

Project: Weld County, CO (NAD 83)
 Site: Sec. 27-T6N-R63W
 Well: Wells Ranch USX AA27-63-1HN
 Wellbore: Plan B
 Design: Final Surveys

Noble Energy



Halliburton Energy Services, Inc. ("Halliburton") recently completed directional drilling and MWD operations at the Wells Ranch AE20-63-1HN 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.

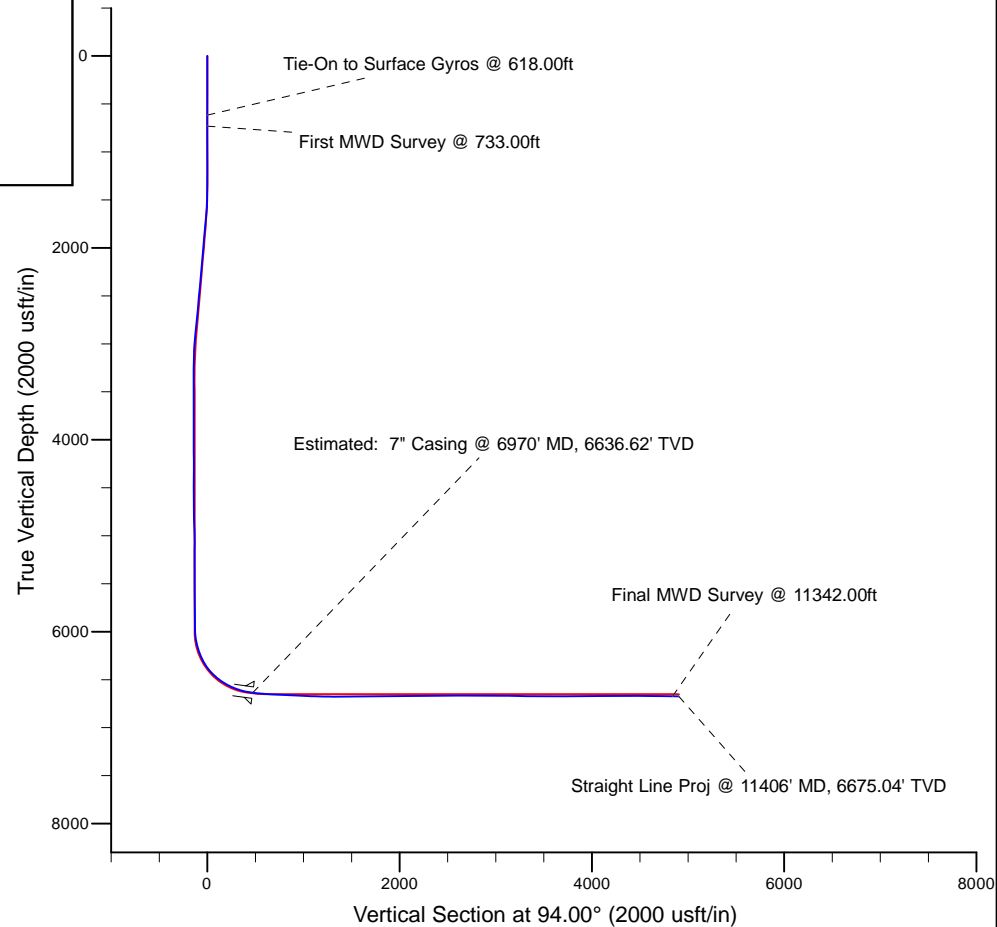
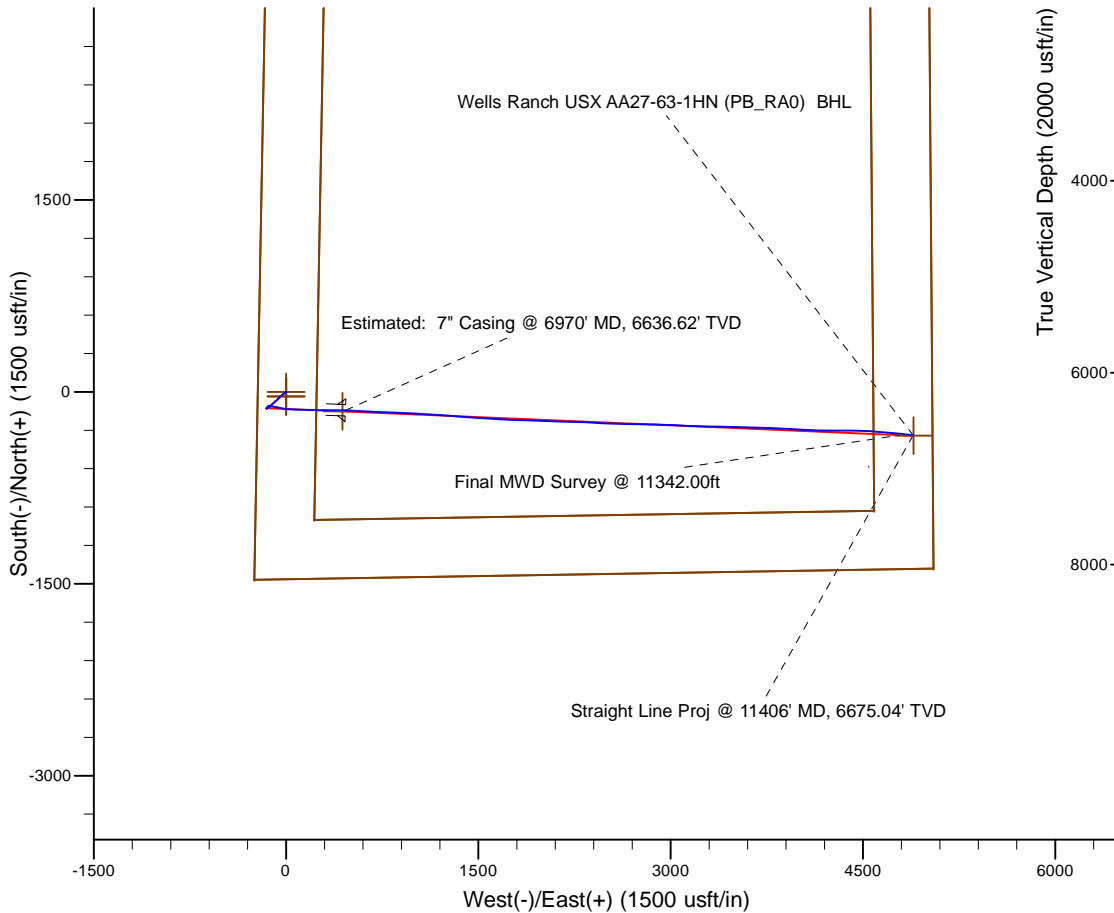
Platted SHL: 1464' FSL, 221' FWL
 Platted Lat/Long: 40.45420 N, 104.43179 W
 Location: Sec. 27-T6N-R63W

7" Casing: ~1311.97' FSL, ~686.14' FWL
 Lat/Long: 40° 27' 13.643 N, 104° 25' 48.471 W
 State Planes - CO Northern: 1,409,952.03' N, 3,297,726.00' E
 Location: Sec. 27-T6N-R63W

BHL: ~1046.77' FSL, ~151.26' FEL
 Lat/Long: 40° 27' 11.202 N, 104° 24' 51.213 W
 State Planes - CO Northern: 1,409,758.84' N, 3,302,154.90' E
 Location: Sec. 27-T6N-R63W

LEGEND

- Wells Ranch USX AA27-63-1HN, Plan B, Rev A0 Proposal V0
- Final Surveys



| | |
|---|------------------|
| WELL DETAILS: Wells Ranch USX AA27-63-1HN | |
| Ground Level: 4794.00 RKB 24 ft. @ 4818.00usft (H&P 322) | |
| Design: Final Surveys (Wells Ranch USX AA27-63-1HN/Plan B) | |
| Created By: Fred Hartmann | Date: 10/15/2013 |

Noble Energy

Weld County, CO (NAD 83)

Sec. 27-T6N-R63W

Wells Ranch USX AA27-63-1HN - A2

Design: Final Surveys

Sperry Drilling Services

Final Survey Report

15 October, 2013

Well Coordinates: 1,410,095.89 N, 3,297,262.50 E (40° 27' 15.12" N, 104° 25' 54.44" W)

Ground Level: 4,794.00 usft

Local Coordinate Origin:

Centered on Well Wells Ranch USX AA27-63-1HN - Slot A2

Viewing Datum:

RKB 24 ft. @ 4818.00usft (H&P 322)

TVDs to System:

N

North Reference:

Grid

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

HALLIBURTON

Design Report for Wells Ranch USX AA27-63-1HN - Final Surveys

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) |
|---|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 255.00 | 0.70 | 158.70 | 254.99 | -1.45 | 0.57 | 0.67 | 0.27 |
| 528.00 | 0.20 | 309.02 | 527.99 | -2.71 | 0.80 | 0.99 | 0.32 |
| 618.00 | 0.20 | 221.60 | 617.99 | -2.72 | 0.58 | 0.76 | 0.31 |
| Tie-On to Surface Gyros @ 618.00ft | | | | | | | |
| 733.00 | 0.26 | 297.82 | 732.99 | -2.75 | 0.21 | 0.40 | 0.25 |
| First MWD Survey @ 733.00ft | | | | | | | |
| 826.00 | 0.33 | 115.09 | 825.99 | -2.77 | 0.27 | 0.46 | 0.63 |
| 919.00 | 0.22 | 335.51 | 918.99 | -2.72 | 0.44 | 0.62 | 0.56 |
| 1,012.00 | 0.37 | 150.92 | 1,011.99 | -2.82 | 0.51 | 0.70 | 0.63 |
| 1,105.00 | 0.31 | 271.60 | 1,104.98 | -3.07 | 0.40 | 0.62 | 0.64 |
| 1,198.00 | 0.28 | 226.11 | 1,197.98 | -3.22 | -0.01 | 0.21 | 0.25 |
| 1,291.00 | 0.42 | 111.02 | 1,290.98 | -3.50 | 0.14 | 0.39 | 0.64 |
| 1,383.00 | 0.65 | 51.60 | 1,382.98 | -3.30 | 0.86 | 1.09 | 0.62 |
| 1,476.00 | 1.45 | 257.19 | 1,475.97 | -3.23 | 0.13 | 0.36 | 2.21 |
| 1,571.00 | 4.15 | 246.44 | 1,570.85 | -4.87 | -4.19 | -3.84 | 2.88 |
| 1,666.00 | 5.79 | 244.24 | 1,665.49 | -8.33 | -11.66 | -11.05 | 1.74 |
| 1,761.00 | 7.16 | 231.26 | 1,759.89 | -14.12 | -20.59 | -19.56 | 2.10 |
| 1,856.00 | 7.13 | 229.12 | 1,854.15 | -21.68 | -29.67 | -28.09 | 0.28 |
| 1,950.00 | 7.84 | 228.74 | 1,947.35 | -29.73 | -38.90 | -36.73 | 0.76 |
| 2,045.00 | 8.34 | 224.69 | 2,041.40 | -38.90 | -48.62 | -45.78 | 0.80 |
| 2,140.00 | 6.86 | 220.18 | 2,135.57 | -48.13 | -57.12 | -53.63 | 1.68 |
| 2,235.00 | 7.07 | 221.49 | 2,229.86 | -56.85 | -64.66 | -60.53 | 0.28 |
| 2,330.00 | 7.32 | 228.03 | 2,324.12 | -65.27 | -73.03 | -68.30 | 0.90 |
| 2,425.00 | 7.42 | 234.90 | 2,418.34 | -72.85 | -82.55 | -77.26 | 0.93 |
| 2,520.00 | 7.45 | 227.74 | 2,512.54 | -80.52 | -92.13 | -86.28 | 0.98 |
| 2,615.00 | 8.28 | 227.72 | 2,606.64 | -89.26 | -101.75 | -95.27 | 0.87 |
| 2,710.00 | 8.28 | 227.88 | 2,700.65 | -98.45 | -111.88 | -104.74 | 0.02 |
| 2,805.00 | 7.49 | 226.43 | 2,794.75 | -107.31 | -121.44 | -113.66 | 0.86 |
| 2,900.00 | 7.48 | 237.88 | 2,888.95 | -114.86 | -131.16 | -122.83 | 1.57 |
| 2,995.00 | 5.79 | 228.96 | 2,983.31 | -121.30 | -140.02 | -131.21 | 2.08 |
| 3,089.00 | 3.87 | 220.89 | 3,076.98 | -126.81 | -145.67 | -136.47 | 2.16 |
| 3,184.00 | 1.86 | 233.81 | 3,171.85 | -130.14 | -149.01 | -139.57 | 2.21 |
| 3,279.00 | 0.70 | 218.93 | 3,266.83 | -131.51 | -150.62 | -141.08 | 1.26 |
| 3,374.00 | 0.85 | 310.40 | 3,361.82 | -131.50 | -151.52 | -141.98 | 1.17 |
| 3,469.00 | 2.14 | 12.67 | 3,456.79 | -129.31 | -151.67 | -142.28 | 2.00 |
| 3,564.00 | 1.94 | 12.49 | 3,551.73 | -126.01 | -150.93 | -141.77 | 0.21 |
| 3,659.00 | 0.37 | 39.85 | 3,646.71 | -124.21 | -150.39 | -141.36 | 1.71 |
| 3,754.00 | 0.22 | 205.80 | 3,741.71 | -124.14 | -150.27 | -141.25 | 0.62 |
| 3,849.00 | 0.13 | 291.71 | 3,836.71 | -124.26 | -150.45 | -141.42 | 0.26 |
| 3,944.00 | 0.75 | 230.87 | 3,931.71 | -124.61 | -151.03 | -141.97 | 0.73 |
| 4,039.00 | 0.84 | 135.34 | 4,026.70 | -125.50 | -151.03 | -141.90 | 1.24 |
| 4,134.00 | 1.02 | 110.78 | 4,121.69 | -126.30 | -149.75 | -140.57 | 0.46 |
| 4,228.00 | 0.82 | 101.83 | 4,215.68 | -126.73 | -148.31 | -139.10 | 0.26 |
| 4,323.00 | 0.14 | 250.02 | 4,310.67 | -126.91 | -147.75 | -138.54 | 0.99 |
| 4,418.00 | 1.17 | 292.14 | 4,405.67 | -126.58 | -148.76 | -139.56 | 1.13 |
| 4,513.00 | 0.72 | 336.43 | 4,500.65 | -125.67 | -149.89 | -140.76 | 0.87 |
| 4,608.00 | 0.80 | 356.75 | 4,595.65 | -124.46 | -150.17 | -141.12 | 0.29 |
| 4,703.00 | 1.59 | 58.98 | 4,690.63 | -123.12 | -149.08 | -140.13 | 1.48 |
| 4,798.00 | 1.76 | 83.60 | 4,785.59 | -122.28 | -146.50 | -137.61 | 0.77 |

Design Report for Wells Ranch USX AA27-63-1HN - Final Surveys

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) |
|--|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|
| 4,893.00 | 2.25 | 66.18 | 4,880.53 | -121.36 | -143.34 | -134.53 | 0.82 |
| 4,988.00 | 0.92 | 29.88 | 4,975.49 | -119.95 | -141.26 | -132.55 | 1.69 |
| 5,083.00 | 0.52 | 34.62 | 5,070.49 | -118.93 | -140.63 | -131.99 | 0.43 |
| 5,178.00 | 1.15 | 338.62 | 5,165.48 | -117.69 | -140.74 | -132.18 | 1.01 |
| 5,273.00 | 1.60 | 356.10 | 5,260.45 | -115.48 | -141.17 | -132.77 | 0.64 |
| 5,368.00 | 2.03 | 18.90 | 5,355.40 | -112.56 | -140.72 | -132.52 | 0.88 |
| 5,462.00 | 0.89 | 127.44 | 5,449.38 | -111.43 | -139.60 | -131.49 | 2.62 |
| 5,557.00 | 0.22 | 257.97 | 5,544.38 | -111.92 | -139.19 | -131.04 | 1.10 |
| 5,652.00 | 0.22 | 353.43 | 5,639.38 | -111.78 | -139.39 | -131.25 | 0.34 |
| 5,747.00 | 0.56 | 83.97 | 5,734.38 | -111.55 | -138.95 | -130.83 | 0.64 |
| 5,842.00 | 0.87 | 95.89 | 5,829.37 | -111.57 | -137.77 | -129.65 | 0.36 |
| 5,899.00 | 1.06 | 110.14 | 5,886.36 | -111.80 | -136.85 | -128.71 | 0.53 |
| 5,960.00 | 1.00 | 98.55 | 5,947.35 | -112.07 | -135.79 | -127.64 | 0.35 |
| 5,983.00 | 0.77 | 111.98 | 5,970.35 | -112.16 | -135.45 | -127.29 | 1.34 |
| 6,030.00 | 2.96 | 95.87 | 6,017.32 | -112.40 | -133.95 | -125.78 | 4.75 |
| 6,077.00 | 7.60 | 91.52 | 6,064.11 | -112.61 | -129.63 | -121.46 | 9.90 |
| 6,125.00 | 12.61 | 90.48 | 6,111.35 | -112.74 | -121.21 | -113.05 | 10.44 |
| 6,172.00 | 16.31 | 94.34 | 6,156.85 | -113.28 | -109.50 | -101.33 | 8.13 |
| 6,220.00 | 18.82 | 100.86 | 6,202.62 | -115.25 | -95.17 | -86.90 | 6.64 |
| 6,267.00 | 22.34 | 102.74 | 6,246.61 | -118.65 | -79.01 | -70.54 | 7.62 |
| 6,315.00 | 26.66 | 102.59 | 6,290.28 | -123.01 | -59.59 | -50.86 | 9.00 |
| 6,362.00 | 31.01 | 100.34 | 6,331.44 | -127.48 | -37.38 | -28.39 | 9.54 |
| 6,410.00 | 35.58 | 96.93 | 6,371.56 | -131.39 | -11.34 | -2.14 | 10.29 |
| 6,457.00 | 40.35 | 95.25 | 6,408.60 | -134.43 | 17.41 | 26.74 | 10.38 |
| 6,505.00 | 45.23 | 93.41 | 6,443.82 | -136.87 | 49.91 | 59.34 | 10.49 |
| 6,552.00 | 49.16 | 91.97 | 6,475.75 | -138.47 | 84.35 | 93.80 | 8.66 |
| 6,600.00 | 53.80 | 90.99 | 6,505.63 | -139.43 | 121.88 | 131.31 | 9.80 |
| 6,647.00 | 58.13 | 91.57 | 6,531.93 | -140.31 | 160.81 | 170.20 | 9.27 |
| 6,695.00 | 61.78 | 90.68 | 6,555.96 | -141.12 | 202.34 | 211.69 | 7.77 |
| 6,742.00 | 65.63 | 90.47 | 6,576.78 | -141.54 | 244.47 | 253.75 | 8.20 |
| 6,790.00 | 69.34 | 89.95 | 6,595.16 | -141.70 | 288.80 | 297.98 | 7.79 |
| 6,837.00 | 73.64 | 90.22 | 6,610.08 | -141.77 | 333.36 | 342.44 | 9.17 |
| 6,885.00 | 77.19 | 90.54 | 6,622.16 | -142.07 | 379.80 | 388.79 | 7.42 |
| 6,924.00 | 80.52 | 91.08 | 6,629.70 | -142.62 | 418.06 | 426.99 | 8.65 |
| 6,970.00 | 82.17 | 92.08 | 6,636.62 | -143.87 | 463.52 | 472.42 | 4.18 |
| Estimated: 7" Casing @ 6970' MD, 6636.62' TVD | | | | | | | |
| 7,046.00 | 84.90 | 93.72 | 6,645.18 | -147.70 | 538.93 | 547.92 | 4.18 |
| 7,141.00 | 86.61 | 92.82 | 6,652.21 | -153.10 | 633.51 | 642.64 | 2.03 |
| 7,236.00 | 87.23 | 92.21 | 6,657.31 | -157.26 | 728.28 | 737.47 | 0.91 |
| 7,331.00 | 87.99 | 91.72 | 6,661.28 | -160.52 | 823.14 | 832.33 | 0.95 |
| 7,425.00 | 87.22 | 93.22 | 6,665.20 | -164.56 | 916.96 | 926.21 | 1.79 |
| 7,520.00 | 86.70 | 93.10 | 6,670.24 | -169.79 | 1,011.69 | 1,021.07 | 0.56 |
| 7,614.00 | 88.92 | 93.89 | 6,673.83 | -175.52 | 1,105.44 | 1,114.99 | 2.51 |
| 7,709.00 | 87.93 | 93.19 | 6,676.45 | -181.38 | 1,200.22 | 1,209.95 | 1.28 |
| 7,803.00 | 89.88 | 94.64 | 6,678.24 | -187.80 | 1,293.97 | 1,303.92 | 2.58 |
| 7,898.00 | 92.03 | 94.13 | 6,676.66 | -195.06 | 1,388.68 | 1,398.90 | 2.33 |
| 7,993.00 | 90.09 | 94.40 | 6,674.90 | -202.12 | 1,483.39 | 1,493.88 | 2.06 |
| 8,087.00 | 88.89 | 93.25 | 6,675.74 | -208.39 | 1,577.18 | 1,587.87 | 1.77 |
| 8,182.00 | 90.93 | 93.23 | 6,675.89 | -213.76 | 1,672.02 | 1,682.86 | 2.15 |
| 8,277.00 | 88.98 | 91.71 | 6,675.96 | -217.86 | 1,766.92 | 1,777.82 | 2.60 |
| 8,371.00 | 91.14 | 92.70 | 6,675.86 | -221.47 | 1,860.85 | 1,871.76 | 2.53 |

Design Report for Wells Ranch USX AA27-63-1HN - Final Surveys

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) |
|---|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|
| 8,467.00 | 92.41 | 91.69 | 6,672.89 | -225.15 | 1,956.73 | 1,967.67 | 1.69 |
| 8,561.00 | 90.31 | 92.25 | 6,670.66 | -228.38 | 2,050.64 | 2,061.58 | 2.31 |
| 8,656.00 | 91.30 | 91.70 | 6,669.32 | -231.65 | 2,145.57 | 2,156.51 | 1.19 |
| 8,751.00 | 90.43 | 91.44 | 6,667.89 | -234.26 | 2,240.53 | 2,251.41 | 0.96 |
| 8,845.00 | 90.52 | 92.49 | 6,667.11 | -237.48 | 2,334.47 | 2,345.35 | 1.12 |
| 8,940.00 | 89.51 | 93.49 | 6,667.09 | -242.43 | 2,429.33 | 2,440.33 | 1.50 |
| 9,035.00 | 89.72 | 92.13 | 6,667.72 | -247.09 | 2,524.21 | 2,535.30 | 1.45 |
| 9,130.00 | 88.98 | 91.03 | 6,668.80 | -249.71 | 2,619.17 | 2,630.21 | 1.40 |
| 9,225.00 | 90.12 | 90.64 | 6,669.55 | -251.09 | 2,714.16 | 2,725.06 | 1.27 |
| 9,319.00 | 90.37 | 91.29 | 6,669.15 | -252.68 | 2,808.14 | 2,818.93 | 0.74 |
| 9,415.00 | 91.08 | 92.39 | 6,667.93 | -255.76 | 2,904.08 | 2,914.85 | 1.36 |
| 9,510.00 | 88.86 | 92.43 | 6,667.98 | -259.75 | 2,998.99 | 3,009.81 | 2.34 |
| 9,604.00 | 90.03 | 92.60 | 6,668.89 | -263.88 | 3,092.90 | 3,103.77 | 1.26 |
| 9,699.00 | 88.36 | 91.47 | 6,670.23 | -267.25 | 3,187.82 | 3,198.70 | 2.12 |
| 9,794.00 | 88.70 | 91.08 | 6,672.66 | -269.37 | 3,282.77 | 3,293.56 | 0.54 |
| 9,889.00 | 89.38 | 91.54 | 6,674.25 | -271.54 | 3,377.73 | 3,388.44 | 0.86 |
| 9,984.00 | 90.56 | 91.33 | 6,674.30 | -273.92 | 3,472.70 | 3,483.34 | 1.26 |
| 10,078.00 | 90.68 | 91.75 | 6,673.29 | -276.44 | 3,566.66 | 3,577.25 | 0.46 |
| 10,173.00 | 89.48 | 91.20 | 6,673.15 | -278.89 | 3,661.62 | 3,672.16 | 1.39 |
| 10,268.00 | 91.20 | 92.29 | 6,672.59 | -281.78 | 3,756.57 | 3,767.08 | 2.14 |
| 10,363.00 | 90.68 | 93.45 | 6,671.03 | -286.54 | 3,851.44 | 3,862.04 | 1.34 |
| 10,457.00 | 89.78 | 92.47 | 6,670.65 | -291.39 | 3,945.31 | 3,956.02 | 1.42 |
| 10,552.00 | 90.49 | 93.35 | 6,670.43 | -296.21 | 4,040.18 | 4,051.01 | 1.19 |
| 10,647.00 | 90.34 | 91.94 | 6,669.74 | -300.60 | 4,135.08 | 4,145.97 | 1.49 |
| 10,742.00 | 88.80 | 89.01 | 6,670.46 | -301.38 | 4,230.06 | 4,240.78 | 3.48 |
| 10,837.00 | 90.37 | 90.67 | 6,671.14 | -301.12 | 4,325.05 | 4,335.52 | 2.41 |
| 10,932.00 | 89.97 | 90.53 | 6,670.86 | -302.11 | 4,420.04 | 4,430.35 | 0.45 |
| 11,027.00 | 90.56 | 93.48 | 6,670.42 | -305.44 | 4,514.97 | 4,525.28 | 3.17 |
| 11,122.00 | 90.06 | 94.35 | 6,669.91 | -311.92 | 4,609.75 | 4,620.28 | 1.06 |
| 11,217.00 | 88.92 | 95.22 | 6,670.75 | -319.85 | 4,704.41 | 4,715.26 | 1.51 |
| 11,312.00 | 88.37 | 95.30 | 6,673.00 | -328.55 | 4,798.99 | 4,810.21 | 0.59 |
| 11,342.00 | 88.83 | 95.18 | 6,673.73 | -331.29 | 4,828.85 | 4,840.20 | 1.58 |
| Final MWD Survey @ 11342.00ft | | | | | | | |
| 11,406.00 | 88.83 | 95.18 | 6,675.04 | -337.07 | 4,892.58 | 4,904.17 | 0.00 |
| Straight Line Proj @ 11406' MD, 6675.04' TVD | | | | | | | |

Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
|-----------------------|-----------------------|-------------------|--------------|--|
| | | +N/-S (usft) | +E/-W (usft) | |
| 618.00 | 617.99 | -2.72 | 0.58 | Tie-On to Surface Gyros @ 618.00ft |
| 733.00 | 732.99 | -2.75 | 0.21 | First MWD Survey @ 733.00ft |
| 11,342.00 | 6,673.73 | -331.29 | 4,828.85 | Final MWD Survey @ 11342.00ft |
| 11,406.00 | 6,675.04 | -337.07 | 4,892.58 | Straight Line Proj @ 11406' MD, 6675.04' TVD |

Design Report for Wells Ranch USX AA27-63-1HN - Final Surveys

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin | | Start TVD (usft) |
|------------|--|-------------|-------------|--------------|--------------|------------------|
| | | | | +N/_S (usft) | +E/-W (usft) | |
| Target | Wells Ranch USX AA27-63-1HN (PB_RA0) BHL | 94.00 | Slot | 0.00 | 0.00 | 0.00 |

Survey tool program

| From (usft) | To (usft) | Survey/Plan | Survey Tool |
|-------------|-----------|--------------------------|-------------|
| 255.00 | 618.00 | Vaughn ESS Survey | Flexi-Shot |
| 733.00 | 6,924.00 | MWD Surveys - Vert/Build | MWD |
| 7,046.00 | 11,342.00 | MWD Surveys - Lateral | MWD |

Casing Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
|-----------------------|-----------------------|---|---------------------|-------------------|
| 6,970.00 | 6,636.62 | Estimated: 7" Casing @ 6970' MD, 6636.62' TVD | 7 | 8-3/4 |

Wellbore Targets

| Target Name - hit/miss target - Shape | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude |
|--|---------------|--------------|------------|--------------|--------------|-----------------|----------------|------------------|-------------------|
| Wells Ranch USX AA2 | 0.00 | 0.00 | 0.00 | -36.43 | 0.44 | 1,410,059.46 | 3,297,262.94 | 40° 27' 14.760 N | 104° 25' 54.444 W |
| - actual wellpath misses target center by 36.43usft at 0.21usft MD (0.21 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Polygon | | | | | | | | | |
| Point 1 | | | 0.00 | -1,431.19 | -247.18 | 1,408,628.33 | 3,297,015.77 | | |
| Point 2 | | | 0.00 | -1,344.99 | 5,051.27 | 1,408,714.52 | 3,302,314.03 | | |
| Point 3 | | | 0.00 | 3,966.63 | 5,011.24 | 1,414,025.95 | 3,302,274.00 | | |
| Point 4 | | | 0.00 | 3,922.15 | -150.21 | 1,413,981.47 | 3,297,112.74 | | |
| Point 5 | | | 0.00 | -1,431.19 | -247.18 | 1,408,628.33 | 3,297,015.77 | | |
| Wells Ranch USX AA2 | 0.00 | 0.00 | 0.00 | -36.43 | 0.44 | 1,410,059.46 | 3,297,262.94 | 40° 27' 14.760 N | 104° 25' 54.444 W |
| - actual wellpath misses target center by 36.43usft at 0.21usft MD (0.21 TVD, 0.00 N, 0.00 E) | | | | | | | | | |
| - Polygon | | | | | | | | | |
| Point 1 | | | 0.00 | -963.19 | 220.82 | 1,409,096.31 | 3,297,483.75 | | |
| Point 2 | | | 0.00 | -892.99 | 4,587.77 | 1,409,166.51 | 3,301,850.54 | | |
| Point 3 | | | 0.00 | 3,502.63 | 4,554.24 | 1,413,561.97 | 3,301,817.01 | | |
| Point 4 | | | 0.00 | 3,467.15 | 300.46 | 1,413,526.49 | 3,297,563.39 | | |
| Point 5 | | | 0.00 | -963.19 | 220.82 | 1,409,096.31 | 3,297,483.75 | | |
| Wells Ranch USX AA2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1,410,095.89 | 3,297,262.50 | 40° 27' 15.120 N | 104° 25' 54.444 W |
| - actual wellpath hits target center | | | | | | | | | |
| - Point | | | | | | | | | |
| Wells Ranch USX AA2 | 0.00 | 0.00 | 6,640.01 | -151.38 | 440.18 | 1,409,944.52 | 3,297,702.67 | 40° 27' 13.572 N | 104° 25' 48.774 W |
| - actual wellpath misses target center by 10.60usft at 6947.65usft MD (6633.42 TVD, -143.16 N, 441.41 E) | | | | | | | | | |
| - Point | | | | | | | | | |
| Wells Ranch USX AA2 | 0.00 | 0.00 | 6,652.00 | -342.33 | 4,894.87 | 1,409,753.58 | 3,302,157.19 | 40° 27' 11.150 N | 104° 24' 51.184 W |
| - actual wellpath misses target center by 23.74usft at 11406.00usft MD (6675.04 TVD, -337.07 N, 4892.58 E) | | | | | | | | | |
| - Point | | | | | | | | | |

Directional Difficulty Index

| | | | |
|------------------------------------|----------------|-------------------------------|----------------------------------|
| Average Dogleg over Survey: | 1.85 °/100usft | Maximum Dogleg over Survey: | 10.49 °/100usft at 6,505.00 usft |
| Net Tortosity applicable to Plans: | 0.93 °/100usft | Directional Difficulty Index: | 6.279 |

Design Report for Wells Ranch USX AA27-63-1HN - Final Surveys

Audit Info

North Reference Sheet for Sec. 27-T6N-R63W - Wells Ranch USX AA27-63-1HN -

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 ft. @ 4818.00usft (H&P 322). Northing and Easting are relative to Wells Ranch USX AA27-63-1HN - Slot A2

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: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996313

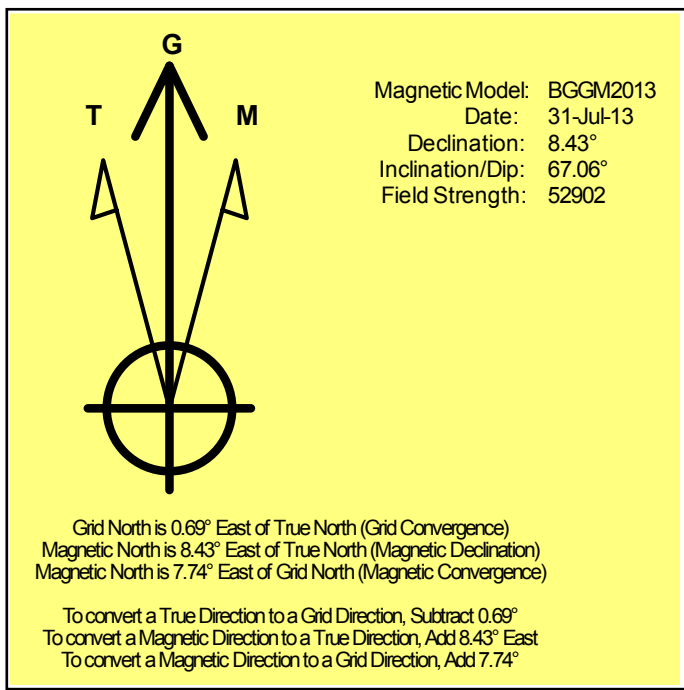
Grid Coordinates of Well: 1,410,095.89 usft N, 3,297,262.50 usft E

Geographical Coordinates of Well: 40° 27' 15.12" N, 104° 25' 54.44" W

Grid Convergence at Surface is: 0.69°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,406.00usft the Bottom Hole Displacement is 4,904.17usft in the Direction of 93.94° (Grid).

Magnetic Convergence at surface is: -7.74° (31 July 2013, , BGGM2013)



Noble Energy

Weld County, CO (NAD 83)

Sec. 27-T6N-R63W

Wells Ranch USX AA27-63-1HN - A2

Design: Final Surveys

Sperry Drilling Services

Geodetic Report

15 October, 2013

Well Coordinates: 1,410,095.89 N, 3,297,262.50 E (40° 27' 15.12" N, 104° 25' 54.44" W)

Ground Level: 4,794.00 usft

Local Coordinate Origin:

Centered on Well Wells Ranch USX AA27-63-1HN - Slot A2

Viewing Datum:

RKB 24 ft. @ 4818.00usft (H&P 322)

TVDs to System:

N

North Reference:

Grid

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

HALLIBURTON

Design Report for Wells Ranch USX AA27-63-1HN - Final Surveys

| Measured | | | Vertical | Local Coordinates | | Geographic Coordinates | | UTM Coordinates | |
|-----------------|--------------------|----------------|-----------------|-------------------|-----------------|------------------------|---------------------|--------------------|-------------------|
| Depth (usft) | Inclination (°) | Azimuth (°) | Depth (usft) | +N/-S (usft) | +E/-W (usft) | Latitude (usft) | Longitude (usft) | Northing (usft) | Easting (usft) |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 40° 27' 15.120 N | 104° 25' 54.444 W | 1,410,095.89 | 3,297,262.50 |
| 255.00 | 0.70 | 158.70 | 254.99 | -1.45 | 0.57 | 40° 27' 15.106 N | 104° 25' 54.437 W | 1,410,094.44 | 3,297,263.07 |
| 528.00 | 0.20 | 309.02 | 527.99 | -2.71 | 0.80 | 40° 27' 15.093 N | 104° 25' 54.434 W | 1,410,093.19 | 3,297,263.30 |
| 618.00 | 0.20 | 221.60 | 617.99 | -2.72 | 0.58 | 40° 27' 15.093 N | 104° 25' 54.437 W | 1,410,093.17 | 3,297,263.08 |
| 733.00 | 0.26 | 297.82 | 732.99 | -2.75 | 0.21 | 40° 27' 15.093 N | 104° 25' 54.442 W | 1,410,093.14 | 3,297,262.71 |
| 826.00 | 0.33 | 115.09 | 825.99 | -2.77 | 0.27 | 40° 27' 15.093 N | 104° 25' 54.441 W | 1,410,093.13 | 3,297,262.77 |
| 919.00 | 0.22 | 335.51 | 918.99 | -2.72 | 0.44 | 40° 27' 15.093 N | 104° 25' 54.439 W | 1,410,093.17 | 3,297,262.94 |
| 1,012.00 | 0.37 | 150.92 | 1,011.99 | -2.82 | 0.51 | 40° 27' 15.092 N | 104° 25' 54.438 W | 1,410,093.07 | 3,297,263.01 |
| 1,105.00 | 0.31 | 271.60 | 1,104.98 | -3.07 | 0.40 | 40° 27' 15.090 N | 104° 25' 54.439 W | 1,410,092.82 | 3,297,262.90 |
| 1,198.00 | 0.28 | 226.11 | 1,197.98 | -3.22 | -0.01 | 40° 27' 15.088 N | 104° 25' 54.445 W | 1,410,092.67 | 3,297,262.49 |
| 1,291.00 | 0.42 | 111.02 | 1,290.98 | -3.50 | 0.14 | 40° 27' 15.085 N | 104° 25' 54.443 W | 1,410,092.39 | 3,297,262.64 |
| 1,383.00 | 0.65 | 51.60 | 1,382.98 | -3.30 | 0.86 | 40° 27' 15.087 N | 104° 25' 54.433 W | 1,410,092.59 | 3,297,263.37 |
| 1,476.00 | 1.45 | 257.19 | 1,475.97 | -3.23 | 0.13 | 40° 27' 15.088 N | 104° 25' 54.443 W | 1,410,092.66 | 3,297,262.63 |
| 1,571.00 | 4.15 | 246.44 | 1,570.85 | -4.87 | -4.19 | 40° 27' 15.072 N | 104° 25' 54.499 W | 1,410,091.02 | 3,297,258.31 |
| 1,666.00 | 5.79 | 244.24 | 1,665.49 | -8.33 | -11.66 | 40° 27' 15.039 N | 104° 25' 54.596 W | 1,410,087.56 | 3,297,250.84 |
| 1,761.00 | 7.16 | 231.26 | 1,759.89 | -14.12 | -20.59 | 40° 27' 14.983 N | 104° 25' 54.713 W | 1,410,081.77 | 3,297,241.91 |
| 1,856.00 | 7.13 | 229.12 | 1,854.15 | -21.68 | -29.67 | 40° 27' 14.909 N | 104° 25' 54.831 W | 1,410,074.21 | 3,297,232.83 |
| 1,950.00 | 7.84 | 228.74 | 1,947.35 | -29.73 | -38.90 | 40° 27' 14.831 N | 104° 25' 54.952 W | 1,410,066.16 | 3,297,223.60 |
| 2,045.00 | 8.34 | 224.69 | 2,041.40 | -38.90 | -48.62 | 40° 27' 14.741 N | 104° 25' 55.079 W | 1,410,056.99 | 3,297,213.89 |
| 2,140.00 | 6.86 | 220.18 | 2,135.57 | -48.13 | -57.12 | 40° 27' 14.651 N | 104° 25' 55.190 W | 1,410,047.76 | 3,297,205.38 |
| 2,235.00 | 7.07 | 221.49 | 2,229.86 | -56.85 | -64.66 | 40° 27' 14.566 N | 104° 25' 55.289 W | 1,410,039.05 | 3,297,197.85 |
| 2,330.00 | 7.32 | 228.03 | 2,324.12 | -65.27 | -73.03 | 40° 27' 14.484 N | 104° 25' 55.399 W | 1,410,030.62 | 3,297,189.47 |
| 2,425.00 | 7.42 | 234.90 | 2,418.34 | -72.85 | -82.55 | 40° 27' 14.410 N | 104° 25' 55.523 W | 1,410,023.05 | 3,297,179.96 |
| 2,520.00 | 7.45 | 227.74 | 2,512.54 | -80.52 | -92.13 | 40° 27' 14.335 N | 104° 25' 55.648 W | 1,410,015.38 | 3,297,170.38 |
| 2,615.00 | 8.28 | 227.72 | 2,606.64 | -89.26 | -101.75 | 40° 27' 14.250 N | 104° 25' 55.774 W | 1,410,006.63 | 3,297,160.76 |
| 2,710.00 | 8.28 | 227.88 | 2,700.65 | -98.45 | -111.88 | 40° 27' 14.160 N | 104° 25' 55.906 W | 1,409,997.44 | 3,297,150.63 |
| 2,805.00 | 7.49 | 226.43 | 2,794.75 | -107.31 | -121.44 | 40° 27' 14.074 N | 104° 25' 56.032 W | 1,409,988.59 | 3,297,141.07 |
| 2,900.00 | 7.48 | 237.88 | 2,888.95 | -114.86 | -131.16 | 40° 27' 14.001 N | 104° 25' 56.158 W | 1,409,981.03 | 3,297,131.34 |
| 2,995.00 | 5.79 | 228.96 | 2,983.31 | -121.30 | -140.02 | 40° 27' 13.938 N | 104° 25' 56.274 W | 1,409,974.60 | 3,297,122.49 |
| 3,089.00 | 3.87 | 220.89 | 3,076.98 | -126.81 | -145.67 | 40° 27' 13.884 N | 104° 25' 56.348 W | 1,409,969.09 | 3,297,116.84 |
| 3,184.00 | 1.86 | 233.81 | 3,171.85 | -130.14 | -149.01 | 40° 27' 13.852 N | 104° 25' 56.392 W | 1,409,965.75 | 3,297,113.49 |
| 3,279.00 | 0.70 | 218.93 | 3,266.83 | -131.51 | -150.62 | 40° 27' 13.839 N | 104° 25' 56.413 W | 1,409,964.39 | 3,297,111.89 |
| 3,374.00 | 0.85 | 310.40 | 3,361.82 | -131.50 | -151.52 | 40° 27' 13.839 N | 104° 25' 56.424 W | 1,409,964.40 | 3,297,110.98 |
| 3,469.00 | 2.14 | 12.67 | 3,456.79 | -129.31 | -151.67 | 40° 27' 13.860 N | 104° 25' 56.426 W | 1,409,966.58 | 3,297,110.84 |
| 3,564.00 | 1.94 | 12.49 | 3,551.73 | -126.01 | -150.93 | 40° 27' 13.893 N | 104° 25' 56.416 W | 1,409,969.88 | 3,297,111.57 |
| 3,659.00 | 0.37 | 39.85 | 3,646.71 | -124.21 | -150.39 | 40° 27' 13.911 N | 104° 25' 56.409 W | 1,409,971.69 | 3,297,112.12 |
| 3,754.00 | 0.22 | 205.80 | 3,741.71 | -124.14 | -150.27 | 40° 27' 13.911 N | 104° 25' 56.407 W | 1,409,971.76 | 3,297,112.23 |
| 3,849.00 | 0.13 | 291.71 | 3,836.71 | -124.26 | -150.45 | 40° 27' 13.910 N | 104° 25' 56.409 W | 1,409,971.64 | 3,297,112.05 |
| 3,944.00 | 0.75 | 230.87 | 3,931.71 | -124.61 | -151.03 | 40° 27' 13.907 N | 104° 25' 56.417 W | 1,409,971.28 | 3,297,111.47 |
| 4,039.00 | 0.84 | 135.34 | 4,026.70 | -125.50 | -151.03 | 40° 27' 13.898 N | 104° 25' 56.417 W | 1,409,970.40 | 3,297,111.48 |
| 4,134.00 | 1.02 | 110.78 | 4,121.69 | -126.30 | -149.75 | 40° 27' 13.890 N | 104° 25' 56.401 W | 1,409,969.60 | 3,297,112.76 |
| 4,228.00 | 0.82 | 101.83 | 4,215.68 | -126.73 | -148.31 | 40° 27' 13.885 N | 104° 25' 56.382 W | 1,409,969.17 | 3,297,114.20 |

Design Report for Wells Ranch USX AA27-63-1HN - Final Surveys

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | Local Coordinates | | Geographic Coordinates | | UTM Coordinates | |
|-----------------------------|--------------------|----------------|-----------------------------|-------------------|-----------------|------------------------|---------------------|--------------------|-------------------|
| | | | | +N/-S (usft) | +E/-W (usft) | Latitude (usft) | Longitude (usft) | Northing (usft) | Easting (usft) |
| 4,323.00 | 0.14 | 250.02 | 4,310.67 | -126.91 | -147.75 | 40° 27' 13.884 N | 104° 25' 56.375 W | 1,409,968.99 | 3,297,114.76 |
| 4,418.00 | 1.17 | 292.14 | 4,405.67 | -126.58 | -148.76 | 40° 27' 13.887 N | 104° 25' 56.388 W | 1,409,969.31 | 3,297,113.75 |
| 4,513.00 | 0.72 | 336.43 | 4,500.65 | -125.67 | -149.89 | 40° 27' 13.896 N | 104° 25' 56.402 W | 1,409,970.23 | 3,297,112.61 |
| 4,608.00 | 0.80 | 356.75 | 4,595.65 | -124.46 | -150.17 | 40° 27' 13.908 N | 104° 25' 56.406 W | 1,409,971.44 | 3,297,112.34 |
| 4,703.00 | 1.59 | 58.98 | 4,690.63 | -123.12 | -149.08 | 40° 27' 13.921 N | 104° 25' 56.392 W | 1,409,972.78 | 3,297,113.43 |
| 4,798.00 | 1.76 | 83.60 | 4,785.59 | -122.28 | -146.50 | 40° 27' 13.929 N | 104° 25' 56.358 W | 1,409,973.62 | 3,297,116.01 |
| 4,893.00 | 2.25 | 66.18 | 4,880.53 | -121.36 | -143.34 | 40° 27' 13.938 N | 104° 25' 56.317 W | 1,409,974.53 | 3,297,119.16 |
| 4,988.00 | 0.92 | 29.88 | 4,975.49 | -119.95 | -141.26 | 40° 27' 13.952 N | 104° 25' 56.290 W | 1,409,975.95 | 3,297,121.25 |
| 5,083.00 | 0.52 | 34.62 | 5,070.49 | -118.93 | -140.63 | 40° 27' 13.962 N | 104° 25' 56.282 W | 1,409,976.96 | 3,297,121.87 |
| 5,178.00 | 1.15 | 338.62 | 5,165.48 | -117.69 | -140.74 | 40° 27' 13.974 N | 104° 25' 56.283 W | 1,409,978.21 | 3,297,121.77 |
| 5,273.00 | 1.60 | 356.10 | 5,260.45 | -115.48 | -141.17 | 40° 27' 13.996 N | 104° 25' 56.288 W | 1,409,980.42 | 3,297,121.33 |
| 5,368.00 | 2.03 | 18.90 | 5,355.40 | -112.56 | -140.72 | 40° 27' 14.024 N | 104° 25' 56.282 W | 1,409,983.33 | 3,297,121.79 |
| 5,462.00 | 0.89 | 127.44 | 5,449.38 | -111.43 | -139.60 | 40° 27' 14.036 N | 104° 25' 56.267 W | 1,409,984.46 | 3,297,122.91 |
| 5,557.00 | 0.22 | 257.97 | 5,544.38 | -111.92 | -139.19 | 40° 27' 14.031 N | 104° 25' 56.262 W | 1,409,983.98 | 3,297,123.31 |
| 5,652.00 | 0.22 | 353.43 | 5,639.38 | -111.78 | -139.39 | 40° 27' 14.032 N | 104° 25' 56.264 W | 1,409,984.12 | 3,297,123.12 |
| 5,747.00 | 0.56 | 83.97 | 5,734.38 | -111.55 | -138.95 | 40° 27' 14.034 N | 104° 25' 56.259 W | 1,409,984.35 | 3,297,123.56 |
| 5,842.00 | 0.87 | 95.89 | 5,829.37 | -111.57 | -137.77 | 40° 27' 14.034 N | 104° 25' 56.243 W | 1,409,984.33 | 3,297,124.73 |
| 5,899.00 | 1.06 | 110.14 | 5,886.36 | -111.80 | -136.85 | 40° 27' 14.032 N | 104° 25' 56.232 W | 1,409,984.10 | 3,297,125.66 |
| 5,960.00 | 1.00 | 98.55 | 5,947.35 | -112.07 | -135.79 | 40° 27' 14.029 N | 104° 25' 56.218 W | 1,409,983.83 | 3,297,126.72 |
| 5,983.00 | 0.77 | 111.98 | 5,970.35 | -112.16 | -135.45 | 40° 27' 14.028 N | 104° 25' 56.213 W | 1,409,983.74 | 3,297,127.06 |
| 6,030.00 | 2.96 | 95.87 | 6,017.32 | -112.40 | -133.95 | 40° 27' 14.025 N | 104° 25' 56.194 W | 1,409,983.50 | 3,297,128.56 |
| 6,077.00 | 7.60 | 91.52 | 6,064.11 | -112.61 | -129.63 | 40° 27' 14.023 N | 104° 25' 56.138 W | 1,409,983.29 | 3,297,132.87 |
| 6,125.00 | 12.61 | 90.48 | 6,111.35 | -112.74 | -121.21 | 40° 27' 14.020 N | 104° 25' 56.029 W | 1,409,983.16 | 3,297,141.29 |
| 6,172.00 | 16.31 | 94.34 | 6,156.85 | -113.28 | -109.50 | 40° 27' 14.014 N | 104° 25' 55.878 W | 1,409,982.62 | 3,297,153.01 |
| 6,220.00 | 18.82 | 100.86 | 6,202.62 | -115.25 | -95.17 | 40° 27' 13.993 N | 104° 25' 55.693 W | 1,409,980.65 | 3,297,167.33 |
| 6,267.00 | 22.34 | 102.74 | 6,246.61 | -118.65 | -79.01 | 40° 27' 13.957 N | 104° 25' 55.484 W | 1,409,977.25 | 3,297,183.50 |
| 6,315.00 | 26.66 | 102.59 | 6,290.28 | -123.01 | -59.59 | 40° 27' 13.912 N | 104° 25' 55.234 W | 1,409,972.89 | 3,297,202.91 |
| 6,362.00 | 31.01 | 100.34 | 6,331.44 | -127.48 | -37.38 | 40° 27' 13.865 N | 104° 25' 54.947 W | 1,409,968.42 | 3,297,225.12 |
| 6,410.00 | 35.58 | 96.93 | 6,371.56 | -131.39 | -11.34 | 40° 27' 13.823 N | 104° 25' 54.611 W | 1,409,964.51 | 3,297,251.17 |
| 6,457.00 | 40.35 | 95.25 | 6,408.60 | -134.43 | 17.41 | 40° 27' 13.790 N | 104° 25' 54.240 W | 1,409,961.47 | 3,297,279.91 |
| 6,505.00 | 45.23 | 93.41 | 6,443.82 | -136.87 | 49.91 | 40° 27' 13.762 N | 104° 25' 53.820 W | 1,409,959.03 | 3,297,312.41 |
| 6,552.00 | 49.16 | 91.97 | 6,475.75 | -138.47 | 84.35 | 40° 27' 13.742 N | 104° 25' 53.375 W | 1,409,957.43 | 3,297,346.84 |
| 6,600.00 | 53.80 | 90.99 | 6,505.63 | -139.43 | 121.88 | 40° 27' 13.728 N | 104° 25' 52.889 W | 1,409,956.47 | 3,297,384.37 |
| 6,647.00 | 58.13 | 91.57 | 6,531.93 | -140.31 | 160.81 | 40° 27' 13.714 N | 104° 25' 52.386 W | 1,409,955.59 | 3,297,423.30 |
| 6,695.00 | 61.78 | 90.68 | 6,555.96 | -141.12 | 202.34 | 40° 27' 13.702 N | 104° 25' 51.849 W | 1,409,954.78 | 3,297,464.83 |
| 6,742.00 | 65.63 | 90.47 | 6,576.78 | -141.54 | 244.47 | 40° 27' 13.692 N | 104° 25' 51.304 W | 1,409,954.36 | 3,297,506.96 |
| 6,790.00 | 69.34 | 89.95 | 6,595.16 | -141.70 | 288.80 | 40° 27' 13.685 N | 104° 25' 50.731 W | 1,409,954.20 | 3,297,551.29 |
| 6,837.00 | 73.64 | 90.22 | 6,610.08 | -141.77 | 333.36 | 40° 27' 13.680 N | 104° 25' 50.154 W | 1,409,954.13 | 3,297,595.85 |
| 6,885.00 | 77.19 | 90.54 | 6,622.16 | -142.07 | 379.80 | 40° 27' 13.671 N | 104° 25' 49.553 W | 1,409,953.82 | 3,297,642.29 |
| 6,924.00 | 80.52 | 91.08 | 6,629.70 | -142.62 | 418.06 | 40° 27' 13.661 N | 104° 25' 49.059 W | 1,409,953.28 | 3,297,680.54 |
| 6,970.00 | 82.17 | 92.08 | 6,636.62 | -143.87 | 463.52 | 40° 27' 13.643 N | 104° 25' 48.471 W | 1,409,952.03 | 3,297,726.00 |
| 7,046.00 | 84.90 | 93.72 | 6,645.18 | -147.70 | 538.93 | 40° 27' 13.596 N | 104° 25' 47.496 W | 1,409,948.20 | 3,297,801.41 |

Design Report for Wells Ranch USX AA27-63-1HN - Final Surveys

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | Local Coordinates | | Geographic Coordinates | | UTM Coordinates | |
|-----------------------------|--------------------|----------------|-----------------------------|-------------------|-----------------|------------------------|---------------------|--------------------|-------------------|
| | | | | +N/-S (usft) | +E/-W (usft) | Latitude (usft) | Longitude (usft) | Northing (usft) | Easting (usft) |
| 7,141.00 | 86.61 | 92.82 | 6,652.21 | -153.10 | 633.51 | 40° 27' 13.532 N | 104° 25' 46.274 W | 1,409,942.80 | 3,297,895.98 |
| 7,236.00 | 87.23 | 92.21 | 6,657.31 | -157.26 | 728.28 | 40° 27' 13.479 N | 104° 25' 45.048 W | 1,409,938.64 | 3,297,990.75 |
| 7,331.00 | 87.99 | 91.72 | 6,661.28 | -160.52 | 823.14 | 40° 27' 13.436 N | 104° 25' 43.822 W | 1,409,935.38 | 3,298,085.61 |
| 7,425.00 | 87.22 | 93.22 | 6,665.20 | -164.56 | 916.96 | 40° 27' 13.385 N | 104° 25' 42.609 W | 1,409,931.34 | 3,298,179.43 |
| 7,520.00 | 86.70 | 93.10 | 6,670.24 | -169.79 | 1,011.69 | 40° 27' 13.322 N | 104° 25' 41.385 W | 1,409,926.11 | 3,298,274.15 |
| 7,614.00 | 88.92 | 93.89 | 6,673.83 | -175.52 | 1,105.44 | 40° 27' 13.254 N | 104° 25' 40.173 W | 1,409,920.38 | 3,298,367.90 |
| 7,709.00 | 87.93 | 93.19 | 6,676.45 | -181.38 | 1,200.22 | 40° 27' 13.185 N | 104° 25' 38.948 W | 1,409,914.52 | 3,298,462.67 |
| 7,803.00 | 89.88 | 94.64 | 6,678.24 | -187.80 | 1,293.97 | 40° 27' 13.110 N | 104° 25' 37.736 W | 1,409,908.10 | 3,298,556.43 |
| 7,898.00 | 92.03 | 94.13 | 6,676.66 | -195.06 | 1,388.68 | 40° 27' 13.027 N | 104° 25' 36.512 W | 1,409,900.84 | 3,298,651.13 |
| 7,993.00 | 90.09 | 94.40 | 6,674.90 | -202.12 | 1,483.39 | 40° 27' 12.946 N | 104° 25' 35.288 W | 1,409,893.78 | 3,298,745.84 |
| 8,087.00 | 88.89 | 93.25 | 6,675.74 | -208.39 | 1,577.18 | 40° 27' 12.873 N | 104° 25' 34.076 W | 1,409,887.51 | 3,298,839.62 |
| 8,182.00 | 90.93 | 93.23 | 6,675.89 | -213.76 | 1,672.02 | 40° 27' 12.808 N | 104° 25' 32.850 W | 1,409,882.14 | 3,298,934.46 |
| 8,277.00 | 88.98 | 91.71 | 6,675.96 | -217.86 | 1,766.92 | 40° 27' 12.756 N | 104° 25' 31.623 W | 1,409,878.04 | 3,299,029.36 |
| 8,371.00 | 91.14 | 92.70 | 6,675.86 | -221.47 | 1,860.85 | 40° 27' 12.709 N | 104° 25' 30.409 W | 1,409,874.43 | 3,299,123.28 |
| 8,467.00 | 92.41 | 91.69 | 6,672.89 | -225.15 | 1,956.73 | 40° 27' 12.662 N | 104° 25' 29.169 W | 1,409,870.75 | 3,299,219.16 |
| 8,561.00 | 90.31 | 92.25 | 6,670.66 | -228.38 | 2,050.64 | 40° 27' 12.618 N | 104° 25' 27.955 W | 1,409,867.52 | 3,299,313.07 |
| 8,656.00 | 91.30 | 91.70 | 6,669.32 | -231.65 | 2,145.57 | 40° 27' 12.575 N | 104° 25' 26.728 W | 1,409,864.25 | 3,299,407.99 |
| 8,751.00 | 90.43 | 91.44 | 6,667.89 | -234.26 | 2,240.53 | 40° 27' 12.538 N | 104° 25' 25.500 W | 1,409,861.65 | 3,299,502.94 |
| 8,845.00 | 90.52 | 92.49 | 6,667.11 | -237.48 | 2,334.47 | 40° 27' 12.495 N | 104° 25' 24.285 W | 1,409,858.42 | 3,299,596.88 |
| 8,940.00 | 89.51 | 93.49 | 6,667.09 | -242.43 | 2,429.33 | 40° 27' 12.434 N | 104° 25' 23.059 W | 1,409,853.47 | 3,299,691.75 |
| 9,035.00 | 89.72 | 92.13 | 6,667.72 | -247.09 | 2,524.21 | 40° 27' 12.377 N | 104° 25' 21.833 W | 1,409,848.81 | 3,299,786.62 |
| 9,130.00 | 88.98 | 91.03 | 6,668.80 | -249.71 | 2,619.17 | 40° 27' 12.339 N | 104° 25' 20.605 W | 1,409,846.19 | 3,299,881.58 |
| 9,225.00 | 90.12 | 90.64 | 6,669.55 | -251.09 | 2,714.16 | 40° 27' 12.314 N | 104° 25' 19.376 W | 1,409,844.81 | 3,299,976.56 |
| 9,319.00 | 90.37 | 91.29 | 6,669.15 | -252.68 | 2,808.14 | 40° 27' 12.287 N | 104° 25' 18.161 W | 1,409,843.22 | 3,300,070.54 |
| 9,415.00 | 91.08 | 92.39 | 6,667.93 | -255.76 | 2,904.08 | 40° 27' 12.245 N | 104° 25' 16.920 W | 1,409,840.14 | 3,300,166.48 |
| 9,510.00 | 88.86 | 92.43 | 6,667.98 | -259.75 | 2,998.99 | 40° 27' 12.195 N | 104° 25' 15.693 W | 1,409,836.15 | 3,300,261.38 |
| 9,604.00 | 90.03 | 92.60 | 6,668.89 | -263.88 | 3,092.90 | 40° 27' 12.143 N | 104° 25' 14.480 W | 1,409,832.02 | 3,300,355.28 |
| 9,699.00 | 88.36 | 91.47 | 6,670.23 | -267.25 | 3,187.82 | 40° 27' 12.098 N | 104° 25' 13.252 W | 1,409,828.65 | 3,300,450.20 |
| 9,794.00 | 88.70 | 91.08 | 6,672.66 | -269.37 | 3,282.77 | 40° 27' 12.065 N | 104° 25' 12.024 W | 1,409,826.54 | 3,300,545.15 |
| 9,889.00 | 89.38 | 91.54 | 6,674.25 | -271.54 | 3,377.73 | 40° 27' 12.033 N | 104° 25' 10.797 W | 1,409,824.37 | 3,300,640.10 |
| 9,984.00 | 90.56 | 91.33 | 6,674.30 | -273.92 | 3,472.70 | 40° 27' 11.998 N | 104° 25' 9.569 W | 1,409,821.99 | 3,300,735.07 |
| 10,078.00 | 90.68 | 91.75 | 6,673.29 | -276.44 | 3,566.66 | 40° 27' 11.961 N | 104° 25' 8.354 W | 1,409,819.46 | 3,300,829.03 |
| 10,173.00 | 89.48 | 91.20 | 6,673.15 | -278.89 | 3,661.62 | 40° 27' 11.926 N | 104° 25' 7.126 W | 1,409,817.02 | 3,300,923.99 |
| 10,268.00 | 91.20 | 92.29 | 6,672.59 | -281.78 | 3,756.57 | 40° 27' 11.886 N | 104° 25' 5.898 W | 1,409,814.12 | 3,301,018.93 |
| 10,363.00 | 90.68 | 93.45 | 6,671.03 | -286.54 | 3,851.44 | 40° 27' 11.827 N | 104° 25' 4.672 W | 1,409,809.37 | 3,301,113.80 |
| 10,457.00 | 89.78 | 92.47 | 6,670.65 | -291.39 | 3,945.31 | 40° 27' 11.768 N | 104° 25' 3.458 W | 1,409,804.51 | 3,301,207.66 |
| 10,552.00 | 90.49 | 93.35 | 6,670.43 | -296.21 | 4,040.18 | 40° 27' 11.709 N | 104° 25' 2.232 W | 1,409,799.69 | 3,301,302.54 |
| 10,647.00 | 90.34 | 91.94 | 6,669.74 | -300.60 | 4,135.08 | 40° 27' 11.654 N | 104° 25' 1.005 W | 1,409,795.31 | 3,301,397.43 |
| 10,742.00 | 88.80 | 89.01 | 6,670.46 | -301.38 | 4,230.06 | 40° 27' 11.635 N | 104° 24' 59.777 W | 1,409,794.52 | 3,301,492.40 |
| 10,837.00 | 90.37 | 90.67 | 6,671.14 | -301.12 | 4,325.05 | 40° 27' 11.626 N | 104° 24' 58.548 W | 1,409,794.79 | 3,301,587.39 |
| 10,932.00 | 89.97 | 90.53 | 6,670.86 | -302.11 | 4,420.04 | 40° 27' 11.605 N | 104° 24' 57.319 W | 1,409,793.79 | 3,301,682.38 |
| 11,027.00 | 90.56 | 93.48 | 6,670.42 | -305.44 | 4,514.97 | 40° 27' 11.560 N | 104° 24' 56.092 W | 1,409,790.47 | 3,301,777.31 |

Design Report for Wells Ranch USX AA27-63-1HN - Final Surveys

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | Local Coordinates | | Geographic Coordinates | | UTM Coordinates | |
|-----------------------|-----------------|-------------|-----------------------|-------------------|--------------|------------------------|-------------------|-----------------|----------------|
| | | | | +N/-S (usft) | +E/-W (usft) | Latitude (usft) | Longitude (usft) | Northing (usft) | Easting (usft) |
| 11,122.00 | 90.06 | 94.35 | 6,669.91 | -311.92 | 4,609.75 | 40° 27' 11.485 N | 104° 24' 54.867 W | 1,409,783.98 | 3,301,872.08 |
| 11,217.00 | 88.92 | 95.22 | 6,670.75 | -319.85 | 4,704.41 | 40° 27' 11.395 N | 104° 24' 53.644 W | 1,409,776.06 | 3,301,966.74 |
| 11,312.00 | 88.37 | 95.30 | 6,673.00 | -328.55 | 4,798.99 | 40° 27' 11.298 N | 104° 24' 52.422 W | 1,409,767.35 | 3,302,061.31 |
| 11,342.00 | 88.83 | 95.18 | 6,673.73 | -331.29 | 4,828.85 | 40° 27' 11.267 N | 104° 24' 52.036 W | 1,409,764.61 | 3,302,091.17 |
| 11,406.00 | 88.83 | 95.18 | 6,675.04 | -337.07 | 4,892.58 | 40° 27' 11.202 N | 104° 24' 51.213 W | 1,409,758.84 | 3,302,154.90 |

Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates +N/-S (usft) | Local Coordinates +E/-W (usft) | Comment |
|-----------------------|-----------------------|--------------------------------|--------------------------------|--|
| 618.00 | 617.99 | -2.72 | 0.58 | Tie-On to Surface Gyros @ 618.00ft |
| 733.00 | 732.99 | -2.75 | 0.21 | First MWD Survey @ 733.00ft |
| 11,342.00 | 6,673.73 | -331.29 | 4,828.85 | Final MWD Survey @ 11342.00ft |
| 11,406.00 | 6,675.04 | -337.07 | 4,892.58 | Straight Line Proj @ 11406' MD, 6675.04' TVD |

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin +N/_S (usft) | Origin +E/-W (usft) | Start TVD (usft) |
|------------|--|-------------|-------------|---------------------|---------------------|------------------|
| Target | Wells Ranch USX AA27-63-1HN (PB_RA0) BHL | 94.00 | Slot | 0.00 | 0.00 | 0.00 |

Survey tool program

| From (usft) | To (usft) | Survey/Plan | Survey Tool |
|-------------|-----------|--------------------------|-------------|
| 255.00 | 618.00 | Vaughn ESS Survey | Flexi-Shot |
| 733.00 | 6,924.00 | MWD Surveys - Vert/Build | MWD |
| 7,046.00 | 11,342.00 | MWD Surveys - Lateral | MWD |

Design Report for Wells Ranch USX AA27-63-1HN - Final Surveys

Casing Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
|-----------------------|-----------------------|---|---------------------|-------------------|
| 6,970.00 | 6,636.62 | Estimated: 7" Casing @ 6970' MD, 6636.62' TVD | 7 | 8-3/4 |

Design Targets

| Shape | Target Name | TVD (usft) | Northing (usft) | Easting (usft) | +N/-S usft | +E/-W usft | Created | Updated |
|---------|-------------------------|------------|-----------------|----------------|------------|------------|-----------|-----------|
| Polygon | Wells Ranch USX AA27-64 | 0.00 | 1,410,059.46 | 3,297,262.94 | -36.43 | 0.44 | 7/10/2013 | 7/10/2013 |
| Polygon | Wells Ranch USX AA27-64 | 0.00 | 1,410,059.46 | 3,297,262.94 | -36.43 | 0.44 | 7/10/2013 | 7/10/2013 |
| Point | Wells Ranch USX AA27-64 | 0.00 | 1,410,095.89 | 3,297,262.50 | 0.00 | 0.00 | 7/10/2013 | 7/14/2013 |
| Point | Wells Ranch USX AA27-64 | 6,640.01 | 1,409,944.52 | 3,297,702.67 | -151.38 | 440.18 | 7/25/2013 | 7/25/2013 |
| Point | Wells Ranch USX AA27-64 | 6,652.00 | 1,409,753.58 | 3,302,157.19 | -342.33 | 4,894.87 | 7/25/2013 | 7/25/2013 |

Directional Difficulty Index

| | | | |
|-------------------------------------|----------------|-------------------------------|----------------------------------|
| Average Dogleg over Survey: | 1.85 °/100usft | Maximum Dogleg over Survey: | 10.49 °/100usft at 6,505.00 usft |
| Net Tortousity applicable to Plans: | 0.93 °/100usft | Directional Difficulty Index: | 6.279 |

Audit Info

North Reference Sheet for Sec. 27-T6N-R63W - Wells Ranch USX AA27-63-1HN -

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 ft. @ 4818.00usft (H&P 322). Northing and Easting are relative to Wells Ranch USX AA27-63-1HN - Slot A2

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: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996313

Grid Coordinates of Well: 1,410,095.89 usft N, 3,297,262.50 usft E

Geographical Coordinates of Well: 40° 27' 15.12" N, 104° 25' 54.44" W

Grid Convergence at Surface is: 0.69°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,406.00usft

the Bottom Hole Displacement is 4,904.17usft in the Direction of 93.94° (Grid).

Magnetic Convergence at surface is: -7.74° (31 July 2013, , BGGM2013)

