



Noble Energy, Inc

Weld County, CO (NAD 83)

Crow Creek State Pad

Crow Creek State AD31-79HN

Wellbore #1

Design: OH

Final Survey Report

03 December, 2013





IDS Final Survey Report



| | | | |
|------------------|----------------------------|-------------------------------------|---------------------------------|
| Company: | Noble Energy, Inc | Local Co-ordinate Reference: | Well Crow Creek State AD31-79HN |
| Project: | Weld County, CO (NAD 83) | TVD Reference: | WELL @ 4875.0usft (HP 277) |
| Site: | Crow Creek State Pad | MD Reference: | WELL @ 4875.0usft (HP 277) |
| Well: | Crow Creek State AD31-79HN | North Reference: | Grid |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | OH | Database: | EDM 5000.1 Single User Db |

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

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

| | | | | | | |
|----------------------|----------------------------|----------|---------------------|-------------------|---------------|-------------------|
| Well | Crow Creek State AD31-79HN | | | | | |
| Well Position | +N-S | 0.0 usft | Northing: | 1,435,563.24 usft | Latitude: | 40° 31' 25.032 N |
| | +E-W | 0.0 usft | Easting: | 3,311,476.82 usft | Longitude: | 104° 22' 46.416 W |
| Position Uncertainty | | 0.0 usft | Wellhead Elevation: | usft | Ground Level: | 4,851.0 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Wellbore #1 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 8/8/2013 | 8.38 | 67.14 | 53,009 |

| | | | | | |
|--------------------------|--------------------------------|--------------------|--------------------|----------------------|-----|
| Design | OH | | | | |
| 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 | 15.31 | |

| | | | | | |
|-----------------------|------------------|--------------------------|------------------|--------------------|--|
| Survey Program | Date | 12/3/2013 | | | |
| From (usft) | To (usft) | Survey (Wellbore) | Tool Name | Description | |
| 371.0 | 618.0 | Survey #1 (Wellbore #1) | EMS | EMS - Standard | |
| 725.0 | 11,353.0 | Survey #2 (Wellbore #1) | MWD | MWD - Standard | |

| | | | | | | | | |
|------------------|----------------|--------------------------|-------------------|-------------------|-------------------|----------------------|-------------------------|--|
| Survey | | | | | | | | |
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | |
| 0.0 | 0.00 | 0.00 | 0.0 | 0.0 | 0.0 | 0.0 | 0.00 | |
| 371.0 | 0.40 | 292.65 | 371.0 | 0.5 | -1.2 | 0.2 | 0.11 | |
| 618.0 | 0.50 | 278.45 | 618.0 | 1.0 | -3.1 | 0.1 | 0.06 | |
| 725.0 | 0.50 | 275.70 | 725.0 | 1.1 | -4.0 | 0.0 | 0.02 | |
| First MWD | | | | | | | | |
| 818.0 | 0.90 | 288.20 | 818.0 | 1.4 | -5.1 | 0.0 | 0.46 | |
| 912.0 | 0.70 | 267.50 | 912.0 | 1.6 | -6.4 | -0.2 | 0.37 | |
| 1,005.0 | 1.80 | 95.50 | 1,005.0 | 1.4 | -5.5 | -0.1 | 2.68 | |
| 1,097.0 | 1.90 | 84.30 | 1,096.9 | 1.4 | -2.5 | 0.7 | 0.41 | |
| 1,191.0 | 1.60 | 86.90 | 1,190.9 | 1.7 | 0.3 | 1.7 | 0.33 | |
| 1,284.0 | 1.80 | 76.40 | 1,283.8 | 2.1 | 3.1 | 2.8 | 0.40 | |

| | | | |
|------------------|----------------------------|-------------------------------------|---------------------------------|
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| Site: | Crow Creek State Pad | MD Reference: | WELL @ 4875.0usft (HP 277) |
| Well: | Crow Creek State AD31-79HN | North Reference: | Grid |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | OH | Database: | EDM 5000.1 Single User Db |

| Survey | | | | | | | | |
|--------------|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|--|
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | |
| 1,377.0 | 2.10 | 79.90 | 1,376.8 | 2.7 | 6.2 | 4.2 | 0.35 | |
| 1,472.0 | 1.90 | 78.80 | 1,471.7 | 3.3 | 9.4 | 5.7 | 0.21 | |
| 1,567.0 | 2.30 | 82.40 | 1,566.6 | 3.9 | 12.9 | 7.1 | 0.44 | |
| 1,662.0 | 2.30 | 83.60 | 1,661.6 | 4.3 | 16.6 | 8.6 | 0.05 | |
| 1,758.0 | 2.30 | 78.30 | 1,757.5 | 4.9 | 20.4 | 10.2 | 0.22 | |
| 1,853.0 | 2.50 | 68.30 | 1,852.4 | 6.1 | 24.2 | 12.3 | 0.49 | |
| 1,948.0 | 2.30 | 73.90 | 1,947.3 | 7.4 | 28.0 | 14.5 | 0.32 | |
| 2,043.0 | 3.70 | 80.80 | 2,042.2 | 8.4 | 32.8 | 16.8 | 1.52 | |
| 2,138.0 | 3.50 | 77.80 | 2,137.0 | 9.5 | 38.7 | 19.4 | 0.29 | |
| 2,234.0 | 3.20 | 72.50 | 2,232.8 | 10.9 | 44.1 | 22.2 | 0.45 | |
| 2,329.0 | 3.50 | 90.60 | 2,327.7 | 11.7 | 49.6 | 24.4 | 1.15 | |
| 2,424.0 | 4.20 | 103.30 | 2,422.5 | 10.9 | 55.8 | 25.2 | 1.16 | |
| 2,519.0 | 4.00 | 105.90 | 2,517.2 | 9.2 | 62.4 | 25.3 | 0.29 | |
| 2,614.0 | 4.40 | 98.70 | 2,612.0 | 7.7 | 69.2 | 25.7 | 0.70 | |
| 2,709.0 | 6.50 | 104.20 | 2,706.5 | 5.8 | 78.0 | 26.2 | 2.28 | |
| 2,804.0 | 7.70 | 112.10 | 2,800.8 | 2.1 | 89.1 | 25.6 | 1.63 | |
| 2,899.0 | 8.60 | 108.90 | 2,894.9 | -2.6 | 101.7 | 24.4 | 1.06 | |
| 2,994.0 | 10.60 | 105.70 | 2,988.5 | -7.2 | 116.9 | 23.9 | 2.18 | |
| 3,089.0 | 12.30 | 104.70 | 3,081.6 | -12.2 | 135.1 | 23.9 | 1.80 | |
| 3,185.0 | 14.30 | 102.70 | 3,175.0 | -17.4 | 156.5 | 24.6 | 2.14 | |
| 3,280.0 | 15.30 | 101.70 | 3,266.9 | -22.5 | 180.3 | 25.9 | 1.09 | |
| 3,375.0 | 13.40 | 99.40 | 3,358.9 | -26.8 | 203.4 | 27.8 | 2.09 | |
| 3,470.0 | 14.10 | 98.50 | 3,451.2 | -30.3 | 225.7 | 30.3 | 0.77 | |
| 3,566.0 | 15.80 | 97.50 | 3,543.9 | -33.8 | 250.2 | 33.5 | 1.79 | |
| 3,661.0 | 17.60 | 102.00 | 3,634.9 | -38.4 | 277.1 | 36.1 | 2.33 | |
| 3,756.0 | 18.70 | 101.00 | 3,725.2 | -44.3 | 306.1 | 38.1 | 1.20 | |
| 3,851.0 | 19.50 | 100.80 | 3,815.0 | -50.2 | 336.6 | 40.4 | 0.84 | |
| 3,946.0 | 18.70 | 104.20 | 3,904.8 | -56.9 | 367.0 | 42.0 | 1.44 | |
| 4,042.0 | 16.40 | 105.60 | 3,996.3 | -64.3 | 394.9 | 42.2 | 2.44 | |
| 4,137.0 | 14.40 | 103.50 | 4,087.9 | -70.7 | 419.3 | 42.5 | 2.19 | |
| 4,232.0 | 14.30 | 102.00 | 4,179.9 | -75.9 | 442.3 | 43.6 | 0.41 | |
| 4,327.0 | 14.30 | 104.00 | 4,272.0 | -81.2 | 465.2 | 44.5 | 0.52 | |
| 4,422.0 | 15.00 | 104.50 | 4,363.9 | -87.1 | 488.5 | 45.0 | 0.75 | |
| 4,517.0 | 15.10 | 102.90 | 4,455.6 | -92.9 | 512.4 | 45.7 | 0.45 | |
| 4,613.0 | 13.90 | 103.30 | 4,548.6 | -98.4 | 535.8 | 46.6 | 1.25 | |
| 4,708.0 | 15.10 | 101.00 | 4,640.5 | -103.4 | 559.1 | 47.9 | 1.40 | |
| 4,803.0 | 15.70 | 99.60 | 4,732.1 | -107.9 | 583.9 | 50.1 | 0.74 | |
| 4,898.0 | 15.70 | 98.00 | 4,823.6 | -111.8 | 609.3 | 53.0 | 0.46 | |
| 4,993.0 | 16.90 | 98.90 | 4,914.8 | -115.7 | 635.7 | 56.2 | 1.29 | |
| 5,088.0 | 16.20 | 96.80 | 5,005.8 | -119.4 | 662.5 | 59.7 | 0.97 | |
| 5,183.0 | 16.40 | 98.90 | 5,097.0 | -123.1 | 688.9 | 63.2 | 0.66 | |
| 5,279.0 | 13.50 | 97.80 | 5,189.7 | -126.7 | 713.4 | 66.2 | 3.04 | |
| 5,374.0 | 13.50 | 104.20 | 5,282.1 | -130.9 | 735.1 | 67.8 | 1.57 | |
| 5,469.0 | 14.30 | 101.20 | 5,374.3 | -135.9 | 757.4 | 68.9 | 1.13 | |
| 5,564.0 | 14.60 | 102.20 | 5,466.3 | -140.7 | 780.6 | 70.4 | 0.41 | |



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| Design: | OH | Database: | EDM 5000.1 Single User Db |

| Survey | | | | | | | |
|--|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) |
| 5,659.0 | 15.00 | 100.80 | 5,558.2 | -145.6 | 804.4 | 72.0 | 0.56 |
| 5,755.0 | 15.10 | 100.80 | 5,650.9 | -150.2 | 828.9 | 73.9 | 0.10 |
| 5,850.0 | 16.00 | 100.10 | 5,742.4 | -154.9 | 853.9 | 76.1 | 0.97 |
| 5,945.0 | 16.20 | 97.80 | 5,833.7 | -159.0 | 879.9 | 79.0 | 0.70 |
| 6,040.0 | 15.80 | 99.10 | 5,925.0 | -162.8 | 905.8 | 82.2 | 0.57 |
| 6,135.0 | 15.70 | 98.50 | 6,016.4 | -166.7 | 931.3 | 85.1 | 0.20 |
| 6,225.0 | 17.60 | 88.50 | 6,102.7 | -168.2 | 957.0 | 90.5 | 3.81 |
| 6,272.0 | 23.00 | 79.20 | 6,146.8 | -166.3 | 973.1 | 96.6 | 13.35 |
| 6,320.0 | 28.80 | 77.80 | 6,189.9 | -162.1 | 993.6 | 106.0 | 12.15 |
| 6,368.0 | 31.70 | 76.40 | 6,231.4 | -156.7 | 1,017.2 | 117.5 | 6.22 |
| 6,415.0 | 34.10 | 69.60 | 6,270.8 | -149.2 | 1,041.6 | 131.1 | 9.37 |
| 6,463.0 | 35.90 | 59.90 | 6,310.2 | -137.4 | 1,066.4 | 149.0 | 12.17 |
| 6,510.0 | 38.70 | 49.80 | 6,347.6 | -121.0 | 1,089.5 | 171.0 | 14.30 |
| 6,558.0 | 42.30 | 42.80 | 6,384.1 | -99.4 | 1,112.0 | 197.7 | 12.07 |
| 6,605.0 | 45.30 | 39.10 | 6,418.1 | -74.9 | 1,133.3 | 227.0 | 8.39 |
| 6,653.0 | 48.90 | 35.10 | 6,450.7 | -46.8 | 1,154.4 | 259.7 | 9.67 |
| 6,701.0 | 52.40 | 33.40 | 6,481.2 | -16.1 | 1,175.3 | 294.8 | 7.79 |
| 6,748.0 | 55.50 | 32.80 | 6,508.8 | 15.7 | 1,196.1 | 331.0 | 6.68 |
| 6,796.0 | 59.20 | 31.90 | 6,534.7 | 49.8 | 1,217.7 | 369.6 | 7.87 |
| 6,843.0 | 61.90 | 28.20 | 6,557.8 | 85.3 | 1,238.2 | 409.2 | 8.94 |
| 6,891.0 | 63.10 | 23.90 | 6,580.0 | 123.5 | 1,256.8 | 451.0 | 8.33 |
| 6,939.0 | 63.30 | 18.10 | 6,601.7 | 163.5 | 1,272.2 | 493.6 | 10.79 |
| 6,986.0 | 64.40 | 12.70 | 6,622.4 | 204.1 | 1,283.4 | 535.8 | 10.57 |
| 7,034.0 | 68.20 | 8.40 | 6,641.7 | 247.3 | 1,291.4 | 579.5 | 11.40 |
| 7,081.0 | 72.90 | 5.50 | 6,657.3 | 291.3 | 1,296.7 | 623.4 | 11.57 |
| 7,146.0 | 79.30 | 2.00 | 6,672.9 | 354.2 | 1,300.8 | 685.1 | 11.15 |
| 7,203.0 | 82.32 | 1.39 | 6,682.0 | 410.5 | 1,302.5 | 739.8 | 5.40 |
| Actual 7" Csg @ 7203' MD / 6682' TVD / 4' FEL & 658' FSL Sec 36 | | | | | | | |
| 7,231.0 | 83.80 | 1.10 | 6,685.4 | 438.3 | 1,303.1 | 766.8 | 5.40 |
| 7,326.0 | 88.50 | 359.60 | 6,691.8 | 533.0 | 1,303.7 | 858.3 | 5.19 |
| 7,422.0 | 91.50 | 359.60 | 6,691.8 | 629.0 | 1,303.0 | 950.7 | 3.12 |
| 7,517.0 | 93.10 | 359.20 | 6,688.0 | 723.9 | 1,302.0 | 1,042.0 | 1.74 |
| 7,612.0 | 91.50 | 358.20 | 6,684.2 | 818.8 | 1,299.9 | 1,133.0 | 1.99 |
| 7,707.0 | 90.80 | 0.80 | 6,682.3 | 913.8 | 1,299.0 | 1,224.3 | 2.83 |
| 7,802.0 | 89.00 | 0.40 | 6,682.4 | 1,008.8 | 1,300.0 | 1,316.2 | 1.94 |
| 7,897.0 | 89.60 | 0.10 | 6,683.6 | 1,103.8 | 1,300.4 | 1,408.0 | 0.71 |
| 7,993.0 | 89.20 | 359.90 | 6,684.6 | 1,199.7 | 1,300.4 | 1,500.5 | 0.47 |
| 8,088.0 | 89.00 | 359.70 | 6,686.1 | 1,294.7 | 1,300.1 | 1,592.1 | 0.30 |
| 8,183.0 | 87.80 | 0.03 | 6,688.7 | 1,389.7 | 1,299.9 | 1,683.6 | 1.31 |
| 8,278.0 | 86.90 | 0.40 | 6,693.1 | 1,484.6 | 1,300.2 | 1,775.2 | 1.02 |
| 8,373.0 | 89.00 | 359.20 | 6,696.5 | 1,579.5 | 1,299.9 | 1,866.7 | 2.55 |
| 8,469.0 | 88.50 | 359.40 | 6,698.6 | 1,675.5 | 1,298.7 | 1,959.0 | 0.56 |
| 8,564.0 | 92.20 | 358.20 | 6,698.0 | 1,770.5 | 1,296.7 | 2,050.0 | 4.09 |
| 8,659.0 | 94.00 | 357.60 | 6,692.9 | 1,865.2 | 1,293.3 | 2,140.5 | 2.00 |



IDS Final Survey Report



| | | | |
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| Site: | Crow Creek State Pad | MD Reference: | WELL @ 4875.0usft (HP 277) |
| Well: | Crow Creek State AD31-79HN | North Reference: | Grid |
| Wellbore: | Wellbore #1 | Survey Calculation Method: | Minimum Curvature |
| Design: | OH | Database: | EDM 5000.1 Single User Db |

| Survey | | | | | | | | |
|--|------------|----------------------|---------------|---------------|---------------|------------------|---------------------|--|
| MD (usft) | Inc (°) | Azi (azimuth) (°) | TVD (usft) | N/S (usft) | E/W (usft) | V. Sec (usft) | DLeg (°/100usft) | |
| 8,754.0 | 95.90 | 357.10 | 6,684.7 | 1,959.8 | 1,288.9 | 2,230.6 | 2.07 | |
| 8,849.0 | 94.80 | 358.20 | 6,675.9 | 2,054.3 | 1,285.0 | 2,320.7 | 1.63 | |
| 8,945.0 | 93.10 | 359.20 | 6,669.2 | 2,150.0 | 1,282.8 | 2,412.5 | 2.05 | |
| 9,040.0 | 89.40 | 359.90 | 6,667.2 | 2,245.0 | 1,282.1 | 2,503.8 | 3.96 | |
| 9,135.0 | 88.70 | 359.60 | 6,668.7 | 2,340.0 | 1,281.7 | 2,595.3 | 0.80 | |
| 9,230.0 | 89.70 | 359.40 | 6,670.1 | 2,435.0 | 1,280.9 | 2,686.7 | 1.07 | |
| 9,326.0 | 90.10 | 358.50 | 6,670.2 | 2,530.9 | 1,279.1 | 2,778.9 | 1.03 | |
| 9,421.0 | 89.00 | 0.10 | 6,671.0 | 2,625.9 | 1,277.9 | 2,870.2 | 2.04 | |
| 9,516.0 | 89.20 | 0.30 | 6,672.5 | 2,720.9 | 1,278.3 | 2,961.9 | 0.30 | |
| 9,611.0 | 90.60 | 1.30 | 6,672.6 | 2,815.9 | 1,279.6 | 3,053.8 | 1.81 | |
| 9,706.0 | 86.70 | 359.60 | 6,674.9 | 2,910.9 | 1,280.3 | 3,145.6 | 4.48 | |
| 9,801.0 | 87.10 | 359.00 | 6,680.0 | 3,005.7 | 1,279.2 | 3,236.8 | 0.76 | |
| 9,897.0 | 87.10 | 358.90 | 6,684.9 | 3,101.6 | 1,277.4 | 3,328.8 | 0.10 | |
| 9,992.0 | 86.70 | 358.70 | 6,690.0 | 3,196.4 | 1,275.4 | 3,419.7 | 0.47 | |
| 10,087.0 | 90.60 | 359.70 | 6,692.3 | 3,291.4 | 1,274.1 | 3,511.0 | 4.24 | |
| 10,182.0 | 89.70 | 357.30 | 6,692.0 | 3,386.3 | 1,271.6 | 3,601.9 | 2.70 | |
| 10,277.0 | 89.60 | 358.00 | 6,692.6 | 3,481.2 | 1,267.7 | 3,692.4 | 0.74 | |
| 10,373.0 | 89.70 | 359.60 | 6,693.2 | 3,577.2 | 1,265.7 | 3,784.5 | 1.67 | |
| 10,468.0 | 89.00 | 356.40 | 6,694.2 | 3,672.1 | 1,262.4 | 3,875.1 | 3.45 | |
| 10,563.0 | 93.80 | 357.80 | 6,691.9 | 3,766.9 | 1,257.6 | 3,965.3 | 5.26 | |
| 10,658.0 | 95.70 | 357.30 | 6,684.1 | 3,861.5 | 1,253.6 | 4,055.5 | 2.07 | |
| 10,753.0 | 95.40 | 357.30 | 6,674.9 | 3,956.0 | 1,249.1 | 4,145.4 | 0.32 | |
| 10,849.0 | 93.80 | 358.30 | 6,667.2 | 4,051.6 | 1,245.4 | 4,236.7 | 1.96 | |
| 10,944.0 | 90.10 | 359.20 | 6,663.9 | 4,146.5 | 1,243.4 | 4,327.6 | 4.01 | |
| 11,039.0 | 88.70 | 0.40 | 6,664.9 | 4,241.5 | 1,243.0 | 4,419.2 | 1.94 | |
| 11,134.0 | 90.30 | 0.80 | 6,665.8 | 4,336.5 | 1,244.0 | 4,511.1 | 1.74 | |
| 11,229.0 | 87.10 | 0.60 | 6,667.9 | 4,431.4 | 1,245.2 | 4,602.9 | 3.37 | |
| 11,299.0 | 87.40 | 0.80 | 6,671.3 | 4,501.3 | 1,246.0 | 4,670.6 | 0.51 | |
| Last MWD @ 11299' MD / 6671' TVD | | | | | | | | |
| 11,353.0 | 87.40 | 0.80 | 6,673.7 | 4,555.3 | 1,246.8 | 4,722.8 | 0.00 | |
| PTD @ 11353' MD / 6674' TVD / 0' FEL & 536' FNL Sec 36 | | | | | | | | |

| Design Annotations | | | | |
|-----------------------------|-----------------------------|-------------------|-----------------|---|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
| | | +N/-S (usft) | +E/-W (usft) | |
| 725.0 | 725.0 | 1.1 | -4.0 | First MWD |
| 7,203.0 | 6,682.0 | 410.5 | 1,302.5 | Actual 7" Csg @ 7203' MD / 6682' TVD / 4' FEL & 658' FSL Sec 36 |
| 11,299.0 | 6,671.3 | 4,501.3 | 1,246.0 | Last MWD @ 11299' MD / 6671' TVD |
| 11,353.0 | 6,673.7 | 4,555.3 | 1,246.8 | PTD @ 11353' MD / 6674' TVD / 0' FEL & 536' FNL Sec 36 |

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



Weld County, CO (NAD 83)

Crow Creek State AD31-79HN

HP 277

Plan #3

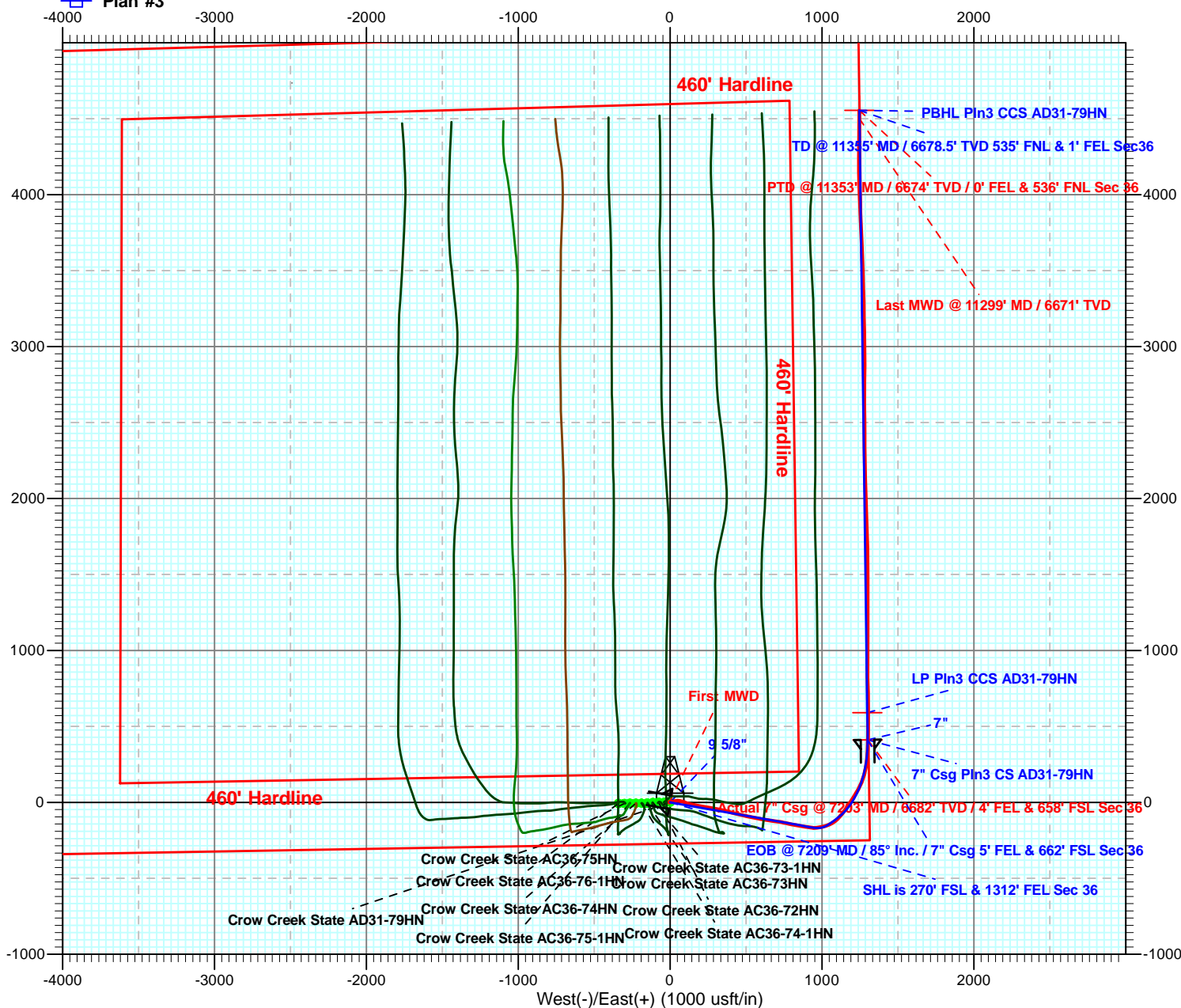


Azimuths to Grid North
True North: -0.72°
Magnetic North: 7.65°

Magnetic Field
Strength: 53009.3snT
Dip Angle: 67.14°
Date: 8/8/2013
Model: IGRF2010

LEGEND

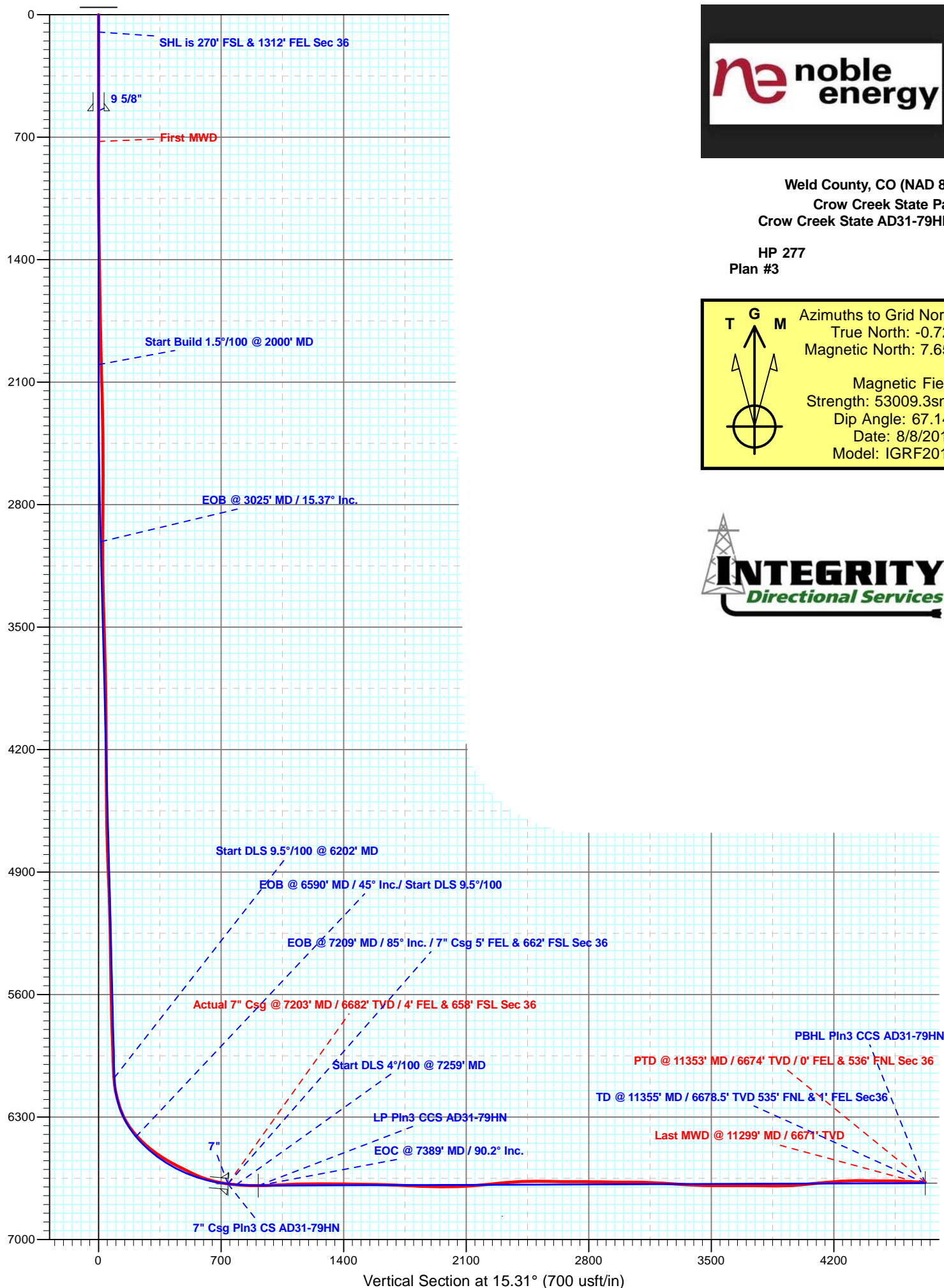
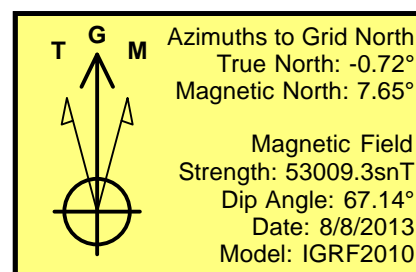
- Crow Creek State AD31-79HN, Wellbore #1, OH V0
- Crow Creek State AC36-72-1HN, Wellbore #1, OH V0
- Crow Creek State AC36-72HN, Wellbore #1, OH V0
- Crow Creek State AC36-73-1HN, Wellbore #1, OH V0
- Crow Creek State AC36-76-1HN, Wellbore #1, OH V0
- Crow Creek State AC36-75HN, Wellbore #1, OH V0
- Crow Creek State AC36-75-1HN, Wellbore #1, OH V0
- Crow Creek State AC36-73HN, Wellbore #1, OH V0
- Crow Creek State AC36-74-1HN, Wellbore #1, OH V0
- Crow Creek State AC36-74HN, Wellbore #1, OH V0
- Plan #3





Weld County, CO (NAD 83)
Crow Creek State Pad
Crow Creek State AD31-79HN

HP 277
Plan #3





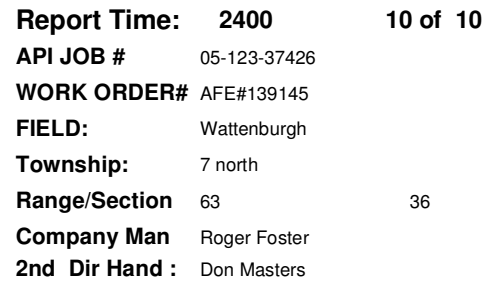
From Monday, December 02, 2013 at 0000 to Monday, December 02, 2013 at 2400

GENERAL COMMENT

Daily Report for JOB#: CO13514NB - Page 1 of 3

| Start Time | End Time | Hours | Start Depth | End Depth | Delta Depth | ROP | Activity Code | COMMENT |
|------------|----------|-------|-------------|-----------|-------------|--------|--------------------|--|
| 03:43 | 03:47 | 0.07 | 9189 | 9189 | 0 | .00 | Survey & Conn. | Survey & Conn.@9135' Inc 88.7° Azm 359.6° |
| 03:47 | 04:04 | 0.28 | 9189 | 9284 | 95 | 335.29 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 04:04 | 04:08 | 0.07 | 9284 | 9284 | 0 | .00 | Survey & Conn. | Survey & Conn.@9230' Inc 89.7° Azm 359.4° |
| 04:08 | 04:26 | 0.30 | 9284 | 9380 | 96 | 320.00 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 04:26 | 04:32 | 0.10 | 9380 | 9380 | 0 | .00 | Survey & Conn. | Survey & Conn.@9326' Inc 90.1° Azm 358.5° |
| 04:32 | 04:52 | 0.33 | 9380 | 9410 | 30 | 90.00 | Sliding | Sliding - (WOB:22;GPM :300;TFO:180)) |
| 04:52 | 05:04 | 0.20 | 9410 | 9475 | 65 | 325.00 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 05:04 | 05:08 | 0.07 | 9475 | 9475 | 0 | .00 | Survey & Conn. | Survey & Conn.@9421' Inc 89° Azm 0.1° |
| 05:08 | 05:27 | 0.32 | 9475 | 9570 | 95 | 300.00 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 05:27 | 05:39 | 0.20 | 9570 | 9570 | 0 | .00 | Survey & Conn. | Survey & Conn.@9516' Inc 89.2° Azm 0.3° |
| 05:39 | 06:00 | 0.35 | 9570 | 9665 | 95 | 271.43 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 06:00 | 06:05 | 0.08 | 9665 | 9665 | 0 | .00 | Survey & Conn. | Survey & Conn.@9611' Inc 90.6° Azm 1.3° |
| 06:05 | 06:35 | 0.50 | 9665 | 9705 | 40 | 80.00 | Sliding | Sliding - (WOB:22;GPM :300;TFO:170L)) |
| 06:35 | 06:46 | 0.18 | 9705 | 9760 | 55 | 300.00 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 06:46 | 06:51 | 0.08 | 9760 | 9760 | 0 | .00 | Survey & Conn. | Survey & Conn.@9706' Inc 86.7° Azm 359.6° |
| 06:51 | 07:10 | 0.32 | 9760 | 9855 | 95 | 300.00 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 07:10 | 07:15 | 0.08 | 9855 | 9855 | 0 | .00 | Survey & Conn. | Survey & Conn.@9801' Inc 87.1° Azm 359° |
| 07:15 | 07:34 | 0.32 | 9855 | 9951 | 96 | 303.16 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 07:34 | 07:40 | 0.10 | 9951 | 9951 | 0 | .00 | Survey & Conn. | Survey & Conn.@9897' Inc 87.1° Azm 358.9° |
| 07:40 | 07:55 | 0.25 | 9951 | 10046 | 95 | 380.00 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 07:55 | 08:00 | 0.08 | 10046 | 10046 | 0 | .00 | Survey & Conn. | Survey & Conn.@9992' Inc 86.7° Azm 358.7° |
| 08:00 | 08:35 | 0.58 | 10046 | 10086 | 40 | 68.57 | Sliding | Sliding - (WOB:24;GPM :300;TFO:10R)) |
| 08:35 | 08:45 | 0.17 | 10086 | 10141 | 55 | 330.00 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 08:45 | 08:50 | 0.08 | 10141 | 10141 | 0 | .00 | Survey & Conn. | Survey & Conn.@10087' Inc 90.6° Azm 359.7° |
| 08:50 | 09:17 | 0.45 | 10141 | 10236 | 95 | 211.11 | Drilling | Drilling - (WOB:16;GPM :300;RPM:100) |
| 09:17 | 09:22 | 0.08 | 10236 | 10236 | 0 | .00 | Survey & Conn. | Survey & Conn.@10182' Inc 89.7° Azm 357.3° |
| 09:22 | 09:35 | 0.22 | 10236 | 10331 | 95 | 438.46 | Drilling | Drilling - (WOB:22;GPM :300;RPM:100) |
| 09:35 | 09:40 | 0.08 | 10331 | 10331 | 0 | .00 | Survey & Conn. | Survey & Conn.@10277' Inc 89.6° Azm 358° |
| 09:40 | 10:00 | 0.33 | 10331 | 10378 | 47 | 141.00 | Drilling | Drilling - (WOB:24;GPM :300;RPM:100) |
| 10:00 | 10:12 | 0.20 | 10378 | 10393 | 15 | 75.00 | Sliding | Sliding - (WOB:24;GPM :300;TFO:10R)) |
| 10:12 | 10:20 | 0.13 | 10393 | 10427 | 34 | 255.00 | Drilling | Drilling - (WOB:24;GPM :300;RPM:100) |
| 10:20 | 10:25 | 0.08 | 10427 | 10427 | 0 | .00 | Survey & Conn. | Survey & Conn.@10373' Inc 89.7° Azm 359.6° |
| 10:25 | 10:45 | 0.33 | 10427 | 10522 | 95 | 285.00 | Drilling | Drilling - (WOB:24;GPM :300;RPM:100) |
| 10:45 | 10:50 | 0.08 | 10522 | 10522 | 0 | .00 | Survey & Conn. | Survey & Conn.@10468' Inc 89° Azm 356.4° |
| 10:50 | 11:20 | 0.50 | 10522 | 10552 | 30 | 60.00 | Sliding | Sliding - (WOB:24;GPM :300;TFO:20R)) |
| 11:20 | 11:35 | 0.25 | 10552 | 10617 | 65 | 260.00 | Drilling | Drilling - (WOB:24;GPM :300;RPM:100) |
| 11:35 | 11:40 | 0.08 | 10617 | 10617 | 0 | .00 | Survey & Conn. | Survey & Conn.@10563' Inc 93.8° Azm 357.8° |
| 11:40 | 12:10 | 0.50 | 10617 | 10712 | 95 | 190.00 | Drilling | Drilling - (WOB:24;GPM :300;RPM:100) |
| 12:10 | 12:15 | 0.08 | 10712 | 10712 | 0 | .00 | Survey & Conn. | Survey & Conn.@10658' Inc 95.7° Azm 357.3° |
| 12:15 | 12:43 | 0.47 | 10712 | 10721 | 9 | 19.29 | Sliding | Sliding - (WOB:24;GPM :300;TFO:150R)) |
| 12:43 | 13:45 | 1.03 | 10721 | 10721 | 0 | .00 | Rig Service-Inhole | Rig Service-Inhole |
| 13:45 | 15:00 | 1.25 | 10721 | 10740 | 19 | 15.20 | Sliding | Sliding - (WOB:30;GPM :300;TFO:150R)) |
| 15:00 | 15:15 | 0.25 | 10740 | 10807 | 67 | 268.00 | Drilling | Drilling - (WOB:18;GPM :300;RPM:100) |
| 15:15 | 15:20 | 0.08 | 10807 | 10807 | 0 | .00 | Survey & Conn. | Survey & Conn.@10753' Inc 95.4° Azm 357.3° |
| 15:20 | 16:25 | 1.08 | 10807 | 10851 | 44 | 40.62 | Sliding | Sliding - (WOB:50;GPM :300;TFO:160R)) |
| 16:25 | 16:42 | 0.28 | 10851 | 10903 | 52 | 183.53 | Drilling | Drilling - (WOB:18;GPM :300;RPM:100) |
| 16:42 | 16:48 | 0.10 | 10903 | 10903 | 0 | .00 | Survey & Conn. | Survey & Conn.@10849' Inc 93.8° Azm 358.3° |

| Start Time | End Time | Hours | Start Depth | End Depth | Delta Depth | ROP | Activity Code | COMMENT |
|------------|----------|-------|-------------|-----------|-------------|--------|----------------|---|
| 16:48 | 17:50 | 1.03 | 10903 | 10943 | 40 | 38.71 | Sliding | Sliding - (WOB:50;GPM :300;TFO:180)) |
| 17:50 | 18:18 | 0.47 | 10943 | 10998 | 55 | 117.86 | Drilling | Drilling - (WOB:18;GPM :300;RPM:100) |
| 18:18 | 18:24 | 0.10 | 10998 | 10998 | 0 | .00 | Survey & Conn. | Survey & Conn.@10944_Inc 90.1°_Azm 359.2° |
| 18:24 | 19:02 | 0.63 | 10998 | 11020 | 22 | 34.74 | Sliding | Sliding - (WOB:50;GPM :300;TFO:170R)) |
| 19:02 | 19:20 | 0.30 | 11020 | 11093 | 73 | 243.33 | Drilling | Drilling - (WOB:18;GPM :300;RPM:100) |
| 19:20 | 19:43 | 0.38 | 11093 | 11093 | 0 | .00 | Survey & Conn. | Survey & Conn.@11039_Inc 88.7°_Azm 0.4° |
| 19:43 | 20:05 | 0.37 | 11093 | 11188 | 95 | 259.09 | Drilling | Drilling - (WOB:18;GPM :300;RPM:100) |
| 20:05 | 20:12 | 0.12 | 11188 | 11188 | 0 | .00 | Survey & Conn. | Survey & Conn.@11134_Inc 90.3°_Azm 0.8° |
| 20:12 | 21:01 | 0.82 | 11188 | 11220 | 32 | 39.18 | Sliding | Sliding - (WOB:50;GPM :300;TFO:180)) |
| 21:01 | 21:16 | 0.25 | 11220 | 11283 | 63 | 252.00 | Drilling | Drilling - (WOB:25;GPM :300;RPM:100) |
| 21:16 | 21:30 | 0.23 | 11283 | 11283 | 0 | .00 | Survey & Conn. | Survey & Conn.@11229_Inc 87.1°_Azm 0.6° |
| 21:30 | 22:07 | 0.62 | 11283 | 11353 | 70 | 113.51 | Drilling | Drilling - (WOB:25;GPM :300;RPM:100) |
| 22:07 | 22:18 | 0.18 | 11353 | 11353 | 0 | .00 | Survey & Conn. | Survey & Conn.@11353_Inc 87.3°_Azm ° |
| 22:18 | 24:00 | 1.70 | 11353 | 11353 | 0 | .00 | Circulating | Circulating / condition hole |





JOB NO.: CO13514NB
Company: Noble Energy
LOCATION: 1.1 Mile north of 69 & 74
RIG NAME: H&P 277
STATE: Colorado
COUNTY: Country
WELL NAME: Crow Creek State AD31-79HN

FIELD: Wattenburgh
Township: 7 north
Range 63

MOTOR INFORMATION

Desc: 6/7_8.0_1.5FBH_.81RPG
Bent Hsg/Sub: 1.5 / 0 **Bit to Bend:** 3.7
Pad OD: 5 **NB Stab:**

Slide Report for BHA # 3

Note: Surveys listed are interpolated from the actual surveys

| # | Date | Drill Mode | Start Time | End Time | Hours | Start MD | End MD | Depth Drilled | WOB | ROP | RPM | Surf. Torque | Flow Rate | SPP | TFO | INC | AZM | DLS | Note |
|---|-------|------------|------------|----------|-------|----------|--------|---------------|-----|-------|-----|--------------|-----------|------|------|-------|--------|------|------|
| 3 | 1-Dec | Drilling | 14:40 | 15:06 | 0.43 | 7209 | 7285 | 76 | 22 | 175.4 | 40 | 8 | 270 | 2800 | | 86.47 | 0.25 | 5.19 | |
| 3 | 1-Dec | Sliding | 15:11 | 15:47 | 0.60 | 7285 | 7325 | 40 | 22 | 66.7 | 0 | 8 | 270 | 2800 | 10L | 88.45 | 359.62 | 5.19 | |
| 3 | 1-Dec | Drilling | 15:47 | 16:01 | 0.23 | 7325 | 7380 | 55 | 22 | 235.7 | 70 | 8 | 270 | 2800 | | 90.19 | 359.60 | 3.13 | |
| 3 | 1-Dec | Sliding | 16:06 | 16:27 | 0.35 | 7380 | 7397 | 17 | 22 | 48.6 | 0 | 9 | 270 | 2900 | 10L | 90.72 | 359.60 | 3.13 | |
| 3 | 1-Dec | Drilling | 16:27 | 16:45 | 0.30 | 7397 | 7476 | 79 | 22 | 263.3 | 85 | 9 | 270 | 2900 | | 92.41 | 359.37 | 1.74 | |
| 3 | 1-Dec | Drilling | 16:50 | 17:23 | 0.55 | 7476 | 7571 | 95 | 22 | 172.7 | 95 | 9 | 270 | 2900 | | 92.19 | 358.63 | 1.99 | |
| 3 | 1-Dec | Sliding | 17:29 | 17:53 | 0.40 | 7571 | 7601 | 30 | 22 | 75.0 | 95 | 9 | 270 | 2900 | 180 | 91.69 | 358.32 | 1.99 | |
| 3 | 1-Dec | Drilling | 17:53 | 18:14 | 0.35 | 7601 | 7666 | 65 | 22 | 185.7 | 95 | 9 | 270 | 2900 | | 91.10 | 359.68 | 2.83 | |
| 3 | 1-Dec | Drilling | 18:23 | 18:26 | 0.05 | 7666 | 7675 | 9 | 22 | 180.0 | 95 | 9 | 270 | 2900 | | 91.04 | 359.92 | 2.83 | |
| 3 | 1-Dec | Sliding | 18:26 | 19:03 | 0.62 | 7675 | 7710 | 35 | 22 | 56.8 | 100 | 9 | 300 | 3000 | 150R | 90.74 | 0.79 | 1.94 | |
| 3 | 1-Dec | Drilling | 19:03 | 19:13 | 0.17 | 7710 | 7761 | 51 | 28 | 306.0 | 100 | 9 | 300 | 3000 | | 89.78 | 0.57 | 1.94 | |
| 3 | 1-Dec | Drilling | 19:22 | 19:25 | 0.05 | 7761 | 7770 | 9 | 28 | 180.0 | 100 | 9 | 300 | 3000 | | 89.61 | 0.53 | 1.94 | |
| 3 | 1-Dec | Sliding | 19:25 | 19:44 | 0.32 | 7770 | 7795 | 25 | 22 | 78.9 | 100 | 9 | 300 | 3000 | 180 | 89.13 | 0.43 | 1.94 | |
| 3 | 1-Dec | Drilling | 19:44 | 19:55 | 0.18 | 7795 | 7856 | 61 | 28 | 332.7 | 100 | 9 | 300 | 3000 | | 89.34 | 0.23 | 0.71 | |
| 3 | 1-Dec | Drilling | 20:00 | 20:20 | 0.33 | 7856 | 7951 | 95 | 28 | 285.0 | 100 | 9 | 300 | 3000 | | 89.38 | 359.99 | 0.47 | |
| 3 | 1-Dec | Drilling | 20:27 | 20:47 | 0.33 | 7951 | 8047 | 96 | 28 | 288.0 | 100 | 9 | 300 | 3000 | | 89.09 | 359.79 | 0.30 | |
| 3 | 1-Dec | Drilling | 20:53 | 21:15 | 0.37 | 8047 | 8142 | 95 | 28 | 259.1 | 100 | 9 | 300 | 3000 | | 88.32 | 359.89 | 1.31 | |
| 3 | 1-Dec | Drilling | 21:18 | 21:38 | 0.33 | 8142 | 8237 | 95 | 28 | 285.0 | 100 | 9 | 300 | 3000 | | 87.29 | 0.24 | 1.02 | |
| 3 | 1-Dec | Drilling | 21:44 | 22:04 | 0.33 | 8237 | 8332 | 95 | 28 | 285.0 | 100 | 9 | 300 | 3000 | | 88.09 | 359.72 | 2.55 | |
| 3 | 1-Dec | Drilling | 22:08 | 22:10 | 0.03 | 8332 | 8340 | 8 | 28 | 240.0 | 100 | 9 | 300 | 3000 | | 88.27 | 359.62 | 2.55 | |
| 3 | 1-Dec | Sliding | 22:10 | 22:31 | 0.35 | 8340 | 8375 | 35 | 22 | 100.0 | 100 | 9 | 300 | 3000 | 30L | 88.99 | 359.20 | 0.56 | |
| 3 | 1-Dec | Drilling | 22:31 | 22:41 | 0.17 | 8375 | 8427 | 52 | 28 | 312.0 | 100 | 9 | 300 | 3000 | | 88.72 | 359.31 | 0.56 | |
| 3 | 1-Dec | Drilling | 22:46 | 23:07 | 0.35 | 8427 | 8523 | 96 | 28 | 274.3 | 100 | 9 | 300 | 3000 | | 90.60 | 358.72 | 4.09 | |
| 3 | 1-Dec | Drilling | 23:15 | 23:18 | 0.05 | 8523 | 8530 | 7 | 28 | 140.0 | 100 | 9 | 300 | 3000 | | 90.88 | 358.63 | 4.09 | |
| 3 | 1-Dec | Sliding | 23:18 | 23:37 | 0.32 | 8530 | 8565 | 35 | 22 | 110.5 | 100 | 9 | 300 | 3000 | 20L | 92.22 | 358.19 | 2.00 | |
| 3 | 1-Dec | Drilling | 23:37 | 23:46 | 0.15 | 8565 | 8618 | 53 | 28 | 353.3 | 100 | 9 | 300 | 3000 | | 93.22 | 357.86 | 2.00 | |

Slide Report for BHA # 3

Note: Surveys listed are interpolated from the actual surveys

| # | Date | Drill Mode | Start Time | End Time | Hours | Start MD | End MD | Depth Drilled | WOB | ROP | RPM | Surf. Torque | Flow Rate | SPP | TFO | INC | AZM | DLS | Note |
|---|-------|------------|------------|----------|-------|----------|--------|---------------|-----|-------|-----|--------------|-----------|------|------|-------|--------|------|------|
| 3 | 1-Dec | Drilling | 23:54 | 24:00 | 0.10 | 8618 | 8650 | 32 | 28 | 320.0 | 100 | 9 | 300 | 3000 | | 93.83 | 357.66 | 2.00 | |
| 3 | 2-Dec | Drilling | 00:00 | 00:14 | 0.23 | 8650 | 8713 | 63 | 22 | 270.0 | 100 | 9 | 300 | 3000 | | 95.08 | 357.32 | 2.07 | |
| 3 | 2-Dec | Drilling | 00:21 | 00:48 | 0.45 | 8713 | 8808 | 95 | 22 | 211.1 | 100 | 9 | 300 | 3000 | | 95.27 | 357.73 | 1.63 | |
| 3 | 2-Dec | Sliding | 00:53 | 01:19 | 0.43 | 8808 | 8848 | 40 | 22 | 92.3 | 0 | 9 | 300 | 3000 | 150R | 94.81 | 358.19 | 1.63 | |
| 3 | 2-Dec | Drilling | 01:19 | 01:31 | 0.20 | 8848 | 8903 | 55 | 22 | 275.0 | 100 | 9 | 300 | 3000 | | 93.84 | 358.76 | 2.05 | |
| 3 | 2-Dec | Sliding | 01:38 | 02:11 | 0.55 | 8903 | 8943 | 40 | 22 | 72.7 | 0 | 9 | 300 | 3000 | 180 | 93.14 | 359.18 | 2.05 | |
| 3 | 2-Dec | Drilling | 02:11 | 02:21 | 0.17 | 8943 | 8999 | 56 | 22 | 336.0 | 100 | 9 | 300 | 3000 | | 91.00 | 359.60 | 3.96 | |
| 3 | 2-Dec | Sliding | 02:30 | 03:04 | 0.57 | 8999 | 9050 | 51 | 22 | 90.0 | 0 | 9 | 300 | 3000 | 180 | 89.33 | 359.87 | 0.80 | |
| 3 | 2-Dec | Drilling | 03:04 | 03:13 | 0.15 | 9050 | 9094 | 44 | 22 | 293.3 | 100 | 9 | 300 | 3000 | | 89.00 | 359.73 | 0.80 | |
| 3 | 2-Dec | Drilling | 03:20 | 03:43 | 0.38 | 9094 | 9189 | 95 | 22 | 247.8 | 100 | 9 | 300 | 3000 | | 89.27 | 359.49 | 1.07 | |
| 3 | 2-Dec | Drilling | 03:47 | 04:04 | 0.28 | 9189 | 9284 | 95 | 22 | 335.3 | 100 | 9 | 300 | 3000 | | 89.93 | 358.89 | 1.03 | |
| 3 | 2-Dec | Drilling | 04:08 | 04:26 | 0.30 | 9284 | 9380 | 96 | 22 | 320.0 | 100 | 9 | 300 | 3000 | | 89.47 | 359.41 | 2.04 | |
| 3 | 2-Dec | Sliding | 04:32 | 04:52 | 0.33 | 9380 | 9410 | 30 | 22 | 90.0 | 0 | 9 | 300 | 3000 | 180 | 89.13 | 359.91 | 2.04 | |
| 3 | 2-Dec | Drilling | 04:52 | 05:04 | 0.20 | 9410 | 9475 | 65 | 22 | 325.0 | 100 | 9 | 300 | 3200 | | 89.11 | 0.21 | 0.30 | |
| 3 | 2-Dec | Drilling | 05:08 | 05:27 | 0.32 | 9475 | 9570 | 95 | 22 | 300.0 | 100 | 9 | 300 | 3200 | | 90.00 | 0.87 | 1.81 | |
| 3 | 2-Dec | Drilling | 05:39 | 06:00 | 0.35 | 9570 | 9665 | 95 | 22 | 271.4 | 100 | 9 | 300 | 3200 | | 88.38 | 0.33 | 4.48 | |
| 3 | 2-Dec | Sliding | 06:05 | 06:35 | 0.50 | 9665 | 9705 | 40 | 22 | 80.0 | 0 | 11 | 300 | 3300 | 170L | 86.74 | 359.62 | 4.48 | |
| 3 | 2-Dec | Drilling | 06:35 | 06:46 | 0.18 | 9705 | 9760 | 55 | 22 | 300.0 | 100 | 11 | 300 | 3300 | | 86.93 | 359.26 | 0.76 | |
| 3 | 2-Dec | Drilling | 06:51 | 07:10 | 0.32 | 9760 | 9855 | 95 | 22 | 300.0 | 100 | 11 | 300 | 3300 | | 87.10 | 358.94 | 0.10 | |
| 3 | 2-Dec | Drilling | 07:15 | 07:34 | 0.32 | 9855 | 9951 | 96 | 22 | 303.2 | 100 | 11 | 300 | 3300 | | 86.87 | 358.79 | 0.47 | |
| 3 | 2-Dec | Drilling | 07:40 | 07:55 | 0.25 | 9951 | 10046 | 95 | 22 | 380.0 | 100 | 11 | 300 | 3500 | | 88.92 | 359.27 | 4.24 | |
| 3 | 2-Dec | Sliding | 08:00 | 08:35 | 0.58 | 10046 | 10086 | 40 | 24 | 68.6 | 0 | 11 | 300 | 3500 | 10R | 90.56 | 359.69 | 4.24 | |
| 3 | 2-Dec | Drilling | 08:35 | 08:45 | 0.17 | 10086 | 10141 | 55 | 22 | 330.0 | 100 | 11 | 300 | 3500 | | 90.09 | 358.34 | 2.70 | |
| 3 | 2-Dec | Drilling | 08:50 | 09:17 | 0.45 | 10141 | 10236 | 95 | 16 | 211.1 | 100 | 11 | 300 | 3500 | | 89.64 | 357.70 | 0.74 | |
| 3 | 2-Dec | Drilling | 09:22 | 09:35 | 0.22 | 10236 | 10331 | 95 | 22 | 438.5 | 100 | 11 | 300 | 3500 | | 89.66 | 358.90 | 1.67 | |
| 3 | 2-Dec | Drilling | 09:40 | 10:00 | 0.33 | 10331 | 10378 | 47 | 24 | 141.0 | 100 | 11 | 300 | 3500 | | 89.66 | 359.43 | 3.45 | |
| 3 | 2-Dec | Sliding | 10:00 | 10:12 | 0.20 | 10378 | 10393 | 15 | 24 | 75.0 | 0 | 11 | 300 | 3500 | 10R | 89.55 | 358.93 | 3.45 | |
| 3 | 2-Dec | Drilling | 10:12 | 10:20 | 0.13 | 10393 | 10427 | 34 | 24 | 255.0 | 100 | 11 | 300 | 3500 | | 89.30 | 357.78 | 3.45 | |
| 3 | 2-Dec | Drilling | 10:25 | 10:45 | 0.33 | 10427 | 10522 | 95 | 24 | 285.0 | 100 | 11 | 300 | 3500 | | 91.73 | 357.20 | 5.26 | |
| 3 | 2-Dec | Sliding | 10:50 | 11:20 | 0.50 | 10522 | 10552 | 30 | 24 | 60.0 | 0 | 11 | 300 | 3500 | 20R | 93.24 | 357.64 | 5.26 | |
| 3 | 2-Dec | Drilling | 11:20 | 11:35 | 0.25 | 10552 | 10617 | 65 | 24 | 260.0 | 100 | 11 | 300 | 3500 | | 94.88 | 357.52 | 2.07 | |
| 3 | 2-Dec | Drilling | 11:40 | 12:10 | 0.50 | 10617 | 10712 | 95 | 24 | 190.0 | 100 | 11 | 300 | 3500 | | 95.53 | 357.30 | 0.32 | |
| 3 | 2-Dec | Sliding | 12:15 | 12:43 | 0.47 | 10712 | 10721 | 9 | 24 | 19.3 | 0 | 11 | 300 | 3500 | 150R | 95.50 | 357.30 | 0.32 | |
| 3 | 2-Dec | Sliding | 13:45 | 15:00 | 1.25 | 10721 | 10740 | 19 | 30 | 15.2 | 0 | 11 | 300 | 3500 | 150R | 95.44 | 357.30 | 0.32 | |

Slide Report for BHA # 3

Note: Surveys listed are interpolated from the actual surveys

| # | Date | Drill Mode | Start Time | End Time | Hours | Start MD | End MD | Depth Drilled | WOB | ROP | RPM | Surf. Torque | Flow Rate | SPP | TFO | INC | AZM | DLS | Note |
|---|-------|------------|------------|----------|-------|----------|--------|---------------|-----|-------|-----|--------------|-----------|------|------|-------|--------|------|------|
| 3 | 2-Dec | Drilling | 15:00 | 15:15 | 0.25 | 10740 | 10807 | 67 | 18 | 268.0 | 100 | 11 | 300 | 3500 | | 94.50 | 357.86 | 1.96 | |
| 3 | 2-Dec | Sliding | 15:20 | 16:25 | 1.08 | 10807 | 10851 | 44 | 50 | 40.6 | 0 | 11 | 300 | 3500 | 160R | 0.00 | 0.00 | 0.00 | |
| 3 | 2-Dec | Drilling | 16:25 | 16:42 | 0.28 | 10851 | 10903 | 52 | 18 | 183.5 | 100 | 11 | 300 | 3500 | | 0.00 | 0.00 | 0.00 | |
| 3 | 2-Dec | Sliding | 16:48 | 17:50 | 1.03 | 10903 | 10943 | 40 | 50 | 38.7 | 0 | 11 | 300 | 3500 | 180 | 0.00 | 0.00 | 0.00 | |
| 3 | 2-Dec | Drilling | 17:50 | 18:18 | 0.47 | 10943 | 10998 | 55 | 18 | 117.9 | 100 | 11 | 300 | 3500 | | 0.00 | 0.00 | 0.00 | |
| 3 | 2-Dec | Sliding | 18:24 | 19:02 | 0.63 | 10998 | 11020 | 22 | 50 | 34.7 | 100 | 11 | 300 | 3500 | 170R | 0.00 | 0.00 | 0.00 | |
| 3 | 2-Dec | Drilling | 19:02 | 19:20 | 0.30 | 11020 | 11093 | 73 | 18 | 243.3 | 100 | 11 | 300 | 3500 | | 0.00 | 0.00 | 0.00 | |
| 3 | 2-Dec | Drilling | 19:43 | 20:05 | 0.37 | 11093 | 11188 | 95 | 18 | 259.1 | 100 | 11 | 300 | 3500 | | 0.00 | 0.00 | 0.00 | |
| 3 | 2-Dec | Sliding | 20:12 | 21:01 | 0.82 | 11188 | 11220 | 32 | 50 | 39.2 | 100 | 11 | 300 | 3500 | 180 | 0.00 | 0.00 | 0.00 | |
| 3 | 2-Dec | Drilling | 21:01 | 21:16 | 0.25 | 11220 | 11283 | 63 | 25 | 252.0 | 100 | 11 | 300 | 3500 | | 0.00 | 0.00 | 0.00 | |
| 3 | 2-Dec | Drilling | 21:30 | 22:07 | 0.62 | 11283 | 11353 | 70 | 25 | 113.5 | 100 | 11 | 300 | 3500 | | 0.00 | 0.00 | 0.00 | |

Total Drilled: 4144 **Avg. Total ROP:** 158.17 **DEPTH% - TIME %**

Total Rotary Drilled: 3475 **Avg. Rotary ROP:** 243.01 **Percent Rotary:** 83.86 - 54.58

Total Drilled Sliding: 669 **Avg. Slide ROP:** 56.22 **Percent Slide:** 16.14 - 45.42