

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 34-T2N-R65W

Sparboe 8N-3HZ

Plan A Rev 0

Plan: Plan A Rev 0 Permit

Sperry Drilling Services

Proposal Report

01 August, 2012

Well Coordinates: 1,281,026.27 N, 3,239,692.34 E (40° 06' 05.87" N, 104° 38' 35.29" W)

Ground Level: 4,970.00 ft

Local Coordinate Origin:

Centered on Well Sparboe 8N-3HZ

Viewing Datum:

RKB=16ft @ 4986.00ft (Drilling Rig)

TVDs to System:

N

North Reference:

True

Unit System:

API - US Survey Feet - Custom

Geodetic Scale Factor Applied

Version: 2003.16 Build: 431

HALLIBURTON

Project: Weld County, CO (NAD 83)
Site: Sec. 34-T2N-R65W
Well: Sparboe 8N-3HZ
Wellbore: Plan A Rev 0
Design: Plan A Rev 0 Permit

Anadarko Petroleum Corp.

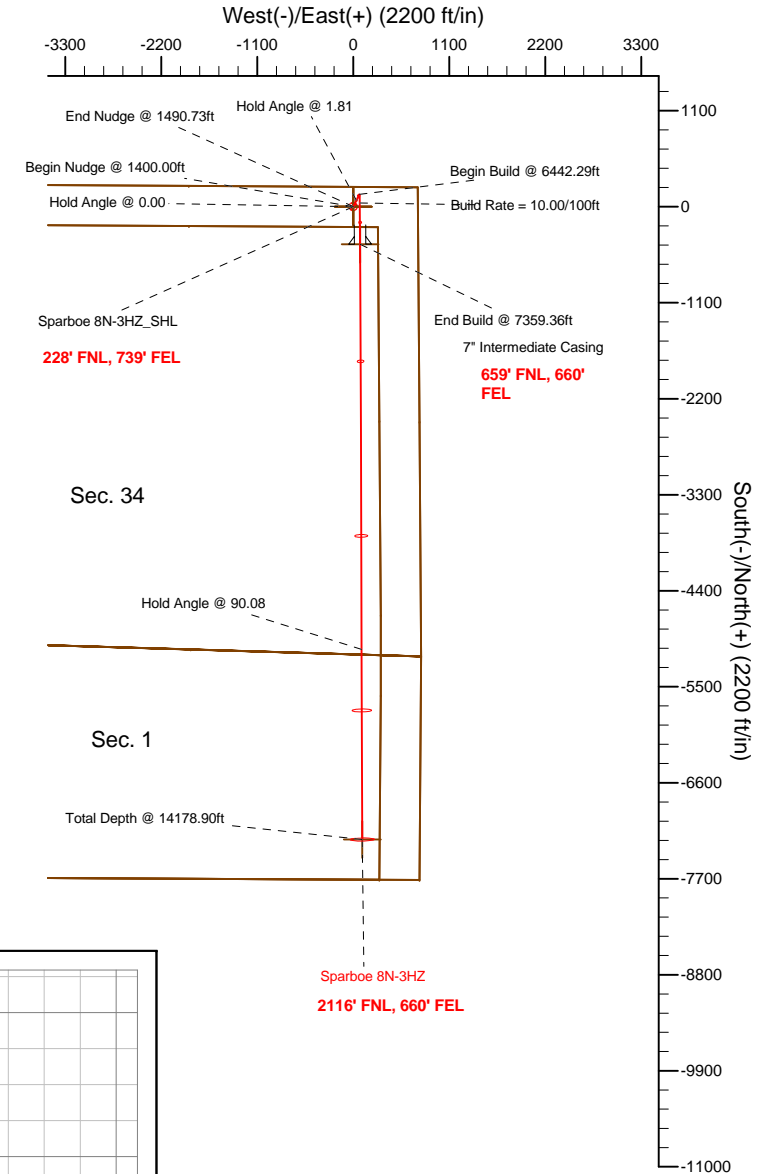
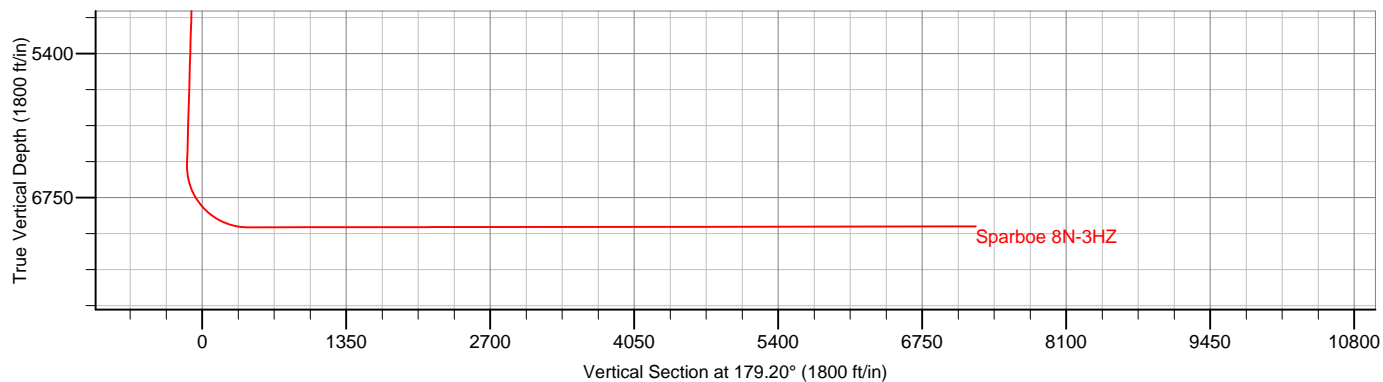
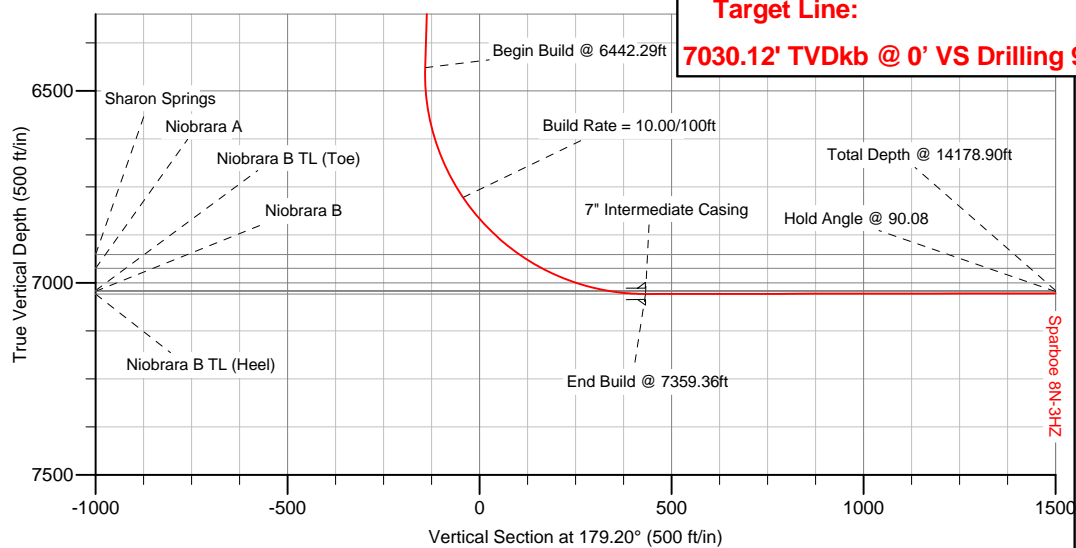
HALLIBURTON
Sperry Drilling

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 | 1400.00 | 0.00 | 0.00 | 1400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 1490.73 | 1.81 | 25.81 | 1490.72 | 1.29 | 0.63 | 2.00 | 25.81 | -1.28 | |
| 4 | 6442.29 | 1.81 | 25.81 | 6439.79 | 142.45 | 68.88 | 0.00 | 0.00 | -141.47 | |
| 5 | 7359.36 | 90.08 | 179.81 | 7029.00 | -431.00 | 79.00 | 10.00 | 153.99 | 432.07 | Sparboe 8N-3HZ_Casing Point |
| 6 | 14178.90 | 90.08 | 179.81 | 7020.00 | -7250.50 | 101.86 | 0.00 | 0.00 | 7251.22 | Sparboe 8N-3HZ_BHL |

WELLBORE TARGET DETAILS (LAT/LONG)

| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | Shape |
|-------------------------------|---------|----------|--------|-----------|-------------|---------|
| Sparboe 8N-3HZ_Sec 34/1 Lines | 0.00 | 0.00 | 0.00 | 40.101630 | -104.643135 | Polygon |
| Sparboe 8N-3HZ_Section Lines | 0.00 | 0.00 | 0.00 | 40.101630 | -104.643135 | Polygon |
| Sparboe 8N-3HZ_Setback Lines | 0.00 | 0.00 | 0.00 | 40.101630 | -104.643135 | Polygon |
| Sparboe 8N-3HZ_SHL | 0.00 | 0.00 | 0.00 | 40.101630 | -104.643135 | Point |
| Sparboe 8N-3HZ_BHL | 7020.00 | -7250.50 | 101.86 | 40.081727 | -104.642771 | Point |
| Sparboe 8N-3HZ_Casing Point | 7029.00 | -431.00 | 79.00 | 40.100447 | -104.642853 | Point |



WELL DETAILS: Sparboe 8N-3HZ

Ground Level: 4970.00 RKB=16ft @ 4986.00ft (Drilling Rig)

Plan: Plan A Rev 0 Permit (Sparboe 8N-3HZ/Plan A Rev 0)

Created By: Fred Hartmann Date: 07/23/2012
Reviewed: Date:

Plan Report for Sparboe 8N-3HZ - Plan A 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 |
| Sparboe 8N-3HZ_SHL - Sparboe 8N-3HZ_Sec 34/1 Lines - Sparboe 8N-3HZ_Section Lines - Sparboe 8N-3HZ_Setback Lines | | | | | | | | | | |
| 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 |
| Hold Angle @ 0.00 | | | | | | | | | | |
| 739.00 | 0.00 | 0.00 | 739.00 | 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 |
| 1,400.00 | 0.00 | 0.00 | 1,400.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Begin Nudge @ 1400.00ft | | | | | | | | | | |
| 1,490.73 | 1.81 | 25.81 | 1,490.71 | 1.29 | 0.63 | -1.28 | 2.00 | 2.00 | 0.00 | 25.81 |
| End Nudge @ 1490.73ft | | | | | | | | | | |
| 1,500.00 | 1.81 | 25.81 | 1,499.98 | 1.56 | 0.75 | -1.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 1.81 | 25.81 | 1,599.93 | 4.41 | 2.13 | -4.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 1.81 | 25.81 | 1,699.88 | 7.26 | 3.51 | -7.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 1.81 | 25.81 | 1,799.83 | 10.11 | 4.89 | -10.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 1.81 | 25.81 | 1,899.78 | 12.96 | 6.27 | -12.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 1.81 | 25.81 | 1,999.73 | 15.81 | 7.65 | -15.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 1.81 | 25.81 | 2,099.68 | 18.66 | 9.02 | -18.53 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 1.81 | 25.81 | 2,199.63 | 21.51 | 10.40 | -21.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 1.81 | 25.81 | 2,299.58 | 24.36 | 11.78 | -24.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 1.81 | 25.81 | 2,399.53 | 27.21 | 13.16 | -27.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 1.81 | 25.81 | 2,499.48 | 30.07 | 14.54 | -29.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 1.81 | 25.81 | 2,599.43 | 32.92 | 15.92 | -32.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 1.81 | 25.81 | 2,699.38 | 35.77 | 17.30 | -35.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 1.81 | 25.81 | 2,799.33 | 38.62 | 18.67 | -38.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 1.81 | 25.81 | 2,899.28 | 41.47 | 20.05 | -41.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 1.81 | 25.81 | 2,999.23 | 44.32 | 21.43 | -44.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 1.81 | 25.81 | 3,099.18 | 47.17 | 22.81 | -46.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 1.81 | 25.81 | 3,199.13 | 50.02 | 24.19 | -49.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 1.81 | 25.81 | 3,299.08 | 52.87 | 25.57 | -52.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 1.81 | 25.81 | 3,399.03 | 55.72 | 26.95 | -55.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 1.81 | 25.81 | 3,498.98 | 58.57 | 28.32 | -58.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 1.81 | 25.81 | 3,598.93 | 61.42 | 29.70 | -61.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 1.81 | 25.81 | 3,698.88 | 64.27 | 31.08 | -63.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 1.81 | 25.81 | 3,798.83 | 67.13 | 32.46 | -66.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 1.81 | 25.81 | 3,898.78 | 69.98 | 33.84 | -69.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 1.81 | 25.81 | 3,998.73 | 72.83 | 35.22 | -72.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hold Angle @ 1.81 | | | | | | | | | | |
| 4,100.00 | 1.81 | 25.81 | 4,098.68 | 75.68 | 36.60 | -75.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 1.81 | 25.81 | 4,198.63 | 78.53 | 37.97 | -77.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 1.81 | 25.81 | 4,298.58 | 81.38 | 39.35 | -80.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 1.81 | 25.81 | 4,398.53 | 84.23 | 40.73 | -83.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 1.81 | 25.81 | 4,498.48 | 87.08 | 42.11 | -86.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 1.81 | 25.81 | 4,598.43 | 89.93 | 43.49 | -89.31 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 1.81 | 25.81 | 4,698.38 | 92.78 | 44.87 | -92.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 1.81 | 25.81 | 4,798.33 | 95.63 | 46.24 | -94.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 1.81 | 25.81 | 4,898.28 | 98.48 | 47.62 | -97.81 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Report for Sparboe 8N-3HZ - Plan A 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 (°) |
|--|-----------------|-------------|---------------------|-----------|-----------|-----------------------|-----------------------|----------------------|---------------------|----------------------|
| 4,986.77 | 1.81 | 25.81 | 4,985.00 | 100.96 | 48.82 | -100.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sussex | | | | | | | | | | |
| 5,000.00 | 1.81 | 25.81 | 4,998.22 | 101.33 | 49.00 | -100.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 1.81 | 25.81 | 5,098.17 | 104.19 | 50.38 | -103.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 1.81 | 25.81 | 5,198.12 | 107.04 | 51.76 | -106.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 1.81 | 25.81 | 5,298.07 | 109.89 | 53.14 | -109.13 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 1.81 | 25.81 | 5,398.02 | 112.74 | 54.52 | -111.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 1.81 | 25.81 | 5,497.97 | 115.59 | 55.89 | -114.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 1.81 | 25.81 | 5,597.92 | 118.44 | 57.27 | -117.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 1.81 | 25.81 | 5,697.87 | 121.29 | 58.65 | -120.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 1.81 | 25.81 | 5,797.82 | 124.14 | 60.03 | -123.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 1.81 | 25.81 | 5,897.77 | 126.99 | 61.41 | -126.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 1.81 | 25.81 | 5,997.72 | 129.84 | 62.79 | -128.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 1.81 | 25.81 | 6,097.67 | 132.69 | 64.17 | -131.78 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 1.81 | 25.81 | 6,197.62 | 135.54 | 65.54 | -134.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 1.81 | 25.81 | 6,297.57 | 138.39 | 66.92 | -137.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 1.81 | 25.81 | 6,397.52 | 141.25 | 68.30 | -140.27 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,442.29 | 1.81 | 25.81 | 6,439.79 | 142.45 | 68.88 | -141.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| Begin Build @ 6442.29ft | | | | | | | | | | |
| 6,500.00 | 4.22 | 168.95 | 6,497.46 | 141.19 | 69.69 | -140.20 | 10.00 | 4.16 | 248.03 | 153.99 |
| 6,600.00 | 14.16 | 176.65 | 6,596.05 | 125.33 | 71.11 | -124.32 | 10.00 | 9.95 | 7.71 | 10.89 |
| 6,700.00 | 24.15 | 178.03 | 6,690.40 | 92.59 | 72.53 | -91.56 | 10.00 | 9.99 | 1.38 | 3.25 |
| 6,800.00 | 34.15 | 178.63 | 6,777.62 | 43.96 | 73.91 | -42.92 | 10.00 | 10.00 | 0.60 | 1.94 |
| Build Rate = 10.00/100ft | | | | | | | | | | |
| 6,900.00 | 44.15 | 178.99 | 6,855.08 | -19.08 | 75.20 | 20.13 | 10.00 | 10.00 | 0.35 | 1.42 |
| 7,000.00 | 54.14 | 179.23 | 6,920.41 | -94.61 | 76.36 | 95.67 | 10.00 | 10.00 | 0.24 | 1.14 |
| 7,009.66 | 55.11 | 179.25 | 6,926.00 | -102.49 | 76.46 | 103.55 | 10.00 | 10.00 | 0.21 | 0.98 |
| Sharon Springs | | | | | | | | | | |
| 7,078.73 | 62.02 | 179.38 | 6,962.00 | -161.37 | 77.16 | 162.44 | 10.00 | 10.00 | 0.19 | 0.97 |
| Niobrara A | | | | | | | | | | |
| 7,100.00 | 64.14 | 179.42 | 6,971.63 | -180.34 | 77.36 | 181.41 | 10.00 | 10.00 | 0.17 | 0.90 |
| 7,200.00 | 74.14 | 179.58 | 7,007.19 | -273.66 | 78.17 | 274.73 | 10.00 | 10.00 | 0.16 | 0.88 |
| 7,268.94 | 81.03 | 179.68 | 7,022.00 | -340.95 | 78.60 | 342.02 | 10.00 | 10.00 | 0.15 | 0.83 |
| Niobrara B | | | | | | | | | | |
| 7,300.00 | 84.14 | 179.73 | 7,026.01 | -371.75 | 78.76 | 372.82 | 10.00 | 10.00 | 0.14 | 0.81 |
| 7,359.36 | 90.08 | 179.81 | 7,029.00 | -431.00 | 79.00 | 432.07 | 10.00 | 10.00 | 0.14 | 0.80 |
| End Build @ 7359.36ft - Niobrara B TL (Heel) - 7" Intermediate Casing - Sparboe 8N-3HZ_Casing Point | | | | | | | | | | |
| 7,400.00 | 90.08 | 179.81 | 7,028.95 | -471.64 | 79.14 | 472.71 | 0.00 | 0.00 | 0.00 | 0.80 |
| 7,500.00 | 90.08 | 179.81 | 7,028.81 | -571.64 | 79.47 | 572.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 90.08 | 179.81 | 7,028.68 | -671.64 | 79.81 | 672.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 90.08 | 179.81 | 7,028.55 | -771.64 | 80.14 | 772.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 90.08 | 179.81 | 7,028.42 | -871.64 | 80.48 | 872.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 90.08 | 179.81 | 7,028.29 | -971.64 | 80.81 | 972.68 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 90.08 | 179.81 | 7,028.15 | -1,071.64 | 81.15 | 1,072.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 90.08 | 179.81 | 7,028.02 | -1,171.64 | 81.48 | 1,172.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 90.08 | 179.81 | 7,027.89 | -1,271.64 | 81.82 | 1,272.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 90.08 | 179.81 | 7,027.76 | -1,371.64 | 82.15 | 1,372.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 90.08 | 179.81 | 7,027.63 | -1,471.64 | 82.49 | 1,472.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 90.08 | 179.81 | 7,027.49 | -1,571.64 | 82.82 | 1,572.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 90.08 | 179.81 | 7,027.36 | -1,671.64 | 83.16 | 1,672.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 90.08 | 179.81 | 7,027.23 | -1,771.64 | 83.49 | 1,772.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 90.08 | 179.81 | 7,027.10 | -1,871.63 | 83.83 | 1,872.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 90.08 | 179.81 | 7,026.97 | -1,971.63 | 84.16 | 1,972.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 90.08 | 179.81 | 7,026.83 | -2,071.63 | 84.50 | 2,072.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 90.08 | 179.81 | 7,026.70 | -2,171.63 | 84.83 | 2,172.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 90.08 | 179.81 | 7,026.57 | -2,271.63 | 85.17 | 2,272.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 90.08 | 179.81 | 7,026.44 | -2,371.63 | 85.50 | 2,372.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 90.08 | 179.81 | 7,026.31 | -2,471.63 | 85.84 | 2,472.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 90.08 | 179.81 | 7,026.17 | -2,571.63 | 86.18 | 2,572.59 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Report for Sparboe 8N-3HZ - Plan A 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 (°) |
|--|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|----------------------|
| 9,600.00 | 90.08 | 179.81 | 7,026.04 | -2,671.63 | 86.51 | 2,672.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 90.08 | 179.81 | 7,025.91 | -2,771.63 | 86.85 | 2,772.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 90.08 | 179.81 | 7,025.78 | -2,871.63 | 87.18 | 2,872.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 90.08 | 179.81 | 7,025.65 | -2,971.63 | 87.52 | 2,972.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 90.08 | 179.81 | 7,025.52 | -3,071.63 | 87.85 | 3,072.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 90.08 | 179.81 | 7,025.38 | -3,171.63 | 88.19 | 3,172.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 90.08 | 179.81 | 7,025.25 | -3,271.63 | 88.52 | 3,272.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 90.08 | 179.81 | 7,025.12 | -3,371.62 | 88.86 | 3,372.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 90.08 | 179.81 | 7,024.99 | -3,471.62 | 89.19 | 3,472.53 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 90.08 | 179.81 | 7,024.86 | -3,571.62 | 89.53 | 3,572.53 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 90.08 | 179.81 | 7,024.72 | -3,671.62 | 89.86 | 3,672.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 90.08 | 179.81 | 7,024.59 | -3,771.62 | 90.20 | 3,772.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 90.08 | 179.81 | 7,024.46 | -3,871.62 | 90.53 | 3,872.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 90.08 | 179.81 | 7,024.33 | -3,971.62 | 90.87 | 3,972.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 90.08 | 179.81 | 7,024.20 | -4,071.62 | 91.20 | 4,072.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 90.08 | 179.81 | 7,024.06 | -4,171.62 | 91.54 | 4,172.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.08 | 179.81 | 7,023.93 | -4,271.62 | 91.87 | 4,272.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.08 | 179.81 | 7,023.80 | -4,371.62 | 92.21 | 4,372.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.08 | 179.81 | 7,023.67 | -4,471.62 | 92.54 | 4,472.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 90.08 | 179.81 | 7,023.54 | -4,571.62 | 92.88 | 4,572.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 90.08 | 179.81 | 7,023.40 | -4,671.62 | 93.21 | 4,672.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 90.08 | 179.81 | 7,023.27 | -4,771.62 | 93.55 | 4,772.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 90.08 | 179.81 | 7,023.14 | -4,871.61 | 93.88 | 4,872.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 90.08 | 179.81 | 7,023.01 | -4,971.61 | 94.22 | 4,972.45 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 90.08 | 179.81 | 7,022.88 | -5,071.61 | 94.55 | 5,072.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| Hold Angle @ 90.08 | | | | | | | | | | |
| 12,100.00 | 90.08 | 179.81 | 7,022.74 | -5,171.61 | 94.89 | 5,172.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 90.08 | 179.81 | 7,022.61 | -5,271.61 | 95.22 | 5,272.43 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 90.08 | 179.81 | 7,022.48 | -5,371.61 | 95.56 | 5,372.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 90.08 | 179.81 | 7,022.35 | -5,471.61 | 95.90 | 5,472.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 90.08 | 179.81 | 7,022.22 | -5,571.61 | 96.23 | 5,572.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 90.08 | 179.81 | 7,022.08 | -5,671.61 | 96.57 | 5,672.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,700.00 | 90.08 | 179.81 | 7,021.95 | -5,771.61 | 96.90 | 5,772.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,800.00 | 90.08 | 179.81 | 7,021.82 | -5,871.61 | 97.24 | 5,872.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,900.00 | 90.08 | 179.81 | 7,021.69 | -5,971.61 | 97.57 | 5,972.39 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,000.00 | 90.08 | 179.81 | 7,021.56 | -6,071.61 | 97.91 | 6,072.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,100.00 | 90.08 | 179.81 | 7,021.42 | -6,171.61 | 98.24 | 6,172.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,200.00 | 90.08 | 179.81 | 7,021.29 | -6,271.61 | 98.58 | 6,272.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,300.00 | 90.08 | 179.81 | 7,021.16 | -6,371.61 | 98.91 | 6,372.37 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,400.00 | 90.08 | 179.81 | 7,021.03 | -6,471.60 | 99.25 | 6,472.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,500.00 | 90.08 | 179.81 | 7,020.90 | -6,571.60 | 99.58 | 6,572.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,600.00 | 90.08 | 179.81 | 7,020.76 | -6,671.60 | 99.92 | 6,672.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,700.00 | 90.08 | 179.81 | 7,020.63 | -6,771.60 | 100.25 | 6,772.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,800.00 | 90.08 | 179.81 | 7,020.50 | -6,871.60 | 100.59 | 6,872.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,900.00 | 90.08 | 179.81 | 7,020.37 | -6,971.60 | 100.92 | 6,972.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14,000.00 | 90.08 | 179.81 | 7,020.24 | -7,071.60 | 101.26 | 7,072.33 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14,100.00 | 90.08 | 179.81 | 7,020.10 | -7,171.60 | 101.59 | 7,172.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 14,178.89 | 90.08 | 179.81 | 7,020.00 | -7,250.49 | 101.86 | 7,251.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| Niobrara B TL (Toe) | | | | | | | | | | |
| 14,178.90 | 90.08 | 179.81 | 7,020.00 | -7,250.50 | 101.86 | 7,251.21 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Depth @ 14178.90ft - Sparboe 8N-3HZ_BHL | | | | | | | | | | |

Plan Report for Sparboe 8N-3HZ - Plan A Rev 0 Permit**Plan Annotations**

| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment |
|---------------------|---------------------|-------------------|------------|--------------------------|
| | | +N/-S (ft) | +E/-W (ft) | |
| 700.00 | 700.00 | 0.00 | 0.00 | Hold Angle @ 0.00 |
| 1,400.00 | 1,400.00 | 0.00 | 0.00 | Begin Nudge @ 1400.00ft |
| 1,490.73 | 1,490.71 | 1.29 | 0.63 | End Nudge @ 1490.73ft |
| 4,000.00 | 3,998.73 | 72.83 | 35.22 | Hold Angle @ 1.81 |
| 6,442.29 | 6,439.79 | 142.45 | 68.88 | Begin Build @ 6442.29ft |
| 6,800.00 | 6,777.62 | 43.96 | 73.91 | Build Rate = 10.00/100ft |
| 7,359.36 | 7,029.00 | -431.00 | 79.00 | End Build @ 7359.36ft |
| 12,000.00 | 7,022.88 | -5,071.61 | 94.55 | Hold Angle @ 90.08 |
| 14,178.90 | 7,020.00 | -7,250.50 | 101.86 | Total Depth @ 14178.90ft |

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin | | Start TVD (ft) |
|------------|--------------------|-------------|-------------|------------|------------|----------------|
| | | | | +N/-S (ft) | +E/-W (ft) | |
| Target | Sparboe 8N-3HZ_BHL | 179.20 | Slot | 0.00 | 0.00 | 0.00 |

Survey tool program

| From (ft) | To (ft) | Survey/Plan | Survey Tool |
|-----------|-----------|---------------------|-------------|
| 0.00 | 14,178.90 | Plan A Rev 0 Permit | MWD |

Casing Details

| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") |
|---------------------|---------------------|------------------------|---------------------|-------------------|
| 7,359.36 | 7,029.00 | 7" Intermediate Casing | 7 | 8-3/4 |

Formation Details

| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|---------------------|---------------------|----------------------|-----------|---------|-------------------|
| 739.00 | 739.00 | Fox Hills | | 0.00 | |
| 4,986.77 | 4,985.00 | Sussex | | 0.00 | |
| 7,009.66 | 6,926.00 | Sharon Springs | | 0.00 | |
| 7,078.73 | 6,962.00 | Niobrara A | | 0.00 | |
| 7,268.94 | 7,022.00 | Niobrara B | | 0.00 | |
| 7,359.36 | 7,029.00 | Niobrara B TL (Heel) | | 0.00 | |
| 14,178.89 | 7,020.00 | Niobrara B TL (Toe) | | 0.00 | |

Targets associated with this wellbore

| Target Name | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Shape |
|-------------------------------|----------|------------|------------|---------|
| Sparboe 8N-3HZ_Section Lines | 0.00 | 0.00 | 0.00 | Polygon |
| Sparboe 8N-3HZ_Sec 34/1 Lines | 0.00 | 0.00 | 0.00 | Polygon |
| Sparboe 8N-3HZ_Casing Point | 7,029.00 | -431.00 | 79.00 | Point |
| Sparboe 8N-3HZ_SHL | 0.00 | 0.00 | 0.00 | Point |
| Sparboe 8N-3HZ_Setback Lines | 0.00 | 0.00 | 0.00 | Polygon |
| Sparboe 8N-3HZ_BHL | 7,020.00 | -7,250.50 | 101.86 | Point |

North Reference Sheet for Sec. 34-T2N-R65W - Sparboe 8N-3HZ - Plan A 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=16ft @ 4986.00ft (Drilling Rig). Northing and Easting are relative to Sparboe 8N-3HZ

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: 3,000,000.000644ft, False Northing: 1,000,000.001308ft, Scale Reduction: 0.99996022

Grid Coordinates of Well: 1,281,026.265119 ft N, 3,239,692.339407 ft E

Geographical Coordinates of Well: 40° 06' 05.87" N, 104° 38' 35.29" W

Grid Convergence at Surface is: 0.55°

Based upon Minimum Curvature type calculations, at a Measured Depth of 14,178.90ft
the Bottom Hole Displacement is 7,251.21ft in the Direction of 179.20° (True).

Magnetic Convergence at surface is: -8.06° (26 July 2012, , BGGM2011)

