

Noble Energy

Weld County, CO (NAD 83)

Sec. 36-T6N-R64W

State A36-99HZ

Design: MWD Survey

Sperry Drilling Services

Final Survey Report

24 March, 2011

Well Coordinates: 1,408,078.52 N, 3,276,671.06 E (40° 26' 57.55" N, 104° 30' 21.10" W)

Ground Level: 4,629.00 ft

Local Coordinate Origin:

Centered on Well State A36-99HZ

Viewing Datum:

RKB 24' @ 4653.00ft (H&P 315)

TVDs to System:

N

North Reference:

Grid

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

HALLIBURTON

Design Report for State A36-99HZ - MWD Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 733.00 | 0.29 | 78.52 | 733.00 | 0.37 | 1.82 | 1.15 | 0.04 |
| First MWD Survey | | | | | | | |
| 825.00 | 0.36 | 66.06 | 825.00 | 0.53 | 2.31 | 1.42 | 0.11 |
| 915.00 | 0.33 | 67.04 | 914.99 | 0.75 | 2.81 | 1.66 | 0.03 |
| 1,007.00 | 0.24 | 110.65 | 1,006.99 | 0.78 | 3.23 | 1.96 | 0.25 |
| 1,098.00 | 0.19 | 73.29 | 1,097.99 | 0.76 | 3.55 | 2.22 | 0.16 |
| 1,189.00 | 0.12 | 321.74 | 1,188.99 | 0.88 | 3.64 | 2.21 | 0.28 |
| 1,281.00 | 0.21 | 320.22 | 1,280.99 | 1.08 | 3.47 | 1.95 | 0.10 |
| 1,375.00 | 0.28 | 325.93 | 1,374.99 | 1.41 | 3.23 | 1.56 | 0.08 |
| 1,470.00 | 0.68 | 301.62 | 1,469.99 | 1.89 | 2.62 | 0.78 | 0.46 |
| 1,564.00 | 0.39 | 301.89 | 1,563.98 | 2.36 | 1.88 | -0.09 | 0.31 |
| 1,659.00 | 0.35 | 347.96 | 1,658.98 | 2.81 | 1.54 | -0.64 | 0.31 |
| 1,753.00 | 0.24 | 114.86 | 1,752.98 | 3.01 | 1.66 | -0.68 | 0.56 |
| 1,847.00 | 0.40 | 191.90 | 1,846.98 | 2.60 | 1.77 | -0.33 | 0.44 |
| 1,942.00 | 0.54 | 241.80 | 1,941.98 | 2.07 | 1.31 | -0.34 | 0.44 |
| 2,036.00 | 0.54 | 149.76 | 2,035.97 | 1.48 | 1.14 | -0.08 | 0.83 |
| 2,131.00 | 0.71 | 160.07 | 2,130.97 | 0.54 | 1.57 | 0.85 | 0.21 |
| 2,225.00 | 0.80 | 175.68 | 2,224.96 | -0.67 | 1.82 | 1.82 | 0.24 |
| 2,320.00 | 1.38 | 144.92 | 2,319.94 | -2.26 | 2.52 | 3.39 | 0.85 |
| 2,414.00 | 1.31 | 153.86 | 2,413.92 | -4.15 | 3.65 | 5.47 | 0.24 |
| 2,508.00 | 1.01 | 90.02 | 2,507.90 | -5.12 | 4.95 | 7.08 | 1.33 |
| 2,603.00 | 1.12 | 113.60 | 2,602.89 | -5.49 | 6.64 | 8.61 | 0.47 |
| 2,792.00 | 0.79 | 76.24 | 2,791.86 | -5.92 | 9.59 | 11.15 | 0.36 |
| 2,886.00 | 0.37 | 78.19 | 2,885.86 | -5.70 | 10.52 | 11.72 | 0.45 |
| 2,981.00 | 0.24 | 121.30 | 2,980.85 | -5.74 | 10.99 | 12.10 | 0.27 |
| 3,075.00 | 0.39 | 194.73 | 3,074.85 | -6.16 | 11.08 | 12.43 | 0.42 |
| 3,264.00 | 0.71 | 110.50 | 3,263.85 | -7.19 | 12.01 | 13.81 | 0.41 |
| 3,358.00 | 0.68 | 159.87 | 3,357.84 | -7.92 | 12.75 | 14.85 | 0.62 |
| 3,453.00 | 0.82 | 178.19 | 3,452.83 | -9.13 | 12.96 | 15.79 | 0.29 |
| 3,547.00 | 0.95 | 142.95 | 3,546.82 | -10.42 | 13.46 | 17.00 | 0.59 |
| 3,642.00 | 0.94 | 153.72 | 3,641.81 | -11.75 | 14.28 | 18.49 | 0.19 |
| 3,736.00 | 0.92 | 140.28 | 3,735.80 | -13.02 | 15.10 | 19.94 | 0.23 |
| 3,831.00 | 0.99 | 156.40 | 3,830.78 | -14.36 | 15.91 | 21.42 | 0.29 |
| 3,925.00 | 0.77 | 166.65 | 3,924.77 | -15.72 | 16.39 | 22.66 | 0.29 |
| 4,114.00 | 0.64 | 200.06 | 4,113.76 | -17.94 | 16.32 | 24.05 | 0.22 |
| 4,209.00 | 0.41 | 230.51 | 4,208.76 | -18.66 | 15.87 | 24.17 | 0.37 |
| 4,303.00 | 0.36 | 263.89 | 4,302.75 | -18.90 | 15.32 | 23.91 | 0.24 |
| 4,586.00 | 0.46 | 316.19 | 4,585.75 | -18.18 | 13.65 | 22.16 | 0.13 |
| 4,681.00 | 0.79 | 321.50 | 4,680.74 | -17.39 | 12.98 | 21.14 | 0.35 |
| 4,870.00 | 1.12 | 307.80 | 4,869.72 | -15.24 | 10.71 | 18.02 | 0.21 |
| 4,965.00 | 0.93 | 300.43 | 4,964.70 | -14.28 | 9.31 | 16.33 | 0.24 |
| 5,059.00 | 0.68 | 281.08 | 5,058.69 | -13.79 | 8.10 | 15.09 | 0.39 |
| 5,248.00 | 0.11 | 7.88 | 5,247.69 | -13.39 | 7.03 | 14.01 | 0.36 |
| 5,437.00 | 0.31 | 284.08 | 5,436.69 | -13.09 | 6.56 | 13.46 | 0.17 |
| 5,626.00 | 0.57 | 230.81 | 5,625.68 | -13.56 | 5.33 | 12.83 | 0.24 |
| 5,815.00 | 1.16 | 202.25 | 5,814.66 | -15.92 | 3.88 | 13.25 | 0.38 |
| 6,004.00 | 1.67 | 196.85 | 6,003.60 | -20.33 | 2.36 | 14.93 | 0.28 |
| 6,068.00 | 1.12 | 167.67 | 6,067.58 | -21.83 | 2.22 | 15.80 | 1.38 |
| 6,131.00 | 3.40 | 122.43 | 6,130.53 | -23.43 | 3.93 | 18.14 | 4.33 |

Design Report for State A36-99HZ - MWD Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|
| 6,163.00 | 5.94 | 116.81 | 6,162.42 | -24.69 | 6.21 | 20.69 | 8.06 |
| 6,194.00 | 8.36 | 116.27 | 6,193.18 | -26.41 | 9.66 | 24.44 | 7.81 |
| 6,226.00 | 10.99 | 116.21 | 6,224.72 | -28.79 | 14.48 | 29.65 | 8.22 |
| 6,257.00 | 13.06 | 116.29 | 6,255.04 | -31.64 | 20.28 | 35.92 | 6.68 |
| 6,289.00 | 14.85 | 116.15 | 6,286.09 | -35.05 | 27.20 | 43.41 | 5.59 |
| 6,320.00 | 17.11 | 116.11 | 6,315.89 | -38.81 | 34.86 | 51.68 | 7.29 |
| 6,352.00 | 19.93 | 116.29 | 6,346.23 | -43.30 | 43.98 | 61.54 | 8.81 |
| 6,383.00 | 22.35 | 117.25 | 6,375.15 | -48.34 | 53.96 | 72.42 | 7.89 |
| 6,414.00 | 24.79 | 116.23 | 6,403.56 | -53.91 | 65.03 | 84.47 | 7.98 |
| 6,446.00 | 27.56 | 115.16 | 6,432.27 | -60.03 | 77.75 | 98.12 | 8.78 |
| 6,477.00 | 30.72 | 114.44 | 6,459.35 | -66.35 | 91.45 | 112.67 | 10.26 |
| 6,509.00 | 33.73 | 115.15 | 6,486.41 | -73.51 | 106.94 | 129.12 | 9.48 |
| 6,541.00 | 36.38 | 116.02 | 6,512.61 | -81.45 | 123.51 | 146.90 | 8.43 |
| 6,572.00 | 39.11 | 116.01 | 6,537.12 | -89.77 | 140.57 | 165.29 | 8.81 |
| 6,604.00 | 41.40 | 117.18 | 6,561.54 | -99.03 | 159.05 | 185.38 | 7.54 |
| 6,635.00 | 43.82 | 117.83 | 6,584.35 | -108.73 | 177.66 | 205.85 | 7.93 |
| 6,667.00 | 46.54 | 118.16 | 6,606.91 | -119.38 | 197.70 | 228.03 | 8.53 |
| 6,698.00 | 48.87 | 118.86 | 6,627.77 | -130.33 | 217.85 | 250.48 | 7.70 |
| 6,730.00 | 50.94 | 118.91 | 6,648.38 | -142.15 | 239.28 | 274.48 | 6.47 |
| 6,761.00 | 53.50 | 118.52 | 6,667.37 | -153.92 | 260.77 | 298.48 | 8.32 |
| 6,793.00 | 55.78 | 118.42 | 6,685.88 | -166.36 | 283.71 | 324.03 | 7.13 |
| 6,824.00 | 57.89 | 118.40 | 6,702.84 | -178.71 | 306.53 | 349.43 | 6.81 |
| 6,856.00 | 60.14 | 118.93 | 6,719.31 | -191.87 | 330.60 | 376.30 | 7.17 |
| 6,887.00 | 62.45 | 119.81 | 6,734.20 | -205.21 | 354.29 | 403.00 | 7.86 |
| 6,919.00 | 64.44 | 120.11 | 6,748.51 | -219.50 | 379.09 | 431.16 | 6.28 |
| 6,950.00 | 66.54 | 120.63 | 6,761.37 | -233.76 | 403.43 | 458.95 | 6.94 |
| 6,982.00 | 68.76 | 120.11 | 6,773.53 | -248.72 | 428.96 | 488.10 | 7.10 |
| 7,013.00 | 71.26 | 120.04 | 6,784.13 | -263.32 | 454.17 | 516.78 | 8.07 |
| 7,045.00 | 73.77 | 120.34 | 6,793.75 | -278.67 | 480.55 | 546.83 | 7.89 |
| 7,076.00 | 76.38 | 120.20 | 6,801.73 | -293.76 | 506.42 | 576.32 | 8.43 |
| 7,108.00 | 78.34 | 120.12 | 6,808.73 | -309.45 | 533.41 | 607.06 | 6.13 |
| 7,135.00 | 81.51 | 120.57 | 6,813.45 | -322.88 | 556.35 | 633.25 | 11.85 |
| 7,204.00 | 85.05 | 122.03 | 6,821.53 | -358.48 | 614.89 | 700.93 | 5.54 |
| 7,235.00 | 87.59 | 121.95 | 6,823.52 | -374.86 | 641.13 | 731.54 | 8.20 |
| 7,266.00 | 89.20 | 121.83 | 6,824.38 | -391.23 | 667.44 | 762.20 | 5.21 |
| 7,297.00 | 91.30 | 121.45 | 6,824.25 | -407.50 | 693.83 | 792.85 | 6.88 |
| 7,328.00 | 91.11 | 123.29 | 6,823.60 | -424.09 | 720.00 | 823.55 | 5.97 |
| 7,359.00 | 90.74 | 125.51 | 6,823.10 | -441.60 | 745.58 | 854.38 | 7.26 |
| 7,390.00 | 91.30 | 127.81 | 6,822.55 | -460.10 | 770.44 | 885.31 | 7.63 |
| 7,422.00 | 91.24 | 129.05 | 6,821.84 | -479.99 | 795.50 | 917.29 | 3.88 |
| 7,454.00 | 91.05 | 129.72 | 6,821.20 | -500.29 | 820.23 | 949.28 | 2.18 |
| 7,486.00 | 91.05 | 129.38 | 6,820.61 | -520.66 | 844.90 | 981.27 | 1.06 |
| 7,518.00 | 90.80 | 129.47 | 6,820.09 | -540.98 | 869.61 | 1,013.26 | 0.83 |
| 7,549.00 | 90.74 | 129.45 | 6,819.68 | -560.68 | 893.54 | 1,044.26 | 0.20 |
| 7,581.00 | 90.99 | 130.49 | 6,819.19 | -581.23 | 918.07 | 1,076.25 | 3.34 |
| 7,613.00 | 91.73 | 130.68 | 6,818.43 | -602.05 | 942.36 | 1,108.24 | 2.39 |
| 7,677.00 | 92.90 | 130.59 | 6,815.85 | -643.69 | 990.89 | 1,172.19 | 1.83 |
| 7,741.00 | 92.90 | 130.35 | 6,812.61 | -685.18 | 1,039.51 | 1,236.10 | 0.37 |
| 7,805.00 | 93.15 | 130.50 | 6,809.23 | -726.62 | 1,088.17 | 1,300.01 | 0.46 |
| 7,868.00 | 92.53 | 130.26 | 6,806.11 | -767.39 | 1,136.10 | 1,362.94 | 1.06 |
| 7,933.00 | 92.78 | 130.50 | 6,803.10 | -809.45 | 1,185.56 | 1,427.87 | 0.53 |

Design Report for State A36-99HZ - MWD Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|
| 7,995.00 | 92.66 | 131.33 | 6,800.16 | -850.01 | 1,232.36 | 1,489.79 | 1.35 |
| 8,059.00 | 91.42 | 131.70 | 6,797.88 | -892.40 | 1,280.25 | 1,553.73 | 2.02 |
| 8,122.00 | 91.30 | 132.35 | 6,796.39 | -934.57 | 1,327.03 | 1,616.69 | 1.05 |
| 8,186.00 | 93.34 | 133.69 | 6,793.80 | -978.19 | 1,373.78 | 1,680.55 | 3.81 |
| 8,251.00 | 93.34 | 135.08 | 6,790.01 | -1,023.58 | 1,420.16 | 1,745.27 | 2.13 |
| 8,314.00 | 92.41 | 136.65 | 6,786.85 | -1,068.74 | 1,463.97 | 1,807.89 | 2.89 |
| 8,377.00 | 92.90 | 138.65 | 6,783.93 | -1,115.24 | 1,506.36 | 1,870.29 | 3.27 |
| 8,409.00 | 92.29 | 138.57 | 6,782.48 | -1,139.23 | 1,527.50 | 1,901.92 | 1.92 |
| 8,441.00 | 88.89 | 138.32 | 6,782.15 | -1,163.17 | 1,548.72 | 1,933.59 | 10.65 |
| 8,473.00 | 87.53 | 137.09 | 6,783.15 | -1,186.82 | 1,570.24 | 1,965.30 | 5.73 |
| 8,505.00 | 88.89 | 135.54 | 6,784.15 | -1,209.95 | 1,592.33 | 1,997.10 | 6.44 |
| 8,536.00 | 90.49 | 134.53 | 6,784.32 | -1,231.88 | 1,614.24 | 2,027.99 | 6.10 |
| 8,568.00 | 90.87 | 133.16 | 6,783.94 | -1,254.05 | 1,637.32 | 2,059.93 | 4.44 |
| 8,600.00 | 91.11 | 130.99 | 6,783.39 | -1,275.49 | 1,661.06 | 2,091.90 | 6.82 |
| 8,632.00 | 91.05 | 131.32 | 6,782.78 | -1,296.54 | 1,685.15 | 2,123.89 | 1.05 |
| 8,664.00 | 91.05 | 131.25 | 6,782.20 | -1,317.65 | 1,709.20 | 2,155.88 | 0.22 |
| 8,728.00 | 90.49 | 131.66 | 6,781.34 | -1,360.02 | 1,757.16 | 2,219.86 | 1.08 |
| 8,792.00 | 90.99 | 132.89 | 6,780.51 | -1,403.07 | 1,804.51 | 2,283.82 | 2.07 |
| 8,855.00 | 90.49 | 129.18 | 6,779.69 | -1,444.42 | 1,852.02 | 2,346.79 | 5.94 |
| 8,920.00 | 91.23 | 128.38 | 6,778.72 | -1,485.12 | 1,902.68 | 2,411.76 | 1.68 |
| 8,983.00 | 91.30 | 127.21 | 6,777.33 | -1,523.72 | 1,952.45 | 2,474.69 | 1.86 |
| 9,047.00 | 90.56 | 124.12 | 6,776.29 | -1,561.03 | 2,004.43 | 2,538.47 | 4.96 |
| 9,111.00 | 90.62 | 124.92 | 6,775.63 | -1,597.29 | 2,057.16 | 2,602.15 | 1.25 |
| 9,174.00 | 90.49 | 122.97 | 6,775.02 | -1,632.47 | 2,109.42 | 2,664.76 | 3.10 |
| 9,238.00 | 90.19 | 125.42 | 6,774.64 | -1,668.43 | 2,162.35 | 2,728.40 | 3.86 |
| 9,303.00 | 90.19 | 127.88 | 6,774.42 | -1,707.23 | 2,214.50 | 2,793.26 | 3.78 |
| 9,366.00 | 89.88 | 129.90 | 6,774.39 | -1,746.78 | 2,263.53 | 2,856.24 | 3.24 |
| 9,430.00 | 90.06 | 132.56 | 6,774.42 | -1,788.96 | 2,311.66 | 2,920.23 | 4.17 |
| 9,494.00 | 90.99 | 134.09 | 6,773.83 | -1,832.87 | 2,358.21 | 2,984.13 | 2.80 |
| 9,558.00 | 90.62 | 134.38 | 6,772.93 | -1,877.51 | 2,404.06 | 3,047.97 | 0.73 |
| 9,621.00 | 87.90 | 133.56 | 6,773.75 | -1,921.24 | 2,449.40 | 3,110.82 | 4.51 |
| 9,685.00 | 87.47 | 134.23 | 6,776.33 | -1,965.58 | 2,495.48 | 3,174.64 | 1.24 |
| 9,749.00 | 88.95 | 133.79 | 6,778.33 | -2,010.02 | 2,541.48 | 3,238.47 | 2.41 |
| 9,812.00 | 89.88 | 134.10 | 6,778.98 | -2,053.74 | 2,586.84 | 3,301.33 | 1.56 |
| 9,844.00 | 90.74 | 134.22 | 6,778.80 | -2,076.03 | 2,609.80 | 3,333.26 | 2.71 |
| 9,876.00 | 90.80 | 134.95 | 6,778.37 | -2,098.49 | 2,632.59 | 3,365.16 | 2.29 |
| 9,907.00 | 90.56 | 135.02 | 6,778.00 | -2,120.41 | 2,654.51 | 3,396.06 | 0.81 |
| 9,939.00 | 90.80 | 135.14 | 6,777.62 | -2,143.06 | 2,677.10 | 3,427.94 | 0.84 |
| 9,971.00 | 90.74 | 135.76 | 6,777.19 | -2,165.87 | 2,699.55 | 3,459.81 | 1.95 |
| 10,035.00 | 90.80 | 135.02 | 6,776.33 | -2,211.42 | 2,744.49 | 3,523.54 | 1.16 |
| 10,098.00 | 90.31 | 132.60 | 6,775.72 | -2,255.03 | 2,789.95 | 3,586.41 | 3.92 |
| 10,162.00 | 90.86 | 132.26 | 6,775.07 | -2,298.21 | 2,837.19 | 3,650.36 | 1.01 |
| 10,226.00 | 91.30 | 131.47 | 6,773.86 | -2,340.91 | 2,884.84 | 3,714.32 | 1.41 |
| 10,290.00 | 89.32 | 131.62 | 6,773.52 | -2,383.36 | 2,932.74 | 3,778.30 | 3.10 |
| 10,354.00 | 89.63 | 131.91 | 6,774.10 | -2,425.98 | 2,980.47 | 3,842.28 | 0.66 |
| 10,418.00 | 90.56 | 131.17 | 6,774.00 | -2,468.42 | 3,028.37 | 3,906.26 | 1.86 |
| 10,482.00 | 90.93 | 129.92 | 6,773.17 | -2,510.02 | 3,077.00 | 3,970.25 | 2.04 |
| 10,545.00 | 92.10 | 129.98 | 6,771.50 | -2,550.46 | 3,125.28 | 4,033.23 | 1.86 |
| 10,609.00 | 91.17 | 129.23 | 6,769.67 | -2,591.24 | 3,174.57 | 4,097.20 | 1.87 |
| 10,673.00 | 91.79 | 130.26 | 6,768.02 | -2,632.15 | 3,223.76 | 4,161.17 | 1.88 |

Design Report for State A36-99HZ - MWD Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) |
|--------------------------------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|
| 10,736.00 | 91.48 | 131.89 | 6,766.22 | -2,673.52 | 3,271.23 | 4,224.14 | 2.63 |
| 10,800.00 | 91.85 | 133.67 | 6,764.36 | -2,716.97 | 3,318.18 | 4,288.05 | 2.84 |
| 10,864.00 | 92.22 | 134.20 | 6,762.09 | -2,761.35 | 3,364.24 | 4,351.87 | 1.01 |
| 10,928.00 | 90.12 | 134.13 | 6,760.78 | -2,805.93 | 3,410.14 | 4,415.71 | 3.28 |
| 10,992.00 | 89.57 | 133.60 | 6,760.96 | -2,850.28 | 3,456.28 | 4,479.58 | 1.19 |
| 11,055.00 | 90.00 | 133.67 | 6,761.19 | -2,893.75 | 3,501.88 | 4,542.47 | 0.69 |
| 11,119.00 | 90.12 | 133.13 | 6,761.13 | -2,937.72 | 3,548.38 | 4,606.37 | 0.86 |
| 11,183.00 | 89.88 | 134.03 | 6,761.13 | -2,981.84 | 3,594.74 | 4,670.26 | 1.46 |
| 11,246.00 | 90.25 | 133.69 | 6,761.06 | -3,025.49 | 3,640.17 | 4,733.14 | 0.80 |
| 11,309.00 | 89.88 | 133.90 | 6,760.98 | -3,069.09 | 3,685.64 | 4,796.02 | 0.68 |
| 11,373.00 | 91.05 | 135.54 | 6,760.46 | -3,114.12 | 3,731.11 | 4,859.82 | 3.15 |
| 11,437.00 | 90.80 | 135.70 | 6,759.43 | -3,159.86 | 3,775.87 | 4,923.53 | 0.46 |
| 11,501.00 | 91.11 | 134.63 | 6,758.36 | -3,205.24 | 3,820.99 | 4,987.28 | 1.74 |
| 11,565.00 | 90.49 | 134.91 | 6,757.47 | -3,250.31 | 3,866.42 | 5,051.08 | 1.06 |
| 11,628.00 | 92.66 | 135.02 | 6,755.74 | -3,294.81 | 3,910.97 | 5,113.84 | 3.45 |
| 11,692.00 | 91.60 | 134.12 | 6,753.36 | -3,339.69 | 3,956.53 | 5,177.61 | 2.17 |
| 11,756.00 | 90.93 | 135.16 | 6,751.95 | -3,384.65 | 4,002.06 | 5,241.40 | 1.93 |
| 11,819.00 | 90.06 | 135.75 | 6,751.40 | -3,429.54 | 4,046.25 | 5,304.14 | 1.67 |
| 11,883.00 | 90.87 | 136.52 | 6,750.88 | -3,475.68 | 4,090.60 | 5,367.80 | 1.75 |
| 11,947.00 | 90.62 | 136.31 | 6,750.05 | -3,522.04 | 4,134.72 | 5,431.42 | 0.51 |
| 12,011.00 | 91.24 | 137.73 | 6,749.01 | -3,568.85 | 4,178.34 | 5,494.97 | 2.42 |
| 12,105.00 | 91.42 | 141.91 | 6,746.83 | -3,640.64 | 4,238.96 | 5,587.61 | 4.45 |
| Final MWD Survey | | | | | | | |
| 12,140.00 | 91.42 | 141.91 | 6,745.96 | -3,668.17 | 4,260.54 | 5,621.88 | 0.00 |
| Survey Projection to TD - Estimated BHL: 1230' FSL, 545' FEL | | | | | | | |

Design Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment |
|---------------------|---------------------|-------------------|------------|------------------------------------|
| | | +N/-S (ft) | +E/-W (ft) | |
| 733.00 | 733.00 | 0.37 | 1.82 | First MWD Survey |
| 12,105.00 | 6,746.83 | -3,640.64 | 4,238.96 | Final MWD Survey |
| 12,140.00 | 6,745.96 | -3,668.17 | 4,260.54 | Survey Projection to TD |
| 12,140.00 | 6,745.96 | -3,668.17 | 4,260.54 | Estimated BHL: 1230' FSL, 545' FEL |

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin | | Start TVD (ft) |
|------------|--------------------|-------------|-------------|------------|------------|----------------|
| | | | | +N/-S (ft) | +E/-W (ft) | |
| Target | State A36-99HZ Tgt | 130.25 | Slot | 0.00 | 0.00 | 0.00 |

Survey tool program

| From (ft) | To (ft) | Survey/Plan | Survey Tool |
|-----------|-----------|-------------------|-------------|
| 733.00 | 12,140.00 | Sperry MWD Survey | MWD |

Project: Weld County, CO (NAD 83)
 Site: Sec. 36-T6N-R64W
 Well: State A36-99HZ

Noble Energy

HALLIBURTON

Sperry Drilling



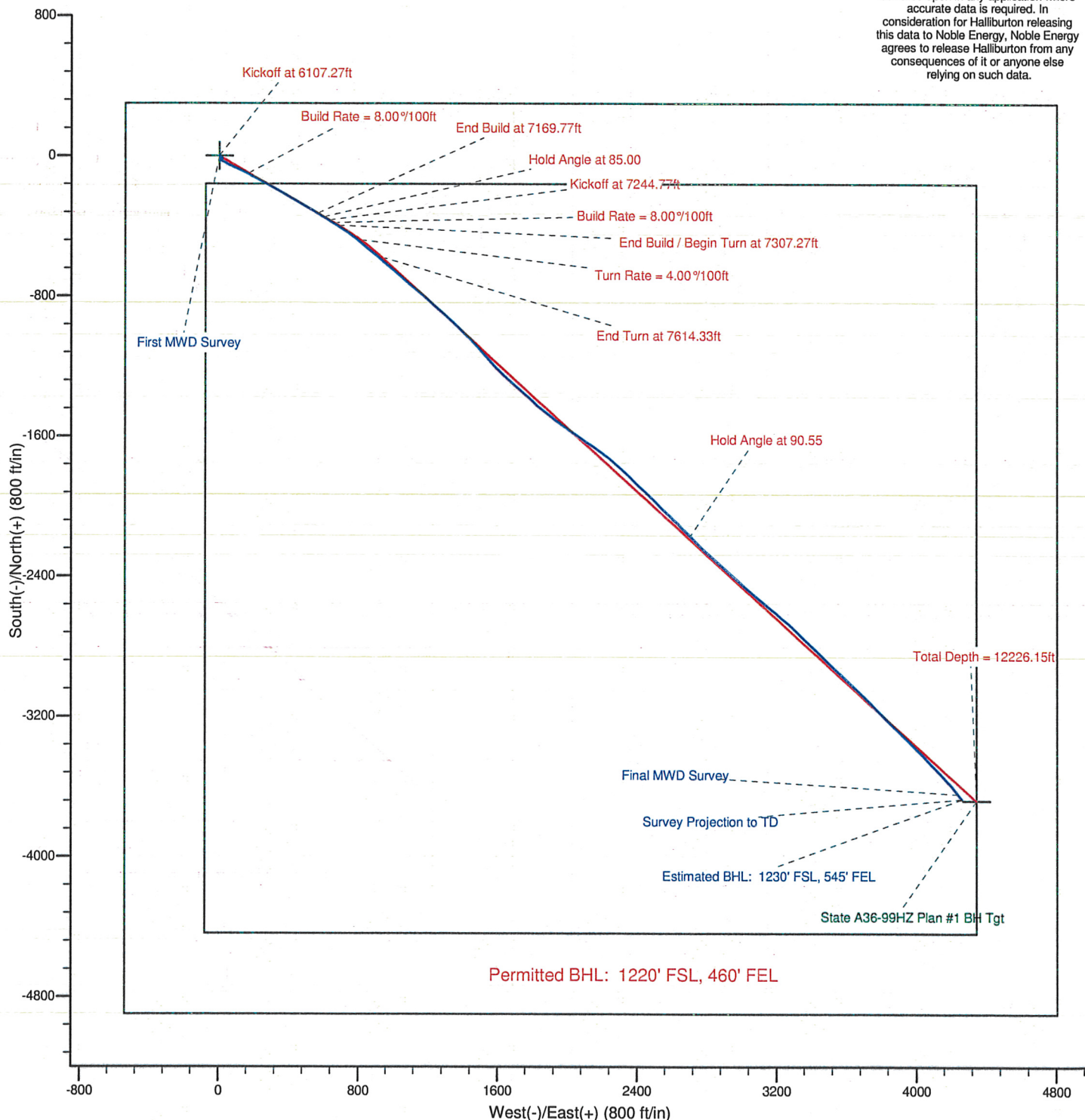
Azimuths to Grid North
 True North: -0.64°
 Magnetic North: 8.14°

Magnetic Field
 Strength: 53244.2snT
 Dip Angle: 67.17°
 Date: 10/1/2010
 Model: BGGM2010

LEGEND

— State A36-99HZ,
 — MWD Survey

Halliburton Energy Services, Inc. ("Halliburton") recently completed directional drilling and MWD operations at the State A36-99HZ well located at Weld County, CO. At the conclusion of the job Halliburton performed a final survey on the well. Noble Energy has requested that Halliburton provide them the distances from BHL to section lines from that final survey to allow Noble Energy to meet its requirements under Colorado law. These distances are generated by a mathematical algorithm based on rough data collected after the well is drilled. Halliburton considers it to be a rough estimate only and it is not to be relied upon in any application where accurate data is required. In consideration for Halliburton releasing this data to Noble Energy, Noble Energy agrees to release Halliburton from any consequences of it or anyone else relying on such data.



Design Report for State A36-99HZ - MWD Survey

Targets

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude | Longitude |
|---------------------------------------------------------------------------------------------------------|---------------------|--------------------|-------------|---------------|---------------|------------------|-----------------|------------------|-------------------|
| State A36-99HZ S. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,408,078.52 | 3,276,671.06 | 40° 26' 57.552 N | 104° 30' 21.096 W |
| - actual wellpath hits target center | | | | | | | | | |
| - Polygon | | | | | | | | | |
| Point 1 | | | | -540.00 | -4,898.00 | 1,403,180.70 | 3,276,131.08 | | |
| Point 2 | | | | 4,805.00 | -4,898.00 | 1,403,180.70 | 3,281,475.88 | | |
| State A36-99HZ Plan | 0.00 | 0.00 | 6,784.15 | -3,678.08 | 4,344.95 | 1,404,400.58 | 3,281,015.85 | 40° 26' 20.724 N | 104° 29' 25.440 W |
| - actual wellpath misses target center by 93.17ft at 12140.00ft MD (6745.96 TVD, -3668.17 N, 4260.54 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| State A36-9 | 0.00 | 0.00 | 0.00 | -2,930.02 | 4,127.66 | 1,405,148.61 | 3,280,798.56 | 40° 26' 28.140 N | 104° 29' 28.140 W |
| - actual wellpath misses target center by 5061.88ft at 8.76ft MD (8.76 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Circle (radius 300.00) | | | | | | | | | |
| State A36-99HZ N. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,408,078.52 | 3,276,671.06 | 40° 26' 57.552 N | 104° 30' 21.096 W |
| - actual wellpath hits target center | | | | | | | | | |
| - Polygon | | | | | | | | | |
| Point 1 | | | | -540.00 | 300.00 | 1,408,378.51 | 3,276,131.08 | | |
| Point 2 | | | | 4,805.00 | 300.00 | 1,408,378.51 | 3,281,475.88 | | |
| State A36-16 | 0.00 | 0.00 | 0.00 | -4,281.44 | 4,151.39 | 1,403,797.24 | 3,280,822.29 | 40° 26' 14.784 N | 104° 29' 28.032 W |
| - actual wellpath misses target center by 5963.62ft at 8.14ft MD (8.14 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Circle (radius 300.00) | | | | | | | | | |
| State A36-6 | 0.00 | 0.00 | 0.00 | -1,714.74 | 1,411.00 | 1,406,363.84 | 3,278,082.01 | 40° 26' 40.452 N | 104° 30' 3.096 W |
| - actual wellpath misses target center by 2220.65ft at 2.64ft MD (2.64 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Circle (radius 300.00) | | | | | | | | | |
| Devries State A36-23 | 0.00 | 0.00 | 0.00 | -3,541.63 | 3,527.76 | 1,404,537.02 | 3,280,198.69 | 40° 26' 22.164 N | 104° 29' 35.988 W |
| - actual wellpath misses target center by 4998.83ft at 6.97ft MD (6.97 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Circle (radius 300.00) | | | | | | | | | |
| State A36-3 | 0.00 | 0.00 | 0.00 | -372.93 | 1,504.43 | 1,407,705.60 | 3,278,175.44 | 40° 26' 53.700 N | 104° 30' 1.692 W |
| - actual wellpath misses target center by 1549.97ft at 3.54ft MD (3.54 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Circle (radius 300.00) | | | | | | | | | |
| Scholfield State | 0.00 | 0.00 | 0.00 | -233.15 | 2.61 | 1,407,845.38 | 3,276,673.67 | 40° 26' 55.248 N | 104° 30' 21.096 W |
| - actual wellpath misses target center by 233.16ft at 0.00ft MD (0.00 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Circle (radius 300.00) | | | | | | | | | |
| Scholfield A36-19 | 0.00 | 0.00 | 0.00 | -1,009.31 | 640.38 | 1,407,069.24 | 3,277,311.41 | 40° 26' 47.508 N | 104° 30' 12.960 W |
| - actual wellpath misses target center by 1195.32ft at 1.08ft MD (1.08 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Circle (radius 300.00) | | | | | | | | | |
| State A36-99HZ N. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,408,078.52 | 3,276,671.06 | 40° 26' 57.552 N | 104° 30' 21.096 W |
| - actual wellpath hits target center | | | | | | | | | |
| - Polygon | | | | | | | | | |
| Point 1 | | | | -80.00 | -160.00 | 1,407,918.52 | 3,276,591.06 | | |
| Point 2 | | | | 4,345.00 | -160.00 | 1,407,918.52 | 3,281,015.90 | | |
| State A36-99HZ W. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,408,078.52 | 3,276,671.06 | 40° 26' 57.552 N | 104° 30' 21.096 W |
| - actual wellpath hits target center | | | | | | | | | |
| - Polygon | | | | | | | | | |
| Point 1 | | | | -540.00 | 300.00 | 1,408,378.51 | 3,276,131.08 | | |
| Point 2 | | | | -540.00 | -4,898.00 | 1,403,180.70 | 3,276,131.08 | | |
| State A36-99HZ S. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,408,078.52 | 3,276,671.06 | 40° 26' 57.552 N | 104° 30' 21.096 W |
| - actual wellpath hits target center | | | | | | | | | |
| - Polygon | | | | | | | | | |
| Point 1 | | | | -80.00 | -4,438.00 | 1,403,640.68 | 3,276,591.06 | | |
| Point 2 | | | | 4,345.00 | -4,438.00 | 1,403,640.68 | 3,281,015.90 | | |
| Devries State A36-21 | 0.00 | 0.00 | 0.00 | -2,483.18 | 2,084.95 | 1,405,595.43 | 3,278,755.93 | 40° 26' 32.784 N | 104° 29' 54.492 W |
| - actual wellpath misses target center by 3242.41ft at 3.92ft MD (3.92 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Circle (radius 300.00) | | | | | | | | | |
| State A36-10 | 0.00 | 0.00 | 0.00 | -2,952.21 | 2,814.01 | 1,405,126.41 | 3,279,484.96 | 40° 26' 28.068 N | 104° 29' 45.132 W |

Design Report for State A36-99HZ - MWD Survey

| | | | | | | | | | |
|---------------------------------------------------------------------------------------------|------|------|------|-----------|-----------|--------------|--------------|------------------|-------------------|
| - actual wellpath misses target center by 4078.51ft at 5.49ft MD (5.49 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Circle (radius 300.00) | | | | | | | | | |
| State A36-7 | 0.00 | 0.00 | 0.00 | -1,447.79 | 2,788.62 | 1,406,630.78 | 3,279,459.57 | 40° 26' 42.936 N | 104° 29' 45.240 W |
| - actual wellpath misses target center by 3142.06ft at 6.19ft MD (6.19 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Circle (radius 300.00) | | | | | | | | | |
| State A36-99HZ E. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,408,078.52 | 3,276,671.06 | 40° 26' 57.552 N | 104° 30' 21.096 W |
| - actual wellpath hits target center | | | | | | | | | |
| - Polygon | | | | | | | | | |
| Point 1 | | | | 4,345.00 | -160.00 | 1,407,918.52 | 3,281,015.90 | | |
| Point 2 | | | | 4,345.00 | -4,438.00 | 1,403,640.68 | 3,281,015.90 | | |
| State A36-99HZ E. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,408,078.52 | 3,276,671.06 | 40° 26' 57.552 N | 104° 30' 21.096 W |
| - actual wellpath hits target center | | | | | | | | | |
| - Polygon | | | | | | | | | |
| Point 1 | | | | 4,805.00 | 300.00 | 1,408,378.51 | 3,281,475.88 | | |
| Point 2 | | | | 4,805.00 | -4,898.00 | 1,403,180.70 | 3,281,475.88 | | |
| State A36-99HZ W. | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,408,078.52 | 3,276,671.06 | 40° 26' 57.552 N | 104° 30' 21.096 W |
| - actual wellpath hits target center | | | | | | | | | |
| - Polygon | | | | | | | | | |
| Point 1 | | | | -80.00 | -160.00 | 1,407,918.52 | 3,276,591.06 | | |
| Point 2 | | | | -80.00 | -4,438.00 | 1,403,640.68 | 3,276,591.06 | | |

North Reference Sheet for Sec. 36-T6N-R64W - State A36-99HZ

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to Grid North Reference.

Vertical Depths are relative to RKB 24' @ 4653.00ft (H&P 315). Northing and Easting are relative to State A36-99HZ

Coordinate System is US State Plane 1983, Colorado Northern Zone using datum North American Datum 1983, ellipsoid GRS 1980

Projection method is Lambert Conformal Conic (2 parallel)

Central Meridian is 105° 30' 0.000 W°, Longitude Origin: 0° 0' 0.000 E°, Latitude Origin: 40° 47' 0.000 N°

False Easting: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99996284

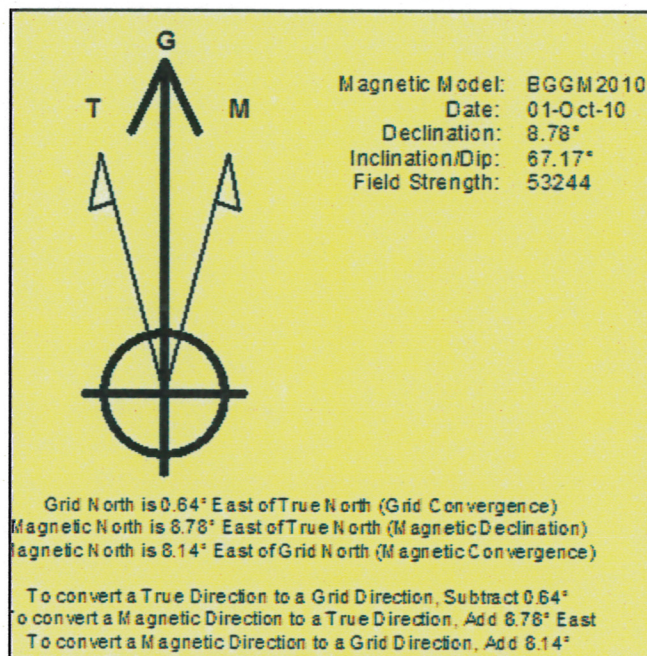
Grid Coordinates of Well: 1,408,078.52 ft N, 3,276,671.06 ft E

Geographical Coordinates of Well: 40° 26' 57.55" N, 104° 30' 21.10" W

Grid Convergence at Surface is: 0.64°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,140.00ft
the Bottom Hole Displacement is 5,622.08ft in the Direction of 130.73° (Grid).

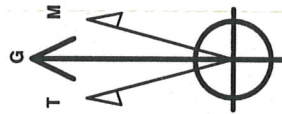
Magnetic Convergence at surface is: -8.14° (1 October 2010, , BGGM2010)



Project: Weld County, CO (NAD 83)
 Site: Sec. 36-T6N-R64W
 Well: State A36-99HZ

Noble Energy

HALLIBURTON
 Sperry Drilling



Azimuths to Grid North
 True North: -0.64°
 Magnetic North: 8.14°
 Magnetic Field
 Strength: 53244.2snT
 Dip Angle: 67.17°
 Date: 10/1/2010
 Model: BGGM2010

LEGEND

— State A36-99HZ,
 — MWD Survey

Halliburton Energy Services, Inc. ("Halliburton") recently completed directional drilling and MWD operations at the State A36-99HZ well located at Weld County, CO. At the conclusion of the job Halliburton performed a final survey on the well. Noble Energy has requested that Halliburton provide them the distances from BHL to section lines from that final survey to allow Noble Energy to meet its requirements under Colorado law. These distances are generated by a mathematical algorithm based on rough data collected after the well is drilled. Halliburton considers it to be a rough estimate only and it is not to be relied upon in any application where accurate data is required. In consideration for Halliburton releasing this data to Noble Energy, Noble Energy agrees to release Halliburton from any consequences of it or anyone else relying on such data.

