



## **COG Operating LLC**

**Eddy County, NM (NAD27 NME)**

**Stonewall 9 Fee**

**#7H**

**WB1**

**Plan #1 03-10-15**

*30-015-43006*

## **Anticollision Report**

**10 March, 2015**





# Anticollision Report



|                    |                              |                              |                                 |
|--------------------|------------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC            | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County - NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee              | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                    | North Reference:             | Grid                            |
| Reference Well:    | #7H                          | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                    | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                          | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1 03-10-15             | Offset TVD Reference:        | Offset Datum                    |

|                              |                                                                     |                |                     |
|------------------------------|---------------------------------------------------------------------|----------------|---------------------|
| Reference                    | Plan #1 03-10-15                                                    |                |                     |
| Filter type:                 | NO GLOBAL FILTER: Using user defined selection & filtering criteria |                |                     |
| Interpolation Method:        | MD Interval 25.00usft                                               | Error Model:   | ISCWSA              |
| Depth Range:                 | Unlimited                                                           | Scan Method:   | Closest Approach 3D |
| Results Limited by:          | Maximum center-center distance of 9,999.98 usft                     | Error Surface: | Circular Conic      |
| Warning Levels Evaluated at: | 2.00 Sigma                                                          | Casing Method: | Not applied         |

|                     |           |                        |              |                                      |
|---------------------|-----------|------------------------|--------------|--------------------------------------|
| Survey Tool Program |           | Date 3/10/2015         |              |                                      |
| From (usft)         | To (usft) | Survey (Wellbore)      | Tool Name    | Description                          |
| 0.00                | 7,848.80  | Plan #1 03-10-15 (WB1) | PHX+MWD+IGRF | PHX+MWD+IGRF v3:standard declination |

| Summary                                         |                                 |                              |                                 |                                  |                   |         |
|-------------------------------------------------|---------------------------------|------------------------------|---------------------------------|----------------------------------|-------------------|---------|
| Site Name                                       | Reference Measured Depth (usft) | Offset Measured Depth (usft) | Distance Between Centres (usft) | Distance Between Ellipses (usft) | Separation Factor | Warning |
| Stonewall 9 Fee                                 |                                 |                              |                                 |                                  |                   |         |
| Offset Well - Wellbore - Design                 |                                 |                              |                                 |                                  |                   |         |
| #3H - WB1/Job #1311608 - Surveys (Silver Oak 3) | 124.10                          | 135.11                       | 659.89                          | 658.85                           | 635.756           | CC      |
| #3H - WB1/Job #1311608 - Surveys (Silver Oak 3) | 2,800.00                        | 2,805.96                     | 684.89                          | 650.35                           | 19.829            | ES      |
| #3H - WB1/Job #1311608 - Surveys (Silver Oak 3) | 3,175.00                        | 3,107.36                     | 725.16                          | 685.97                           | 18.505            | SF      |
| #3H - WB2/Job #1311608 - Surveys (Silver Oak 3) | 5,716.12                        | 5,647.06                     | 558.91                          | 446.34                           | 4.965             | CC      |
| #3H - WB2/Job #1311608 - Surveys (Silver Oak 3) | 7,775.00                        | 7,686.79                     | 567.04                          | 377.04                           | 2.984             | ES      |
| #3H - WB2/Job #1311608 - Surveys (Silver Oak 3) | 7,848.87                        | 7,757.43                     | 570.01                          | 377.21                           | 2.956             | SF      |

| Offset Design                                                     |                       |                       |                       |                  |               |                       |                                    |                                    |                        |                         |                           | Offset Site Error: | 0.00 usft |
|-------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|------------------------------------|------------------------------------|------------------------|-------------------------|---------------------------|--------------------|-----------|
| Stonewall 9 Fee - #3H - WB1/Job #1311608 - Surveys (Silver Oak 3) |                       |                       |                       |                  |               |                       |                                    |                                    |                        |                         |                           | Offset Well Error: | 0.00 usft |
| Survey Program: 100-CB-GYRO-MS                                    |                       |                       |                       |                  |               |                       |                                    |                                    |                        |                         |                           |                    |           |
| Reference                                                         |                       | Offset                |                       | Semi Major Axis  |               | Distance              |                                    |                                    |                        |                         |                           |                    |           |
| Measured Depth (usft)                                             | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N-S (usft) | Offset Wellbore Centre +E-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor  | Warning   |
| 0.00                                                              | 0.00                  | 11.12                 | 11.12                 | 0.00             | 0.06          | -90.05                | -0.60                              | -680.00                            | 660.00                 |                         |                           |                    |           |
| 25.00                                                             | 25.00                 | 36.40                 | 36.40                 | 0.01             | 0.19          | -90.06                | -0.65                              | -659.99                            | 659.99                 | 659.79                  | 0.20                      | 3,276.486          |           |
| 50.00                                                             | 50.00                 | 61.68                 | 61.68                 | 0.06             | 0.32          | -90.06                | -0.73                              | -659.97                            | 659.97                 | 659.59                  | 0.38                      | 1,748.678          |           |
| 75.00                                                             | 75.00                 | 86.96                 | 86.96                 | 0.10             | 0.45          | -90.07                | -0.86                              | -659.94                            | 659.94                 | 659.38                  | 0.56                      | 1,188.254          |           |
| 100.00                                                            | 100.00                | 111.74                | 111.73                | 0.15             | 0.62          | -90.09                | -1.03                              | -659.90                            | 659.90                 | 659.14                  | 0.76                      | 865.036            |           |
| 124.10                                                            | 124.10                | 135.11                | 135.10                | 0.23             | 0.80          | -90.10                | -1.16                              | -659.89                            | 659.89                 | 658.85                  | 1.04                      | 635.756            | CC        |
| 125.00                                                            | 125.00                | 135.97                | 135.97                | 0.24             | 0.81          | -90.10                | -1.17                              | -659.89                            | 659.89                 | 658.84                  | 1.05                      | 629.552            |           |
| 150.00                                                            | 150.00                | 160.21                | 160.21                | 0.33             | 1.01          | -90.11                | -1.28                              | -659.90                            | 659.90                 | 658.57                  | 1.33                      | 494.836            |           |
| 175.00                                                            | 175.00                | 184.45                | 184.45                | 0.42             | 1.20          | -90.12                | -1.37                              | -659.94                            | 659.95                 | 658.33                  | 1.62                      | 407.625            |           |
| 200.00                                                            | 200.00                | 209.02                | 209.02                | 0.51             | 1.41          | -90.12                | -1.43                              | -680.01                            | 660.02                 | 658.10                  | 1.91                      | 344.911            |           |
| 225.00                                                            | 225.00                | 234.17                | 234.17                | 0.60             | 1.63          | -90.13                | -1.54                              | -660.09                            | 660.09                 | 657.87                  | 2.22                      | 296.734            |           |
| 250.00                                                            | 250.00                | 259.33                | 259.32                | 0.68             | 1.85          | -90.15                | -1.70                              | -660.15                            | 660.16                 | 657.62                  | 2.54                      | 260.371            |           |
| 275.00                                                            | 275.00                | 284.48                | 284.48                | 0.77             | 2.07          | -90.17                | -1.92                              | -660.21                            | 660.22                 | 657.37                  | 2.85                      | 231.950            |           |
| 300.00                                                            | 300.00                | 309.16                | 309.15                | 0.86             | 2.29          | -90.19                | -2.18                              | -660.27                            | 660.28                 | 657.12                  | 3.15                      | 209.325            |           |
| 325.00                                                            | 325.00                | 333.08                | 333.07                | 0.95             | 2.50          | -90.21                | -2.42                              | -680.35                            | 660.37                 | 656.91                  | 3.46                      | 191.001            |           |
| 350.00                                                            | 350.00                | 357.00                | 356.99                | 1.04             | 2.72          | -90.23                | -2.63                              | -680.48                            | 660.50                 | 656.74                  | 3.76                      | 175.642            |           |
| 375.00                                                            | 375.00                | 380.92                | 380.91                | 1.13             | 2.93          | -90.24                | -2.82                              | -660.64                            | 660.67                 | 656.61                  | 4.06                      | 162.583            |           |
| 400.00                                                            | 400.00                | 404.97                | 404.96                | 1.22             | 3.15          | -90.26                | -2.97                              | -660.85                            | 660.88                 | 656.51                  | 4.37                      | 151.242            |           |
| 425.00                                                            | 425.00                | 429.52                | 429.50                | 1.31             | 3.38          | -90.27                | -3.13                              | -661.08                            | 661.12                 | 656.43                  | 4.69                      | 141.024            |           |
| 450.00                                                            | 450.00                | 454.06                | 454.05                | 1.40             | 3.60          | -90.29                | -3.31                              | -661.33                            | 661.37                 | 656.37                  | 5.01                      | 132.110            |           |
| 475.00                                                            | 475.00                | 478.60                | 478.59                | 1.49             | 3.83          | -90.30                | -3.50                              | -661.59                            | 661.64                 | 656.32                  | 5.32                      | 124.264            |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



Company: COG Operating LLC  
Project: Eddy County, NM (NAD27 NME)  
Reference Site: Stonewall 9 Fee  
Site Error: 0.00 usft  
Reference Well: #7H  
Well Error: 0.00 usft  
Reference Wellbore: WB1  
Reference Design: Plan #1.03-10-15

Local Co-ordinate Reference: Well #7H  
TVD Reference: KB @ 3364.00usft (Silver Oak 3)  
MD Reference: KB @ 3364.00usft (Silver Oak 3)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Output errors are at: 2.00 sigma  
Database: Compass 5000 GCR  
Offset TVD Reference: Offset Datum

| Offset Design Stonewall 9 Fee - #3H - WB1/Job #1311608 - Surveys (Silver Oak 3) |                             |                             |                             |                     |                  |                             |                                           |                 |                              |                               |                                 |                      | Offset Site Error: 0.00 usft |
|---------------------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|-------------------------------------------|-----------------|------------------------------|-------------------------------|---------------------------------|----------------------|------------------------------|
| Survey Program: 100-CB-GYRO-MS                                                  |                             |                             |                             |                     |                  |                             |                                           |                 |                              |                               |                                 |                      | Offset Well Error: 0.00 usft |
| Reference                                                                       |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                  |                 | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning                      |
| Measured<br>Depth<br>(usft)                                                     | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) |                              |                               |                                 |                      |                              |
| 500.00                                                                          | 500.00                      | 503.23                      | 503.21                      | 1.58                | 4.06             | -90.32                      | -3.71                                     | -661.88         | 661.93                       | 656.29                        | 5.64                            | 117.288              |                              |
| 525.00                                                                          | 525.00                      | 528.39                      | 528.37                      | 1.67                | 4.30             | -90.34                      | -3.96                                     | -662.17         | 662.22                       | 656.25                        | 5.97                            | 110.943              |                              |
| 550.00                                                                          | 550.00                      | 553.55                      | 553.53                      | 1.76                | 4.53             | -90.37                      | -4.26                                     | -662.45         | 662.51                       | 656.21                        | 6.29                            | 105.253              |                              |
| 575.00                                                                          | 575.00                      | 578.72                      | 578.69                      | 1.85                | 4.77             | -90.40                      | -4.61                                     | -662.73         | 662.79                       | 656.17                        | 6.62                            | 100.122              |                              |
| 600.00                                                                          | 600.00                      | 603.84                      | 603.80                      | 1.94                | 5.01             | -90.43                      | -5.01                                     | -663.00         | 663.06                       | 656.12                        | 6.94                            | 95.475               |                              |
| 625.00                                                                          | 625.00                      | 628.75                      | 628.71                      | 2.03                | 5.24             | -90.47                      | -5.45                                     | -663.27         | 663.33                       | 656.07                        | 7.27                            | 91.266               |                              |
| 650.00                                                                          | 650.00                      | 653.66                      | 653.61                      | 2.12                | 5.47             | -90.51                      | -5.92                                     | -663.54         | 663.61                       | 656.02                        | 7.59                            | 87.416               |                              |
| 675.00                                                                          | 675.00                      | 678.56                      | 678.51                      | 2.21                | 5.71             | -90.56                      | -6.43                                     | -663.82         | 663.89                       | 655.98                        | 7.91                            | 83.881               |                              |
| 700.00                                                                          | 700.00                      | 703.44                      | 703.38                      | 2.30                | 5.94             | -90.60                      | -6.98                                     | -664.09         | 664.17                       | 655.94                        | 8.24                            | 80.643               |                              |
| 725.00                                                                          | 725.00                      | 728.10                      | 728.03                      | 2.39                | 6.16             | -90.65                      | -7.53                                     | -664.38         | 664.47                       | 655.92                        | 8.55                            | 77.753               |                              |
| 750.00                                                                          | 750.00                      | 752.76                      | 752.68                      | 2.48                | 6.38             | -90.70                      | -8.08                                     | -664.67         | 664.77                       | 655.92                        | 8.86                            | 75.067               |                              |
| 775.00                                                                          | 775.00                      | 777.42                      | 777.34                      | 2.57                | 6.60             | -90.74                      | -8.62                                     | -664.98         | 665.09                       | 655.93                        | 9.17                            | 72.564               |                              |
| 800.00                                                                          | 800.00                      | 802.17                      | 802.07                      | 2.66                | 6.82             | -90.79                      | -9.16                                     | -665.30         | 665.43                       | 655.95                        | 9.48                            | 70.222               |                              |
| 825.00                                                                          | 825.00                      | 827.85                      | 827.75                      | 2.75                | 7.05             | -90.84                      | -9.72                                     | -665.63         | 665.75                       | 655.96                        | 9.79                            | 67.997               |                              |
| 850.00                                                                          | 850.00                      | 853.54                      | 853.43                      | 2.84                | 7.27             | -90.88                      | -10.28                                    | -665.92         | 666.04                       | 655.94                        | 10.11                           | 65.907               |                              |
| 875.00                                                                          | 875.00                      | 879.23                      | 879.12                      | 2.93                | 7.50             | -90.93                      | -10.85                                    | -666.19         | 666.32                       | 655.89                        | 10.42                           | 63.941               |                              |
| 900.00                                                                          | 900.00                      | 904.79                      | 904.67                      | 3.01                | 7.72             | -90.98                      | -11.41                                    | -666.43         | 666.56                       | 655.83                        | 10.74                           | 62.088               |                              |
| 925.00                                                                          | 925.00                      | 929.81                      | 929.68                      | 3.10                | 7.95             | -91.03                      | -11.94                                    | -666.66         | 666.80                       | 655.75                        | 11.05                           | 60.337               |                              |
| 950.00                                                                          | 950.00                      | 954.82                      | 954.69                      | 3.19                | 8.17             | -91.07                      | -12.46                                    | -666.89         | 667.04                       | 655.67                        | 11.37                           | 58.684               |                              |
| 975.00                                                                          | 975.00                      | 979.84                      | 979.70                      | 3.28                | 8.40             | -91.11                      | -12.95                                    | -667.12         | 667.27                       | 655.59                        | 11.68                           | 57.120               |                              |
| 1,000.00                                                                        | 1,000.00                    | 1,004.80                    | 1,004.65                    | 3.37                | 8.62             | -91.15                      | -13.43                                    | -667.34         | 667.51                       | 655.51                        | 12.00                           | 55.637               |                              |
| 1,025.00                                                                        | 1,025.00                    | 1,029.54                    | 1,029.39                    | 3.46                | 8.85             | -91.19                      | -13.89                                    | -667.57         | 667.75                       | 655.44                        | 12.31                           | 54.224               |                              |
| 1,050.00                                                                        | 1,050.00                    | 1,054.28                    | 1,054.13                    | 3.55                | 9.08             | -91.23                      | -14.32                                    | -667.81         | 668.00                       | 655.37                        | 12.63                           | 52.883               |                              |
| 1,075.00                                                                        | 1,075.00                    | 1,079.02                    | 1,078.86                    | 3.64                | 9.31             | -91.26                      | -14.74                                    | -668.07         | 668.27                       | 655.32                        | 12.95                           | 51.609               |                              |
| 1,100.00                                                                        | 1,100.00                    | 1,103.87                    | 1,103.71                    | 3.73                | 9.53             | -91.30                      | -15.13                                    | -668.33         | 668.54                       | 655.27                        | 13.27                           | 50.394               |                              |
| 1,125.00                                                                        | 1,125.00                    | 1,129.30                    | 1,129.13                    | 3.82                | 9.76             | -91.33                      | -15.52                                    | -668.59         | 668.80                       | 655.22                        | 13.59                           | 49.227               |                              |
| 1,150.00                                                                        | 1,150.00                    | 1,154.72                    | 1,154.55                    | 3.91                | 9.99             | -91.36                      | -15.90                                    | -668.83         | 669.05                       | 655.15                        | 13.91                           | 48.114               |                              |
| 1,175.00                                                                        | 1,175.00                    | 1,180.15                    | 1,179.97                    | 4.00                | 10.22            | -91.39                      | -16.25                                    | -669.06         | 669.28                       | 655.06                        | 14.23                           | 47.048               |                              |
| 1,200.00                                                                        | 1,200.00                    | 1,205.37                    | 1,205.18                    | 4.09                | 10.45            | -91.42                      | -16.59                                    | -669.27         | 669.50                       | 654.96                        | 14.54                           | 46.036               |                              |
| 1,225.00                                                                        | 1,225.00                    | 1,229.85                    | 1,229.66                    | 4.18                | 10.67            | -91.44                      | -16.88                                    | -669.49         | 669.73                       | 654.88                        | 14.85                           | 45.090               |                              |
| 1,250.00                                                                        | 1,250.00                    | 1,254.33                    | 1,254.14                    | 4.27                | 10.89            | -91.46                      | -17.12                                    | -669.72         | 669.98                       | 654.81                        | 15.16                           | 44.184               |                              |
| 1,275.00                                                                        | 1,275.00                    | 1,278.81                    | 1,278.62                    | 4.36                | 11.11            | -91.48                      | -17.31                                    | -669.98         | 670.24                       | 654.77                        | 15.47                           | 43.316               |                              |
| 1,300.00                                                                        | 1,300.00                    | 1,303.24                    | 1,303.05                    | 4.45                | 11.33            | -91.49                      | -17.44                                    | -670.25         | 670.53                       | 654.74                        | 15.78                           | 42.485               |                              |
| 1,325.00                                                                        | 1,325.00                    | 1,327.32                    | 1,327.13                    | 4.54                | 11.55            | -91.50                      | -17.59                                    | -670.55         | 670.84                       | 654.75                        | 16.09                           | 41.705               |                              |
| 1,350.00                                                                        | 1,350.00                    | 1,351.40                    | 1,351.20                    | 4.63                | 11.76            | -91.52                      | -17.76                                    | -670.88         | 671.19                       | 654.80                        | 16.39                           | 40.956               |                              |
| 1,375.00                                                                        | 1,375.00                    | 1,375.47                    | 1,375.27                    | 4.72                | 11.97            | -91.53                      | -17.97                                    | -671.24         | 671.57                       | 654.88                        | 16.69                           | 40.235               |                              |
| 1,400.00                                                                        | 1,400.00                    | 1,400.00                    | 1,399.80                    | 4.81                | 12.19            | -91.55                      | -18.22                                    | -671.65         | 671.99                       | 654.99                        | 17.00                           | 39.534               |                              |
| 1,425.00                                                                        | 1,425.00                    | 1,425.62                    | 1,425.41                    | 4.90                | 12.42            | -91.58                      | -18.48                                    | -672.06         | 672.40                       | 655.09                        | 17.31                           | 38.838               |                              |
| 1,450.00                                                                        | 1,450.00                    | 1,451.74                    | 1,451.52                    | 4.99                | 12.65            | -91.59                      | -18.71                                    | -672.45         | 672.77                       | 655.14                        | 17.63                           | 38.156               |                              |
| 1,475.00                                                                        | 1,475.00                    | 1,477.85                    | 1,477.64                    | 5.08                | 12.88            | -91.61                      | -18.89                                    | -672.79         | 673.10                       | 655.15                        | 17.95                           | 37.496               |                              |
| 1,500.00                                                                        | 1,500.00                    | 1,503.85                    | 1,503.63                    | 5.17                | 13.10            | -91.62                      | -19.04                                    | -673.09         | 673.39                       | 655.12                        | 18.27                           | 36.857               |                              |
| 1,525.00                                                                        | 1,525.00                    | 1,529.20                    | 1,528.98                    | 5.26                | 13.33            | -91.63                      | -19.16                                    | -673.35         | 673.66                       | 655.07                        | 18.59                           | 36.240               |                              |
| 1,550.00                                                                        | 1,550.00                    | 1,554.54                    | 1,554.32                    | 5.34                | 13.56            | -91.64                      | -19.25                                    | -673.61         | 673.92                       | 655.01                        | 18.91                           | 35.644               |                              |
| 1,575.00                                                                        | 1,575.00                    | 1,579.89                    | 1,579.67                    | 5.43                | 13.79            | -91.64                      | -19.32                                    | -673.85         | 674.16                       | 654.93                        | 19.23                           | 35.066               |                              |
| 1,600.00                                                                        | 1,600.00                    | 1,604.99                    | 1,604.77                    | 5.52                | 14.02            | -91.65                      | -19.37                                    | -674.08         | 674.39                       | 654.85                        | 19.54                           | 34.512               |                              |
| 1,625.00                                                                        | 1,625.00                    | 1,629.17                    | 1,628.95                    | 5.61                | 14.23            | -91.65                      | -19.43                                    | -674.32         | 674.63                       | 654.79                        | 19.84                           | 34.000               |                              |
| 1,650.00                                                                        | 1,650.00                    | 1,653.35                    | 1,653.12                    | 5.70                | 14.44            | -91.66                      | -19.52                                    | -674.58         | 674.91                       | 654.77                        | 20.14                           | 33.504               |                              |
| 1,675.00                                                                        | 1,675.00                    | 1,677.52                    | 1,677.29                    | 5.79                | 14.65            | -91.67                      | -19.66                                    | -674.87         | 675.22                       | 654.77                        | 20.45                           | 33.024               |                              |
| 1,700.00                                                                        | 1,700.00                    | 1,701.75                    | 1,701.52                    | 5.88                | 14.87            | -91.68                      | -19.82                                    | -675.20         | 675.55                       | 654.81                        | 20.75                           | 32.559               |                              |
| 1,725.00                                                                        | 1,725.00                    | 1,726.67                    | 1,726.44                    | 5.97                | 15.09            | -91.70                      | -20.00                                    | -675.54         | 675.91                       | 654.85                        | 21.06                           | 32.095               |                              |
| 1,750.00                                                                        | 1,750.00                    | 1,751.60                    | 1,751.36                    | 6.06                | 15.31            | -91.71                      | -20.18                                    | -675.89         | 676.26                       | 654.89                        | 21.37                           | 31.644               |                              |
| 1,775.00                                                                        | 1,775.00                    | 1,776.52                    | 1,776.28                    | 6.15                | 15.53            | -91.72                      | -20.34                                    | -676.24         | 676.62                       | 654.94                        | 21.68                           | 31.206               |                              |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



|                     |                             |                              |                                 |
|---------------------|-----------------------------|------------------------------|---------------------------------|
| Company:            | COG Operating LLC           | Local Co-ordinate Reference: | Well #7H                        |
| Project:            | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:     | Stonewall 9 Fee             | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:         | 0.00 usft                   | North Reference:             | Grid                            |
| Reference Well:     | #7H                         | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:         | 0.00 usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore: | WB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:   | Plan #1 03-10-15            | Offset TVD Reference:        | Offset Datum                    |

| Offset Design Stonewall 9 Fee - #3H - WB1/Job #1311608 - Surveys (Silver Oak 3) |                             |                             |                             |                     |                  |                             |                                           |                 |                              |                               |                                 |                      | Offset Site Error: | 0.00 usft |
|---------------------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|-------------------------------------------|-----------------|------------------------------|-------------------------------|---------------------------------|----------------------|--------------------|-----------|
| Survey Program: 100-CB-GYRO-MS                                                  |                             |                             |                             |                     |                  |                             |                                           |                 |                              |                               |                                 |                      | Offset Well Error: | 0.00 usft |
| Reference                                                                       |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Distance                                  |                 | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning            |           |
| Measured<br>Depth<br>(usft)                                                     | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | Offset Wellbore Centre<br>+N/-S<br>(usft) | +E/-W<br>(usft) |                              |                               |                                 |                      |                    |           |
| 1,800.00                                                                        | 1,800.00                    | 1,801.45                    | 1,801.20                    | 6.24                | 15.75            | -91.74                      | -20.50                                    | -676.60         | 676.98                       | 654.99                        | 21.99                           | 30.781               |                    |           |
| 1,825.00                                                                        | 1,825.00                    | 1,826.41                    | 1,826.16                    | 6.33                | 15.98            | -91.75                      | -20.64                                    | -676.96         | 677.34                       | 655.03                        | 22.31                           | 30.361               |                    |           |
| 1,850.00                                                                        | 1,850.00                    | 1,851.37                    | 1,851.13                    | 6.42                | 16.20            | -91.76                      | -20.79                                    | -677.31         | 677.71                       | 655.08                        | 22.63                           | 29.954               |                    |           |
| 1,875.00                                                                        | 1,875.00                    | 1,876.34                    | 1,876.09                    | 6.51                | 16.43            | -91.77                      | -20.92                                    | -677.67         | 678.07                       | 655.13                        | 22.94                           | 29.557               |                    |           |
| 1,900.00                                                                        | 1,900.00                    | 1,901.31                    | 1,901.06                    | 6.60                | 16.66            | -91.78                      | -21.05                                    | -678.04         | 678.44                       | 655.18                        | 23.26                           | 29.172               |                    |           |
| 1,925.00                                                                        | 1,925.00                    | 1,926.42                    | 1,926.16                    | 6.69                | 16.88            | -91.79                      | -21.17                                    | -678.40         | 678.80                       | 655.23                        | 23.57                           | 28.797               |                    |           |
| 1,950.00                                                                        | 1,950.00                    | 1,951.53                    | 1,951.27                    | 6.78                | 17.11            | -91.80                      | -21.29                                    | -678.76         | 679.16                       | 655.27                        | 23.89                           | 28.431               |                    |           |
| 1,975.00                                                                        | 1,975.00                    | 1,976.64                    | 1,976.37                    | 6.87                | 17.34            | -91.80                      | -21.40                                    | -679.11         | 679.52                       | 655.31                        | 24.20                           | 28.075               |                    |           |
| 2,000.00                                                                        | 2,000.00                    | 2,001.88                    | 2,001.61                    | 6.96                | 17.56            | -91.81                      | -21.51                                    | -679.46         | 679.87                       | 655.35                        | 24.52                           | 27.726               |                    |           |
| 2,025.00                                                                        | 2,025.00                    | 2,028.89                    | 2,028.62                    | 7.05                | 17.81            | -91.82                      | -21.62                                    | -679.79         | 680.18                       | 655.32                        | 24.85                           | 27.368               |                    |           |
| 2,050.00                                                                        | 2,050.00                    | 2,055.91                    | 2,055.64                    | 7.14                | 18.05            | -91.83                      | -21.72                                    | -680.04         | 680.41                       | 655.23                        | 25.19                           | 27.015               |                    |           |
| 2,075.00                                                                        | 2,075.00                    | 2,082.93                    | 2,082.66                    | 7.23                | 18.29            | -91.84                      | -21.83                                    | -680.21         | 680.57                       | 655.05                        | 25.52                           | 26.670               |                    |           |
| 2,100.00                                                                        | 2,100.00                    | 2,109.17                    | 2,108.90                    | 7.32                | 18.53            | -91.85                      | -21.93                                    | -680.31         | 680.66                       | 654.82                        | 25.84                           | 26.338               |                    |           |
| 2,125.00                                                                        | 2,125.00                    | 2,134.08                    | 2,133.81                    | 7.41                | 18.75            | -91.85                      | -22.02                                    | -680.38         | 680.74                       | 654.59                        | 26.16                           | 26.027               |                    |           |
| 2,150.00                                                                        | 2,150.00                    | 2,158.99                    | 2,158.72                    | 7.50                | 18.97            | -91.86                      | -22.09                                    | -680.46         | 680.82                       | 654.36                        | 26.47                           | 25.724               |                    |           |
| 2,175.00                                                                        | 2,175.00                    | 2,183.90                    | 2,183.63                    | 7.59                | 19.19            | -91.86                      | -22.14                                    | -680.54         | 680.91                       | 654.13                        | 26.78                           | 25.428               |                    |           |
| 2,200.00                                                                        | 2,200.00                    | 2,208.43                    | 2,208.16                    | 7.67                | 19.41            | -91.87                      | -22.18                                    | -680.63         | 681.00                       | 653.91                        | 27.09                           | 25.142               |                    |           |
| 2,225.00                                                                        | 2,225.00                    | 2,232.28                    | 2,232.01                    | 7.76                | 19.62            | -91.87                      | -22.22                                    | -680.75         | 681.13                       | 653.74                        | 27.39                           | 24.868               |                    |           |
| 2,250.00                                                                        | 2,250.00                    | 2,256.13                    | 2,255.86                    | 7.85                | 19.84            | -91.87                      | -22.24                                    | -680.91         | 681.29                       | 653.60                        | 27.69                           | 24.603               |                    |           |
| 2,275.00                                                                        | 2,275.00                    | 2,279.98                    | 2,279.71                    | 7.94                | 20.05            | -91.87                      | -22.26                                    | -681.11         | 681.50                       | 653.51                        | 27.99                           | 24.344               |                    |           |
| 2,300.00                                                                        | 2,300.00                    | 2,304.10                    | 2,303.83                    | 8.03                | 20.27            | -91.87                      | -22.28                                    | -681.35         | 681.75                       | 653.45                        | 28.30                           | 24.091               |                    |           |
| 2,325.00                                                                        | 2,325.00                    | 2,329.62                    | 2,329.35                    | 8.12                | 20.49            | -91.87                      | -22.31                                    | -681.61         | 682.01                       | 653.39                        | 28.61                           | 23.835               |                    |           |
| 2,350.00                                                                        | 2,350.00                    | 2,355.15                    | 2,354.87                    | 8.21                | 20.72            | -91.88                      | -22.36                                    | -681.85         | 682.24                       | 653.31                        | 28.93                           | 23.583               |                    |           |
| 2,375.00                                                                        | 2,375.00                    | 2,380.67                    | 2,380.39                    | 8.30                | 20.94            | -91.88                      | -22.44                                    | -682.06         | 682.46                       | 653.21                        | 29.24                           | 23.336               |                    |           |
| 2,400.00                                                                        | 2,400.00                    | 2,406.05                    | 2,405.77                    | 8.39                | 21.17            | -91.89                      | -22.54                                    | -682.26         | 682.65                       | 653.09                        | 29.56                           | 23.095               |                    |           |
| 2,425.00                                                                        | 2,425.00                    | 2,430.98                    | 2,430.70                    | 8.48                | 21.39            | -91.90                      | -22.63                                    | -682.45         | 682.85                       | 652.98                        | 29.87                           | 22.861               |                    |           |
| 2,450.00                                                                        | 2,450.00                    | 2,455.90                    | 2,455.62                    | 8.57                | 21.61            | -91.91                      | -22.71                                    | -682.64         | 683.04                       | 652.86                        | 30.18                           | 22.633               |                    |           |
| 2,475.00                                                                        | 2,475.00                    | 2,480.83                    | 2,480.55                    | 8.66                | 21.83            | -91.91                      | -22.77                                    | -682.84         | 683.24                       | 652.75                        | 30.49                           | 22.409               |                    |           |
| 2,500.00                                                                        | 2,500.00                    | 2,506.05                    | 2,505.77                    | 8.75                | 22.05            | -91.91                      | -22.82                                    | -683.04         | 683.44                       | 652.64                        | 30.80                           | 22.187               |                    |           |
| 2,525.00                                                                        | 2,525.00                    | 2,532.21                    | 2,531.93                    | 8.84                | 22.29            | -91.92                      | -22.86                                    | -683.21         | 683.61                       | 652.48                        | 31.13                           | 21.963               |                    |           |
| 2,550.00                                                                        | 2,550.00                    | 2,558.37                    | 2,558.09                    | 8.93                | 22.52            | -91.92                      | -22.89                                    | -683.35         | 683.74                       | 652.29                        | 31.45                           | 21.741               |                    |           |
| 2,575.00                                                                        | 2,575.00                    | 2,584.54                    | 2,584.25                    | 9.02                | 22.75            | -91.92                      | -22.91                                    | -683.44         | 683.82                       | 652.05                        | 31.77                           | 21.523               |                    |           |
| 2,600.00                                                                        | 2,600.00                    | 2,610.09                    | 2,609.81                    | 9.11                | 22.98            | -91.92                      | -22.92                                    | -683.48         | 683.87                       | 651.78                        | 32.09                           | 21.312               |                    |           |
| 2,625.00                                                                        | 2,625.00                    | 2,634.76                    | 2,634.48                    | 9.20                | 23.20            | -91.92                      | -22.93                                    | -683.53         | 683.92                       | 651.52                        | 32.39                           | 21.112               |                    |           |
| 2,650.00                                                                        | 2,650.00                    | 2,659.44                    | 2,659.15                    | 9.29                | 23.41            | -91.92                      | -22.94                                    | -683.59         | 683.98                       | 651.28                        | 32.70                           | 20.916               |                    |           |
| 2,675.00                                                                        | 2,675.00                    | 2,684.11                    | 2,683.83                    | 9.38                | 23.63            | -90.35                      | -22.94                                    | -683.66         | 684.05                       | 651.04                        | 33.01                           | 20.723               |                    |           |
| 2,700.00                                                                        | 2,699.98                    | 2,708.77                    | 2,708.48                    | 9.47                | 23.85            | -90.42                      | -22.95                                    | -683.75         | 684.14                       | 650.83                        | 33.32                           | 20.535               |                    |           |
| 2,725.00                                                                        | 2,724.89                    | 2,733.35                    | 2,733.06                    | 9.56                | 24.07            | -90.57                      | -22.94                                    | -683.84         | 684.26                       | 650.64                        | 33.62                           | 20.350               |                    |           |
| 2,750.00                                                                        | 2,749.67                    | 2,757.81                    | 2,757.52                    | 9.65                | 24.28            | -90.62                      | -22.91                                    | -683.95         | 684.41                       | 650.48                        | 33.93                           | 20.170               |                    |           |
| 2,775.00                                                                        | 2,774.27                    | 2,782.09                    | 2,781.81                    | 9.74                | 24.50            | -91.16                      | -22.87                                    | -684.07         | 684.61                       | 650.37                        | 34.24                           | 19.996               |                    |           |
| 2,800.00                                                                        | 2,798.82                    | 2,805.96                    | 2,805.68                    | 9.83                | 24.71            | -91.58                      | -22.80                                    | -684.20         | 684.89                       | 650.35                        | 34.54                           | 19.829 ES            |                    |           |
| 2,825.00                                                                        | 2,822.67                    | 2,829.01                    | 2,828.72                    | 9.92                | 24.91            | -92.05                      | -22.74                                    | -684.36         | 685.28                       | 650.45                        | 34.83                           | 19.673               |                    |           |
| 2,850.00                                                                        | 2,846.37                    | 2,851.71                    | 2,851.42                    | 10.01               | 25.11            | -92.59                      | -22.68                                    | -684.54         | 685.83                       | 650.71                        | 35.12                           | 19.526               |                    |           |
| 2,875.00                                                                        | 2,869.66                    | 2,874.02                    | 2,873.74                    | 10.10               | 25.31            | -93.18                      | -22.62                                    | -684.76         | 686.57                       | 651.16                        | 35.41                           | 19.390               |                    |           |
| 2,900.00                                                                        | 2,892.48                    | 2,895.89                    | 2,895.60                    | 10.19               | 25.50            | -93.81                      | -22.57                                    | -685.00         | 687.55                       | 651.85                        | 35.70                           | 19.261               |                    |           |
| 2,925.00                                                                        | 2,914.80                    | 2,917.83                    | 2,917.54                    | 10.30               | 25.70            | -94.49                      | -22.52                                    | -685.28         | 688.79                       | 652.80                        | 36.00                           | 19.136               |                    |           |
| 2,950.00                                                                        | 2,936.54                    | 2,939.37                    | 2,939.08                    | 10.40               | 25.89            | -95.19                      | -22.45                                    | -685.54         | 690.34                       | 654.04                        | 36.29                           | 19.022               |                    |           |
| 2,975.00                                                                        | 2,957.67                    | 2,960.32                    | 2,960.02                    | 10.52               | 26.07            | -95.90                      | -22.36                                    | -685.81         | 692.23                       | 655.63                        | 36.60                           | 18.916               |                    |           |
| 3,000.00                                                                        | 2,978.13                    | 2,980.64                    | 2,980.34                    | 10.64               | 26.25            | -96.80                      | -22.26                                    | -686.09         | 694.52                       | 657.62                        | 36.89                           | 18.825               |                    |           |
| 3,025.00                                                                        | 2,997.88                    | 3,000.30                    | 3,000.00                    | 10.78               | 26.43            | -97.28                      | -22.15                                    | -686.37         | 697.25                       | 660.05                        | 37.21                           | 18.740               |                    |           |
| 3,050.00                                                                        | 3,016.87                    | 3,020.59                    | 3,020.29                    | 10.92               | 26.60            | -98.00                      | -22.03                                    | -686.63         | 700.46                       | 662.94                        | 37.52                           | 18.669               |                    |           |
| 3,075.00                                                                        | 3,035.06                    | 3,040.00                    | 3,039.70                    | 11.08               | 26.77            | -98.67                      | -21.94                                    | -686.86         | 704.19                       | 666.34                        | 37.85                           | 18.605               |                    |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



|                    |                             |                              |                                 |
|--------------------|-----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC           | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee             | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                   | North Reference:             | Grid                            |
| Reference Well:    | #7H                         | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1 03-10-15            | Offset TVD Reference:        | Offset Datum                    |

| Offset Design Stonewall 9 Fee - #3H - WB1/Job #1311608 - Surveys (Silver Oak 3) |                       |                       |                       |                  |               |                       |                                     |              |                        |                         | Offset Site Error: 0.00 usft |           |                   |
|---------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------------|-----------|-------------------|
| Survey Program: 100-CB-GYRO-MS                                                  |                       |                       |                       |                  |               |                       |                                     |              |                        |                         | Offset Well Error: 0.00 usft |           |                   |
| Reference                                                                       |                       | Offset                |                       | Semi Major Axis  |               |                       | Distance                            |              |                        |                         |                              | Warning   |                   |
| Measured Depth (usft)                                                           | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft)    |           | Separation Factor |
| 3,100.00                                                                        | 3,052.41              | 3,058.49              | 3,058.18              | 11.24            | 26.93         | -99.27                | -21.87                              | -687.03      | 708.47                 | 670.30                  | 38.17                        | 18.560    |                   |
| 3,125.00                                                                        | 3,068.88              | 3,076.00              | 3,075.70              | 11.42            | 27.09         | -99.79                | -21.81                              | -687.17      | 713.37                 | 674.85                  | 38.51                        | 18.523    |                   |
| 3,150.00                                                                        | 3,084.42              | 3,092.52              | 3,092.21              | 11.61            | 27.23         | -100.22               | -21.78                              | -687.27      | 718.92                 | 680.07                  | 38.84                        | 18.509    |                   |
| 3,175.00                                                                        | 3,099.00              | 3,107.36              | 3,107.06              | 11.83            | 27.36         | -100.49               | -21.75                              | -687.34      | 725.16                 | 685.97                  | 39.19                        | 18.505 SF |                   |
| 3,200.00                                                                        | 3,112.60              | 3,120.68              | 3,120.37              | 12.04            | 27.48         | -100.60               | -21.72                              | -687.41      | 732.14                 | 692.62                  | 39.52                        | 18.526    |                   |
| 3,225.00                                                                        | 3,125.17              | 3,133.02              | 3,132.72              | 12.29            | 27.58         | -100.57               | -21.68                              | -687.49      | 739.89                 | 700.01                  | 39.87                        | 18.557    |                   |
| 3,250.00                                                                        | 3,136.69              | 3,144.37              | 3,144.07              | 12.53            | 27.68         | -100.40               | -21.65                              | -687.57      | 748.40                 | 708.18                  | 40.22                        | 18.609    |                   |
| 3,275.00                                                                        | 3,147.13              | 3,154.69              | 3,154.38              | 12.81            | 27.77         | -100.07               | -21.60                              | -687.64      | 757.68                 | 717.10                  | 40.58                        | 18.671    |                   |
| 3,300.00                                                                        | 3,156.48              | 3,163.95              | 3,163.65              | 13.08            | 27.85         | -99.58                | -21.56                              | -687.71      | 767.73                 | 726.79                  | 40.94                        | 18.754    |                   |
| 3,325.00                                                                        | 3,164.69              | 3,172.14              | 3,171.83              | 13.39            | 27.93         | -98.90                | -21.52                              | -687.78      | 778.53                 | 737.22                  | 41.31                        | 18.845    |                   |
| 3,350.00                                                                        | 3,171.77              | 3,179.22              | 3,178.91              | 13.69            | 27.99         | -98.04                | -21.48                              | -687.85      | 790.06                 | 748.38                  | 41.68                        | 18.956    |                   |
| 3,375.00                                                                        | 3,177.69              | 3,185.18              | 3,184.87              | 14.02            | 28.04         | -96.98                | -21.45                              | -687.90      | 802.30                 | 760.24                  | 42.06                        | 19.075    |                   |
| 3,400.00                                                                        | 3,182.43              | 3,190.00              | 3,189.69              | 14.35            | 28.08         | -95.72                | -21.42                              | -687.95      | 815.20                 | 772.77                  | 42.43                        | 19.212    |                   |
| 3,425.00                                                                        | 3,186.00              | 3,193.67              | 3,193.36              | 14.70            | 28.11         | -94.25                | -21.40                              | -687.98      | 828.74                 | 785.92                  | 42.82                        | 19.356    |                   |
| 3,450.00                                                                        | 3,188.37              | 3,196.17              | 3,195.86              | 15.05            | 28.13         | -92.58                | -21.38                              | -688.01      | 842.86                 | 799.67                  | 43.19                        | 19.516    |                   |
| 3,475.00                                                                        | 3,189.54              | 3,197.50              | 3,197.19              | 15.42            | 28.15         | -90.70                | -21.38                              | -688.02      | 857.52                 | 813.95                  | 43.57                        | 19.682    |                   |
| 3,500.00                                                                        | 3,189.66              | 3,197.78              | 3,197.47              | 15.79            | 28.15         | -89.66                | -21.37                              | -688.02      | 872.66                 | 828.72                  | 43.94                        | 19.859    |                   |
| 3,525.00                                                                        | 3,189.62              | 3,197.90              | 3,197.59              | 16.19            | 28.15         | -89.67                | -21.37                              | -688.02      | 888.24                 | 843.91                  | 44.34                        | 20.034    |                   |
| 3,550.00                                                                        | 3,189.57              | 3,198.02              | 3,197.71              | 16.58            | 28.15         | -89.68                | -21.37                              | -688.02      | 904.25                 | 859.52                  | 44.73                        | 20.214    |                   |
| 3,575.00                                                                        | 3,189.53              | 3,198.14              | 3,197.83              | 16.98            | 28.15         | -89.69                | -21.37                              | -688.03      | 920.66                 | 875.53                  | 45.13                        | 20.401    |                   |
| 3,600.00                                                                        | 3,189.49              | 3,198.26              | 3,197.96              | 17.37            | 28.15         | -89.70                | -21.37                              | -688.03      | 937.45                 | 891.92                  | 45.52                        | 20.592    |                   |
| 3,625.00                                                                        | 3,189.44              | 3,198.39              | 3,198.08              | 17.79            | 28.15         | -89.71                | -21.37                              | -688.03      | 954.59                 | 908.65                  | 45.95                        | 20.775    |                   |
| 3,650.00                                                                        | 3,189.40              | 3,198.51              | 3,198.20              | 18.22            | 28.16         | -89.72                | -21.37                              | -688.03      | 972.08                 | 925.71                  | 46.37                        | 20.962    |                   |
| 3,675.00                                                                        | 3,189.35              | 3,198.64              | 3,198.33              | 18.64            | 28.16         | -89.73                | -21.37                              | -688.03      | 989.89                 | 943.10                  | 46.80                        | 21.153    |                   |
| 3,700.00                                                                        | 3,189.31              | 3,198.76              | 3,198.45              | 19.06            | 28.16         | -89.74                | -21.37                              | -688.03      | 1,008.01               | 960.79                  | 47.22                        | 21.347    |                   |
| 3,725.00                                                                        | 3,189.27              | 3,198.88              | 3,198.58              | 19.51            | 28.16         | -89.75                | -21.37                              | -688.03      | 1,026.41               | 978.75                  | 47.67                        | 21.533    |                   |
| 3,750.00                                                                        | 3,189.22              | 3,199.01              | 3,198.70              | 19.95            | 28.16         | -89.76                | -21.37                              | -688.03      | 1,045.09               | 996.98                  | 48.11                        | 21.722    |                   |
| 3,775.00                                                                        | 3,189.18              | 3,199.13              | 3,198.83              | 20.40            | 28.16         | -89.77                | -21.37                              | -688.04      | 1,064.03               | 1,015.47                | 48.56                        | 21.913    |                   |
| 3,800.00                                                                        | 3,189.14              | 3,199.26              | 3,198.95              | 20.84            | 28.16         | -89.78                | -21.36                              | -688.04      | 1,083.21               | 1,034.21                | 49.00                        | 22.106    |                   |
| 3,825.00                                                                        | 3,189.09              | 3,199.39              | 3,199.08              | 21.30            | 28.16         | -89.79                | -21.36                              | -688.04      | 1,102.63               | 1,053.17                | 49.46                        | 22.292    |                   |
| 3,850.00                                                                        | 3,189.05              | 3,199.51              | 3,199.20              | 21.76            | 28.16         | -89.80                | -21.36                              | -688.04      | 1,122.27               | 1,072.34                | 49.93                        | 22.479    |                   |
| 3,875.00                                                                        | 3,189.01              | 3,199.64              | 3,199.33              | 22.22            | 28.17         | -89.81                | -21.36                              | -688.04      | 1,142.12               | 1,091.73                | 50.39                        | 22.667    |                   |
| 3,900.00                                                                        | 3,188.96              | 3,199.76              | 3,199.46              | 22.68            | 28.17         | -89.82                | -21.36                              | -688.04      | 1,162.16               | 1,111.32                | 50.85                        | 22.855    |                   |
| 3,925.00                                                                        | 3,188.92              | 3,199.89              | 3,199.58              | 23.16            | 28.17         | -89.83                | -21.36                              | -688.04      | 1,182.40               | 1,131.08                | 51.32                        | 23.038    |                   |
| 3,950.00                                                                        | 3,188.87              | 3,200.00              | 3,199.69              | 23.63            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,202.81               | 1,151.02                | 51.80                        | 23.222    |                   |
| 3,975.00                                                                        | 3,188.83              | 3,200.00              | 3,199.69              | 24.10            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,223.40               | 1,171.13                | 52.27                        | 23.405    |                   |
| 4,000.00                                                                        | 3,188.79              | 3,200.00              | 3,199.69              | 24.58            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,244.14               | 1,191.40                | 52.74                        | 23.589    |                   |
| 4,025.00                                                                        | 3,188.74              | 3,200.00              | 3,199.69              | 25.06            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,265.05               | 1,211.82                | 53.23                        | 23.767    |                   |
| 4,050.00                                                                        | 3,188.70              | 3,200.00              | 3,199.69              | 25.54            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,286.09               | 1,232.38                | 53.71                        | 23.945    |                   |
| 4,075.00                                                                        | 3,188.66              | 3,200.00              | 3,199.69              | 26.02            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,307.28               | 1,253.08                | 54.19                        | 24.123    |                   |
| 4,100.00                                                                        | 3,188.61              | 3,200.00              | 3,199.69              | 26.51            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,328.60               | 1,273.92                | 54.68                        | 24.299    |                   |
| 4,125.00                                                                        | 3,188.57              | 3,200.00              | 3,199.69              | 27.00            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,350.04               | 1,294.87                | 55.17                        | 24.472    |                   |
| 4,150.00                                                                        | 3,188.53              | 3,200.00              | 3,199.69              | 27.49            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,371.61               | 1,315.95                | 55.66                        | 24.643    |                   |
| 4,175.00                                                                        | 3,188.48              | 3,200.00              | 3,199.69              | 27.98            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,393.29               | 1,337.14                | 56.15                        | 24.814    |                   |
| 4,200.00                                                                        | 3,188.44              | 3,200.00              | 3,199.69              | 28.47            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,415.08               | 1,358.44                | 56.64                        | 24.983    |                   |
| 4,225.00                                                                        | 3,188.39              | 3,200.00              | 3,199.69              | 28.97            | 28.17         | -89.84                | -21.36                              | -688.04      | 1,436.97               | 1,379.83                | 57.14                        | 25.149    |                   |
| 4,250.00                                                                        | 3,188.35              | 3,201.48              | 3,201.18              | 29.47            | 28.18         | -89.97                | -21.35                              | -688.06      | 1,458.96               | 1,401.31                | 57.65                        | 25.308    |                   |
| 4,275.00                                                                        | 3,188.31              | 3,201.61              | 3,201.30              | 29.96            | 28.18         | -89.98                | -21.35                              | -688.06      | 1,481.05               | 1,422.90                | 58.15                        | 25.471    |                   |
| 4,300.00                                                                        | 3,188.26              | 3,201.73              | 3,201.42              | 30.46            | 28.18         | -89.99                | -21.35                              | -688.06      | 1,503.23               | 1,444.59                | 58.65                        | 25.632    |                   |
| 4,325.00                                                                        | 3,188.22              | 3,201.85              | 3,201.54              | 30.97            | 28.18         | -90.00                | -21.35                              | -688.06      | 1,525.50               | 1,466.35                | 59.15                        | 25.791    |                   |
| 4,350.00                                                                        | 3,188.18              | 3,201.97              | 3,201.66              | 31.47            | 28.19         | -90.01                | -21.35                              | -688.06      | 1,547.85               | 1,488.20                | 59.65                        | 25.947    |                   |
| 4,375.00                                                                        | 3,188.13              | 3,202.09              | 3,201.78              | 31.97            | 28.19         | -90.02                | -21.35                              | -688.07      | 1,570.28               | 1,510.12                | 60.16                        | 26.103    |                   |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



## Anticollision Report



|                    |                             |                              |                                 |
|--------------------|-----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC           | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee             | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                   | North Reference:             | Grid                            |
| Reference Well:    | #7H                         | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #103-10-15             | Offset TVD Reference:        | Offset Datum                    |

| Offset Design                                                     |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   | Offset Site Error:           |
|-------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|------------------------------|
| Stonewall 9 Fee - #3H - WB1/Job #1311608 - Surveys (Silver Oak 3) |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   | 0.00 usft                    |
| Survey Program: 100-CB-GYRO-MS                                    |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   | Offset Well Error: 0.00 usft |
| Reference                                                         |                       | Offset                |                       | Semi Major Axis  |               | Distance              |                                     |              |                        |                         |                           |                   |                              |
| Measured Depth (usft)                                             | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning                      |
| 4,400.00                                                          | 3,188.09              | 3,202.21              | 3,201.90              | 32.47            | 28.19         | -90.03                | -21.35                              | -688.07      | 1,592.79               | 1,532.13                | 60.66                     | 26.257            |                              |
| 4,425.00                                                          | 3,188.05              | 3,202.33              | 3,202.03              | 32.98            | 28.19         | -90.04                | -21.34                              | -688.07      | 1,615.37               | 1,554.20                | 61.17                     | 26.408            |                              |
| 4,450.00                                                          | 3,188.00              | 3,202.45              | 3,202.15              | 33.49            | 28.19         | -90.05                | -21.34                              | -688.07      | 1,638.02               | 1,576.34                | 61.68                     | 26.558            |                              |
| 4,475.00                                                          | 3,187.96              | 3,202.58              | 3,202.27              | 33.99            | 28.19         | -90.06                | -21.34                              | -688.07      | 1,660.74               | 1,598.55                | 62.19                     | 26.706            |                              |
| 4,500.00                                                          | 3,187.91              | 3,202.70              | 3,202.39              | 34.50            | 28.19         | -90.07                | -21.34                              | -688.07      | 1,683.52               | 1,620.83                | 62.69                     | 26.853            |                              |
| 4,525.00                                                          | 3,187.87              | 3,202.82              | 3,202.51              | 35.01            | 28.19         | -90.08                | -21.34                              | -688.07      | 1,706.37               | 1,643.16                | 63.21                     | 26.997            |                              |
| 4,550.00                                                          | 3,187.83              | 3,202.94              | 3,202.63              | 35.52            | 28.19         | -90.09                | -21.34                              | -688.07      | 1,729.27               | 1,665.56                | 63.72                     | 27.140            |                              |
| 4,575.00                                                          | 3,187.78              | 3,203.06              | 3,202.75              | 36.03            | 28.20         | -90.10                | -21.34                              | -688.08      | 1,752.23               | 1,688.01                | 64.23                     | 27.281            |                              |
| 4,600.00                                                          | 3,187.74              | 3,203.18              | 3,202.87              | 36.54            | 28.20         | -90.11                | -21.34                              | -688.08      | 1,775.25               | 1,710.51                | 64.74                     | 27.421            |                              |
| 4,625.00                                                          | 3,187.70              | 3,203.30              | 3,202.99              | 37.06            | 28.20         | -90.12                | -21.34                              | -688.08      | 1,798.32               | 1,733.07                | 65.25                     | 27.558            |                              |
| 4,650.00                                                          | 3,187.65              | 3,203.42              | 3,203.11              | 37.57            | 28.20         | -90.13                | -21.34                              | -688.08      | 1,821.44               | 1,755.67                | 65.77                     | 27.694            |                              |
| 4,675.00                                                          | 3,187.61              | 3,203.54              | 3,203.23              | 38.08            | 28.20         | -90.14                | -21.34                              | -688.08      | 1,844.61               | 1,778.33                | 66.28                     | 27.829            |                              |
| 4,700.00                                                          | 3,187.57              | 3,203.66              | 3,203.35              | 38.60            | 28.20         | -90.15                | -21.34                              | -688.08      | 1,867.83               | 1,801.03                | 66.80                     | 27.962            |                              |
| 4,725.00                                                          | 3,187.52              | 3,203.78              | 3,203.47              | 39.11            | 28.20         | -90.16                | -21.33                              | -688.08      | 1,891.09               | 1,823.78                | 67.32                     | 28.093            |                              |
| 4,750.00                                                          | 3,187.48              | 3,203.90              | 3,203.59              | 39.63            | 28.20         | -90.17                | -21.33                              | -688.08      | 1,914.40               | 1,846.56                | 67.83                     | 28.222            |                              |
| 4,775.00                                                          | 3,187.43              | 3,204.02              | 3,203.71              | 40.15            | 28.20         | -90.18                | -21.33                              | -688.09      | 1,937.75               | 1,869.40                | 68.35                     | 28.350            |                              |
| 4,800.00                                                          | 3,187.39              | 3,204.14              | 3,203.83              | 40.66            | 28.20         | -90.19                | -21.33                              | -688.09      | 1,961.14               | 1,892.27                | 68.87                     | 28.477            |                              |
| 4,825.00                                                          | 3,187.35              | 3,204.26              | 3,203.95              | 41.18            | 28.21         | -90.20                | -21.33                              | -688.09      | 1,984.56               | 1,915.18                | 69.39                     | 28.601            |                              |
| 4,850.00                                                          | 3,187.30              | 3,204.37              | 3,204.07              | 41.70            | 28.21         | -90.21                | -21.33                              | -688.09      | 2,008.03               | 1,938.12                | 69.91                     | 28.724            |                              |
| 4,875.00                                                          | 3,187.26              | 3,204.49              | 3,204.19              | 42.22            | 28.21         | -90.22                | -21.33                              | -688.09      | 2,031.53               | 1,961.11                | 70.43                     | 28.846            |                              |
| 4,900.00                                                          | 3,187.22              | 3,204.61              | 3,204.30              | 42.74            | 28.21         | -90.23                | -21.33                              | -688.09      | 2,055.07               | 1,984.13                | 70.95                     | 28.967            |                              |
| 4,925.00                                                          | 3,187.17              | 3,204.73              | 3,204.42              | 43.26            | 28.21         | -90.24                | -21.33                              | -688.09      | 2,078.64               | 2,007.18                | 71.47                     | 29.085            |                              |
| 4,950.00                                                          | 3,187.13              | 3,204.85              | 3,204.54              | 43.78            | 28.21         | -90.25                | -21.33                              | -688.09      | 2,102.25               | 2,030.28                | 71.99                     | 29.203            |                              |
| 4,975.00                                                          | 3,187.09              | 3,204.97              | 3,204.66              | 44.30            | 28.21         | -90.26                | -21.33                              | -688.09      | 2,125.89               | 2,053.38                | 72.51                     | 29.319            |                              |
| 5,000.00                                                          | 3,187.04              | 3,205.09              | 3,204.78              | 44.82            | 28.21         | -90.26                | -21.33                              | -688.10      | 2,149.55               | 2,076.52                | 73.03                     | 29.434            |                              |
| 5,025.00                                                          | 3,187.00              | 3,205.21              | 3,204.90              | 45.34            | 28.21         | -90.27                | -21.33                              | -688.10      | 2,173.25               | 2,099.70                | 73.55                     | 29.547            |                              |
| 5,050.00                                                          | 3,186.96              | 3,205.33              | 3,205.02              | 45.86            | 28.21         | -90.28                | -21.33                              | -688.10      | 2,196.98               | 2,122.90                | 74.08                     | 29.658            |                              |
| 5,075.00                                                          | 3,186.91              | 3,205.44              | 3,205.14              | 46.38            | 28.22         | -90.29                | -21.32                              | -688.10      | 2,220.73               | 2,146.13                | 74.60                     | 29.769            |                              |
| 5,100.00                                                          | 3,186.87              | 3,205.56              | 3,205.25              | 46.91            | 28.22         | -90.30                | -21.32                              | -688.10      | 2,244.52               | 2,169.39                | 75.12                     | 29.878            |                              |
| 5,125.00                                                          | 3,186.82              | 3,205.68              | 3,205.37              | 47.43            | 28.22         | -90.31                | -21.32                              | -688.10      | 2,268.32               | 2,192.68                | 75.65                     | 29.986            |                              |
| 5,150.00                                                          | 3,186.78              | 3,205.80              | 3,205.49              | 47.95            | 28.22         | -90.32                | -21.32                              | -688.10      | 2,292.16               | 2,215.99                | 76.17                     | 30.092            |                              |
| 5,175.00                                                          | 3,186.74              | 3,205.92              | 3,205.61              | 48.48            | 28.22         | -90.33                | -21.32                              | -688.10      | 2,316.02               | 2,239.32                | 76.70                     | 30.198            |                              |
| 5,200.00                                                          | 3,186.69              | 3,206.03              | 3,205.73              | 49.00            | 28.22         | -90.34                | -21.32                              | -688.11      | 2,339.90               | 2,262.68                | 77.22                     | 30.302            |                              |
| 5,225.00                                                          | 3,186.65              | 3,206.15              | 3,205.84              | 49.52            | 28.22         | -90.35                | -21.32                              | -688.11      | 2,363.80               | 2,286.06                | 77.75                     | 30.404            |                              |
| 5,250.00                                                          | 3,186.61              | 3,206.27              | 3,205.96              | 50.05            | 28.22         | -90.36                | -21.32                              | -688.11      | 2,387.73               | 2,309.46                | 78.27                     | 30.506            |                              |
| 5,275.00                                                          | 3,186.56              | 3,206.39              | 3,206.08              | 50.57            | 28.22         | -90.37                | -21.32                              | -688.11      | 2,411.68               | 2,332.88                | 78.80                     | 30.606            |                              |
| 5,300.00                                                          | 3,186.52              | 3,206.51              | 3,206.20              | 51.10            | 28.23         | -90.38                | -21.32                              | -688.11      | 2,435.65               | 2,356.33                | 79.32                     | 30.706            |                              |
| 5,325.00                                                          | 3,186.48              | 3,206.62              | 3,206.31              | 51.62            | 28.23         | -90.39                | -21.32                              | -688.11      | 2,459.64               | 2,379.79                | 79.85                     | 30.804            |                              |
| 5,350.00                                                          | 3,186.43              | 3,206.74              | 3,206.43              | 52.15            | 28.23         | -90.40                | -21.32                              | -688.11      | 2,483.65               | 2,403.27                | 80.38                     | 30.900            |                              |
| 5,375.00                                                          | 3,186.39              | 3,206.86              | 3,206.55              | 52.67            | 28.23         | -90.41                | -21.32                              | -688.11      | 2,507.68               | 2,426.78                | 80.90                     | 30.996            |                              |
| 5,400.00                                                          | 3,186.34              | 3,206.97              | 3,206.67              | 53.20            | 28.23         | -90.42                | -21.31                              | -688.12      | 2,531.73               | 2,450.30                | 81.43                     | 31.091            |                              |
| 5,425.00                                                          | 3,186.30              | 3,207.09              | 3,206.78              | 53.73            | 28.23         | -90.43                | -21.31                              | -688.12      | 2,555.80               | 2,473.84                | 81.96                     | 31.185            |                              |
| 5,450.00                                                          | 3,186.26              | 3,207.21              | 3,206.90              | 54.25            | 28.23         | -90.44                | -21.31                              | -688.12      | 2,579.88               | 2,497.40                | 82.48                     | 31.277            |                              |
| 5,475.00                                                          | 3,186.21              | 3,207.33              | 3,207.02              | 54.78            | 28.23         | -90.45                | -21.31                              | -688.12      | 2,603.98               | 2,520.97                | 83.01                     | 31.369            |                              |
| 5,500.00                                                          | 3,186.17              | 3,207.44              | 3,207.13              | 55.31            | 28.23         | -90.46                | -21.31                              | -688.12      | 2,628.10               | 2,544.58                | 83.54                     | 31.459            |                              |
| 5,525.00                                                          | 3,186.13              | 3,207.56              | 3,207.25              | 55.83            | 28.23         | -90.47                | -21.31                              | -688.12      | 2,652.24               | 2,568.17                | 84.07                     | 31.549            |                              |
| 5,550.00                                                          | 3,186.08              | 3,207.68              | 3,207.37              | 56.36            | 28.24         | -90.48                | -21.31                              | -688.12      | 2,676.39               | 2,591.79                | 84.60                     | 31.637            |                              |
| 5,575.00                                                          | 3,186.04              | 3,207.79              | 3,207.48              | 56.89            | 28.24         | -90.49                | -21.31                              | -688.12      | 2,700.55               | 2,615.43                | 85.13                     | 31.724            |                              |
| 5,600.00                                                          | 3,186.00              | 3,207.91              | 3,207.60              | 57.42            | 28.24         | -90.50                | -21.31                              | -688.12      | 2,724.73               | 2,639.08                | 85.65                     | 31.811            |                              |
| 5,625.00                                                          | 3,185.95              | 3,208.02              | 3,207.72              | 57.94            | 28.24         | -90.51                | -21.31                              | -688.13      | 2,748.93               | 2,662.75                | 86.18                     | 31.896            |                              |
| 5,650.00                                                          | 3,185.91              | 3,208.14              | 3,207.83              | 58.47            | 28.24         | -90.52                | -21.31                              | -688.13      | 2,773.14               | 2,686.43                | 86.71                     | 31.981            |                              |
| 5,675.00                                                          | 3,185.86              | 3,208.26              | 3,207.95              | 59.00            | 28.24         | -90.53                | -21.31                              | -688.13      | 2,797.36               | 2,710.12                | 87.24                     | 32.064            |                              |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



|                    |                             |                              |                                 |
|--------------------|-----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC           | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee             | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                   | North Reference:             | Grid                            |
| Reference Well:    | #7H                         | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1.03-10-15            | Offset TVD Reference:        | Offset Datum                    |

| Offset Design Stonewall 9 Fee - #3H - WB1/Job #1311608 - Surveys (Silver Oak 3) |                             |                             |                             |                     |                  |                            |                                           |                              |                                 |                      |         |                               | Offset Site Error: | 0.00 usft |
|---------------------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|----------------------------|-------------------------------------------|------------------------------|---------------------------------|----------------------|---------|-------------------------------|--------------------|-----------|
| Survey Program: 100-CB-GYRO-MS                                                  |                             |                             |                             |                     |                  |                            |                                           |                              |                                 |                      |         |                               | Offset Well Error: | 0.00 usft |
| Reference                                                                       |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Tooface<br>(°) | Distance                                  |                              | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |                               |                    |           |
| Measured<br>Depth<br>(usft)                                                     | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                            | Offset Wellbore Centre<br>+N/-S<br>(usft) | Between<br>Centres<br>(usft) |                                 |                      |         | Between<br>Ellipses<br>(usft) |                    |           |
| 5,700.00                                                                        | 3,185.82                    | 3,208.37                    | 3,208.06                    | 59.53               | 28.24            | -90.54                     | -21.31                                    | -688.13                      | 2,821.60                        | 2,733.83             | 87.77   | 32.147                        |                    |           |
| 5,725.00                                                                        | 3,185.78                    | 3,208.49                    | 3,208.18                    | 60.06               | 28.24            | -90.55                     | -21.30                                    | -688.13                      | 2,845.85                        | 2,757.55             | 88.30   | 32.229                        |                    |           |
| 5,750.00                                                                        | 3,185.73                    | 3,208.60                    | 3,208.30                    | 60.59               | 28.24            | -90.56                     | -21.30                                    | -688.13                      | 2,870.12                        | 2,781.29             | 88.83   | 32.310                        |                    |           |
| 5,775.00                                                                        | 3,185.69                    | 3,208.72                    | 3,208.41                    | 61.12               | 28.24            | -90.57                     | -21.30                                    | -688.13                      | 2,894.39                        | 2,805.03             | 89.36   | 32.390                        |                    |           |
| 5,800.00                                                                        | 3,185.65                    | 3,208.84                    | 3,208.53                    | 61.65               | 28.25            | -90.58                     | -21.30                                    | -688.13                      | 2,918.68                        | 2,828.79             | 89.89   | 32.469                        |                    |           |
| 5,825.00                                                                        | 3,185.60                    | 3,208.95                    | 3,208.64                    | 62.18               | 28.25            | -90.59                     | -21.30                                    | -688.14                      | 2,942.98                        | 2,852.56             | 90.42   | 32.547                        |                    |           |
| 5,850.00                                                                        | 3,185.56                    | 3,209.07                    | 3,208.76                    | 62.70               | 28.25            | -90.60                     | -21.30                                    | -688.14                      | 2,967.29                        | 2,876.34             | 90.95   | 32.625                        |                    |           |
| 5,875.00                                                                        | 3,185.52                    | 3,209.18                    | 3,208.87                    | 63.23               | 28.25            | -90.61                     | -21.30                                    | -688.14                      | 2,991.62                        | 2,900.13             | 91.48   | 32.701                        |                    |           |
| 5,900.00                                                                        | 3,185.47                    | 3,209.30                    | 3,208.99                    | 63.76               | 28.25            | -90.62                     | -21.30                                    | -688.14                      | 3,015.95                        | 2,923.94             | 92.01   | 32.777                        |                    |           |
| 5,925.00                                                                        | 3,185.43                    | 3,209.41                    | 3,209.10                    | 64.29               | 28.25            | -90.62                     | -21.30                                    | -688.14                      | 3,040.30                        | 2,947.75             | 92.55   | 32.852                        |                    |           |
| 5,950.00                                                                        | 3,185.38                    | 3,209.53                    | 3,209.22                    | 64.82               | 28.25            | -90.63                     | -21.30                                    | -688.14                      | 3,064.65                        | 2,971.58             | 93.08   | 32.926                        |                    |           |
| 5,975.00                                                                        | 3,185.34                    | 3,209.64                    | 3,209.33                    | 65.35               | 28.25            | -90.64                     | -21.30                                    | -688.14                      | 3,089.02                        | 2,995.41             | 93.61   | 33.000                        |                    |           |
| 6,000.00                                                                        | 3,185.30                    | 3,209.76                    | 3,209.45                    | 65.88               | 28.25            | -90.65                     | -21.30                                    | -688.14                      | 3,113.39                        | 3,019.28             | 94.14   | 33.072                        |                    |           |
| 6,025.00                                                                        | 3,185.25                    | 3,209.87                    | 3,209.56                    | 66.42               | 28.25            | -90.66                     | -21.30                                    | -688.14                      | 3,137.78                        | 3,043.11             | 94.67   | 33.144                        |                    |           |
| 6,050.00                                                                        | 3,185.21                    | 3,209.99                    | 3,209.68                    | 66.95               | 28.26            | -90.67                     | -21.30                                    | -688.15                      | 3,162.18                        | 3,066.97             | 95.20   | 33.215                        |                    |           |
| 6,075.00                                                                        | 3,185.17                    | 3,210.10                    | 3,209.79                    | 67.48               | 28.26            | -90.68                     | -21.29                                    | -688.15                      | 3,186.58                        | 3,090.85             | 95.73   | 33.286                        |                    |           |
| 6,100.00                                                                        | 3,185.12                    | 3,210.22                    | 3,209.91                    | 68.01               | 28.26            | -90.69                     | -21.29                                    | -688.15                      | 3,211.00                        | 3,114.73             | 96.27   | 33.356                        |                    |           |
| 6,125.00                                                                        | 3,185.08                    | 3,210.33                    | 3,210.02                    | 68.54               | 28.26            | -90.70                     | -21.29                                    | -688.15                      | 3,235.42                        | 3,138.62             | 96.80   | 33.424                        |                    |           |
| 6,150.00                                                                        | 3,185.04                    | 3,210.45                    | 3,210.14                    | 69.07               | 28.26            | -90.71                     | -21.29                                    | -688.15                      | 3,259.85                        | 3,162.52             | 97.33   | 33.493                        |                    |           |
| 6,175.00                                                                        | 3,184.99                    | 3,210.56                    | 3,210.25                    | 69.60               | 28.26            | -90.72                     | -21.29                                    | -688.15                      | 3,284.29                        | 3,186.43             | 97.86   | 33.560                        |                    |           |
| 6,200.00                                                                        | 3,184.95                    | 3,210.67                    | 3,210.37                    | 70.13               | 28.26            | -90.73                     | -21.29                                    | -688.15                      | 3,308.74                        | 3,210.34             | 98.39   | 33.627                        |                    |           |
| 6,225.00                                                                        | 3,184.90                    | 3,210.79                    | 3,210.48                    | 70.66               | 28.26            | -90.74                     | -21.29                                    | -688.15                      | 3,333.20                        | 3,234.27             | 98.93   | 33.693                        |                    |           |
| 6,250.00                                                                        | 3,184.86                    | 3,210.90                    | 3,210.59                    | 71.20               | 28.26            | -90.75                     | -21.29                                    | -688.16                      | 3,357.66                        | 3,258.20             | 99.46   | 33.759                        |                    |           |
| 6,275.00                                                                        | 3,184.82                    | 3,211.02                    | 3,210.71                    | 71.73               | 28.26            | -90.76                     | -21.29                                    | -688.16                      | 3,382.13                        | 3,282.14             | 99.99   | 33.824                        |                    |           |
| 6,300.00                                                                        | 3,184.77                    | 3,211.13                    | 3,210.82                    | 72.26               | 28.27            | -90.77                     | -21.29                                    | -688.16                      | 3,406.61                        | 3,306.09             | 100.52  | 33.888                        |                    |           |
| 6,325.00                                                                        | 3,184.73                    | 3,211.24                    | 3,210.93                    | 72.79               | 28.27            | -90.78                     | -21.29                                    | -688.16                      | 3,431.10                        | 3,330.04             | 101.06  | 33.952                        |                    |           |
| 6,350.00                                                                        | 3,184.69                    | 3,211.36                    | 3,211.05                    | 73.32               | 28.27            | -90.79                     | -21.29                                    | -688.16                      | 3,455.60                        | 3,354.00             | 101.59  | 34.015                        |                    |           |
| 6,375.00                                                                        | 3,184.64                    | 3,211.47                    | 3,211.16                    | 73.85               | 28.27            | -90.80                     | -21.29                                    | -688.16                      | 3,480.10                        | 3,377.97             | 102.12  | 34.077                        |                    |           |
| 6,400.00                                                                        | 3,184.60                    | 3,211.58                    | 3,211.28                    | 74.39               | 28.27            | -90.81                     | -21.29                                    | -688.16                      | 3,504.61                        | 3,401.95             | 102.66  | 34.139                        |                    |           |
| 6,425.00                                                                        | 3,184.56                    | 3,211.70                    | 3,211.39                    | 74.92               | 28.27            | -90.81                     | -21.28                                    | -688.16                      | 3,529.12                        | 3,425.93             | 103.19  | 34.200                        |                    |           |
| 6,450.00                                                                        | 3,184.51                    | 3,211.81                    | 3,211.50                    | 75.45               | 28.27            | -90.82                     | -21.28                                    | -688.16                      | 3,553.65                        | 3,449.92             | 103.72  | 34.261                        |                    |           |
| 6,475.00                                                                        | 3,184.47                    | 3,211.92                    | 3,211.61                    | 75.98               | 28.27            | -90.83                     | -21.28                                    | -688.17                      | 3,578.18                        | 3,473.92             | 104.26  | 34.321                        |                    |           |
| 6,500.00                                                                        | 3,184.42                    | 3,212.04                    | 3,211.73                    | 76.52               | 28.27            | -90.84                     | -21.28                                    | -688.17                      | 3,602.71                        | 3,497.92             | 104.79  | 34.380                        |                    |           |
| 6,525.00                                                                        | 3,184.38                    | 3,212.15                    | 3,211.84                    | 77.05               | 28.27            | -90.85                     | -21.28                                    | -688.17                      | 3,627.25                        | 3,521.93             | 105.32  | 34.439                        |                    |           |
| 6,550.00                                                                        | 3,184.34                    | 3,212.26                    | 3,211.95                    | 77.58               | 28.28            | -90.86                     | -21.28                                    | -688.17                      | 3,651.80                        | 3,545.95             | 105.86  | 34.497                        |                    |           |
| 6,575.00                                                                        | 3,184.29                    | 3,212.38                    | 3,212.07                    | 78.11               | 28.28            | -90.87                     | -21.28                                    | -688.17                      | 3,676.36                        | 3,569.97             | 106.39  | 34.555                        |                    |           |
| 6,600.00                                                                        | 3,184.25                    | 3,212.49                    | 3,212.18                    | 78.65               | 28.28            | -90.88                     | -21.28                                    | -688.17                      | 3,700.92                        | 3,593.99             | 106.92  | 34.612                        |                    |           |
| 6,625.00                                                                        | 3,184.21                    | 3,212.60                    | 3,212.29                    | 79.18               | 28.28            | -90.89                     | -21.28                                    | -688.17                      | 3,725.48                        | 3,618.03             | 107.46  | 34.669                        |                    |           |
| 6,650.00                                                                        | 3,184.16                    | 3,212.71                    | 3,212.40                    | 79.71               | 28.28            | -90.90                     | -21.28                                    | -688.17                      | 3,750.06                        | 3,642.06             | 107.99  | 34.725                        |                    |           |
| 6,675.00                                                                        | 3,184.12                    | 3,212.83                    | 3,212.52                    | 80.25               | 28.28            | -90.91                     | -21.28                                    | -688.18                      | 3,774.63                        | 3,666.11             | 108.53  | 34.781                        |                    |           |
| 6,700.00                                                                        | 3,184.08                    | 3,212.94                    | 3,212.63                    | 80.78               | 28.28            | -90.92                     | -21.28                                    | -688.18                      | 3,799.22                        | 3,690.16             | 109.06  | 34.836                        |                    |           |
| 6,725.00                                                                        | 3,184.03                    | 3,213.05                    | 3,212.74                    | 81.31               | 28.28            | -90.93                     | -21.28                                    | -688.18                      | 3,823.81                        | 3,714.21             | 109.59  | 34.890                        |                    |           |
| 6,750.00                                                                        | 3,183.99                    | 3,213.16                    | 3,212.85                    | 81.85               | 28.28            | -90.94                     | -21.28                                    | -688.18                      | 3,848.40                        | 3,738.27             | 110.13  | 34.944                        |                    |           |
| 6,775.00                                                                        | 3,183.94                    | 3,213.28                    | 3,212.97                    | 82.38               | 28.28            | -90.95                     | -21.27                                    | -688.18                      | 3,873.00                        | 3,762.34             | 110.66  | 34.998                        |                    |           |
| 6,800.00                                                                        | 3,183.90                    | 3,213.39                    | 3,213.08                    | 82.91               | 28.29            | -90.96                     | -21.27                                    | -688.18                      | 3,897.60                        | 3,786.41             | 111.20  | 35.051                        |                    |           |
| 6,825.00                                                                        | 3,183.86                    | 3,213.50                    | 3,213.19                    | 83.45               | 28.29            | -90.96                     | -21.27                                    | -688.18                      | 3,922.21                        | 3,810.48             | 111.73  | 35.104                        |                    |           |
| 6,850.00                                                                        | 3,183.81                    | 3,213.61                    | 3,213.30                    | 83.98               | 28.29            | -90.97                     | -21.27                                    | -688.18                      | 3,946.83                        | 3,834.56             | 112.27  | 35.156                        |                    |           |
| 6,875.00                                                                        | 3,183.77                    | 3,213.72                    | 3,213.41                    | 84.51               | 28.29            | -90.98                     | -21.27                                    | -688.18                      | 3,971.45                        | 3,858.64             | 112.80  | 35.207                        |                    |           |
| 6,900.00                                                                        | 3,183.73                    | 3,213.83                    | 3,213.53                    | 85.05               | 28.29            | -90.99                     | -21.27                                    | -688.19                      | 3,996.07                        | 3,882.73             | 113.34  | 35.259                        |                    |           |
| 6,925.00                                                                        | 3,183.68                    | 3,213.95                    | 3,213.64                    | 85.58               | 28.29            | -91.00                     | -21.27                                    | -688.19                      | 4,020.70                        | 3,906.83             | 113.87  | 35.309                        |                    |           |
| 6,950.00                                                                        | 3,183.64                    | 3,214.06                    | 3,213.75                    | 86.11               | 28.29            | -91.01                     | -21.27                                    | -688.19                      | 4,045.33                        | 3,930.93             | 114.41  | 35.360                        |                    |           |
| 6,975.00                                                                        | 3,183.60                    | 3,214.17                    | 3,213.86                    | 86.65               | 28.29            | -91.02                     | -21.27                                    | -688.19                      | 4,069.97                        | 3,955.03             | 114.94  | 35.410                        |                    |           |

CC - Min centre to center distance or covergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



|                    |                             |                              |                                 |
|--------------------|-----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC           | Local Co-ordinate Reference: | Well: #7H                       |
| Project:           | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee             | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                   | North Reference:             | Grid                            |
| Reference Well:    | #7H                         | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1.03-10-15            | Offset TVD Reference:        | Offset Datum                    |

| Offset Design Stonewall 9 Fee - #3H - WB1/Job #1311608 - Surveys (Silver Oak 3) |                             |                             |                             |                     |                  |                             |                        |                |                              |                               |                                 |                      |         | Offset Site Error: | 0.00 usft |
|---------------------------------------------------------------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|------------------|-----------------------------|------------------------|----------------|------------------------------|-------------------------------|---------------------------------|----------------------|---------|--------------------|-----------|
| Survey Program: 100-CB-GYRO-MS                                                  |                             |                             |                             |                     |                  |                             |                        |                |                              |                               |                                 |                      |         | Offset Well Error: | 0.00 usft |
| Reference                                                                       |                             | Offset                      |                             | Semi Major Axis     |                  | Highside<br>Toolface<br>(°) | Offset Wellbore Centre |                | Distance                     |                               | Minimum<br>Separation<br>(usft) | Separation<br>Factor | Warning |                    |           |
| Measured<br>Depth<br>(usft)                                                     | Vertical<br>Depth<br>(usft) | Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Reference<br>(usft) | Offset<br>(usft) |                             | +N-S<br>(usft)         | +E-W<br>(usft) | Between<br>Centres<br>(usft) | Between<br>Ellipses<br>(usft) |                                 |                      |         |                    |           |
| 7,000.00                                                                        | 3,183.55                    | 3,214.28                    | 3,213.97                    | 87.18               | 28.29            | -91.03                      | -21.27                 | -688.19        | 4,094.61                     | 3,979.13                      | 115.47                          | 35.459               |         |                    |           |
| 7,025.00                                                                        | 3,183.51                    | 3,214.39                    | 3,214.08                    | 87.71               | 28.29            | -91.04                      | -21.27                 | -688.19        | 4,119.26                     | 4,003.25                      | 116.01                          | 35.508               |         |                    |           |
| 7,050.00                                                                        | 3,183.46                    | 3,214.50                    | 3,214.19                    | 88.25               | 28.30            | -91.05                      | -21.27                 | -688.19        | 4,143.91                     | 4,027.36                      | 116.54                          | 35.556               |         |                    |           |
| 7,075.00                                                                        | 3,183.42                    | 3,214.61                    | 3,214.30                    | 88.78               | 28.30            | -91.06                      | -21.27                 | -688.19        | 4,168.56                     | 4,051.48                      | 117.08                          | 35.605               |         |                    |           |
| 7,100.00                                                                        | 3,183.38                    | 3,214.72                    | 3,214.42                    | 89.32               | 28.30            | -91.07                      | -21.27                 | -688.19        | 4,193.22                     | 4,075.60                      | 117.61                          | 35.652               |         |                    |           |
| 7,125.00                                                                        | 3,183.33                    | 3,214.84                    | 3,214.53                    | 89.85               | 28.30            | -91.08                      | -21.26                 | -688.20        | 4,217.88                     | 4,099.73                      | 118.15                          | 35.700               |         |                    |           |
| 7,150.00                                                                        | 3,183.29                    | 3,214.95                    | 3,214.64                    | 90.39               | 28.30            | -91.09                      | -21.26                 | -688.20        | 4,242.55                     | 4,123.86                      | 118.68                          | 35.746               |         |                    |           |
| 7,175.00                                                                        | 3,183.25                    | 3,215.06                    | 3,214.75                    | 90.92               | 28.30            | -91.09                      | -21.26                 | -688.20        | 4,267.22                     | 4,148.00                      | 119.22                          | 35.793               |         |                    |           |
| 7,200.00                                                                        | 3,183.20                    | 3,215.17                    | 3,214.86                    | 91.45               | 28.30            | -91.10                      | -21.26                 | -688.20        | 4,291.89                     | 4,172.14                      | 119.76                          | 35.839               |         |                    |           |
| 7,225.00                                                                        | 3,183.16                    | 3,215.28                    | 3,214.97                    | 91.99               | 28.30            | -91.11                      | -21.26                 | -688.20        | 4,316.57                     | 4,196.28                      | 120.29                          | 35.885               |         |                    |           |
| 7,250.00                                                                        | 3,183.12                    | 3,215.39                    | 3,215.08                    | 92.52               | 28.30            | -91.12                      | -21.26                 | -688.20        | 4,341.25                     | 4,220.43                      | 120.83                          | 35.930               |         |                    |           |
| 7,275.00                                                                        | 3,183.07                    | 3,215.50                    | 3,215.19                    | 93.06               | 28.30            | -91.13                      | -21.26                 | -688.20        | 4,365.94                     | 4,244.58                      | 121.36                          | 35.975               |         |                    |           |
| 7,300.00                                                                        | 3,183.03                    | 3,215.61                    | 3,215.30                    | 93.59               | 28.31            | -91.14                      | -21.26                 | -688.20        | 4,390.63                     | 4,268.73                      | 121.90                          | 36.019               |         |                    |           |
| 7,325.00                                                                        | 3,182.98                    | 3,215.72                    | 3,215.41                    | 94.13               | 28.31            | -91.15                      | -21.26                 | -688.20        | 4,415.32                     | 4,292.89                      | 122.43                          | 36.063               |         |                    |           |
| 7,350.00                                                                        | 3,182.94                    | 3,215.83                    | 3,215.52                    | 94.66               | 28.31            | -91.16                      | -21.26                 | -688.21        | 4,440.01                     | 4,317.05                      | 122.97                          | 36.107               |         |                    |           |
| 7,375.00                                                                        | 3,182.90                    | 3,215.94                    | 3,215.63                    | 95.19               | 28.31            | -91.17                      | -21.26                 | -688.21        | 4,464.71                     | 4,341.21                      | 123.50                          | 36.151               |         |                    |           |
| 7,400.00                                                                        | 3,182.85                    | 3,216.05                    | 3,215.74                    | 95.73               | 28.31            | -91.18                      | -21.26                 | -688.21        | 4,489.42                     | 4,365.38                      | 124.04                          | 36.194               |         |                    |           |
| 7,425.00                                                                        | 3,182.81                    | 3,216.16                    | 3,215.85                    | 96.26               | 28.31            | -91.19                      | -21.26                 | -688.21        | 4,514.12                     | 4,389.55                      | 124.57                          | 36.236               |         |                    |           |
| 7,450.00                                                                        | 3,182.77                    | 3,216.27                    | 3,215.96                    | 96.80               | 28.31            | -91.20                      | -21.26                 | -688.21        | 4,538.83                     | 4,413.72                      | 125.11                          | 36.279               |         |                    |           |
| 7,475.00                                                                        | 3,182.72                    | 3,216.38                    | 3,216.07                    | 97.33               | 28.31            | -91.20                      | -21.26                 | -688.21        | 4,563.54                     | 4,437.90                      | 125.65                          | 36.321               |         |                    |           |
| 7,500.00                                                                        | 3,182.68                    | 3,216.49                    | 3,216.18                    | 97.87               | 28.31            | -91.21                      | -21.25                 | -688.21        | 4,588.26                     | 4,462.08                      | 126.18                          | 36.362               |         |                    |           |
| 7,525.00                                                                        | 3,182.64                    | 3,216.60                    | 3,216.29                    | 98.40               | 28.31            | -91.22                      | -21.25                 | -688.21        | 4,612.98                     | 4,486.26                      | 126.72                          | 36.404               |         |                    |           |
| 7,550.00                                                                        | 3,182.59                    | 3,216.71                    | 3,216.40                    | 98.94               | 28.31            | -91.23                      | -21.25                 | -688.22        | 4,637.70                     | 4,510.44                      | 127.25                          | 36.445               |         |                    |           |
| 7,575.00                                                                        | 3,182.55                    | 3,216.82                    | 3,216.51                    | 99.47               | 28.32            | -91.24                      | -21.25                 | -688.22        | 4,662.42                     | 4,534.63                      | 127.79                          | 36.485               |         |                    |           |
| 7,600.00                                                                        | 3,182.50                    | 3,216.93                    | 3,216.62                    | 100.01              | 28.32            | -91.25                      | -21.25                 | -688.22        | 4,687.15                     | 4,558.82                      | 128.32                          | 36.526               |         |                    |           |
| 7,625.00                                                                        | 3,182.46                    | 3,217.03                    | 3,216.73                    | 100.54              | 28.32            | -91.26                      | -21.25                 | -688.22        | 4,711.88                     | 4,583.02                      | 128.86                          | 36.566               |         |                    |           |
| 7,650.00                                                                        | 3,182.42                    | 3,217.14                    | 3,216.83                    | 101.08              | 28.32            | -91.27                      | -21.25                 | -688.22        | 4,736.61                     | 4,607.22                      | 129.40                          | 36.605               |         |                    |           |
| 7,675.00                                                                        | 3,182.37                    | 3,217.25                    | 3,216.94                    | 101.61              | 28.32            | -91.28                      | -21.25                 | -688.22        | 4,761.35                     | 4,631.41                      | 129.93                          | 36.645               |         |                    |           |
| 7,700.00                                                                        | 3,182.33                    | 3,217.36                    | 3,217.05                    | 102.15              | 28.32            | -91.29                      | -21.25                 | -688.22        | 4,786.09                     | 4,655.62                      | 130.47                          | 36.684               |         |                    |           |
| 7,725.00                                                                        | 3,182.29                    | 3,217.47                    | 3,217.16                    | 102.68              | 28.32            | -91.29                      | -21.25                 | -688.22        | 4,810.83                     | 4,679.82                      | 131.00                          | 36.723               |         |                    |           |
| 7,750.00                                                                        | 3,182.24                    | 3,217.58                    | 3,217.27                    | 103.22              | 28.32            | -91.30                      | -21.25                 | -688.22        | 4,835.57                     | 4,704.03                      | 131.54                          | 36.761               |         |                    |           |
| 7,775.00                                                                        | 3,182.20                    | 3,217.69                    | 3,217.38                    | 103.75              | 28.32            | -91.31                      | -21.25                 | -688.23        | 4,860.32                     | 4,728.24                      | 132.08                          | 36.799               |         |                    |           |
| 7,800.00                                                                        | 3,182.16                    | 3,217.80                    | 3,217.49                    | 104.29              | 28.32            | -91.32                      | -21.25                 | -688.23        | 4,885.07                     | 4,752.45                      | 132.61                          | 36.837               |         |                    |           |
| 7,825.00                                                                        | 3,182.11                    | 3,217.90                    | 3,217.60                    | 104.82              | 28.33            | -91.33                      | -21.25                 | -688.23        | 4,909.82                     | 4,776.67                      | 133.15                          | 36.875               |         |                    |           |
| 7,848.87                                                                        | 3,182.07                    | 3,218.01                    | 3,217.70                    | 105.33              | 28.33            | -91.34                      | -21.25                 | -688.23        | 4,933.45                     | 4,799.79                      | 133.66                          | 36.910               |         |                    |           |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



|                    |                             |                              |                                 |
|--------------------|-----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC           | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee             | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                   | North Reference:             | Grid                            |
| Reference Well:    | #7H                         | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1 03-10-15            | Offset TVD Reference:        | Offset Datum                    |

| Offset Design Stonewall 9 Fee - #3H - WB2/Job #1311608 - Surveys (Silver Oak 3) |                       |                       |                       |                  |               |                       |                                     |              |                        |                         | Offset Site Error: 0.00 usft |           |                   |
|---------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|------------------------------|-----------|-------------------|
| Survey Program: 100-CB-GYRO-MS-2500-MWD                                         |                       |                       |                       |                  |               |                       |                                     |              |                        |                         | Offset Well Error: 0.00 usft |           |                   |
| Reference                                                                       |                       | Offset                |                       | Semi Major Axis  |               |                       | Distance                            |              |                        |                         |                              | Warning   |                   |
| Measured Depth (usft)                                                           | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft)    |           | Separation Factor |
| 0.00                                                                            | 0.00                  | 11.12                 | 11.12                 | 0.00             | 0.06          | -90.05                | -0.60                               | -660.00      | 660.00                 |                         |                              |           |                   |
| 25.00                                                                           | 25.00                 | 36.40                 | 36.40                 | 0.01             | 0.19          | -90.06                | -0.65                               | -659.99      | 659.99                 | 659.79                  | 0.20                         | 3,276.486 |                   |
| 50.00                                                                           | 50.00                 | 61.68                 | 61.68                 | 0.06             | 0.32          | -90.06                | -0.73                               | -659.97      | 659.97                 | 659.59                  | 0.38                         | 1,748.678 |                   |
| 75.00                                                                           | 75.00                 | 86.96                 | 86.96                 | 0.10             | 0.45          | -90.07                | -0.86                               | -659.94      | 659.94                 | 659.38                  | 0.56                         | 1,188.254 |                   |
| 100.00                                                                          | 100.00                | 111.74                | 111.73                | 0.15             | 0.62          | -90.09                | -1.03                               | -659.90      | 659.90                 | 659.14                  | 0.76                         | 865.036   |                   |
| 124.10                                                                          | 124.10                | 135.11                | 135.10                | 0.23             | 0.80          | -90.10                | -1.16                               | -659.89      | 659.89                 | 658.85                  | 1.04                         | 635.756   |                   |
| 125.00                                                                          | 125.00                | 135.97                | 135.97                | 0.24             | 0.81          | -90.10                | -1.17                               | -659.89      | 659.89                 | 658.84                  | 1.05                         | 629.552   |                   |
| 150.00                                                                          | 150.00                | 160.21                | 160.21                | 0.33             | 1.01          | -90.11                | -1.28                               | -659.90      | 659.90                 | 658.57                  | 1.33                         | 494.836   |                   |
| 175.00                                                                          | 175.00                | 184.45                | 184.45                | 0.42             | 1.20          | -90.12                | -1.37                               | -659.94      | 659.95                 | 658.33                  | 1.62                         | 407.625   |                   |
| 200.00                                                                          | 200.00                | 209.02                | 209.02                | 0.51             | 1.41          | -90.12                | -1.43                               | -660.01      | 660.02                 | 658.10                  | 1.91                         | 344.911   |                   |
| 225.00                                                                          | 225.00                | 234.17                | 234.17                | 0.60             | 1.63          | -90.13                | -1.54                               | -660.09      | 660.09                 | 657.87                  | 2.22                         | 296.734   |                   |
| 250.00                                                                          | 250.00                | 259.33                | 259.32                | 0.68             | 1.85          | -90.15                | -1.70                               | -660.15      | 660.16                 | 657.62                  | 2.54                         | 260.371   |                   |
| 275.00                                                                          | 275.00                | 284.48                | 284.48                | 0.77             | 2.07          | -90.17                | -1.92                               | -660.21      | 660.22                 | 657.37                  | 2.85                         | 231.950   |                   |
| 300.00                                                                          | 300.00                | 309.16                | 309.15                | 0.86             | 2.29          | -90.19                | -2.18                               | -660.27      | 660.28                 | 657.12                  | 3.15                         | 209.325   |                   |
| 325.00                                                                          | 325.00                | 333.08                | 333.07                | 0.95             | 2.50          | -90.21                | -2.42                               | -660.35      | 660.37                 | 656.91                  | 3.46                         | 191.001   |                   |
| 350.00                                                                          | 350.00                | 357.00                | 356.99                | 1.04             | 2.72          | -90.23                | -2.63                               | -660.48      | 660.50                 | 656.74                  | 3.76                         | 175.642   |                   |
| 375.00                                                                          | 375.00                | 380.92                | 380.91                | 1.13             | 2.93          | -90.24                | -2.82                               | -660.64      | 660.67                 | 656.61                  | 4.06                         | 162.583   |                   |
| 400.00                                                                          | 400.00                | 404.97                | 404.96                | 1.22             | 3.15          | -90.26                | -2.97                               | -660.85      | 660.88                 | 656.51                  | 4.37                         | 151.242   |                   |
| 425.00                                                                          | 425.00                | 429.52                | 429.50                | 1.31             | 3.38          | -90.27                | -3.13                               | -661.08      | 661.12                 | 656.43                  | 4.69                         | 141.024   |                   |
| 450.00                                                                          | 450.00                | 454.06                | 454.05                | 1.40             | 3.60          | -90.29                | -3.31                               | -661.33      | 661.37                 | 656.37                  | 5.01                         | 132.110   |                   |
| 475.00                                                                          | 475.00                | 478.60                | 478.59                | 1.49             | 3.83          | -90.30                | -3.50                               | -661.59      | 661.64                 | 656.32                  | 5.32                         | 124.264   |                   |
| 500.00                                                                          | 500.00                | 503.23                | 503.21                | 1.58             | 4.06          | -90.32                | -3.71                               | -661.88      | 661.93                 | 656.29                  | 5.64                         | 117.288   |                   |
| 525.00                                                                          | 525.00                | 528.39                | 528.37                | 1.67             | 4.30          | -90.34                | -3.96                               | -662.17      | 662.22                 | 656.25                  | 5.97                         | 110.943   |                   |
| 550.00                                                                          | 550.00                | 553.55                | 553.53                | 1.76             | 4.53          | -90.37                | -4.26                               | -662.45      | 662.51                 | 656.21                  | 6.29                         | 105.253   |                   |
| 575.00                                                                          | 575.00                | 578.72                | 578.69                | 1.85             | 4.77          | -90.40                | -4.61                               | -662.73      | 662.79                 | 656.17                  | 6.62                         | 100.122   |                   |
| 600.00                                                                          | 600.00                | 603.84                | 603.80                | 1.94             | 5.01          | -90.43                | -5.01                               | -663.00      | 663.06                 | 656.12                  | 6.94                         | 95.475    |                   |
| 625.00                                                                          | 625.00                | 628.75                | 628.71                | 2.03             | 5.24          | -90.47                | -5.45                               | -663.27      | 663.33                 | 656.07                  | 7.27                         | 91.266    |                   |
| 650.00                                                                          | 650.00                | 653.66                | 653.61                | 2.12             | 5.47          | -90.51                | -5.92                               | -663.54      | 663.61                 | 656.02                  | 7.59                         | 87.416    |                   |
| 675.00                                                                          | 675.00                | 678.56                | 678.51                | 2.21             | 5.71          | -90.56                | -6.43                               | -663.82      | 663.89                 | 655.98                  | 7.91                         | 83.881    |                   |
| 700.00                                                                          | 700.00                | 703.44                | 703.38                | 2.30             | 5.94          | -90.60                | -6.98                               | -664.09      | 664.17                 | 655.94                  | 8.24                         | 80.643    |                   |
| 725.00                                                                          | 725.00                | 728.10                | 728.03                | 2.39             | 6.16          | -90.65                | -7.53                               | -664.38      | 664.47                 | 655.92                  | 8.55                         | 77.753    |                   |
| 750.00                                                                          | 750.00                | 752.76                | 752.68                | 2.48             | 6.38          | -90.70                | -8.08                               | -664.67      | 664.77                 | 655.92                  | 8.86                         | 75.067    |                   |
| 775.00                                                                          | 775.00                | 777.42                | 777.34                | 2.57             | 6.60          | -90.74                | -8.62                               | -664.98      | 665.09                 | 655.93                  | 9.17                         | 72.564    |                   |
| 800.00                                                                          | 800.00                | 802.17                | 802.07                | 2.66             | 6.82          | -90.79                | -9.16                               | -665.30      | 665.43                 | 655.95                  | 9.48                         | 70.222    |                   |
| 825.00                                                                          | 825.00                | 827.85                | 827.75                | 2.75             | 7.05          | -90.84                | -9.72                               | -665.63      | 665.75                 | 655.96                  | 9.79                         | 67.997    |                   |
| 850.00                                                                          | 850.00                | 853.54                | 853.43                | 2.84             | 7.27          | -90.88                | -10.28                              | -665.92      | 666.04                 | 655.94                  | 10.11                        | 65.907    |                   |
| 875.00                                                                          | 875.00                | 879.23                | 879.12                | 2.93             | 7.50          | -90.93                | -10.85                              | -666.19      | 666.32                 | 655.89                  | 10.42                        | 63.941    |                   |
| 900.00                                                                          | 900.00                | 904.79                | 904.67                | 3.01             | 7.72          | -90.98                | -11.41                              | -666.43      | 666.56                 | 655.83                  | 10.74                        | 62.088    |                   |
| 925.00                                                                          | 925.00                | 929.81                | 929.68                | 3.10             | 7.95          | -91.03                | -11.94                              | -666.66      | 666.80                 | 655.75                  | 11.05                        | 60.337    |                   |
| 950.00                                                                          | 950.00                | 954.82                | 954.69                | 3.19             | 8.17          | -91.07                | -12.46                              | -666.89      | 667.04                 | 655.67                  | 11.37                        | 58.684    |                   |
| 975.00                                                                          | 975.00                | 979.84                | 979.70                | 3.28             | 8.40          | -91.11                | -12.95                              | -667.12      | 667.27                 | 655.59                  | 11.68                        | 57.120    |                   |
| 1,000.00                                                                        | 1,000.00              | 1,004.80              | 1,004.65              | 3.37             | 8.62          | -91.15                | -13.43                              | -667.34      | 667.51                 | 655.51                  | 12.00                        | 55.637    |                   |
| 1,025.00                                                                        | 1,025.00              | 1,029.54              | 1,029.39              | 3.46             | 8.85          | -91.19                | -13.89                              | -667.57      | 667.75                 | 655.44                  | 12.31                        | 54.224    |                   |
| 1,050.00                                                                        | 1,050.00              | 1,054.28              | 1,054.13              | 3.55             | 9.08          | -91.23                | -14.32                              | -667.81      | 668.00                 | 655.37                  | 12.63                        | 52.683    |                   |
| 1,075.00                                                                        | 1,075.00              | 1,079.02              | 1,078.86              | 3.64             | 9.31          | -91.26                | -14.74                              | -668.07      | 668.27                 | 655.32                  | 12.95                        | 51.609    |                   |
| 1,100.00                                                                        | 1,100.00              | 1,103.87              | 1,103.71              | 3.73             | 9.53          | -91.30                | -15.13                              | -668.33      | 668.54                 | 655.27                  | 13.27                        | 50.394    |                   |
| 1,125.00                                                                        | 1,125.00              | 1,129.30              | 1,129.13              | 3.82             | 9.76          | -91.33                | -15.52                              | -668.59      | 668.80                 | 655.22                  | 13.59                        | 49.227    |                   |
| 1,150.00                                                                        | 1,150.00              | 1,154.72              | 1,154.55              | 3.91             | 9.99          | -91.36                | -15.90                              | -668.83      | 669.05                 | 655.15                  | 13.91                        | 48.114    |                   |
| 1,175.00                                                                        | 1,175.00              | 1,180.15              | 1,179.97              | 4.00             | 10.22         | -91.39                | -16.25                              | -669.06      | 669.28                 | 655.06                  | 14.23                        | 47.048    |                   |
| 1,200.00                                                                        | 1,200.00              | 1,205.37              | 1,205.18              | 4.09             | 10.45         | -91.42                | -16.59                              | -669.27      | 669.50                 | 654.96                  | 14.54                        | 46.036    |                   |
| 1,225.00                                                                        | 1,225.00              | 1,229.85              | 1,229.66              | 4.18             | 10.67         | -91.44                | -16.88                              | -669.49      | 669.73                 | 654.88                  | 14.85                        | 45.090    |                   |
| 1,250.00                                                                        | 1,250.00              | 1,254.33              | 1,254.14              | 4.27             | 10.89         | -91.46                | -17.12                              | -669.72      | 669.98                 | 654.81                  | 15.16                        | 44.184    |                   |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



|                    |                              |                              |                                 |
|--------------------|------------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC            | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County - NM (NAD27-NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee              | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                    | North Reference:             | Grid                            |
| Reference Well:    | #7H                          | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                    | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | VVB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1.03-10-15             | Offset TVD Reference:        | Offset Datum                    |

| Offset Design Stonewall 9 Fee - #3H - WB2/Job #1311608 - Surveys (Silver Oak 3) |                       |                       |                       |                  |               |                       |                                    |             |                        |                         |                           |                   | Offset Site Error: 0.00 usft |  |
|---------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|------------------------------------|-------------|------------------------|-------------------------|---------------------------|-------------------|------------------------------|--|
| Survey Program: 100-CB-GYRO-MS;2500-MWD                                         |                       |                       |                       |                  |               |                       |                                    |             |                        |                         |                           |                   | Offset Well Error: 0.00 usft |  |
| Reference                                                                       |                       | Offset                |                       | Semi Major Axis  |               |                       | Distance                           |             |                        |                         |                           |                   | Warning                      |  |
| Measured Depth (usft)                                                           | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N-S (usft) | +E-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor |                              |  |
| 1,275.00                                                                        | 1,275.00              | 1,278.81              | 1,278.62              | 4.36             | 11.11         | -91.48                | -17.31                             | -669.98     | 670.24                 | 654.77                  | 15.47                     | 43.316            |                              |  |
| 1,300.00                                                                        | 1,300.00              | 1,303.24              | 1,303.05              | 4.45             | 11.33         | -91.49                | -17.44                             | -670.25     | 670.53                 | 654.74                  | 15.78                     | 42.485            |                              |  |
| 1,325.00                                                                        | 1,325.00              | 1,327.32              | 1,327.13              | 4.54             | 11.55         | -91.50                | -17.59                             | -670.55     | 670.84                 | 654.75                  | 16.09                     | 41.705            |                              |  |
| 1,350.00                                                                        | 1,350.00              | 1,351.40              | 1,351.20              | 4.63             | 11.76         | -91.52                | -17.76                             | -670.88     | 671.19                 | 654.80                  | 16.39                     | 40.956            |                              |  |
| 1,375.00                                                                        | 1,375.00              | 1,375.47              | 1,375.27              | 4.72             | 11.97         | -91.53                | -17.97                             | -671.24     | 671.57                 | 654.88                  | 16.69                     | 40.235            |                              |  |
| 1,400.00                                                                        | 1,400.00              | 1,400.00              | 1,399.80              | 4.81             | 12.19         | -91.55                | -18.22                             | -671.65     | 671.99                 | 654.99                  | 17.00                     | 39.534            |                              |  |
| 1,425.00                                                                        | 1,425.00              | 1,425.62              | 1,425.41              | 4.90             | 12.42         | -91.58                | -18.48                             | -672.06     | 672.40                 | 655.09                  | 17.31                     | 38.838            |                              |  |
| 1,450.00                                                                        | 1,450.00              | 1,451.74              | 1,451.52              | 4.99             | 12.65         | -91.59                | -18.71                             | -672.45     | 672.77                 | 655.14                  | 17.63                     | 38.156            |                              |  |
| 1,475.00                                                                        | 1,475.00              | 1,477.85              | 1,477.64              | 5.08             | 12.88         | -91.61                | -18.89                             | -672.79     | 673.10                 | 655.15                  | 17.95                     | 37.496            |                              |  |
| 1,500.00                                                                        | 1,500.00              | 1,503.85              | 1,503.63              | 5.17             | 13.10         | -91.62                | -19.04                             | -673.09     | 673.39                 | 655.12                  | 18.27                     | 36.857            |                              |  |
| 1,525.00                                                                        | 1,525.00              | 1,529.20              | 1,528.98              | 5.26             | 13.33         | -91.63                | -19.16                             | -673.35     | 673.66                 | 655.07                  | 18.59                     | 36.240            |                              |  |
| 1,550.00                                                                        | 1,550.00              | 1,554.54              | 1,554.32              | 5.34             | 13.56         | -91.64                | -19.25                             | -673.61     | 673.92                 | 655.01                  | 18.91                     | 35.644            |                              |  |
| 1,575.00                                                                        | 1,575.00              | 1,579.89              | 1,579.67              | 5.43             | 13.79         | -91.64                | -19.32                             | -673.85     | 674.16                 | 654.93                  | 19.23                     | 35.066            |                              |  |
| 1,600.00                                                                        | 1,600.00              | 1,604.99              | 1,604.77              | 5.52             | 14.02         | -91.65                | -19.37                             | -674.08     | 674.39                 | 654.85                  | 19.54                     | 34.512            |                              |  |
| 1,625.00                                                                        | 1,625.00              | 1,629.17              | 1,628.95              | 5.61             | 14.23         | -91.65                | -19.43                             | -674.32     | 674.63                 | 654.79                  | 19.84                     | 34.000            |                              |  |
| 1,650.00                                                                        | 1,650.00              | 1,653.35              | 1,653.12              | 5.70             | 14.44         | -91.68                | -19.52                             | -674.58     | 674.91                 | 654.77                  | 20.14                     | 33.504            |                              |  |
| 1,675.00                                                                        | 1,675.00              | 1,677.52              | 1,677.29              | 5.79             | 14.65         | -91.67                | -19.66                             | -674.87     | 675.22                 | 654.77                  | 20.45                     | 33.024            |                              |  |
| 1,700.00                                                                        | 1,700.00              | 1,701.75              | 1,701.52              | 5.88             | 14.87         | -91.68                | -19.82                             | -675.20     | 675.55                 | 654.81                  | 20.75                     | 32.559            |                              |  |
| 1,725.00                                                                        | 1,725.00              | 1,726.67              | 1,726.44              | 5.97             | 15.09         | -91.70                | -20.00                             | -675.54     | 675.91                 | 654.85                  | 21.06                     | 32.095            |                              |  |
| 1,750.00                                                                        | 1,750.00              | 1,751.60              | 1,751.36              | 6.06             | 15.31         | -91.71                | -20.18                             | -675.89     | 676.26                 | 654.89                  | 21.37                     | 31.644            |                              |  |
| 1,775.00                                                                        | 1,775.00              | 1,776.52              | 1,776.28              | 6.15             | 15.53         | -91.72                | -20.34                             | -676.24     | 676.62                 | 654.94                  | 21.68                     | 31.206            |                              |  |
| 1,800.00                                                                        | 1,800.00              | 1,801.45              | 1,801.20              | 6.24             | 15.75         | -91.74                | -20.50                             | -676.60     | 676.98                 | 654.99                  | 21.99                     | 30.781            |                              |  |
| 1,825.00                                                                        | 1,825.00              | 1,826.41              | 1,826.16              | 6.33             | 15.98         | -91.75                | -20.64                             | -676.96     | 677.34                 | 655.03                  | 22.31                     | 30.361            |                              |  |
| 1,850.00                                                                        | 1,850.00              | 1,851.37              | 1,851.13              | 6.42             | 16.20         | -91.76                | -20.79                             | -677.31     | 677.71                 | 655.08                  | 22.63                     | 29.954            |                              |  |
| 1,875.00                                                                        | 1,875.00              | 1,876.34              | 1,876.09              | 6.51             | 16.43         | -91.77                | -20.92                             | -677.67     | 678.07                 | 655.13                  | 22.94                     | 29.557            |                              |  |
| 1,900.00                                                                        | 1,900.00              | 1,901.31              | 1,901.06              | 6.60             | 16.66         | -91.78                | -21.05                             | -678.04     | 678.44                 | 655.18                  | 23.26                     | 29.172            |                              |  |
| 1,925.00                                                                        | 1,925.00              | 1,926.42              | 1,926.16              | 6.69             | 16.88         | -91.79                | -21.17                             | -678.40     | 678.80                 | 655.23                  | 23.57                     | 28.797            |                              |  |
| 1,950.00                                                                        | 1,950.00              | 1,951.53              | 1,951.27              | 6.78             | 17.11         | -91.80                | -21.29                             | -678.76     | 679.16                 | 655.27                  | 23.89                     | 28.431            |                              |  |
| 1,975.00                                                                        | 1,975.00              | 1,976.64              | 1,976.37              | 6.87             | 17.34         | -91.80                | -21.40                             | -679.11     | 679.52                 | 655.31                  | 24.20                     | 28.075            |                              |  |
| 2,000.00                                                                        | 2,000.00              | 2,001.88              | 2,001.61              | 6.96             | 17.56         | -91.81                | -21.51                             | -679.46     | 679.87                 | 655.35                  | 24.52                     | 27.726            |                              |  |
| 2,025.00                                                                        | 2,025.00              | 2,028.89              | 2,028.62              | 7.05             | 17.81         | -91.82                | -21.62                             | -679.79     | 680.18                 | 655.32                  | 24.85                     | 27.368            |                              |  |
| 2,050.00                                                                        | 2,050.00              | 2,055.91              | 2,055.64              | 7.14             | 18.05         | -91.83                | -21.72                             | -680.04     | 680.41                 | 655.23                  | 25.19                     | 27.015            |                              |  |
| 2,075.00                                                                        | 2,075.00              | 2,082.93              | 2,082.66              | 7.23             | 18.29         | -91.84                | -21.83                             | -680.21     | 680.57                 | 655.05                  | 25.52                     | 26.670            |                              |  |
| 2,100.00                                                                        | 2,100.00              | 2,109.17              | 2,108.90              | 7.32             | 18.53         | -91.85                | -21.93                             | -680.31     | 680.66                 | 654.82                  | 25.84                     | 26.338            |                              |  |
| 2,125.00                                                                        | 2,125.00              | 2,134.08              | 2,133.81              | 7.41             | 18.75         | -91.85                | -22.02                             | -680.38     | 680.74                 | 654.59                  | 26.16                     | 26.027            |                              |  |
| 2,150.00                                                                        | 2,150.00              | 2,158.99              | 2,158.72              | 7.50             | 18.97         | -91.86                | -22.09                             | -680.46     | 680.82                 | 654.36                  | 26.47                     | 25.724            |                              |  |
| 2,175.00                                                                        | 2,175.00              | 2,183.90              | 2,183.63              | 7.59             | 19.19         | -91.86                | -22.14                             | -680.54     | 680.91                 | 654.13                  | 26.78                     | 25.428            |                              |  |
| 2,200.00                                                                        | 2,200.00              | 2,208.43              | 2,208.16              | 7.67             | 19.41         | -91.87                | -22.18                             | -680.63     | 681.00                 | 653.91                  | 27.09                     | 25.142            |                              |  |
| 2,225.00                                                                        | 2,225.00              | 2,232.28              | 2,232.01              | 7.76             | 19.62         | -91.87                | -22.22                             | -680.75     | 681.13                 | 653.74                  | 27.39                     | 24.868            |                              |  |
| 2,250.00                                                                        | 2,250.00              | 2,256.13              | 2,255.86              | 7.85             | 19.84         | -91.87                | -22.24                             | -680.91     | 681.29                 | 653.60                  | 27.69                     | 24.603            |                              |  |
| 2,275.00                                                                        | 2,275.00              | 2,279.98              | 2,279.71              | 7.94             | 20.05         | -91.87                | -22.26                             | -681.11     | 681.50                 | 653.51                  | 27.99                     | 24.344            |                              |  |
| 2,300.00                                                                        | 2,300.00              | 2,304.10              | 2,303.83              | 8.03             | 20.27         | -91.87                | -22.28                             | -681.35     | 681.75                 | 653.45                  | 28.30                     | 24.091            |                              |  |
| 2,325.00                                                                        | 2,325.00              | 2,329.62              | 2,329.35              | 8.12             | 20.49         | -91.87                | -22.31                             | -681.61     | 682.01                 | 653.39                  | 28.61                     | 23.835            |                              |  |
| 2,350.00                                                                        | 2,350.00              | 2,355.15              | 2,354.87              | 8.21             | 20.72         | -91.88                | -22.36                             | -681.85     | 682.24                 | 653.31                  | 28.93                     | 23.583            |                              |  |
| 2,375.00                                                                        | 2,375.00              | 2,380.87              | 2,380.39              | 8.30             | 20.94         | -91.88                | -22.44                             | -682.06     | 682.46                 | 653.21                  | 29.24                     | 23.336            |                              |  |
| 2,400.00                                                                        | 2,400.00              | 2,406.05              | 2,405.77              | 8.39             | 21.17         | -91.89                | -22.54                             | -682.26     | 682.65                 | 653.09                  | 29.56                     | 23.095            |                              |  |
| 2,425.00                                                                        | 2,425.00              | 2,430.98              | 2,430.70              | 8.48             | 21.39         | -91.90                | -22.63                             | -682.45     | 682.85                 | 652.98                  | 29.87                     | 22.861            |                              |  |
| 2,450.00                                                                        | 2,450.00              | 2,455.90              | 2,455.62              | 8.57             | 21.61         | -91.91                | -22.71                             | -682.64     | 683.04                 | 652.86                  | 30.18                     | 22.633            |                              |  |
| 2,475.00                                                                        | 2,475.00              | 2,480.83              | 2,480.55              | 8.66             | 21.83         | -91.91                | -22.77                             | -682.84     | 683.24                 | 652.75                  | 30.49                     | 22.409            |                              |  |
| 2,500.00                                                                        | 2,500.00              | 2,506.59              | 2,506.31              | 8.75             | 22.03         | -91.91                | -22.81                             | -683.04     | 683.44                 | 652.66                  | 30.78                     | 22.205            |                              |  |
| 2,525.00                                                                        | 2,525.00              | 2,535.10              | 2,534.81              | 8.84             | 22.16         | -91.88                | -22.42                             | -683.17     | 683.54                 | 652.55                  | 31.00                     | 22.053            |                              |  |
| 2,550.00                                                                        | 2,550.00              | 2,566.02              | 2,565.71              | 8.93             | 22.24         | -91.78                | -21.26                             | -683.16     | 683.51                 | 652.34                  | 31.17                     | 21.929            |                              |  |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



|                    |                             |                              |                                 |
|--------------------|-----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC           | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee             | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                   | North Reference:             | Grid                            |
| Reference Well:    | #7H                         | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1 03-10-15            | Offset TVD Reference:        | Offset Datum                    |

| Offset Design Stonewall 9 Fee - #3H - WB2/Job #1311608 - Surveys (Silver Oak 3) |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   | Offset Site Error: 0.00 usft |  |
|---------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|------------------------------|--|
| Survey Program: 100-CB-GYRO-MS 2500-MWD                                         |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   | Offset Well Error: 0.00 usft |  |
| Reference                                                                       |                       | Offset                |                       | Semi Major Axis  |               |                       | Distance                            |              |                        |                         |                           |                   | Warning                      |  |
| Measured Depth (usft)                                                           | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor |                              |  |
| 2,575.00                                                                        | 2,575.00              | 2,599.65              | 2,599.22              | 9.02             | 22.24         | -91.56                | -18.56                              | -682.78      | 683.16                 | 651.90                  | 31.26                     | 21.854            |                              |  |
| 2,600.00                                                                        | 2,600.00              | 2,629.65              | 2,628.96              | 9.11             | 22.24         | -91.23                | -14.84                              | -682.18      | 682.58                 | 651.23                  | 31.35                     | 21.772            |                              |  |
| 2,625.00                                                                        | 2,625.00              | 2,657.94              | 2,656.78              | 9.20             | 22.24         | -90.80                | -9.48                               | -681.48      | 681.88                 | 650.42                  | 31.44                     | 21.686            |                              |  |
| 2,650.00                                                                        | 2,650.00              | 2,685.84              | 2,683.86              | 9.29             | 22.25         | -90.24                | -2.89                               | -680.68      | 681.07                 | 649.53                  | 31.54                     | 21.597            |                              |  |
| 2,675.00                                                                        | 2,675.00              | 2,714.65              | 2,711.46              | 9.38             | 22.25         | -88.01                | 5.30                                | -679.69      | 680.18                 | 648.55                  | 31.63                     | 21.505            |                              |  |
| 2,700.00                                                                        | 2,699.98              | 2,745.61              | 2,740.66              | 9.47             | 22.26         | -87.35                | 15.50                               | -678.35      | 679.13                 | 647.41                  | 31.73                     | 21.407            |                              |  |
| 2,725.00                                                                        | 2,724.89              | 2,776.54              | 2,769.32              | 9.56             | 22.27         | -86.72                | 27.01                               | -676.67      | 677.84                 | 646.02                  | 31.82                     | 21.300            |                              |  |
| 2,750.00                                                                        | 2,749.67              | 2,803.28              | 2,793.68              | 9.65             | 22.27         | -86.23                | 37.90                               | -675.03      | 676.40                 | 644.47                  | 31.92                     | 21.189            |                              |  |
| 2,775.00                                                                        | 2,774.27              | 2,831.55              | 2,819.03              | 9.74             | 22.28         | -85.75                | 50.27                               | -673.12      | 674.82                 | 642.80                  | 32.02                     | 21.072            |                              |  |
| 2,800.00                                                                        | 2,798.62              | 2,858.68              | 2,842.92              | 9.83             | 22.30         | -85.34                | 62.97                               | -671.11      | 673.09                 | 640.96                  | 32.13                     | 20.949            |                              |  |
| 2,825.00                                                                        | 2,822.67              | 2,882.35              | 2,863.33              | 9.92             | 22.31         | -85.03                | 74.81                               | -669.26      | 671.27                 | 639.03                  | 32.24                     | 20.824            |                              |  |
| 2,850.00                                                                        | 2,846.37              | 2,903.39              | 2,881.15              | 10.01            | 22.33         | -84.80                | 85.87                               | -667.65      | 669.45                 | 637.11                  | 32.34                     | 20.699            |                              |  |
| 2,875.00                                                                        | 2,869.66              | 2,921.28              | 2,896.14              | 10.10            | 22.35         | -84.67                | 95.56                               | -666.41      | 667.78                 | 635.33                  | 32.45                     | 20.581            |                              |  |
| 2,900.00                                                                        | 2,892.48              | 2,942.91              | 2,914.03              | 10.19            | 22.37         | -84.52                | 107.64                              | -665.06      | 666.22                 | 633.66                  | 32.57                     | 20.458            |                              |  |
| 2,925.00                                                                        | 2,914.80              | 2,966.38              | 2,932.90              | 10.30            | 22.40         | -84.35                | 121.51                              | -663.57      | 664.61                 | 631.92                  | 32.70                     | 20.326            |                              |  |
| 2,950.00                                                                        | 2,936.54              | 2,987.35              | 2,949.16              | 10.40            | 22.43         | -84.22                | 134.68                              | -662.27      | 663.01                 | 630.18                  | 32.83                     | 20.193            |                              |  |
| 2,975.00                                                                        | 2,957.67              | 3,010.12              | 2,966.12              | 10.52            | 22.47         | -84.06                | 149.82                              | -660.87      | 661.43                 | 628.44                  | 32.99                     | 20.049            |                              |  |
| 3,000.00                                                                        | 2,978.13              | 3,034.42              | 2,983.43              | 10.64            | 22.51         | -83.88                | 166.80                              | -659.34      | 659.79                 | 626.64                  | 33.16                     | 19.900            |                              |  |
| 3,025.00                                                                        | 2,997.88              | 3,061.25              | 3,001.71              | 10.78            | 22.57         | -83.69                | 186.34                              | -657.54      | 658.02                 | 624.67                  | 33.35                     | 19.730            |                              |  |
| 3,050.00                                                                        | 3,016.87              | 3,092.57              | 3,021.77              | 10.92            | 22.65         | -83.44                | 210.27                              | -655.07      | 655.97                 | 622.40                  | 33.57                     | 19.542            |                              |  |
| 3,075.00                                                                        | 3,035.06              | 3,123.35              | 3,039.96              | 11.08            | 22.74         | -83.20                | 234.91                              | -652.13      | 653.52                 | 619.70                  | 33.82                     | 19.326            |                              |  |
| 3,100.00                                                                        | 3,052.41              | 3,145.91              | 3,052.32              | 11.24            | 22.81         | -83.10                | 253.64                              | -649.84      | 650.91                 | 616.87                  | 34.05                     | 19.117            |                              |  |
| 3,125.00                                                                        | 3,068.88              | 3,167.09              | 3,063.14              | 11.42            | 22.89         | -83.03                | 271.72                              | -647.69      | 648.30                 | 613.98                  | 34.31                     | 18.894            |                              |  |
| 3,150.00                                                                        | 3,084.42              | 3,189.16              | 3,073.62              | 11.61            | 22.97         | -82.96                | 291.02                              | -645.48      | 645.69                 | 611.10                  | 34.58                     | 18.671            |                              |  |
| 3,175.00                                                                        | 3,099.00              | 3,212.85              | 3,084.05              | 11.83            | 23.07         | -82.88                | 312.14                              | -643.07      | 643.01                 | 608.12                  | 34.90                     | 18.426            |                              |  |
| 3,200.00                                                                        | 3,112.60              | 3,239.55              | 3,094.82              | 12.04            | 23.19         | -82.79                | 336.41                              | -640.22      | 640.19                 | 604.96                  | 35.23                     | 18.170            |                              |  |
| 3,225.00                                                                        | 3,125.17              | 3,263.79              | 3,103.66              | 12.29            | 23.31         | -82.76                | 358.81                              | -637.50      | 637.20                 | 601.60                  | 35.60                     | 17.900            |                              |  |
| 3,250.00                                                                        | 3,136.69              | 3,285.96              | 3,110.96              | 12.53            | 23.43         | -82.78                | 379.59                              | -634.96      | 634.13                 | 598.17                  | 35.96                     | 17.635            |                              |  |
| 3,275.00                                                                        | 3,147.13              | 3,307.84              | 3,117.42              | 12.81            | 23.55         | -82.83                | 400.35                              | -632.49      | 631.05                 | 594.69                  | 36.35                     | 17.358            |                              |  |
| 3,300.00                                                                        | 3,156.48              | 3,334.67              | 3,124.16              | 13.08            | 23.70         | -82.84                | 426.13                              | -629.34      | 627.84                 | 591.05                  | 36.79                     | 17.067            |                              |  |
| 3,325.00                                                                        | 3,164.69              | 3,364.04              | 3,130.16              | 13.39            | 23.89         | -82.83                | 454.63                              | -625.58      | 624.36                 | 587.08                  | 37.28                     | 16.750            |                              |  |
| 3,350.00                                                                        | 3,171.77              | 3,385.10              | 3,133.67              | 13.69            | 24.03         | -82.97                | 475.20                              | -622.76      | 620.70                 | 582.98                  | 37.72                     | 16.456            |                              |  |
| 3,375.00                                                                        | 3,177.89              | 3,404.76              | 3,136.30              | 14.02            | 24.16         | -83.15                | 494.51                              | -620.21      | 617.09                 | 578.91                  | 38.18                     | 16.161            |                              |  |
| 3,400.00                                                                        | 3,182.43              | 3,423.61              | 3,138.36              | 14.35            | 24.29         | -83.37                | 513.10                              | -617.88      | 613.58                 | 574.93                  | 38.65                     | 15.877            |                              |  |
| 3,425.00                                                                        | 3,186.00              | 3,440.69              | 3,139.86              | 14.70            | 24.42         | -83.63                | 530.01                              | -615.91      | 610.19                 | 571.06                  | 39.12                     | 15.597            |                              |  |
| 3,450.00                                                                        | 3,188.37              | 3,457.11              | 3,141.05              | 15.05            | 24.54         | -83.92                | 546.30                              | -614.22      | 607.00                 | 567.41                  | 39.60                     | 15.329            |                              |  |
| 3,475.00                                                                        | 3,189.54              | 3,480.00              | 3,142.29              | 15.42            | 24.71         | -84.25                | 569.06                              | -612.19      | 604.09                 | 563.95                  | 40.14                     | 15.051            |                              |  |
| 3,500.00                                                                        | 3,189.66              | 3,493.80              | 3,142.85              | 15.79            | 24.83         | -84.46                | 582.81                              | -611.10      | 601.26                 | 560.64                  | 40.62                     | 14.802            |                              |  |
| 3,525.00                                                                        | 3,189.62              | 3,516.39              | 3,143.62              | 16.19            | 25.02         | -84.52                | 605.32                              | -609.36      | 598.58                 | 557.38                  | 41.20                     | 14.528            |                              |  |
| 3,550.00                                                                        | 3,189.57              | 3,539.01              | 3,144.18              | 16.58            | 25.20         | -84.55                | 627.86                              | -607.69      | 596.00                 | 554.21                  | 41.79                     | 14.263            |                              |  |
| 3,575.00                                                                        | 3,189.53              | 3,561.65              | 3,144.55              | 16.98            | 25.39         | -84.57                | 650.44                              | -606.08      | 593.51                 | 551.14                  | 42.37                     | 14.009            |                              |  |
| 3,600.00                                                                        | 3,189.49              | 3,584.39              | 3,144.72              | 17.37            | 25.59         | -84.57                | 673.14                              | -604.53      | 591.11                 | 548.15                  | 42.96                     | 13.759            |                              |  |
| 3,625.00                                                                        | 3,189.44              | 3,607.27              | 3,144.67              | 17.79            | 25.80         | -84.55                | 695.96                              | -603.03      | 588.79                 | 545.20                  | 43.60                     | 13.506            |                              |  |
| 3,650.00                                                                        | 3,189.40              | 3,630.15              | 3,144.41              | 18.22            | 26.01         | -84.51                | 718.80                              | -601.58      | 586.57                 | 542.34                  | 44.23                     | 13.261            |                              |  |
| 3,675.00                                                                        | 3,189.35              | 3,653.04              | 3,143.94              | 18.64            | 26.23         | -84.45                | 741.64                              | -600.20      | 584.43                 | 539.56                  | 44.87                     | 13.026            |                              |  |
| 3,700.00                                                                        | 3,189.31              | 3,668.00              | 3,143.52              | 19.06            | 26.37         | -84.40                | 756.57                              | -599.32      | 582.43                 | 537.00                  | 45.43                     | 12.821            |                              |  |
| 3,725.00                                                                        | 3,189.27              | 3,695.61              | 3,142.58              | 19.51            | 26.64         | -84.29                | 784.12                              | -597.87      | 580.50                 | 534.35                  | 46.15                     | 12.579            |                              |  |
| 3,750.00                                                                        | 3,189.22              | 3,716.13              | 3,141.79              | 19.95            | 26.84         | -84.20                | 804.61                              | -596.96      | 578.81                 | 532.01                  | 46.80                     | 12.369            |                              |  |
| 3,775.00                                                                        | 3,189.18              | 3,736.67              | 3,140.92              | 20.40            | 27.05         | -84.10                | 825.12                              | -596.20      | 577.31                 | 529.87                  | 47.44                     | 12.168            |                              |  |
| 3,800.00                                                                        | 3,189.14              | 3,762.00              | 3,139.74              | 20.84            | 27.30         | -83.98                | 850.41                              | -595.47      | 576.03                 | 527.69                  | 48.14                     | 11.965            |                              |  |
| 3,825.00                                                                        | 3,189.09              | 3,777.80              | 3,138.96              | 21.30            | 27.47         | -83.89                | 866.18                              | -595.13      | 574.89                 | 526.12                  | 48.77                     | 11.768            |                              |  |
| 3,850.00                                                                        | 3,189.05              | 3,798.39              | 3,137.88              | 21.76            | 27.68         | -83.78                | 886.75                              | -594.82      | 573.97                 | 524.52                  | 49.44                     | 11.608            |                              |  |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



|                    |                            |                              |                                 |
|--------------------|----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC          | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee            | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                  | North Reference:             | Grid                            |
| Reference Well:    | #7H                        | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                  | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                        | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1.03-10-15           | Offset TVD Reference:        | Offset Datum                    |

| Offset Design                            |                       |                       |                       |                  |               |                       |                                    |             |                        | Stonewall 9 Fee - #3H - WB2/Job #1311608 - Surveys (Silver Oak 3) |                           |                   |         |  |  |  |  |  |  | Offset Site Error: 0.00 usR |  |
|------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|------------------------------------|-------------|------------------------|-------------------------------------------------------------------|---------------------------|-------------------|---------|--|--|--|--|--|--|-----------------------------|--|
| Survey Program: 100-CB-GYRO-MS, 2500-MWD |                       |                       |                       |                  |               |                       |                                    |             |                        |                                                                   |                           |                   |         |  |  |  |  |  |  | Offset Well Error: 0.00 usR |  |
| Reference                                |                       | Offset                |                       | Semi Major Axis  |               |                       | Distance                           |             |                        |                                                                   |                           |                   |         |  |  |  |  |  |  |                             |  |
| Measured Depth (usft)                    | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N-S (usft) | +E-W (usft) | Between Centres (usft) | Between Ellipses (usft)                                           | Minimum Separation (usft) | Separation Factor | Warning |  |  |  |  |  |  |                             |  |
| 3,875.00                                 | 3,189.01              | 3,818.99              | 3,138.75              | 22.22            | 27.90         | -83.66                | 907.31                             | -594.66     | 573.24                 | 523.12                                                            | 50.12                     | 11.437            |         |  |  |  |  |  |  |                             |  |
| 3,900.00                                 | 3,188.96              | 3,839.59              | 3,135.56              | 22.68            | 28.12         | -83.54                | 927.88                             | -594.65     | 572.70                 | 521.90                                                            | 50.80                     | 11.274            |         |  |  |  |  |  |  |                             |  |
| 3,925.00                                 | 3,188.92              | 3,855.00              | 3,134.63              | 23.16            | 28.28         | -83.45                | 943.26                             | -594.74     | 572.39                 | 520.95                                                            | 51.43                     | 11.129            |         |  |  |  |  |  |  |                             |  |
| 3,950.00                                 | 3,188.87              | 3,882.13              | 3,132.96              | 23.63            | 28.58         | -83.28                | 970.34                             | -595.08     | 572.17                 | 519.97                                                            | 52.21                     | 10.960            |         |  |  |  |  |  |  |                             |  |
| 3,968.77                                 | 3,188.84              | 3,898.41              | 3,131.95              | 23.98            | 28.76         | -83.18                | 986.58                             | -595.37     | 572.13                 | 519.39                                                            | 52.74                     | 10.848            |         |  |  |  |  |  |  |                             |  |
| 3,975.00                                 | 3,188.83              | 3,903.80              | 3,131.61              | 24.10            | 28.82         | -83.15                | 991.96                             | -595.48     | 572.14                 | 519.22                                                            | 52.92                     | 10.811            |         |  |  |  |  |  |  |                             |  |
| 4,000.00                                 | 3,188.79              | 3,925.47              | 3,130.24              | 24.58            | 29.06         | -83.02                | 1,013.58                           | -596.01     | 572.25                 | 518.62                                                            | 53.63                     | 10.670            |         |  |  |  |  |  |  |                             |  |
| 4,025.00                                 | 3,188.74              | 3,948.00              | 3,128.79              | 25.06            | 29.31         | -82.88                | 1,036.05                           | -596.69     | 572.51                 | 518.14                                                            | 54.36                     | 10.531            |         |  |  |  |  |  |  |                             |  |
| 4,050.00                                 | 3,188.70              | 3,969.20              | 3,127.45              | 25.54            | 29.54         | -82.75                | 1,057.19                           | -597.44     | 572.90                 | 517.82                                                            | 55.08                     | 10.400            |         |  |  |  |  |  |  |                             |  |
| 4,075.00                                 | 3,188.66              | 3,991.28              | 3,126.09              | 26.02            | 29.79         | -82.62                | 1,079.21                           | -598.34     | 573.43                 | 517.61                                                            | 55.82                     | 10.274            |         |  |  |  |  |  |  |                             |  |
| 4,100.00                                 | 3,188.61              | 4,013.36              | 3,124.77              | 26.51            | 30.04         | -82.50                | 1,101.23                           | -599.36     | 574.08                 | 517.53                                                            | 56.55                     | 10.152            |         |  |  |  |  |  |  |                             |  |
| 4,125.00                                 | 3,188.57              | 4,035.44              | 3,123.51              | 27.00            | 30.29         | -82.39                | 1,123.24                           | -600.50     | 574.86                 | 517.58                                                            | 57.29                     | 10.035            |         |  |  |  |  |  |  |                             |  |
| 4,150.00                                 | 3,188.53              | 4,059.26              | 3,122.20              | 27.49            | 30.55         | -82.27                | 1,146.99                           | -601.83     | 575.75                 | 517.71                                                            | 58.04                     | 9.920             |         |  |  |  |  |  |  |                             |  |
| 4,175.00                                 | 3,188.48              | 4,083.82              | 3,120.98              | 27.98            | 30.82         | -82.17                | 1,171.49                           | -603.24     | 576.65                 | 517.85                                                            | 58.81                     | 9.806             |         |  |  |  |  |  |  |                             |  |
| 4,200.00                                 | 3,188.44              | 4,108.40              | 3,119.89              | 28.47            | 31.10         | -82.07                | 1,195.99                           | -604.69     | 577.58                 | 518.01                                                            | 59.57                     | 9.696             |         |  |  |  |  |  |  |                             |  |
| 4,225.00                                 | 3,188.39              | 4,132.98              | 3,118.91              | 28.97            | 31.37         | -81.99                | 1,220.51                           | -606.17     | 578.53                 | 518.19                                                            | 60.34                     | 9.588             |         |  |  |  |  |  |  |                             |  |
| 4,250.00                                 | 3,188.35              | 4,156.39              | 3,118.09              | 29.47            | 31.64         | -81.93                | 1,243.86                           | -607.63     | 579.51                 | 518.41                                                            | 61.10                     | 9.484             |         |  |  |  |  |  |  |                             |  |
| 4,275.00                                 | 3,188.31              | 4,179.69              | 3,117.37              | 29.96            | 31.90         | -81.87                | 1,267.10                           | -609.17     | 580.57                 | 518.70                                                            | 61.87                     | 9.384             |         |  |  |  |  |  |  |                             |  |
| 4,300.00                                 | 3,188.26              | 4,202.99              | 3,116.73              | 30.46            | 32.17         | -81.83                | 1,290.34                           | -610.78     | 581.70                 | 519.07                                                            | 62.63                     | 9.287             |         |  |  |  |  |  |  |                             |  |
| 4,325.00                                 | 3,188.22              | 4,229.00              | 3,116.13              | 30.97            | 32.47         | -81.79                | 1,316.27                           | -612.68     | 582.91                 | 519.47                                                            | 63.43                     | 9.189             |         |  |  |  |  |  |  |                             |  |
| 4,350.00                                 | 3,188.18              | 4,252.64              | 3,115.64              | 31.47            | 32.75         | -81.76                | 1,339.84                           | -614.42     | 584.12                 | 519.90                                                            | 64.22                     | 9.095             |         |  |  |  |  |  |  |                             |  |
| 4,375.00                                 | 3,188.13              | 4,279.39              | 3,115.10              | 31.97            | 33.08         | -81.73                | 1,366.52                           | -616.32     | 585.26                 | 520.21                                                            | 65.05                     | 8.998             |         |  |  |  |  |  |  |                             |  |
| 4,400.00                                 | 3,188.09              | 4,306.18              | 3,114.57              | 32.47            | 33.40         | -81.70                | 1,393.22                           | -618.13     | 586.32                 | 520.45                                                            | 65.87                     | 8.901             |         |  |  |  |  |  |  |                             |  |
| 4,425.00                                 | 3,188.05              | 4,333.86              | 3,114.04              | 32.98            | 33.73         | -81.67                | 1,420.86                           | -619.92     | 587.30                 | 520.59                                                            | 66.72                     | 8.803             |         |  |  |  |  |  |  |                             |  |
| 4,450.00                                 | 3,188.00              | 4,362.93              | 3,113.57              | 33.49            | 34.09         | -81.64                | 1,449.88                           | -621.62     | 588.13                 | 520.55                                                            | 67.58                     | 8.703             |         |  |  |  |  |  |  |                             |  |
| 4,475.00                                 | 3,187.96              | 4,392.02              | 3,113.20              | 33.99            | 34.45         | -81.62                | 1,478.92                           | -623.13     | 588.78                 | 520.33                                                            | 68.45                     | 8.602             |         |  |  |  |  |  |  |                             |  |
| 4,500.00                                 | 3,187.91              | 4,420.52              | 3,112.92              | 34.50            | 34.81         | -81.61                | 1,507.39                           | -624.44     | 589.26                 | 519.95                                                            | 69.31                     | 8.502             |         |  |  |  |  |  |  |                             |  |
| 4,525.00                                 | 3,187.87              | 4,446.82              | 3,112.66              | 35.01            | 35.15         | -81.59                | 1,533.66                           | -625.54     | 589.84                 | 519.48                                                            | 70.16                     | 8.404             |         |  |  |  |  |  |  |                             |  |
| 4,550.00                                 | 3,187.83              | 4,473.11              | 3,112.36              | 35.52            | 35.49         | -81.57                | 1,559.94                           | -626.57     | 589.98                 | 518.96                                                            | 71.01                     | 8.308             |         |  |  |  |  |  |  |                             |  |
| 4,575.00                                 | 3,187.78              | 4,499.41              | 3,112.03              | 36.03            | 35.83         | -81.55                | 1,586.21                           | -627.55     | 590.25                 | 518.39                                                            | 71.86                     | 8.213             |         |  |  |  |  |  |  |                             |  |
| 4,600.00                                 | 3,187.74              | 4,527.35              | 3,111.65              | 36.54            | 36.20         | -81.52                | 1,614.14                           | -628.49     | 590.45                 | 517.71                                                            | 72.75                     | 8.117             |         |  |  |  |  |  |  |                             |  |
| 4,625.00                                 | 3,187.70              | 4,556.25              | 3,111.28              | 37.06            | 36.59         | -81.49                | 1,643.02                           | -629.28     | 590.50                 | 516.85                                                            | 73.65                     | 8.018             |         |  |  |  |  |  |  |                             |  |
| 4,650.00                                 | 3,187.65              | 4,585.14              | 3,110.95              | 37.57            | 36.98         | -81.46                | 1,671.90                           | -629.89     | 590.38                 | 515.83                                                            | 74.55                     | 7.919             |         |  |  |  |  |  |  |                             |  |
| 4,675.00                                 | 3,187.61              | 4,613.76              | 3,110.65              | 38.08            | 37.36         | -81.43                | 1,700.52                           | -630.31     | 590.09                 | 514.64                                                            | 75.45                     | 7.821             |         |  |  |  |  |  |  |                             |  |
| 4,700.00                                 | 3,187.57              | 4,642.00              | 3,110.40              | 38.60            | 37.75         | -81.40                | 1,728.75                           | -630.57     | 589.66                 | 513.32                                                            | 76.35                     | 7.724             |         |  |  |  |  |  |  |                             |  |
| 4,725.00                                 | 3,187.52              | 4,670.23              | 3,110.22              | 39.11            | 38.13         | -81.38                | 1,756.98                           | -630.88     | 589.10                 | 511.88                                                            | 77.25                     | 7.626             |         |  |  |  |  |  |  |                             |  |
| 4,750.00                                 | 3,187.48              | 4,698.43              | 3,110.10              | 39.63            | 38.51         | -81.36                | 1,785.19                           | -630.64     | 588.40                 | 510.26                                                            | 78.14                     | 7.530             |         |  |  |  |  |  |  |                             |  |
| 4,775.00                                 | 3,187.43              | 4,726.39              | 3,110.04              | 40.15            | 38.90         | -81.35                | 1,813.15                           | -630.47     | 587.57                 | 508.52                                                            | 79.05                     | 7.433             |         |  |  |  |  |  |  |                             |  |
| 4,800.00                                 | 3,187.39              | 4,754.35              | 3,110.06              | 40.66            | 39.29         | -81.34                | 1,841.10                           | -630.18     | 586.61                 | 506.66                                                            | 79.95                     | 7.337             |         |  |  |  |  |  |  |                             |  |
| 4,825.00                                 | 3,187.35              | 4,782.29              | 3,110.16              | 41.18            | 39.68         | -81.33                | 1,869.04                           | -629.72     | 585.53                 | 504.67                                                            | 80.86                     | 7.241             |         |  |  |  |  |  |  |                             |  |
| 4,850.00                                 | 3,187.30              | 4,808.20              | 3,110.27              | 41.70            | 40.05         | -81.33                | 1,894.94                           | -629.22     | 584.35                 | 502.60                                                            | 81.75                     | 7.148             |         |  |  |  |  |  |  |                             |  |
| 4,875.00                                 | 3,187.26              | 4,833.46              | 3,110.31              | 42.22            | 40.41         | -81.32                | 1,920.20                           | -628.71     | 583.15                 | 500.52                                                            | 82.63                     | 7.057             |         |  |  |  |  |  |  |                             |  |
| 4,900.00                                 | 3,187.22              | 4,858.73              | 3,110.28              | 42.74            | 40.78         | -81.30                | 1,945.46                           | -628.17     | 581.95                 | 498.44                                                            | 83.51                     | 6.968             |         |  |  |  |  |  |  |                             |  |
| 4,925.00                                 | 3,187.17              | 4,883.00              | 3,110.19              | 43.26            | 41.13         | -81.28                | 1,969.73                           | -627.63     | 580.73                 | 496.35                                                            | 84.38                     | 6.882             |         |  |  |  |  |  |  |                             |  |
| 4,950.00                                 | 3,187.13              | 4,907.87              | 3,110.02              | 43.78            | 41.50         | -81.25                | 1,994.59                           | -627.08     | 579.53                 | 494.25                                                            | 85.28                     | 6.796             |         |  |  |  |  |  |  |                             |  |
| 4,975.00                                 | 3,187.09              | 4,931.80              | 3,109.78              | 44.30            | 41.86         | -81.21                | 2,018.51                           | -626.59     | 578.37                 | 492.22                                                            | 86.16                     | 6.713             |         |  |  |  |  |  |  |                             |  |
| 5,000.00                                 | 3,187.04              | 4,955.73              | 3,109.46              | 44.82            | 42.22         | -81.17                | 2,042.44                           | -626.12     | 577.26                 | 490.23                                                            | 87.04                     | 6.632             |         |  |  |  |  |  |  |                             |  |
| 5,025.00                                 | 3,187.00              | 4,979.75              | 3,109.07              | 45.34            | 42.58         | -81.12                | 2,066.45                           | -625.69     | 576.20                 | 488.28                                                            | 87.92                     | 6.554             |         |  |  |  |  |  |  |                             |  |
| 5,050.00                                 | 3,186.96              | 5,004.39              | 3,108.72              | 45.86            | 42.94         | -81.07                | 2,091.08                           | -625.28     | 575.16                 | 486.36                                                            | 88.80                     | 6.477             |         |  |  |  |  |  |  |                             |  |
| 5,075.00                                 | 3,186.91              | 5,029.04              | 3,108.49              | 46.38            | 43.30         | -81.04                | 2,115.73                           | -624.91     | 574.13                 | 484.45                                                            | 89.69                     | 6.402             |         |  |  |  |  |  |  |                             |  |
| 5,100.00                                 | 3,186.87              | 5,053.69              | 3,108.38              | 46.91            | 43.67         | -81.01                | 2,140.37                           | -624.57     | 573.12                 | 482.55                                                            | 90.57                     | 6.328             |         |  |  |  |  |  |  |                             |  |
| 5,125.00                                 | 3,186.82              | 5,078.07              | 3,108.40              | 47.43            | 44.02         | -81.00                | 2,164.76                           | -624.26     | 572.13                 | 480.68                                                            | 91.45                     | 6.256             |         |  |  |  |  |  |  |                             |  |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



## Anticollision Report



|                    |                            |                              |                                 |
|--------------------|----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC          | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee            | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                  | North Reference:             | Grid                            |
| Reference Well:    | #7H                        | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                  | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                        | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1 03-10-15           | Offset TVD Reference:        | Offset Datum                    |

| Offset Design Stonewall 9 Fee - #3H - WB2/Job #1311608 - Surveys (Silver Oak 3) |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   | Offset Site Error: 0.00 usft |  |
|---------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|-------------------------------------|--------------|------------------------|-------------------------|---------------------------|-------------------|------------------------------|--|
| Survey Program: 100-CB-GYRO-MS; 2500-MWD                                        |                       |                       |                       |                  |               |                       |                                     |              |                        |                         |                           |                   | Offset Well Error: 0.00 usft |  |
| Reference                                                                       |                       | Offset                |                       | Semi Major Axis  |               |                       | Distance                            |              |                        |                         |                           |                   | Warning                      |  |
| Measured Depth (usft)                                                           | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (usft) | +E/-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor |                              |  |
| 5,150.00                                                                        | 3,186.78              | 5,101.84              | 3,108.45              | 47.95            | 44.37         | -81.00                | 2,188.52                            | -624.01      | 571.18                 | 478.88                  | 92.32                     | 6.187             |                              |  |
| 5,175.00                                                                        | 3,186.74              | 5,125.60              | 3,108.51              | 48.48            | 44.71         | -81.00                | 2,212.29                            | -623.82      | 570.28                 | 477.09                  | 93.19                     | 6.120             |                              |  |
| 5,200.00                                                                        | 3,186.69              | 5,149.37              | 3,108.58              | 49.00            | 45.06         | -80.99                | 2,236.06                            | -623.68      | 569.44                 | 475.38                  | 94.06                     | 6.054             |                              |  |
| 5,225.00                                                                        | 3,186.65              | 5,174.08              | 3,108.66              | 49.52            | 45.43         | -80.99                | 2,260.76                            | -623.58      | 568.64                 | 473.69                  | 94.95                     | 5.989             |                              |  |
| 5,250.00                                                                        | 3,186.61              | 5,200.27              | 3,108.70              | 50.05            | 45.82         | -80.99                | 2,286.95                            | -623.43      | 567.81                 | 471.94                  | 95.87                     | 5.923             |                              |  |
| 5,275.00                                                                        | 3,186.56              | 5,226.45              | 3,108.70              | 50.57            | 46.22         | -80.98                | 2,313.14                            | -623.21      | 566.93                 | 470.14                  | 96.79                     | 5.857             |                              |  |
| 5,300.00                                                                        | 3,186.52              | 5,252.64              | 3,108.64              | 51.10            | 46.61         | -80.96                | 2,339.32                            | -622.94      | 565.99                 | 468.28                  | 97.71                     | 5.793             |                              |  |
| 5,325.00                                                                        | 3,186.48              | 5,276.88              | 3,108.57              | 51.62            | 46.98         | -80.94                | 2,363.56                            | -622.66      | 565.04                 | 466.44                  | 98.60                     | 5.731             |                              |  |
| 5,350.00                                                                        | 3,186.43              | 5,300.75              | 3,108.53              | 52.15            | 47.34         | -80.93                | 2,387.43                            | -622.44      | 564.13                 | 464.64                  | 99.49                     | 5.670             |                              |  |
| 5,375.00                                                                        | 3,186.39              | 5,324.62              | 3,108.52              | 52.67            | 47.70         | -80.92                | 2,411.30                            | -622.27      | 563.28                 | 462.90                  | 100.38                    | 5.612             |                              |  |
| 5,400.00                                                                        | 3,186.34              | 5,348.49              | 3,108.54              | 53.20            | 48.06         | -80.91                | 2,435.17                            | -622.16      | 562.47                 | 461.21                  | 101.26                    | 5.555             |                              |  |
| 5,425.00                                                                        | 3,186.30              | 5,371.59              | 3,108.57              | 53.73            | 48.42         | -80.91                | 2,458.26                            | -622.11      | 561.73                 | 459.58                  | 102.14                    | 5.499             |                              |  |
| 5,450.00                                                                        | 3,186.26              | 5,394.59              | 3,108.57              | 54.25            | 48.77         | -80.90                | 2,481.27                            | -622.13      | 561.07                 | 458.05                  | 103.03                    | 5.446             |                              |  |
| 5,475.00                                                                        | 3,186.21              | 5,417.60              | 3,108.54              | 54.78            | 49.13         | -80.90                | 2,504.27                            | -622.24      | 560.51                 | 456.60                  | 103.91                    | 5.394             |                              |  |
| 5,500.00                                                                        | 3,186.17              | 5,440.61              | 3,108.48              | 55.31            | 49.48         | -80.89                | 2,527.29                            | -622.42      | 560.03                 | 455.25                  | 104.79                    | 5.344             |                              |  |
| 5,525.00                                                                        | 3,186.13              | 5,463.48              | 3,108.42              | 55.83            | 49.84         | -80.88                | 2,550.15                            | -622.69      | 559.65                 | 453.98                  | 105.67                    | 5.296             |                              |  |
| 5,550.00                                                                        | 3,186.08              | 5,486.30              | 3,108.40              | 56.36            | 50.20         | -80.88                | 2,572.97                            | -623.05      | 559.36                 | 452.80                  | 106.56                    | 5.249             |                              |  |
| 5,575.00                                                                        | 3,186.04              | 5,509.12              | 3,108.43              | 56.89            | 50.55         | -80.88                | 2,595.79                            | -623.51      | 559.17                 | 451.73                  | 107.44                    | 5.204             |                              |  |
| 5,600.00                                                                        | 3,186.00              | 5,531.95              | 3,108.51              | 57.42            | 50.91         | -80.89                | 2,618.61                            | -624.07      | 559.07                 | 450.75                  | 108.33                    | 5.161             |                              |  |
| 5,625.00                                                                        | 3,185.95              | 5,556.45              | 3,108.63              | 57.94            | 51.29         | -80.91                | 2,643.10                            | -624.75      | 559.05                 | 449.82                  | 109.23                    | 5.118             |                              |  |
| 5,650.00                                                                        | 3,185.91              | 5,581.71              | 3,108.77              | 58.47            | 51.68         | -80.93                | 2,668.35                            | -625.44      | 559.02                 | 448.87                  | 110.15                    | 5.075             |                              |  |
| 5,675.00                                                                        | 3,185.86              | 5,606.96              | 3,108.90              | 59.00            | 52.07         | -80.95                | 2,693.59                            | -626.12      | 558.98                 | 447.91                  | 111.07                    | 5.033             |                              |  |
| 5,700.00                                                                        | 3,185.82              | 5,632.22              | 3,109.03              | 59.53            | 52.46         | -80.96                | 2,718.84                            | -626.79      | 558.93                 | 446.94                  | 111.99                    | 4.991             |                              |  |
| 5,716.12                                                                        | 3,185.79              | 5,647.06              | 3,109.09              | 59.87            | 52.70         | -80.97                | 2,733.68                            | -627.19      | 558.91                 | 446.34                  | 112.57                    | 4.965 CC          |                              |  |
| 5,725.00                                                                        | 3,185.78              | 5,655.14              | 3,109.11              | 60.06            | 52.83         | -80.98                | 2,741.75                            | -627.42      | 558.92                 | 446.03                  | 112.89                    | 4.951             |                              |  |
| 5,750.00                                                                        | 3,185.73              | 5,677.88              | 3,109.09              | 60.59            | 53.19         | -80.98                | 2,764.48                            | -628.13      | 559.00                 | 445.23                  | 113.78                    | 4.913             |                              |  |
| 5,775.00                                                                        | 3,185.69              | 5,700.62              | 3,108.97              | 61.12            | 53.55         | -80.97                | 2,787.20                            | -628.91      | 559.19                 | 444.52                  | 114.67                    | 4.877             |                              |  |
| 5,800.00                                                                        | 3,185.65              | 5,727.00              | 3,108.72              | 61.65            | 53.97         | -80.96                | 2,813.57                            | -629.92      | 559.49                 | 443.87                  | 115.62                    | 4.839             |                              |  |
| 5,825.00                                                                        | 3,185.60              | 5,748.28              | 3,108.46              | 62.18            | 54.31         | -80.94                | 2,834.82                            | -630.77      | 559.83                 | 443.34                  | 116.48                    | 4.806             |                              |  |
| 5,850.00                                                                        | 3,185.56              | 5,773.62              | 3,108.19              | 62.70            | 54.71         | -80.92                | 2,860.14                            | -631.77      | 560.16                 | 442.74                  | 117.42                    | 4.771             |                              |  |
| 5,875.00                                                                        | 3,185.52              | 5,798.96              | 3,107.93              | 63.23            | 55.11         | -80.90                | 2,885.46                            | -632.76      | 560.48                 | 442.13                  | 118.35                    | 4.736             |                              |  |
| 5,900.00                                                                        | 3,185.47              | 5,821.00              | 3,107.73              | 63.76            | 55.47         | -80.89                | 2,907.49                            | -633.61      | 560.79                 | 441.56                  | 119.23                    | 4.703             |                              |  |
| 5,925.00                                                                        | 3,185.43              | 5,845.03              | 3,107.46              | 64.29            | 55.85         | -80.87                | 2,931.49                            | -634.61      | 561.19                 | 441.04                  | 120.14                    | 4.671             |                              |  |
| 5,950.00                                                                        | 3,185.38              | 5,868.28              | 3,107.11              | 64.82            | 56.19         | -80.85                | 2,952.71                            | -635.63      | 561.76                 | 440.74                  | 121.01                    | 4.642             |                              |  |
| 5,975.00                                                                        | 3,185.34              | 5,887.52              | 3,106.65              | 65.35            | 56.53         | -80.82                | 2,973.92                            | -636.78      | 562.50                 | 440.61                  | 121.89                    | 4.615             |                              |  |
| 6,000.00                                                                        | 3,185.30              | 5,914.00              | 3,105.95              | 65.88            | 56.95         | -80.76                | 3,000.34                            | -638.39      | 563.43                 | 440.59                  | 122.84                    | 4.587             |                              |  |
| 6,025.00                                                                        | 3,185.25              | 5,932.11              | 3,105.38              | 66.42            | 57.25         | -80.72                | 3,018.40                            | -639.57      | 564.43                 | 440.76                  | 123.87                    | 4.564             |                              |  |
| 6,050.00                                                                        | 3,185.21              | 5,956.17              | 3,104.53              | 66.95            | 57.65         | -80.66                | 3,042.40                            | -641.14      | 565.51                 | 440.91                  | 124.60                    | 4.539             |                              |  |
| 6,075.00                                                                        | 3,185.17              | 5,980.22              | 3,103.57              | 67.48            | 58.05         | -80.58                | 3,066.38                            | -642.74      | 566.63                 | 441.11                  | 125.53                    | 4.514             |                              |  |
| 6,100.00                                                                        | 3,185.12              | 6,004.26              | 3,102.51              | 68.01            | 58.45         | -80.50                | 3,090.34                            | -644.36      | 567.80                 | 441.34                  | 126.46                    | 4.490             |                              |  |
| 6,125.00                                                                        | 3,185.08              | 6,030.37              | 3,101.30              | 68.54            | 58.88         | -80.40                | 3,116.36                            | -646.11      | 568.96                 | 441.55                  | 127.41                    | 4.465             |                              |  |
| 6,150.00                                                                        | 3,185.04              | 6,056.87              | 3,100.10              | 69.07            | 59.31         | -80.30                | 3,142.78                            | -647.83      | 570.06                 | 441.69                  | 128.38                    | 4.441             |                              |  |
| 6,175.00                                                                        | 3,184.99              | 6,083.37              | 3,098.95              | 69.60            | 59.74         | -80.20                | 3,169.21                            | -649.47      | 571.10                 | 441.76                  | 129.34                    | 4.416             |                              |  |
| 6,200.00                                                                        | 3,184.95              | 6,109.91              | 3,097.83              | 70.13            | 60.16         | -80.11                | 3,195.68                            | -651.06      | 572.06                 | 441.77                  | 130.30                    | 4.390             |                              |  |
| 6,225.00                                                                        | 3,184.90              | 6,136.52              | 3,096.70              | 70.66            | 60.59         | -80.02                | 3,222.22                            | -652.57      | 572.96                 | 441.71                  | 131.25                    | 4.365             |                              |  |
| 6,250.00                                                                        | 3,184.86              | 6,163.13              | 3,095.56              | 71.20            | 61.02         | -79.92                | 3,248.76                            | -654.00      | 573.79                 | 441.58                  | 132.21                    | 4.340             |                              |  |
| 6,275.00                                                                        | 3,184.82              | 6,189.75              | 3,094.41              | 71.73            | 61.44         | -79.83                | 3,275.32                            | -655.35      | 574.55                 | 441.38                  | 133.17                    | 4.314             |                              |  |
| 6,300.00                                                                        | 3,184.77              | 6,215.54              | 3,093.27              | 72.26            | 61.86         | -79.73                | 3,301.05                            | -656.59      | 575.26                 | 441.14                  | 134.12                    | 4.289             |                              |  |
| 6,325.00                                                                        | 3,184.73              | 6,241.17              | 3,092.11              | 72.79            | 62.28         | -79.63                | 3,326.63                            | -657.80      | 575.93                 | 440.86                  | 135.07                    | 4.264             |                              |  |
| 6,350.00                                                                        | 3,184.69              | 6,266.80              | 3,090.90              | 73.32            | 62.69         | -79.52                | 3,352.21                            | -658.96      | 576.58                 | 440.57                  | 136.02                    | 4.239             |                              |  |
| 6,375.00                                                                        | 3,184.64              | 6,292.70              | 3,089.65              | 73.85            | 63.11         | -79.41                | 3,378.05                            | -660.10      | 577.20                 | 440.24                  | 136.97                    | 4.214             |                              |  |
| 6,400.00                                                                        | 3,184.60              | 6,319.93              | 3,088.41              | 74.39            | 63.55         | -79.30                | 3,405.24                            | -661.23      | 577.75                 | 439.81                  | 137.94                    | 4.188             |                              |  |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



|                    |                              |                              |                                 |
|--------------------|------------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC            | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County - NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee              | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00' usft                   | North Reference:             | Grid                            |
| Reference Well:    | #7H                          | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00' usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                          | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1-03-10-15             | Offset TVD Reference:        | Offset Datum                    |

| Offset Design                            |                       |                       |                       |                  |               |                       |                                    |             |                        |                         |                           |                   | Stonewall 9 Fee - #3H - WB2/Job #1311608 - Surveys (Silver Oak 3) |  | Offset Site Error: 0.00 usft |  |
|------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|------------------------------------|-------------|------------------------|-------------------------|---------------------------|-------------------|-------------------------------------------------------------------|--|------------------------------|--|
| Survey Program: 100-CB-GYRO-MS: 2500-MWD |                       |                       |                       |                  |               |                       |                                    |             |                        |                         |                           |                   | Offset Well Error: 0.00 usft                                      |  |                              |  |
| Reference                                |                       | Offset                |                       | Semi Major Axis  |               |                       | Distance                           |             |                        |                         |                           |                   |                                                                   |  |                              |  |
| Measured Depth (usft)                    | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N-S (usft) | +E-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor | Warning                                                           |  |                              |  |
| 6,425.00                                 | 3,184.56              | 6,347.18              | 3,087.31              | 74.92            | 64.00         | -79.21                | 3,432.44                           | -662.28     | 578.21                 | 439.29                  | 138.91                    | 4.162             |                                                                   |  |                              |  |
| 6,450.00                                 | 3,184.51              | 6,374.44              | 3,086.35              | 75.45            | 64.44         | -79.12                | 3,459.67                           | -663.25     | 578.56                 | 438.68                  | 139.89                    | 4.136             |                                                                   |  |                              |  |
| 6,475.00                                 | 3,184.47              | 6,401.95              | 3,085.50              | 75.98            | 64.88         | -79.05                | 3,487.14                           | -664.13     | 578.82                 | 437.95                  | 140.86                    | 4.109             |                                                                   |  |                              |  |
| 6,500.00                                 | 3,184.42              | 6,429.55              | 3,084.72              | 76.52            | 65.33         | -78.98                | 3,514.73                           | -664.91     | 578.96                 | 437.12                  | 141.84                    | 4.082             |                                                                   |  |                              |  |
| 6,525.00                                 | 3,184.38              | 6,457.16              | 3,084.01              | 77.05            | 65.77         | -78.91                | 3,542.32                           | -665.57     | 579.00                 | 436.18                  | 142.82                    | 4.054             |                                                                   |  |                              |  |
| 6,550.00                                 | 3,184.34              | 6,484.42              | 3,083.37              | 77.58            | 66.21         | -78.85                | 3,569.56                           | -666.12     | 578.92                 | 435.12                  | 143.79                    | 4.026             |                                                                   |  |                              |  |
| 6,575.00                                 | 3,184.29              | 6,510.92              | 3,082.74              | 78.11            | 66.64         | -78.79                | 3,596.05                           | -666.56     | 578.76                 | 434.00                  | 144.76                    | 3.998             |                                                                   |  |                              |  |
| 6,600.00                                 | 3,184.25              | 6,537.42              | 3,082.07              | 78.65            | 67.08         | -78.72                | 3,622.54                           | -666.93     | 578.55                 | 432.82                  | 145.72                    | 3.970             |                                                                   |  |                              |  |
| 6,625.00                                 | 3,184.21              | 6,563.91              | 3,081.35              | 79.18            | 67.51         | -78.65                | 3,649.02                           | -667.22     | 578.26                 | 431.57                  | 146.69                    | 3.942             |                                                                   |  |                              |  |
| 6,650.00                                 | 3,184.16              | 6,591.19              | 3,080.63              | 79.71            | 67.96         | -78.57                | 3,676.29                           | -667.43     | 577.90                 | 430.24                  | 147.67                    | 3.914             |                                                                   |  |                              |  |
| 6,675.00                                 | 3,184.12              | 6,618.69              | 3,080.00              | 80.25            | 68.41         | -78.50                | 3,703.79                           | -667.54     | 577.44                 | 428.79                  | 148.65                    | 3.885             |                                                                   |  |                              |  |
| 6,700.00                                 | 3,184.08              | 6,646.20              | 3,079.49              | 80.78            | 68.85         | -78.44                | 3,731.29                           | -667.56     | 576.86                 | 427.23                  | 149.63                    | 3.855             |                                                                   |  |                              |  |
| 6,725.00                                 | 3,184.03              | 6,672.64              | 3,079.10              | 81.31            | 69.29         | -78.39                | 3,757.73                           | -667.48     | 576.19                 | 425.59                  | 150.60                    | 3.826             |                                                                   |  |                              |  |
| 6,750.00                                 | 3,183.99              | 6,697.41              | 3,078.71              | 81.85            | 69.70         | -78.34                | 3,782.50                           | -667.40     | 575.50                 | 423.96                  | 151.54                    | 3.798             |                                                                   |  |                              |  |
| 6,775.00                                 | 3,183.94              | 6,722.18              | 3,078.28              | 82.38            | 70.11         | -78.29                | 3,807.26                           | -667.31     | 574.82                 | 422.34                  | 152.48                    | 3.770             |                                                                   |  |                              |  |
| 6,800.00                                 | 3,183.90              | 6,746.95              | 3,077.80              | 82.91            | 70.51         | -78.23                | 3,832.03                           | -667.22     | 574.16                 | 420.73                  | 153.43                    | 3.742             |                                                                   |  |                              |  |
| 6,825.00                                 | 3,183.86              | 6,772.88              | 3,077.29              | 83.45            | 70.94         | -78.17                | 3,857.95                           | -667.13     | 573.48                 | 419.10                  | 154.39                    | 3.715             |                                                                   |  |                              |  |
| 6,850.00                                 | 3,183.81              | 6,799.60              | 3,076.89              | 83.98            | 71.38         | -78.12                | 3,884.67                           | -666.97     | 572.74                 | 417.38                  | 155.36                    | 3.687             |                                                                   |  |                              |  |
| 6,875.00                                 | 3,183.77              | 6,826.32              | 3,076.63              | 84.51            | 71.82         | -78.08                | 3,911.39                           | -666.77     | 571.93                 | 415.59                  | 156.33                    | 3.658             |                                                                   |  |                              |  |
| 6,900.00                                 | 3,183.73              | 6,852.97              | 3,076.52              | 85.05            | 72.26         | -78.05                | 3,938.03                           | -666.52     | 571.03                 | 413.73                  | 157.30                    | 3.630             |                                                                   |  |                              |  |
| 6,925.00                                 | 3,183.68              | 6,877.80              | 3,076.49              | 85.58            | 72.66         | -78.03                | 3,962.86                           | -666.26     | 570.11                 | 411.87                  | 158.24                    | 3.603             |                                                                   |  |                              |  |
| 6,950.00                                 | 3,183.64              | 6,902.64              | 3,076.48              | 86.11            | 73.06         | -78.01                | 3,987.70                           | -666.02     | 569.20                 | 410.02                  | 159.17                    | 3.576             |                                                                   |  |                              |  |
| 6,975.00                                 | 3,183.60              | 6,927.47              | 3,076.49              | 86.65            | 73.46         | -78.00                | 4,012.53                           | -665.79     | 568.28                 | 408.18                  | 160.11                    | 3.549             |                                                                   |  |                              |  |
| 7,000.00                                 | 3,183.55              | 6,952.07              | 3,076.53              | 87.18            | 73.86         | -77.99                | 4,037.12                           | -665.57     | 567.38                 | 406.34                  | 161.04                    | 3.523             |                                                                   |  |                              |  |
| 7,025.00                                 | 3,183.51              | 6,975.95              | 3,076.55              | 87.71            | 74.25         | -77.98                | 4,061.01                           | -665.40     | 566.52                 | 404.55                  | 161.96                    | 3.498             |                                                                   |  |                              |  |
| 7,050.00                                 | 3,183.46              | 6,999.84              | 3,076.56              | 88.25            | 74.64         | -77.97                | 4,084.90                           | -665.26     | 565.70                 | 402.81                  | 162.89                    | 3.473             |                                                                   |  |                              |  |
| 7,075.00                                 | 3,183.42              | 7,023.73              | 3,076.54              | 88.78            | 75.03         | -77.95                | 4,108.79                           | -665.17     | 564.93                 | 401.12                  | 163.81                    | 3.449             |                                                                   |  |                              |  |
| 7,100.00                                 | 3,183.38              | 7,047.59              | 3,076.50              | 89.32            | 75.43         | -77.94                | 4,132.65                           | -665.13     | 564.21                 | 399.47                  | 164.74                    | 3.425             |                                                                   |  |                              |  |
| 7,125.00                                 | 3,183.33              | 7,071.40              | 3,076.42              | 89.85            | 75.83         | -77.92                | 4,156.45                           | -665.12     | 563.54                 | 397.87                  | 165.68                    | 3.401             |                                                                   |  |                              |  |
| 7,150.00                                 | 3,183.29              | 7,095.21              | 3,076.30              | 90.39            | 76.23         | -77.90                | 4,180.28                           | -665.16     | 562.93                 | 396.32                  | 166.61                    | 3.379             |                                                                   |  |                              |  |
| 7,175.00                                 | 3,183.25              | 7,119.02              | 3,076.14              | 90.92            | 76.63         | -77.88                | 4,204.07                           | -665.24     | 562.37                 | 394.82                  | 167.55                    | 3.356             |                                                                   |  |                              |  |
| 7,200.00                                 | 3,183.20              | 7,142.67              | 3,075.94              | 91.45            | 77.03         | -77.85                | 4,227.72                           | -665.36     | 561.86                 | 393.38                  | 168.48                    | 3.335             |                                                                   |  |                              |  |
| 7,225.00                                 | 3,183.16              | 7,166.09              | 3,075.67              | 91.99            | 77.42         | -77.82                | 4,251.14                           | -665.53     | 561.42                 | 392.00                  | 169.41                    | 3.314             |                                                                   |  |                              |  |
| 7,250.00                                 | 3,183.12              | 7,189.52              | 3,075.32              | 92.52            | 77.82         | -77.78                | 4,274.56                           | -665.75     | 561.04                 | 390.70                  | 170.34                    | 3.294             |                                                                   |  |                              |  |
| 7,275.00                                 | 3,183.07              | 7,212.94              | 3,074.91              | 93.06            | 78.22         | -77.73                | 4,297.98                           | -666.02     | 560.74                 | 389.47                  | 171.28                    | 3.274             |                                                                   |  |                              |  |
| 7,300.00                                 | 3,183.03              | 7,235.70              | 3,074.45              | 93.59            | 78.60         | -77.68                | 4,320.74                           | -666.34     | 560.52                 | 388.32                  | 172.19                    | 3.255             |                                                                   |  |                              |  |
| 7,325.00                                 | 3,182.98              | 7,257.65              | 3,074.04              | 94.13            | 78.97         | -77.64                | 4,342.68                           | -666.78     | 560.42                 | 387.32                  | 173.10                    | 3.238             |                                                                   |  |                              |  |
| 7,330.43                                 | 3,182.97              | 7,262.42              | 3,073.96              | 94.24            | 79.05         | -77.63                | 4,347.44                           | -666.89     | 560.42                 | 387.12                  | 173.29                    | 3.234             |                                                                   |  |                              |  |
| 7,350.00                                 | 3,182.94              | 7,279.59              | 3,073.68              | 94.66            | 79.34         | -77.61                | 4,364.61                           | -667.34     | 560.46                 | 386.46                  | 174.00                    | 3.221             |                                                                   |  |                              |  |
| 7,375.00                                 | 3,182.90              | 7,301.54              | 3,073.38              | 95.19            | 79.71         | -77.59                | 4,386.54                           | -668.04     | 560.63                 | 385.73                  | 174.90                    | 3.205             |                                                                   |  |                              |  |
| 7,400.00                                 | 3,182.85              | 7,324.14              | 3,073.13              | 95.73            | 80.09         | -77.57                | 4,409.13                           | -668.90     | 560.94                 | 385.13                  | 175.82                    | 3.190             |                                                                   |  |                              |  |
| 7,425.00                                 | 3,182.81              | 7,350.23              | 3,072.90              | 96.26            | 80.52         | -77.56                | 4,435.19                           | -669.92     | 561.27                 | 384.48                  | 176.78                    | 3.175             |                                                                   |  |                              |  |
| 7,450.00                                 | 3,182.77              | 7,376.32              | 3,072.73              | 96.80            | 80.95         | -77.55                | 4,461.26                           | -670.91     | 561.55                 | 383.79                  | 177.75                    | 3.159             |                                                                   |  |                              |  |
| 7,475.00                                 | 3,182.72              | 7,402.41              | 3,072.62              | 97.33            | 81.38         | -77.55                | 4,487.34                           | -671.85     | 561.77                 | 383.06                  | 178.72                    | 3.143             |                                                                   |  |                              |  |
| 7,500.00                                 | 3,182.68              | 7,427.60              | 3,072.56              | 97.87            | 81.81         | -77.55                | 4,512.51                           | -672.74     | 561.96                 | 382.29                  | 179.67                    | 3.128             |                                                                   |  |                              |  |
| 7,525.00                                 | 3,182.64              | 7,452.07              | 3,072.46              | 98.40            | 82.22         | -77.55                | 4,538.97                           | -673.60     | 562.17                 | 381.55                  | 180.62                    | 3.112             |                                                                   |  |                              |  |
| 7,550.00                                 | 3,182.59              | 7,476.55              | 3,072.31              | 98.94            | 82.63         | -77.54                | 4,561.43                           | -674.48     | 562.40                 | 380.83                  | 181.57                    | 3.097             |                                                                   |  |                              |  |
| 7,575.00                                 | 3,182.55              | 7,501.02              | 3,072.09              | 99.47            | 83.04         | -77.53                | 4,585.89                           | -675.37     | 562.66                 | 380.14                  | 182.52                    | 3.083             |                                                                   |  |                              |  |
| 7,600.00                                 | 3,182.50              | 7,524.77              | 3,071.83              | 100.01           | 83.45         | -77.52                | 4,609.62                           | -676.25     | 562.95                 | 379.49                  | 183.46                    | 3.069             |                                                                   |  |                              |  |
| 7,625.00                                 | 3,182.46              | 7,548.24              | 3,071.51              | 100.54           | 83.85         | -77.49                | 4,633.06                           | -677.18     | 563.30                 | 378.90                  | 184.40                    | 3.055             |                                                                   |  |                              |  |
| 7,650.00                                 | 3,182.42              | 7,571.70              | 3,071.13              | 101.08           | 84.26         | -77.47                | 4,656.50                           | -678.15     | 563.72                 | 378.39                  | 185.34                    | 3.042             |                                                                   |  |                              |  |
| 7,675.00                                 | 3,182.37              | 7,595.16              | 3,070.68              | 101.61           | 84.66         | -77.44                | 4,679.93                           | -679.17     | 564.21                 | 377.94                  | 186.27                    | 3.029             |                                                                   |  |                              |  |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# Anticollision Report



|                    |                             |                              |                                 |
|--------------------|-----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC           | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee             | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                   | North Reference:             | Grid                            |
| Reference Well:    | #7H                         | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1.03-10-15            | Offset TVD Reference:        | Offset Datum                    |

| Offset Design      Stonewall 9 Fee - #3H - WB2/Job #1311608 - Surveys (Silver Oak 3) |                       |                       |                       |                  |               |                       |                                    |                                    |                        |                         |                           |                   | Offset Site Error:      0.00 usft |  |
|--------------------------------------------------------------------------------------|-----------------------|-----------------------|-----------------------|------------------|---------------|-----------------------|------------------------------------|------------------------------------|------------------------|-------------------------|---------------------------|-------------------|-----------------------------------|--|
| Survey Program:      100-CB-GYRO-MS, 2500-MWD                                        |                       |                       |                       |                  |               |                       |                                    |                                    |                        |                         |                           |                   | Offset Well Error:      0.00 usft |  |
| Reference                                                                            |                       | Offset                |                       | Semi Major Axis  |               |                       | Distance                           |                                    |                        |                         |                           |                   | Warning                           |  |
| Measured Depth (usft)                                                                | Vertical Depth (usft) | Measured Depth (usft) | Vertical Depth (usft) | Reference (usft) | Offset (usft) | Highside Toolface (°) | Offset Wellbore Centre +N-S (usft) | Offset Wellbore Centre +E-W (usft) | Between Centres (usft) | Between Ellipses (usft) | Minimum Separation (usft) | Separation Factor |                                   |  |
| 7,700.00                                                                             | 3,182.33              | 7,618.18              | 3,070.18              | 102.15           | 85.06         | -77.40                | 4,702.93                           | -680.24                            | 564.78                 | 377.57                  | 187.21                    | 3.017             |                                   |  |
| 7,725.00                                                                             | 3,182.29              | 7,641.06              | 3,069.59              | 102.88           | 85.46         | -77.36                | 4,725.77                           | -681.36                            | 565.44                 | 377.30                  | 188.14                    | 3.005             |                                   |  |
| 7,750.00                                                                             | 3,182.24              | 7,663.93              | 3,068.91              | 103.22           | 85.85         | -77.31                | 4,748.60                           | -682.55                            | 566.19                 | 377.12                  | 189.07                    | 2.995             |                                   |  |
| 7,775.00                                                                             | 3,182.20              | 7,686.79              | 3,068.15              | 103.75           | 86.25         | -77.25                | 4,771.41                           | -683.81                            | 567.04                 | 377.04                  | 190.00                    | 2.984 ES          |                                   |  |
| 7,800.00                                                                             | 3,182.16              | 7,709.04              | 3,067.32              | 104.29           | 86.63         | -77.19                | 4,793.61                           | -685.10                            | 567.99                 | 377.07                  | 190.92                    | 2.975             |                                   |  |
| 7,825.00                                                                             | 3,182.11              | 7,733.59              | 3,066.34              | 104.82           | 87.06         | -77.11                | 4,818.10                           | -686.60                            | 569.02                 | 377.14                  | 191.88                    | 2.965             |                                   |  |
| 7,848.87                                                                             | 3,182.07              | 7,757.43              | 3,065.38              | 105.33           | 87.47         | -77.04                | 4,841.87                           | -688.05                            | 570.01                 | 377.21                  | 192.81                    | 2.956 SF          |                                   |  |



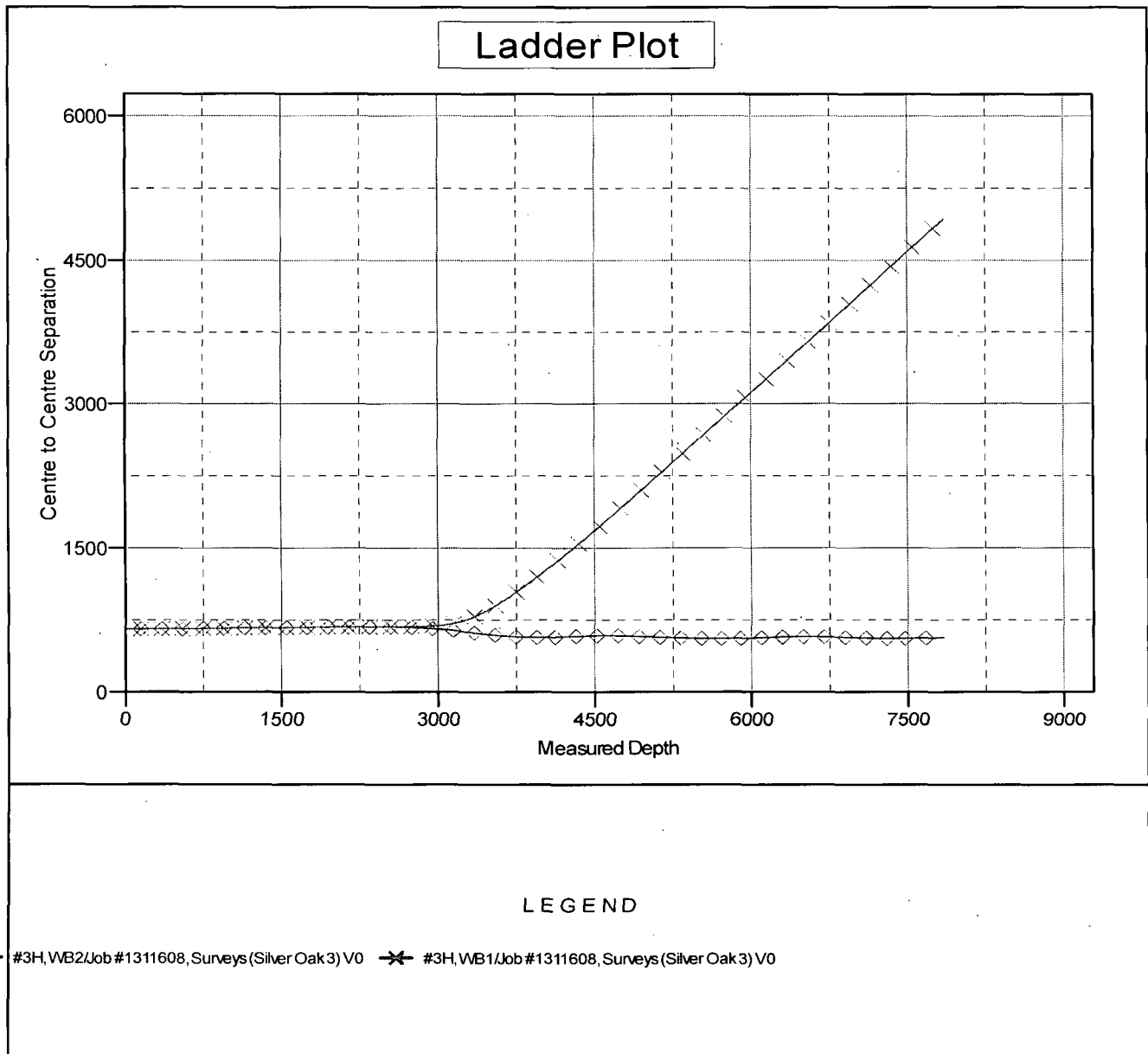
# Anticollision Report



|                    |                             |                              |                                 |
|--------------------|-----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC           | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee             | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                   | North Reference:             | Grid                            |
| Reference Well:    | #7H                         | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1.03-10-15            | Offset TVD Reference:        | Offset Datum                    |

Reference Depths are relative to KB @ 3364.00usft (Silver Oak 3)  
Offset Depths are relative to Offset Datum  
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: #7H  
Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30  
Grid Convergence at Surface is: -0.03°



CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

|                    |                             |                              |                                 |
|--------------------|-----------------------------|------------------------------|---------------------------------|
| Company:           | COG Operating LLC           | Local Co-ordinate Reference: | Well #7H                        |
| Project:           | Eddy County, NM (NAD27 NME) | TVD Reference:               | KB @ 3364.00usft (Silver Oak 3) |
| Reference Site:    | Stonewall 9 Fee             | MD Reference:                | KB @ 3364.00usft (Silver Oak 3) |
| Site Error:        | 0.00 usft                   | North Reference:             | Grid                            |
| Reference Well:    | #7H                         | Survey Calculation Method:   | Minimum Curvature               |
| Well Error:        | 0.00 usft                   | Output errors are at         | 2.00 sigma                      |
| Reference Wellbore | WB1                         | Database:                    | Compass 5000 GCR                |
| Reference Design:  | Plan #1.03-10-15            | Offset TVD Reference:        | Offset Datum                    |

Reference Depths are relative to KB @ 3364.00usft (Silver Oak 3)

Offset Depths are relative to Offset Datum

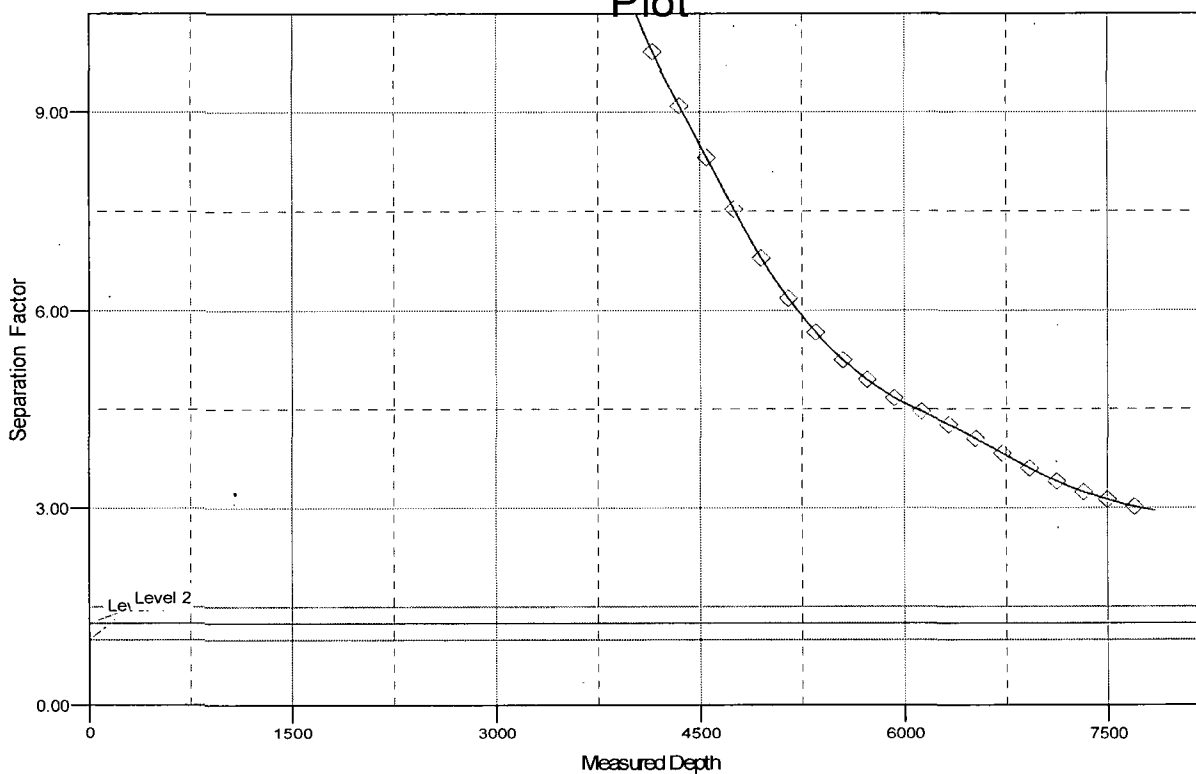
Central Meridian is 104° 19' 60.00000 W

Coordinates are relative to: #7H

Coordinate System is US State Plane 1927 (Exact solution), New Mexico East 30

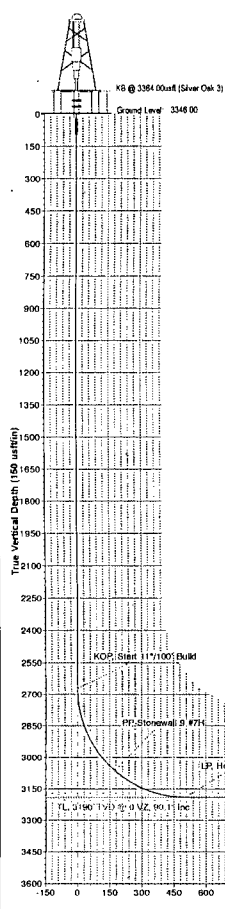
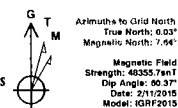
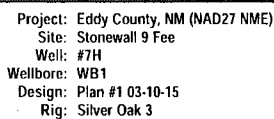
Grid Convergence at Surface is: -0.03°

## Separation Factor Plot



### LEGEND

— #3H, WB2/Job #1311608, Surveys (Silver Oak 3) V0 ✕ #3H, WB1/Job #1311608, Surveys (Silver Oak 3) V0



| WELL DETAILS |      |               |           |                   |                     |
|--------------|------|---------------|-----------|-------------------|---------------------|
|              |      | Ground Level: | 3348 00   |                   |                     |
| +N/S         | +E/W | Northing      | Easting   | Latitude          | Longitude           |
| 0.00         | 0.00 | 606797.10     | 484748.00 | 32° 40' S 33443 W | 104° 22' 58 45233 W |

| SECTION DETAILS |         |       |        |         |         |         |       |        |         |                      |                         |
|-----------------|---------|-------|--------|---------|---------|---------|-------|--------|---------|----------------------|-------------------------|
| Sec             | MD      | Inc   | Az     | TVD     | +N/S    | +E/W    | Mag   | Trace  | V-Set   | Target               | Annotation              |
| 1               | 0.00    | 0.00  | 0.00   | 0.00    | 0.00    | 0.00    | 0.00  | 0.00   | 0.00    |                      |                         |
| 2               | 2668.81 | 0.00  | 0.00   | 2668.81 | 0.00    | 0.00    | 0.00  | 0.00   | 0.00    |                      | KOP, Start 11'10" Build |
| 3               | 3487.90 | 90.10 | 354.43 | 3189.68 | 521.68  | -14.31  | 11.00 | 354.43 | 503.52  |                      | L.P. Has 90° 1" Inc     |
| 4               | 7848.87 | 90.10 | 354.43 | 3182.07 | 4880.90 | -133.90 | 0.00  | 0.00   | 4711.84 | PSH, Screened 5' W/H | TD at 7848.87 MD        |

| DESIGN TARGET DETAILS |         |        |         |                           |           |                    |                    |       |
|-----------------------|---------|--------|---------|---------------------------|-----------|--------------------|--------------------|-------|
| Name                  | TVD     | +NF.S  | +EF.W   | Northing                  | Easting   | Latitude           | Longitude          | Shape |
| PP-Stonewall 9 WTH    | 3052.71 | 180.00 | -4.94   | 606967.0                  | 484741.06 | 32° 42' 17.11563 N | 104° 22' 58.1114 W | Point |
|                       |         |        |         | - plan hits target center |           |                    |                    |       |
| PBH- Stonewall 9 WTH  |         |        | -133.90 | 611568.0                  | 484512.10 | 32° 43' 53.53354 N | 104° 23' 0.04575 W | Point |
|                       |         |        |         | - plan hits target center |           |                    |                    |       |

Map System: US State Plane 1987 (Exact solution)  
 Datum: NAD 1983 (NAD83 CONUS)  
 Ellipsoid: Clarke 1866  
 Zone Name: New Mexico East 3001

Local Origin: Well #7H, Grid North

Latitude: 32° 40' 5.33443 N  
 Longitude: 104° 22' 58.45229 W

Grid East: 484746.00  
 Grid North: 806787.10  
 Scale Factor: 1.000

Geomagnetic Model: IGRF-2015  
 Sample Date: 11-Feb-15  
 Magnetic Declination: 7.81°  
 Dip Angle from Horizontal: 80.37°  
 Magnetic Field Strength: 48356

To convert a Magnetic Direction to a Grid Direction, Add 7.81°  
 To convert a Magnetic Direction to a True Direction, Add 7.81° East  
 To convert a True Direction to a Grid Direction, Add 0.03°

| FORMATION TOP DETAILS |         |                                  |          |        |
|-----------------------|---------|----------------------------------|----------|--------|
| TVDPath               | MDPath  | Formation                        | DipAngle | DpDir  |
| 3189.13               | 3463.07 | TL, 3190' TVD @ 0° VZ, 90.1° Inc | -0.10    | 358.43 |

**LEGEND**

———— #3H, WB2/Job #13 111608, Surveys (Silver Oak 3) VO

———— #3H, WB1/Job #13 111608, Surveys (Silver Oak 3) VO

———— Plan #1 03-10-15

