

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 22-T2N-R67W

Banded 16N-27HZ

Plan A

Plan: Rev A0 Permit

Sperry Drilling Services

Proposal Report

06 February, 2014

Well Coordinates: 1,286,182.43 N, 3,176,008.65 E (40° 07' 02.10" N, 104° 52' 14.36" W)

Ground Level: 4,977.00 usft

Local Coordinate Origin:

Centered on Well Banded 16N-27HZ

Viewing Datum:

RKB=17' @ 4994.00usft

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

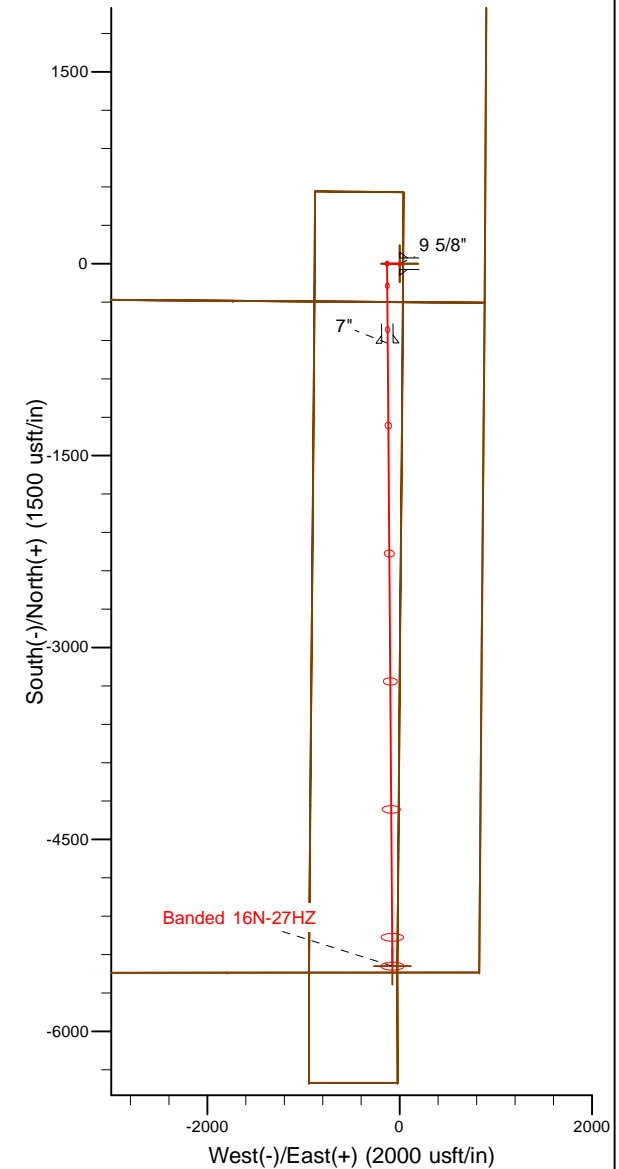
Geodetic Scale Factor Applied

Version: 5000.1 Build: 70

HALLIBURTON

Anadarko Petroleum Corp.

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude |
|------------------------------|---------|----------|----------|------------|------------|-----------|-------------|
| Banded 16N-27HZ Pad_Sec.line | 0.00 | 4355.75 | -3477.25 | 1290513.22 | 3172500.72 | 40.129205 | -104.883090 |
| Banded 16N-27HZ SHL | 0.00 | 0.00 | 0.00 | 1286182.43 | 3176008.65 | 40.117249 | -104.870655 |
| Banded 16N-27HZ_LD | 0.00 | 0.00 | 0.00 | 1286182.43 | 3176008.65 | 40.117249 | -104.870655 |
| Banded 16N-27HZ BHL | 7382.00 | -5490.25 | -74.13 | 1280692.01 | 3175973.49 | 40.102178 | -104.870920 |
| | | | | | | | |
| MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | VSect |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1400.00 | 0.00 | 0.00 | 1400.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1900.00 | 10.00 | 270.00 | 1897.47 | 0.00 | -43.52 | 2.00 | -0.45 |
| 2150.00 | 10.00 | 270.00 | 2143.67 | 0.00 | -86.93 | 0.00 | -0.90 |
| 2650.00 | 0.00 | 0.00 | 2641.13 | 0.00 | -130.46 | 2.00 | -1.34 |
| 6792.92 | 0.00 | 0.00 | 6784.05 | 0.00 | -130.46 | 0.00 | -1.34 |
| 7297.67 | 50.48 | 179.41 | 7226.00 | -208.31 | -128.31 | 10.00 | 206.98 |
| 7336.03 | 48.17 | 179.44 | 7251.00 | -237.40 | -128.02 | 6.00 | 236.07 |
| 7756.06 | 90.18 | 179.41 | 7397.00 | -621.23 | -124.16 | 10.00 | 619.92 |
| 12625.36 | 90.18 | 179.41 | 7382.00 | -5490.25 | -74.13 | 0.00 | 5489.20 |



| | |
|--|----------------|
| WELL DETAILS: Banded 16N-27HZ | |
| Ground Level: 4977.00 RKB=17' @ 4994.00usft | |
| Plan: Rev A0 Permit (Banded 16N-27HZ/Plan A) | |
| Created By: Pari Amanlou | Date: 2-6-2014 |

Plan Report for Banded 16N-27HZ - Rev A0 Permit

| 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 |
| 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 |
| 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 |
| 1,201.00 | 0.00 | 0.00 | 1,201.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fox Hills Marker | | | | | | | | | | |
| 1,251.00 | 0.00 | 0.00 | 1,251.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 5/8" | | | | | | | | | | |
| 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 @ 1400.00' | | | | | | | | | | |
| 1,500.00 | 2.00 | 270.00 | 1,499.98 | 0.00 | -1.75 | -0.02 | 2.00 | 2.00 | 0.00 | 270.00 |
| 1,600.00 | 4.00 | 270.00 | 1,599.84 | 0.00 | -6.98 | -0.07 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,700.00 | 6.00 | 270.00 | 1,699.45 | 0.00 | -15.69 | -0.16 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,800.00 | 8.00 | 270.00 | 1,798.70 | 0.00 | -27.88 | -0.29 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,900.00 | 10.00 | 270.00 | 1,897.47 | 0.00 | -43.52 | -0.45 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,000.00 | 10.00 | 270.00 | 1,995.95 | 0.00 | -60.89 | -0.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 10.00 | 270.00 | 2,094.43 | 0.00 | -78.25 | -0.81 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,150.00 | 10.00 | 270.00 | 2,143.67 | 0.00 | -86.93 | -0.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| Drop to Vertical @ 2150.00' | | | | | | | | | | |
| 2,200.00 | 9.00 | 270.00 | 2,192.98 | 0.00 | -95.19 | -0.98 | 2.00 | -2.00 | 0.00 | 180.00 |
| 2,300.00 | 7.00 | 270.00 | 2,292.00 | 0.00 | -109.10 | -1.12 | 2.00 | -2.00 | 0.00 | 180.00 |
| 2,400.00 | 5.00 | 270.00 | 2,391.45 | 0.00 | -119.56 | -1.23 | 2.00 | -2.00 | 0.00 | 180.00 |
| 2,500.00 | 3.00 | 270.00 | 2,491.20 | 0.00 | -126.53 | -1.30 | 2.00 | -2.00 | 0.00 | 180.00 |
| 2,600.00 | 1.00 | 270.00 | 2,591.14 | 0.00 | -130.02 | -1.34 | 2.00 | -2.00 | 0.00 | 180.00 |
| 2,650.00 | 0.00 | 0.00 | 2,641.13 | 0.00 | -130.46 | -1.34 | 2.00 | -2.00 | 0.00 | 180.00 |
| 2,700.00 | 0.00 | 0.00 | 2,691.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 0.00 | 0.00 | 2,791.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 0.00 | 0.00 | 2,891.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 0.00 | 0.00 | 2,991.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 0.00 | 0.00 | 3,091.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 0.00 | 0.00 | 3,191.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 0.00 | 0.00 | 3,291.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 0.00 | 0.00 | 3,391.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 0.00 | 0.00 | 3,491.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 0.00 | 0.00 | 3,591.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 0.00 | 0.00 | 3,691.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 0.00 | 0.00 | 3,791.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 0.00 | 0.00 | 3,891.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 0.00 | 0.00 | 3,991.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 0.00 | 0.00 | 4,091.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,140.87 | 0.00 | 0.00 | 4,132.00 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| Parkman | | | | | | | | | | |
| 4,200.00 | 0.00 | 0.00 | 4,191.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 0.00 | 0.00 | 4,291.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 0.00 | 0.00 | 4,391.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 0.00 | 0.00 | 4,491.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,520.87 | 0.00 | 0.00 | 4,512.00 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sussex | | | | | | | | | | |

Plan Report for Banded 16N-27HZ - Rev A0 Permit

| 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 (°) |
|---|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|----------------------------|
| 4,600.00 | 0.00 | 0.00 | 4,591.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 0.00 | 0.00 | 4,691.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 0.00 | 0.00 | 4,791.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 0.00 | 0.00 | 4,891.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 0.00 | 0.00 | 4,991.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 0.00 | 0.00 | 5,091.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 0.00 | 0.00 | 5,191.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 0.00 | 0.00 | 5,291.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 0.00 | 0.00 | 5,391.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 0.00 | 0.00 | 5,491.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 0.00 | 0.00 | 5,591.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 0.00 | 0.00 | 5,691.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 0.00 | 0.00 | 5,791.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 0.00 | 0.00 | 5,891.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 0.00 | 0.00 | 5,991.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 0.00 | 0.00 | 6,091.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 0.00 | 0.00 | 6,191.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 0.00 | 0.00 | 6,291.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 0.00 | 0.00 | 6,391.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 0.00 | 0.00 | 6,491.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 0.00 | 0.00 | 6,591.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,692.92 | 0.00 | 0.00 | 6,684.05 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| Top of 4.5" Liner @ 6692.92' | | | | | | | | | | |
| 6,700.00 | 0.00 | 0.00 | 6,691.13 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,792.92 | 0.00 | 0.00 | 6,784.05 | 0.00 | -130.46 | -1.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| KOP @ 6792.92' DLS=10-6-10°/100' | | | | | | | | | | |
| 6,800.00 | 0.71 | 179.41 | 6,791.13 | -0.04 | -130.46 | -1.30 | 10.00 | 10.00 | 0.00 | 179.41 |
| 6,900.00 | 10.71 | 179.41 | 6,890.51 | -9.98 | -130.35 | 8.63 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,000.00 | 20.71 | 179.41 | 6,986.65 | -37.02 | -130.08 | 35.67 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,100.00 | 30.71 | 179.41 | 7,076.64 | -80.34 | -129.63 | 79.00 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,200.00 | 40.71 | 179.41 | 7,157.74 | -138.63 | -129.03 | 137.29 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,297.67 | 50.48 | 179.41 | 7,226.00 | -208.31 | -128.31 | 206.98 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,300.00 | 50.34 | 179.41 | 7,227.49 | -210.11 | -128.29 | 208.77 | 6.00 | -6.00 | 0.08 | 179.41 |
| 7,336.03 | 48.17 | 179.44 | 7,251.00 | -237.40 | -128.02 | 236.07 | 6.00 | -6.00 | 0.08 | 179.41 |
| Sharon Springs | | | | | | | | | | |
| 7,400.00 | 54.57 | 179.44 | 7,290.91 | -287.35 | -127.53 | 286.02 | 10.00 | 10.00 | -0.01 | -0.05 |
| 7,455.80 | 60.15 | 179.43 | 7,321.00 | -334.32 | -127.07 | 332.99 | 10.00 | 10.00 | -0.01 | -0.04 |
| Niobrara A | | | | | | | | | | |
| 7,500.00 | 64.57 | 179.43 | 7,341.50 | -373.46 | -126.68 | 372.13 | 10.00 | 10.00 | -0.01 | -0.04 |
| 7,600.00 | 74.57 | 179.42 | 7,376.36 | -467.04 | -125.74 | 465.72 | 10.00 | 10.00 | -0.01 | -0.04 |
| 7,631.97 | 77.77 | 179.42 | 7,384.00 | -498.08 | -125.42 | 496.77 | 10.00 | 10.00 | -0.01 | -0.04 |
| Niobrara B | | | | | | | | | | |
| 7,700.00 | 84.57 | 179.41 | 7,394.44 | -565.26 | -124.74 | 563.95 | 10.00 | 10.00 | -0.01 | -0.03 |
| 7,756.06 | 90.18 | 179.41 | 7,397.00 | -621.24 | -124.16 | 619.93 | 10.00 | 10.00 | -0.01 | -0.03 |
| End Build @ 7756.06':: 7397.00' TVD - Landing Target (Heel) - 7" | | | | | | | | | | |
| 7,800.00 | 90.18 | 179.41 | 7,396.87 | -665.18 | -123.71 | 663.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 90.18 | 179.41 | 7,396.56 | -765.17 | -122.68 | 763.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 90.18 | 179.41 | 7,396.25 | -865.16 | -121.66 | 863.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 90.18 | 179.41 | 7,395.94 | -965.16 | -120.63 | 963.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 90.18 | 179.41 | 7,395.64 | -1,065.15 | -119.60 | 1,063.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 90.18 | 179.41 | 7,395.33 | -1,165.15 | -118.57 | 1,163.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 90.18 | 179.41 | 7,395.02 | -1,265.14 | -117.55 | 1,263.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 90.18 | 179.41 | 7,394.71 | -1,365.14 | -116.52 | 1,363.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 90.18 | 179.41 | 7,394.40 | -1,465.13 | -115.49 | 1,463.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 90.18 | 179.41 | 7,394.10 | -1,565.12 | -114.46 | 1,563.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 90.18 | 179.41 | 7,393.79 | -1,665.12 | -113.44 | 1,663.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 90.18 | 179.41 | 7,393.48 | -1,765.11 | -112.41 | 1,763.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 90.18 | 179.41 | 7,393.17 | -1,865.11 | -111.38 | 1,863.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 90.18 | 179.41 | 7,392.86 | -1,965.10 | -110.35 | 1,963.86 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Report for Banded 16N-27HZ - Rev A0 Permit

| 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 (°) |
|--|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|----------------------------|
| 9,200.00 | 90.18 | 179.41 | 7,392.55 | -2,065.10 | -109.33 | 2,063.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 90.18 | 179.41 | 7,392.25 | -2,165.09 | -108.30 | 2,163.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 90.18 | 179.41 | 7,391.94 | -2,265.08 | -107.27 | 2,263.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 90.18 | 179.41 | 7,391.63 | -2,365.08 | -106.24 | 2,363.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 90.18 | 179.41 | 7,391.32 | -2,465.07 | -105.22 | 2,463.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 90.18 | 179.41 | 7,391.01 | -2,565.07 | -104.19 | 2,563.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 90.18 | 179.41 | 7,390.71 | -2,665.06 | -103.16 | 2,663.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 90.18 | 179.41 | 7,390.40 | -2,765.05 | -102.14 | 2,763.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 90.18 | 179.41 | 7,390.09 | -2,865.05 | -101.11 | 2,863.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 90.18 | 179.41 | 7,389.78 | -2,965.04 | -100.08 | 2,963.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 90.18 | 179.41 | 7,389.47 | -3,065.04 | -99.05 | 3,063.86 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 90.18 | 179.41 | 7,389.17 | -3,165.03 | -98.03 | 3,163.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 90.18 | 179.41 | 7,388.86 | -3,265.03 | -97.00 | 3,263.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 90.18 | 179.41 | 7,388.55 | -3,365.02 | -95.97 | 3,363.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 90.18 | 179.41 | 7,388.24 | -3,465.01 | -94.94 | 3,463.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 90.18 | 179.41 | 7,387.93 | -3,565.01 | -93.92 | 3,563.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 90.18 | 179.41 | 7,387.62 | -3,665.00 | -92.89 | 3,663.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 90.18 | 179.41 | 7,387.32 | -3,765.00 | -91.86 | 3,763.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 90.18 | 179.41 | 7,387.01 | -3,864.99 | -90.83 | 3,863.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 90.18 | 179.41 | 7,386.70 | -3,964.99 | -89.81 | 3,963.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.18 | 179.41 | 7,386.39 | -4,064.98 | -88.78 | 4,063.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.18 | 179.41 | 7,386.08 | -4,164.97 | -87.75 | 4,163.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.18 | 179.41 | 7,385.78 | -4,264.97 | -86.72 | 4,263.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 90.18 | 179.41 | 7,385.47 | -4,364.96 | -85.70 | 4,363.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 90.18 | 179.41 | 7,385.16 | -4,464.96 | -84.67 | 4,463.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 90.18 | 179.41 | 7,384.85 | -4,564.95 | -83.64 | 4,563.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 90.18 | 179.41 | 7,384.54 | -4,664.95 | -82.61 | 4,663.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 90.18 | 179.41 | 7,384.24 | -4,764.94 | -81.59 | 4,763.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 90.18 | 179.41 | 7,383.93 | -4,864.93 | -80.56 | 4,863.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 90.18 | 179.41 | 7,383.62 | -4,964.93 | -79.53 | 4,963.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 90.18 | 179.41 | 7,383.31 | -5,064.92 | -78.50 | 5,063.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 90.18 | 179.41 | 7,383.00 | -5,164.92 | -77.48 | 5,163.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 90.18 | 179.41 | 7,382.69 | -5,264.91 | -76.45 | 5,263.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 90.18 | 179.41 | 7,382.39 | -5,364.91 | -75.42 | 5,363.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 90.18 | 179.41 | 7,382.08 | -5,464.90 | -74.39 | 5,463.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,625.35 | 90.18 | 179.41 | 7,382.00 | -5,490.25 | -74.13 | 5,489.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total Depth (Toe) | | | | | | | | | | |
| 12,625.36 | 90.18 | 179.41 | 7,382.00 | -5,490.25 | -74.13 | 5,489.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| TD Well @ 12625.36' MD:: 7382.00' TVD | | | | | | | | | | |

Plan Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
|-----------------------------|-----------------------------|-------------------|-----------------|---------------------------------------|
| | | +N/-S (usft) | +E/-W (usft) | |
| 1,400.00 | 1,400.00 | 0.00 | 0.00 | Begin Nudge @ 1400.00' |
| 2,150.00 | 2,143.67 | 0.00 | -86.93 | Drop to Vertical @ 2150.00' |
| 6,692.92 | 6,684.05 | 0.00 | -130.46 | Top of 4.5" Liner @ 6692.92' |
| 6,792.92 | 6,784.05 | 0.00 | -130.46 | KOP @ 6792.92' DLS=10-6-10°/100' |
| 7,756.06 | 7,397.00 | -621.24 | -124.16 | End Build @ 7756.06:: 7397.00' TVD |
| 12,625.36 | 7,382.00 | -5,490.25 | -74.13 | TD Well @ 12625.36' MD:: 7382.00' TVD |

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin | | Start TVD (usft) |
|---------------|----------------------|----------------|----------------|-----------------|-----------------|------------------------|
| | | | | +N/_S (usft) | +E/-W (usft) | |
| User | No Target (Freehand) | 179.41 | Slot | 0.00 | 0.00 | 0.00 |

Plan Report for Banded 16N-27HZ - Rev A0 Permit

Survey tool program

| From (usft) | To (usft) | Survey/Plan | Survey Tool |
|----------------|--------------|---------------|-------------|
| 0.00 | 1,251.00 | Rev A0 Permit | MWD |
| 1,251.00 | 7,756.06 | Rev A0 Permit | MWD |
| 7,756.06 | 12,625.36 | Rev A0 Permit | MWD |

Casing Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
|-----------------------------|-----------------------------|--------|---------------------------|-------------------------|
| 1,251.00 | 1,251.00 | 9 5/8" | 9-5/8 | 12-3/4 |
| 7,756.06 | 7,397.00 | 7" | 7 | 8-3/4 |

Formation Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|-----------------------------|-----------------------------|-----------------------|-----------|------------|-------------------------|
| 1,201.00 | 1,201.00 | Fox Hills Marker | | 0.00 | |
| 4,140.87 | 4,132.00 | Parkman | | 0.00 | |
| 4,520.87 | 4,512.00 | Sussex | | 0.00 | |
| 7,336.03 | 7,251.00 | Sharon Springs | | 0.00 | |
| 7,455.80 | 7,321.00 | Niobrara A | | 0.00 | |
| 7,631.97 | 7,384.00 | Niobrara B | | 0.00 | |
| 7,756.06 | 7,397.00 | Landing Target (Heel) | | 0.00 | |
| 12,625.35 | 7,382.00 | Total Depth (Toe) | | 0.00 | |

Targets associated with this wellbore

| Target Name | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Shape |
|------------------------------|---------------|-----------------|-----------------|---------|
| Banded 16N-27HZ SHL | 0.00 | 0.00 | 0.00 | Point |
| Banded 16N-27HZ Pad_Sec.line | 0.00 | 4,355.75 | -3,477.25 | Polygon |
| Banded 16N-27HZ_LD | 0.00 | 0.00 | 0.00 | Polygon |
| Banded 16N-27HZ BHL | 7,382.00 | -5,490.25 | -74.13 | Point |

Directional Difficulty Index

| | | | |
|-------------------------------------|----------------|-------------------------------|----------------------------------|
| Average Dogleg over Survey: | 0.91 °/100usft | Maximum Dogleg over Survey: | 10.00 °/100usft at 7,297.67 usft |
| Net Tortousity applicable to Plans: | 0.91 °/100usft | Directional Difficulty Index: | 6.208 |

Audit Info

North Reference Sheet for Sec. 22-T2N-R67W - Banded 16N-27HZ - Plan A

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' @ 4994.00usft. Northing and Easting are relative to Banded 16N-27HZ
 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: 0.99995955

Grid Coordinates of Well: 1,286,182.43 usft N, 3,176,008.65 usft E
 Geographical Coordinates of Well: 40° 07' 02.10" N, 104° 52' 14.36" W
 Grid Convergence at Surface is: 0.41°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,625.36usft
 the Bottom Hole Displacement is 5,490.75usft in the Direction of 180.77° (True).
 Magnetic Convergence at surface is: -8.18° (6 February 2014, , BGGM2013)

