

Anadarko Petroleum Corp.

Weld County, CO (NAD 83)

Sec. 14-T3N-R66W

FERGE 3N-14HZ

Plan A

Plan: Rev A0 Permit

Sperry Drilling Services

Proposal Report

18 November, 2013

Well Coordinates: 1,323,360.66 N, 3,209,494.51 E (40° 13' 06.92" N, 104° 44' 59.29" W)

Ground Level: 4,913.00 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 FERGE 3N-14HZ

RKB = 17' @ 4930.00usft (Drilling Rig)

N

True

Dec-Deg - API - US Survey Feet - Custom

HALLIBURTON

Project: Weld County, CO (NAD 83)
Site: Sec. 14-T3N-R66W
Well: FERGE 3N-14HZ
Wellbore: Plan A
Design: Rev A0 Permit

Anadarko Petroleum Corp.

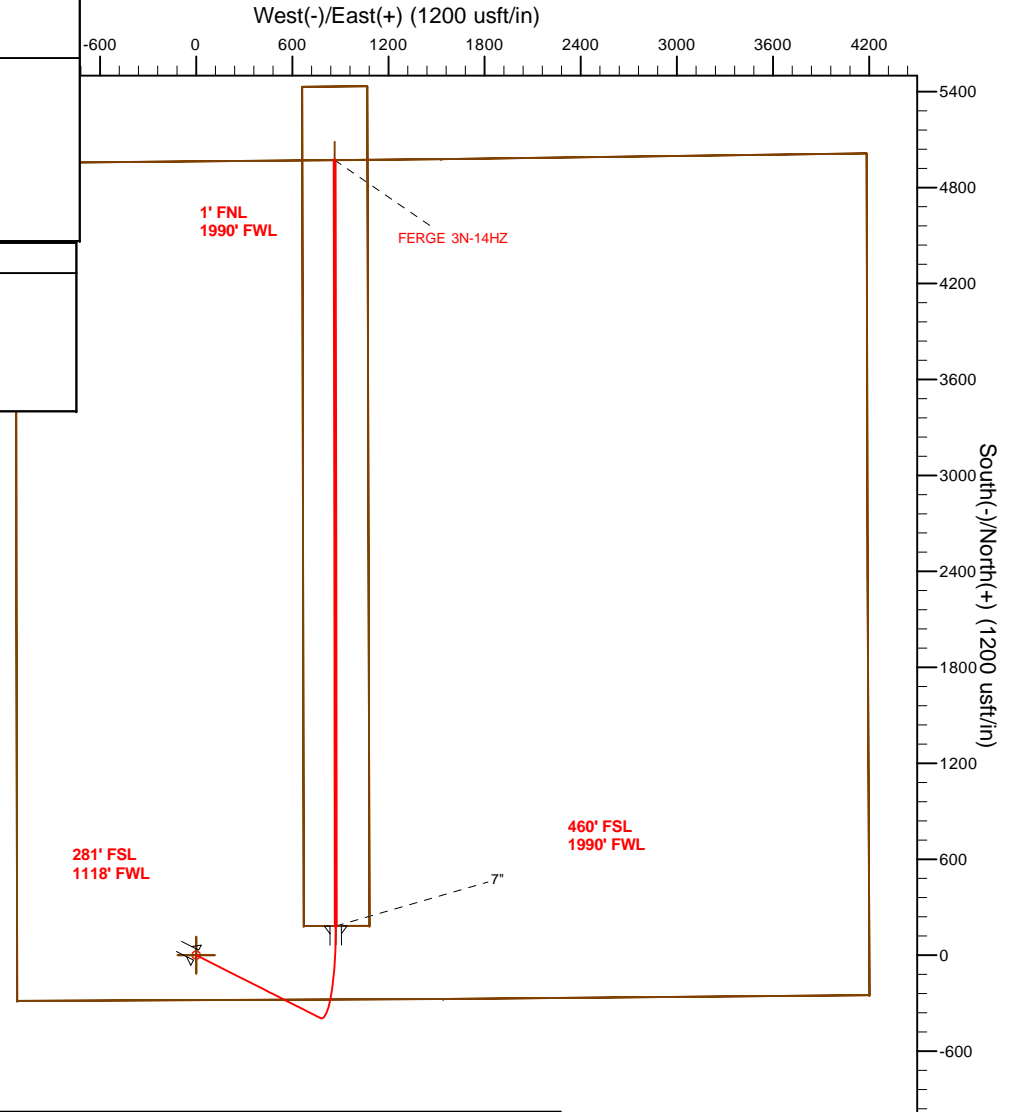
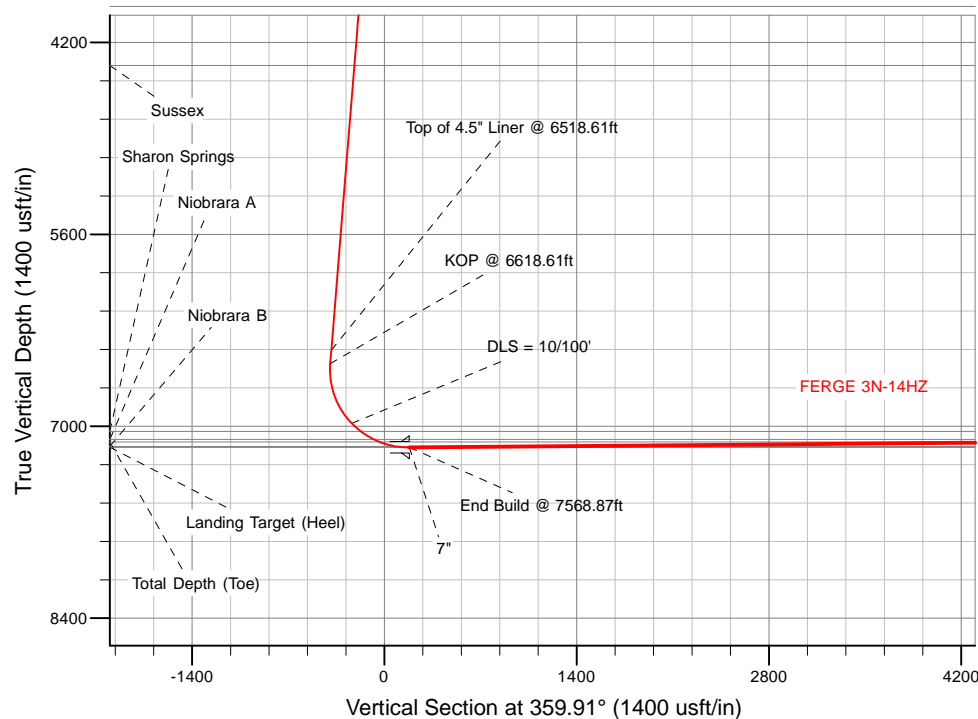
HALLIBURTON
Sperry Drilling

SECTION DETAILS

| Sec | MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | Vsect | 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 | 1903.77 | 10.08 | 116.90 | 1901.17 | -19.99 | 39.40 | 2.00 | 116.90 | -20.05 | |
| 4 | 6618.61 | 10.08 | 116.90 | 6543.31 | -393.13 | 775.00 | 0.00 | 0.00 | -394.35 | |
| 5 | 7568.87 | 90.48 | 359.91 | 7154.00 | 182.90 | 871.59 | 10.00 | -116.56 | 181.53 | FERGE 3N-14HZ_CP |
| 6 | 12357.41 | 90.48 | 359.91 | 7114.00 | 4971.27 | 863.88 | 0.00 | 0.00 | 4969.90 | FERGE 3N-14HZ_BHL |

WELLBORE TARGET DETAILS (LAT/LONG)

| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | Polygon |
|-------------------|---------|---------|--------|-----------|-------------|---------|
| FERGE 3N-14HZ_LD | 0.00 | 0.00 | 0.00 | 40.218590 | -104.749802 | Polygon |
| FERGE 3N-14HZ_SEC | 0.00 | 0.00 | 0.00 | 40.218590 | -104.749802 | Polygon |
| FERGE 3N-14HZ_SHL | 0.00 | 0.00 | 0.00 | 40.218590 | -104.749802 | Polygon |
| FERGE 3N-14HZ_BHL | 7114.00 | 4971.27 | 863.88 | 40.232236 | -104.746708 | Point |
| FERGE 3N-14HZ_CP | 7154.00 | 182.90 | 871.59 | 40.219092 | -104.746681 | Point |



TVD MD

6444.85 6518.61 Top of 4.5" Liner @ 6518.61ft
6543.31 6618.61 KOP @ 6618.61ft

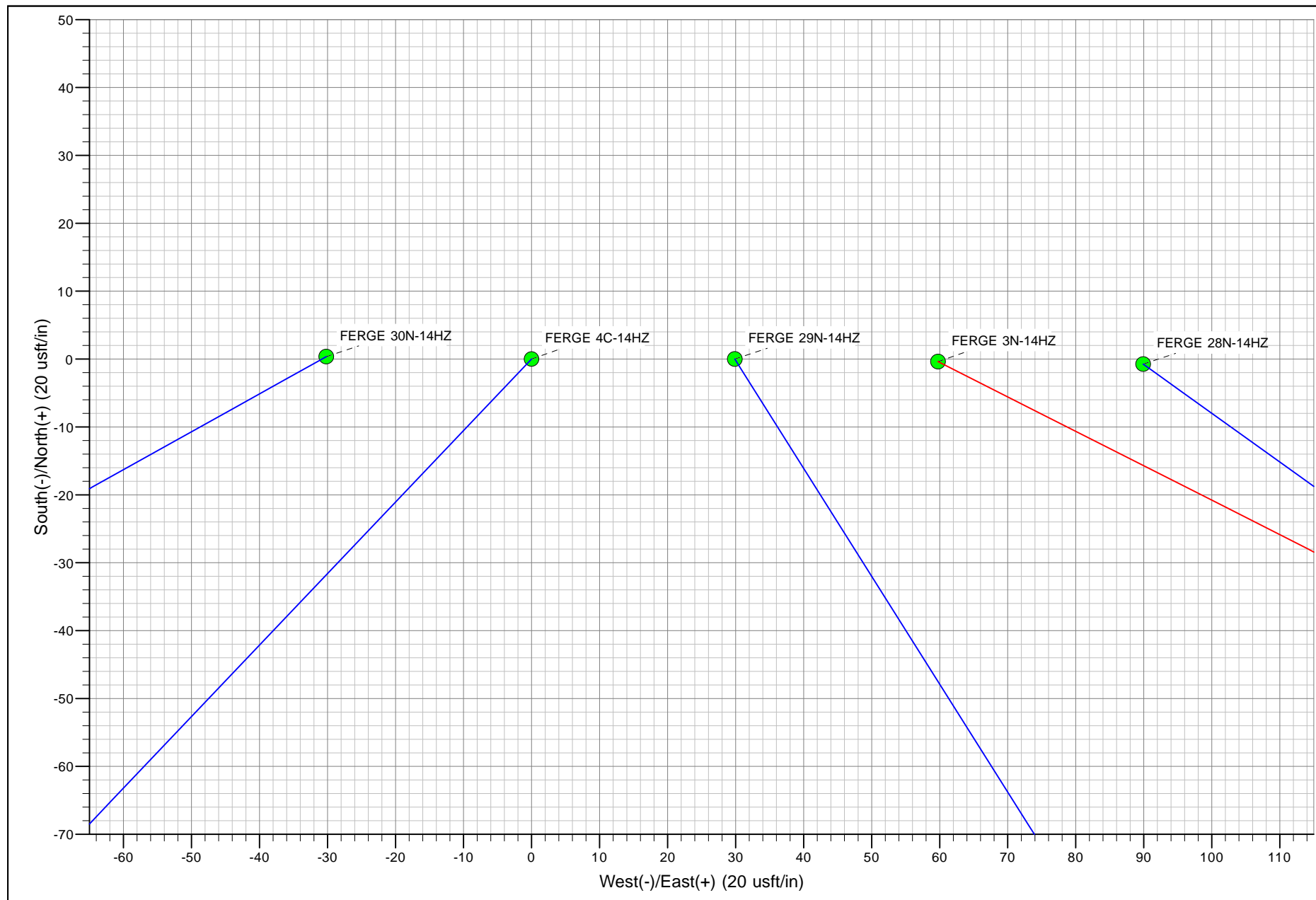
WELL DETAILS: FERGE 3N-14HZ

Ground Level: 4913.00

RKB = 17' @ 4930.00usft (Drilling Rig)

Plan: Rev A0 Permit (FERGE 3N-14HZ/Plan A)

Created By: Clint Eshelman Date: 11/18/2013
Reviewed: _____ Date: _____



Plan Report for FERGE 3N-14HZ - 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 |
| FERGE 3N-14HZ_LD - FERGE 3N-14HZ_SHL - FERGE 3N-14HZ_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 |
| 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 |
| 1,095.00 | 0.00 | 0.00 | 1,095.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fox Hills Marker | | | | | | | | | | |
| 1,100.00 | 0.00 | 0.00 | 1,100.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,145.00 | 0.00 | 0.00 | 1,145.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 5/8" | | | | | | | | | | |
| 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 | | | | | | | | | | |
| 1,500.00 | 2.00 | 116.90 | 1,499.98 | -0.79 | 1.56 | -0.79 | 2.00 | 2.00 | 0.00 | 116.90 |
| 1,600.00 | 4.00 | 116.90 | 1,599.84 | -3.16 | 6.22 | -3.17 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,700.00 | 6.00 | 116.90 | 1,699.45 | -7.10 | 14.00 | -7.12 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,800.00 | 8.00 | 116.90 | 1,798.70 | -12.61 | 24.86 | -12.65 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,900.00 | 10.00 | 116.90 | 1,897.47 | -19.69 | 38.81 | -19.75 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,903.77 | 10.08 | 116.90 | 1,901.18 | -19.99 | 39.40 | -20.05 | 2.00 | 2.00 | 0.00 | 0.00 |
| End Nudge @ 1903.77ft | | | | | | | | | | |
| 2,000.00 | 10.08 | 116.90 | 1,995.92 | -27.60 | 54.41 | -27.69 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 10.08 | 116.90 | 2,094.38 | -35.52 | 70.02 | -35.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 10.08 | 116.90 | 2,192.84 | -43.43 | 85.62 | -43.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 10.08 | 116.90 | 2,291.30 | -51.35 | 101.22 | -51.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 10.08 | 116.90 | 2,389.76 | -59.26 | 116.82 | -59.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 10.08 | 116.90 | 2,488.21 | -67.17 | 132.42 | -67.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 10.08 | 116.90 | 2,586.67 | -75.09 | 148.02 | -75.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 10.08 | 116.90 | 2,685.13 | -83.00 | 163.63 | -83.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 10.08 | 116.90 | 2,783.59 | -90.92 | 179.23 | -91.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 10.08 | 116.90 | 2,882.04 | -98.83 | 194.83 | -99.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 10.08 | 116.90 | 2,980.50 | -106.74 | 210.43 | -107.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 10.08 | 116.90 | 3,078.96 | -114.66 | 226.03 | -115.01 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 10.08 | 116.90 | 3,177.42 | -122.57 | 241.63 | -122.95 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 10.08 | 116.90 | 3,275.88 | -130.49 | 257.24 | -130.89 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 10.08 | 116.90 | 3,374.33 | -138.40 | 272.84 | -138.83 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 10.08 | 116.90 | 3,472.79 | -146.32 | 288.44 | -146.77 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 10.08 | 116.90 | 3,571.25 | -154.23 | 304.04 | -154.71 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 10.08 | 116.90 | 3,669.71 | -162.14 | 319.64 | -162.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 10.08 | 116.90 | 3,768.17 | -170.06 | 335.24 | -170.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 10.08 | 116.90 | 3,866.62 | -177.97 | 350.85 | -178.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,969.45 | 10.08 | 116.90 | 3,935.00 | -183.47 | 361.68 | -184.04 | 0.00 | 0.00 | 0.00 | 0.00 |
| Parkman | | | | | | | | | | |
| 4,000.00 | 10.08 | 116.90 | 3,965.08 | -185.89 | 366.45 | -186.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 10.08 | 116.90 | 4,063.54 | -193.80 | 382.05 | -194.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 10.08 | 116.90 | 4,162.00 | -201.72 | 397.65 | -202.34 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 10.08 | 116.90 | 4,260.45 | -209.63 | 413.25 | -210.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 10.08 | 116.90 | 4,358.91 | -217.54 | 428.85 | -218.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,408.21 | 10.08 | 116.90 | 4,367.00 | -218.19 | 430.14 | -218.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sussex | | | | | | | | | | |

Plan Report for FERGE 3N-14HZ - 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 (°) |
|--|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|----------------------------|
| 4,500.00 | 10.08 | 116.90 | 4,457.37 | -225.46 | 444.46 | -226.16 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 10.08 | 116.90 | 4,555.83 | -233.37 | 460.06 | -234.09 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 10.08 | 116.90 | 4,654.29 | -241.29 | 475.66 | -242.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 10.08 | 116.90 | 4,752.74 | -249.20 | 491.26 | -249.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 10.08 | 116.90 | 4,851.20 | -257.12 | 506.86 | -257.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 10.08 | 116.90 | 4,949.66 | -265.03 | 522.47 | -265.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 10.08 | 116.90 | 5,048.12 | -272.94 | 538.07 | -273.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 10.08 | 116.90 | 5,146.58 | -280.86 | 553.67 | -281.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 10.08 | 116.90 | 5,245.03 | -288.77 | 569.27 | -289.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 10.08 | 116.90 | 5,343.49 | -296.69 | 584.87 | -297.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 10.08 | 116.90 | 5,441.95 | -304.60 | 600.47 | -305.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 10.08 | 116.90 | 5,540.41 | -312.51 | 616.08 | -313.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 10.08 | 116.90 | 5,638.86 | -320.43 | 631.68 | -321.42 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 10.08 | 116.90 | 5,737.32 | -328.34 | 647.28 | -329.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 10.08 | 116.90 | 5,835.78 | -336.26 | 662.88 | -337.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 10.08 | 116.90 | 5,934.24 | -344.17 | 678.48 | -345.24 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 10.08 | 116.90 | 6,032.70 | -352.09 | 694.08 | -353.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 10.08 | 116.90 | 6,131.15 | -360.00 | 709.69 | -361.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 10.08 | 116.90 | 6,229.61 | -367.91 | 725.29 | -369.05 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 10.08 | 116.90 | 6,328.07 | -375.83 | 740.89 | -376.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 10.08 | 116.90 | 6,426.53 | -383.74 | 756.49 | -384.93 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,518.61 | 10.08 | 116.90 | 6,444.85 | -385.22 | 759.39 | -386.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| Top of 4.5" Liner @ 6518.61ft | | | | | | | | | | |
| 6,600.00 | 10.08 | 116.90 | 6,524.99 | -391.66 | 772.09 | -392.87 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,618.61 | 10.08 | 116.90 | 6,543.31 | -393.13 | 775.00 | -394.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| KOP @ 6618.61ft | | | | | | | | | | |
| 6,700.00 | 9.69 | 68.10 | 6,623.63 | -393.80 | 787.72 | -395.03 | 10.00 | -0.47 | -59.96 | -116.56 |
| 6,800.00 | 16.26 | 32.89 | 6,721.16 | -378.86 | 803.17 | -380.12 | 10.00 | 6.57 | -35.21 | -68.40 |
| 6,900.00 | 25.16 | 19.69 | 6,814.65 | -347.01 | 817.97 | -348.29 | 10.00 | 8.90 | -13.19 | -33.98 |
| 7,000.00 | 34.65 | 13.24 | 6,901.26 | -299.20 | 831.68 | -300.51 | 10.00 | 9.48 | -6.45 | -21.59 |
| 7,100.00 | 44.33 | 9.32 | 6,978.36 | -236.89 | 843.88 | -238.22 | 10.00 | 9.69 | -3.92 | -15.98 |
| DLS = 10/100' | | | | | | | | | | |
| 7,188.90 | 53.03 | 6.83 | 7,037.00 | -170.85 | 853.15 | -172.19 | 10.00 | 9.78 | -2.79 | -12.94 |
| Sharon Springs | | | | | | | | | | |
| 7,200.00 | 54.12 | 6.57 | 7,043.59 | -161.98 | 854.19 | -163.32 | 10.00 | 9.81 | -2.42 | -11.30 |
| 7,297.75 | 63.73 | 4.47 | 7,094.00 | -78.74 | 862.16 | -80.09 | 10.00 | 9.83 | -2.14 | -11.14 |
| Niobrara A | | | | | | | | | | |
| 7,300.00 | 63.95 | 4.43 | 7,094.99 | -76.73 | 862.31 | -78.08 | 10.00 | 9.85 | -1.94 | -10.05 |
| 7,400.00 | 73.80 | 2.62 | 7,130.99 | 16.26 | 867.99 | 14.89 | 10.00 | 9.86 | -1.80 | -10.03 |
| 7,467.45 | 80.46 | 1.51 | 7,146.00 | 81.94 | 870.35 | 80.57 | 10.00 | 9.87 | -1.65 | -9.38 |
| Niobrara B | | | | | | | | | | |
| 7,500.00 | 83.68 | 0.99 | 7,150.49 | 114.16 | 871.05 | 112.79 | 10.00 | 9.87 | -1.60 | -9.13 |
| 7,568.87 | 90.48 | 359.91 | 7,154.00 | 182.90 | 871.59 | 181.53 | 10.00 | 9.88 | -1.57 | -9.06 |
| End Build @ 7568.87ft - Landing Target (Heel) - 7" - FERGE 3N-14HZ_CP | | | | | | | | | | |
| 7,600.00 | 90.48 | 359.91 | 7,153.74 | 214.03 | 871.54 | 212.66 | 0.00 | 0.00 | 0.00 | -9.00 |
| 7,700.00 | 90.48 | 359.91 | 7,152.90 | 314.02 | 871.38 | 312.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 90.48 | 359.91 | 7,152.07 | 414.02 | 871.22 | 412.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 90.48 | 359.91 | 7,151.23 | 514.02 | 871.05 | 512.65 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 90.48 | 359.91 | 7,150.40 | 614.01 | 870.89 | 612.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 90.48 | 359.91 | 7,149.56 | 714.01 | 870.73 | 712.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 90.48 | 359.91 | 7,148.73 | 814.00 | 870.57 | 812.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 90.48 | 359.91 | 7,147.89 | 914.00 | 870.41 | 912.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 90.48 | 359.91 | 7,147.06 | 1,014.00 | 870.25 | 1,012.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 90.48 | 359.91 | 7,146.22 | 1,113.99 | 870.09 | 1,112.63 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 90.48 | 359.91 | 7,145.39 | 1,213.99 | 869.93 | 1,212.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 90.48 | 359.91 | 7,144.55 | 1,313.99 | 869.77 | 1,312.62 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 90.48 | 359.91 | 7,143.72 | 1,413.98 | 869.61 | 1,412.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 90.48 | 359.91 | 7,142.88 | 1,513.98 | 869.45 | 1,512.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 90.48 | 359.91 | 7,142.05 | 1,613.98 | 869.28 | 1,612.61 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Report for FERGE 3N-14HZ - 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 (°) |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-------------------------|------------------------|-----------------------|----------------------|
| 9,100.00 | 90.48 | 359.91 | 7,141.21 | 1,713.97 | 869.12 | 1,712.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 90.48 | 359.91 | 7,140.37 | 1,813.97 | 868.96 | 1,812.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 90.48 | 359.91 | 7,139.54 | 1,913.96 | 868.80 | 1,912.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 90.48 | 359.91 | 7,138.70 | 2,013.96 | 868.64 | 2,012.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 90.48 | 359.91 | 7,137.87 | 2,113.96 | 868.48 | 2,112.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 90.48 | 359.91 | 7,137.03 | 2,213.95 | 868.32 | 2,212.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 90.48 | 359.91 | 7,136.20 | 2,313.95 | 868.16 | 2,312.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 90.48 | 359.91 | 7,135.36 | 2,413.95 | 868.00 | 2,412.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 90.48 | 359.91 | 7,134.53 | 2,513.94 | 867.84 | 2,512.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 90.48 | 359.91 | 7,133.69 | 2,613.94 | 867.67 | 2,612.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 90.48 | 359.91 | 7,132.86 | 2,713.94 | 867.51 | 2,712.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 90.48 | 359.91 | 7,132.02 | 2,813.93 | 867.35 | 2,812.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 90.48 | 359.91 | 7,131.19 | 2,913.93 | 867.19 | 2,912.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 90.48 | 359.91 | 7,130.35 | 3,013.92 | 867.03 | 3,012.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 90.48 | 359.91 | 7,129.52 | 3,113.92 | 866.87 | 3,112.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 90.48 | 359.91 | 7,128.68 | 3,213.92 | 866.71 | 3,212.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 90.48 | 359.91 | 7,127.84 | 3,313.91 | 866.55 | 3,312.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 90.48 | 359.91 | 7,127.01 | 3,413.91 | 866.39 | 3,412.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 90.48 | 359.91 | 7,126.17 | 3,513.91 | 866.23 | 3,512.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 90.48 | 359.91 | 7,125.34 | 3,613.90 | 866.07 | 3,612.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 90.48 | 359.91 | 7,124.50 | 3,713.90 | 865.90 | 3,712.53 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.48 | 359.91 | 7,123.67 | 3,813.90 | 865.74 | 3,812.53 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.48 | 359.91 | 7,122.83 | 3,913.89 | 865.58 | 3,912.53 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.48 | 359.91 | 7,122.00 | 4,013.89 | 865.42 | 4,012.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 90.48 | 359.91 | 7,121.16 | 4,113.88 | 865.26 | 4,112.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 90.48 | 359.91 | 7,120.33 | 4,213.88 | 865.10 | 4,212.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 90.48 | 359.91 | 7,119.49 | 4,313.88 | 864.94 | 4,312.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 90.48 | 359.91 | 7,118.66 | 4,413.87 | 864.78 | 4,412.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 90.48 | 359.91 | 7,117.82 | 4,513.87 | 864.62 | 4,512.51 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 90.48 | 359.91 | 7,116.99 | 4,613.87 | 864.46 | 4,612.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 90.48 | 359.91 | 7,116.15 | 4,713.86 | 864.29 | 4,712.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 90.48 | 359.91 | 7,115.31 | 4,813.86 | 864.13 | 4,812.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 90.48 | 359.91 | 7,114.48 | 4,913.86 | 863.97 | 4,912.49 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,357.41 | 90.48 | 359.91 | 7,114.00 | 4,971.26 | 863.88 | 4,969.90 | 0.00 | 0.00 | 0.00 | 0.00 |

TD Well @ 12357.41ft - Total Depth (Toe) - FERGE 3N-14HZ_BHL

Plan Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates +N/-S (usft) | +E/-W (usft) | Comment |
|-----------------------|-----------------------|--------------------------------|--------------|-------------------------------|
| 1,400.00 | 1,400.00 | 0.00 | 0.00 | Begin Nudge @ 1400.00ft |
| 1,903.77 | 1,901.18 | -19.99 | 39.40 | End Nudge @ 1903.77ft |
| 6,518.61 | 6,444.85 | -385.22 | 759.39 | Top of 4.5" Liner @ 6518.61ft |
| 6,618.61 | 6,543.31 | -393.13 | 775.00 | KOP @ 6618.61ft |
| 7,100.00 | 6,978.36 | -236.89 | 843.88 | DLS = 10'/100' |
| 7,568.87 | 7,154.00 | 182.90 | 871.59 | End Build @ 7568.87ft |
| 12,357.41 | 7,114.00 | 4,971.26 | 863.88 | TD Well @ 12357.41ft |

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin +N/_S (usft) | +E/-W (usft) | Start TVD (usft) |
|------------|----------------------|-------------|-------------|---------------------|--------------|------------------|
| User | No Target (Freehand) | 359.91 | Slot | 0.00 | 0.00 | 0.00 |

Plan Report for FERGE 3N-14HZ - Rev A0 Permit

Survey tool program

| From (usft) | To (usft) | Survey/Plan | Survey Tool |
|----------------|--------------|---------------|-------------|
| 0.00 | 7,568.87 | Rev A0 Permit | MWD |
| 7,568.87 | 12,357.41 | Rev A0 Permit | MWD |

Casing Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
|-----------------------------|-----------------------------|--------|---------------------------|-------------------------|
| 1,145.00 | 1,145.00 | 9 5/8" | 9-5/8 | 13-1/2 |
| 7,568.87 | 7,154.00 | 7" | 7 | 8-3/4 |

Formation Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|-----------------------------|-----------------------------|-----------------------|-----------|------------|-------------------------|
| 1,095.00 | 1,095.00 | Fox Hills Marker | | 0.00 | |
| 3,969.45 | 3,935.00 | Parkman | | 0.00 | |
| 4,408.21 | 4,367.00 | Sussex | | 0.00 | |
| 7,188.90 | 7,037.00 | Sharon Springs | | 0.00 | |
| 7,297.75 | 7,094.00 | Niobrara A | | 0.00 | |
| 7,467.45 | 7,146.00 | Niobrara B | | 0.00 | |
| 7,568.87 | 7,154.00 | Landing Target (Heel) | | 0.00 | |
| 12,357.41 | 7,114.00 | Total Depth (Toe) | | 0.00 | |

Targets associated with this wellbore

| Target Name | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Shape |
|-------------------|---------------|-----------------|-----------------|---------|
| FERGE 3N-14HZ_LD | 0.00 | 0.00 | 0.00 | Polygon |
| FERGE 3N-14HZ_SHL | 0.00 | 0.00 | 0.00 | Point |
| FERGE 3N-14HZ_SEC | 0.00 | 0.00 | 0.00 | Polygon |
| FERGE 3N-14HZ_BHL | 7,114.00 | 4,971.27 | 863.88 | Point |
| FERGE 3N-14HZ_CP | 7,154.00 | 182.90 | 871.59 | Point |

Directional Difficulty Index

| | | | |
|-------------------------------------|----------------|-------------------------------|-----------------------------|
| Average Dogleg over Survey: | 0.00 °/100usft | Maximum Dogleg over Survey: | 0.00 °/100usft at 0.00 usft |
| Net Tortousity applicable to Plans: | 0.00 °/100usft | Directional Difficulty Index: | 6.237 |

Audit Info

North Reference Sheet for Sec. 14-T3N-R66W - FERGE 3N-14HZ - 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' @ 4930.00usft (Drilling Rig). Northing and Easting are relative to FERGE 3N-14HZ
 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: 0.99995700

Grid Coordinates of Well: 1,323,360.66 usft N, 3,209,494.51 usft E
 Geographical Coordinates of Well: 40° 13' 06.92" N, 104° 44' 59.29" W
 Grid Convergence at Surface is: 0.48°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,357.41usft
 the Bottom Hole Displacement is 5,045.77usft in the Direction of 9.86° (True).

Magnetic Convergence at surface is: -8.07° (14 November 2013, , BGGM2013)

