

US ROCKIES WATTENBERG PLANNING

WELD-NAD83-UTMFT13N

2N-66W-32 Land Fed 13S-32HZ Pad

LAND 28N-29HZ

Plan A

Plan: Permit Rev-1

Sperry Drilling Services Proposal Report

27 May, 2015

Well Coordinates: 14,562,852.44 N, 1,694,892.00 E (40° 05' 56.49" N, 104° 48' 18.72" W)

Ground Level: 4,897.00 usft

Local Coordinate Origin:

Centered on Well LAND 28N-29HZ

Viewing Datum:

RKB = 17' @ 4914.00usft (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: 2N-66W-32 Land Fed 13S-32HZ Pad
Well: LAND 28N-29HZ
Wellbore: Plan A
Design: Permit Rev-1

US ROCKIES WATTENBERG PLANNING

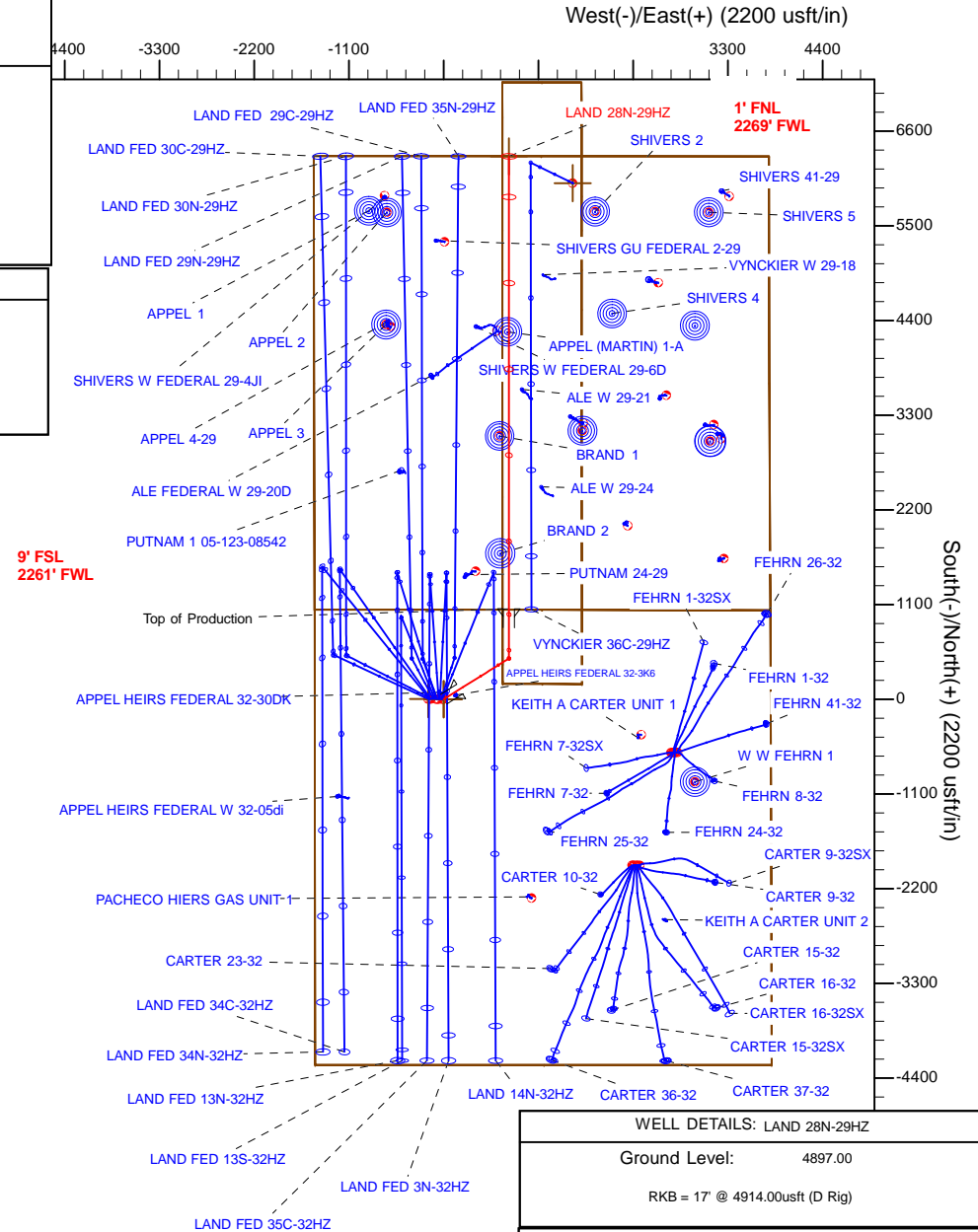
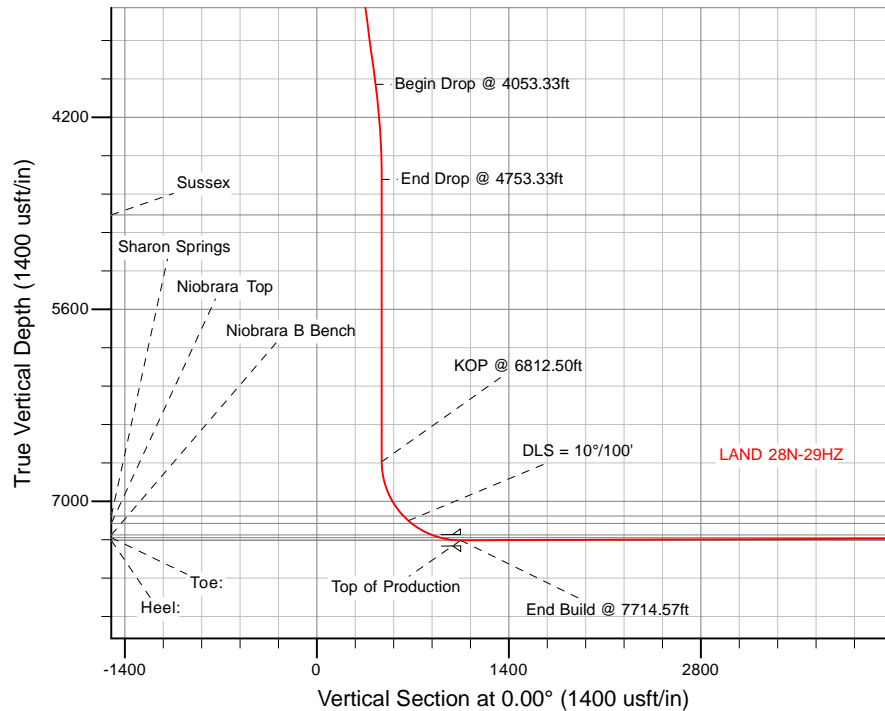
HALLIBURTON
Sperry Drilling

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 | 250.00 | 0.00 | 0.00 | 250.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 3 | 1183.33 | 14.00 | 58.00 | 1174.07 | 60.13 | 96.22 | 1.50 | 58.00 | 60.13 | |
| 4 | 4053.33 | 14.00 | 58.00 | 3958.82 | 428.06 | 685.03 | 0.00 | 0.00 | 428.06 | |
| 5 | 4753.33 | 0.00 | 0.00 | 4651.88 | 473.15 | 757.20 | 2.00 | 180.00 | 473.15 | |
| 6 | 6812.50 | 0.00 | 0.00 | 6711.05 | 473.15 | 757.20 | 0.00 | 0.00 | 473.15 | |
| 7 | 7714.57 | 90.21 | 0.00 | 7284.00 | 1048.18 | 757.22 | 10.00 | 0.00 | 1048.18 | |
| 8 | 12971.67 | 90.21 | 0.00 | 7265.00 | 6305.24 | 757.37 | 0.00 | 0.00 | 6305.24 | LAND 28N-29HZ_BHL |

WELLBORE TARGET DETAILS (LAT/LONG)

| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | Shape |
|-------------------|---------|---------|--------|-----------|-------------|-------|
| LAND 28N-29HZ_SHL | 0.00 | 0.00 | 0.00 | 40.099025 | -104.805199 | Point |
| LAND 28N-29HZ_BHL | 7265.00 | 6305.24 | 757.37 | 40.116340 | -104.802490 | Point |



| WELL DETAILS: LAND 28N-29HZ | |
|---|-----------------|
| Ground Level: | 4897.00 |
| RKB = 17" @ 4914.00usft (D Rig) | |
| Plan: Permit Rev-1 (LAND 28N-29HZ/Plan A) | |
| Created By: Clint Eshelman | Date: 5/27/2015 |
| Reviewed: | Date: |

Plan Report for LAND 28N-29HZ - 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 |
| LAND 28N-29HZ_SHL - 2N-R66W-Sec. 32_Section Lines - LAND 28N-29HZ_Landing Diagram | | | | | | | | | | |
| 10.00 | 0.00 | 0.00 | 10.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2N-R66W-Sec. 29_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 |
| 250.00 | 0.00 | 0.00 | 250.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Begin Nudge @ 250.00ft | | | | | | | | | | |
| 300.00 | 0.75 | 58.00 | 300.00 | 0.17 | 0.28 | 0.17 | 1.50 | 1.50 | 0.00 | 58.00 |
| 400.00 | 2.25 | 58.00 | 399.96 | 1.56 | 2.50 | 1.56 | 1.50 | 1.50 | 0.00 | 0.00 |
| 500.00 | 3.75 | 58.00 | 499.82 | 4.33 | 6.94 | 4.33 | 1.50 | 1.50 | 0.00 | 0.00 |
| 600.00 | 5.25 | 58.00 | 599.51 | 8.49 | 13.59 | 8.49 | 1.50 | 1.50 | 0.00 | 0.00 |
| 700.00 | 6.75 | 58.00 | 698.96 | 14.03 | 22.45 | 14.03 | 1.50 | 1.50 | 0.00 | 0.00 |
| 800.00 | 8.25 | 58.00 | 798.10 | 20.95 | 33.52 | 20.95 | 1.50 | 1.50 | 0.00 | 0.00 |
| 900.00 | 9.75 | 58.00 | 896.87 | 29.24 | 46.79 | 29.24 | 1.50 | 1.50 | 0.00 | 0.00 |
| 1,000.00 | 11.25 | 58.00 | 995.19 | 38.89 | 62.24 | 38.89 | 1.50 | 1.50 | 0.00 | 0.00 |
| 1,100.00 | 12.75 | 58.00 | 1,093.00 | 49.91 | 79.87 | 49.91 | 1.50 | 1.50 | 0.00 | 0.00 |
| 1,183.33 | 14.00 | 58.00 | 1,174.07 | 60.13 | 96.22 | 60.13 | 1.50 | 1.50 | 0.00 | 0.00 |
| End Nudge @ 1183.33ft | | | | | | | | | | |
| 1,200.00 | 14.00 | 58.00 | 1,190.25 | 62.26 | 99.64 | 62.26 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 14.00 | 58.00 | 1,287.27 | 75.08 | 120.16 | 75.08 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,321.36 | 14.00 | 58.00 | 1,308.00 | 77.82 | 124.54 | 77.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| Fox Hills | | | | | | | | | | |
| 1,400.00 | 14.00 | 58.00 | 1,384.30 | 87.90 | 140.67 | 87.90 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 14.00 | 58.00 | 1,481.33 | 100.72 | 161.19 | 100.72 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 14.00 | 58.00 | 1,578.36 | 113.54 | 181.71 | 113.54 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,622.30 | 14.00 | 58.00 | 1,600.00 | 116.40 | 186.28 | 116.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 5/8" | | | | | | | | | | |
| 1,700.00 | 14.00 | 58.00 | 1,675.39 | 126.36 | 202.22 | 126.36 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 14.00 | 58.00 | 1,772.42 | 139.18 | 222.74 | 139.18 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 14.00 | 58.00 | 1,869.45 | 152.00 | 243.25 | 152.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 14.00 | 58.00 | 1,966.48 | 164.82 | 263.77 | 164.82 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 14.00 | 58.00 | 2,063.51 | 177.64 | 284.29 | 177.64 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 14.00 | 58.00 | 2,160.54 | 190.46 | 304.80 | 190.46 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 14.00 | 58.00 | 2,257.57 | 203.28 | 325.32 | 203.28 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 14.00 | 58.00 | 2,354.60 | 216.10 | 345.83 | 216.10 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 14.00 | 58.00 | 2,451.63 | 228.92 | 366.35 | 228.92 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 14.00 | 58.00 | 2,548.66 | 241.74 | 386.87 | 241.74 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 14.00 | 58.00 | 2,645.69 | 254.56 | 407.38 | 254.56 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 14.00 | 58.00 | 2,742.72 | 267.38 | 427.90 | 267.38 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 14.00 | 58.00 | 2,839.75 | 280.20 | 448.41 | 280.20 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 14.00 | 58.00 | 2,936.78 | 293.02 | 468.93 | 293.02 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 14.00 | 58.00 | 3,033.81 | 305.84 | 489.45 | 305.84 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 14.00 | 58.00 | 3,130.84 | 318.66 | 509.96 | 318.66 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 14.00 | 58.00 | 3,227.87 | 331.48 | 530.48 | 331.48 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 14.00 | 58.00 | 3,324.90 | 344.30 | 551.00 | 344.30 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 14.00 | 58.00 | 3,421.93 | 357.12 | 571.51 | 357.12 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 14.00 | 58.00 | 3,518.95 | 369.94 | 592.03 | 369.94 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 14.00 | 58.00 | 3,615.98 | 382.76 | 612.54 | 382.76 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 14.00 | 58.00 | 3,713.01 | 395.58 | 633.06 | 395.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 14.00 | 58.00 | 3,810.04 | 408.40 | 653.58 | 408.40 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 14.00 | 58.00 | 3,907.07 | 421.22 | 674.09 | 421.22 | 0.00 | 0.00 | 0.00 | 0.00 |
| 4,053.33 | 14.00 | 58.00 | 3,958.82 | 428.06 | 685.03 | 428.06 | 0.00 | 0.00 | 0.00 | 0.00 |
| Begin Drop @ 4053.33ft | | | | | | | | | | |
| 4,100.00 | 13.07 | 58.00 | 4,004.19 | 433.84 | 694.30 | 433.84 | 2.00 | -2.00 | 0.00 | 180.00 |
| 4,200.00 | 11.07 | 58.00 | 4,101.98 | 444.92 | 712.02 | 444.92 | 2.00 | -2.00 | 0.00 | 180.00 |
| 4,300.00 | 9.07 | 58.00 | 4,200.43 | 454.18 | 726.85 | 454.18 | 2.00 | -2.00 | 0.00 | 180.00 |

Plan Report for LAND 28N-29HZ - 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 | 7.07 | 58.00 | 4,299.44 | 461.62 | 738.75 | 461.62 | 2.00 | -2.00 | 0.00 | 180.00 |
| 4,500.00 | 5.07 | 58.00 | 4,398.87 | 467.22 | 747.71 | 467.22 | 2.00 | -2.00 | 0.00 | 180.00 |
| 4,600.00 | 3.07 | 58.00 | 4,498.62 | 470.98 | 753.72 | 470.98 | 2.00 | -2.00 | 0.00 | 180.00 |
| 4,700.00 | 1.07 | 58.00 | 4,598.55 | 472.89 | 756.78 | 472.89 | 2.00 | -2.00 | 0.00 | 180.00 |
| 4,753.33 | 0.00 | 0.00 | 4,651.87 | 473.15 | 757.20 | 473.15 | 2.00 | -2.00 | -108.76 | -180.00 |
| End Drop @ 4753.33ft | | | | | | | | | | |
| 4,800.00 | 0.00 | 0.00 | 4,698.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 180.00 |
| 4,900.00 | 0.00 | 0.00 | 4,798.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 0.00 | 0.00 | 4,898.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,013.46 | 0.00 | 0.00 | 4,912.00 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| Sussex | | | | | | | | | | |
| 5,100.00 | 0.00 | 0.00 | 4,998.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 0.00 | 0.00 | 5,098.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 0.00 | 0.00 | 5,198.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 0.00 | 0.00 | 5,298.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 0.00 | 0.00 | 5,398.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 0.00 | 0.00 | 5,498.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 0.00 | 0.00 | 5,598.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 0.00 | 0.00 | 5,698.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 0.00 | 0.00 | 5,798.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 0.00 | 0.00 | 5,898.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 0.00 | 0.00 | 5,998.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 0.00 | 0.00 | 6,098.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 0.00 | 0.00 | 6,198.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 0.00 | 0.00 | 6,298.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 0.00 | 0.00 | 6,398.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 0.00 | 0.00 | 6,498.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 0.00 | 0.00 | 6,598.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 0.00 | 0.00 | 6,698.54 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| 6,812.50 | 0.00 | 0.00 | 6,711.04 | 473.15 | 757.20 | 473.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| KOP @ 6812.50ft | | | | | | | | | | |
| 6,900.00 | 8.75 | 0.00 | 6,798.20 | 479.82 | 757.20 | 479.82 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,000.00 | 18.75 | 0.00 | 6,895.22 | 503.56 | 757.20 | 503.56 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,100.00 | 28.75 | 0.00 | 6,986.63 | 543.78 | 757.20 | 543.78 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,200.00 | 38.75 | 0.00 | 7,069.67 | 599.27 | 757.20 | 599.27 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,251.13 | 43.86 | 0.00 | 7,108.07 | 633.01 | 757.20 | 633.01 | 10.00 | 10.00 | 0.00 | 0.00 |
| Sharon Springs | | | | | | | | | | |
| 7,300.00 | 48.75 | 0.00 | 7,141.82 | 668.33 | 757.21 | 668.33 | 10.00 | 10.00 | 0.00 | 0.00 |
| DLS = 10°/100' | | | | | | | | | | |
| 7,330.11 | 51.76 | 0.00 | 7,161.07 | 691.48 | 757.21 | 691.48 | 10.00 | 10.00 | 0.00 | 0.00 |
| Niobrara Top | | | | | | | | | | |
| 7,400.00 | 58.75 | 0.00 | 7,200.87 | 748.87 | 757.21 | 748.87 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,499.66 | 68.72 | 0.00 | 7,244.92 | 838.12 | 757.21 | 838.12 | 10.00 | 10.00 | 0.00 | 0.00 |
| Niobrara B Bench | | | | | | | | | | |
| 7,500.00 | 68.75 | 0.00 | 7,245.05 | 838.44 | 757.21 | 838.44 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,600.00 | 78.75 | 0.00 | 7,273.00 | 934.33 | 757.21 | 934.33 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,700.00 | 88.75 | 0.00 | 7,283.87 | 1,033.61 | 757.22 | 1,033.61 | 10.00 | 10.00 | 0.00 | 0.00 |
| 7,714.57 | 90.21 | 0.00 | 7,284.00 | 1,048.18 | 757.22 | 1,048.18 | 10.00 | 10.00 | 0.00 | 0.00 |
| End Build @ 7714.57ft - Heel: - Top of Production | | | | | | | | | | |
| 7,800.00 | 90.21 | 0.00 | 7,283.69 | 1,133.61 | 757.22 | 1,133.61 | 0.00 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 90.21 | 0.00 | 7,283.33 | 1,233.60 | 757.22 | 1,233.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 90.21 | 0.00 | 7,282.97 | 1,333.60 | 757.23 | 1,333.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 90.21 | 0.00 | 7,282.61 | 1,433.60 | 757.23 | 1,433.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 90.21 | 0.00 | 7,282.25 | 1,533.60 | 757.23 | 1,533.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 90.21 | 0.00 | 7,281.89 | 1,633.60 | 757.23 | 1,633.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 90.21 | 0.00 | 7,281.52 | 1,733.60 | 757.24 | 1,733.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 90.21 | 0.00 | 7,281.16 | 1,833.60 | 757.24 | 1,833.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 90.21 | 0.00 | 7,280.80 | 1,933.60 | 757.24 | 1,933.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 90.21 | 0.00 | 7,280.44 | 2,033.60 | 757.25 | 2,033.60 | 0.00 | 0.00 | 0.00 | 0.00 |

Plan Report for LAND 28N-29HZ - 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 | 90.21 | 0.00 | 7,280.08 | 2,133.60 | 757.25 | 2,133.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 90.21 | 0.00 | 7,279.72 | 2,233.60 | 757.25 | 2,233.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 90.21 | 0.00 | 7,279.36 | 2,333.60 | 757.25 | 2,333.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 90.21 | 0.00 | 7,278.99 | 2,433.60 | 757.26 | 2,433.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 90.21 | 0.00 | 7,278.63 | 2,533.60 | 757.26 | 2,533.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 90.21 | 0.00 | 7,278.27 | 2,633.60 | 757.26 | 2,633.60 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 90.21 | 0.00 | 7,277.91 | 2,733.59 | 757.27 | 2,733.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 90.21 | 0.00 | 7,277.55 | 2,833.59 | 757.27 | 2,833.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 90.21 | 0.00 | 7,277.19 | 2,933.59 | 757.27 | 2,933.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 90.21 | 0.00 | 7,276.83 | 3,033.59 | 757.27 | 3,033.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 90.21 | 0.00 | 7,276.46 | 3,133.59 | 757.28 | 3,133.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 90.21 | 0.00 | 7,276.10 | 3,233.59 | 757.28 | 3,233.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 90.21 | 0.00 | 7,275.74 | 3,333.59 | 757.28 | 3,333.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 90.21 | 0.00 | 7,275.38 | 3,433.59 | 757.29 | 3,433.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 90.21 | 0.00 | 7,275.02 | 3,533.59 | 757.29 | 3,533.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 90.21 | 0.00 | 7,274.66 | 3,633.59 | 757.29 | 3,633.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 90.21 | 0.00 | 7,274.30 | 3,733.59 | 757.30 | 3,733.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 90.21 | 0.00 | 7,273.93 | 3,833.59 | 757.30 | 3,833.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 90.21 | 0.00 | 7,273.57 | 3,933.59 | 757.30 | 3,933.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 90.21 | 0.00 | 7,273.21 | 4,033.59 | 757.30 | 4,033.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 90.21 | 0.00 | 7,272.85 | 4,133.59 | 757.31 | 4,133.59 | 0.00 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 90.21 | 0.00 | 7,272.49 | 4,233.58 | 757.31 | 4,233.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 90.21 | 0.00 | 7,272.13 | 4,333.58 | 757.31 | 4,333.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 90.21 | 0.00 | 7,271.77 | 4,433.58 | 757.32 | 4,433.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.21 | 0.00 | 7,271.40 | 4,533.58 | 757.32 | 4,533.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.21 | 0.00 | 7,271.04 | 4,633.58 | 757.32 | 4,633.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.21 | 0.00 | 7,270.68 | 4,733.58 | 757.32 | 4,733.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 90.21 | 0.00 | 7,270.32 | 4,833.58 | 757.33 | 4,833.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 90.21 | 0.00 | 7,269.96 | 4,933.58 | 757.33 | 4,933.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 90.21 | 0.00 | 7,269.60 | 5,033.58 | 757.33 | 5,033.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 90.21 | 0.00 | 7,269.23 | 5,133.58 | 757.34 | 5,133.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 90.21 | 0.00 | 7,268.87 | 5,233.58 | 757.34 | 5,233.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 90.21 | 0.00 | 7,268.51 | 5,333.58 | 757.34 | 5,333.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 90.21 | 0.00 | 7,268.15 | 5,433.58 | 757.34 | 5,433.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 90.21 | 0.00 | 7,267.79 | 5,533.58 | 757.35 | 5,533.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,300.00 | 90.21 | 0.00 | 7,267.43 | 5,633.58 | 757.35 | 5,633.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,400.00 | 90.21 | 0.00 | 7,267.07 | 5,733.58 | 757.35 | 5,733.58 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,500.00 | 90.21 | 0.00 | 7,266.70 | 5,833.57 | 757.36 | 5,833.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,600.00 | 90.21 | 0.00 | 7,266.34 | 5,933.57 | 757.36 | 5,933.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,700.00 | 90.21 | 0.00 | 7,265.98 | 6,033.57 | 757.36 | 6,033.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,800.00 | 90.21 | 0.00 | 7,265.62 | 6,133.57 | 757.36 | 6,133.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,900.00 | 90.21 | 0.00 | 7,265.26 | 6,233.57 | 757.37 | 6,233.57 | 0.00 | 0.00 | 0.00 | 0.00 |
| 12,971.67 | 90.21 | 0.00 | 7,265.00 | 6,305.24 | 757.37 | 6,305.24 | 0.00 | 0.00 | 0.00 | 0.00 |

TD Well @ 12971.67ft - Toe: - LAND 28N-29HZ_BHL

Plan Annotations

| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
|-----------------------|-----------------------|-------------------|--------------|------------------------|
| | | +N/-S (usft) | +E/-W (usft) | |
| 250.00 | 250.00 | 0.00 | 0.00 | Begin Nudge @ 250.00ft |
| 1,183.33 | 1,174.07 | 60.13 | 96.22 | End Nudge @ 1183.33ft |
| 4,053.33 | 3,958.82 | 428.06 | 685.03 | Begin Drop @ 4053.33ft |
| 4,753.33 | 4,651.87 | 473.15 | 757.20 | End Drop @ 4753.33ft |
| 6,812.50 | 6,711.04 | 473.15 | 757.20 | KOP @ 6812.50ft |
| 7,300.00 | 7,141.82 | 668.33 | 757.21 | DLS = 10°/100' |
| 7,714.57 | 7,284.00 | 1,048.18 | 757.22 | End Build @ 7714.57ft |
| 12,971.67 | 7,265.00 | 6,305.24 | 757.37 | TD Well @ 12971.67ft |

Plan Report for LAND 28N-29HZ - Permit Rev-1

Vertical Section Information

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

Survey tool program

| From (usft) | To (usft) | Survey/Plan | Survey Tool |
|----------------|--------------|--------------|------------------------------|
| 0.00 | 7,714.57 | Permit Rev-1 | APC_ISCWSA REV 2 MWD+IFR1 |
| 7,714.57 | 12,971.67 | Permit Rev-1 | APC_ISCWSA REV 2 MWD+IFR1 |

Casing Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Casing Diameter (") | Hole Diameter (") |
|-----------------------------|-----------------------------|-------------------|---------------------------|-------------------------|
| 1,622.30 | 1,600.00 | 9 5/8" | 9-5/8 | 13-1/2 |
| 7,714.57 | 7,284.00 | Top of Production | 5-1/2 | 7-7/8 |

Formation Details

| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) |
|-----------------------------|-----------------------------|------------------|-----------|------------|-------------------------|
| 1,321.36 | 1,308.00 | Fox Hills | | 0.00 | |
| 5,013.46 | 4,912.00 | Sussex | | 0.00 | |
| 7,251.13 | 7,108.07 | Sharon Springs | | 0.00 | |
| 7,330.11 | 7,161.07 | Niobrara Top | | 0.00 | |
| 7,499.66 | 7,244.92 | Niobrara B Bench | | 0.00 | |
| 7,714.57 | 7,284.00 | Heel: | | 0.00 | |
| 12,971.67 | 7,265.00 | Toe: | | 0.00 | |

Targets associated with this wellbore

| Target Name | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Shape |
|-------------------------------|---------------|-----------------|-----------------|---------|
| LAND 28N-29HZ_SHL | 0.00 | 0.00 | 0.00 | Point |
| LAND 28N-29HZ_BHL | 7,265.00 | 6,305.24 | 757.37 | Point |
| 2N-R66W-Sec. 29_Section Lines | 10.00 | 5,994.29 | 1,498.55 | Polygon |
| 2N-R66W-Sec. 32_Section Lines | 0.00 | 1.46 | -179.81 | Polygon |
| LAND 28N-29HZ_Landing Diagram | 0.00 | 0.00 | 0.00 | Polygon |

North Reference Sheet for 2N-66W-32 Land Fed 13S-32HZ Pad - LAND 28N-29HZ - 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' @ 4914.00usft (D Rig). Northing and Easting are relative to LAND 28N-29HZ

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: 0.99960339

Grid Coordinates of Well: 14,562,852.44 usft N, 1,694,892.00 usft E

Geographical Coordinates of Well: 40° 05' 56.49" N, 104° 48' 18.72" W

Grid Convergence at Surface is: 0.13°

Based upon Minimum Curvature type calculations, at a Measured Depth of 12,971.67usft the Bottom Hole Displacement is 6,350.57usft in the Direction of 6.85° (True).

Magnetic Convergence at surface is: -8.21° (19 May 2015, , IGRF2010)

