



## COG Operating LLC

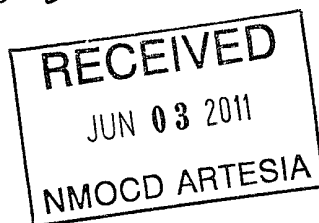
Eddy County, NM (NAN27 NME)

Hatfield State #9H

Hatfield State #9H

30-015-37770

OH



Design: Actual

## Standard Survey Report

03 September, 2010



**Scientific Drilling**  
Directional Drilling Operations



Scientific Drilling  
Survey Report



|           |                             |                              |                                             |
|-----------|-----------------------------|------------------------------|---------------------------------------------|
| Company:  | COG Operating LLC           | Local Co-ordinate Reference: | Site Hatfield State #9H                     |
| Project:  | Eddy County, NM (NAN27 NME) | TVD Reference:               | KB Elev (12') @ 3656.60usft (Silver Oak #1) |
| Site:     | Hatfield State #9H          | MD Reference:                | KB Elev (12') @ 3656.60usft (Silver Oak #1) |
| Well:     | Hatfield State #9H          | North Reference:             | Grid                                        |
| Wellbore: | OH                          | Survey Calculation Method:   | Minimum Curvature                           |
| Design:   | Actual                      | Database:                    | EDM-Julio                                   |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project     | Eddy County, NM (NAN27 NME)          |               |                |
| 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                  | Hatfield State #9H |                   |                  |
| Site Position:        |                    | Northing:         | 672,314.70 usft  |
| From:                 | Map                | Easting:          | 570,424.10 usft  |
| Position Uncertainty: | 0.00 usft          | Slot Radius:      | 13-3/16 "        |
|                       |                    | Latitude:         | 32° 50' 53.044 N |
|                       |                    | Longitude:        | 104° 6' 14.470 W |
|                       |                    | Grid Convergence: | 0.12 °           |

|                      |                    |                     |                  |
|----------------------|--------------------|---------------------|------------------|
| Well                 | Hatfield State #9H |                     |                  |
| Well Position        | +N/-S              | 0.00 usft           | Northing:        |
|                      | +E/-W              | 0.00 usft           | Easting:         |
| Position Uncertainty | 0.00 usft          | Wellhead Elevation: | usft             |
|                      |                    | Latitude:           | 32° 50' 53.044 N |
|                      |                    | Longitude:          | 104° 6' 14.470 W |
|                      |                    | Ground Level:       | 3,644.60 usft    |

|           |            |             |                |
|-----------|------------|-------------|----------------|
| Wellbore  | OH         |             |                |
| Magnetics | Model Name | Sample Date | Declination    |
|           | BGGM2010   | 2010/09/01  | (°)            |
|           |            |             | 8.04           |
|           |            |             | Dip Angle      |
|           |            |             | (°)            |
|           |            |             | 60.70          |
|           |            |             | Field Strength |
|           |            |             | (nT)           |
|           |            |             | 49,046         |

|                   |                  |               |           |
|-------------------|------------------|---------------|-----------|
| Design            | Actual           |               |           |
| Audit Notes:      |                  |               |           |
| Version:          | 1.0              | Phase:        | ACTUAL    |
|                   |                  | Tie On Depth: | 0.00      |
| Vertical Section: | Depth From (TVD) | +N/-S         | +E/-W     |
|                   | (usft)           | (usft)        | (usft)    |
|                   | 0.00             | 0.00          | 0.00      |
|                   |                  |               | Direction |
|                   |                  |               | (°)       |
|                   |                  |               | 89.90     |

|                |                 |                   |                                    |
|----------------|-----------------|-------------------|------------------------------------|
| Survey Program | Date 2010/09/03 |                   |                                    |
| From           | To              | Survey (Wellbore) | Tool Name                          |
| (usft)         | (usft)          |                   |                                    |
| 100.00         | 3,386.00        | Gyro Survey (OH)  | Keeper                             |
| 3,488.00       | 5,817.00        | MWD Survey (OH)   | MWD                                |
|                |                 |                   | Description                        |
|                |                 |                   | Standard Wireline Keeper ver 1.0.2 |
|                |                 |                   | MWD - Standard                     |

|          |             |         |          |        |        |          |             |             |             |
|----------|-------------|---------|----------|--------|--------|----------|-------------|-------------|-------------|
| Survey   |             |         |          |        |        |          |             |             |             |
| Measured | Inclination | Azimuth | Vertical | +N/-S  | +E/-W  | Vertical | Dogleg      | Build       | Turn        |
| Depth    | (°)         | (°)     | Depth    | (usft) | (usft) | Section  | Rate        | Rate        | Rate        |
| (usft)   |             |         | (usft)   |        |        | (usft)   | (°/100usft) | (°/100usft) | (°/100usft) |
| 0.00     | 0.00        | 0.00    | 0.00     | 0.00   | 0.00   | 0.00     | 0.00        | 0.00        | 0.00        |
| 100.00   | 0.21        | 192.73  | 100.00   | -0.18  | -0.04  | -0.04    | 0.21        | 0.21        | 0.00        |
| 200.00   | 0.16        | 146.77  | 200.00   | -0.47  | 0.00   | -0.01    | 0.15        | -0.05       | -45.96      |
| 300.00   | 0.11        | 105.59  | 300.00   | -0.62  | 0.16   | 0.16     | 0.11        | -0.05       | -41.18      |
| 400.00   | 0.13        | 65.56   | 400.00   | -0.60  | 0.36   | 0.36     | 0.08        | 0.02        | -40.03      |
| 500.00   | 0.77        | 83.67   | 500.00   | -0.47  | 1.13   | 1.13     | 0.65        | 0.64        | 18.11       |
| 600.00   | 1.08        | 89.43   | 599.98   | -0.39  | 2.74   | 2.74     | 0.32        | 0.31        | 5.76        |
| 700.00   | 1.13        | 74.70   | 699.96   | -0.12  | 4.64   | 4.64     | 0.29        | 0.05        | -14.73      |
| 800.00   | 1.05        | 75.59   | 799.95   | 0.37   | 6.47   | 6.47     | 0.08        | -0.08       | 0.89        |
| 900.00   | 0.94        | 82.06   | 899.93   | 0.71   | 8.17   | 8.17     | 0.16        | -0.11       | 6.47        |



Scientific Drilling  
Survey Report



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Project: Eddy County, NM (NAN27 NME)  
Site: Hatfield State #9H  
Well: Hatfield State #9H  
Wellbore: OH  
Design: Actual

Local Co-ordinate Reference: Site Hatfield State #9H  
TVD Reference: KB Elev (12') @ 3656.60usft (Silver Oak #1)  
MD Reference: KB Elev (12') @ 3656.60usft (Silver Oak #1)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: EDM-Julio

Survey

| Measured<br>Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | Vertical<br>Depth<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Vertical<br>Section<br>(usft) | Dogleg<br>Rate<br>(°/100usft) | Build<br>Rate<br>(°/100usft) | Turn<br>Rate<br>(°/100usft) |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|
| 1,000.00                    | 0.68               | 89.43          | 999.92                      | 0.83            | 9.58            | 9.58                          | 0.28                          | -0.26                        | 7.37                        |
| 1,100.00                    | 0.66               | 83.67          | 1,099.91                    | 0.90            | 10.75           | 10.75                         | 0.07                          | -0.02                        | -5.76                       |
| 1,200.00                    | 0.61               | 78.53          | 1,199.91                    | 1.07            | 11.84           | 11.84                         | 0.08                          | -0.05                        | -5.14                       |
| 1,300.00                    | 0.51               | 66.49          | 1,299.90                    | 1.35            | 12.77           | 12.77                         | 0.15                          | -0.10                        | -12.04                      |
| 1,400.00                    | 0.52               | 59.26          | 1,399.90                    | 1.76            | 13.57           | 13.57                         | 0.07                          | 0.01                         | -7.23                       |
| 1,500.00                    | 0.56               | 46.30          | 1,499.89                    | 2.33            | 14.31           | 14.31                         | 0.13                          | 0.04                         | -12.96                      |
| 1,600.00                    | 0.44               | 44.05          | 1,599.89                    | 2.94            | 14.93           | 14.94                         | 0.12                          | -0.12                        | -2.25                       |
| 1,700.00                    | 0.34               | 39.70          | 1,699.89                    | 3.45            | 15.39           | 15.39                         | 0.10                          | -0.10                        | -4.35                       |
| 1,800.00                    | 0.03               | 62.00          | 1,799.89                    | 3.69            | 15.60           | 15.61                         | 0.31                          | -0.31                        | 22.30                       |
| 1,900.00                    | 0.26               | 43.15          | 1,899.89                    | 3.86            | 15.78           | 15.78                         | 0.23                          | 0.23                         | -18.85                      |
| 2,000.00                    | 0.23               | 34.63          | 1,999.89                    | 4.20            | 16.05           | 16.05                         | 0.05                          | -0.03                        | -8.52                       |
| 2,100.00                    | 0.17               | 32.25          | 2,099.89                    | 4.49            | 16.24           | 16.25                         | 0.06                          | -0.06                        | -2.38                       |
| 2,200.00                    | 0.14               | 16.58          | 2,199.89                    | 4.73            | 16.35           | 16.36                         | 0.05                          | -0.03                        | -15.67                      |
| 2,300.00                    | 0.14               | 353.81         | 2,299.89                    | 4.97            | 16.38           | 16.39                         | 0.06                          | 0.00                         | -22.77                      |
| 2,400.00                    | 0.14               | 337.67         | 2,399.88                    | 5.20            | 16.32           | 16.33                         | 0.04                          | 0.00                         | -16.14                      |
| 2,500.00                    | 0.09               | 328.65         | 2,499.88                    | 5.38            | 16.23           | 16.24                         | 0.05                          | -0.05                        | -9.02                       |
| 2,600.00                    | 0.04               | 308.86         | 2,599.88                    | 5.47            | 16.16           | 16.17                         | 0.05                          | -0.05                        | -19.79                      |
| 2,700.00                    | 0.14               | 19.99          | 2,699.88                    | 5.61            | 16.18           | 16.19                         | 0.13                          | 0.10                         | 71.13                       |
| 2,800.00                    | 0.12               | 20.91          | 2,799.88                    | 5.82            | 16.26           | 16.27                         | 0.02                          | -0.02                        | 0.92                        |
| 2,900.00                    | 0.17               | 0.01           | 2,899.88                    | 6.07            | 16.29           | 16.30                         | 0.07                          | 0.05                         | -20.90                      |
| 3,000.00                    | 0.24               | 337.53         | 2,999.88                    | 6.41            | 16.21           | 16.22                         | 0.11                          | 0.07                         | -22.48                      |
| 3,100.00                    | 0.15               | 299.52         | 3,099.88                    | 6.67            | 16.02           | 16.03                         | 0.15                          | -0.09                        | -38.01                      |
| 3,200.00                    | 0.18               | 6.45           | 3,199.88                    | 6.89            | 15.92           | 15.93                         | 0.18                          | 0.03                         | 66.93                       |
| 3,300.00                    | 0.24               | 37.54          | 3,299.88                    | 7.21            | 16.07           | 16.08                         | 0.13                          | 0.06                         | 31.09                       |
| 3,386.00                    | 0.45               | 50.98          | 3,385.88                    | 7.56            | 16.44           | 16.45                         | 0.26                          | 0.24                         | 15.63                       |
| Gyro Tie-in                 |                    |                |                             |                 |                 |                               |                               |                              |                             |
| 3,488.00                    | 0.41               | 29.89          | 3,487.88                    | 8.13            | 16.93           | 16.95                         | 0.16                          | -0.04                        | -20.68                      |
| 3,583.00                    | 0.86               | 50.08          | 3,582.87                    | 8.88            | 17.65           | 17.66                         | 0.52                          | 0.47                         | 21.25                       |
| 3,615.00                    | 2.03               | 65.68          | 3,614.86                    | 9.27            | 18.35           | 18.37                         | 3.82                          | 3.66                         | 48.75                       |
| 3,646.00                    | 4.00               | 75.64          | 3,645.82                    | 9.77            | 19.90           | 19.91                         | 6.55                          | 6.35                         | 32.13                       |
| 3,679.00                    | 6.57               | 79.85          | 3,678.67                    | 10.38           | 22.87           | 22.89                         | 7.87                          | 7.79                         | 12.76                       |
| 3,710.00                    | 10.37              | 84.74          | 3,709.33                    | 10.95           | 27.40           | 27.42                         | 12.47                         | 12.26                        | 15.77                       |
| 3,742.00                    | 15.17              | 91.46          | 3,740.53                    | 11.11           | 34.46           | 34.47                         | 15.68                         | 15.00                        | 21.00                       |
| 3,774.00                    | 20.24              | 95.31          | 3,771.01                    | 10.49           | 44.16           | 44.18                         | 16.25                         | 15.84                        | 12.03                       |
| 3,805.00                    | 25.98              | 96.35          | 3,799.51                    | 9.24            | 56.26           | 56.27                         | 18.56                         | 18.52                        | 3.35                        |
| 3,836.00                    | 31.33              | 94.50          | 3,826.70                    | 7.86            | 71.05           | 71.06                         | 17.49                         | 17.26                        | -5.97                       |
| 3,868.00                    | 35.39              | 92.98          | 3,853.42                    | 6.72            | 88.61           | 88.62                         | 12.95                         | 12.69                        | -4.75                       |
| 3,899.00                    | 39.05              | 91.81          | 3,878.11                    | 5.95            | 107.34          | 107.35                        | 12.02                         | 11.81                        | -3.77                       |
| 3,931.00                    | 43.14              | 91.29          | 3,902.22                    | 5.38            | 128.36          | 128.37                        | 12.83                         | 12.78                        | -1.63                       |
| 3,993.00                    | 51.08              | 91.81          | 3,944.38                    | 4.14            | 173.73          | 173.74                        | 12.82                         | 12.81                        | 0.84                        |
| 4,025.00                    | 56.32              | 91.16          | 3,963.32                    | 3.48            | 199.50          | 199.51                        | 16.46                         | 16.38                        | -2.03                       |
| 4,057.00                    | 61.04              | 89.18          | 3,979.95                    | 3.41            | 226.83          | 226.83                        | 15.67                         | 14.75                        | -6.19                       |
| 4,089.00                    | 64.25              | 90.15          | 3,994.65                    | 3.57            | 255.25          | 255.25                        | 10.39                         | 10.03                        | 3.03                        |



Scientific Drilling  
Survey Report



|           |                             |                              |                                             |
|-----------|-----------------------------|------------------------------|---------------------------------------------|
| Company:  | COG Operating LLC           | Local Co-ordinate Reference: | Site Hatfield State #9H                     |
| Project:  | Eddy County, NM (NAN27 NME) | TVD Reference:               | KB Elev (12') @ 3656.60usft (Silver Oak #1) |
| Site:     | Hatfield State #9H          | MD Reference:                | KB Elev (12') @ 3656.60usft (Silver Oak #1) |
| Well:     | Hatfield State #9H          | North Reference:             | Grid                                        |
| Wellbore: | OH                          | Survey Calculation Method:   | Minimum Curvature                           |
| Design:   | Actual                      | Database:                    | EDM-Julio                                   |

| Survey                |                 |             |                       |              |              |                         |                         |                        |                       |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
| 4,120.00              | 65.60           | 89.58       | 4,007.79              | 3.64         | 283.32       | 283.33                  | 4.66                    | 4.35                   | -1.84                 |
| 4,152.00              | 68.05           | 89.19       | 4,020.38              | 3.96         | 312.74       | 312.74                  | 7.74                    | 7.66                   | -1.22                 |
| 4,183.00              | 70.76           | 88.47       | 4,031.28              | 4.55         | 341.75       | 341.75                  | 9.01                    | 8.74                   | -2.32                 |
| 4,215.00              | 73.17           | 87.56       | 4,041.19              | 5.61         | 372.15       | 372.16                  | 8.00                    | 7.53                   | -2.84                 |
| 4,247.00              | 75.95           | 87.40       | 4,049.71              | 6.96         | 402.97       | 402.98                  | 8.70                    | 8.69                   | -0.50                 |
| 4,279.00              | 78.81           | 87.38       | 4,056.70              | 8.38         | 434.16       | 434.17                  | 8.94                    | 8.94                   | -0.06                 |
| 4,311.00              | 82.19           | 87.53       | 4,061.98              | 9.79         | 465.68       | 465.70                  | 10.57                   | 10.56                  | 0.47                  |
| 4,342.00              | 84.72           | 87.93       | 4,065.51              | 11.00        | 496.45       | 496.47                  | 8.26                    | 8.16                   | 1.29                  |
| 4,374.00              | 85.63           | 89.63       | 4,068.21              | 11.68        | 528.33       | 528.35                  | 6.01                    | 2.84                   | 5.31                  |
| 4,405.00              | 86.34           | 90.67       | 4,070.38              | 11.60        | 559.26       | 559.27                  | 4.06                    | 2.29                   | 3.35                  |
| 4,437.00              | 86.44           | 90.36       | 4,072.39              | 11.32        | 591.19       | 591.21                  | 1.02                    | 0.31                   | -0.97                 |
| 4,469.00              | 88.15           | 90.68       | 4,073.90              | 11.03        | 623.15       | 623.17                  | 5.44                    | 5.34                   | 1.00                  |
| 4,501.00              | 88.02           | 90.53       | 4,074.97              | 10.69        | 655.13       | 655.15                  | 0.62                    | -0.41                  | -0.47                 |
| 4,533.00              | 87.88           | 90.49       | 4,076.12              | 10.40        | 687.11       | 687.13                  | 0.45                    | -0.44                  | -0.13                 |
| 4,564.00              | 88.02           | 90.14       | 4,077.22              | 10.23        | 718.09       | 718.11                  | 1.22                    | 0.45                   | -1.13                 |
| 4,596.00              | 87.85           | 89.89       | 4,078.38              | 10.22        | 750.07       | 750.09                  | 0.94                    | -0.53                  | -0.78                 |
| 4,628.00              | 87.98           | 89.92       | 4,079.54              | 10.28        | 782.05       | 782.07                  | 0.42                    | 0.41                   | 0.09                  |
| 4,659.00              | 89.60           | 90.07       | 4,080.20              | 10.28        | 813.04       | 813.06                  | 5.25                    | 5.23                   | 0.48                  |
| 4,691.00              | 90.37           | 90.39       | 4,080.20              | 10.15        | 845.04       | 845.06                  | 2.61                    | 2.41                   | 1.00                  |
| 4,723.00              | 91.04           | 91.33       | 4,079.81              | 9.67         | 877.03       | 877.05                  | 3.61                    | 2.09                   | 2.94                  |
| 4,755.00              | 91.38           | 91.58       | 4,079.14              | 8.86         | 909.02       | 909.03                  | 1.32                    | 1.06                   | 0.78                  |
| 4,786.00              | 91.61           | 91.51       | 4,078.33              | 8.02         | 939.99       | 940.01                  | 0.78                    | 0.74                   | -0.23                 |
| 4,818.00              | 91.65           | 91.89       | 4,077.42              | 7.07         | 971.97       | 971.98                  | 1.19                    | 0.13                   | 1.19                  |
| 4,850.00              | 91.01           | 91.31       | 4,076.67              | 6.18         | 1,003.95     | 1,003.95                | 2.70                    | -2.00                  | -1.81                 |
| 4,882.00              | 90.84           | 91.26       | 4,076.16              | 5.46         | 1,035.93     | 1,035.94                | 0.55                    | -0.53                  | -0.16                 |
| 4,914.00              | 90.64           | 90.54       | 4,075.74              | 4.96         | 1,067.93     | 1,067.93                | 2.34                    | -0.63                  | -2.25                 |
| 4,945.00              | 90.24           | 90.49       | 4,075.51              | 4.68         | 1,098.92     | 1,098.93                | 1.30                    | -1.29                  | -0.16                 |
| 4,977.00              | 89.46           | 91.15       | 4,075.59              | 4.22         | 1,130.92     | 1,130.93                | 3.19                    | -2.44                  | 2.06                  |
| 5,009.00              | 88.89           | 90.50       | 4,076.05              | 3.76         | 1,162.91     | 1,162.92                | 2.70                    | -1.78                  | -2.03                 |
| 5,040.00              | 88.56           | 90.21       | 4,076.74              | 3.57         | 1,193.90     | 1,193.91                | 1.42                    | -1.06                  | -0.94                 |
| 5,072.00              | 88.52           | 89.28       | 4,077.56              | 3.71         | 1,225.89     | 1,225.90                | 2.91                    | -0.13                  | -2.91                 |
| 5,104.00              | 88.59           | 89.48       | 4,078.36              | 4.06         | 1,257.88     | 1,257.89                | 0.66                    | 0.22                   | 0.63                  |
| 5,136.00              | 88.22           | 89.09       | 4,079.25              | 4.46         | 1,289.87     | 1,289.87                | 1.68                    | -1.16                  | -1.22                 |
| 5,167.00              | 88.89           | 88.89       | 4,080.03              | 5.01         | 1,320.85     | 1,320.86                | 2.26                    | 2.16                   | -0.65                 |
| 5,199.00              | 88.56           | 88.75       | 4,080.75              | 5.66         | 1,352.84     | 1,352.85                | 1.12                    | -1.03                  | -0.44                 |
| 5,231.00              | 88.22           | 88.31       | 4,081.65              | 6.49         | 1,384.81     | 1,384.82                | 1.74                    | -1.06                  | -1.38                 |
| 5,262.00              | 88.05           | 88.62       | 4,082.65              | 7.32         | 1,415.79     | 1,415.80                | 1.14                    | -0.55                  | 1.00                  |
| 5,294.00              | 88.12           | 88.55       | 4,083.72              | 8.10         | 1,447.76     | 1,447.77                | 0.31                    | 0.22                   | -0.22                 |
| 5,326.00              | 88.08           | 88.73       | 4,084.78              | 8.86         | 1,479.73     | 1,479.75                | 0.58                    | -0.13                  | 0.56                  |
| 5,357.00              | 88.32           | 88.42       | 4,085.76              | 9.63         | 1,510.71     | 1,510.72                | 1.26                    | 0.77                   | -1.00                 |
| 5,389.00              | 88.15           | 89.93       | 4,086.74              | 10.09        | 1,542.69     | 1,542.70                | 4.75                    | -0.53                  | 4.72                  |
| 5,421.00              | 88.35           | 90.39       | 4,087.72              | 10.01        | 1,574.67     | 1,574.69                | 1.57                    | 0.63                   | 1.44                  |
| 5,453.00              | 88.05           | 91.21       | 4,088.73              | 9.56         | 1,606.65     | 1,606.67                | 2.73                    | -0.94                  | 2.56                  |



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Design: Actual

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Database: EDM-Julio

Survey

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|
| 5,484.00              | 89.09           | 91.30       | 4,089.50              | 8.88         | 1,637.64     | 1,637.65                | 3.37                    | 3.35                   | 0.29                  |
| 5,516.00              | 89.26           | 91.34       | 4,089.96              | 8.14         | 1,669.62     | 1,669.64                | 0.55                    | 0.53                   | 0.13                  |
| 5,548.00              | 89.53           | 89.72       | 4,090.30              | 7.85         | 1,701.62     | 1,701.63                | 5.13                    | 0.84                   | -5.06                 |
| 5,580.00              | 89.19           | 89.32       | 4,090.66              | 8.12         | 1,733.62     | 1,733.63                | 1.64                    | -1.06                  | -1.25                 |
| 5,612.00              | 88.69           | 88.94       | 4,091.25              | 8.60         | 1,765.61     | 1,765.62                | 1.96                    | -1.56                  | -1.19                 |
| 5,643.00              | 88.49           | 88.58       | 4,092.01              | 9.27         | 1,796.59     | 1,796.60                | 1.33                    | -0.65                  | -1.16                 |
| 5,675.00              | 87.82           | 89.29       | 4,093.04              | 9.87         | 1,828.57     | 1,828.58                | 3.05                    | -2.09                  | 2.22                  |
| 5,707.00              | 87.82           | 89.06       | 4,094.26              | 10.33        | 1,860.54     | 1,860.56                | 0.72                    | 0.00                   | -0.72                 |
| 5,738.00              | 87.81           | 89.60       | 4,095.44              | 10.69        | 1,891.52     | 1,891.53                | 1.74                    | -0.03                  | 1.74                  |
| 5,757.00              | 88.46           | 89.70       | 4,096.06              | 10.80        | 1,910.51     | 1,910.52                | 3.46                    | 3.42                   | 0.53                  |
| Last MWD Survey       |                 |             |                       |              |              |                         |                         |                        |                       |
| 5,817.00              | 88.46           | 90.00       | 4,097.67              | 10.96        | 1,970.48     | 1,970.50                | 0.50                    | 0.00                   | 0.50                  |
| Projection to Bit     |                 |             |                       |              |              |                         |                         |                        |                       |

Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates |              | Comment           |
|-----------------------|-----------------------|-------------------|--------------|-------------------|
|                       |                       | +N/-S (usft)      | +E/-W (usft) |                   |
| 3,386.00              | 3,385.88              | 7.56              | 16.44        | Gyro Tie-in       |
| 5,757.00              | 4,096.06              | 10.80             | 1,910.51     | Last MWD Survey   |
| 5,817.00              | 4,097.67              | 10.96             | 1,970.48     | Projection to Bit |

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