

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

1N-65W-08 English Farms 15C-8HZ Pad

ENGLISH FARMS 15N-8HZ

Plan B

Plan: Permit Rev-1

Sperry Drilling Services Proposal Report

06 January, 2015

Well Coordinates: 14,553,216.76 N, 1,728,181.59 E (40° 04' 20.29" N, 104° 41' 10.61" W)

Ground Level: 4,948.00 usft

Local Coordinate Origin:

Centered on Well ENGLISH FARMS 15N-8HZ

Viewing Datum:

RKB = 17' @ 4965.00usft (D Rig)

TVDs to System:

N

North Reference:

True

Unit System:

Dec-Deg - API - US Survey Feet - Custom

Version: 5000.1 Build: 70

HALLIBURTON

Project: WELD-NAD83-UTMFT13N
Site: 1N-65W-08 English Farms 15C-8HZ Pad
Well: ENGLISH FARMS 15N-8HZ
Wellbore: Plan B
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

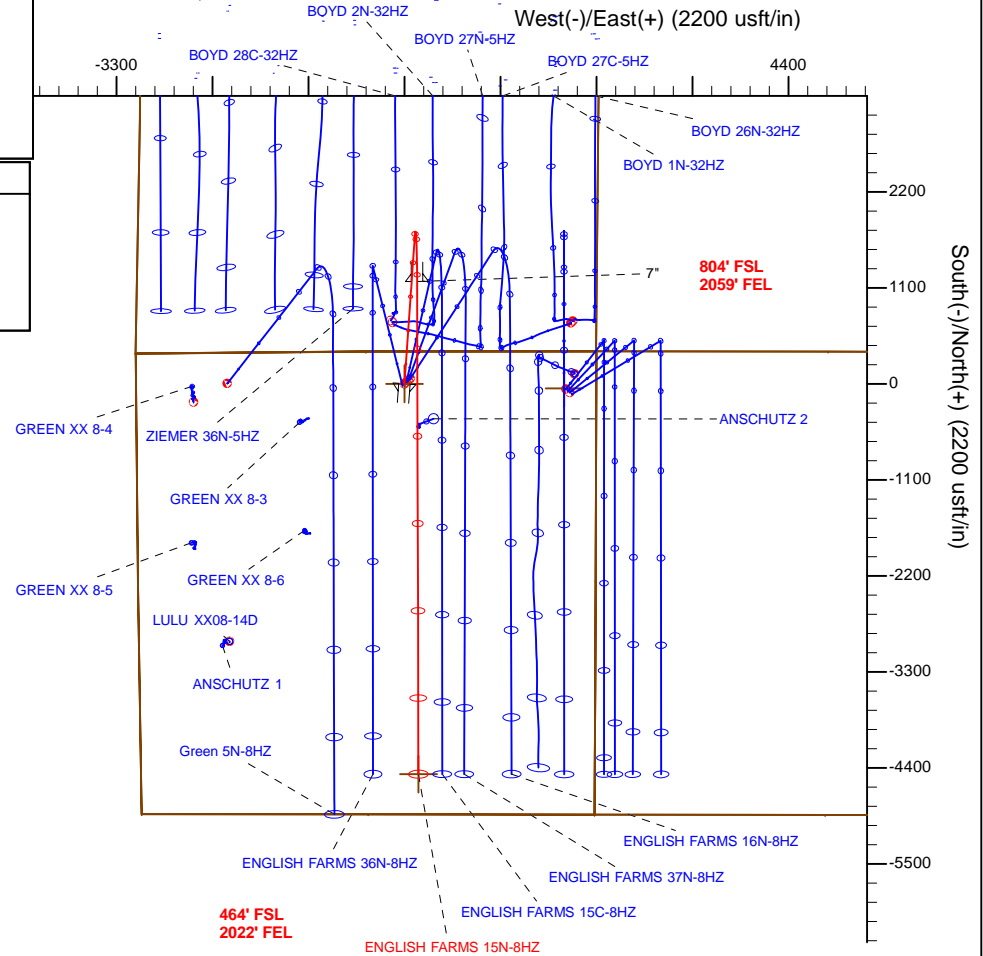
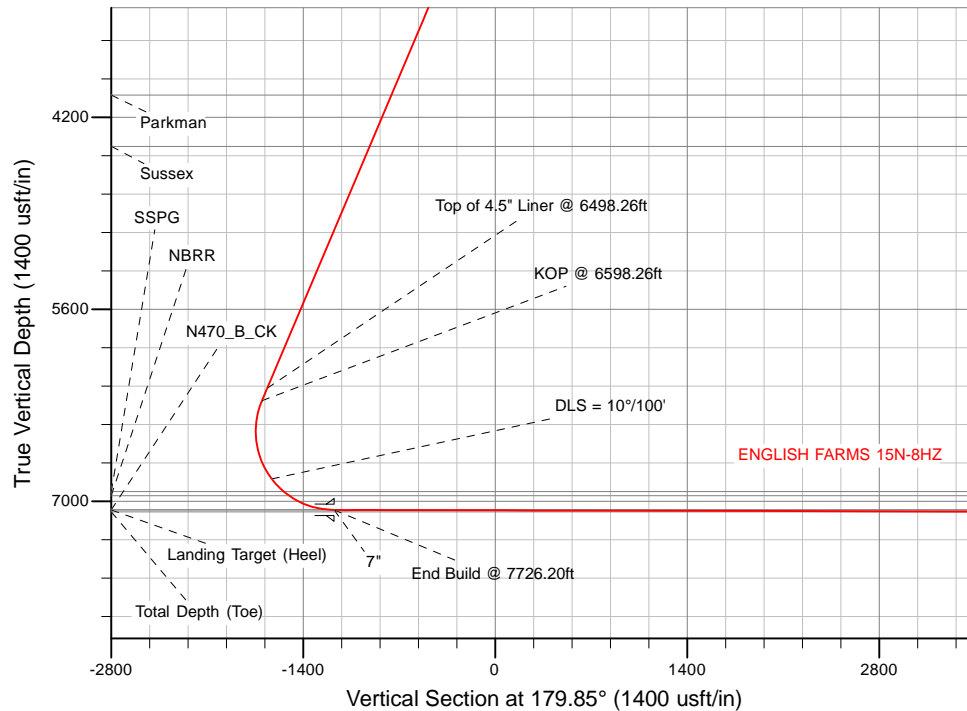
HALLIBURTON
Sperry Drilling

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 | 1668.26 | 0.00 | 0.00 | 1668.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 2818.26 | 23.00 | 4.00 | 2787.62 | 227.18 | 15.89 | 2.00 | 4.00 | -227.14 | |
| 4 | 6598.26 | 23.00 | 4.00 | 6267.13 | 1700.55 | 118.91 | 0.00 | 0.00 | -1700.23 | |
| 5 | 7726.20 | 89.86 | 179.85 | 7063.00 | 1174.37 | 144.68 | 10.00 | 175.50 | -1173.99 | |
| 6 | 13371.62 | 89.86 | 179.85 | 7077.00 | -4471.01 | 159.49 | 0.00 | 0.00 | 4471.41 | ENGLISH FARMS 15N-8HZ_BHL |

WELLBORE TARGET DETAILS (LAT/LONG)

| Name | TVD | +N/-S | +E/-W | Latitude | Longitude |
|---------------------------|---------|----------|--------|-----------|-------------|
| ENGLISH FARMS 15N-8HZ_SHL | 0.00 | 0.00 | 0.00 | 40.072303 | -104.686280 |
| ENGLISH FARMS 15N-8HZ_BHL | 7077.00 | -4471.01 | 159.49 | 40.060025 | -104.685710 |



TVD MD

6175.08 6498.26 Top of 4.5" Liner @ 6498.26ft
6267.13 6598.26 KOP @ 6598.26ft

WELL DETAILS: ENGLISH FARMS 15N-8HZ

Ground Level: 4948.00

RKB = 17' @ 4965.00usft (D Rig)

Plan: Permit Rev-1 (ENGLISH FARMS 15N-8HZ/Plan B)

Created By: Clint Eshelman

Reviewed:

Date: 1/06/2014

Date:

Plan Report for ENGLISH FARMS 15N-8HZ - Permit Rev-1

| 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 |
| 1N-R65W-Sec. 9_Section lines - ENGLISH FARMS 15N-8HZ_SHL - 1N-R65W-Sec. 8_Section lines | | | | | | | | | | |
| 16.00 | 0.00 | 0.00 | 16.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1N-R65W-Sec. 5_Section 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 |
| 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 |
| 962.00 | 0.00 | 0.00 | 962.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Base Fox Hills | | | | | | | | | | |
| 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 |
| 1,494.00 | 0.00 | 0.00 | 1,494.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Surface Csg Setting Depth - 9 5/8" | | | | | | | | | | |
| 1,500.00 | 0.00 | 0.00 | 1,500.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 0.00 | 0.00 | 1,600.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,668.26 | 0.00 | 0.00 | 1,668.26 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Begin Nudge @ 1668.26ft | | | | | | | | | | |
| 1,700.00 | 0.63 | 4.00 | 1,700.00 | 0.18 | 0.01 | -0.18 | 2.00 | 2.00 | 0.00 | 4.00 |
| 1,800.00 | 2.63 | 4.00 | 1,799.95 | 3.02 | 0.21 | -3.02 | 2.00 | 2.00 | 0.00 | 0.00 |
| 1,900.00 | 4.63 | 4.00 | 1,899.75 | 9.35 | 0.65 | -9.34 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,000.00 | 6.63 | 4.00 | 1,999.26 | 19.14 | 1.34 | -19.14 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,100.00 | 8.63 | 4.00 | 2,098.37 | 32.39 | 2.27 | -32.39 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,200.00 | 10.63 | 4.00 | 2,196.95 | 49.09 | 3.43 | -49.08 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,300.00 | 12.63 | 4.00 | 2,294.89 | 69.20 | 4.84 | -69.19 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,400.00 | 14.63 | 4.00 | 2,392.07 | 92.72 | 6.48 | -92.70 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,500.00 | 16.63 | 4.00 | 2,488.36 | 119.60 | 8.36 | -119.58 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,600.00 | 18.63 | 4.00 | 2,583.66 | 149.82 | 10.48 | -149.79 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,700.00 | 20.63 | 4.00 | 2,677.84 | 183.34 | 12.82 | -183.31 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,800.00 | 22.63 | 4.00 | 2,770.79 | 220.12 | 15.39 | -220.08 | 2.00 | 2.00 | 0.00 | 0.00 |
| 2,818.26 | 23.00 | 4.00 | 2,787.62 | 227.18 | 15.89 | -227.14 | 2.00 | 2.00 | 0.00 | 0.00 |
| End Nudge @ 2818.26ft | | | | | | | | | | |
| 2,900.00 | 23.00 | 4.00 | 2,862.86 | 259.04 | 18.11 | -258.99 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 23.00 | 4.00 | 2,954.91 | 298.02 | 20.84 | -297.96 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 23.00 | 4.00 | 3,046.97 | 337.00 | 23.57 | -336.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 23.00 | 4.00 | 3,139.02 | 375.98 | 26.29 | -375.91 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 23.00 | 4.00 | 3,231.07 | 414.95 | 29.02 | -414.88 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 23.00 | 4.00 | 3,323.12 | 453.93 | 31.74 | -453.85 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 23.00 | 4.00 | 3,415.17 | 492.91 | 34.47 | -492.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 23.00 | 4.00 | 3,507.22 | 531.89 | 37.19 | -531.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 23.00 | 4.00 | 3,599.27 | 570.87 | 39.92 | -570.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 23.00 | 4.00 | 3,691.32 | 609.84 | 42.64 | -609.73 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 23.00 | 4.00 | 3,783.37 | 648.82 | 45.37 | -648.70 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 23.00 | 4.00 | 3,875.42 | 687.80 | 48.10 | -687.67 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 23.00 | 4.00 | 3,967.47 | 726.78 | 50.82 | -726.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,176.62 | 23.00 | 4.00 | 4,038.00 | 756.64 | 52.91 | -756.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| Parkman | | | | | | | | | | |
| 4,200.00 | 23.00 | 4.00 | 4,059.52 | 765.76 | 53.55 | -765.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 23.00 | 4.00 | 4,151.57 | 804.73 | 56.27 | -804.58 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Report for ENGLISH FARMS 15N-8HZ - Permit Rev-1

| 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 (°) |
|---|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|----------------------------|
| 4,400.00 | 23.00 | 4.00 | 4,243.62 | 843.71 | 59.00 | -843.55 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 23.00 | 4.00 | 4,335.67 | 882.69 | 61.72 | -882.52 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,584.01 | 23.00 | 4.00 | 4,413.00 | 915.43 | 64.01 | -915.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sussex | | | | | | | | | | |
| 4,600.00 | 23.00 | 4.00 | 4,427.72 | 921.67 | 64.45 | -921.50 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 23.00 | 4.00 | 4,519.77 | 960.65 | 67.17 | -960.47 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 23.00 | 4.00 | 4,611.82 | 999.62 | 69.90 | -999.44 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 23.00 | 4.00 | 4,703.87 | 1,038.60 | 72.63 | -1,038.41 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 23.00 | 4.00 | 4,795.92 | 1,077.58 | 75.35 | -1,077.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 23.00 | 4.00 | 4,887.97 | 1,116.56 | 78.08 | -1,116.35 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 23.00 | 4.00 | 4,980.03 | 1,155.54 | 80.80 | -1,155.32 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 23.00 | 4.00 | 5,072.08 | 1,194.51 | 83.53 | -1,194.29 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 23.00 | 4.00 | 5,164.13 | 1,233.49 | 86.25 | -1,233.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 23.00 | 4.00 | 5,256.18 | 1,272.47 | 88.98 | -1,272.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 23.00 | 4.00 | 5,348.23 | 1,311.45 | 91.71 | -1,311.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 23.00 | 4.00 | 5,440.28 | 1,350.42 | 94.43 | -1,350.17 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 23.00 | 4.00 | 5,532.33 | 1,389.40 | 97.16 | -1,389.14 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 23.00 | 4.00 | 5,624.38 | 1,428.38 | 99.88 | -1,428.11 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 23.00 | 4.00 | 5,716.43 | 1,467.36 | 102.61 | -1,467.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 23.00 | 4.00 | 5,808.48 | 1,506.34 | 105.33 | -1,506.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 23.00 | 4.00 | 5,900.53 | 1,545.31 | 108.06 | -1,545.03 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 23.00 | 4.00 | 5,992.58 | 1,584.29 | 110.78 | -1,584.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 23.00 | 4.00 | 6,084.63 | 1,623.27 | 113.51 | -1,622.97 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,498.26 | 23.00 | 4.00 | 6,175.08 | 1,661.57 | 116.19 | -1,661.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| Top of 4.5" Liner @ 6498.26ft | | | | | | | | | | |
| 6,500.00 | 23.00 | 4.00 | 6,176.68 | 1,662.25 | 116.24 | -1,661.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,598.26 | 23.00 | 4.00 | 6,267.13 | 1,700.55 | 118.91 | -1,700.23 | 0.00 | 0.00 | 0.00 | 0.00 |
| KOP @ 6598.26ft | | | | | | | | | | |
| 6,600.00 | 22.83 | 4.04 | 6,268.73 | 1,701.22 | 118.96 | -1,700.91 | 10.00 | -9.97 | 2.02 | 175.50 |
| 6,700.00 | 12.88 | 7.57 | 6,363.80 | 1,731.70 | 121.80 | -1,731.37 | 10.00 | -9.95 | 3.53 | 175.46 |
| 6,800.00 | 3.27 | 32.30 | 6,462.71 | 1,745.20 | 124.80 | -1,744.86 | 10.00 | -9.61 | 24.73 | 172.09 |
| 6,900.00 | 7.45 | 166.28 | 6,562.46 | 1,741.30 | 127.87 | -1,740.96 | 10.00 | 4.17 | 133.98 | 147.51 |
| 7,000.00 | 17.32 | 174.21 | 6,660.02 | 1,720.14 | 130.92 | -1,719.79 | 10.00 | 9.88 | 7.93 | 13.69 |
| 7,100.00 | 27.29 | 176.44 | 6,752.42 | 1,682.35 | 133.85 | -1,682.00 | 10.00 | 9.97 | 2.24 | 5.91 |
| 7,200.00 | 37.27 | 177.54 | 6,836.86 | 1,629.08 | 136.58 | -1,628.72 | 10.00 | 9.98 | 1.10 | 3.84 |
| DLS = 10°/100' | | | | | | | | | | |
| 7,300.00 | 47.26 | 178.23 | 6,910.77 | 1,561.96 | 139.02 | -1,561.59 | 10.00 | 9.99 | 0.69 | 2.90 |
| 7,327.60 | 50.02 | 178.38 | 6,929.00 | 1,541.25 | 139.63 | -1,540.88 | 10.00 | 9.99 | 0.54 | 2.39 |
| SSPG | | | | | | | | | | |
| 7,378.62 | 55.12 | 178.63 | 6,960.00 | 1,500.76 | 140.69 | -1,500.39 | 10.00 | 9.99 | 0.49 | 2.29 |
| NBRR | | | | | | | | | | |
| 7,400.00 | 57.25 | 178.72 | 6,971.90 | 1,483.00 | 141.10 | -1,482.63 | 10.00 | 9.99 | 0.44 | 2.14 |
| 7,500.00 | 67.25 | 179.12 | 7,018.40 | 1,394.63 | 142.75 | -1,394.25 | 10.00 | 9.99 | 0.39 | 2.09 |
| 7,600.00 | 77.24 | 179.46 | 7,048.85 | 1,299.52 | 143.93 | -1,299.14 | 10.00 | 9.99 | 0.34 | 1.91 |
| 7,679.72 | 85.21 | 179.71 | 7,061.00 | 1,220.80 | 144.50 | -1,220.42 | 10.00 | 10.00 | 0.31 | 1.80 |
| N470_B_CK | | | | | | | | | | |
| 7,700.00 | 87.24 | 179.77 | 7,062.33 | 1,200.57 | 144.59 | -1,200.18 | 10.00 | 10.00 | 0.31 | 1.76 |
| 7,726.20 | 89.86 | 179.85 | 7,063.00 | 1,174.38 | 144.68 | -1,173.99 | 10.00 | 10.00 | 0.31 | 1.76 |
| End Build @ 7726.20ft - Landing Target (Heel) - 7" | | | | | | | | | | |
| 7,800.00 | 89.86 | 179.85 | 7,063.18 | 1,100.58 | 144.87 | -1,100.19 | 0.00 | 0.00 | 0.00 | 1.76 |
| 7,900.00 | 89.86 | 179.85 | 7,063.43 | 1,000.58 | 145.13 | -1,000.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 89.86 | 179.85 | 7,063.68 | 900.58 | 145.40 | -900.19 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 89.86 | 179.85 | 7,063.93 | 800.58 | 145.66 | -800.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 89.86 | 179.85 | 7,064.17 | 700.58 | 145.92 | -700.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 89.86 | 179.85 | 7,064.42 | 600.58 | 146.18 | -600.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 89.86 | 179.85 | 7,064.67 | 500.58 | 146.45 | -500.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 89.86 | 179.85 | 7,064.92 | 400.58 | 146.71 | -400.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 89.86 | 179.85 | 7,065.17 | 300.58 | 146.97 | -300.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 89.86 | 179.85 | 7,065.41 | 200.58 | 147.23 | -200.20 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Report for ENGLISH FARMS 15N-8HZ - Permit Rev-1

| 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 (°) |
|-----------------------------|--------------------|----------------|-----------------------------|-----------------|-----------------|-------------------------------|-------------------------------|------------------------------|-----------------------------|----------------------------|
| 8,800.00 | 89.86 | 179.85 | 7,065.66 | 100.58 | 147.49 | -100.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 89.86 | 179.85 | 7,065.91 | 0.58 | 147.76 | -0.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 89.86 | 179.85 | 7,066.16 | -99.41 | 148.02 | 99.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 89.86 | 179.85 | 7,066.41 | -199.41 | 148.28 | 199.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 89.86 | 179.85 | 7,066.65 | -299.41 | 148.54 | 299.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 89.86 | 179.85 | 7,066.90 | -399.41 | 148.81 | 399.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 89.86 | 179.85 | 7,067.15 | -499.41 | 149.07 | 499.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 89.86 | 179.85 | 7,067.40 | -599.41 | 149.33 | 599.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 89.86 | 179.85 | 7,067.65 | -699.41 | 149.59 | 699.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 89.86 | 179.85 | 7,067.89 | -799.41 | 149.86 | 799.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 89.86 | 179.85 | 7,068.14 | -899.41 | 150.12 | 899.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 89.86 | 179.85 | 7,068.39 | -999.41 | 150.38 | 999.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 89.86 | 179.85 | 7,068.64 | -1,099.41 | 150.64 | 1,099.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 89.86 | 179.85 | 7,068.89 | -1,199.41 | 150.91 | 1,199.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 89.86 | 179.85 | 7,069.13 | -1,299.41 | 151.17 | 1,299.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 89.86 | 179.85 | 7,069.38 | -1,399.41 | 151.43 | 1,399.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 89.86 | 179.85 | 7,069.63 | -1,499.41 | 151.69 | 1,499.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 89.86 | 179.85 | 7,069.88 | -1,599.41 | 151.95 | 1,599.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 89.86 | 179.85 | 7,070.13 | -1,699.40 | 152.22 | 1,699.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 89.86 | 179.85 | 7,070.37 | -1,799.40 | 152.48 | 1,799.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 89.86 | 179.85 | 7,070.62 | -1,899.40 | 152.74 | 1,899.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 89.86 | 179.85 | 7,070.87 | -1,999.40 | 153.00 | 1,999.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 89.86 | 179.85 | 7,071.12 | -2,099.40 | 153.27 | 2,099.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 89.86 | 179.85 | 7,071.37 | -2,199.40 | 153.53 | 2,199.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 89.86 | 179.85 | 7,071.61 | -2,299.40 | 153.79 | 2,299.80 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 89.86 | 179.85 | 7,071.86 | -2,399.40 | 154.05 | 2,399.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 89.86 | 179.85 | 7,072.11 | -2,499.40 | 154.32 | 2,499.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 89.86 | 179.85 | 7,072.36 | -2,599.40 | 154.58 | 2,599.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 89.86 | 179.85 | 7,072.61 | -2,699.40 | 154.84 | 2,699.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 89.86 | 179.85 | 7,072.85 | -2,799.40 | 155.10 | 2,799.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 89.86 | 179.85 | 7,073.10 | -2,899.40 | 155.36 | 2,899.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 89.86 | 179.85 | 7,073.35 | -2,999.40 | 155.63 | 2,999.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 89.86 | 179.85 | 7,073.60 | -3,099.40 | 155.89 | 3,099.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 89.86 | 179.85 | 7,073.85 | -3,199.39 | 156.15 | 3,199.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 89.86 | 179.85 | 7,074.09 | -3,299.39 | 156.41 | 3,299.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 89.86 | 179.85 | 7,074.34 | -3,399.39 | 156.68 | 3,399.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 89.86 | 179.85 | 7,074.59 | -3,499.39 | 156.94 | 3,499.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 89.86 | 179.85 | 7,074.84 | -3,599.39 | 157.20 | 3,599.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 89.86 | 179.85 | 7,075.09 | -3,699.39 | 157.46 | 3,699.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,700.00 | 89.86 | 179.85 | 7,075.33 | -3,799.39 | 157.73 | 3,799.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,800.00 | 89.86 | 179.85 | 7,075.58 | -3,899.39 | 157.99 | 3,899.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,900.00 | 89.86 | 179.85 | 7,075.83 | -3,999.39 | 158.25 | 3,999.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,000.00 | 89.86 | 179.85 | 7,076.08 | -4,099.39 | 158.51 | 4,099.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,100.00 | 89.86 | 179.85 | 7,076.33 | -4,199.39 | 158.78 | 4,199.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,200.00 | 89.86 | 179.85 | 7,076.57 | -4,299.39 | 159.04 | 4,299.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,300.00 | 89.86 | 179.85 | 7,076.82 | -4,399.39 | 159.30 | 4,399.79 | 0.00 | 0.00 | 0.00 | 0.00 |
| 13,371.62 | 89.86 | 179.85 | 7,077.00 | -4,471.01 | 159.49 | 4,471.41 | 0.00 | 0.00 | 0.00 | 0.00 |

TD Well @ 13371.62ft - ENGLISH FARMS 15N-8HZ_BHL

Plan Report for ENGLISH FARMS 15N-8HZ - Permit Rev-1

Plan Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
|-----------------------------|-----------------------------|-------------------|-----------------|-------------------------------|
| | | +N/-S (usft) | +E/-W (usft) | |
| 1,668.26 | 1,668.26 | 0.00 | 0.00 | Begin Nudge @ 1668.26ft |
| 2,818.26 | 2,787.62 | 227.18 | 15.89 | End Nudge @ 2818.26ft |
| 6,498.26 | 6,175.08 | 1,661.57 | 116.19 | Top of 4.5" Liner @ 6498.26ft |
| 6,598.26 | 6,267.13 | 1,700.55 | 118.91 | KOP @ 6598.26ft |
| 7,200.00 | 6,836.86 | 1,629.08 | 136.58 | DLS = 10°/100' |
| 7,726.20 | 7,063.00 | 1,174.38 | 144.68 | End Build @ 7726.20ft |
| 13,371.62 | 7,077.00 | -4,471.01 | 159.49 | TD Well @ 13371.62ft |

Vertical Section Information

| Angle Type | Target | Azimuth (°) | Origin Type | Origin | | Start TVD (usft) |
|---------------|----------------------|----------------|----------------|-----------------|-----------------|------------------------|
| | | | | +N/-S (usft) | +E/-W (usft) | |
| User | No Target (Freehand) | 179.85 | Slot | 0.00 | 0.00 | 0.00 |

Survey tool program

| From (usft) | To (usft) | Survey/Plan | Survey Tool |
|----------------|--------------|--------------|-------------|
| 0.00 | 7,726.20 | Permit Rev-1 | MWD+IFR1 |
| 7,726.20 | 13,371.62 | Permit Rev-1 | MWD+IFR1 |

Casing Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
|-----------------------------|-----------------------------|--------|---------------------------|-------------------------|
| 1,494.00 | 1,494.00 | 9 5/8" | 9-5/8 | 13-1/2 |
| 7,726.20 | 7,063.00 | 7" | 7 | 8-3/4 |

Formation Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|-----------------------------|-----------------------------|---------------------------|-----------|------------|-------------------------|
| 962.00 | 962.00 | Base Fox Hills | | 0.00 | |
| 1,494.00 | 1,494.00 | Surface Csg Setting Depth | | 0.00 | |
| 4,176.62 | 4,038.00 | Parkman | | 0.00 | |
| 4,584.01 | 4,413.00 | Sussex | | 0.00 | |
| 7,327.60 | 6,929.00 | SSPG | | 0.00 | |
| 7,378.62 | 6,960.00 | NBRR | | 0.00 | |
| 7,679.72 | 7,061.00 | N470_B_CK | | 0.00 | |
| 7,726.20 | 7,063.00 | Landing Target (Heel) | | 0.00 | |
| 13,371.62 | 7,077.00 | Total Depth (Toe) | | 0.00 | |

Targets associated with this wellbore

| Target Name | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Shape |
|------------------------------|---------------|-----------------|-----------------|---------|
| 1N-R65W-Sec. 9_Section lines | -16.00 | -4,318.10 | 5,907.27 | Polygon |
| ENGLISH FARMS 15N-8HZ_BHL | 7,077.00 | -4,471.01 | 159.49 | Point |
| 1N-R65W-Sec. 5_Section Lines | 16.00 | -51.64 | 1,829.90 | Polygon |
| ENGLISH FARMS 15N-8HZ_SHL | 0.00 | 0.00 | 0.00 | Point |
| 1N-R65W-Sec. 8_Section lines | -16.00 | -4,318.10 | 5,907.27 | Polygon |

North Reference Sheet for 1N-65W-08 English Farms 15C-8HZ Pad - ENGLISH FARMS 15N-8HZ - Plan B

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' @ 4965.00usft (D Rig). Northing and Easting are relative to ENGLISH FARMS 15N-8HZ

Coordinate System is Universal Transverse Mercator (US Survey Feet), Zone 13N (108 W to 102 W) using datum North American Datum 1983, ellipsoid

Projection method is Transverse Mercator (Gauss-Kruger)

Central Meridian is -105.00°, Longitude Origin:0.000000°, Latitude Origin:0.000000°

False Easting: 1,640,416.67usft, False Northing: 0.00usft, Scale Reduction: 0.99960881

Grid Coordinates of Well: 14,553,216.76 usft N, 1,728,181.59 usft E

Geographical Coordinates of Well: 40° 04' 20.29" N, 104° 41' 10.61" W

Grid Convergence at Surface is: 0.20°

Based upon Minimum Curvature type calculations, at a Measured Depth of 13,371.62usft
the Bottom Hole Displacement is 4,473.85usft in the Direction of 177.96° (True).

Magnetic Convergence at surface is: -8.14° (21 October 2014, , IGRF2010)

