



# **Noble Energy, Inc**

**Weld County, CO (NAD 83)**

**Crow Creek State Pad**

**Crow Creek State AC36-73-1HN**

**Wellbore #1**

**Design: OH**

## **Final Survey Report**

**08 November, 2013**





# IDS Final Survey Report



|                  |                              |                                     |                                   |
|------------------|------------------------------|-------------------------------------|-----------------------------------|
| <b>Company:</b>  | Noble Energy, Inc            | <b>Local Co-ordinate Reference:</b> | Well Crow Creek State AC36-73-1HN |
| <b>Project:</b>  | Weld County, CO (NAD 83)     | <b>TVD Reference:</b>               | WELL @ 4873.0usft (H&P 277)       |
| <b>Site:</b>     | Crow Creek State Pad         | <b>MD Reference:</b>                | WELL @ 4873.0usft (H&P 277)       |
| <b>Well:</b>     | Crow Creek State AC36-73-1HN | <b>North Reference:</b>             | Grid                              |
| <b>Wellbore:</b> | Wellbore #1                  | <b>Survey Calculation Method:</b>   | Minimum Curvature                 |
| <b>Design:</b>   | OH                           | <b>Database:</b>                    | EDM 5000.1 Single User Db         |

|                    |                           |                      |                |
|--------------------|---------------------------|----------------------|----------------|
| <b>Project</b>     | Weld County, CO (NAD 83)  |                      |                |
| <b>Map System:</b> | US State Plane 1983       | <b>System Datum:</b> | Mean Sea Level |
| <b>Geo Datum:</b>  | North American Datum 1983 |                      |                |
| <b>Map Zone:</b>   | Colorado Northern Zone    |                      |                |

|             |                      |  |  |
|-------------|----------------------|--|--|
| <b>Site</b> | Crow Creek State Pad |  |  |
|-------------|----------------------|--|--|

|                              |          |                     |                   |                          |                   |
|------------------------------|----------|---------------------|-------------------|--------------------------|-------------------|
| <b>Site Position:</b>        |          | <b>Northing:</b>    | 1,435,563.26 usft | <b>Latitude:</b>         | 40° 31' 25.032 N  |
| <b>From:</b>                 | Lat/Long | <b>Easting:</b>     | 3,311,476.82 usft | <b>Longitude:</b>        | 104° 22' 46.416 W |
| <b>Position Uncertainty:</b> | 0.0 usft | <b>Slot Radius:</b> | 13-3/16"          | <b>Grid Convergence:</b> | 0.72 °            |

|                             |                              |          |                            |                   |                                     |
|-----------------------------|------------------------------|----------|----------------------------|-------------------|-------------------------------------|
| <b>Well</b>                 | Crow Creek State AC36-73-1HN |          |                            |                   |                                     |
| <b>Well Position</b>        | +N/-S                        | 0.0 usft | <b>Northing:</b>           | 1,435,561.81 usft | <b>Latitude:</b> 40° 31' 25.032 N   |
|                             | +E/-W                        | 0.0 usft | <b>Easting:</b>            | 3,311,362.85 usft | <b>Longitude:</b> 104° 22' 47.892 W |
| <b>Position Uncertainty</b> | 0.0 usft                     |          | <b>Wellhead Elevation:</b> | usft              | <b>Ground Level:</b> 4,849.0 usft   |

|                 |             |  |  |  |  |
|-----------------|-------------|--|--|--|--|
| <b>Wellbore</b> | Wellbore #1 |  |  |  |  |
|-----------------|-------------|--|--|--|--|

| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
|-----------|------------|-------------|-----------------|---------------|---------------------|
|           | IGRF2010   | 8/9/2013    | 8.38            | 67.14         | 53,009              |

|               |    |  |  |  |  |
|---------------|----|--|--|--|--|
| <b>Design</b> | OH |  |  |  |  |
|---------------|----|--|--|--|--|

|                          |                                |                     |                     |                      |     |
|--------------------------|--------------------------------|---------------------|---------------------|----------------------|-----|
| <b>Audit Notes:</b>      |                                |                     |                     |                      |     |
| <b>Version:</b>          | 1.0                            | <b>Phase:</b>       | ACTUAL              | <b>Tie On Depth:</b> | 0.0 |
| <b>Vertical Section:</b> | <b>Depth From (TVD) (usft)</b> | <b>+N/-S (usft)</b> | <b>+E/-W (usft)</b> | <b>Direction (°)</b> |     |
|                          | 0.0                            | 0.0                 | 0.0                 | 4.94                 |     |

| Survey Program |           | Date 11/8/2013          |           |                |  |
|----------------|-----------|-------------------------|-----------|----------------|--|
| From (usft)    | To (usft) | Survey (Wellbore)       | Tool Name | Description    |  |
| 287.0          | 631.0     | Survey #1 (Wellbore #1) | EMS       | EMS - Standard |  |
| 640.0          | 11,206.0  | MWD (Wellbore #1)       | MWD       | MWD - Standard |  |

| Survey       |            |                      |               |               |               |                  |                     |
|--------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|
| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) |
| 0.0          | 0.00       | 0.00                 | 0.0           | 0.0           | 0.0           | 0.0              | 0.00                |
| 287.0        | 0.20       | 305.25               | 287.0         | 0.3           | -0.4          | 0.3              | 0.07                |
| 631.0        | 0.40       | 192.05               | 631.0         | -0.5          | -1.2          | -0.6             | 0.15                |
| 640.0        | 0.50       | 240.20               | 640.0         | -0.6          | -1.2          | -0.7             | 4.20                |
| First MWD    |            |                      |               |               |               |                  |                     |
| 732.0        | 0.70       | 233.40               | 732.0         | -1.1          | -2.0          | -1.3             | 0.23                |
| 825.0        | 0.70       | 229.30               | 825.0         | -1.8          | -2.9          | -2.1             | 0.05                |
| 918.0        | 0.50       | 226.30               | 918.0         | -2.5          | -3.6          | -2.8             | 0.22                |
| 1,012.0      | 1.40       | 169.70               | 1,012.0       | -3.9          | -3.7          | -4.2             | 1.28                |
| 1,104.0      | 3.50       | 168.70               | 1,103.9       | -7.8          | -2.9          | -8.0             | 2.28                |
| 1,196.0      | 3.50       | 163.40               | 1,195.7       | -13.2         | -1.6          | -13.3            | 0.35                |

**Company:** Noble Energy, Inc  
**Project:** Weld County, CO (NAD 83)  
**Site:** Crow Creek State Pad  
**Well:** Crow Creek State AC36-73-1HN  
**Wellbore:** Wellbore #1  
**Design:** OH

**Local Co-ordinate Reference:** Well Crow Creek State AC36-73-1HN  
**TVD Reference:** WELL @ 4873.0usft (H&P 277)  
**MD Reference:** WELL @ 4873.0usft (H&P 277)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1 Single User Db

**Survey**

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) |
|--------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|
| 1,290.0      | 4.90       | 161.80               | 1,289.5       | -19.8         | 0.5           | -19.7            | 1.49                |
| 1,383.0      | 5.10       | 160.20               | 1,382.1       | -27.4         | 3.1           | -27.1            | 0.26                |
| 1,476.0      | 5.10       | 158.60               | 1,474.7       | -35.2         | 6.0           | -34.5            | 0.15                |
| 1,572.0      | 5.50       | 160.20               | 1,570.3       | -43.5         | 9.1           | -42.5            | 0.44                |
| 1,667.0      | 5.50       | 156.90               | 1,664.9       | -51.9         | 12.5          | -50.7            | 0.33                |
| 1,762.0      | 6.00       | 139.00               | 1,759.4       | -59.9         | 17.5          | -58.1            | 1.95                |
| 1,857.0      | 5.60       | 115.80               | 1,853.9       | -65.6         | 25.0          | -63.2            | 2.49                |
| 1,952.0      | 6.90       | 115.40               | 1,948.4       | -70.1         | 34.3          | -66.9            | 1.37                |
| 2,048.0      | 6.50       | 110.50               | 2,043.7       | -74.5         | 44.6          | -70.4            | 0.73                |
| 2,143.0      | 8.30       | 108.00               | 2,137.9       | -78.5         | 56.1          | -73.4            | 1.92                |
| 2,238.0      | 9.10       | 106.60               | 2,231.8       | -82.7         | 69.9          | -76.4            | 0.87                |
| 2,333.0      | 8.80       | 106.10               | 2,325.7       | -86.9         | 84.0          | -79.4            | 0.33                |
| 2,428.0      | 9.70       | 108.20               | 2,419.4       | -91.4         | 98.6          | -82.6            | 1.01                |
| 2,523.0      | 10.70      | 105.20               | 2,512.9       | -96.2         | 114.7         | -86.0            | 1.19                |
| 2,618.0      | 11.10      | 105.60               | 2,606.2       | -101.0        | 132.1         | -89.3            | 0.43                |
| 2,713.0      | 10.70      | 104.30               | 2,699.5       | -105.6        | 149.4         | -92.4            | 0.49                |
| 2,808.0      | 11.80      | 108.70               | 2,792.7       | -110.9        | 167.2         | -96.1            | 1.47                |
| 2,903.0      | 11.10      | 105.70               | 2,885.8       | -116.5        | 185.2         | -100.2           | 0.97                |
| 2,999.0      | 12.10      | 110.00               | 2,979.8       | -122.5        | 203.5         | -104.5           | 1.38                |
| 3,094.0      | 12.00      | 109.40               | 3,072.7       | -129.2        | 222.2         | -109.5           | 0.17                |
| 3,189.0      | 11.60      | 109.10               | 3,165.7       | -135.6        | 240.5         | -114.3           | 0.43                |
| 3,284.0      | 10.70      | 109.30               | 3,258.9       | -141.6        | 257.9         | -118.9           | 0.95                |
| 3,379.0      | 9.70       | 106.40               | 3,352.4       | -146.8        | 273.9         | -122.6           | 1.18                |
| 3,475.0      | 9.30       | 104.50               | 3,447.1       | -151.0        | 289.1         | -125.5           | 0.53                |
| 3,570.0      | 9.90       | 105.90               | 3,540.8       | -155.2        | 304.4         | -128.4           | 0.68                |
| 3,665.0      | 11.30      | 110.30               | 3,634.2       | -160.6        | 321.0         | -132.4           | 1.70                |
| 3,760.0      | 12.00      | 108.90               | 3,727.2       | -167.1        | 339.1         | -137.2           | 0.79                |
| 3,856.0      | 12.70      | 110.30               | 3,821.0       | -174.0        | 358.4         | -142.4           | 0.79                |
| 3,951.0      | 13.20      | 110.10               | 3,913.6       | -181.3        | 378.4         | -148.0           | 0.53                |
| 4,046.0      | 11.80      | 108.40               | 4,006.3       | -188.1        | 397.8         | -153.1           | 1.52                |
| 4,141.0      | 11.10      | 106.10               | 4,099.4       | -193.7        | 415.8         | -157.2           | 0.88                |
| 4,236.0      | 9.30       | 104.30               | 4,192.9       | -198.1        | 432.0         | -160.2           | 1.92                |
| 4,331.0      | 8.10       | 95.70                | 4,286.8       | -200.7        | 446.1         | -161.5           | 1.86                |
| 4,426.0      | 5.50       | 101.30               | 4,381.2       | -202.2        | 457.3         | -162.1           | 2.82                |
| 4,522.0      | 3.50       | 89.60                | 4,476.9       | -203.1        | 464.7         | -162.4           | 2.28                |
| 4,617.0      | 1.80       | 97.70                | 4,571.7       | -203.3        | 469.1         | -162.2           | 1.83                |
| 4,712.0      | 1.10       | 294.30               | 4,666.7       | -203.1        | 469.7         | -161.9           | 3.02                |
| 4,807.0      | 1.20       | 329.20               | 4,761.7       | -201.9        | 468.4         | -160.8           | 0.73                |
| 4,902.0      | 1.40       | 332.80               | 4,856.7       | -200.0        | 467.4         | -159.0           | 0.23                |
| 4,998.0      | 2.60       | 300.90               | 4,952.6       | -197.9        | 465.0         | -157.1           | 1.66                |
| 5,093.0      | 2.80       | 310.00               | 5,047.5       | -195.3        | 461.3         | -154.8           | 0.50                |
| 5,188.0      | 2.30       | 263.90               | 5,142.4       | -194.0        | 457.7         | -153.8           | 2.16                |
| 5,283.0      | 1.80       | 263.60               | 5,237.4       | -194.3        | 454.3         | -154.5           | 0.53                |
| 5,378.0      | 1.20       | 262.20               | 5,332.4       | -194.6        | 451.8         | -155.0           | 0.63                |
| 5,473.0      | 0.90       | 254.10               | 5,427.3       | -195.0        | 450.1         | -155.5           | 0.35                |





# IDS Final Survey Report



Company: Noble Energy, Inc  
Project: Weld County, CO (NAD 83)  
Site: Crow Creek State Pad  
Well: Crow Creek State AC36-73-1HN  
Wellbore: Wellbore #1  
Design: OH

Local Co-ordinate Reference: Well Crow Creek State AC36-73-1HN  
TVD Reference: WELL @ 4873.0usft (H&P 277)  
MD Reference: WELL @ 4873.0usft (H&P 277)  
North Reference: Grid  
Survey Calculation Method: Minimum Curvature  
Database: EDM 5000.1 Single User Db

## Survey

| MD<br>(usft)  | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) |
|---|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|
| 5,568.0   | 1.10       | 243.20               | 5,522.3       | -195.6        | 448.6         | -156.2           | 0.29                |
| 5,664.0   | 1.10       | 245.80               | 5,618.3       | -196.4        | 446.9         | -157.2           | 0.05                |
| 5,759.0   | 0.70       | 220.70               | 5,713.3       | -197.2        | 445.7         | -158.1           | 0.58                |
| 5,854.0   | 0.90       | 236.20               | 5,808.3       | -198.1        | 444.7         | -159.0           | 0.31                |
| 5,949.0   | 0.90       | 213.00               | 5,903.3       | -199.1        | 443.7         | -160.2           | 0.38                |
| 6,044.0   | 0.90       | 233.20               | 5,998.3       | -200.2        | 442.7         | -161.3           | 0.33                |
| 6,133.0   | 4.00       | 320.00               | 6,087.2       | -198.2        | 440.1         | -159.6           | 4.55                |
| 6,228.0   | 13.50      | 338.60               | 6,181.0       | -185.3        | 433.9         | -147.3           | 10.31               |
| 6,324.0   | 23.70      | 341.10               | 6,271.8       | -156.6        | 423.6         | -119.5           | 10.66               |
| 6,371.0   | 30.00      | 346.60               | 6,313.8       | -136.2        | 417.8         | -99.7            | 14.40               |
| 6,419.0   | 32.50      | 347.30               | 6,354.8       | -111.9        | 412.2         | -76.0            | 5.26                |
| 6,466.0   | 35.10      | 349.00               | 6,393.9       | -86.3         | 406.8         | -51.0            | 5.89                |
| 6,514.0   | 39.70      | 355.30               | 6,432.0       | -57.5         | 402.9         | -22.6            | 12.46               |
| 6,561.0   | 44.20      | 1.47                 | 6,467.0       | -26.1         | 402.1         | 8.6              | 12.98               |
| 6,609.0   | 46.30      | 0.20                 | 6,500.7       | 8.0           | 402.6         | 42.6             | 4.76                |
| 6,657.0   | 48.70      | 359.70               | 6,533.2       | 43.4          | 402.6         | 77.9             | 5.06                |
| 6,704.0   | 51.00      | 0.00                 | 6,563.5       | 79.3          | 402.5         | 113.7            | 4.92                |
| 6,752.0   | 51.50      | 0.50                 | 6,593.5       | 116.7         | 402.6         | 151.0            | 1.32                |
| 6,799.0   | 55.40      | 1.40                 | 6,621.5       | 154.5         | 403.3         | 188.6            | 8.44                |
| 6,846.0   | 61.86      | 2.58                 | 6,646.0       | 194.6         | 404.7         | 228.7            | 13.91               |
| <b>Crosses HL @ 6846' MD / 6646' TVD</b>                                      |            |                      |               |               |               |                  |                     |
| 6,847.0   | 62.00      | 2.60                 | 6,646.4       | 195.4         | 404.7         | 229.6            | 13.91               |
| 6,895.0   | 68.80      | 2.40                 | 6,666.4       | 239.0         | 406.6         | 273.1            | 14.17               |
| 6,942.0   | 72.10      | 2.60                 | 6,682.1       | 283.3         | 408.5         | 317.4            | 7.03                |
| 6,990.0   | 74.70      | 1.80                 | 6,695.8       | 329.2         | 410.3         | 363.3            | 5.65                |
| 7,036.0   | 79.50      | 1.10                 | 6,706.1       | 374.0         | 411.4         | 408.1            | 10.54               |
| 7,073.0   | 82.65      | 1.02                 | 6,711.8       | 410.6         | 412.1         | 444.5            | 8.51                |
| <b>Actual 7" Csg @ 7073' MD / 6712' TVD / 1008' FEL &amp; 677' FSL Sec 36</b> |            |                      |               |               |               |                  |                     |
| 7,083.0   | 83.50      | 1.00                 | 6,713.0       | 420.5         | 412.3         | 454.4            | 8.51                |
| 7,134.0   | 82.70      | 0.10                 | 6,719.2       | 471.1         | 412.8         | 504.9            | 2.35                |
| 7,230.0   | 85.30      | 0.80                 | 6,729.2       | 566.6         | 413.5         | 600.1            | 2.80                |
| 7,325.0   | 88.30      | 359.70               | 6,734.5       | 661.4         | 413.9         | 694.6            | 3.36                |
| 7,420.0   | 91.30      | 1.00                 | 6,734.8       | 756.4         | 414.5         | 789.3            | 3.44                |
| 7,515.0   | 91.00      | 1.30                 | 6,732.9       | 851.4         | 416.4         | 884.1            | 0.45                |
| 7,610.0   | 92.00      | 0.40                 | 6,730.4       | 946.3         | 417.8         | 978.8            | 1.42                |
| 7,705.0   | 90.40      | 359.60               | 6,728.5       | 1,041.3       | 417.8         | 1,073.4          | 1.88                |
| 7,801.0   | 89.90      | 358.30               | 6,728.2       | 1,137.3       | 416.1         | 1,168.9          | 1.45                |
| 7,896.0   | 90.30      | 359.40               | 6,728.0       | 1,232.3       | 414.2         | 1,263.3          | 1.23                |
| 7,991.0   | 89.90      | 358.50               | 6,727.9       | 1,327.2       | 412.4         | 1,357.8          | 1.04                |
| 8,086.0   | 89.60      | 359.20               | 6,728.3       | 1,422.2       | 410.5         | 1,452.3          | 0.80                |
| 8,182.0   | 89.20      | 3.40                 | 6,729.3       | 1,518.2       | 412.7         | 1,548.1          | 4.39                |
| 8,277.0   | 89.60      | 8.90                 | 6,730.3       | 1,612.6       | 422.9         | 1,643.0          | 5.80                |
| 8,372.0   | 89.70      | 13.10                | 6,730.9       | 1,705.8       | 441.0         | 1,737.4          | 4.42                |
| 8,467.0   | 89.00      | 12.20                | 6,731.9       | 1,798.5       | 461.8         | 1,831.6          | 1.20                |

**Company:** Noble Energy, Inc  
**Project:** Weld County, CO (NAD 83)  
**Site:** Crow Creek State Pad  
**Well:** Crow Creek State AC36-73-1HN  
**Wellbore:** Wellbore #1  
**Design:** OH

**Local Co-ordinate Reference:** Well Crow Creek State AC36-73-1HN  
**TVD Reference:** WELL @ 4873.0usft (H&P 277)  
**MD Reference:** WELL @ 4873.0usft (H&P 277)  
**North Reference:** Grid  
**Survey Calculation Method:** Minimum Curvature  
**Database:** EDM 5000.1 Single User Db

**Survey**

| MD<br>(usft) | Inc<br>(°) | Azi (azimuth)<br>(°) | TVD<br>(usft) | N/S<br>(usft) | E/W<br>(usft) | V. Sec<br>(usft) | DLeg<br>(°/100usft) |
|--------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|
| 8,562.0      | 90.30      | 8.40                 | 6,732.5       | 1,891.9       | 478.8         | 1,926.1          | 4.23                |
| 8,657.0      | 89.60      | 0.80                 | 6,732.6       | 1,986.6       | 486.4         | 2,021.1          | 8.03                |
| 8,753.0      | 90.40      | 357.10               | 6,732.6       | 2,082.5       | 484.6         | 2,116.5          | 3.94                |
| 8,848.0      | 89.90      | 355.90               | 6,732.4       | 2,177.4       | 478.8         | 2,210.5          | 1.37                |
| 8,943.0      | 89.60      | 353.90               | 6,732.8       | 2,272.0       | 470.4         | 2,304.0          | 2.13                |
| 9,038.0      | 90.60      | 355.00               | 6,732.6       | 2,366.5       | 461.2         | 2,397.5          | 1.56                |
| 9,134.0      | 91.00      | 353.20               | 6,731.3       | 2,462.0       | 451.3         | 2,491.7          | 1.92                |
| 9,229.0      | 92.90      | 351.80               | 6,728.0       | 2,556.1       | 438.9         | 2,584.4          | 2.48                |
| 9,324.0      | 91.80      | 355.20               | 6,724.1       | 2,650.4       | 428.2         | 2,677.5          | 3.76                |
| 9,419.0      | 91.10      | 356.90               | 6,721.7       | 2,745.2       | 421.7         | 2,771.3          | 1.93                |
| 9,514.0      | 88.00      | 358.70               | 6,722.5       | 2,840.1       | 418.0         | 2,865.5          | 3.77                |
| 9,609.0      | 86.90      | 358.30               | 6,726.7       | 2,934.9       | 415.5         | 2,959.8          | 1.23                |
| 9,705.0      | 87.40      | 358.30               | 6,731.5       | 3,030.8       | 412.7         | 3,055.1          | 0.52                |
| 9,800.0      | 89.00      | 358.00               | 6,734.5       | 3,125.7       | 409.6         | 3,149.3          | 1.71                |
| 9,895.0      | 91.70      | 357.30               | 6,733.9       | 3,220.6       | 405.7         | 3,243.6          | 2.94                |
| 9,990.0      | 89.00      | 358.70               | 6,733.3       | 3,315.5       | 402.4         | 3,337.9          | 3.20                |
| 10,085.0     | 89.60      | 358.70               | 6,734.5       | 3,410.5       | 400.2         | 3,432.3          | 0.63                |
| 10,181.0     | 88.00      | 0.10                 | 6,736.5       | 3,506.5       | 399.2         | 3,527.8          | 2.21                |
| 10,276.0     | 88.50      | 359.70               | 6,739.4       | 3,601.4       | 399.1         | 3,622.4          | 0.67                |
| 10,371.0     | 91.30      | 0.30                 | 6,739.5       | 3,696.4       | 399.1         | 3,717.0          | 3.01                |
| 10,466.0     | 86.70      | 357.50               | 6,741.2       | 3,791.3       | 397.3         | 3,811.5          | 5.67                |
| 10,561.0     | 86.40      | 357.50               | 6,746.9       | 3,886.1       | 393.1         | 3,905.5          | 0.32                |
| 10,657.0     | 86.00      | 357.30               | 6,753.3       | 3,981.8       | 388.8         | 4,000.5          | 0.47                |
| 10,752.0     | 84.60      | 356.90               | 6,761.1       | 4,076.3       | 384.0         | 4,094.2          | 1.53                |
| 10,847.0     | 87.80      | 0.60                 | 6,767.4       | 4,171.1       | 381.9         | 4,188.5          | 5.14                |
| 10,942.0     | 92.00      | 2.20                 | 6,767.5       | 4,266.0       | 384.2         | 4,283.3          | 4.73                |
| 11,037.0     | 94.50      | 1.80                 | 6,762.1       | 4,360.8       | 387.6         | 4,378.0          | 2.66                |
| 11,132.0     | 96.40      | 1.30                 | 6,753.1       | 4,455.3       | 390.1         | 4,472.4          | 2.07                |

**Last MWD @ 1132' MD / 6753' TVD**

|          |       |      |         |         |       |         |      |
|----------|-------|------|---------|---------|-------|---------|------|
| 11,206.0 | 96.40 | 1.30 | 6,744.9 | 4,528.8 | 391.8 | 4,545.8 | 0.00 |
|----------|-------|------|---------|---------|-------|---------|------|

**PTD @ 11206' MD / 6745' TVD / 537' FNL & 968' FEL Sec 36**

**Design Annotations**

| Measured<br>Depth<br>(usft) | Vertical<br>Depth<br>(usft) | Local Coordinates |                 | Comment  |
|-----------------------------|-----------------------------|-------------------|-----------------|--|
|                             |                             | +N/-S<br>(usft)   | +E/-W<br>(usft) |  |
| 640.0                       | 640.0                       | -0.6              | -1.2            | First MWD  |
| 6,846.0                     | 6,646.0                     | 194.6             | 404.7           | Crosses HL @ 6846' MD / 6646' TVD                                  |
| 7,073.0                     | 6,711.8                     | 410.6             | 412.1           | Actual 7" Csg @ 7073' MD / 6712' TVD / 1008' FEL & 677' FSL Sec 36 |
| 11,132.0                    | 6,753.1                     | 4,455.3           | 390.1           | Last MWD @ 1132' MD / 6753' TVD                                    |
| 11,206.0                    | 6,744.9                     | 4,528.8           | 391.8           | PTD @ 11206' MD / 6745' TVD / 537' FNL & 968' FEL Sec 36           |

|                   |                    |             |
|-------------------|--------------------|-------------|
| Checked By: _____ | Approved By: _____ | Date: _____ |
|-------------------|--------------------|-------------|





Weld County, CO (NAD 83)  
Crow Creek State AC36-73-1HN

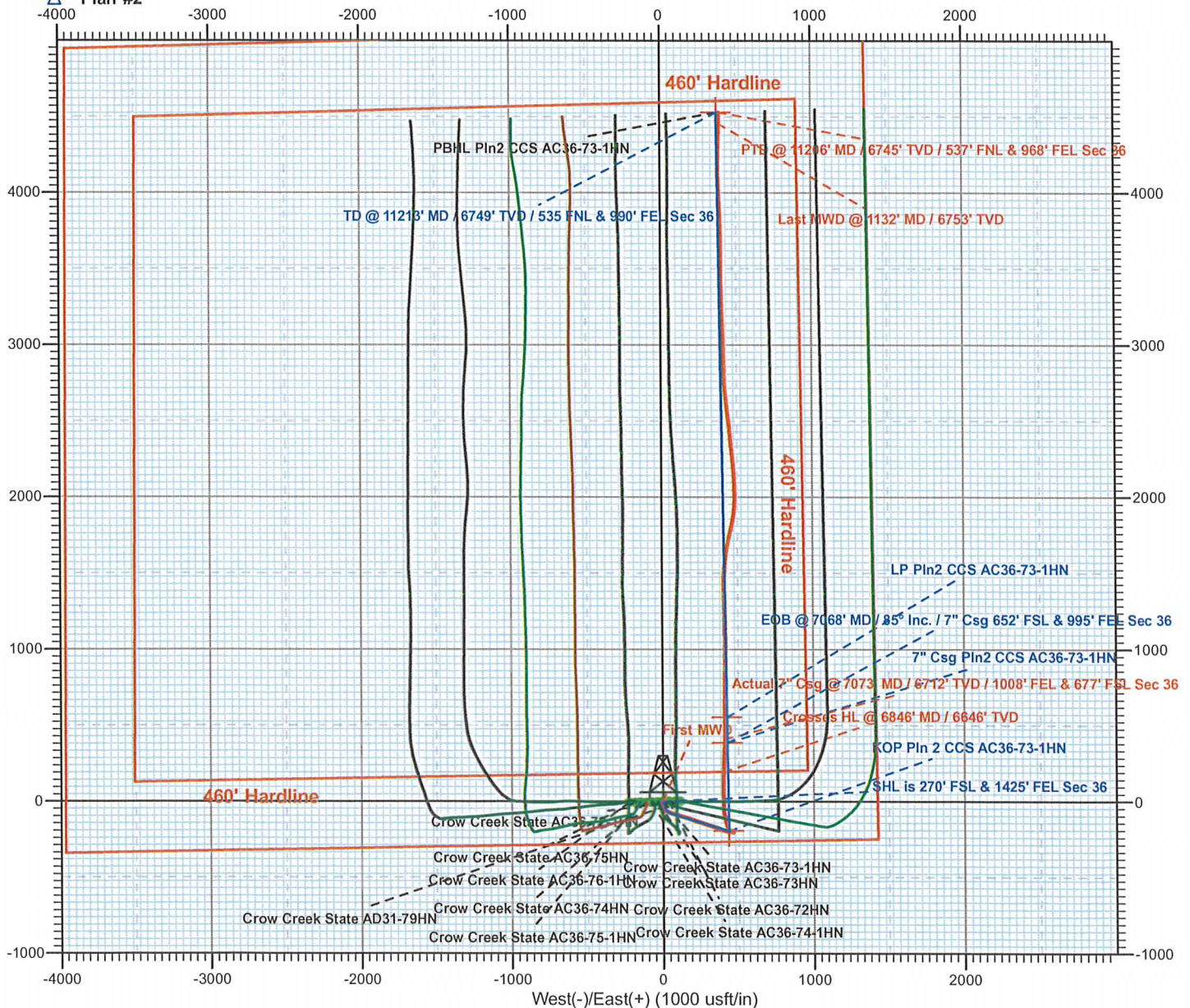
H&P 277  
Plan #2



Azimuths to Grid North  
True North:  $-0.72^\circ$   
Magnetic North:  $7.65^\circ$   
  
Magnetic Field  
Strength: 53009.0snT  
Dip Angle:  $67.14^\circ$   
Date: 8/9/2013  
Model: IGRF2010

LEGEND

- Crow Creek State AC36-73-1HN, Wellbore #1, OH V0
- ◇— Crow Creek State AC36-72-1HN, Wellbore #1, Plan #2 V0
- X— Crow Creek State AC36-72HN, Wellbore #1, Plan #2 V0
- Crow Creek State AC36-73HN, Wellbore #1, OH V0
- Crow Creek State AC36-74-1HN, Wellbore #1, OH V0
- X— Crow Creek State AC36-74HN, Wellbore #1, OH V0
- Crow Creek State AC36-75-1HN, Wellbore #1, OH V0
- Crow Creek State AC36-76-1HN, Wellbore #1, OH V0
- Crow Creek State AC36-75HN, Wellbore #1, OH V0
- ◇— Crow Creek State AD31-79HN, Wellbore #1, Plan #1 V0
- △— Plan #2







Weld County, CO (NAD 83)  
Crow Creek State Pad  
Crow Creek State AC36-73-1HN

H&P 277

Plan #2

