

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

OCD Artesia

FORM APPROVED  
OMB No 1004-0137  
Expires March 31, 2007

## 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  
☒ Oil Well ☐ Gas Well ☐ Other2 Name of Operator **COG Operating LLC Agent** ✓3a Address  
**550 W. Texas, Suite 1300 Midland, TX 79701**3b Phone No (include area code)  
**432-685-4340**

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

**SHL 1265 FSL & 2375 FWL  
BHL 1309 FSL & 2628 FWL****Section 23, T17S R29E, UL N  
Section 23, T17S R29E, UL N**5 Lease Serial No  
**NMLC-020784B-068960**6 If Indian, Allottee or Tribe Name  
**N/A**7 If Unit or CA/Agreement, Name and/or No  
**NMNM-88525X; Burch Keely Unit**8 Well Name and No.  
**Burch Keely Unit #609** ✓9 API Well No  
**30-015-38645** ✓10 Field and Pool, or Exploratory Area  
**Grayburg Jackson: SR-Q-G-SA**11 County or Parish, State  
**EDDY, NM****12. CHECK APPROPRIATE BOX(ES) TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA**

| TYPE OF SUBMISSION                                    | TYPE OF ACTION                                |                                           |                                                    |                                                                          |
|-------------------------------------------------------|-----------------------------------------------|-------------------------------------------|----------------------------------------------------|--------------------------------------------------------------------------|
| <input 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 checked="" 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 <b>Change Surface Location</b> |
|                                                       | <input type="checkbox"/> Change Plans         | <input type="checkbox"/> Plug and Abandon | <input type="checkbox"/> Temporarily Abandon       |                                                                          |
|                                                       | <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 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.)

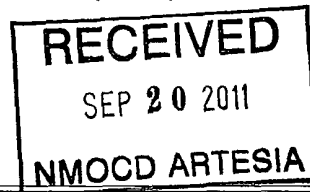
The SHL location was moved on 5/19/2011 to this location due to a BPL:

1215 FSL & 2375 FWL Section 23, T17S R29E, UL N

The BHL remains the same at: 1309 FSL & 2628 FWL Section 23, T17S R29E, UL N

After moving the well to the new location, a new Directional Plan was requested. During that time, a request was made to verify the path of a nearby well to assess the possibility of a wellbore collision while drilling to the BHL. After we concluded that the collision was avoidable, the BHL change and a new Directional Plan was not needed for the original location. The Directional Plan for the new SHL was forgotten and construction and drilling moved forward and proceeded to Spud the well. We only recently discovered that we had not submitted the NOI to change the SHL before Spud.

Revised plat and Drilling Directional Plan are attached.

14 I hereby certify that the foregoing is true and correct  
Name (Printed/Typed)**Kelly J. Holly**Title **Permitting Tech**

Signature

Date

**08/23/2011****THIS SPACE FOR FEDERAL OR STATE OFFICE USE**

Approved by

**/s/ Don Peterson**

Title

Date

**SEP 16 2011**

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.

(Instructions on page 2)

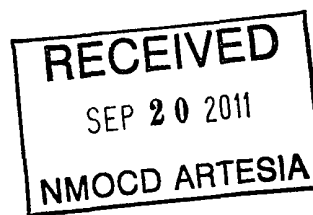
Accepted For Record - NMOC D  
T. C. Shumard 9/26/2011



## Standard Planning Report

### COG Operating LLC

Field: Eddy Co, NM  
Site: Burch Keely Unit #609  
Well: #609  
Wellpath: OH  
Plan: Plan #1



SHL: 1215' FSL & 2375' FWL  
PBHL: 1299' FSL & 2618' FWL  
Top of Paddock: 1299' FSL & 2618' FWL @ 4000' TVD

**Ryan Energy Technology**

19510 Oil Center Blvd  
Houston, TX 77073  
Ph 281-443-1414  
Fx 281-443-1676

[www.ryanenergy.com](http://www.ryanenergy.com)



Plan Plan #1 (#609/OH)

|            |                      |      |           |
|------------|----------------------|------|-----------|
| Created By | Enk Athemo DA, La Te | Date | 7/28/2011 |
| Checked    | _____                | Date | _____     |
| Reviewed   | _____                | Date | _____     |
| Approved   | _____                | Date | _____     |



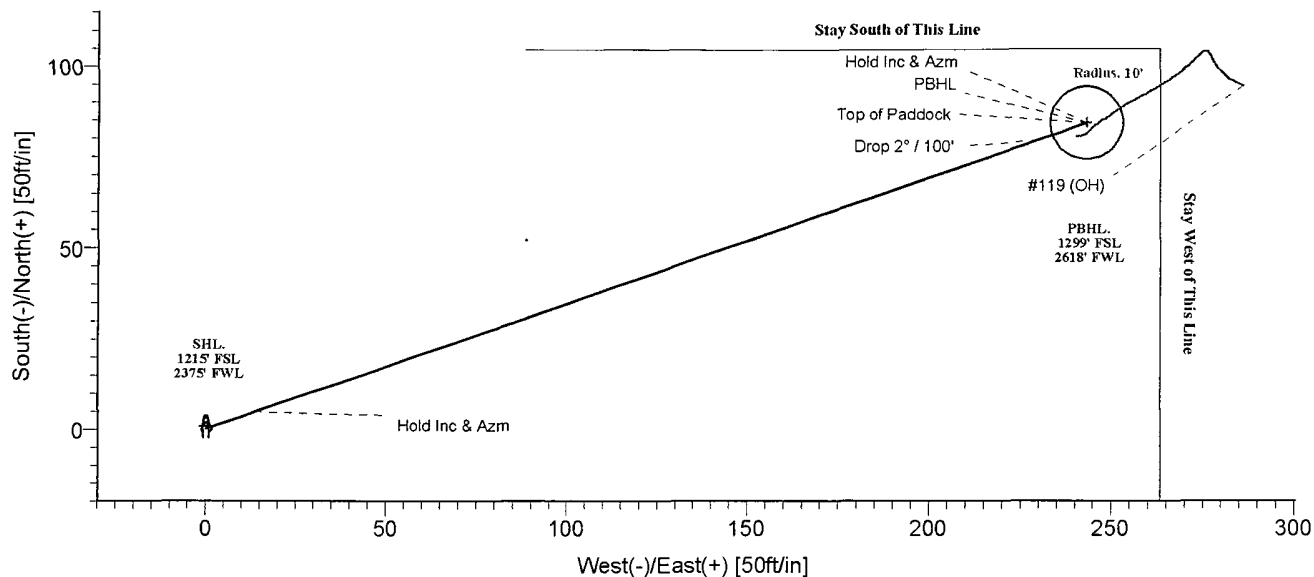
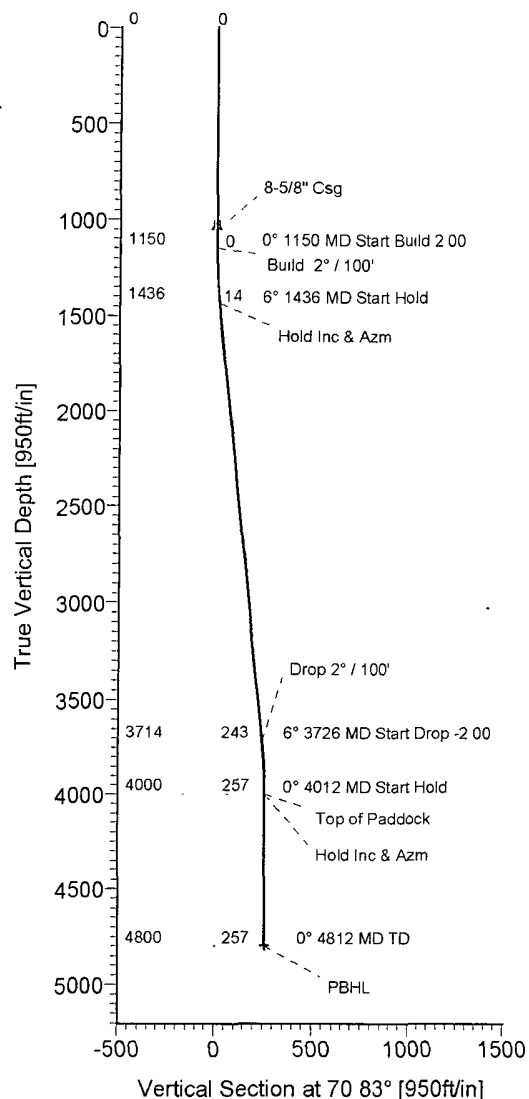
# COG Operating LLC

Field: Eddy Co, NM  
Site: Burch Keely Unit #609  
Well: #609  
Wellpath: OH  
Plan: Plan #1



Azimuths to Grid North  
True North -0 16"  
Magnetic North 7 68"

Magnetic Field  
Strength 48934nT  
Dip Angle 60 65"  
Date 7/29/2011  
Model IGRF2010



## 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   | 1150 00 | 0 00 | 0 00  | 1150 00 | 0 00  | 0 00   | 0 00 | 0 00   | 0 00   |        |
| 3   | 1436 31 | 5 73 | 70 83 | 1436 83 | 4 69  | 13 50  | 2 00 | 0 00   | 14 30  |        |
| 4   | 3726 07 | 5 73 | 70 83 | 3714 17 | 79 71 | 229 30 | 0 00 | 0 00   | 242 76 |        |
| 5   | 4012 38 | 0 00 | 0 00  | 4000 00 | 84 40 | 242 80 | 2 00 | 180 00 | 257 05 |        |
| 6   | 4812 38 | 0 00 | 0 00  | 4800 00 | 84 40 | 242 80 | 0 00 | 0 00   | 257 05 | PBHL   |

## SITE DETAILS

Burch Keely Unit #609  
Eddy Co., NM

Site Centre Northing 660699 40  
Easting 588334 90

Ground Level 3582 00  
Positional Uncertainty 0 00  
Convergence 0 16

## FIELD DETAILS

Eddy Co, NM  
New Mexico  
USA

Geodetic System US State Plane Coordinate System 1927  
Ellipsoid NAD27 (Clarke 1866)  
Zone New Mexico, Eastern Zone  
Magnetic Model IGRF2010

System Datum Mean Sea Level  
Local North Grid North

## WELLPATH DETAILS

OH

Rig Ref Datum SITE 3582 00ft

V Section Angle Origin +N/-S Origin +E/-W Starting From TVD

70 83° 0 00 0 00 0 00

## TARGET DETAILS

| Name | TVD     | +N/-S | +E/-W  | Northing  | Easting   | Latitude      | Longitude      | Shape             |
|------|---------|-------|--------|-----------|-----------|---------------|----------------|-------------------|
| PBHL | 4800 00 | 84 40 | 242 80 | 660783 80 | 588577 70 | 32°48'58 502N | 104°02'42 040W | Circle (Radius 5) |

Ryan Energy Technologies  
19510 Oil Center Blvd  
Houston, TX 77073  
Ph 281-443-1414  
Fx 281-443-1676



Plan #1 (609/OH)  
Created By Erik Alberto De La Fe Date 7/29/2011  
Checked \_\_\_\_\_ Date \_\_\_\_\_  
Reviewed \_\_\_\_\_ Date \_\_\_\_\_  
Approved \_\_\_\_\_ Date \_\_\_\_\_

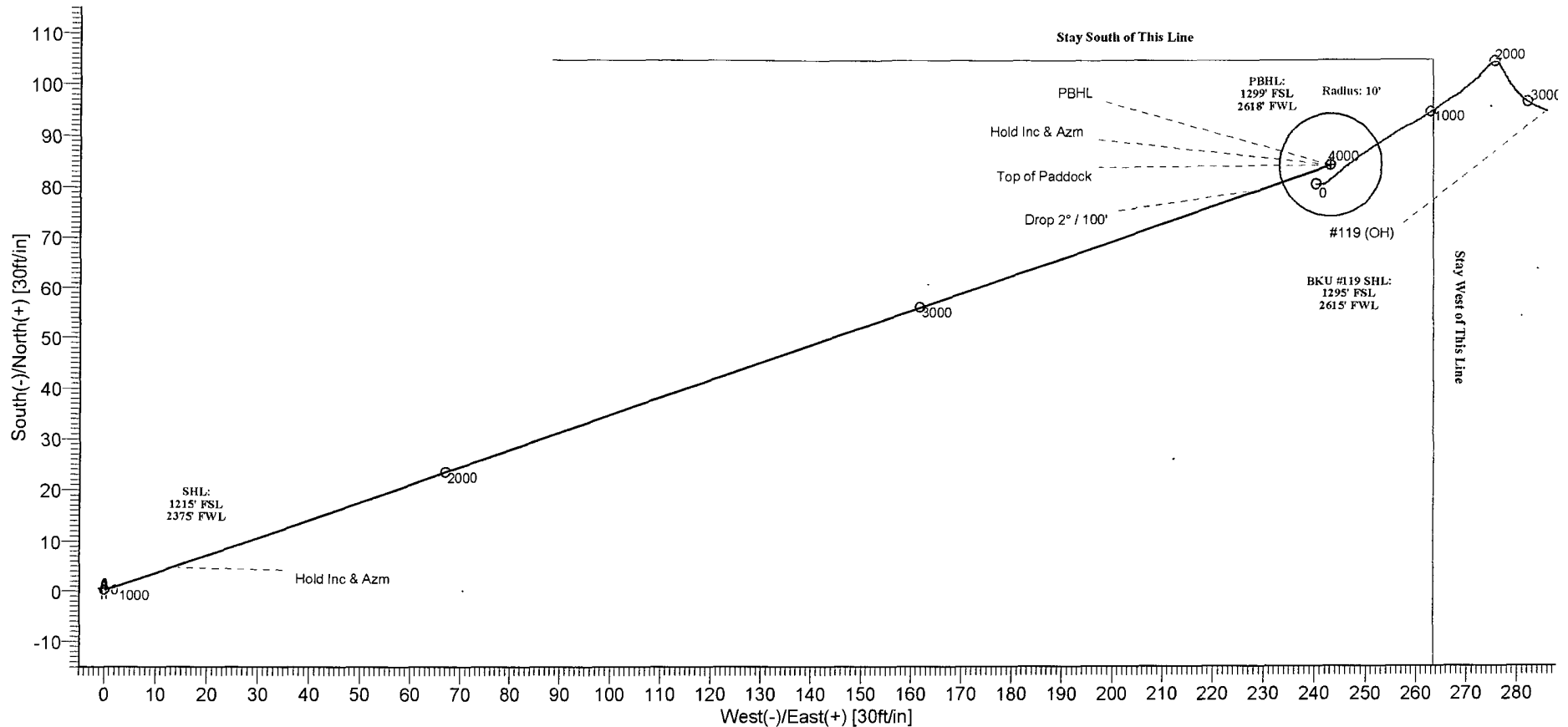


# COG Operating LLC

Field: Eddy Co, NM  
Site: Burch Keely Unit #609  
Well: #609  
Wellpath: OH  
Plan: Plan #1



Azimuths to Gnd North  
True North -0 16°  
Magnetic North 7 68°  
Magnetic Field-  
Strength 48934nT  
Dip Angle 60 65°  
Date 7/28/2011  
Model IGRF2010



## SITE DETAILS

Burch Keely Unit #609  
Eddy Co, NM  
Site Centre Northing 660699 40  
Easting 588334 90  
Ground Level 3582 00  
Positional Uncertainty 2 00  
Convergence 0 16

## FIELD DETAILS

Eddy Co, NM  
New Mexico  
U S A  
Geodetic System US State Plane Coordinate System 1927  
Ellipsoid NAD27 (Clarke 1866)  
Zone New Mexico, Eastern Zone  
Magnetic Model IGRF2010  
System Datum Mean Sea Level  
Local North Gnd North

## WELLPATH DETAILS

OH  
Rig Ref Datum SITE 3582 00ft  
V Section Angle Origin +N/-S Origin +E/-W Starting From TVD  
70 83° 0 00 0 00 0 00

Ryan Energy Technologies  
19510 Oil Center Blvd  
Houston, TX 77073  
Ph 281-443-1414  
Fx 281-443-1676



Plan Plan #1 (609 OH)  
Created By Eni De La Fe Date 8/5/2011  
Checked \_\_\_\_\_ Date \_\_\_\_\_  
Reviewed \_\_\_\_\_ Date \_\_\_\_\_  
Approved \_\_\_\_\_ Date \_\_\_\_\_

|                                    |                                                                           |                       |                |
|------------------------------------|---------------------------------------------------------------------------|-----------------------|----------------|
| <b>Company:</b> COG Operating LLC  | <b>Date:</b> 7/28/2011                                                    | <b>Time:</b> 10:38:55 | <b>Page:</b> 1 |
| <b>Field:</b> Eddy Co, NM          | <b>Co-ordinate(NE) Reference:</b> Site: Burch Keely Unit #609, Grid North |                       |                |
| <b>Site:</b> Burch Keely Unit #609 | <b>Vertical (TVD) Reference:</b> SITE 3582.0'                             |                       |                |
| <b>Well:</b> #609                  | <b>Section (VS) Reference:</b> Well (0.00N,0.00E,70.83Azi)                |                       |                |
| <b>Wellpath:</b> OH                | <b>Plan:</b> Plan #1                                                      |                       |                |

|                                                  |                                                          |                                           |
|--------------------------------------------------|----------------------------------------------------------|-------------------------------------------|
| <b>Field:</b> Eddy Co, NM<br>New Mexico<br>U.S.A | <b>Map System:</b> US State Plane Coordinate System 1927 | <b>Map Zone:</b> New Mexico, Eastern Zone |
| <b>Geo Datum:</b> NAD27 (Clarke 1866)            | <b>Coordinate System:</b> Site Centre                    |                                           |
| <b>Sys Datum:</b> Mean Sea Level                 | <b>Geomagnetic Model:</b> IGRF2010                       |                                           |

**Site:** Burch Keely Unit #609

Eddy Co., NM

|                                      |                               |                                   |
|--------------------------------------|-------------------------------|-----------------------------------|
| <b>Site Position:</b>                | <b>Northing:</b> 660699.40 ft | <b>Latitude:</b> 32 48 57.673 N   |
| <b>From:</b> Map                     | <b>Easting:</b> 588334.90 ft  | <b>Longitude:</b> 104 2 44.888 W  |
| <b>Position Uncertainty:</b> 0.00 ft |                               | <b>North Reference:</b> Grid      |
| <b>Ground Level:</b> 3582.00 ft      |                               | <b>Grid Convergence:</b> 0.16 deg |

|                                      |                               |
|--------------------------------------|-------------------------------|
| <b>Well:</b> #609                    | <b>Slot Name:</b>             |
| <b>Well Position:</b> +N/-S 0.00 ft  | <b>Northing:</b> 660699.40 ft |
| +E/-W 0.00 ft                        | <b>Easting:</b> 588334.90 ft  |
| <b>Position Uncertainty:</b> 0.00 ft |                               |

|                                           |                                           |
|-------------------------------------------|-------------------------------------------|
| <b>Wellpath:</b> OH                       | <b>Drilled From:</b> Surface              |
| <b>Current Datum:</b> SITE                | <b>Tie-on Depth:</b> 0.00 ft              |
| <b>Magnetic Data:</b> 7/28/2011           | <b>Above System Datum:</b> Mean Sea Level |
| <b>Field Strength:</b> 48934 nT           | <b>Declination:</b> 7.84 deg              |
| <b>Vertical Section:</b> Depth From (TVD) | <b>Mag Dip Angle:</b> 60.65 deg           |
| ft                                        | +N/-S                                     |
| ft                                        | +E/-W                                     |
| ft                                        | Direction                                 |
| ft                                        | deg                                       |
| 0.00                                      | 0.00                                      |
| 0.00                                      | 0.00                                      |
| 0.00                                      | 70.83                                     |

|                       |                                 |
|-----------------------|---------------------------------|
| <b>Plan:</b> Plan #1  | <b>Date Composed:</b> 7/28/2011 |
| <b>Principal:</b> Yes | <b>Version:</b> 1               |
|                       | <b>Tied-to:</b> From Surface    |

**Plan Section Information**

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | TFO<br>deg | Target |
|----------|-------------|-------------|-----------|-------------|-------------|------------------|--------------------|-------------------|------------|--------|
| 0.00     | 0.00        | 0.00        | 0.00      | 0.00        | 0.00        | 0.00             | 0.00               | 0.00              | 0.00       |        |
| 1150.00  | 0.00        | 0.00        | 1150.00   | 0.00        | 0.00        | 0.00             | 0.00               | 0.00              | 0.00       |        |
| 1436.31  | 5.73        | 70.83       | 1435.83   | 4.69        | 13.50       | 2.00             | 2.00               | 0.00              | 0.00       |        |
| 3726.07  | 5.73        | 70.83       | 3714.17   | 79.71       | 229.30      | 0.00             | 0.00               | 0.00              | 0.00       |        |
| 4012.38  | 0.00        | 0.00        | 4000.00   | 84.40       | 242.80      | 2.00             | -2.00              | 0.00              | 180.00     |        |
| 4812.38  | 0.00        | 0.00        | 4800.00   | 84.40       | 242.80      | 0.00             | 0.00               | 0.00              | 0.00       | PBHL   |

**Survey**

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment     |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|------------------|
| 1150.00  | 0.00        | 0.00        | 1150.00   | 0.00        | 0.00        | 0.00     | 0.00             | 0.00               | 0.00              | Build. 2° / 100' |
| 1200.00  | 1.00        | 70.83       | 1200.00   | 0.14        | 0.41        | 0.44     | 2.00             | 2.00               | 0.00              |                  |
| 1300.00  | 3.00        | 70.83       | 1299.93   | 1.29        | 3.71        | 3.93     | 2.00             | 2.00               | 0.00              |                  |
| 1400.00  | 5.00        | 70.83       | 1399.68   | 3.58        | 10.30       | 10.90    | 2.00             | 2.00               | 0.00              |                  |
| 1436.31  | 5.73        | 70.83       | 1435.83   | 4.69        | 13.50       | 14.30    | 2.00             | 2.00               | 0.00              | Hold Inc & Azm   |
| 1500.00  | 5.73        | 70.83       | 1499.21   | 6.78        | 19.50       | 20.65    | 0.00             | 0.00               | 0.00              |                  |
| 1600.00  | 5.73        | 70.83       | 1598.71   | 10.06       | 28.93       | 30.63    | 0.00             | 0.00               | 0.00              |                  |
| 1700.00  | 5.73        | 70.83       | 1698.21   | 13.33       | 38.35       | 40.60    | 0.00             | 0.00               | 0.00              |                  |
| 1800.00  | 5.73        | 70.83       | 1797.71   | 16.61       | 47.78       | 50.58    | 0.00             | 0.00               | 0.00              |                  |
| 1900.00  | 5.73        | 70.83       | 1897.21   | 19.88       | 57.20       | 60.56    | 0.00             | 0.00               | 0.00              |                  |
| 2000.00  | 5.73        | 70.83       | 1996.71   | 23.16       | 66.63       | 70.54    | 0.00             | 0.00               | 0.00              |                  |
| 2100.00  | 5.73        | 70.83       | 2096.21   | 26.44       | 76.05       | 80.51    | 0.00             | 0.00               | 0.00              |                  |
| 2200.00  | 5.73        | 70.83       | 2195.71   | 29.71       | 85.48       | 90.49    | 0.00             | 0.00               | 0.00              |                  |
| 2300.00  | 5.73        | 70.83       | 2295.21   | 32.99       | 94.90       | 100.47   | 0.00             | 0.00               | 0.00              |                  |
| 2400.00  | 5.73        | 70.83       | 2394.71   | 36.26       | 104.32      | 110.45   | 0.00             | 0.00               | 0.00              |                  |

Company: COG Operating LLC  
Field: Eddy Co, NM  
Site: Burch Keely Unit #609  
Well: #609  
Wellpath: OH

Date: 7/28/2011 Time: 10:38:55 Page: 2  
Co-ordinate(NE) Reference: Site, Burch Keely Unit #609, Grid North  
Vertical (TVD) Reference: SITE 3582.0  
Section (VS) Reference: Well (0.00N,0.00E,70.83Azi)  
Plan: Plan #1

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment   |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|----------------|
| 2500.00  | 5.73        | 70.83       | 2494.22   | 39.54       | 113.75      | 120.42   | 0.00             | 0.00               | 0.00              |                |
| 2600.00  | 5.73        | 70.83       | 2593.72   | 42.82       | 123.17      | 130.40   | 0.00             | 0.00               | 0.00              |                |
| 2700.00  | 5.73        | 70.83       | 2693.22   | 46.09       | 132.60      | 140.38   | 0.00             | 0.00               | 0.00              |                |
| 2800.00  | 5.73        | 70.83       | 2792.72   | 49.37       | 142.02      | 150.36   | 0.00             | 0.00               | 0.00              |                |
| 2900.00  | 5.73        | 70.83       | 2892.22   | 52.64       | 151.45      | 160.33   | 0.00             | 0.00               | 0.00              |                |
| 3000.00  | 5.73        | 70.83       | 2991.72   | 55.92       | 160.87      | 170.31   | 0.00             | 0.00               | 0.00              |                |
| 3100.00  | 5.73        | 70.83       | 3091.22   | 59.20       | 170.29      | 180.29   | 0.00             | 0.00               | 0.00              |                |
| 3200.00  | 5.73        | 70.83       | 3190.72   | 62.47       | 179.72      | 190.27   | 0.00             | 0.00               | 0.00              |                |
| 3300.00  | 5.73        | 70.83       | 3290.22   | 65.75       | 189.14      | 200.24   | 0.00             | 0.00               | 0.00              |                |
| 3400.00  | 5.73        | 70.83       | 3389.72   | 69.02       | 198.57      | 210.22   | 0.00             | 0.00               | 0.00              |                |
| 3500.00  | 5.73        | 70.83       | 3489.23   | 72.30       | 207.99      | 220.20   | 0.00             | 0.00               | 0.00              |                |
| 3600.00  | 5.73        | 70.83       | 3588.73   | 75.58       | 217.42      | 230.18   | 0.00             | 0.00               | 0.00              |                |
| 3700.00  | 5.73        | 70.83       | 3688.23   | 78.85       | 226.84      | 240.15   | 0.00             | 0.00               | 0.00              |                |
| 3726.07  | 5.73        | 70.83       | 3714.17   | 79.71       | 229.30      | 242.76   | 0.00             | 0.00               | 0.00              | Drop 2° / 100' |
| 3800.00  | 4.25        | 70.83       | 3787.82   | 81.82       | 235.37      | 249.18   | 2.00             | -2.00              | 0.00              |                |
| 3900.00  | 2.25        | 70.83       | 3887.65   | 83.68       | 240.72      | 254.85   | 2.00             | -2.00              | 0.00              |                |
| 4000.00  | 0.25        | 70.83       | 3987.62   | 84.39       | 242.77      | 257.02   | 2.00             | -2.00              | 0.00              |                |
| 4012.38  | 0.00        | 0.00        | 4000.00   | 84.40       | 242.80      | 257.05   | 2.00             | -2.00              | 0.00              | Top of Paddock |
| 4100.00  | 0.00        | 0.00        | 4087.62   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4200.00  | 0.00        | 0.00        | 4187.62   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4300.00  | 0.00        | 0.00        | 4287.62   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4400.00  | 0.00        | 0.00        | 4387.62   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4500.00  | 0.00        | 0.00        | 4487.62   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4600.00  | 0.00        | 0.00        | 4587.62   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4700.00  | 0.00        | 0.00        | 4687.62   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4800.00  | 0.00        | 0.00        | 4787.62   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4812.38  | 0.00        | 0.00        | 4800.00   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              | PBHL           |

### Targets

| Name | Description      | Dir | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | Map<br>Northing<br>ft | Map<br>Easting<br>ft | Latitude<br>Deg Min Sec | Longitude<br>Deg Min Sec |
|------|------------------|-----|-----------|-------------|-------------|-----------------------|----------------------|-------------------------|--------------------------|
| PBHL | -Plan hit target |     | 4800.00   | 84.40       | 242.80      | 660783.80             | 588577.70            | 32 48 58.502 N          | 104 2 42.040 W           |

### Casing Points

| MD<br>ft | TVD<br>ft | Diameter<br>in | Hole Size<br>in | Name       |
|----------|-----------|----------------|-----------------|------------|
| 1050.00  | 1050.00   | 0.000          | 0.000           | 8-5/8" Csg |

### Annotation

| MD<br>ft | TVD<br>ft |                 |
|----------|-----------|-----------------|
| 1150.00  | 1150.00   | Build 2° / 100' |
| 1436.31  | 1435.83   | Hold Inc & Azm  |
| 3726.07  | 3714.17   | Drop 2° / 100'  |
| 4012.38  | 4000.00   | Hold Inc & Azm  |
| 4012.38  | 4000.00   | Top of Paddock  |



# Ryan Energy Technologies

## Anticollision Report



**Company:** COG Operating LLC  
**Field:** Eddy Co, NM  
**Reference Site:** Burch Keely Unit #609  
**Reference Well:** #609  
**Reference Wellpath:** OH

**Date:** 8/5/2011  
**Time:** 10:30:58  
**Page:** 1

**Co-ordinate(NE) Reference:** Site: Burch Keely Unit #609, Grid North  
**Vertical (TVD) Reference:** SITE 3582.0  
**Db:** Sybase

**NO GLOBAL SCAN:** Using user defined selection & scan criteria

**Interpolation Method:** Stations

**Depth Range:** 0 00 to 4812.38 ft

**Maximum Radius:** 10000.00 ft

**Reference:** Plan. Plan #1

**Error Model:** Systematic Ellipse

**Scan Method:** Closest Approach 3D

**Error Surface:** Ellipse

**Plan:** Plan #1

**Date Composed:** 7/28/2011

**Version:** 1

**Principal:** Yes

**Tied-to:** From Surface

### Summary

| Site                     | Offset Wellpath<br>Well | Wellpath | Reference<br>MD<br>ft | Offset<br>MD<br>ft | Ctr-Ctr<br>Distance<br>ft | Edge<br>Distance<br>ft | Separation<br>Factor | Warning |
|--------------------------|-------------------------|----------|-----------------------|--------------------|---------------------------|------------------------|----------------------|---------|
| Burch Keely Unit #11#119 |                         | OH V0    | 3300 00               | 3298.71            | 100 61                    | 77 22                  | 4 30                 |         |

**Site:** Burch Keely Unit #119

**Well:** #119

**Wellpath:** OH V0

**Inter-Site Error:** 2 83 ft

| Reference<br>MD<br>ft | TVD<br>ft | Offset<br>MD<br>ft | TVD<br>ft | Semi-Major Axis<br>Ref<br>ft | Offset<br>ft | TFO-HS.<br>deg | Offset Location<br>North<br>ft | East<br>ft | Ctr-Ctr<br>Distance<br>ft | Edge<br>Distance<br>ft | Separation<br>Factor | Warning |
|-----------------------|-----------|--------------------|-----------|------------------------------|--------------|----------------|--------------------------------|------------|---------------------------|------------------------|----------------------|---------|
| 0.00                  | 0 00      | 8.88               | 8 88      | 0.00                         | 2.83         | 71 42          | 80 66                          | 240 00     | 253 19                    | 250.37                 | 89 51                |         |
| 100.00                | 100 00    | 107 60             | 107 60    | 0.35                         | 2.85         | 71.44          | 80.70                          | 240 30     | 253.49                    | 250.29                 | 79.16                |         |
| 200.00                | 200 00    | 206 16             | 206 16    | 0 70                         | 2.92         | 71.50          | 80.69                          | 241 16     | 254 32                    | 250 70                 | 70.32                |         |
| 300.00                | 300 00    | 303 68             | 303 66    | 1 05                         | 3 02         | 71.44          | 81 43                          | 242 57     | 255 92                    | 251 86                 | 62.92                |         |
| 400.00                | 400 00    | 402.27             | 402.22    | 1.40                         | 3.16         | 71 24          | 83 05                          | 244 47     | 258.28                    | 253 73                 | 56 71                |         |
| 500.00                | 500 00    | 501 53             | 501.43    | 1 75                         | 3 33         | 71.01          | 84.90                          | 246 73     | 261 04                    | 255.97                 | 51.47                |         |
| 600.00                | 600 00    | 599.83             | 599.69    | 2 09                         | 3 53         | 70.80          | 86.83                          | 249.41     | 264.25                    | 258 64                 | 47.07                |         |
| 700.00                | 700 00    | 699 22             | 699.01    | 2.44                         | 3.75         | 70.61          | 88 88                          | 252.51     | 267.88                    | 261 70                 | 43 34                |         |
| 800.00                | 800 00    | 798.44             | 798.14    | 2.79                         | 3.99         | 70.44          | 90 92                          | 255.85     | 271 74                    | 264.98                 | 40 17                |         |
| 900.00                | 900 00    | 899 26             | 898 89    | 3.14                         | 4.25         | 70.31          | 92 80                          | 259.29     | 275 58                    | 268 21                 | 37 40                |         |
| 1000 00               | 1000 00   | 1000.25            | 999.82    | 3.49                         | 4.52         | 70 17          | 94 60                          | 262 38     | 279.06                    | 271 07                 | 34 94                |         |
| 1100.00               | 1100 00   | 1101.71            | 1101.23   | 3.84                         | 4.80         | 70 02          | 96 34                          | 265.01     | 282 08                    | 273 47                 | 32 74                |         |
| 1150 00               | 1150 00   | 1152.23            | 1151.73   | 4.01                         | 4.95         | 69.96          | 97 10                          | 266.16     | 283.41                    | 274 48                 | 31.72                |         |
| 1200.00               | 1200 00   | 1202.79            | 1202 27   | 4.19                         | 5.10         | 359.07         | 97.80                          | 267 24     | 284 21                    | 274 96                 | 30 71                |         |
| 1300 00               | 1299 93   | 1304.71            | 1304 17   | 4.54                         | 5.40         | 358.94         | 99.02                          | 268 97     | 282 74                    | 272 84                 | 28 57                |         |
| 1400 00               | 1399 68   | 1404.93            | 1404.37   | 4 89                         | 5.70         | 358.79         | 100 16                         | 270 28     | 277.38                    | 266 84                 | 26 32                |         |
| 1436.31               | 1435 83   | 1441 19            | 1440.63   | 5.02                         | 5.81         | 358 72         | 100 56                         | 270 73     | 274.54                    | 263 77                 | 25 49                |         |
| 1500.00               | 1499 21   | 1504.78            | 1504.21   | 5.25                         | 6.00         | 358.64         | 101 15                         | 271.53     | 269.15                    | 257 96                 | 24 06                |         |
| 1600 00               | 1598.71   | 1605.06            | 1604 48   | 5.62                         | 6.31         | 358.44         | 102.25                         | 272.58     | 260 53                    | 248 68                 | 21.99                |         |
| 1700.00               | 1698 21   | 1705 06            | 1704.47   | 5.99                         | 6.63         | 358.22         | 103.28                         | 273.44     | 251 72                    | 239.21                 | 20.12                |         |
| 1800.00               | 1797.71   | 1805.61            | 1805 01   | 6.36                         | 6.95         | 358 07         | 103.91                         | 274 15     | 242.63                    | 229.44                 | 18.41                |         |
| 1900.00               | 1897 21   | 1905 11            | 1904.51   | 6.73                         | 7 26         | 357.93         | 104.39                         | 274.73     | 233 37                    | 219.52                 | 16.85                |         |
| 2000.00               | 1996 71   | 2005 21            | 2004.61   | 7.10                         | 7.59         | 357 84         | 104 59                         | 275 31     | 224 01                    | 209 48                 | 15.42                |         |
| 2100.00               | 2096 21   | 2105 01            | 2104 40   | 7.48                         | 7.91         | 357.80         | 104 55                         | 275.79     | 214.47                    | 199 27                 | 14 11                |         |
| 2200.00               | 2195.71   | 2205.07            | 2204.47   | 7.86                         | 8 23         | 357.79         | 104.31                         | 276.14     | 204.74                    | 188 86                 | 12 90                |         |
| 2300 00               | 2295 21   | 2304 64            | 2304.03   | 8 23                         | 8.56         | 357.89         | 103.66                         | 276.50     | 194 87                    | 178.32                 | 11.77                |         |
| 2400.00               | 2394 71   | 2403.95            | 2403 34   | 8 61                         | 8.89         | 358.08         | 102 80                         | 277.00     | 185.05                    | 167 82                 | 10.74                |         |
| 2500.00               | 2494 22   | 2503.71            | 2503.09   | 8.99                         | 9 22         | 358 31         | 101.91                         | 277.48     | 175 21                    | 157 30                 | 9.78                 |         |
| 2600 00               | 2593.72   | 2603.15            | 2602 52   | 9.37                         | 9.55         | 358 62         | 100.81                         | 277.99     | 165 33                    | 146 73                 | 8 89                 |         |
| 2700.00               | 2693 22   | 2702 04            | 2701 41   | 9 76                         | 9.88         | 359.04         | 99 65                          | 278.76     | 155 67                    | 136.39                 | 8 08                 |         |
| 2800.00               | 2792 72   | 2801.64            | 2801.00   | 10.14                        | 10 21        | -0 50          | 98 58                          | 279 68     | 146.20                    | 126.24                 | 7 32                 |         |
| 2900 00               | 2892.22   | 2900 93            | 2900 28   | 10 52                        | 10.54        | -0 02          | 97.60                          | 280.65     | 136.81                    | 116 16                 | 6.63                 |         |
| 3000.00               | 2991 72   | 3000.35            | 2999.69   | 10.91                        | 10 88        | 0 48           | 96 81                          | 281 71     | 127.57                    | 106.24                 | 5 98                 |         |
| 3100.00               | 3091.22   | 3099.58            | 3098.91   | 11.29                        | 11 21        | 1 02           | 96 14                          | 282 94     | 118.55                    | 96.54                  | 5 38                 |         |
| 3200 00               | 3190.72   | 3199 45            | 3198 77   | 11 67                        | 11.55        | 1 57           | 95.61                          | 284.14     | 109 56                    | 86.86                  | 4.83                 |         |
| 3300.00               | 3290 22   | 3298.71            | 3298.02   | 12.06                        | 11 89        | 2 21           | 95 10                          | 285.37     | 100.61                    | 77 22                  | 4.30                 |         |

|                                                                                                                                                                                |                                                |                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Company:</b> COG Operating LLC<br><b>Field:</b> Eddy Co, NM<br><b>Reference Site:</b> Burch Keely Unit #609<br><b>Reference Well:</b> #609<br><b>Reference Wellpath:</b> OH | <b>Date:</b> 8/5/2011<br><b>Time:</b> 10:30:58 | <b>Page:</b> 2<br><b>Co-ordinate(N/E) Reference:</b> Site: Burch Keely Unit #609, Grid North<br><b>Vertical (TVD) Reference:</b> SITE 3582 0<br><b>Db:</b> Sybase |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Site:** Burch Keely Unit #119  
**Well:** #119  
**Wellpath:** OH V0

**Inter-Site Error:** 2.83 ft

| Reference |         | Offset  |         | Semi-Major Axis |        |        | Offset Location |        | Ctr-Ctr Distance | Edge Distance | Separation Factor | Warning |
|-----------|---------|---------|---------|-----------------|--------|--------|-----------------|--------|------------------|---------------|-------------------|---------|
| MD        | TVD     | MD      | TVD     | Ref             | Offset | TFO-HS | North           | East   |                  |               |                   |         |
| ft        | ft      | ft      | ft      | ft              | ft     | deg    | ft              | ft     | ft               | ft            |                   |         |
| 3400.00   | 3389.72 | 3322.00 | 3321.31 | 12.44           | 11.97  | 2.38   | 94.98           | 285.68 | 119.40           | 95.58         | 5.01              |         |
| 3500.00   | 3489.23 | 3322.00 | 3321.31 | 12.83           | 11.97  | 2.38   | 94.98           | 285.68 | 194.55           | 170.38        | 8.05              |         |
| 3600.00   | 3588.73 | 3322.00 | 3321.31 | 13.22           | 11.97  | 2.38   | 94.98           | 285.68 | 285.38           | 260.86        | 11.64             |         |
| 3700.00   | 3688.23 | 3322.00 | 3321.31 | 13.60           | 11.97  | 2.38   | 94.98           | 285.68 | 380.84           | 355.96        | 15.31             |         |
|           |         |         |         |                 |        |        |                 |        |                  |               |                   |         |
| 3726.07   | 3714.17 | 3322.00 | 3321.31 | 13.70           | 11.97  | 2.38   | 94.98           | 285.68 | 406.08           | 381.11        | 16.27             |         |
| 3800.00   | 3787.82 | 3322.00 | 3321.31 | 13.98           | 11.97  | 2.69   | 94.98           | 285.68 | 478.34           | 453.11        | 18.96             |         |
| 3900.00   | 3887.65 | 3322.00 | 3321.31 | 14.33           | 11.97  | 3.40   | 94.98           | 285.68 | 577.21           | 551.63        | 22.57             |         |
| 4000.00   | 3987.62 | 3322.00 | 3321.31 | 14.66           | 11.97  | 4.97   | 94.98           | 285.68 | 676.76           | 650.85        | 26.12             |         |
| 4012.38   | 4000.00 | 3322.00 | 3321.31 | 14.71           | 11.97  | 76.14  | 94.98           | 285.68 | 689.11           | 663.16        | 26.55             |         |
|           |         |         |         |                 |        |        |                 |        |                  |               |                   |         |
| 4100.00   | 4087.62 | 3322.00 | 3321.31 | 15.00           | 11.97  | 76.14  | 94.98           | 285.68 | 776.57           | 750.31        | 29.58             |         |
| 4200.00   | 4187.62 | 3322.00 | 3321.31 | 15.33           | 11.97  | 76.14  | 94.98           | 285.68 | 876.43           | 849.82        | 32.94             |         |
| 4300.00   | 4287.62 | 3322.00 | 3321.31 | 15.66           | 11.97  | 76.14  | 94.98           | 285.68 | 976.31           | 949.36        | 36.22             |         |
| 4400.00   | 4387.62 | 3322.00 | 3321.31 | 16.00           | 11.97  | 76.14  | 94.98           | 285.68 | 1076.22          | 1048.91       | 39.42             |         |
| 4500.00   | 4487.62 | 3322.00 | 3321.31 | 16.33           | 11.97  | 76.14  | 94.98           | 285.68 | 1176.14          | 1148.49       | 42.53             |         |
|           |         |         |         |                 |        |        |                 |        |                  |               |                   |         |
| 4600.00   | 4587.62 | 3322.00 | 3321.31 | 16.67           | 11.97  | 76.14  | 94.98           | 285.68 | 1276.08          | 1248.07       | 45.57             |         |
| 4700.00   | 4687.62 | 3322.00 | 3321.31 | 17.01           | 11.97  | 76.14  | 94.98           | 285.68 | 1376.02          | 1347.67       | 48.53             |         |
| 4800.00   | 4787.62 | 3322.00 | 3321.31 | 17.34           | 11.97  | 76.14  | 94.98           | 285.68 | 1475.97          | 1447.27       | 51.43             |         |
| 4812.38   | 4800.00 | 3322.00 | 3321.31 | 17.39           | 11.97  | 76.14  | 94.98           | 285.68 | 1488.35          | 1459.60       | 51.78             |         |

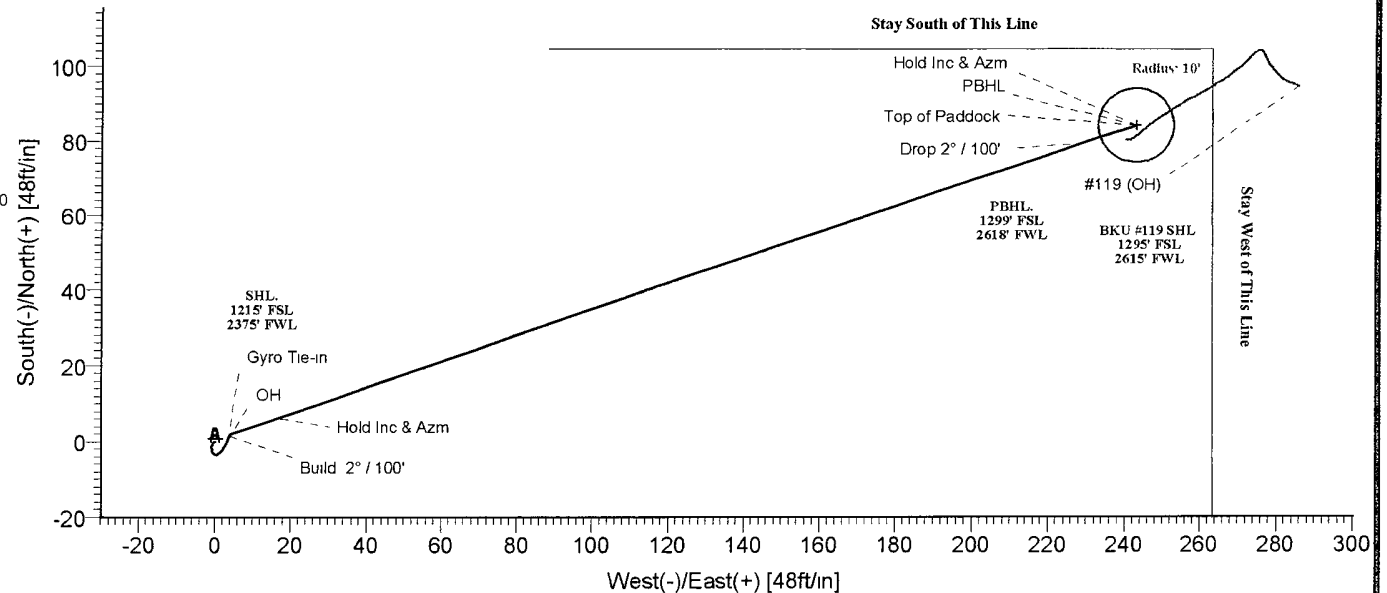
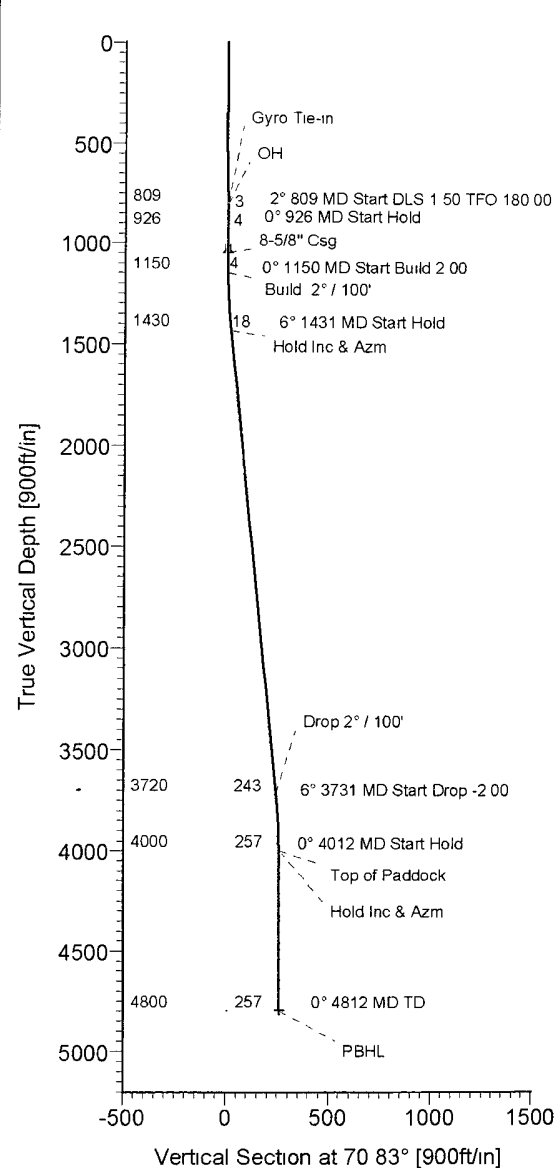


# COG Operating LLC

Field: Eddy Co, NM  
Site: Burch Keely Unit #609  
Well: #609  
Wellpath: OH  
Plan: Plan #2



Azimuths to Gnd North  
True North -0 16"  
Magnetic North 7 68"  
Magnetic Field  
Strength 48934nT  
Dip Angle 60 65"  
Date 7/28/2011  
Model IGRF2010



## SECTION DETAILS

| Sec | MD      | Inc  | Azi   | TVD     | +N-S  | +E-W   | DLeg | TFace  | VSec   | Target |
|-----|---------|------|-------|---------|-------|--------|------|--------|--------|--------|
| 1   | 809 00  | 1 75 | 19 68 | 808 92  | 0 19  | 3 35   | 0 00 | 0 00   | 3 23   |        |
| 2   | 925 67  | 0 00 | 0 00  | 925 57  | 1 87  | 3 95   | 1 50 | 180 00 | 4 35   |        |
| 3   | 1150 00 | 0 00 | 0 00  | 1149 90 | 1 87  | 3 95   | 0 00 | 0 00   | 4 35   |        |
| 4   | 1430 90 | 5 82 | 70 94 | 1430 35 | 6 36  | 16 96  | 2 00 | 0 00   | 18 11  |        |
| 5   | 3731 15 | 5 62 | 70 94 | 3719 55 | 79 91 | 229 79 | 0 00 | 0 00   | 243 29 |        |
| 6   | 4012 05 | 0 00 | 0 00  | 4000 00 | 84 40 | 242 80 | 2 00 | 180 00 | 257 05 |        |
| 7   | 4812 05 | 0 00 | 0 00  | 4800 00 | 84 40 | 242 80 | 0 00 | 0 00   | 257 05 | PBHL   |

## SITE DETAILS

Burch Keely Unit #609  
Eddy Co, NM  
Site Centre Northing 660699 40  
Easting 588334 90  
Ground Level 3582 00  
Positional Uncertainty 2 00  
Convergence 0 16

## FIELD DETAILS

Eddy Co, NM  
New Mexico  
U S A  
Geodetic System US State Plane Coordinate System 1927  
Ellipsoid NAD27 (Clarke 1866)  
Zone New Mexico, Eastern Zone  
Magnetic Model IGRF2010  
System Datum Mean Sea Level  
Local North Gnd North

## WELLPATH DETAILS

OH  
Rig Ref Datum SITE 3582 00ft  
V Section Angle 70 83°  
Origin +N-S 0 00  
Origin +E-W 0 00  
Starting From TVD 0 00

## TARGET DETAILS

| Name | TVD     | +N-S  | +E-W   | Northing  | Easting   | Latitude      | Longitude      | Shape              |
|------|---------|-------|--------|-----------|-----------|---------------|----------------|--------------------|
| PBHL | 4800 00 | 84 40 | 242 80 | 660783 80 | 588577 70 | 32°48'58 502N | 104°02'42 040W | Circle (Radius 10) |

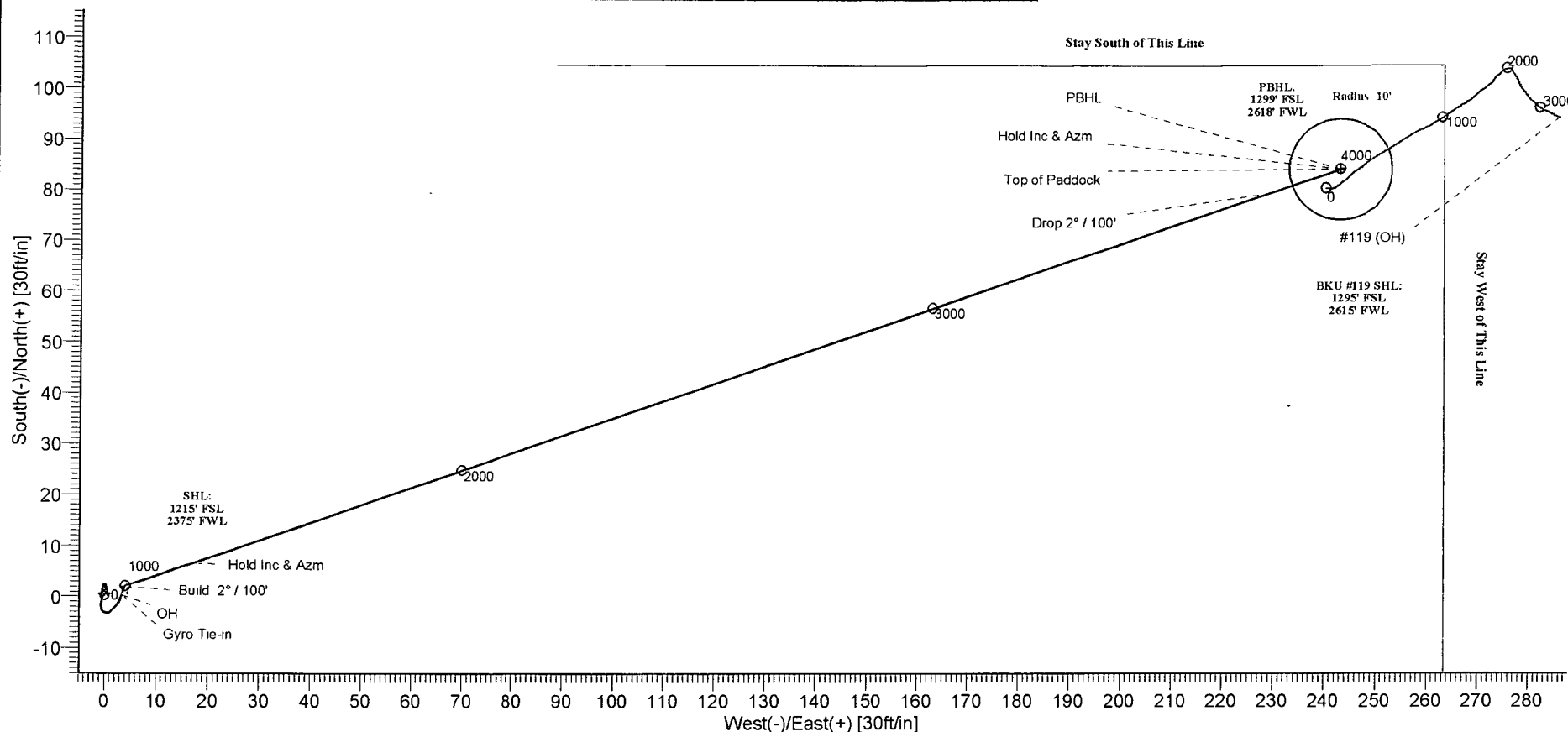


# COG Operating LLC

Field: Eddy Co, NM  
Site: Burch Keely Unit #609  
Well: #609  
Wellpath: OH  
Plan: Plan #2



Azimuths to Gnd North  
True North -0 18°  
Magnetic North 7 68°  
Magnetic Field  
Strength 48934nT  
Dip Angle 60 65°  
Date 7/28/2011  
Model IGRF2010



## SITE DETAILS

Burch Keely Unit #609  
Eddy Co, NM  
Site Centre Northing 660699 40  
Easting 588334 90  
Ground Level 3582 00  
Positional Uncertainty 2 00  
Convergence 0 16

## FIELD DETAILS

Eddy Co, NM  
New Mexico  
U S A  
Geodetic System US State Plane Coordinate System 1927  
Ellipsoid NAD27 (Clarke 1866)  
Zone New Mexico, Eastern Zone  
Magnetic Model IGRF2010  
System Datum Mean Sea Level  
Local North Gnd North

## WELLPATH DETAILS

| Rig Ref         | Datum  | OH                |                   |                        |
|-----------------|--------|-------------------|-------------------|------------------------|
|                 |        | SITE              | 3582 00ft         |                        |
| V Section Angle | 70 83° | Onigin +N/-S 0 00 | Onigin +E/-W 0 00 | Starting From TVD 0 00 |

Ryan Energy Technologies  
19510 Oil Center Blvd  
Houston, TX 77073  
Ph 281-443-1414  
Fx 281-443-1676



Plan Plan#2 (6095016)  
Created By: Eric De La Fe Date: 8/15/2011  
Checked: \_\_\_\_\_ Date: \_\_\_\_\_  
Reviewed: \_\_\_\_\_ Date: \_\_\_\_\_  
Approved: \_\_\_\_\_ Date: \_\_\_\_\_

|                                    |                                                                          |                       |                |
|------------------------------------|--------------------------------------------------------------------------|-----------------------|----------------|
| <b>Company:</b> COG Operating LLC  | <b>Date:</b> 8/15/2011                                                   | <b>Time:</b> 00:10:09 | <b>Page:</b> 1 |
| <b>Field:</b> Eddy Co, NM          | <b>Co-ordinate(NE) Reference:</b> Site Burch Keely Unit #609, Grid North |                       |                |
| <b>Site:</b> Burch Keely Unit #609 | <b>Vertical (TVD) Reference:</b> SITE 3582.0                             |                       |                |
| <b>Well:</b> #609                  | <b>Section (VS) Reference:</b> Well (0.00N,0.00E,70.83Azi)               |                       |                |
| <b>Wellpath:</b> OH                | <b>Plan:</b> Plan #2                                                     |                       |                |

|                                                          |                                           |
|----------------------------------------------------------|-------------------------------------------|
| <b>Field:</b> Eddy Co, NM<br>New Mexico<br>U.S.A.        | <b>Map Zone:</b> New Mexico, Eastern Zone |
| <b>Map System:</b> US State Plane Coordinate System 1927 | <b>Coordinate System:</b> Site Centre     |
| <b>Geo Datum:</b> NAD27 (Clarke 1866)                    | <b>Geomagnetic Model:</b> IGRF2010        |
| <b>Sys Datum:</b> Mean Sea Level                         |                                           |

|                                      |                                   |
|--------------------------------------|-----------------------------------|
| <b>Site:</b> Burch Keely Unit #609   |                                   |
| Eddy Co, NM                          |                                   |
| <b>Site Position:</b>                | <b>Northing:</b> 660699 40 ft     |
| <b>From:</b> Map                     | <b>Easting:</b> 588334 90 ft      |
| <b>Position Uncertainty:</b> 2 00 ft | <b>Latitude:</b> 32 48 57.673 N   |
| <b>Ground Level:</b> 3582 00 ft      | <b>Longitude:</b> 104 2 44 888 W  |
|                                      | <b>North Reference:</b> Grid      |
|                                      | <b>Grid Convergence:</b> 0.16 deg |

|                                      |                                  |
|--------------------------------------|----------------------------------|
| <b>Well:</b> #609                    | <b>Slot Name:</b>                |
| <b>Well Position:</b> +N/-S 0 00 ft  | <b>Northing:</b> 660699.40 ft    |
| +E/-W 0 00 ft                        | <b>Easting:</b> 588334.90 ft     |
| <b>Position Uncertainty:</b> 0.00 ft | <b>Latitude:</b> 32 48 57 673 N  |
|                                      | <b>Longitude:</b> 104 2 44.888 W |

|                                           |                                           |
|-------------------------------------------|-------------------------------------------|
| <b>Wellpath:</b> OH                       | <b>Drilled From:</b> Surface              |
| <b>Current Datum:</b> SITE                | <b>Tie-on Depth:</b> 0 00 ft              |
| <b>Magnetic Data:</b> 7/28/2011           | <b>Above System Datum:</b> Mean Sea Level |
| <b>Field Strength:</b> 48934 nT           | <b>Declination:</b> 7 84 deg              |
| <b>Vertical Section:</b> Depth From (TVD) | <b>Mag Dip Angle:</b> 60 65 deg           |
| ft                                        | +N/-S                                     |
|                                           | +E/-W                                     |
|                                           | ft                                        |
|                                           | Direction                                 |
|                                           | deg                                       |
| 0.00                                      | 0.00                                      |
| 0.00                                      | 0.00                                      |
| 0.00                                      | 70.83                                     |

|                       |                                 |
|-----------------------|---------------------------------|
| <b>Plan:</b> Plan #2  | <b>Date Composed:</b> 8/14/2011 |
| <b>Principal:</b> Yes | <b>Version:</b> 1               |
|                       | <b>Tied-to:</b> User Defined    |

### Plan Section Information

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | TFO<br>deg | Target |
|----------|-------------|-------------|-----------|-------------|-------------|------------------|--------------------|-------------------|------------|--------|
| 809.00   | 1.75        | 19.68       | 808 92    | 0.19        | 3 35        | 0.00             | 0.00               | 0.00              | 0.00       |        |
| 925.67   | 0.00        | 0 00        | 925.57    | 1.87        | 3 95        | 1.50             | -1.50              | -16.87            | 180.00     |        |
| 1150 00  | 0 00        | 0 00        | 1149.90   | 1 87        | 3.95        | 0 00             | 0 00               | 0.00              | 0 00       |        |
| 1430 90  | 5 62        | 70.94       | 1430 35   | 6 36        | 16.96       | 2 00             | 2.00               | 0 00              | 0 00       |        |
| 3731.15  | 5.62        | 70.94       | 3719.55   | 79.91       | 229 79      | 0 00             | 0 00               | 0.00              | 0 00       |        |
| 4012.05  | 0 00        | 0 00        | 4000.00   | 84.40       | 242.80      | 2.00             | -2.00              | 0.00              | 180.00     |        |
| 4812.05  | 0 00        | 0 00        | 4800.00   | 84.40       | 242 80      | 0.00             | 0.00               | 0.00              | 0.00       | PBHL   |

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment     |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|------------------|
| 809 00   | 1 75        | 19.68       | 808 92    | 0 19        | 3 35        | 3 23     | 0.00             | 0 00               | 0 00              | Gyro Tie-in      |
| 900 00   | 0.38        | 19.68       | 899 90    | 1.79        | 3.92        | 4.29     | 1.50             | -1.50              | 0 00              |                  |
| 925 67   | 0 00        | 0 00        | 925 57    | 1.87        | 3.95        | 4 35     | 1 50             | -1.50              | 0 00              |                  |
| 1000 00  | 0 00        | 0 00        | 999 90    | 1.87        | 3.95        | 4.35     | 0 00             | 0 00               | 0 00              |                  |
| 1050 00  | 0 00        | 0 00        | 1049.90   | 1 87        | 3 95        | 4 35     | 0.00             | 0 00               | 0 00              | 8-5/8" Csg       |
| 1100 00  | 0 00        | 0 00        | 1099 90   | 1 87        | 3.95        | 4.35     | 0 00             | 0 00               | 0 00              |                  |
| 1150 00  | 0 00        | 0 00        | 1149.90   | 1.87        | 3 95        | 4.35     | 0 00             | 0 00               | 0 00              | Build: 2° / 100' |
| 1200 00  | 1.00        | 70 94       | 1199 90   | 2 01        | 4.36        | 4.78     | 2.00             | 2.00               | 0 00              |                  |
| 1300 00  | 3.00        | 70 94       | 1299.83   | 3.15        | 7 66        | 8 27     | 2.00             | 2.00               | 0 00              |                  |
| 1400 00  | 5.00        | 70 94       | 1399.58   | 5 43        | 14.26       | 15.25    | 2 00             | 2 00               | 0 00              |                  |
| 1430 90  | 5.62        | 70.94       | 1430.35   | 6.36        | 16.96       | 18 11    | 2 00             | 2 00               | 0 00              |                  |
| 1436 31  | 5 62        | 70.94       | 1435.73   | 6 54        | 17 46       | 18 64    | 0 00             | 0 00               | 0 00              | Hold Inc & Azm   |
| 1500 00  | 5.62        | 70 94       | 1499 12   | 8 57        | 23.35       | 24 87    | 0 00             | 0 00               | 0 00              |                  |
| 1600 00  | 5 62        | 70.94       | 1598.64   | 11 77       | 32 60       | 34.66    | 0 00             | 0 00               | 0 00              |                  |
| 1700 00  | 5 62        | 70 94       | 1698.16   | 14 97       | 41 86       | 44 45    | 0 00             | 0 00               | 0 00              |                  |

|           |                       |                            |                                         |       |          |       |   |
|-----------|-----------------------|----------------------------|-----------------------------------------|-------|----------|-------|---|
| Company:  | COG Operating, LLC    | Date:                      | 8/15/2011                               | Time: | 00:10:09 | Page: | 2 |
| Field:    | Eddy Co, NM           | Co-ordinate(NE) Reference: | Site: Burch Keely Unit #609, Grid North |       |          |       |   |
| Site:     | Burch Keely Unit #609 | Vertical (TVD) Reference:  | SITE 3582.0                             |       |          |       |   |
| Well:     | #609                  | Section (VS) Reference:    | Well (0.00N, 0.00E, 70.83Azi)           |       |          |       |   |
| Wellpath: | OH                    | Plan:                      | Plan #2                                 |       |          |       |   |

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment   |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|----------------|
| 1800.00  | 5.62        | 70.94       | 1797.68   | 18.16       | 51.11       | 54.24    | 0.00             | 0.00               | 0.00              |                |
| 1900.00  | 5.62        | 70.94       | 1897.20   | 21.36       | 60.36       | 64.03    | 0.00             | 0.00               | 0.00              |                |
| 2000.00  | 5.62        | 70.94       | 1996.72   | 24.56       | 69.61       | 73.82    | 0.00             | 0.00               | 0.00              |                |
| 2100.00  | 5.62        | 70.94       | 2096.24   | 27.75       | 78.87       | 83.61    | 0.00             | 0.00               | 0.00              |                |
| 2200.00  | 5.62        | 70.94       | 2195.75   | 30.95       | 88.12       | 93.40    | 0.00             | 0.00               | 0.00              |                |
| 2300.00  | 5.62        | 70.94       | 2295.27   | 34.15       | 97.37       | 103.19   | 0.00             | 0.00               | 0.00              |                |
| 2400.00  | 5.62        | 70.94       | 2394.79   | 37.35       | 106.63      | 112.98   | 0.00             | 0.00               | 0.00              |                |
| 2500.00  | 5.62        | 70.94       | 2494.31   | 40.54       | 115.88      | 122.77   | 0.00             | 0.00               | 0.00              |                |
| 2600.00  | 5.62        | 70.94       | 2593.83   | 43.74       | 125.13      | 132.56   | 0.00             | 0.00               | 0.00              |                |
| 2700.00  | 5.62        | 70.94       | 2693.35   | 46.94       | 134.38      | 142.35   | 0.00             | 0.00               | 0.00              |                |
| 2800.00  | 5.62        | 70.94       | 2792.87   | 50.14       | 143.64      | 152.14   | 0.00             | 0.00               | 0.00              |                |
| 2900.00  | 5.62        | 70.94       | 2892.39   | 53.33       | 152.89      | 161.92   | 0.00             | 0.00               | 0.00              |                |
| 3000.00  | 5.62        | 70.94       | 2991.91   | 56.53       | 162.14      | 171.71   | 0.00             | 0.00               | 0.00              |                |
| 3100.00  | 5.62        | 70.94       | 3091.43   | 59.73       | 171.40      | 181.50   | 0.00             | 0.00               | 0.00              |                |
| 3200.00  | 5.62        | 70.94       | 3190.95   | 62.92       | 180.65      | 191.29   | 0.00             | 0.00               | 0.00              |                |
| 3300.00  | 5.62        | 70.94       | 3290.47   | 66.12       | 189.90      | 201.08   | 0.00             | 0.00               | 0.00              |                |
| 3400.00  | 5.62        | 70.94       | 3389.99   | 69.32       | 199.15      | 210.87   | 0.00             | 0.00               | 0.00              |                |
| 3500.00  | 5.62        | 70.94       | 3489.51   | 72.52       | 208.41      | 220.66   | 0.00             | 0.00               | 0.00              |                |
| 3600.00  | 5.62        | 70.94       | 3589.03   | 75.71       | 217.66      | 230.45   | 0.00             | 0.00               | 0.00              |                |
| 3700.00  | 5.62        | 70.94       | 3688.55   | 78.91       | 226.91      | 240.24   | 0.00             | 0.00               | 0.00              |                |
| 3726.07  | 5.62        | 70.94       | 3714.49   | 79.74       | 229.32      | 242.79   | 0.00             | 0.00               | 0.00              | Drop 2° / 100' |
| 3731.15  | 5.62        | 70.94       | 3719.55   | 79.91       | 229.79      | 243.29   | 0.00             | 0.00               | 0.00              |                |
| 3800.00  | 4.24        | 70.94       | 3788.14   | 81.84       | 235.39      | 249.21   | 2.00             | -2.00              | 0.00              |                |
| 3900.00  | 2.24        | 70.94       | 3887.98   | 83.68       | 240.73      | 254.86   | 2.00             | -2.00              | 0.00              |                |
| 4000.00  | 0.24        | 70.94       | 3987.95   | 84.39       | 242.78      | 257.03   | 2.00             | -2.00              | 0.00              |                |
| 4012.05  | 0.00        | 0.00        | 4000.00   | 84.40       | 242.80      | 257.05   | 2.00             | -2.00              | 0.00              |                |
| 4012.38  | 0.00        | 0.00        | 4000.33   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              | Top of Paddock |
| 4100.00  | 0.00        | 0.00        | 4087.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4200.00  | 0.00        | 0.00        | 4187.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4300.00  | 0.00        | 0.00        | 4287.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4400.00  | 0.00        | 0.00        | 4387.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4500.00  | 0.00        | 0.00        | 4487.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4600.00  | 0.00        | 0.00        | 4587.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4700.00  | 0.00        | 0.00        | 4687.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4800.00  | 0.00        | 0.00        | 4787.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4812.05  | 0.00        | 0.00        | 4800.00   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              | PBHL           |

### Targets

| Name | Description                              | Dir. | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | Map<br>Northing<br>ft | Map<br>Easting<br>ft | Latitude<br>Deg Min Sec | Longitude<br>Deg Min Sec |
|------|------------------------------------------|------|-----------|-------------|-------------|-----------------------|----------------------|-------------------------|--------------------------|
| PBHL | -Circle (Radius: 10)<br>-Plan hit target |      | 4800.00   | 84.40       | 242.80      | 660783.80             | 588577.70            | 32 48 58.502 N          | 104 2 42 040 W           |

### Casing Points

| MD<br>ft | TVD<br>ft | Diameter<br>in | Hole Size<br>in | Name       |
|----------|-----------|----------------|-----------------|------------|
| 1050.00  | 1049.90   | 0.000          | 0.000           | 8-5/8" Csg |

Company: COG Operating LLC  
 Field: Eddy Co, NM  
 Site: Burch Keely Unit #609  
 Well: #609  
 Wellpath: OH

Date: 8/15/2011 Time: 00.10.09 Page: 2  
 Co-ordinate(NE) Reference: Site: Burch Keely Unit #609, Grid North  
 Vertical (TVD) Reference: SITE 3582.0  
 Section (VS) Reference: Well (0.00N,0.00E,70.83Azi)  
 Plan: Plan #2

### Survey

| MD<br>ft | Incl<br>deg | Azim<br>deg | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | VS<br>ft | DLS<br>deg/100ft | Build<br>deg/100ft | Turn<br>deg/100ft | Tool/Comment   |
|----------|-------------|-------------|-----------|-------------|-------------|----------|------------------|--------------------|-------------------|----------------|
| 1800.00  | 5.62        | 70.94       | 1797.68   | 18.16       | 51.11       | 54.24    | 0.00             | 0.00               | 0.00              |                |
| 1900.00  | 5.62        | 70.94       | 1897.20   | 21.36       | 60.36       | 64.03    | 0.00             | 0.00               | 0.00              |                |
| 2000.00  | 5.62        | 70.94       | 1996.72   | 24.56       | 69.61       | 73.82    | 0.00             | 0.00               | 0.00              |                |
| 2100.00  | 5.62        | 70.94       | 2096.24   | 27.75       | 78.87       | 83.61    | 0.00             | 0.00               | 0.00              |                |
| 2200.00  | 5.62        | 70.94       | 2195.75   | 30.95       | 88.12       | 93.40    | 0.00             | 0.00               | 0.00              |                |
| 2300.00  | 5.62        | 70.94       | 2295.27   | 34.15       | 97.37       | 103.19   | 0.00             | 0.00               | 0.00              |                |
| 2400.00  | 5.62        | 70.94       | 2394.79   | 37.35       | 106.63      | 112.98   | 0.00             | 0.00               | 0.00              |                |
| 2500.00  | 5.62        | 70.94       | 2494.31   | 40.54       | 115.88      | 122.77   | 0.00             | 0.00               | 0.00              |                |
| 2600.00  | 5.62        | 70.94       | 2593.83   | 43.74       | 125.13      | 132.56   | 0.00             | 0.00               | 0.00              |                |
| 2700.00  | 5.62        | 70.94       | 2693.35   | 46.94       | 134.38      | 142.35   | 0.00             | 0.00               | 0.00              |                |
| 2800.00  | 5.62        | 70.94       | 2792.87   | 50.14       | 143.64      | 152.14   | 0.00             | 0.00               | 0.00              |                |
| 2900.00  | 5.62        | 70.94       | 2892.39   | 53.33       | 152.89      | 161.92   | 0.00             | 0.00               | 0.00              |                |
| 3000.00  | 5.62        | 70.94       | 2991.91   | 56.53       | 162.14      | 171.71   | 0.00             | 0.00               | 0.00              |                |
| 3100.00  | 5.62        | 70.94       | 3091.43   | 59.73       | 171.40      | 181.50   | 0.00             | 0.00               | 0.00              |                |
| 3200.00  | 5.62        | 70.94       | 3190.95   | 62.92       | 180.65      | 191.29   | 0.00             | 0.00               | 0.00              |                |
| 3300.00  | 5.62        | 70.94       | 3290.47   | 66.12       | 189.90      | 201.08   | 0.00             | 0.00               | 0.00              |                |
| 3400.00  | 5.62        | 70.94       | 3389.99   | 69.32       | 199.15      | 210.87   | 0.00             | 0.00               | 0.00              |                |
| 3500.00  | 5.62        | 70.94       | 3489.51   | 72.52       | 208.41      | 220.66   | 0.00             | 0.00               | 0.00              |                |
| 3600.00  | 5.62        | 70.94       | 3589.03   | 75.71       | 217.66      | 230.45   | 0.00             | 0.00               | 0.00              |                |
| 3700.00  | 5.62        | 70.94       | 3688.55   | 78.91       | 226.91      | 240.24   | 0.00             | 0.00               | 0.00              |                |
| 3726.07  | 5.62        | 70.94       | 3714.49   | 79.74       | 229.32      | 242.79   | 0.00             | 0.00               | 0.00              | Drop 2° / 100' |
| 3731.15  | 5.62        | 70.94       | 3719.55   | 79.91       | 229.79      | 243.29   | 0.00             | 0.00               | 0.00              |                |
| 3800.00  | 4.24        | 70.94       | 3788.14   | 81.84       | 235.39      | 249.21   | 2.00             | -2.00              | 0.00              |                |
| 3900.00  | 2.24        | 70.94       | 3887.98   | 83.68       | 240.73      | 254.86   | 2.00             | -2.00              | 0.00              |                |
| 4000.00  | 0.24        | 70.94       | 3987.95   | 84.39       | 242.78      | 257.03   | 2.00             | -2.00              | 0.00              |                |
| 4012.05  | 0.00        | 0.00        | 4000.00   | 84.40       | 242.80      | 257.05   | 2.00             | -2.00              | 0.00              |                |
| 4012.38  | 0.00        | 0.00        | 4000.33   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              | Top of Paddock |
| 4100.00  | 0.00        | 0.00        | 4087.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4200.00  | 0.00        | 0.00        | 4187.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4300.00  | 0.00        | 0.00        | 4287.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4400.00  | 0.00        | 0.00        | 4387.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4500.00  | 0.00        | 0.00        | 4487.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4600.00  | 0.00        | 0.00        | 4587.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4700.00  | 0.00        | 0.00        | 4687.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4800.00  | 0.00        | 0.00        | 4787.95   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              |                |
| 4812.05  | 0.00        | 0.00        | 4800.00   | 84.40       | 242.80      | 257.05   | 0.00             | 0.00               | 0.00              | PBHL           |

### Targets

| Name                 | Description<br>Dip. | Dir. | TVD<br>ft | +N/-S<br>ft | +E/-W<br>ft | Map<br>Northing<br>ft | Map<br>Easting<br>ft | Latitude<br>Deg Min Sec |    |          | Longitude<br>Deg Min Sec |   |          |
|----------------------|---------------------|------|-----------|-------------|-------------|-----------------------|----------------------|-------------------------|----|----------|--------------------------|---|----------|
| PBHL                 |                     |      | 4800.00   | 84.40       | 242.80      | 660783.80             | 588577.70            | 32                      | 48 | 58.502 N | 104                      | 2 | 42.040 W |
| -Circle (Radius: 10) |                     |      |           |             |             |                       |                      |                         |    |          |                          |   |          |
| -Plan hit target     |                     |      |           |             |             |                       |                      |                         |    |          |                          |   |          |

### Casing Points

| MD<br>ft | TVD<br>ft | Diameter<br>in | Hole Size<br>in | Name       |
|----------|-----------|----------------|-----------------|------------|
| 1050.00  | 1049.90   | 0.000          | 0.000           | 8-5/8" Csg |

**PECOS DISTRICT  
CONDITIONS OF APPROVAL**

|                       |                                      |
|-----------------------|--------------------------------------|
| OPERATOR'S NAME:      | COG Operating, LLC                   |
| LEASE NO.:            | NMLC068960                           |
| WELL NAME & NO.:      | 609-Burch Keely Unit                 |
| SURFACE HOLE FOOTAGE: | 1215' FSL & 2375' FWL                |
| BOTTOM HOLE FOOTAGE   | 1309' FSL & 2628' FWL                |
| LOCATION:             | Section 23, T. 17 S., R. 29 E., NMPM |
| COUNTY:               | Eddy County, New Mexico              |

**The same Conditions of Approval for the original Burch Keely Unit #609 APD  
apply to this sundry notice for the well relocation.**