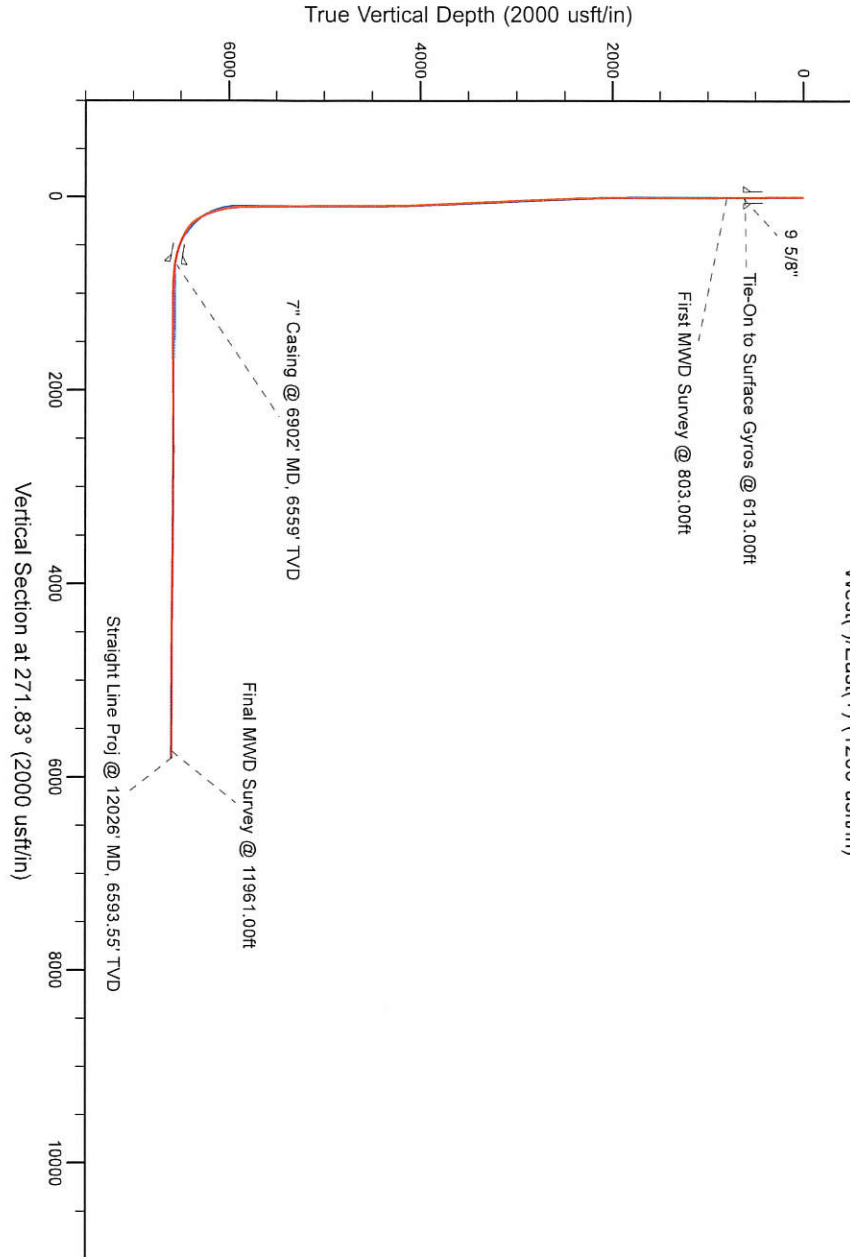
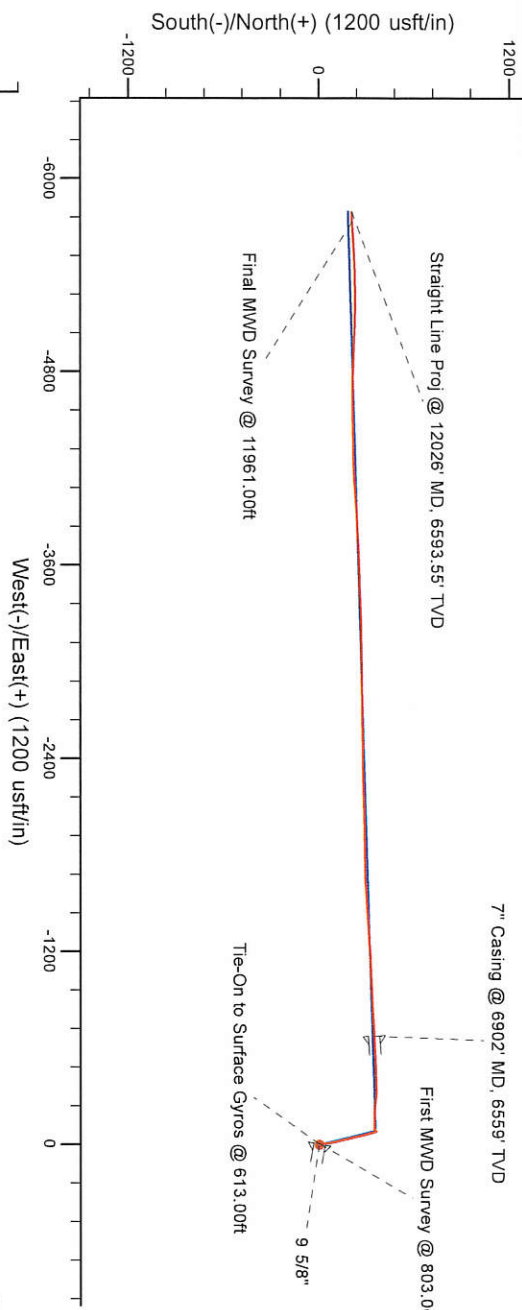


Noble Energy

Project: Weld County, CO (NAD 83)
Site: Sec. 29-T6N-R62W (Wells Ranch AE32-30-A Pad)
Well: Wells Ranch AE30-62HNC
Wellbore: Plan D
Design: Final Surveys



LEGEND

- Wells Ranch AE30-62HNC, Plan D, Rev D0 - PROPOSAL V0
- Final Surveys

Platted SHL: 305' FSL, 65' FWL
Platted Lat/Long: 40.45125 N, 104.35627 W
Location: Sec. 29-T6N-R62W

~7" Casing: 671 FSL, 610 FEL
Lat/Long: 40.452220 N, 104.358679 W
State Planes - CO Northern: 1,409,628.05 N, 3,317,616.13 E
Location: Sec. 30-T6N-R62W

~BHL: 383 FEL, 683 FSL
Lat/Long: 40.452025 N, 104.377077 W
State Planes - CO Northern: 1,409,491.53 N, 3,312,497.45 E
Location: Sec. 25-T6N-R63W

| | |
|--------------------------------------|---------------------|
| WELL DETAILS: Wells Ranch AE30-62HNC | |
| Ground Level: | 4748.00 |
| RKB=24 @ 4772.00usft (H&P 343) | |
| Created By: | Parf Amanlou |
| | 16/26, June 23 2014 |

Noble Energy

Weld County, CO (NAD 83)

Sec. 29-T6N-R62W (Wells Ranch AE32-30-A Pad)

Wells Ranch AE30-62HNC

901136504

Plan D

Design: Final Surveys

Sperry Drilling Services

Final Survey Report

23 June, 2014

Well Coordinates: 1,409,283.40 N, 3,318,291.01 E (40° 27' 04.50" N, 104° 21' 22.57" W)

Ground Level: 4,748.00 usft

Local Coordinate Origin:

Viewing Datum:

TVDs to System:

North Reference:

Unit System:

Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

Centered on Well Wells Ranch AE30-62HNC

RKB=24 @ 4772.00usft (H&P 343)

N

Grid

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Design Report for Wells Ranch AE30-62HNC - Final Surveys

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | Toolface Azimuth (°) |
|---|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|----------------------------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 370.00 | 0.40 | 314.43 | 370.00 | 0.90 | -0.92 | 0.95 | 0.11 | 0.11 | 0.00 | 314.43 |
| 613.00 | 0.70 | 281.53 | 612.99 | 1.79 | -2.98 | 3.04 | 0.17 | 0.12 | -13.54 | -63.72 |
| Tie-On to Surface Gyros @ 613.00ft | | | | | | | | | | |
| 631.00 | 0.67 | 280.34 | 630.98 | 1.84 | -3.19 | 3.25 | 0.17 | -0.15 | -6.61 | -152.66 |
| 9 5/8" | | | | | | | | | | |
| 803.00 | 0.44 | 261.93 | 802.98 | 1.92 | -4.84 | 4.90 | 0.17 | -0.14 | -10.70 | -151.47 |
| First MWD Survey @ 803.00ft | | | | | | | | | | |
| 895.00 | 0.46 | 243.57 | 894.97 | 1.71 | -5.52 | 5.57 | 0.16 | 0.02 | -19.96 | -91.35 |
| 987.00 | 0.36 | 252.25 | 986.97 | 1.46 | -6.13 | 6.17 | 0.13 | -0.11 | 9.43 | 152.45 |
| 1,080.00 | 0.32 | 176.82 | 1,079.97 | 1.11 | -6.39 | 6.42 | 0.45 | -0.04 | -81.11 | -132.06 |
| 1,172.00 | 0.09 | 337.42 | 1,171.97 | 0.92 | -6.41 | 6.43 | 0.44 | -0.25 | 174.57 | 175.78 |
| 1,265.00 | 0.32 | 45.15 | 1,264.97 | 1.17 | -6.25 | 6.28 | 0.32 | 0.25 | 72.83 | 83.97 |
| 1,358.00 | 0.57 | 66.87 | 1,357.97 | 1.54 | -5.64 | 5.69 | 0.32 | 0.27 | 23.35 | 45.19 |
| 1,452.00 | 0.80 | 88.72 | 1,451.96 | 1.73 | -4.55 | 4.61 | 0.37 | 0.24 | 23.24 | 59.91 |
| 1,545.00 | 0.70 | 120.59 | 1,544.95 | 1.46 | -3.42 | 3.46 | 0.45 | -0.11 | 34.27 | 119.08 |
| 1,638.00 | 0.73 | 127.75 | 1,637.95 | 0.81 | -2.46 | 2.48 | 0.10 | 0.03 | 7.70 | 75.04 |
| 1,733.00 | 0.77 | 1.16 | 1,732.94 | 1.07 | -1.97 | 2.00 | 1.41 | 0.04 | -133.25 | -152.52 |
| 1,828.00 | 2.07 | 346.94 | 1,827.91 | 3.38 | -2.34 | 2.45 | 1.41 | 1.37 | -14.97 | -22.35 |
| 1,923.00 | 3.97 | 356.46 | 1,922.77 | 8.34 | -2.93 | 3.20 | 2.06 | 2.00 | 10.02 | 19.57 |
| 2,018.00 | 6.26 | 353.35 | 2,017.39 | 16.77 | -3.74 | 4.27 | 2.43 | 2.41 | -3.27 | -8.45 |
| 2,113.00 | 9.35 | 353.37 | 2,111.50 | 29.58 | -5.23 | 6.17 | 3.25 | 3.25 | 0.02 | 0.06 |
| 2,208.00 | 10.52 | 351.66 | 2,205.07 | 45.83 | -7.38 | 8.83 | 1.27 | 1.23 | -1.80 | -15.00 |
| 2,302.00 | 10.00 | 349.57 | 2,297.57 | 62.34 | -10.10 | 12.08 | 0.68 | -0.55 | -2.22 | -145.43 |
| 2,397.00 | 8.93 | 347.42 | 2,391.28 | 77.65 | -13.20 | 15.66 | 1.19 | -1.13 | -2.26 | -162.77 |
| 2,492.00 | 10.03 | 345.78 | 2,484.98 | 92.87 | -16.84 | 19.78 | 1.19 | 1.16 | -1.73 | -14.61 |
| 2,587.00 | 9.94 | 347.37 | 2,578.54 | 108.89 | -20.66 | 24.12 | 0.31 | -0.09 | 1.67 | 108.86 |
| 2,682.00 | 9.25 | 347.18 | 2,672.21 | 124.33 | -24.15 | 28.09 | 0.73 | -0.73 | -0.20 | -177.47 |
| 2,777.00 | 8.80 | 346.15 | 2,766.03 | 138.84 | -27.58 | 31.99 | 0.50 | -0.47 | -1.08 | -160.76 |
| 2,872.00 | 8.37 | 347.62 | 2,859.97 | 152.64 | -30.80 | 35.65 | 0.51 | -0.45 | 1.55 | 153.69 |
| 2,967.00 | 7.98 | 347.07 | 2,954.00 | 165.83 | -33.76 | 39.03 | 0.42 | -0.41 | -0.58 | -168.93 |
| 3,062.00 | 7.60 | 347.40 | 3,048.12 | 178.38 | -36.61 | 42.27 | 0.40 | -0.40 | 0.35 | 173.45 |
| 3,157.00 | 8.05 | 349.13 | 3,142.24 | 191.05 | -39.23 | 45.30 | 0.53 | 0.47 | 1.82 | 28.49 |
| 3,346.00 | 8.84 | 343.52 | 3,329.19 | 217.97 | -45.85 | 52.77 | 0.60 | 0.42 | -2.97 | -49.00 |
| 3,441.00 | 7.67 | 344.38 | 3,423.21 | 231.08 | -49.63 | 56.96 | 1.24 | -1.23 | 0.91 | 174.40 |
| 3,536.00 | 8.56 | 349.68 | 3,517.26 | 244.14 | -52.60 | 60.35 | 1.22 | 0.94 | 5.58 | 42.70 |
| 3,630.00 | 10.19 | 351.18 | 3,610.00 | 259.24 | -55.13 | 63.36 | 1.75 | 1.73 | 1.60 | 9.27 |
| 3,725.00 | 10.40 | 347.34 | 3,703.47 | 275.91 | -58.30 | 67.05 | 0.76 | 0.22 | -4.04 | -74.88 |
| 3,820.00 | 10.36 | 344.95 | 3,796.91 | 292.52 | -62.39 | 71.68 | 0.46 | -0.04 | -2.52 | -96.48 |
| 3,915.00 | 9.53 | 344.14 | 3,890.49 | 308.34 | -66.76 | 76.55 | 0.89 | -0.87 | -0.85 | -170.83 |
| 4,010.00 | 9.01 | 343.51 | 3,984.25 | 323.04 | -71.02 | 81.27 | 0.56 | -0.55 | -0.66 | -169.27 |
| 4,105.00 | 6.96 | 338.16 | 4,078.32 | 335.51 | -75.27 | 85.92 | 2.29 | -2.16 | -5.63 | -162.71 |
| 4,200.00 | 3.53 | 343.93 | 4,172.91 | 343.67 | -78.23 | 89.13 | 3.65 | -3.61 | 6.07 | 174.12 |
| 4,294.00 | 2.90 | 347.20 | 4,266.76 | 348.77 | -79.55 | 90.62 | 0.70 | -0.67 | 3.48 | 165.40 |
| 4,389.00 | 2.09 | 344.24 | 4,361.67 | 352.78 | -80.56 | 91.75 | 0.86 | -0.85 | -3.12 | -172.44 |
| 4,484.00 | 1.54 | 324.87 | 4,456.62 | 355.49 | -81.76 | 93.04 | 0.86 | -0.58 | -20.39 | -141.28 |
| 4,578.00 | 1.66 | 335.45 | 4,550.59 | 357.76 | -83.05 | 94.41 | 0.34 | 0.13 | 11.26 | 73.24 |
| 4,673.00 | 0.64 | 43.38 | 4,645.57 | 359.40 | -83.26 | 94.67 | 1.62 | -1.07 | 71.51 | 157.32 |
| 4,768.00 | 0.50 | 93.87 | 4,740.57 | 359.76 | -82.48 | 93.90 | 0.53 | -0.15 | 53.15 | 129.84 |
| 4,862.00 | 0.07 | 80.80 | 4,834.56 | 359.74 | -82.02 | 93.43 | 0.46 | -0.46 | -13.90 | -177.90 |
| 4,957.00 | 0.04 | 167.97 | 4,929.56 | 359.71 | -81.95 | 93.37 | 0.08 | -0.03 | 91.76 | 149.57 |
| 5,051.00 | 0.14 | 207.42 | 5,023.56 | 359.58 | -82.00 | 93.41 | 0.12 | 0.11 | 41.97 | 52.56 |
| 5,146.00 | 0.34 | 172.76 | 5,118.56 | 359.20 | -82.02 | 93.42 | 0.25 | 0.21 | -36.48 | -54.16 |
| 5,242.00 | 0.93 | 191.04 | 5,214.56 | 358.15 | -82.13 | 93.50 | 0.64 | 0.61 | 19.04 | 28.24 |
| 5,336.00 | 0.96 | 227.25 | 5,308.54 | 356.87 | -82.85 | 94.18 | 0.63 | 0.03 | 38.52 | 105.32 |
| 5,431.00 | 1.93 | 227.50 | 5,403.51 | 355.25 | -84.62 | 95.89 | 1.02 | 1.02 | 0.26 | 0.50 |
| 5,526.00 | 2.12 | 221.52 | 5,498.45 | 352.85 | -86.96 | 98.16 | 0.30 | 0.20 | -6.29 | -51.05 |
| 5,621.00 | 1.55 | 224.83 | 5,593.41 | 350.62 | -89.03 | 100.15 | 0.61 | -0.60 | 3.48 | 171.12 |

Design Report for Wells Ranch AE30-62HNC - Final Surveys

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | Toolface Azimuth (°) |
|---------------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|----------------------------|
| 5,716.00 | 1.14 | 225.30 | 5,688.38 | 349.05 | -90.61 | 101.68 | 0.43 | -0.43 | 0.49 | 178.69 |
| 5,810.00 | 0.61 | 220.27 | 5,782.37 | 348.01 | -91.60 | 102.64 | 0.57 | -0.56 | -5.35 | -174.26 |
| 5,904.00 | 0.44 | 251.49 | 5,876.36 | 347.51 | -92.27 | 103.29 | 0.36 | -0.18 | 33.21 | 135.70 |
| 5,999.00 | 7.91 | 275.28 | 5,971.05 | 348.00 | -99.13 | 110.16 | 7.90 | 7.86 | 25.04 | 25.14 |
| 6,093.00 | 13.55 | 268.16 | 6,063.37 | 348.24 | -116.59 | 127.62 | 6.15 | 6.00 | -7.57 | -16.75 |
| 6,188.00 | 17.96 | 267.01 | 6,154.78 | 347.12 | -142.35 | 153.34 | 4.65 | 4.64 | -1.21 | -4.61 |
| 6,283.00 | 23.61 | 270.70 | 6,243.56 | 346.59 | -176.03 | 186.98 | 6.10 | 5.95 | 3.88 | 14.79 |
| 6,378.00 | 33.35 | 275.97 | 6,326.98 | 349.54 | -221.14 | 232.16 | 10.58 | 10.25 | 5.55 | 16.82 |
| 6,473.00 | 47.78 | 275.45 | 6,398.96 | 355.63 | -282.46 | 293.64 | 15.19 | 15.19 | -0.55 | -1.55 |
| 6,568.00 | 62.05 | 270.86 | 6,453.44 | 359.62 | -359.86 | 371.13 | 15.53 | 15.02 | -4.83 | -16.12 |
| 6,663.00 | 67.90 | 267.72 | 6,493.62 | 358.50 | -445.88 | 457.07 | 6.85 | 6.16 | -3.31 | -26.62 |
| 6,758.00 | 73.41 | 266.58 | 6,525.08 | 354.03 | -535.37 | 546.37 | 5.91 | 5.80 | -1.20 | -11.24 |
| 6,806.00 | 75.00 | 266.50 | 6,538.14 | 351.24 | -581.47 | 592.36 | 3.32 | 3.31 | -0.17 | -2.78 |
| 6,852.00 | 77.26 | 265.62 | 6,549.17 | 348.17 | -626.02 | 636.79 | 5.25 | 4.91 | -1.91 | -20.82 |
| 6,902.00 | 80.05 | 266.18 | 6,559.00 | 344.67 | -674.91 | 685.55 | 5.68 | 5.58 | 1.12 | 11.18 |
| 7" Casing @ 6902' MD, 6559' TVD | | | | | | | | | | |
| 7,039.00 | 87.69 | 267.67 | 6,573.63 | 337.38 | -810.83 | 821.16 | 5.68 | 5.58 | 1.09 | 11.07 |
| 7,132.00 | 87.57 | 267.84 | 6,577.47 | 333.74 | -903.68 | 913.85 | 0.22 | -0.13 | 0.18 | 125.24 |
| 7,225.00 | 89.82 | 268.09 | 6,579.59 | 330.44 | -996.59 | 1,006.61 | 2.43 | 2.42 | 0.27 | 6.34 |
| 7,318.00 | 89.26 | 266.94 | 6,580.34 | 326.41 | -1,089.50 | 1,099.34 | 1.38 | -0.60 | -1.24 | -115.97 |
| 7,412.00 | 90.06 | 267.33 | 6,580.89 | 321.71 | -1,183.38 | 1,193.02 | 0.95 | 0.85 | 0.41 | 25.99 |
| 7,505.00 | 89.60 | 266.58 | 6,581.17 | 316.77 | -1,276.24 | 1,285.68 | 0.95 | -0.49 | -0.81 | -121.52 |
| 7,598.00 | 89.75 | 266.31 | 6,581.70 | 311.00 | -1,369.06 | 1,378.27 | 0.33 | 0.16 | -0.29 | -60.95 |
| 7,693.00 | 90.52 | 266.53 | 6,581.47 | 305.07 | -1,463.88 | 1,472.85 | 0.84 | 0.81 | 0.23 | 15.95 |
| 7,788.00 | 90.55 | 266.15 | 6,580.59 | 299.01 | -1,558.68 | 1,567.41 | 0.40 | 0.03 | -0.40 | -85.48 |
| 7,882.00 | 90.28 | 267.20 | 6,579.90 | 293.55 | -1,652.52 | 1,661.03 | 1.15 | -0.29 | 1.12 | 104.42 |
| 7,977.00 | 90.65 | 269.29 | 6,579.13 | 290.64 | -1,747.46 | 1,755.83 | 2.23 | 0.39 | 2.20 | 79.95 |
| 8,072.00 | 91.02 | 269.35 | 6,577.75 | 289.52 | -1,842.45 | 1,850.73 | 0.39 | 0.39 | 0.06 | 9.21 |
| 8,167.00 | 90.40 | 269.42 | 6,576.57 | 288.50 | -1,937.43 | 1,945.64 | 0.66 | -0.65 | 0.07 | 173.56 |
| 8,262.00 | 89.85 | 268.52 | 6,576.36 | 286.79 | -2,032.42 | 2,040.52 | 1.11 | -0.58 | -0.95 | -121.43 |
| 8,356.00 | 90.59 | 268.40 | 6,576.00 | 284.26 | -2,126.38 | 2,134.36 | 0.80 | 0.79 | -0.13 | -9.21 |
| 8,451.00 | 91.26 | 268.50 | 6,574.47 | 281.69 | -2,221.33 | 2,229.18 | 0.71 | 0.71 | 0.11 | 8.49 |
| 8,546.00 | 90.52 | 268.99 | 6,572.99 | 279.61 | -2,316.30 | 2,324.03 | 0.93 | -0.78 | 0.52 | 146.49 |
| 8,641.00 | 90.99 | 268.93 | 6,571.74 | 277.89 | -2,411.27 | 2,418.90 | 0.50 | 0.49 | -0.06 | -7.27 |
| 8,736.00 | 89.14 | 269.46 | 6,571.64 | 276.55 | -2,506.26 | 2,513.80 | 2.03 | -1.95 | 0.56 | 164.01 |
| 8,831.00 | 89.48 | 269.28 | 6,572.78 | 275.51 | -2,601.25 | 2,608.70 | 0.40 | 0.36 | -0.19 | -27.90 |
| 8,925.00 | 90.74 | 269.40 | 6,572.60 | 274.43 | -2,695.24 | 2,702.61 | 1.35 | 1.34 | 0.13 | 5.44 |
| 9,020.00 | 88.80 | 269.46 | 6,572.98 | 273.48 | -2,790.23 | 2,797.52 | 2.04 | -2.04 | 0.06 | 178.23 |
| 9,115.00 | 88.28 | 269.16 | 6,575.40 | 272.34 | -2,885.19 | 2,892.40 | 0.63 | -0.55 | -0.32 | -150.03 |
| 9,210.00 | 88.61 | 269.09 | 6,577.98 | 270.89 | -2,980.14 | 2,987.26 | 0.36 | 0.35 | -0.07 | -11.97 |
| 9,305.00 | 89.41 | 269.22 | 6,579.62 | 269.49 | -3,075.12 | 3,082.14 | 0.85 | 0.84 | 0.14 | 9.23 |
| 9,399.00 | 90.65 | 268.93 | 6,579.57 | 267.97 | -3,169.11 | 3,176.03 | 1.35 | 1.32 | -0.31 | -13.16 |
| 9,494.00 | 89.63 | 268.38 | 6,579.34 | 265.74 | -3,264.08 | 3,270.88 | 1.22 | -1.07 | -0.58 | -151.66 |
| 9,589.00 | 89.20 | 267.42 | 6,580.31 | 262.26 | -3,359.01 | 3,365.66 | 1.11 | -0.45 | -1.01 | -114.13 |
| 9,684.00 | 90.00 | 268.10 | 6,580.97 | 258.55 | -3,453.93 | 3,460.41 | 1.11 | 0.84 | 0.72 | 40.37 |
| 9,778.00 | 90.49 | 268.90 | 6,580.57 | 256.09 | -3,547.90 | 3,554.25 | 1.00 | 0.52 | 0.85 | 58.51 |
| 9,871.00 | 88.03 | 267.51 | 6,581.77 | 253.17 | -3,640.83 | 3,647.05 | 3.04 | -2.65 | -1.49 | -150.54 |
| 9,967.00 | 87.75 | 266.79 | 6,585.31 | 248.40 | -3,736.65 | 3,742.66 | 0.80 | -0.29 | -0.75 | -111.28 |
| 10,062.00 | 89.41 | 267.11 | 6,587.66 | 243.35 | -3,831.48 | 3,837.29 | 1.78 | 1.75 | 0.34 | 10.91 |
| 10,157.00 | 89.60 | 266.50 | 6,588.48 | 238.06 | -3,926.33 | 3,931.92 | 0.67 | 0.20 | -0.64 | -72.70 |
| 10,251.00 | 89.45 | 266.00 | 6,589.26 | 231.91 | -4,020.13 | 4,025.47 | 0.56 | -0.16 | -0.53 | -106.70 |
| 10,346.00 | 90.31 | 266.08 | 6,589.46 | 225.35 | -4,114.90 | 4,119.99 | 0.91 | 0.91 | 0.08 | 5.31 |
| 10,441.00 | 90.25 | 268.22 | 6,588.99 | 220.63 | -4,209.77 | 4,214.66 | 2.25 | -0.06 | 2.25 | 91.60 |
| 10,536.00 | 89.97 | 268.91 | 6,588.81 | 218.25 | -4,304.74 | 4,309.51 | 0.78 | -0.29 | 0.73 | 112.09 |
| 10,631.00 | 89.78 | 268.99 | 6,589.02 | 216.51 | -4,399.73 | 4,404.39 | 0.22 | -0.20 | 0.08 | 157.17 |
| 10,726.00 | 89.54 | 268.77 | 6,589.58 | 214.65 | -4,494.71 | 4,499.26 | 0.34 | -0.25 | -0.23 | -137.49 |
| 10,821.00 | 89.51 | 269.23 | 6,590.37 | 212.99 | -4,589.69 | 4,594.14 | 0.49 | -0.03 | 0.48 | 93.73 |
| 10,916.00 | 89.75 | 271.00 | 6,590.98 | 213.18 | -4,684.68 | 4,689.10 | 1.88 | 0.25 | 1.86 | 82.28 |
| 11,010.00 | 89.69 | 271.76 | 6,591.44 | 215.44 | -4,778.65 | 4,783.09 | 0.81 | -0.06 | 0.81 | 94.52 |
| 11,105.00 | 89.91 | 272.99 | 6,591.78 | 219.38 | -4,873.57 | 4,878.08 | 1.32 | 0.23 | 1.29 | 79.86 |

Design Report for Wells Ranch AE30-62HNC - Final Surveys

| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100usft) | Build Rate (°/100usft) | Turn Rate (°/100usft) | Toolface Azimuth (°) |
|---|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|----------------------|
| 11,199.00 | 89.32 | 273.21 | 6,592.41 | 224.46 | -4,967.43 | 4,972.06 | 0.67 | -0.63 | 0.23 | 159.55 |
| 11,294.00 | 89.51 | 271.31 | 6,593.38 | 228.21 | -5,062.35 | 5,067.05 | 2.01 | 0.20 | -2.00 | -84.30 |
| 11,389.00 | 89.54 | 270.94 | 6,594.16 | 230.08 | -5,157.32 | 5,162.04 | 0.39 | 0.03 | -0.39 | -85.37 |
| 11,483.00 | 90.18 | 268.71 | 6,594.39 | 229.79 | -5,251.32 | 5,255.97 | 2.47 | 0.68 | -2.37 | -73.99 |
| 11,578.00 | 90.40 | 269.58 | 6,593.91 | 228.37 | -5,346.30 | 5,350.87 | 0.94 | 0.23 | 0.92 | 75.81 |
| 11,673.00 | 89.57 | 268.21 | 6,593.94 | 226.54 | -5,441.28 | 5,445.74 | 1.69 | -0.87 | -1.44 | -121.21 |
| 11,769.00 | 89.97 | 267.08 | 6,594.32 | 222.59 | -5,537.20 | 5,541.48 | 1.25 | 0.42 | -1.18 | -70.51 |
| 11,862.00 | 89.38 | 266.41 | 6,594.85 | 217.31 | -5,630.05 | 5,634.11 | 0.96 | -0.63 | -0.72 | -131.37 |
| 11,961.00 | 90.92 | 266.96 | 6,594.59 | 211.59 | -5,728.88 | 5,732.71 | 1.65 | 1.56 | 0.56 | 19.65 |
| Final MWD Survey @ 11961.00ft | | | | | | | | | | |
| 12,026.00 | 90.92 | 266.96 | 6,593.55 | 208.14 | -5,793.78 | 5,797.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| Straight Line Proj @ 12026' MD, 6593.55' TVD - Wells Ranch AE30-62HNC_BHL | | | | | | | | | | |

Design Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
|-----------------------|-----------------------|-------------------|--------------|--|
| | | +N/-S (usft) | +E/-W (usft) | |
| 613.00 | 612.99 | 1.79 | -2.98 | Tie-On to Surface Gyros @ 613.00ft |
| 803.00 | 802.98 | 1.92 | -4.84 | First MWD Survey @ 803.00ft |
| 11,961.00 | 6,594.59 | 211.59 | -5,728.88 | Final MWD Survey @ 11961.00ft |
| 12,026.00 | 6,593.55 | 208.14 | -5,793.78 | Straight Line Proj @ 12026' MD, 6593.55' TVD |

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin | | Start TVD (usft) |
|------------|----------------------------|-------------|-------------|--------------|--------------|------------------|
| | | | | +N/-S (usft) | +E/-W (usft) | |
| Target | Wells Ranch AE30-62HNC_BHL | 271.83 | Slot | 0.00 | 0.00 | 0.00 |

Survey tool program

| From (usft) | To (usft) | Survey/Plan | Survey Tool |
|-------------|-----------|----------------------------|----------------|
| 370.00 | 613.00 | Surface Gyros | Flexi-Shot |
| 803.00 | 6,852.00 | MWD Surveys - Intermediate | MWD+IFR1+MS_WY |
| 7,039.00 | 11,961.00 | MWD Surveys - Production | MWD+IFR1+MS_WY |

Casing Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
|-----------------------|-----------------------|---------------------------------|---------------------|-------------------|
| 6,902.00 | 6,559.00 | 7" Casing @ 6902' MD, 6559' TVD | 7 | 8-3/4 |
| 631.00 | 630.98 | 9 5/8" | 9-5/8 | 12-3/4 |

Design Report for Wells Ranch AE30-62HNC - Final Surveys

Targets associated with this wellbore

| Target Name | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Shape |
|------------------------------|---------------|-----------------|-----------------|---------|
| Wells Ranch AE30-62HNC_460 1 | 0.00 | 0.00 | 0.00 | Polygon |
| Wells Ranch AE30-62HNC_SHL | 0.00 | 0.00 | 0.00 | Point |
| Wells Ranch AE30-62HNC_460 2 | 0.00 | 0.00 | 0.00 | Polygon |
| Wells Ranch AE30-62HNC_SL | 0.00 | 0.00 | 0.00 | Polygon |
| Wells Ranch AE30-62HNC_BHL | 6,600.47 | 184.63 | -5,794.44 | Point |

Directional Difficulty Index

| | | | |
|-------------------------------------|----------------|-------------------------------|-------------------------------------|
| Average Dogleg over Survey: | 1.56 °/100usft | Maximum Dogleg over Survey: | 15.53 °/100usft at 6,568.00 usft |
| Net Tortousity applicable to Plans: | 0.67 °/100usft | Directional Difficulty Index: | 6.321 |

Audit Info

North Reference Sheet for Sec. 29-T6N-R62W (Wells Ranch AE32-30-A Pad) - Wells Ranch AE30-62HNC - Plan D

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 @ 4772.00usft (H&P 343). Northing and Easting are relative to Wells Ranch AE30-62HNC

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 -105.50°, Longitude Origin:0.000000°, Latitude Origin:40.783333°

False Easting: 3,000,000.00usft, False Northing: 1,000,000.00usft, Scale Reduction: 0.99996295

Grid Coordinates of Well: 1,409,283.40 usft N, 3,318,291.01 usft E

Geographical Coordinates of Well: 40° 27' 04.50" N, 104° 21' 22.57" W

Grid Convergence at Surface is: 0.74°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,026.00usft

the Bottom Hole Displacement is 5,797.52usft in the Direction of 272.06° (Grid).

Magnetic Convergence at surface is: -7.55° (24 May 2014, , BGGM2013)

