



Scientific Drilling International, Inc.  
SDI Standard Survey Report



|           |                            |                              |                                         |
|-----------|----------------------------|------------------------------|-----------------------------------------|
| Company:  | COG OPERATING LLC          | Local Co-ordinate Reference: | Well BC Federal #53                     |
| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB Elev (20') @ 4068.0usft (United #42) |
| Site:     | BC Federal #53             | MD Reference:                | KB Elev (20') @ 4068.0usft (United #42) |
| Well:     | BC Federal #53             | North Reference:             | Grid                                    |
| Wellbore: | OH - Job #32D0311224       | Survey Calculation Method:   | Minimum Curvature                       |
| Design:   | Actual                     | Database:                    | EDM-Regulatory                          |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project     | Lea County, NM (NAD27 NME)           |               |                |
| Map System: | US State Plane 1927 (Exact solution) | System Datum: | Mean Sea Level |
| Geo Datum:  | NAD 1927 (NADCON CONUS)              |               |                |
| Map Zone:   | New Mexico East 3001                 |               |                |

|                       |                |                   |                   |
|-----------------------|----------------|-------------------|-------------------|
| Site                  | BC Federal #53 |                   |                   |
| Site Position:        | Map            | Northing:         | 664,384.80 usft   |
| From:                 |                | Easting:          | 670,049.40 usft   |
| Position Uncertainty: | 0.0 usft       | Slot Radius:      | 0"                |
|                       |                | Latitude:         | 32° 49' 30.924 N  |
|                       |                | Longitude:        | 103° 46' 47.157 W |
|                       |                | Grid Convergence: | 0.30 °            |

|                      |                |          |                     |                 |               |                   |
|----------------------|----------------|----------|---------------------|-----------------|---------------|-------------------|
| Well                 | BC Federal #53 |          |                     |                 |               |                   |
| Well Position        | +N/-S          | 0.0 usft | Northing:           | 664,384.80 usft | Latitude:     | 32° 49' 30.924 N  |
|                      | +E/-W          | 0.0 usft | Easting:            | 670,049.40 usft | Longitude:    | 103° 46' 47.157 W |
| Position Uncertainty |                | 0.0 usft | Wellhead Elevation: | usft            | Ground Level: | 4,048.0 usft      |

|           |                      |             |                 |               |                     |
|-----------|----------------------|-------------|-----------------|---------------|---------------------|
| Wellbore  | OH - Job #32D0311224 |             |                 |               |                     |
| Magnetics | Model Name           | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|           | IGRF200510           | 3/13/2011   | 7.75            | 60.74         | 49,011              |

|                   |                            |                 |                 |                  |     |
|-------------------|----------------------------|-----------------|-----------------|------------------|-----|
| Design            | Actual                     |                 |                 |                  |     |
| Audit Notes:      |                            |                 |                 |                  |     |
| Version:          | 1.0                        | Phase:          | ACTUAL          | Tie On Depth:    | 0.0 |
| Vertical Section: | Depth From (TVD)<br>(usft) | +N/-S<br>(usft) | +E/-W<br>(usft) | Direction<br>(°) |     |
|                   | 0.0                        | 0.0             | 0.0             | 322.97           |     |

|                |               |                                    |           |                                    |  |
|----------------|---------------|------------------------------------|-----------|------------------------------------|--|
| Survey Program | Date 4/7/2011 |                                    |           |                                    |  |
| From (usft)    | To (usft)     | Survey (Wellbore)                  | Tool Name | Description                        |  |
| 100.0          | 2,047.0       | Gyro Survey (OH - Job #32D0311224) | Keeper    | Standard Wireline Keeper ver 1.0.2 |  |
| 2,194.0        | 5,698.0       | MWD Survey (OH - Job #32D0311224)  | MWD       | MWD - Standard                     |  |

|                       |                 |             |                     |                    |                  |                     |                         |  |
|-----------------------|-----------------|-------------|---------------------|--------------------|------------------|---------------------|-------------------------|--|
| Survey                |                 |             |                     |                    |                  |                     |                         |  |
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | True Vertical Depth | North/South (usft) | East/West (usft) | Closure Azimuth (°) | Closure Distance (usft) |  |
| 0.0                   | 0.00            | 0.00        | 0.0                 | 0.0                | 0.0              | 0.00                | 0.0                     |  |
| 100.0                 | 0.31            | 234.66      | 100.0               | -0.2               | -0.2             | 234.66              | 0.3                     |  |
| 200.0                 | 0.45            | 266.34      | 200.0               | -0.3               | -0.8             | 247.92              | 0.9                     |  |
| 300.0                 | 0.79            | 286.45      | 300.0               | -0.2               | -1.9             | 264.91              | 1.9                     |  |
| 400.0                 | 1.82            | 280.48      | 400.0               | 0.3                | -4.1             | 274.40              | 4.1                     |  |
| 500.0                 | 2.57            | 269.39      | 499.9               | 0.6                | -7.9             | 274.20              | 7.9                     |  |
| 600.0                 | 2.55            | 260.17      | 599.8               | 0.2                | -12.3            | 270.82              | 12.3                    |  |
| 700.0                 | 2.50            | 264.02      | 699.7               | -0.4               | -16.7            | 268.53              | 16.7                    |  |
| 800.0                 | 2.58            | 263.85      | 799.6               | -0.9               | -21.1            | 267.57              | 21.1                    |  |
| 900.0                 | 2.30            | 265.38      | 899.5               | -1.3               | -25.4            | 267.06              | 25.4                    |  |
| 1,000.0               | 2.09            | 262.55      | 999.4               | -1.7               | -29.2            | 266.67              | 29.2                    |  |



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| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB Elev (20') @ 4068.0usft (United #42) |
| Site:     | BC Federal #53             | MD Reference:                | KB Elev (20') @ 4068.0usft (United #42) |
| Well:     | BC Federal #53             | North Reference:             | Grid                                    |
| Wellbore: | OH - Job #32D0311224       | Survey Calculation Method:   | Minimum Curvature                       |
| Design:   | Actual                     | Database:                    | EDM-Regulatory                          |

| Survey                   |                    |                |                        |                       |                     |                        |                            |  |  |
|--------------------------|--------------------|----------------|------------------------|-----------------------|---------------------|------------------------|----------------------------|--|--|
| Measured Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | True Vertical<br>Depth | North/South<br>(usft) | East/West<br>(usft) | Closure Azimuth<br>(°) | Closure Distance<br>(usft) |  |  |
| 1,100.0                  | 2.13               | 263.40         | 1,099.4                | -2.1                  | -32.8               | 266.25                 | 32.9                       |  |  |
| 1,200.0                  | 2.04               | 262.27         | 1,199.3                | -2.6                  | -36.4               | 265.91                 | 36.5                       |  |  |
| 1,300.0                  | 1.86               | 271.03         | 1,299.2                | -2.8                  | -39.8               | 265.96                 | 39.9                       |  |  |
| 1,400.0                  | 1.75               | 272.94         | 1,399.2                | -2.7                  | -43.0               | 266.40                 | 43.0                       |  |  |
| 1,500.0                  | 1.45               | 287.62         | 1,499.2                | -2.2                  | -45.7               | 267.19                 | 45.7                       |  |  |
| 1,600.0                  | 1.67               | 315.85         | 1,599.1                | -0.8                  | -47.9               | 269.03                 | 47.9                       |  |  |
| 1,700.0                  | 1.86               | 340.09         | 1,699.1                | 1.8                   | -49.5               | 272.03                 | 49.5                       |  |  |
| 1,800.0                  | 1.84               | 342.52         | 1,799.0                | 4.8                   | -50.5               | 275.44                 | 50.7                       |  |  |
| 1,900.0                  | 1.61               | 345.75         | 1,899.0                | 7.7                   | -51.3               | 278.54                 | 51.9                       |  |  |
| 2,000.0                  | 1.64               | 338.83         | 1,998.9                | 10.4                  | -52.2               | 281.27                 | 53.2                       |  |  |
| 2,047.0                  | 1.81               | 344.58         | 2,045.9                | 11.7                  | -52.6               | 282.58                 | 53.9                       |  |  |



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| Project:  | Lea County, NM (NAD27 NME) | TVD Reference:               | KB Elev (20') @ 4068.0usft (United #42) |
| Site:     | BC Federal #53             | MD Reference:                | KB Elev (20') @ 4068.0usft (United #42) |
| Well:     | BC Federal #53             | North Reference:             | Grid                                    |
| Wellbore: | OH - Job #32D0311224       | Survey Calculation Method:   | Minimum Curvature                       |
| Design:   | Actual                     | Database:                    | EDM-Regulatory                          |

|             |                                      |               |                |
|-------------|--------------------------------------|---------------|----------------|
| Project     | Lea County, NM (NAD27 NME)           |               |                |
| Map System: | US State Plane 1927 (Exact solution) | System Datum: | Mean Sea Level |
| Geo Datum:  | NAD 1927 (NADCON CONUS)              |               |                |
| Map Zone:   | New Mexico East 3001                 |               |                |

|                       |                |                   |                   |
|-----------------------|----------------|-------------------|-------------------|
| Site                  | BC Federal #53 |                   |                   |
| Site Position:        |                | Northing:         | 664,384.80 usft   |
| From:                 | Map            | Easting:          | 670,049.40 usft   |
| Position Uncertainty: | 0.0 usft       | Slot Radius:      | 0"                |
|                       |                | Latitude:         | 32° 49' 30.924 N  |
|                       |                | Longitude:        | 103° 46' 47.157 W |
|                       |                | Grid Convergence: | 0.30 °            |

|                      |                |                     |                   |
|----------------------|----------------|---------------------|-------------------|
| Well                 | BC Federal #53 |                     |                   |
| Well Position        | +N/-S          | 0.0 usft            | Northing:         |
|                      | +E/-W          | 0.0 usft            | Easting:          |
| Position Uncertainty | 0.0 usft       | Wellhead Elevation: | usft              |
|                      |                | Latitude:           | 32° 49' 30.924 N  |
|                      |                | Longitude:          | 103° 46' 47.157 W |
|                      |                | Ground Level:       | 4,048.0 usft      |

|           |                      |             |                 |               |                     |
|-----------|----------------------|-------------|-----------------|---------------|---------------------|
| Wellbore  | OH - Job #32D0311224 |             |                 |               |                     |
| Magnetics | Model Name           | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|           | IGRF200510           | 3/13/2011   | 7.75            | 60.74         | 49,011              |

|                   |                         |              |              |                   |
|-------------------|-------------------------|--------------|--------------|-------------------|
| Design            | Actual                  |              |              |                   |
| Audit Notes:      |                         |              |              |                   |
| Version:          | 1.0                     | Phase:       | ACTUAL       | Tie On Depth: 0.0 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°)     |
|                   | 0.0                     | 0.0          | 0.0          | 322.97            |

|                |               |                                    |           |                                    |
|----------------|---------------|------------------------------------|-----------|------------------------------------|
| Survey Program | Date 4/7/2011 |                                    |           |                                    |
| From (usft)    | To (usft)     | Survey (Wellbore)                  | Tool Name | Description                        |
| 100.0          | 2,047.0       | Gyro Survey (OH - Job #32D0311224) | Keeper    | Standard Wireline Keeper ver 1.0.2 |
| 2,194.0        | 5,698.0       | MWD Survey (OH - Job #32D0311224)  | MWD       | MWD - Standard                     |

|                       |                 |             |                     |                    |                  |                     |                         |
|-----------------------|-----------------|-------------|---------------------|--------------------|------------------|---------------------|-------------------------|
| Survey                |                 |             |                     |                    |                  |                     |                         |
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | True Vertical Depth | North/South (usft) | East/West (usft) | Closure Azimuth (°) | Closure Distance (usft) |
| 2,047.0               | 1.81            | 344.58      | 2,045.9             | 11.7               | -52.6            | 282.58              | 53.9                    |
| Gyro tie-in           |                 |             |                     |                    |                  |                     |                         |
| 2,194.0               | 1.48            | 331.75      | 2,192.9             | 15.7               | -54.2            | 286.12              | 56.4                    |
| 2,257.0               | 2.12            | 329.64      | 2,255.8             | 17.4               | -55.1            | 287.50              | 57.8                    |
| 2,320.0               | 3.02            | 328.51      | 2,318.8             | 19.8               | -56.6            | 289.28              | 60.0                    |
| 2,384.0               | 4.15            | 329.47      | 2,382.6             | 23.2               | -58.6            | 291.61              | 63.1                    |
| 2,448.0               | 5.43            | 329.38      | 2,446.4             | 27.8               | -61.4            | 294.40              | 67.4                    |
| 2,511.0               | 5.80            | 327.83      | 2,509.1             | 33.1               | -64.6            | 297.13              | 72.6                    |
| 2,574.0               | 7.00            | 326.73      | 2,571.7             | 39.0               | -68.4            | 299.70              | 78.7                    |
| 2,637.0               | 7.64            | 325.13      | 2,634.2             | 45.6               | -72.9            | 302.06              | 86.0                    |
| 2,700.0               | 8.34            | 322.32      | 2,696.6             | 52.7               | -78.1            | 304.02              | 94.2                    |



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|                  |                            |                                     |                                         |
|------------------|----------------------------|-------------------------------------|-----------------------------------------|
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| <b>Project:</b>  | Lea County, NM (NAD27 NME) | <b>TVD Reference:</b>               | KB Elev (20') @ 4068.0usft (United #42) |
| <b>Site:</b>     | BC Federal #53             | <b>MD Reference:</b>                | KB Elev (20') @ 4068.0usft (United #42) |
| <b>Well:</b>     | BC Federal #53             | <b>North Reference:</b>             | Grid                                    |
| <b>Wellbore:</b> | OH - Job #32D0311224       | <b>Survey Calculation Method:</b>   | Minimum Curvature                       |
| <b>Design:</b>   | Actual                     | <b>Database:</b>                    | EDM-Regulatory                          |

| Survey                   |                    |                |                        |                       |                     |                        |                            |
|--------------------------|--------------------|----------------|------------------------|-----------------------|---------------------|------------------------|----------------------------|
| Measured Depth<br>(usft) | Inclination<br>(°) | Azimuth<br>(°) | True Vertical<br>Depth | North/South<br>(usft) | East/West<br>(usft) | Closure Azimuth<br>(°) | Closure Distance<br>(usft) |
| 2,795.0                  | 8.65               | 321.15         | 2,790.5                | 63.7                  | -86.8               | 306.29                 | 107.6                      |
| 2,891.0                  | 9.10               | 320.51         | 2,885.4                | 75.2                  | -96.1               | 308.04                 | 122.0                      |
| 2,986.0                  | 8.62               | 323.76         | 2,979.3                | 86.7                  | -105.1              | 309.53                 | 136.3                      |
| 3,049.0                  | 8.54               | 327.51         | 3,041.6                | 94.5                  | -110.4              | 310.56                 | 145.3                      |
| 3,112.0                  | 8.83               | 330.23         | 3,103.8                | 102.6                 | -115.3              | 311.67                 | 154.4                      |
| 3,176.0                  | 8.90               | 330.89         | 3,167.1                | 111.2                 | -120.2              | 312.79                 | 163.7                      |
| 3,239.0                  | 8.78               | 329.39         | 3,229.3                | 119.6                 | -125.0              | 313.74                 | 173.0                      |
| 3,334.0                  | 8.47               | 327.07         | 3,323.2                | 131.7                 | -132.5              | 314.84                 | 186.8                      |
| 3,429.0                  | 7.94               | 323.74         | 3,417.3                | 142.9                 | -140.2              | 315.55                 | 200.2                      |
| 3,524.0                  | 8.70               | 327.42         | 3,511.3                | 154.2                 | -147.9              | 316.20                 | 213.7                      |
| 3,626.0                  | 8.47               | 325.86         | 3,612.1                | 167.0                 | -156.3              | 316.89                 | 228.7                      |
| 3,720.0                  | 8.29               | 324.51         | 3,705.1                | 178.2                 | -164.1              | 317.36                 | 242.2                      |
| 3,815.0                  | 9.17               | 328.10         | 3,799.0                | 190.2                 | -172.1              | 317.86                 | 256.5                      |
| 3,909.0                  | 8.84               | 326.28         | 3,891.9                | 202.6                 | -180.0              | 318.37                 | 271.0                      |
| 4,004.0                  | 9.03               | 325.47         | 3,985.7                | 214.8                 | -188.3              | 318.75                 | 285.7                      |
| 4,099.0                  | 8.74               | 329.29         | 4,079.6                | 227.1                 | -196.2              | 319.17                 | 300.2                      |
| 4,194.0                  | 9.07               | 328.93         | 4,173.4                | 239.7                 | -203.8              | 319.64                 | 314.7                      |
| 4,289.0                  | 8.93               | 330.01         | 4,267.3                | 252.5                 | -211.3              | 320.08                 | 329.3                      |
| 4,384.0                  | 9.28               | 328.15         | 4,361.1                | 265.4                 | -219.1              | 320.47                 | 344.2                      |
| 4,479.0                  | 8.55               | 328.02         | 4,454.9                | 277.9                 | -226.8              | 320.78                 | 358.8                      |
| 4,573.0                  | 7.96               | 332.94         | 4,547.9                | 289.7                 | -233.5              | 321.13                 | 372.1                      |
| 4,668.0                  | 7.18               | 333.07         | 4,642.1                | 300.8                 | -239.2              | 321.51                 | 384.3                      |
| 4,763.0                  | 5.89               | 329.21         | 4,736.5                | 310.3                 | -244.4              | 321.78                 | 395.0                      |
| 4,858.0                  | 6.05               | 331.46         | 4,831.0                | 318.9                 | -249.3              | 321.99                 | 404.7                      |
| 4,953.0                  | 5.05               | 328.75         | 4,925.5                | 326.9                 | -253.8              | 322.17                 | 413.8                      |
| 5,016.0                  | 5.03               | 326.86         | 4,988.3                | 331.5                 | -256.8              | 322.24                 | 419.3                      |
| 5,080.0                  | 5.05               | 326.48         | 5,052.0                | 336.2                 | -259.9              | 322.30                 | 424.9                      |
| 5,143.0                  | 5.15               | 326.33         | 5,114.8                | 340.9                 | -263.0              | 322.35                 | 430.5                      |
| 5,206.0                  | 4.34               | 328.82         | 5,177.6                | 345.3                 | -265.8              | 322.42                 | 435.7                      |
| 5,269.0                  | 3.68               | 333.02         | 5,240.4                | 349.1                 | -267.9              | 322.50                 | 440.1                      |
| 5,333.0                  | 2.78               | 324.23         | 5,304.3                | 352.2                 | -269.8              | 322.55                 | 443.7                      |
| 5,396.0                  | 1.89               | 316.99         | 5,367.3                | 354.2                 | -271.4              | 322.55                 | 446.2                      |
| 5,459.0                  | 1.09               | 305.95         | 5,430.2                | 355.3                 | -272.5              | 322.51                 | 447.8                      |
| 5,523.0                  | 0.17               | 271.22         | 5,494.2                | 355.7                 | -273.1              | 322.48                 | 448.5                      |
| 5,586.0                  | 0.15               | 16.01          | 5,557.2                | 355.8                 | -273.2              | 322.48                 | 448.6                      |
| 5,649.0                  | 0.24               | 334.68         | 5,620.2                | 356.0                 | -273.2              | 322.49                 | 448.7                      |
| <b>Last MWD Survey</b>   |                    |                |                        |                       |                     |                        |                            |
| 5,698.0                  | 0.24               | 334.68         | 5,669.2                | 356.2                 | -273.3              | 322.50                 | 448.9                      |
| <b>Projection to Bit</b> |                    |                |                        |                       |                     |                        |                            |



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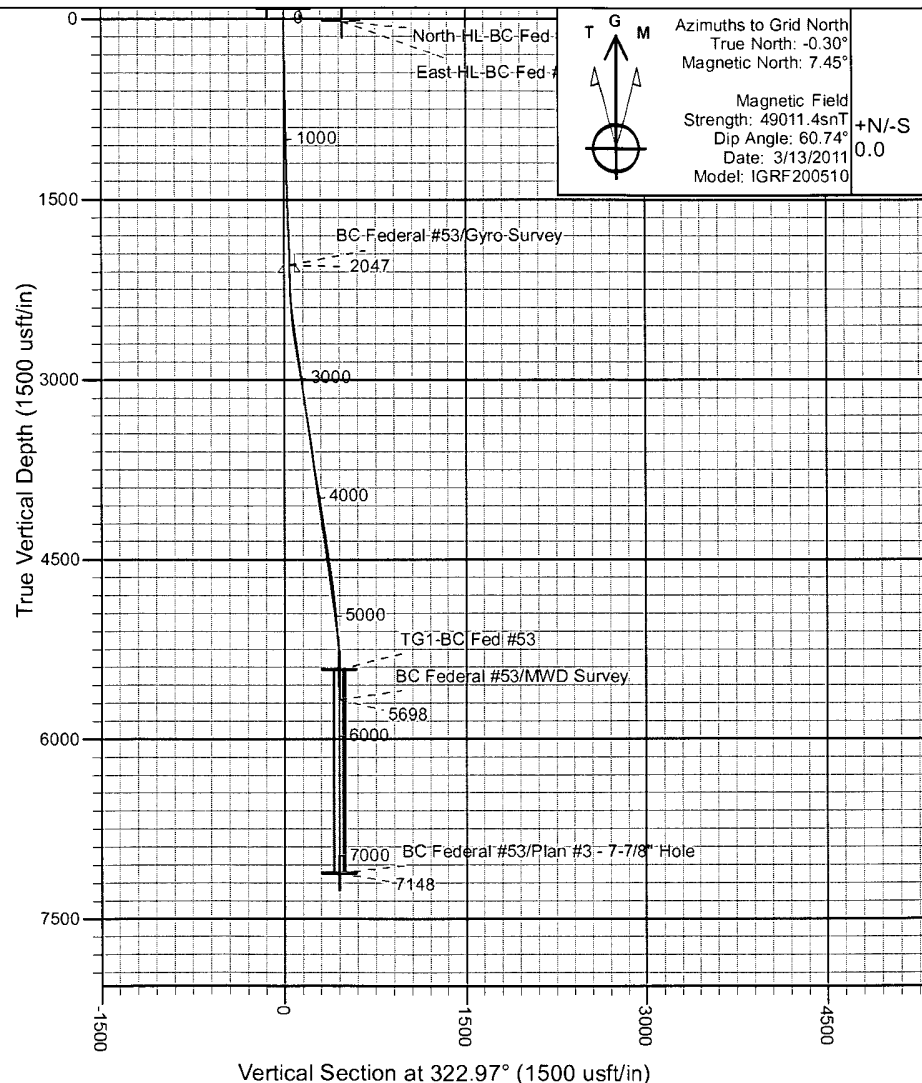


|                  |                            |                                     |                                         |
|------------------|----------------------------|-------------------------------------|-----------------------------------------|
| <b>Company:</b>  | COG OPERATING LLC          | <b>Local Co-ordinate Reference:</b> | Well BC Federal #53                     |
| <b>Project:</b>  | Lea County, NM (NAD27 NME) | <b>TVD Reference:</b>               | KB Elev (20') @ 4068.0usft (United #42) |
| <b>Site:</b>     | BC Federal #53             | <b>MD Reference:</b>                | KB Elev (20') @ 4068.0usft (United #42) |
| <b>Well:</b>     | BC Federal #53             | <b>North Reference:</b>             | Grid                                    |
| <b>Wellbore:</b> | OH - Job #32D0311224       | <b>Survey Calculation Method:</b>   | Minimum Curvature                       |
| <b>Design:</b>   | Actual                     | <b>Database:</b>                    | EDM-Regulatory                          |

| Survey Annotations          |                             |                   |                 |                   |
|-----------------------------|-----------------------------|-------------------|-----------------|-------------------|
| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment           |
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |                   |
| 2,047.0                     | 2,045.9                     | 11.7              | -52.6           | Gyro tie-in       |
| 5,649.0                     | 5,620.2                     | 356.0             | -273.2          | Last MWD Survey   |
| 5,698.0                     | 5,669.2                     | 356.2             | -273.3          | Projection to Bit |



Project: Lea County, NM (NAD27 NME)  
 Site: BC Federal #53  
 Well: BC Federal #53  
 Wellbore: OH - Job #32D0311224  
 Design: Plan #3 - 7-7/8" Hole



Azimuths to Grid North  
 True North: -0.30°  
 Magnetic North: 7.45°  
 Magnetic Field  
 Strength: 49011.4snT  
 Dip Angle: 60.74°  
 Date: 3/13/2011  
 Model: IGRF200510

+N/-S  
 0.0

+E/-W  
 0.0

Northing  
 664384.80

WELL DETAILS: BC Federal #53  
 KB Elev (20') @ 4068.0usft (United #42)  
 Ground Level: 4048.0  
 Easting 670049.40 Latitude 32° 49' 30.924 N Longitude 103° 46' 47.157 W Slot

