0.00                |  |
| 11,600.00                                                                                       | 89.26           | 178.36      | 9,375.74            | -2,423.23  | 3.29       | 2,422.87              | 0.00                  | 0.00                 | 0.00                |  |
| 11,700.00                                                                                       | 89.26           | 178.36      | 9,377.04            | -2,523.18  | 6.15       | 2,522.86              | 0.00                  | 0.00                 | 0.00                |  |
| 11,800.00                                                                                       | 89.26           | 178.36      | 9,378.34            | -2,623.13  | 9.02       | 2,622.84              | 0.00                  | 0.00                 | 0.00                |  |
| 11,900.00                                                                                       | 89.26           | 178.36      | 9,379.64            | -2,723.08  | 11.88      | 2,722.83              | 0.00                  | 0.00                 | 0.00                |  |
| 12,000.00                                                                                       | 89.26           | 178.36      | 9,380.94            | -2,823.03  | 14.74      | 2,822.82              | 0.00                  | 0.00                 | 0.00                |  |
| 12,100.00                                                                                       | 89.26           | 178.36      | 9,382.24            | -2,922.98  | 17.61      | 2,922.80              | 0.00                  | 0.00                 | 0.00                |  |
| 12,200.00                                                                                       | 89.26           | 178.36      | 9,383.54            | -3,022.93  | 20.47      | 3,022.79              | 0.00                  | 0.00                 | 0.00                |  |
| 12,300.00                                                                                       | 89.26           | 178.36      | 9,384.84            | -3,122.88  | 23.34      | 3,122.77              | 0.00                  | 0.00                 | 0.00                |  |
| 12,400.00                                                                                       | 89.26           | 178.36      | 9,386.14            | -3,222.83  | 26.20      | 3,222.76              | 0.00                  | 0.00                 | 0.00                |  |
| 12,500.00                                                                                       | 89.26           | 178.36      | 9,387.43            | -3,322.78  | 29.06      | 3,322.75              | 0.00                  | 0.00                 | 0.00                |  |
| 12,600.00                                                                                       | 89.26           | 178.36      | 9,388.73            | -3,422.73  | 31.93      | 3,422.73              | 0.00                  | 0.00                 | 0.00                |  |
| 12,700.00                                                                                       | 89.26           | 178.36      | 9,390.03            | -3,522.68  | 34.79      | 3,522.72              | 0.00                  | 0.00                 | 0.00                |  |
| 12,800.00                                                                                       | 89.26           | 178.36      | 9,391.33            | -3,622.63  | 37.66      | 3,622.71              | 0.00                  | 0.00                 | 0.00                |  |
| 12,900.00                                                                                       | 89.26           | 178.36      | 9,392.63            | -3,722.59  | 40.52      | 3,722.69              | 0.00                  | 0.00                 | 0.00                |  |
| 13,000.00                                                                                       | 89.26           | 178.36      | 9,393.93            | -3,822.54  | 43.38      | 3,822.68              | 0.00                  | 0.00                 | 0.00                |  |
| 13,100.00                                                                                       | 89.26           | 178.36      | 9,395.23            | -3,922.49  | 46.25      | 3,922.67              | 0.00                  | 0.00                 | 0.00                |  |
| 13,200.00                                                                                       | 89.26           | 178.36      | 9,396.53            | -4,022.44  | 49.11      | 4,022.65              | 0.00                  | 0.00                 | 0.00                |  |
| 13,300.00                                                                                       | 89.26           | 178.36      | 9,397.83            | -4,122.39  | 51.97      | 4,122.64              | 0.00                  | 0.00                 | 0.00                |  |
| 13,400.00                                                                                       | 89.26           | 178.36      | 9,399.13            | -4,222.34  | 54.84      | 4,222.63              | 0.00                  | 0.00                 | 0.00                |  |

# Planning Report

|           |                        |                              |                        |
|-----------|------------------------|------------------------------|------------------------|
| Database: | Houston R5000 Database | Local Co-ordinate Reference: | Site Lizard Pot Fed #4 |
| Company:  | COG Operating LLC      | TVD Reference:               | RKB @ 3522.00ft        |
| Project:  | Eddy County, NM        | MD Reference:                | RKB @ 3522.00ft        |
| Site:     | Lizard Pot Fed #4      | North Reference:             | Grid                   |
| Well:     | Lizard Pot Fed #4      | Survey Calculation Method:   | Minimum Curvature      |
| Wellbore: | Original Hole          |                              |                        |
| Design:   | Plan #2                |                              |                        |

| Planned Survey                                            |                 |             |                     |            |            |                       |                       |                      |                     |
|-----------------------------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft)                                       | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 13,500.00                                                 | 89.26           | 178.36      | 9,400.43            | -4,322.29  | 57.70      | 4,322.61              | 0.00                  | 0.00                 | 0.00                |
| 13,600.00                                                 | 89.26           | 178.36      | 9,401.72            | -4,422.24  | 60.57      | 4,422.60              | 0.00                  | 0.00                 | 0.00                |
| 13,700.00                                                 | 89.26           | 178.36      | 9,403.02            | -4,522.19  | 63.43      | 4,522.59              | 0.00                  | 0.00                 | 0.00                |
| 13,800.00                                                 | 89.26           | 178.36      | 9,404.32            | -4,622.14  | 66.29      | 4,622.57              | 0.00                  | 0.00                 | 0.00                |
| 13,900.00                                                 | 89.26           | 178.36      | 9,405.62            | -4,722.09  | 69.16      | 4,722.56              | 0.00                  | 0.00                 | 0.00                |
| 14,000.00                                                 | 89.26           | 178.36      | 9,406.92            | -4,822.04  | 72.02      | 4,822.55              | 0.00                  | 0.00                 | 0.00                |
| 14,100.00                                                 | 89.26           | 178.36      | 9,408.22            | -4,921.99  | 74.89      | 4,922.53              | 0.00                  | 0.00                 | 0.00                |
| 14,200.00                                                 | 89.26           | 178.36      | 9,409.52            | -5,021.94  | 77.75      | 5,022.52              | 0.00                  | 0.00                 | 0.00                |
| 14,300.00                                                 | 89.26           | 178.36      | 9,410.82            | -5,121.89  | 80.61      | 5,122.51              | 0.00                  | 0.00                 | 0.00                |
| 14,400.00                                                 | 89.26           | 178.36      | 9,412.12            | -5,221.84  | 83.48      | 5,222.49              | 0.00                  | 0.00                 | 0.00                |
| 14,500.00                                                 | 89.26           | 178.36      | 9,413.42            | -5,321.79  | 86.34      | 5,322.48              | 0.00                  | 0.00                 | 0.00                |
| 14,600.00                                                 | 89.26           | 178.36      | 9,414.72            | -5,421.74  | 89.21      | 5,422.47              | 0.00                  | 0.00                 | 0.00                |
| 14,700.00                                                 | 89.26           | 178.36      | 9,416.01            | -5,521.69  | 92.07      | 5,522.45              | 0.00                  | 0.00                 | 0.00                |
| 14,800.00                                                 | 89.26           | 178.36      | 9,417.31            | -5,621.65  | 94.93      | 5,622.44              | 0.00                  | 0.00                 | 0.00                |
| 14,900.00                                                 | 89.26           | 178.36      | 9,418.61            | -5,721.60  | 97.80      | 5,722.43              | 0.00                  | 0.00                 | 0.00                |
| 15,000.00                                                 | 89.26           | 178.36      | 9,419.91            | -5,821.55  | 100.66     | 5,822.41              | 0.00                  | 0.00                 | 0.00                |
| 15,100.00                                                 | 89.26           | 178.36      | 9,421.21            | -5,921.50  | 103.52     | 5,922.40              | 0.00                  | 0.00                 | 0.00                |
| 15,200.00                                                 | 89.26           | 178.36      | 9,422.51            | -6,021.45  | 106.39     | 6,022.38              | 0.00                  | 0.00                 | 0.00                |
| 15,300.00                                                 | 89.26           | 178.36      | 9,423.81            | -6,121.40  | 109.25     | 6,122.37              | 0.00                  | 0.00                 | 0.00                |
| 15,400.00                                                 | 89.26           | 178.36      | 9,425.11            | -6,221.35  | 112.12     | 6,222.36              | 0.00                  | 0.00                 | 0.00                |
| 15,500.00                                                 | 89.26           | 178.36      | 9,426.41            | -6,321.30  | 114.98     | 6,322.34              | 0.00                  | 0.00                 | 0.00                |
| 15,600.00                                                 | 89.26           | 178.36      | 9,427.71            | -6,421.25  | 117.84     | 6,422.33              | 0.00                  | 0.00                 | 0.00                |
| 15,700.00                                                 | 89.26           | 178.36      | 9,429.01            | -6,521.20  | 120.71     | 6,522.32              | 0.00                  | 0.00                 | 0.00                |
| 15,776.54                                                 | 89.26           | 178.36      | 9,430.00            | -6,597.70  | 122.90     | 6,598.84              | 0.00                  | 0.00                 | 0.00                |
| TD @ 15776.54' MD, 9430.00' TVD - Lizard Pot Fed #4H PBHL |                 |             |                     |            |            |                       |                       |                      |                     |

| Design Targets            |               |              |          |            |            |               |              |           |             |
|---------------------------|---------------|--------------|----------|------------|------------|---------------|--------------|-----------|-------------|
| Target Name               | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude  | Longitude   |
| - hit/miss target         |               |              |          |            |            |               |              |           |             |
| - Shape                   |               |              |          |            |            |               |              |           |             |
| Lizard Pot Fed #4H PBH    | 0.00          | 0.00         | 9,430.00 | -6,597.70  | 122.90     | 580,919.60    | 659,392.40   | 32 595984 | -103 815787 |
| - plan hits target center |               |              |          |            |            |               |              |           |             |
| - Point                   |               |              |          |            |            |               |              |           |             |

| Plan Annotations    |                     |                   |            |                                                              |
|---------------------|---------------------|-------------------|------------|--------------------------------------------------------------|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates |            | Comment                                                      |
|                     |                     | +N/-S (ft)        | +E/-W (ft) |                                                              |
| 8,751.00            | 8,748.90            | 29.13             | -63.63     | Tie-On to Gyro Surveys - 8751 00' MD, 8748 90' TVD           |
| 8,877.18            | 8,875.08            | 28.45             | -64.32     | Straight line Projection to KOP @ 8877.18' MD, 8875 08' TVD. |
| 8,877.18            | 8,875.08            | 28.45             | -64.32     | Start Build & Turn @ 12.00°/100'                             |
| 9,618.48            | 9,350.00            | -442.69           | -53.46     | Landing Point - Hold @ 89 26° INC, 178.36° AZ                |
| 15,776.54           | 9,430.00            | -6,597.70         | 122.90     | TD @ 15776.54' MD, 9430 00' TVD                              |



**COG Operating LLC**  
**Eddy County, NM**  
**Lizard Pot Fed #4**  
**Plan #2**

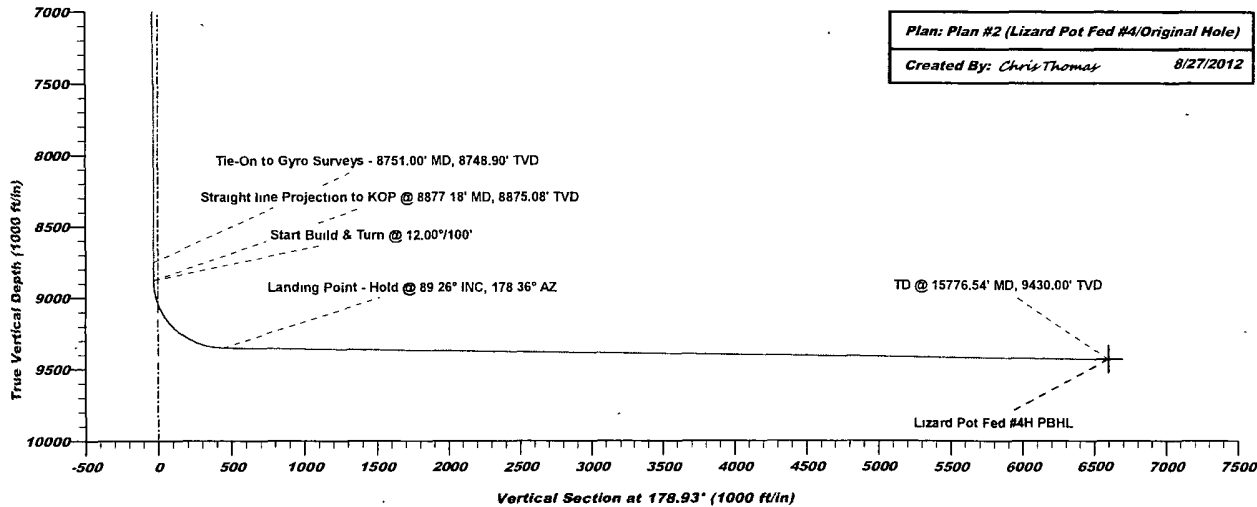
| Surface Location |              |                  |                |                 |                  |
|------------------|--------------|------------------|----------------|-----------------|------------------|
|                  |              | Ground Elev:     | 3500.00        | RKB @ 3522.00ft |                  |
| <u>+N/-S</u>     | <u>+E/-W</u> | <u>Northings</u> | <u>Easting</u> | <u>Latitude</u> | <u>Longitude</u> |
| 0.00             | 0.00         | 587517.30        | 659269.50      | 32.614121       | -103.816082      |

| WELLBORE TARGET DETAILS (MAP CO-ORDINATES) |            |              |              |                  |                |
|--------------------------------------------|------------|--------------|--------------|------------------|----------------|
| <u>Name</u>                                | <u>TVD</u> | <u>+N/-S</u> | <u>+E/-W</u> | <u>Northings</u> | <u>Easting</u> |
| Lizard Pot Fed #4H PBHL                    | 9430.00    | -6597.70     | 122.90       | 580919.60        | 659392.40      |

| SECTION DETAILS |            |            |            |              |              |             |              |              |                                                              |  |
|-----------------|------------|------------|------------|--------------|--------------|-------------|--------------|--------------|--------------------------------------------------------------|--|
| <u>MD</u>       | <u>Inc</u> | <u>Azi</u> | <u>TVD</u> | <u>+N/-S</u> | <u>+E/-W</u> | <u>Dleg</u> | <u>TFace</u> | <u>VSect</u> | <u>Annotation</u>                                            |  |
| 8751.00         | 0.44       | 225.51     | 8748.90    | 29.13        | -63.63       | 0.00        | 0.00         | -30.31       | Tie-On to Gyro Surveys - 8751.00' MD, 8748.90' TVD           |  |
| 8877.18         | 0.44       | 225.51     | 8875.08    | 28.45        | -64.32       | 0.00        | 0.00         | -29.64       | Straight line Projection to KOP @ 8877.18' MD, 8875.08' TVD. |  |
| 9618.48         | 89.26      | 178.36     | 9350.00    | -442.69      | -53.46       | 12.00       | -47.16       | 441.62       | Landing Point - Hold @ 89.26° INC, 178.36° AZ                |  |
| 15776.54        | 89.26      | 178.36     | 9430.00    | -6597.70     | 122.90       | 0.00        | 0.00         | 6598.84      | TD @ 15776.54' MD, 9430.00' TVD                              |  |



**Azimuths to Grid North**  
 True North -0 28°  
 Magnetic North 7 31°  
**Magnetic Field**  
 Strength 48710 1snT  
 Dip Angle 60 48°  
 Date 8/4/2012  
 Model: IGRF2010



Plan: Plan #2 (Lizard Pot Fed #4/Original Hole)

Created By: Chris Thomas 8/27/2012

