

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 8 T2N-R66W

Kunzman 4N-5HZ

Plan B Rev 0

Plan: Plan B Rev 0 Permit

Sperry Drilling Services Proposal Report

20 November, 2012

Well Coordinates: 1,301,807.09 N, 3,194,473.06 E (40° 09' 35.14" N, 104° 48' 15.11" W)

Ground Level: 4,858.00 ft

Local Coordinate Origin:

Centered on Well Kunzman 4N-5HZ

Viewing Datum:

RKB=17 @ 4875.00ft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 43I

HALLIBURTON

Project: Weld County, CO (NAD 83)
 Site: Sec. 8 T2N-R66W
 Well: Kunzman 4N-5HZ
 Wellbore: Plan B Rev 0
 Design: Plan B Rev 0 Permit

Anadarko Petroleum Corp.

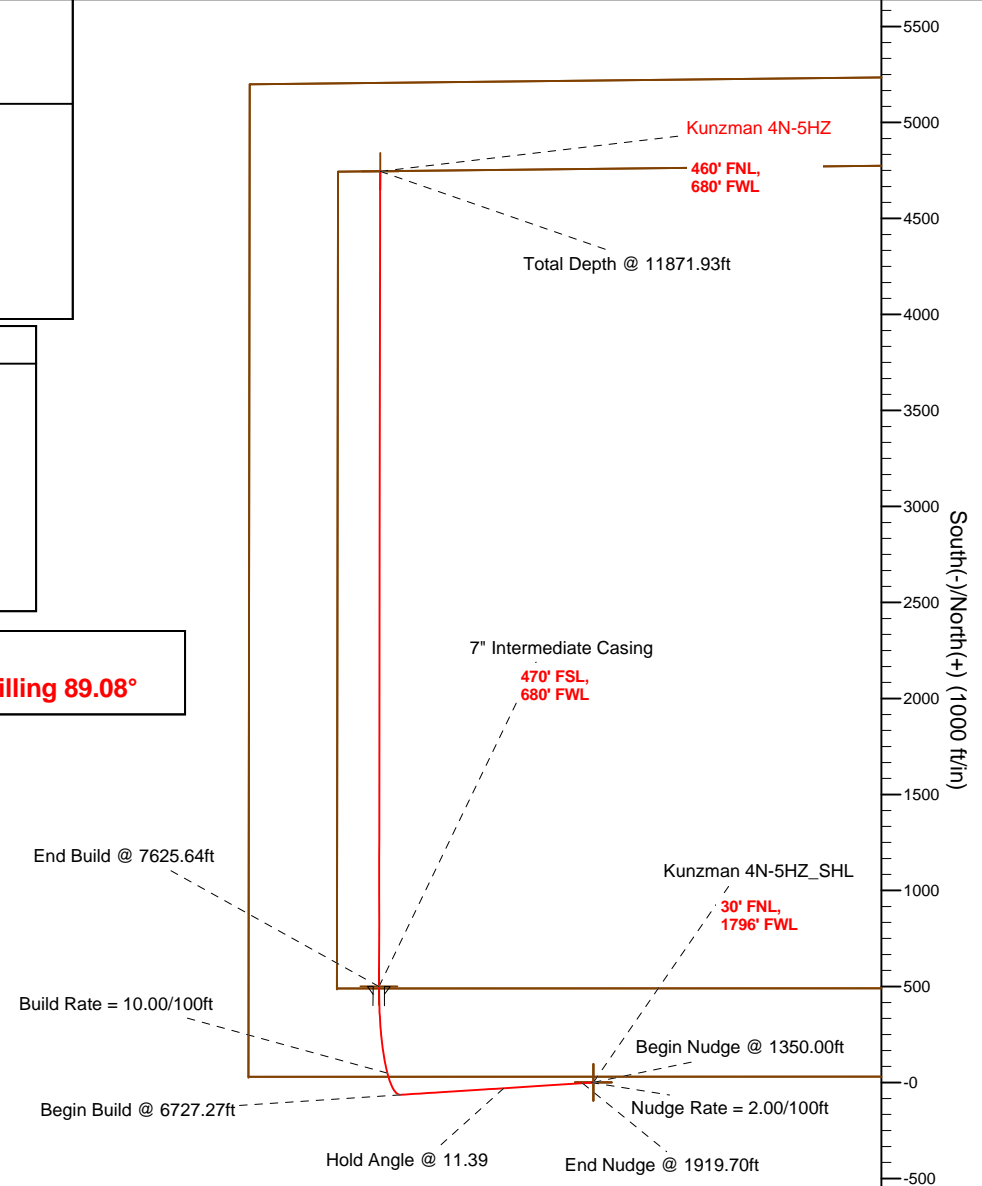
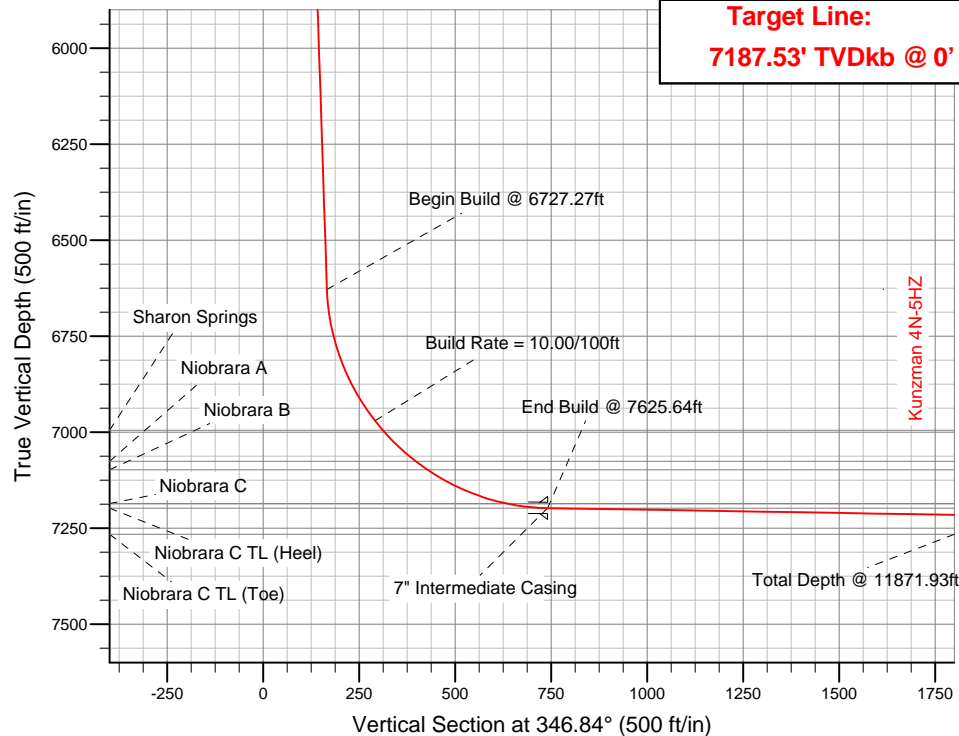
HALLIBURTON
 Sperry Drilling

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | DLeg | TFace | VSec | Target |
|-----|----------|-------|--------|---------|---------|----------|-------|--------|---------|--------------------|
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 2 | 1350.00 | 0.00 | 0.00 | 1350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 1919.70 | 11.39 | 266.35 | 1915.95 | -3.60 | -56.34 | 2.00 | 266.35 | 9.33 | |
| 4 | 6727.27 | 11.39 | 266.35 | 6628.78 | -64.07 | -1004.17 | 0.00 | 0.00 | 166.31 | |
| 5 | 7625.64 | 89.08 | 0.08 | 7198.00 | 500.00 | -1116.00 | 10.00 | 93.84 | 741.03 | Kunzman 4N-5HZ_CP |
| 6 | 11871.93 | 89.08 | 0.08 | 7266.00 | 4745.73 | -1110.00 | 0.00 | 0.00 | 4873.81 | Kunzman 4N-5HZ_BHL |

WELLBORE TARGET DETAILS (LAT/LONG)

| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | Shape |
|--------------------|---------|---------|----------|-----------|-------------|---------|
| Kunzman 4N-5HZ_SB | 0.00 | 0.00 | 0.00 | 40.159761 | -104.804197 | Polygon |
| Kunzman 4N-5HZ_Sec | 0.00 | 0.00 | 0.00 | 40.159761 | -104.804197 | Polygon |
| Kunzman 4N-5HZ_SHL | 0.00 | 0.00 | 0.00 | 40.159761 | -104.804197 | Point |
| Kunzman 4N-5HZ_CP | 7198.00 | 500.00 | -1116.00 | 40.161133 | -104.808190 | Point |
| Kunzman 4N-5HZ_BHL | 7266.00 | 4745.73 | -1110.00 | 40.172788 | -104.808169 | Point |



WELL DETAILS: Kunzman 4N-5HZ

Ground Level: 4858.00 RKB=17 @ 4875.00ft (Drilling Rig)

Plan: Plan B Rev 0 Permit (Kunzman 4N-5HZ/Plan B Rev 0)

Created By: Fred Hartmann Date: 11/19/2012
 Reviewed: _____ Date: _____

Plan Report for Kunzman 4N-5HZ - Plan B Rev 0 Permit

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | Toolface Azimuth (°) |
|--|--------------------|----------------|---------------------------|---------------|---------------|-----------------------------|-----------------------------|----------------------------|---------------------------|----------------------------|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Kunzman 4N-5HZ_SB - Kunzman 4N-5HZ_SHL - Kunzman 4N-5HZ_Sec | | | | | | | | | | |
| 100.00 | 0.00 | 0.00 | 100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 0.00 | 0.00 | 300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 400.00 | 0.00 | 0.00 | 400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 500.00 | 0.00 | 0.00 | 500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 600.00 | 0.00 | 0.00 | 600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 700.00 | 0.00 | 0.00 | 700.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 707.00 | 0.00 | 0.00 | 707.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fox Hills | | | | | | | | | | |
| 800.00 | 0.00 | 0.00 | 800.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 0.00 | 0.00 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,100.00 | 0.00 | 0.00 | 1,100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 0.00 | 0.00 | 1,200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 0.00 | 0.00 | 1,300.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,350.00 | 0.00 | 0.00 | 1,350.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Begin Nudge @ 1350.00ft | | | | | | | | | | |
| 1,400.00 | 1.00 | 266.35 | 1,400.00 | -0.03 | -0.44 | 0.07 | 2.00 | 2.00 | 0.00 | 266.35 |
| 1,500.00 | 3.00 | 266.35 | 1,499.93 | -0.25 | -3.92 | 0.65 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,600.00 | 5.00 | 266.35 | 1,599.68 | -0.69 | -10.88 | 1.80 | 2.00 | 2.00 | 0.00 | 0.00 |
| Nudge Rate = 2.00/100ft | | | | | | | | | | |
| 1,700.00 | 7.00 | 266.35 | 1,699.13 | -1.36 | -21.31 | 3.53 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,800.00 | 9.00 | 266.35 | 1,798.15 | -2.25 | -35.20 | 5.83 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,900.00 | 11.00 | 266.35 | 1,896.63 | -3.35 | -52.53 | 8.70 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,919.70 | 11.39 | 266.35 | 1,915.95 | -3.60 | -56.35 | 9.33 | 2.00 | 2.00 | 0.00 | 0.00 |
| End Nudge @ 1919.70ft | | | | | | | | | | |
| 2,000.00 | 11.39 | 266.35 | 1,994.67 | -4.61 | -72.18 | 11.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 11.39 | 266.35 | 2,092.70 | -5.86 | -91.89 | 15.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 11.39 | 266.35 | 2,190.73 | -7.12 | -111.61 | 18.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 11.39 | 266.35 | 2,288.76 | -8.38 | -131.32 | 21.75 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 11.39 | 266.35 | 2,386.79 | -9.64 | -151.04 | 25.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 11.39 | 266.35 | 2,484.82 | -10.89 | -170.75 | 28.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 11.39 | 266.35 | 2,582.85 | -12.15 | -190.47 | 31.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 11.39 | 266.35 | 2,680.87 | -13.41 | -210.18 | 34.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 11.39 | 266.35 | 2,778.90 | -14.67 | -229.90 | 38.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 11.39 | 266.35 | 2,876.93 | -15.93 | -249.61 | 41.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 11.39 | 266.35 | 2,974.96 | -17.18 | -269.33 | 44.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 11.39 | 266.35 | 3,072.99 | -18.44 | -289.04 | 47.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 11.39 | 266.35 | 3,171.02 | -19.70 | -308.76 | 51.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 11.39 | 266.35 | 3,269.05 | -20.96 | -328.47 | 54.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 11.39 | 266.35 | 3,367.08 | -22.22 | -348.19 | 57.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 11.39 | 266.35 | 3,465.11 | -23.47 | -367.90 | 60.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 11.39 | 266.35 | 3,563.14 | -24.73 | -387.62 | 64.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 11.39 | 266.35 | 3,661.17 | -25.99 | -407.34 | 67.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 11.39 | 266.35 | 3,759.20 | -27.25 | -427.05 | 70.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 11.39 | 266.35 | 3,857.23 | -28.51 | -446.77 | 73.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,968.12 | 11.39 | 266.35 | 3,924.00 | -29.36 | -460.19 | 76.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| Parkman | | | | | | | | | | |
| 4,000.00 | 11.39 | 266.35 | 3,955.25 | -29.76 | -466.48 | 77.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hold Angle @ 11.39 | | | | | | | | | | |
| 4,100.00 | 11.39 | 266.35 | 4,053.28 | -31.02 | -486.20 | 80.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 11.39 | 266.35 | 4,151.31 | -32.28 | -505.91 | 83.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 11.39 | 266.35 | 4,249.34 | -33.54 | -525.63 | 87.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,376.16 | 11.39 | 266.35 | 4,324.00 | -34.50 | -540.64 | 89.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sussex | | | | | | | | | | |
| 4,400.00 | 11.39 | 266.35 | 4,347.37 | -34.80 | -545.34 | 90.32 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Report for Kunzman 4N-5HZ - Plan B Rev 0 Permit

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N-S (ft) | +E-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | Toolface Azimuth (°) |
|--|-----------------|-------------|---------------------|-----------|-----------|-----------------------|-----------------------|----------------------|---------------------|----------------------|
| 4,500.00 | 11.39 | 266.35 | 4,445.40 | -36.05 | -565.06 | 93.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 11.39 | 266.35 | 4,543.43 | -37.31 | -584.77 | 96.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 11.39 | 266.35 | 4,641.46 | -38.57 | -604.49 | 100.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 11.39 | 266.35 | 4,739.49 | -39.83 | -624.20 | 103.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 11.39 | 266.35 | 4,837.52 | -41.09 | -643.92 | 106.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 11.39 | 266.35 | 4,935.55 | -42.34 | -663.63 | 109.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 11.39 | 266.35 | 5,033.58 | -43.60 | -683.35 | 113.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 11.39 | 266.35 | 5,131.60 | -44.86 | -703.06 | 116.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 11.39 | 266.35 | 5,229.63 | -46.12 | -722.78 | 119.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 11.39 | 266.35 | 5,327.66 | -47.37 | -742.49 | 122.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 11.39 | 266.35 | 5,425.69 | -48.63 | -762.21 | 126.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 11.39 | 266.35 | 5,523.72 | -49.89 | -781.92 | 129.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 11.39 | 266.35 | 5,621.75 | -51.15 | -801.64 | 132.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 11.39 | 266.35 | 5,719.78 | -52.41 | -821.35 | 136.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 11.39 | 266.35 | 5,817.81 | -53.66 | -841.07 | 139.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 11.39 | 266.35 | 5,915.84 | -54.92 | -860.78 | 142.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 11.39 | 266.35 | 6,013.87 | -56.18 | -880.50 | 145.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 11.39 | 266.35 | 6,111.90 | -57.44 | -900.22 | 149.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 11.39 | 266.35 | 6,209.93 | -58.70 | -919.93 | 152.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 11.39 | 266.35 | 6,307.96 | -59.95 | -939.65 | 155.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 11.39 | 266.35 | 6,405.98 | -61.21 | -959.36 | 158.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 11.39 | 266.35 | 6,504.01 | -62.47 | -979.08 | 162.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 11.39 | 266.35 | 6,602.04 | -63.73 | -998.79 | 165.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,727.27 | 11.39 | 266.35 | 6,628.78 | -64.07 | -1,004.17 | 166.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| Begin Build @ 6727.27ft | | | | | | | | | | |
| 6,800.00 | 13.07 | 300.29 | 6,699.94 | -60.37 | -1,018.46 | 173.16 | 10.00 | 2.31 | 46.67 | 93.84 |
| 6,900.00 | 19.95 | 326.62 | 6,795.89 | -40.37 | -1,037.66 | 197.01 | 10.00 | 6.87 | 26.33 | 60.62 |
| 7,000.00 | 28.67 | 338.69 | 6,886.99 | -3.69 | -1,055.80 | 236.87 | 10.00 | 8.73 | 12.07 | 35.30 |
| 7,100.00 | 37.99 | 345.35 | 6,970.48 | 48.57 | -1,072.35 | 291.52 | 10.00 | 9.32 | 6.66 | 24.26 |
| Build Rate = 10.00/100ft | | | | | | | | | | |
| 7,131.79 | 41.01 | 346.90 | 6,995.00 | 68.20 | -1,077.19 | 311.74 | 10.00 | 9.51 | 4.88 | 18.68 |
| Sharon Springs | | | | | | | | | | |
| 7,200.00 | 47.56 | 349.67 | 7,043.81 | 114.82 | -1,086.78 | 359.31 | 10.00 | 9.59 | 4.06 | 17.48 |
| 7,250.07 | 52.39 | 351.35 | 7,076.00 | 152.62 | -1,093.08 | 397.56 | 9.99 | 9.65 | 3.36 | 15.49 |
| Niobrara A | | | | | | | | | | |
| 7,287.70 | 56.05 | 352.48 | 7,098.00 | 182.85 | -1,097.36 | 427.96 | 10.02 | 9.72 | 3.00 | 14.41 |
| Niobrara B | | | | | | | | | | |
| 7,300.00 | 57.24 | 352.83 | 7,104.76 | 193.04 | -1,098.68 | 438.18 | 10.00 | 9.72 | 2.83 | 13.75 |
| 7,400.00 | 66.99 | 355.37 | 7,151.48 | 280.85 | -1,107.66 | 525.73 | 10.00 | 9.75 | 2.53 | 13.56 |
| 7,500.00 | 76.77 | 357.56 | 7,182.55 | 375.59 | -1,113.47 | 619.31 | 10.00 | 9.78 | 2.19 | 12.37 |
| 7,515.99 | 78.34 | 357.89 | 7,186.00 | 391.19 | -1,114.09 | 634.64 | 10.00 | 9.79 | 2.07 | 11.68 |
| Niobrara C | | | | | | | | | | |
| 7,600.00 | 86.57 | 359.57 | 7,197.03 | 474.38 | -1,115.92 | 716.06 | 10.00 | 9.80 | 2.01 | 11.61 |
| 7,625.64 | 89.08 | 0.08 | 7,198.00 | 500.00 | -1,116.00 | 741.03 | 10.00 | 9.80 | 1.97 | 11.39 |
| End Build @ 7625.64ft - Niobrara C TL (Heel) - 7" Intermediate Casing - Kunzman 4N-5HZ_CP | | | | | | | | | | |
| 7,700.00 | 89.08 | 0.08 | 7,199.19 | 574.35 | -1,115.89 | 813.39 | 0.00 | 0.00 | 0.00 | 11.37 |
| 7,800.00 | 89.08 | 0.08 | 7,200.79 | 674.33 | -1,115.75 | 910.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 89.08 | 0.08 | 7,202.39 | 774.32 | -1,115.61 | 1,008.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 89.08 | 0.08 | 7,203.99 | 874.31 | -1,115.47 | 1,105.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 89.08 | 0.08 | 7,205.60 | 974.29 | -1,115.33 | 1,202.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 89.08 | 0.08 | 7,207.20 | 1,074.28 | -1,115.19 | 1,300.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 89.08 | 0.08 | 7,208.80 | 1,174.27 | -1,115.05 | 1,397.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 89.08 | 0.08 | 7,210.40 | 1,274.26 | -1,114.91 | 1,494.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 89.08 | 0.08 | 7,212.00 | 1,374.24 | -1,114.76 | 1,592.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 89.08 | 0.08 | 7,213.60 | 1,474.23 | -1,114.62 | 1,689.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 89.08 | 0.08 | 7,215.20 | 1,574.22 | -1,114.48 | 1,786.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 89.08 | 0.08 | 7,216.81 | 1,674.20 | -1,114.34 | 1,883.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 89.08 | 0.08 | 7,218.41 | 1,774.19 | -1,114.20 | 1,981.32 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Report for Kunzman 4N-5HZ - Plan B Rev 0 Permit

| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | Toolface Azimuth (°) |
|--|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|----------------------|
| 9,000.00 | 89.08 | 0.08 | 7,220.01 | 1,874.18 | -1,114.06 | 2,078.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 89.08 | 0.08 | 7,221.61 | 1,974.16 | -1,113.92 | 2,175.98 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 89.08 | 0.08 | 7,223.21 | 2,074.15 | -1,113.77 | 2,273.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 89.08 | 0.08 | 7,224.81 | 2,174.14 | -1,113.63 | 2,370.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 89.08 | 0.08 | 7,226.41 | 2,274.13 | -1,113.49 | 2,467.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 89.08 | 0.08 | 7,228.02 | 2,374.11 | -1,113.35 | 2,565.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 89.08 | 0.08 | 7,229.62 | 2,474.10 | -1,113.21 | 2,662.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 89.08 | 0.08 | 7,231.22 | 2,574.09 | -1,113.07 | 2,759.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 89.08 | 0.08 | 7,232.82 | 2,674.07 | -1,112.93 | 2,857.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 89.08 | 0.08 | 7,234.42 | 2,774.06 | -1,112.78 | 2,954.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 89.08 | 0.08 | 7,236.02 | 2,874.05 | -1,112.64 | 3,051.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 89.08 | 0.08 | 7,237.62 | 2,974.04 | -1,112.50 | 3,149.25 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 89.08 | 0.08 | 7,239.23 | 3,074.02 | -1,112.36 | 3,246.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 89.08 | 0.08 | 7,240.83 | 3,174.01 | -1,112.22 | 3,343.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 89.08 | 0.08 | 7,242.43 | 3,274.00 | -1,112.08 | 3,441.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 89.08 | 0.08 | 7,244.03 | 3,373.98 | -1,111.94 | 3,538.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 89.08 | 0.08 | 7,245.63 | 3,473.97 | -1,111.80 | 3,635.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 89.08 | 0.08 | 7,247.23 | 3,573.96 | -1,111.65 | 3,733.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 89.08 | 0.08 | 7,248.83 | 3,673.95 | -1,111.51 | 3,830.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 89.08 | 0.08 | 7,250.44 | 3,773.93 | -1,111.37 | 3,927.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 89.08 | 0.08 | 7,252.04 | 3,873.92 | -1,111.23 | 4,025.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 89.08 | 0.08 | 7,253.64 | 3,973.91 | -1,111.09 | 4,122.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 89.08 | 0.08 | 7,255.24 | 4,073.89 | -1,110.95 | 4,219.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 89.08 | 0.08 | 7,256.84 | 4,173.88 | -1,110.81 | 4,317.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 89.08 | 0.08 | 7,258.44 | 4,273.87 | -1,110.66 | 4,414.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 89.08 | 0.08 | 7,260.04 | 4,373.85 | -1,110.52 | 4,511.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 89.08 | 0.08 | 7,261.65 | 4,473.84 | -1,110.38 | 4,609.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 89.08 | 0.08 | 7,263.25 | 4,573.83 | -1,110.24 | 4,706.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 89.08 | 0.08 | 7,264.85 | 4,673.82 | -1,110.10 | 4,803.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,871.93 | 89.08 | 0.08 | 7,266.00 | 4,745.73 | -1,110.00 | 4,873.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| Niobrara C TL (Toe) - Kunzman 4N-5HZ_BHL | | | | | | | | | | |

Plan Annotations

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment |
|---------------------|---------------------|-------------------|------------|--------------------------|
| | | +N/-S (ft) | +E/-W (ft) | |
| 1,350.00 | 1,350.00 | 0.00 | 0.00 | Begin Nudge @ 1350.00ft |
| 1,600.00 | 1,599.68 | -0.69 | -10.88 | Nudge Rate = 2.00/100ft |
| 1,919.70 | 1,915.95 | -3.60 | -56.35 | End Nudge @ 1919.70ft |
| 4,000.00 | 3,955.25 | -29.76 | -466.48 | Hold Angle @ 11.39 |
| 6,727.27 | 6,628.78 | -64.07 | -1,004.17 | Begin Build @ 6727.27ft |
| 7,100.00 | 6,970.48 | 48.57 | -1,072.35 | Build Rate = 10.00/100ft |
| 7,625.64 | 7,198.00 | 500.00 | -1,116.00 | End Build @ 7625.64ft |
| 11,871.93 | 7,266.00 | 4,745.74 | -1,110.00 | Total Depth @ 11871.93ft |

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin +N/-S (ft) | Origin +E/-W (ft) | Start TVD (ft) |
|------------|--------------------|-------------|-------------|-------------------|-------------------|----------------|
| Target | Kunzman 4N-5HZ_BHL | 346.84 | Slot | 0.00 | 0.00 | 0.00 |

Survey tool program

| From (ft) | To (ft) | Survey/Plan | Survey Tool |
|-----------|-----------|---------------------|-------------|
| 0.00 | 11,871.93 | Plan B Rev 0 Permit | MWD |

Plan Report for Kunzman 4N-5HZ - Plan B Rev 0 Permit**Casing Details**

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") |
|---------------------|---------------------|------------------------|---------------------|-------------------|
| 7,625.64 | 7,198.00 | 7" Intermediate Casing | 7 | 8-3/4 |

Formation Details

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---------------------|---------------------|----------------------|-----------|---------|-------------------|
| 707.00 | 707.00 | Fox Hills | | 0.00 | |
| 3,968.12 | 3,924.00 | Parkman | | 0.00 | |
| 4,376.16 | 4,324.00 | Sussex | | 0.00 | |
| 7,131.79 | 6,995.00 | Sharon Springs | | 0.00 | |
| 7,250.07 | 7,076.00 | Niobrara A | | 0.00 | |
| 7,287.70 | 7,098.00 | Niobrara B | | 0.00 | |
| 7,515.99 | 7,186.00 | Niobrara C | | 0.00 | |
| 7,625.64 | 7,198.00 | Niobrara C TL (Heel) | | 0.00 | |
| 11,871.93 | 7,266.00 | Niobrara C TL (Toe) | | 0.00 | |

Targets associated with this wellbore

| Target Name | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Shape |
|--------------------|----------|------------|------------|---------|
| Kunzman 4N-5HZ_SHL | 0.00 | 0.00 | 0.00 | Point |
| Kunzman 4N-5HZ_CP | 7,198.00 | 500.00 | -1,116.00 | Point |
| Kunzman 4N-5HZ_SB | 0.00 | 0.00 | 0.00 | Polygon |
| Kunzman 4N-5HZ_Sec | 0.00 | 0.00 | 0.00 | Polygon |
| Kunzman 4N-5HZ_BHL | 7,266.00 | 4,745.73 | -1,110.00 | Point |

North Reference Sheet for Sec. 8 T2N-R66W - Kunzman 4N-5HZ - Plan B Rev 0

All data is in US Feet unless otherwise stated. Directions and Coordinates are relative to True North Reference.
 Vertical Depths are relative to RKB=17 @ 4875.00ft (Drilling Rig). Northing and Easting are relative to Kunzman 4N-5HZ
 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: 3,000,000.00ft, False Northing: 1,000,000.00ft, Scale Reduction: 0.99995810

Grid Coordinates of Well: 1,301,807.09 ft N, 3,194,473.06 ft E
 Geographical Coordinates of Well: 40° 09' 35.14" N, 104° 48' 15.11" W
 Grid Convergence at Surface is: 0.45°

Based upon Minimum Curvature type calculations, at a Measured Depth of 11,871.93ft
 the Bottom Hole Displacement is 4,873.81ft in the Direction of 346.84° (True).

Magnetic Convergence at surface is: -8.27° (20 November 2012, , BGGM2012)

