

Noble Energy (Rockies)

Weld County, CO (Nad 83, North Zone)

Sec. 9-T5N-R63W

70 Ranch USX BB09-99HZ

Wellbore #1

Design: Sperry MWD Survey

Sperry Drilling Services

Final Survey Report

07 December, 2009

Well Coordinates: 1,397,811.95 N, 3,292,785.50 E (40° 25' 14.27" N, 104° 26' 54.24" W)
Ground Level: 4,744.00 ft

| | |
|-------------------------------|--|
| Local Coordinate Origin: | Centered on Well 70 Ranch USX BB09-99HZ |
| Viewing Datum: | RKB 13' @ 4757.00ft (Original Well Elev) |
| TVDs to System: | N |
| North Reference: | True |
| Unit System: | API - US Survey Feet - Custom |
| Geodetic Scale Factor Applied | |
| Version: 2003.16 Build: 431 | |

HALLIBURTON

Design Report for 70 Ranch USX BB09-99HZ - Sperry 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 |
| 722.00 | 0.56 | 201.44 | 721.99 | -3.28 | -1.29 | 1.33 | 0.08 |
| First Sperry MWD Survey | | | | | | | |
| 1,235.00 | 0.75 | 205.07 | 1,234.95 | -8.66 | -3.63 | 3.34 | 0.04 |
| 1,449.00 | 0.53 | 201.56 | 1,448.94 | -10.85 | -4.59 | 4.16 | 0.10 |
| 1,577.00 | 0.56 | 229.47 | 1,576.94 | -11.81 | -5.28 | 4.32 | 0.21 |
| 1,706.00 | 0.61 | 219.53 | 1,705.93 | -12.74 | -6.20 | 4.30 | 0.09 |
| 1,834.00 | 0.32 | 198.25 | 1,833.92 | -13.61 | -6.74 | 4.50 | 0.26 |
| 1,963.00 | 0.36 | 291.79 | 1,962.92 | -13.80 | -7.23 | 4.28 | 0.38 |
| 2,134.00 | 0.77 | 40.54 | 2,133.92 | -12.73 | -6.98 | 3.72 | 0.56 |
| 2,263.00 | 0.81 | 64.61 | 2,262.91 | -11.68 | -5.59 | 4.00 | 0.26 |
| 2,391.00 | 1.11 | 77.63 | 2,390.89 | -11.03 | -3.57 | 5.02 | 0.29 |
| 2,520.00 | 1.00 | 89.37 | 2,519.87 | -10.75 | -1.22 | 6.53 | 0.19 |
| 2,648.00 | 0.81 | 92.10 | 2,647.85 | -10.77 | 0.80 | 8.00 | 0.15 |
| 2,776.00 | 0.51 | 71.99 | 2,775.84 | -10.62 | 2.25 | 8.95 | 0.29 |
| 2,948.00 | 0.25 | 60.38 | 2,947.84 | -10.20 | 3.30 | 9.43 | 0.16 |
| 3,076.00 | 0.74 | 333.72 | 3,075.83 | -9.32 | 3.18 | 8.73 | 0.60 |
| 3,205.00 | 0.48 | 35.81 | 3,204.83 | -8.14 | 3.13 | 7.87 | 0.52 |
| 3,333.00 | 1.05 | 74.18 | 3,332.82 | -7.38 | 4.57 | 8.40 | 0.58 |
| 3,462.00 | 0.51 | 86.21 | 3,461.80 | -7.02 | 6.28 | 9.39 | 0.44 |
| 3,590.00 | 1.53 | 77.74 | 3,589.78 | -6.62 | 8.52 | 10.73 | 0.80 |
| 3,719.00 | 2.10 | 83.40 | 3,718.72 | -5.98 | 12.55 | 13.21 | 0.46 |
| 3,847.00 | 2.50 | 88.78 | 3,846.61 | -5.65 | 17.67 | 16.69 | 0.35 |
| 3,975.00 | 0.94 | 136.80 | 3,974.56 | -6.36 | 21.18 | 19.72 | 1.56 |
| 4,061.00 | 1.63 | 116.91 | 4,060.54 | -7.43 | 22.75 | 21.60 | 0.94 |
| 4,147.00 | 1.49 | 127.29 | 4,146.50 | -8.66 | 24.73 | 23.88 | 0.37 |
| 4,232.00 | 1.33 | 155.13 | 4,231.48 | -10.22 | 26.03 | 25.90 | 0.82 |
| 4,318.00 | 1.17 | 125.51 | 4,317.46 | -11.64 | 27.16 | 27.70 | 0.76 |
| 4,404.00 | 0.33 | 158.77 | 4,403.45 | -12.38 | 27.96 | 28.79 | 1.06 |
| 4,489.00 | 0.93 | 237.93 | 4,488.45 | -12.98 | 27.47 | 28.84 | 1.09 |
| 4,575.00 | 1.23 | 251.41 | 4,574.43 | -13.64 | 26.00 | 28.24 | 0.45 |
| 4,661.00 | 1.06 | 240.15 | 4,660.41 | -14.33 | 24.44 | 27.58 | 0.33 |
| 4,746.00 | 0.53 | 241.29 | 4,745.41 | -14.91 | 23.41 | 27.24 | 0.62 |
| 4,832.00 | 0.88 | 63.88 | 4,831.40 | -14.81 | 23.65 | 27.34 | 1.64 |
| 4,917.00 | 0.94 | 72.90 | 4,916.39 | -14.32 | 24.91 | 27.91 | 0.18 |
| 5,003.00 | 0.31 | 96.61 | 5,002.39 | -14.14 | 25.81 | 28.44 | 0.78 |
| 5,089.00 | 0.19 | 215.86 | 5,088.39 | -14.28 | 25.96 | 28.65 | 0.51 |
| 5,174.00 | 0.61 | 227.24 | 5,173.38 | -14.70 | 25.54 | 28.64 | 0.50 |
| 5,260.00 | 1.15 | 260.31 | 5,259.37 | -15.16 | 24.36 | 28.09 | 0.84 |
| 5,346.00 | 0.20 | 142.22 | 5,345.37 | -15.42 | 23.60 | 27.72 | 1.46 |
| 5,431.00 | 0.48 | 80.79 | 5,430.37 | -15.48 | 24.04 | 28.09 | 0.50 |
| 5,516.00 | 0.19 | 65.29 | 5,515.37 | -15.37 | 24.52 | 28.35 | 0.35 |
| 5,602.00 | 0.06 | 85.59 | 5,601.37 | -15.30 | 24.70 | 28.44 | 0.16 |
| 5,688.00 | 0.17 | 282.80 | 5,687.37 | -15.27 | 24.62 | 28.36 | 0.27 |
| 5,740.00 | 0.20 | 279.58 | 5,739.37 | -15.24 | 24.45 | 28.22 | 0.06 |
| 5,801.00 | 0.12 | 224.93 | 5,800.37 | -15.27 | 24.30 | 28.13 | 0.27 |
| 5,844.00 | 1.96 | 141.56 | 5,843.36 | -15.87 | 24.73 | 28.85 | 4.53 |
| 5,887.00 | 3.68 | 143.95 | 5,886.30 | -17.57 | 26.00 | 30.94 | 4.01 |
| 5,930.00 | 5.23 | 143.72 | 5,929.17 | -20.26 | 27.97 | 34.23 | 3.60 |
| 5,972.00 | 5.56 | 143.98 | 5,970.99 | -23.45 | 30.30 | 38.11 | 0.79 |

Design Report for 70 Ranch USX BB09-99HZ - Sperry MWD Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) |
|---------------------------|--------------------|----------------|---------------------------|---------------|---------------|-----------------------------|-----------------------------|
| 6,015.00 | 6.53 | 142.20 | 6,013.75 | -27.07 | 33.02 | 42.58 | 2.30 |
| 6,058.00 | 7.40 | 134.63 | 6,056.43 | -30.94 | 36.49 | 47.77 | 2.94 |
| 6,101.00 | 9.66 | 128.30 | 6,098.95 | -35.13 | 41.29 | 54.13 | 5.68 |
| 6,144.00 | 12.78 | 126.90 | 6,141.13 | -40.22 | 47.93 | 62.45 | 7.28 |
| 6,186.00 | 16.73 | 127.61 | 6,181.73 | -46.70 | 56.44 | 73.08 | 9.41 |
| 6,229.00 | 20.55 | 128.05 | 6,222.47 | -55.13 | 67.29 | 86.75 | 8.89 |
| 6,272.00 | 23.37 | 128.25 | 6,262.35 | -65.07 | 79.93 | 102.75 | 6.56 |
| 6,314.00 | 27.13 | 128.60 | 6,300.33 | -76.20 | 93.96 | 120.59 | 8.96 |
| 6,357.00 | 32.30 | 127.31 | 6,337.66 | -89.29 | 110.77 | 141.79 | 12.11 |
| 6,399.00 | 38.22 | 127.79 | 6,371.94 | -104.07 | 129.98 | 165.89 | 14.11 |
| 6,442.00 | 44.36 | 129.81 | 6,404.23 | -121.86 | 152.06 | 194.16 | 14.61 |
| 6,485.00 | 49.34 | 131.50 | 6,433.63 | -142.30 | 175.84 | 225.47 | 11.93 |
| 6,528.00 | 53.05 | 133.00 | 6,460.58 | -164.84 | 200.63 | 258.97 | 9.05 |
| 6,570.00 | 58.22 | 133.42 | 6,484.28 | -188.57 | 225.89 | 293.62 | 12.34 |
| 6,613.00 | 64.07 | 134.35 | 6,505.02 | -214.67 | 253.01 | 331.27 | 13.74 |
| 6,656.00 | 67.95 | 134.74 | 6,522.50 | -242.23 | 281.01 | 370.54 | 9.06 |
| 6,699.00 | 70.32 | 134.63 | 6,537.81 | -270.48 | 309.57 | 410.71 | 5.52 |
| 6,742.00 | 74.13 | 134.41 | 6,550.94 | -299.18 | 338.76 | 451.64 | 8.87 |
| 6,784.00 | 76.05 | 134.77 | 6,561.74 | -327.67 | 367.66 | 492.22 | 4.65 |
| 6,813.00 | 76.04 | 134.57 | 6,568.74 | -347.46 | 387.68 | 520.36 | 0.67 |
| 6,906.00 | 79.44 | 134.36 | 6,588.48 | -411.11 | 452.53 | 611.22 | 3.66 |
| 6,937.00 | 79.76 | 134.04 | 6,594.08 | -432.37 | 474.39 | 641.71 | 1.45 |
| 6,968.00 | 79.95 | 133.87 | 6,599.54 | -453.55 | 496.36 | 672.22 | 0.82 |
| 7,000.00 | 80.44 | 133.77 | 6,604.99 | -475.38 | 519.11 | 703.75 | 1.56 |
| 7,031.00 | 82.63 | 134.22 | 6,609.55 | -496.68 | 541.16 | 734.41 | 7.21 |
| 7,062.00 | 84.31 | 135.47 | 6,613.08 | -518.39 | 563.00 | 765.20 | 6.74 |
| 7,094.00 | 85.42 | 135.86 | 6,615.94 | -541.19 | 585.27 | 797.05 | 3.68 |
| 7,126.00 | 86.36 | 135.53 | 6,618.23 | -564.03 | 607.57 | 828.95 | 3.11 |
| 7,157.00 | 87.10 | 135.78 | 6,620.00 | -586.16 | 629.20 | 859.88 | 2.52 |
| 7,188.00 | 89.01 | 135.14 | 6,621.06 | -608.25 | 650.93 | 890.84 | 6.50 |
| 7,220.00 | 90.19 | 134.76 | 6,621.28 | -630.85 | 673.57 | 922.83 | 3.87 |
| 7,251.00 | 90.93 | 134.41 | 6,620.98 | -652.61 | 695.65 | 953.83 | 2.64 |
| 7,283.00 | 90.86 | 135.15 | 6,620.48 | -675.15 | 718.36 | 985.81 | 2.32 |
| 7,314.00 | 91.79 | 134.66 | 6,619.76 | -697.03 | 740.31 | 1,016.80 | 3.39 |
| 7,346.00 | 92.16 | 134.57 | 6,618.66 | -719.49 | 763.08 | 1,048.77 | 1.19 |
| 7,378.00 | 92.84 | 133.74 | 6,617.26 | -741.76 | 786.01 | 1,080.74 | 3.35 |
| 7,410.00 | 93.52 | 133.15 | 6,615.49 | -763.73 | 809.21 | 1,112.69 | 2.81 |
| 7,441.00 | 93.03 | 133.04 | 6,613.71 | -784.87 | 831.81 | 1,143.64 | 1.62 |
| 7,473.00 | 91.24 | 133.18 | 6,612.52 | -806.73 | 855.16 | 1,175.62 | 5.61 |
| 7,504.00 | 89.32 | 132.95 | 6,612.37 | -827.89 | 877.80 | 1,206.61 | 6.24 |
| 7,536.00 | 88.89 | 132.60 | 6,612.87 | -849.62 | 901.29 | 1,238.60 | 1.73 |
| 7,568.00 | 88.95 | 132.46 | 6,613.47 | -871.25 | 924.87 | 1,270.59 | 0.48 |
| 7,600.00 | 89.26 | 132.14 | 6,613.97 | -892.78 | 948.53 | 1,302.58 | 1.39 |
| 7,631.00 | 89.26 | 131.96 | 6,614.37 | -913.55 | 971.55 | 1,333.57 | 0.58 |
| 7,663.00 | 88.77 | 132.89 | 6,614.92 | -935.13 | 995.17 | 1,365.56 | 3.28 |
| 7,695.00 | 88.46 | 133.39 | 6,615.70 | -957.00 | 1,018.51 | 1,397.54 | 1.84 |
| 7,726.00 | 89.07 | 133.75 | 6,616.37 | -978.37 | 1,040.96 | 1,428.54 | 2.28 |
| 7,758.00 | 89.38 | 134.10 | 6,616.80 | -1,000.56 | 1,064.01 | 1,460.53 | 1.46 |
| 7,789.00 | 90.12 | 134.65 | 6,616.93 | -1,022.24 | 1,086.17 | 1,491.53 | 2.97 |
| 7,821.00 | 90.49 | 134.84 | 6,616.76 | -1,044.77 | 1,108.90 | 1,523.52 | 1.30 |
| 7,884.00 | 90.68 | 134.68 | 6,616.12 | -1,089.13 | 1,153.63 | 1,586.51 | 0.39 |

Design Report for 70 Ranch USX BB09-99HZ - Sperry MWD Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) |
|---------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|
| 7,947.00 | 90.68 | 134.71 | 6,615.37 | -1,133.43 | 1,198.41 | 1,649.49 | 0.05 |
| 8,010.00 | 90.00 | 134.38 | 6,615.00 | -1,177.63 | 1,243.31 | 1,712.48 | 1.20 |
| 8,074.00 | 90.62 | 134.16 | 6,614.65 | -1,222.30 | 1,289.13 | 1,776.48 | 1.03 |
| 8,137.00 | 91.23 | 134.01 | 6,613.64 | -1,266.12 | 1,334.38 | 1,839.46 | 1.00 |
| 8,200.00 | 91.42 | 133.32 | 6,612.18 | -1,309.61 | 1,379.94 | 1,902.45 | 1.14 |
| 8,232.00 | 91.11 | 133.07 | 6,611.47 | -1,331.51 | 1,403.26 | 1,934.44 | 1.24 |
| 8,295.00 | 90.68 | 132.72 | 6,610.49 | -1,374.38 | 1,449.41 | 1,997.43 | 0.88 |
| 8,358.00 | 88.40 | 131.98 | 6,610.99 | -1,416.82 | 1,495.97 | 2,060.40 | 3.80 |
| 8,421.00 | 88.33 | 132.18 | 6,612.79 | -1,459.02 | 1,542.71 | 2,123.36 | 0.34 |
| 8,484.00 | 88.39 | 131.65 | 6,614.59 | -1,501.09 | 1,589.57 | 2,186.30 | 0.85 |
| 8,547.00 | 88.58 | 131.51 | 6,616.26 | -1,542.89 | 1,636.68 | 2,249.24 | 0.37 |
| 8,610.00 | 89.51 | 131.55 | 6,617.31 | -1,584.65 | 1,683.83 | 2,312.19 | 1.48 |
| 8,673.00 | 90.56 | 132.67 | 6,617.27 | -1,626.89 | 1,730.57 | 2,375.17 | 2.44 |
| 8,736.00 | 91.36 | 133.53 | 6,616.22 | -1,669.93 | 1,776.56 | 2,438.16 | 1.86 |
| 8,799.00 | 92.16 | 135.87 | 6,614.28 | -1,714.22 | 1,821.32 | 2,501.11 | 3.92 |
| 8,830.00 | 92.53 | 136.92 | 6,613.01 | -1,736.65 | 1,842.68 | 2,532.05 | 3.59 |
| 8,893.00 | 91.98 | 138.25 | 6,610.53 | -1,783.13 | 1,885.14 | 2,594.84 | 2.28 |
| 8,956.00 | 92.10 | 138.02 | 6,608.29 | -1,830.01 | 1,927.16 | 2,657.61 | 0.41 |
| 8,988.00 | 92.59 | 137.88 | 6,606.98 | -1,853.76 | 1,948.57 | 2,689.49 | 1.59 |
| 9,020.00 | 93.21 | 137.59 | 6,605.36 | -1,877.41 | 1,970.07 | 2,721.36 | 2.14 |
| 9,053.00 | 93.15 | 137.11 | 6,603.53 | -1,901.64 | 1,992.39 | 2,754.24 | 1.46 |
| 9,084.00 | 92.66 | 136.84 | 6,601.96 | -1,924.27 | 2,013.52 | 2,785.15 | 1.80 |
| 9,115.00 | 92.53 | 136.43 | 6,600.56 | -1,946.79 | 2,034.78 | 2,816.07 | 1.39 |
| 9,147.00 | 92.90 | 136.33 | 6,599.04 | -1,969.93 | 2,056.83 | 2,848.00 | 1.20 |
| 9,178.00 | 92.16 | 136.00 | 6,597.67 | -1,992.27 | 2,078.28 | 2,878.94 | 2.61 |
| 9,210.00 | 90.74 | 134.97 | 6,596.86 | -2,015.08 | 2,100.71 | 2,910.91 | 5.48 |
| 9,242.00 | 90.25 | 134.46 | 6,596.59 | -2,037.59 | 2,123.45 | 2,942.90 | 2.21 |
| 9,274.00 | 90.37 | 134.47 | 6,596.41 | -2,060.01 | 2,146.28 | 2,974.90 | 0.38 |
| 9,337.00 | 90.43 | 134.16 | 6,595.97 | -2,104.02 | 2,191.36 | 3,037.89 | 0.50 |
| 9,400.00 | 91.36 | 133.97 | 6,594.99 | -2,147.83 | 2,236.62 | 3,100.88 | 1.51 |
| 9,463.00 | 91.05 | 134.03 | 6,593.66 | -2,191.58 | 2,281.93 | 3,163.86 | 0.50 |
| 9,527.00 | 91.79 | 133.37 | 6,592.08 | -2,235.78 | 2,328.18 | 3,227.84 | 1.55 |
| 9,559.00 | 91.24 | 133.20 | 6,591.23 | -2,257.71 | 2,351.47 | 3,259.83 | 1.80 |
| 9,590.00 | 89.81 | 132.01 | 6,590.95 | -2,278.70 | 2,374.29 | 3,290.83 | 6.00 |
| 9,622.00 | 89.75 | 132.42 | 6,591.07 | -2,300.20 | 2,397.99 | 3,322.82 | 1.29 |
| 9,654.00 | 90.68 | 133.88 | 6,590.95 | -2,322.08 | 2,421.33 | 3,354.81 | 5.41 |
| 9,686.00 | 91.11 | 135.13 | 6,590.45 | -2,344.51 | 2,444.15 | 3,386.80 | 4.13 |
| 9,717.00 | 90.43 | 133.77 | 6,590.04 | -2,366.22 | 2,466.28 | 3,417.80 | 4.90 |
| 9,750.00 | 89.57 | 132.50 | 6,590.04 | -2,388.78 | 2,490.36 | 3,450.80 | 4.65 |
| 9,781.00 | 89.94 | 132.54 | 6,590.17 | -2,409.73 | 2,513.21 | 3,481.79 | 1.20 |
| 9,813.00 | 91.17 | 133.43 | 6,589.86 | -2,431.55 | 2,536.61 | 3,513.79 | 4.74 |
| 9,845.00 | 91.54 | 133.94 | 6,589.10 | -2,453.64 | 2,559.75 | 3,545.78 | 1.97 |
| 9,876.00 | 91.85 | 133.66 | 6,588.18 | -2,475.09 | 2,582.11 | 3,576.76 | 1.35 |
| 9,939.00 | 90.19 | 131.67 | 6,587.06 | -2,517.77 | 2,628.43 | 3,639.74 | 4.11 |
| 10,003.00 | 90.99 | 133.12 | 6,586.40 | -2,560.92 | 2,675.69 | 3,703.72 | 2.59 |
| 10,067.00 | 93.65 | 133.12 | 6,583.81 | -2,604.63 | 2,722.36 | 3,767.66 | 4.16 |
| 10,099.00 | 93.71 | 133.30 | 6,581.76 | -2,626.49 | 2,745.63 | 3,799.59 | 0.59 |
| 10,130.00 | 94.64 | 133.20 | 6,579.50 | -2,647.68 | 2,768.15 | 3,830.51 | 3.02 |
| 10,162.00 | 95.57 | 133.08 | 6,576.65 | -2,669.47 | 2,791.41 | 3,862.38 | 2.93 |
| 10,193.00 | 96.37 | 132.91 | 6,573.43 | -2,690.49 | 2,813.96 | 3,893.21 | 2.64 |

Design Report for 70 Ranch USX BB09-99HZ - Sperry MWD Survey

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) |
|---|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|
| 10,226.00 | 96.69 | 132.90 | 6,569.68 | -2,712.82 | 2,837.98 | 3,925.99 | 0.97 |
| 10,237.00 | 96.56 | 132.79 | 6,568.41 | -2,720.25 | 2,845.99 | 3,936.92 | 1.54 |
| 10,258.00 | 96.31 | 132.91 | 6,566.05 | -2,734.44 | 2,861.29 | 3,957.78 | 1.32 |
| 10,289.00 | 95.01 | 132.30 | 6,563.00 | -2,755.32 | 2,883.99 | 3,988.63 | 4.63 |
| 10,321.00 | 94.50 | 131.60 | 6,560.34 | -2,776.64 | 2,907.71 | 4,020.50 | 2.70 |
| 10,353.00 | 93.64 | 131.29 | 6,558.07 | -2,797.76 | 2,931.64 | 4,052.40 | 2.86 |
| 10,385.00 | 91.91 | 131.42 | 6,556.52 | -2,818.88 | 2,955.63 | 4,084.34 | 5.42 |
| 10,416.00 | 90.37 | 130.92 | 6,555.91 | -2,839.28 | 2,978.96 | 4,115.30 | 5.22 |
| 10,448.00 | 90.62 | 130.75 | 6,555.63 | -2,860.21 | 3,003.17 | 4,147.26 | 0.94 |
| 10,511.00 | 91.29 | 130.57 | 6,554.58 | -2,901.25 | 3,050.95 | 4,210.17 | 1.10 |
| 10,543.00 | 90.68 | 130.21 | 6,554.03 | -2,921.98 | 3,075.32 | 4,242.12 | 2.21 |
| 10,575.00 | 90.31 | 129.48 | 6,553.75 | -2,942.48 | 3,099.89 | 4,274.05 | 2.56 |
| 10,606.00 | 90.62 | 129.55 | 6,553.50 | -2,962.21 | 3,123.80 | 4,304.97 | 1.03 |
| 10,638.00 | 90.25 | 129.50 | 6,553.26 | -2,982.57 | 3,148.49 | 4,336.89 | 1.17 |
| 10,669.00 | 89.38 | 129.02 | 6,553.36 | -3,002.19 | 3,172.49 | 4,367.80 | 3.21 |
| 10,701.00 | 89.75 | 128.80 | 6,553.60 | -3,022.29 | 3,197.39 | 4,399.69 | 1.35 |
| 10,733.00 | 91.11 | 129.38 | 6,553.36 | -3,042.47 | 3,222.22 | 4,431.59 | 4.62 |
| 10,765.00 | 91.42 | 129.28 | 6,552.66 | -3,062.74 | 3,246.97 | 4,463.49 | 1.02 |
| Final Sperry MWD Survey | | | | | | | |
| 10,821.00 | 91.42 | 129.28 | 6,551.27 | -3,098.19 | 3,290.30 | 4,519.31 | 0.00 |
| Survey Projection to TD of Sperry Directional Work - Estimate BHL: 2020' FSL, 1183' FEL | | | | | | | |

Design Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment |
|---------------------|---------------------|-------------------|------------|--|
| | | +N/-S (ft) | +E/-W (ft) | |
| 722.00 | 721.99 | -3.28 | -1.29 | First Sperry MWD Survey |
| 10,765.00 | 6,552.66 | -3,062.74 | 3,246.97 | Final Sperry MWD Survey |
| 10,821.00 | 6,551.27 | -3,098.19 | 3,290.30 | Survey Projection to TD of Sperry Directional Work |
| 10,821.00 | 6,551.27 | -3,098.19 | 3,290.30 | Estimate BHL: 2020' FSL, 1183' FEL |

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin | | Start TVD (ft) |
|------------|---------------------------------------|-------------|-------------|------------|------------|----------------|
| | | | | +N/-S (ft) | +E/-W (ft) | |
| Target | 70 Ranch USX BB09-00HZ P #3 BH Tgt | 133.60 | Slot | 0.00 | 0.00 | 0.00 |

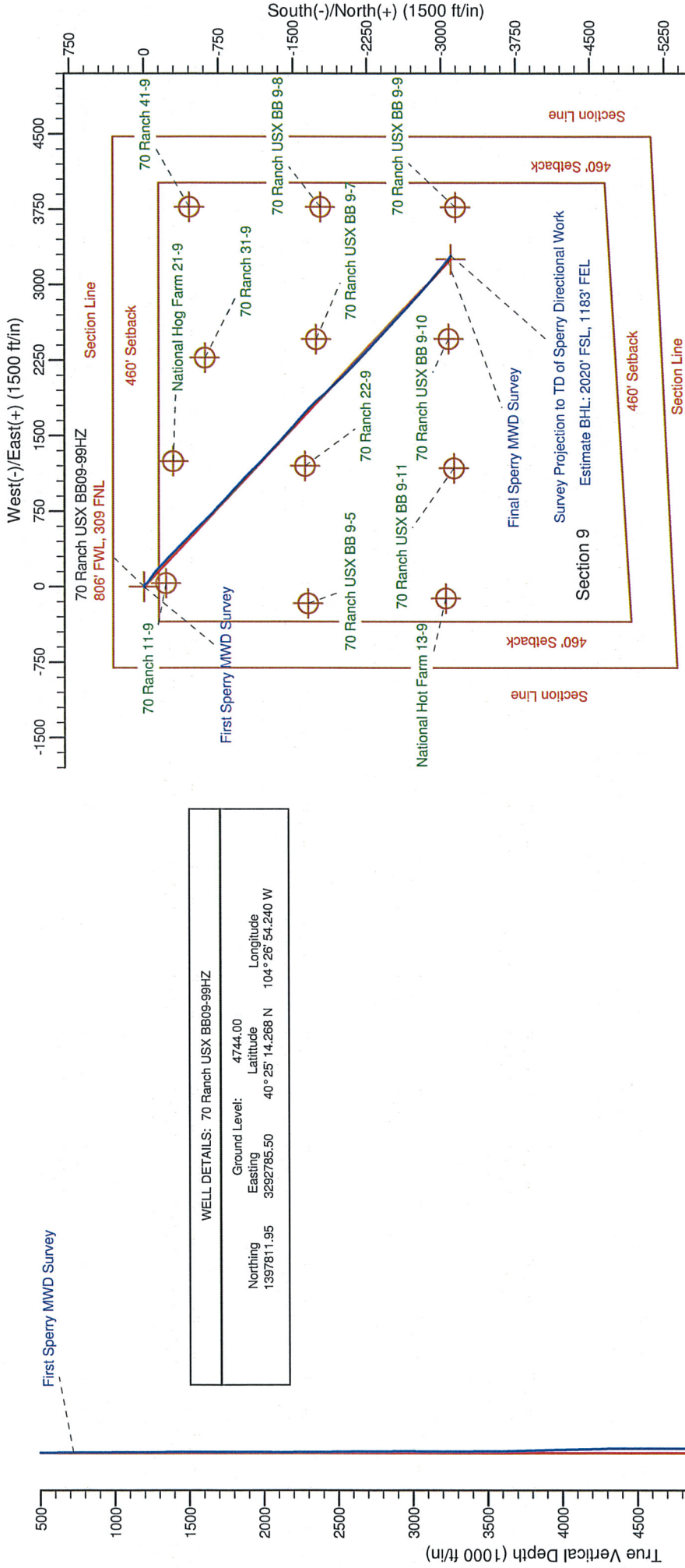
Survey tool program

| From (ft) | To (ft) | Survey/Plan | Survey Tool |
|-----------|-----------|-------------------|-------------|
| 722.00 | 10,821.00 | Sperry MWD Survey | MWD |

Project: Weld County, CO (Nad 83, North Zone)
Site: Sec. 9-T5N-R63W
Well: 70 Ranch USX BB09-99HZ
Wellbore: Wellbore #1
Design: Sperry MWD Survey

Noble Energy (Rockies)

HALLIBURTON



Survey Projection to TD of Sperry Directional Work

Final Sperry MWD Survey

PERMITTED BHL: 2020' FSL, 1220' FEL

| | |
|--|------------------|
| Design: Sperry MWD Survey (70 Ranch USX BB09-99HZ/Wellbore #1) | |
| Created By: Puneet. Bhatia | Date: 12/07/2009 |