



Whiting Petroleum Corp.

**Weld County, CO
Sec 7-T10N-R57W
Horsetail #07G-1811**

Hz

Plan: Design #1

Standard Planning Report

26 March, 2015



WOG

Planning Report

| | | | |
|------------------|-------------------------|-------------------------------------|---|
| Database: | LandmarkEDM | Local Co-ordinate Reference: | Well Horsetail #07G-1811 |
| Company: | Whiting Petroleum Corp. | TVD Reference: | WELL @ 4913.00usft (Original Well Elev) |
| Project: | Weld County, CO | MD Reference: | WELL @ 4913.00usft (Original Well Elev) |
| Site: | Sec 7-T10N-R57W | North Reference: | True |
| Well: | Horsetail #07G-1811 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | Design #1 | | |

| | | | |
|--------------------|---------------------------|----------------------|----------------|
| Project | Weld County, CO | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Northern Zone | | |

| | | | | | |
|-----------------------|-----------|-----------------|-------------------|-------------------|------------------|
| Site | | Sec 7-T10N-R57W | | | |
| Site Position: | | Northing: | 1,558,450.14 usft | Latitude: | 40° 51' 14.300 N |
| From: | Lat/Long | Easting: | 3,469,810.15 usft | Longitude: | 103° 48' 5.960 W |
| Position Uncertainty: | 0.00 usft | Slot Radius: | 13.200 in | Grid Convergence: | 1.10 ° |

| Well | | Horsetail #07G-1811 | | | | |
|----------------------|-------|---------------------|---------------------|-------------------|---------------|-------------------|
| Well Position | +N/-S | -123.29 usft | Northing: | 1,558,380.95 usft | Latitude: | 40° 51' 13.080 N |
| | +E/-W | 2,823.33 usft | Easting: | 3,472,635.32 usft | Longitude: | 103° 47' 29.220 W |
| Position Uncertainty | | 0.00 usft | Wellhead Elevation: | | Ground Level: | 4,896.00 usft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | Hz | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 1/6/2015 | 7.88 | 67.44 | 53,088 |

| | | | | |
|--------------------------|--------------------------------|---------------------|----------------------|----------------------|
| Design | Design #1 | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PROTOTYPE | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) (usft) | +N/-S (usft) | +E/-W (usft) | Direction (°) |
| | 0.00 | 0.00 | 0.00 | 179.77 |

| Plan Sections | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-----------------------|----------------------|---------------------|---------|------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | TFO (°) | Target |
| 0.00 | 0.00 | 0.00 | 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 | |
| 500.00 | 4.00 | 6.00 | 499.84 | 6.94 | 0.73 | 2.00 | 2.00 | 0.00 | 6.00 | |
| 4,822.00 | 4.00 | 6.00 | 4,811.31 | 306.78 | 32.24 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 5,022.00 | 0.00 | 0.00 | 5,011.15 | 313.72 | 32.97 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 5,239.98 | 0.00 | 0.00 | 5,229.13 | 313.72 | 32.97 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,058.16 | 90.00 | 180.00 | 5,750.00 | -207.15 | 32.93 | 11.00 | 11.00 | 0.00 | 180.00 | PBHL 1811A |
| 13,775.46 | 90.00 | 180.00 | 5,750.00 | -7,924.45 | 32.29 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL 1811A |



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| Project: | Weld County, CO | MD Reference: | WELL @ 4913.00usft (Original Well Elev) |
| Site: | Sec 7-T10N-R57W | North Reference: | True |
| Well: | Horsetail #07G-1811 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | Design #1 | | |

| Planned Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 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 |
| 200.00 | 0.00 | 0.00 | 200.00 | 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 |
| Build 2°/100' | | | | | | | | | |
| 400.00 | 2.00 | 6.00 | 399.98 | 1.74 | 0.18 | -1.73 | 2.00 | 2.00 | 0.00 |
| 500.00 | 4.00 | 6.00 | 499.84 | 6.94 | 0.73 | -6.94 | 2.00 | 2.00 | 0.00 |
| Hold 4° Inc | | | | | | | | | |
| 600.00 | 4.00 | 6.00 | 599.59 | 13.88 | 1.46 | -13.87 | 0.00 | 0.00 | 0.00 |
| 700.00 | 4.00 | 6.00 | 699.35 | 20.82 | 2.19 | -20.81 | 0.00 | 0.00 | 0.00 |
| 800.00 | 4.00 | 6.00 | 799.11 | 27.75 | 2.92 | -27.74 | 0.00 | 0.00 | 0.00 |
| 900.00 | 4.00 | 6.00 | 898.86 | 34.69 | 3.65 | -34.67 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 4.00 | 6.00 | 998.62 | 41.63 | 4.38 | -41.61 | 0.00 | 0.00 | 0.00 |
| 1,100.00 | 4.00 | 6.00 | 1,098.38 | 48.56 | 5.10 | -48.54 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 4.00 | 6.00 | 1,198.13 | 55.50 | 5.83 | -55.48 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 4.00 | 6.00 | 1,297.89 | 62.44 | 6.56 | -62.41 | 0.00 | 0.00 | 0.00 |
| 1,400.00 | 4.00 | 6.00 | 1,397.65 | 69.38 | 7.29 | -69.35 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 4.00 | 6.00 | 1,497.40 | 76.31 | 8.02 | -76.28 | 0.00 | 0.00 | 0.00 |
| 1,552.73 | 4.00 | 6.00 | 1,550.00 | 79.97 | 8.41 | -79.94 | 0.00 | 0.00 | 0.00 |
| Upper Pierre | | | | | | | | | |
| 1,600.00 | 4.00 | 6.00 | 1,597.16 | 83.25 | 8.75 | -83.22 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 4.00 | 6.00 | 1,696.91 | 90.19 | 9.48 | -90.15 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 4.00 | 6.00 | 1,796.67 | 97.13 | 10.21 | -97.08 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 4.00 | 6.00 | 1,896.43 | 104.06 | 10.94 | -104.02 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 4.00 | 6.00 | 1,996.18 | 111.00 | 11.67 | -110.95 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 4.00 | 6.00 | 2,095.94 | 117.94 | 12.40 | -117.89 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 4.00 | 6.00 | 2,195.70 | 124.88 | 13.13 | -124.82 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 4.00 | 6.00 | 2,295.45 | 131.81 | 13.85 | -131.76 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 4.00 | 6.00 | 2,395.21 | 138.75 | 14.58 | -138.69 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 4.00 | 6.00 | 2,494.97 | 145.69 | 15.31 | -145.63 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 4.00 | 6.00 | 2,594.72 | 152.63 | 16.04 | -152.56 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 4.00 | 6.00 | 2,694.48 | 159.56 | 16.77 | -159.49 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 4.00 | 6.00 | 2,794.23 | 166.50 | 17.50 | -166.43 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 4.00 | 6.00 | 2,893.99 | 173.44 | 18.23 | -173.36 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 4.00 | 6.00 | 2,993.75 | 180.38 | 18.96 | -180.30 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 4.00 | 6.00 | 3,093.50 | 187.31 | 19.69 | -187.23 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 4.00 | 6.00 | 3,193.26 | 194.25 | 20.42 | -194.17 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 4.00 | 6.00 | 3,293.02 | 201.19 | 21.15 | -201.10 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 4.00 | 6.00 | 3,392.77 | 208.13 | 21.87 | -208.04 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 4.00 | 6.00 | 3,492.53 | 215.06 | 22.60 | -214.97 | 0.00 | 0.00 | 0.00 |
| 3,507.49 | 4.00 | 6.00 | 3,500.00 | 215.58 | 22.66 | -215.49 | 0.00 | 0.00 | 0.00 |
| Hygiene | | | | | | | | | |
| 3,600.00 | 4.00 | 6.00 | 3,592.29 | 222.00 | 23.33 | -221.90 | 0.00 | 0.00 | 0.00 |
| 3,657.85 | 4.00 | 6.00 | 3,650.00 | 226.01 | 23.76 | -225.92 | 0.00 | 0.00 | 0.00 |
| Lower Pierre | | | | | | | | | |
| 3,700.00 | 4.00 | 6.00 | 3,692.04 | 228.94 | 24.06 | -228.84 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 4.00 | 6.00 | 3,791.80 | 235.88 | 24.79 | -235.77 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 4.00 | 6.00 | 3,891.56 | 242.81 | 25.52 | -242.71 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 4.00 | 6.00 | 3,991.31 | 249.75 | 26.25 | -249.64 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 4.00 | 6.00 | 4,091.07 | 256.69 | 26.98 | -256.58 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 4.00 | 6.00 | 4,190.82 | 263.63 | 27.71 | -263.51 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 4.00 | 6.00 | 4,290.58 | 270.56 | 28.44 | -270.44 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 4.00 | 6.00 | 4,390.34 | 277.50 | 29.17 | -277.38 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 4.00 | 6.00 | 4,490.09 | 284.44 | 29.90 | -284.31 | 0.00 | 0.00 | 0.00 |



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| Well: | Horsetail #07G-1811 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | Design #1 | | |

| Planned Survey | | | | | | | | | |
|--------------------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 4,600.00 | 4.00 | 6.00 | 4,589.85 | 291.38 | 30.62 | -291.25 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 4.00 | 6.00 | 4,689.61 | 298.31 | 31.35 | -298.18 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 4.00 | 6.00 | 4,789.36 | 305.25 | 32.08 | -305.12 | 0.00 | 0.00 | 0.00 |
| 4,822.00 | 4.00 | 6.00 | 4,811.31 | 306.78 | 32.24 | -306.64 | 0.00 | 0.00 | 0.00 |
| Drop 2°/100' | | | | | | | | | |
| 4,900.00 | 2.44 | 6.00 | 4,889.18 | 311.13 | 32.70 | -311.00 | 2.00 | -2.00 | 0.00 |
| 5,000.00 | 0.44 | 6.00 | 4,989.15 | 313.63 | 32.96 | -313.50 | 2.00 | -2.00 | 0.00 |
| 5,022.00 | 0.00 | 0.00 | 5,011.15 | 313.72 | 32.97 | -313.58 | 2.00 | -2.00 | 0.00 |
| Hold Vertical | | | | | | | | | |
| 5,100.00 | 0.00 | 0.00 | 5,089.15 | 313.72 | 32.97 | -313.58 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 0.00 | 0.00 | 5,189.15 | 313.72 | 32.97 | -313.58 | 0.00 | 0.00 | 0.00 |
| 5,239.98 | 0.00 | 0.00 | 5,229.13 | 313.72 | 32.97 | -313.58 | 0.00 | 0.00 | 0.00 |
| KOP, Build 11°/100' | | | | | | | | | |
| 5,250.00 | 1.10 | 180.00 | 5,239.15 | 313.62 | 32.97 | -313.48 | 11.00 | 11.00 | 0.00 |
| 5,300.00 | 6.60 | 180.00 | 5,289.01 | 310.26 | 32.97 | -310.13 | 11.00 | 11.00 | 0.00 |
| 5,350.00 | 12.10 | 180.00 | 5,338.33 | 302.14 | 32.97 | -302.00 | 11.00 | 11.00 | 0.00 |
| 5,400.00 | 17.60 | 180.00 | 5,386.64 | 289.33 | 32.97 | -289.19 | 11.00 | 11.00 | 0.00 |
| 5,450.00 | 23.10 | 180.00 | 5,433.50 | 271.95 | 32.97 | -271.81 | 11.00 | 11.00 | 0.00 |
| 5,500.00 | 28.60 | 180.00 | 5,478.48 | 250.15 | 32.97 | -250.02 | 11.00 | 11.00 | 0.00 |
| 5,542.59 | 33.29 | 180.00 | 5,515.00 | 228.26 | 32.97 | -228.12 | 11.00 | 11.00 | 0.00 |
| P200 Marker | | | | | | | | | |
| 5,550.00 | 34.10 | 180.00 | 5,521.16 | 224.15 | 32.97 | -224.01 | 11.00 | 11.00 | 0.00 |
| 5,560.75 | 35.28 | 180.00 | 5,530.00 | 218.03 | 32.96 | -217.89 | 11.00 | 11.00 | 0.00 |
| P300 Marker | | | | | | | | | |
| 5,585.68 | 38.03 | 180.00 | 5,550.00 | 203.15 | 32.96 | -203.01 | 11.00 | 11.00 | 0.00 |
| P350 Marker | | | | | | | | | |
| 5,600.00 | 39.60 | 180.00 | 5,561.16 | 194.17 | 32.96 | -194.03 | 11.00 | 11.00 | 0.00 |
| 5,650.00 | 45.10 | 180.00 | 5,598.09 | 160.50 | 32.96 | -160.36 | 11.00 | 11.00 | 0.00 |
| 5,700.00 | 50.60 | 180.00 | 5,631.63 | 123.44 | 32.96 | -123.31 | 11.00 | 11.00 | 0.00 |
| 5,750.00 | 56.10 | 180.00 | 5,661.47 | 83.34 | 32.95 | -83.21 | 11.00 | 11.00 | 0.00 |
| 5,800.00 | 61.60 | 180.00 | 5,687.32 | 40.57 | 32.95 | -40.43 | 11.00 | 11.00 | 0.00 |
| 5,832.80 | 65.21 | 180.00 | 5,702.00 | 11.24 | 32.95 | -11.11 | 11.00 | 11.00 | 0.00 |
| Sharon Springs | | | | | | | | | |
| 5,845.04 | 66.56 | 180.00 | 5,707.00 | 0.07 | 32.95 | 0.06 | 11.00 | 11.00 | 0.00 |
| Niobrara | | | | | | | | | |
| 5,850.00 | 67.10 | 180.00 | 5,708.95 | -4.49 | 32.95 | 4.62 | 11.00 | 11.00 | 0.00 |
| 5,900.00 | 72.60 | 180.00 | 5,726.17 | -51.41 | 32.94 | 51.55 | 11.00 | 11.00 | 0.00 |
| 5,902.81 | 72.91 | 180.00 | 5,727.00 | -54.09 | 32.94 | 54.23 | 11.00 | 11.00 | 0.00 |
| Top A Chalk | | | | | | | | | |
| 5,950.00 | 78.10 | 180.00 | 5,738.81 | -99.77 | 32.94 | 99.90 | 11.00 | 11.00 | 0.00 |
| 6,000.00 | 83.60 | 180.00 | 5,746.75 | -149.11 | 32.93 | 149.25 | 11.00 | 11.00 | 0.00 |
| 6,050.00 | 89.10 | 180.00 | 5,749.93 | -198.99 | 32.93 | 199.13 | 11.00 | 11.00 | 0.00 |
| 6,058.16 | 90.00 | 180.00 | 5,750.00 | -207.15 | 32.93 | 207.29 | 11.00 | 11.00 | 0.00 |
| LP @ 90° Inc, Hold - 7" | | | | | | | | | |
| 6,100.00 | 90.00 | 180.00 | 5,750.00 | -248.99 | 32.93 | 249.13 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 90.00 | 180.00 | 5,750.00 | -348.99 | 32.92 | 349.12 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 90.00 | 180.00 | 5,750.00 | -448.99 | 32.91 | 449.12 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 90.00 | 180.00 | 5,750.00 | -548.99 | 32.90 | 549.12 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 90.00 | 180.00 | 5,750.00 | -648.99 | 32.89 | 649.12 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 90.00 | 180.00 | 5,750.00 | -748.99 | 32.88 | 749.12 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 90.00 | 180.00 | 5,750.00 | -848.99 | 32.88 | 849.12 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 90.00 | 180.00 | 5,750.00 | -948.99 | 32.87 | 949.12 | 0.00 | 0.00 | 0.00 |



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| Project: | Weld County, CO | MD Reference: | WELL @ 4913.00usft (Original Well Elev) |
| Site: | Sec 7-T10N-R57W | North Reference: | True |
| Well: | Horsetail #07G-1811 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | H2 | | |
| Design: | Design #1 | | |

| Planned Survey | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 6,900.00 | 90.00 | 180.00 | 5,750.00 | -1,048.99 | 32.86 | 1,049.12 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 90.00 | 180.00 | 5,750.00 | -1,148.99 | 32.85 | 1,149.12 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 90.00 | 180.00 | 5,750.00 | -1,248.99 | 32.84 | 1,249.12 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 90.00 | 180.00 | 5,750.00 | -1,348.99 | 32.83 | 1,349.12 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 90.00 | 180.00 | 5,750.00 | -1,448.99 | 32.83 | 1,449.11 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 90.00 | 180.00 | 5,750.00 | -1,548.99 | 32.82 | 1,549.11 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 90.00 | 180.00 | 5,750.00 | -1,648.99 | 32.81 | 1,649.11 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 90.00 | 180.00 | 5,750.00 | -1,748.99 | 32.80 | 1,749.11 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 90.00 | 180.00 | 5,750.00 | -1,848.99 | 32.79 | 1,849.11 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 90.00 | 180.00 | 5,750.00 | -1,948.99 | 32.78 | 1,949.11 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 90.00 | 180.00 | 5,750.00 | -2,048.99 | 32.78 | 2,049.11 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 90.00 | 180.00 | 5,750.00 | -2,148.99 | 32.77 | 2,149.11 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 90.00 | 180.00 | 5,750.00 | -2,248.99 | 32.76 | 2,249.11 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 90.00 | 180.00 | 5,750.00 | -2,348.99 | 32.75 | 2,349.11 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 90.00 | 180.00 | 5,750.00 | -2,448.99 | 32.74 | 2,449.11 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 90.00 | 180.00 | 5,750.00 | -2,548.99 | 32.73 | 2,549.11 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 90.00 | 180.00 | 5,750.00 | -2,648.99 | 32.73 | 2,649.10 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 90.00 | 180.00 | 5,750.00 | -2,748.99 | 32.72 | 2,749.10 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 90.00 | 180.00 | 5,750.00 | -2,848.99 | 32.71 | 2,849.10 | 0.00 | 0.00 | 0.00 |
| 8,800.00 | 90.00 | 180.00 | 5,750.00 | -2,948.99 | 32.70 | 2,949.10 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 90.00 | 180.00 | 5,750.00 | -3,048.99 | 32.69 | 3,049.10 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 90.00 | 180.00 | 5,750.00 | -3,148.99 | 32.68 | 3,149.10 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 90.00 | 180.00 | 5,750.00 | -3,248.99 | 32.68 | 3,249.10 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 90.00 | 180.00 | 5,750.00 | -3,348.99 | 32.67 | 3,349.10 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 90.00 | 180.00 | 5,750.00 | -3,448.99 | 32.66 | 3,449.10 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 90.00 | 180.00 | 5,750.00 | -3,548.99 | 32.65 | 3,549.10 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 90.00 | 180.00 | 5,750.00 | -3,648.99 | 32.64 | 3,649.10 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 90.00 | 180.00 | 5,750.00 | -3,748.99 | 32.63 | 3,749.10 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 90.00 | 180.00 | 5,750.00 | -3,848.99 | 32.63 | 3,849.09 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 90.00 | 180.00 | 5,750.00 | -3,948.99 | 32.62 | 3,949.09 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 90.00 | 180.00 | 5,750.00 | -4,048.99 | 32.61 | 4,049.09 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 90.00 | 180.00 | 5,750.00 | -4,148.99 | 32.60 | 4,149.09 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 90.00 | 180.00 | 5,750.00 | -4,248.99 | 32.59 | 4,249.09 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 90.00 | 180.00 | 5,750.00 | -4,348.99 | 32.58 | 4,349.09 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 90.00 | 180.00 | 5,750.00 | -4,448.99 | 32.58 | 4,449.09 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 90.00 | 180.00 | 5,750.00 | -4,548.99 | 32.57 | 4,549.09 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 90.00 | 180.00 | 5,750.00 | -4,648.99 | 32.56 | 4,649.09 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 90.00 | 180.00 | 5,750.00 | -4,748.99 | 32.55 | 4,749.09 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 90.00 | 180.00 | 5,750.00 | -4,848.99 | 32.54 | 4,849.09 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 90.00 | 180.00 | 5,750.00 | -4,948.99 | 32.53 | 4,949.08 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 90.00 | 180.00 | 5,750.00 | -5,048.99 | 32.53 | 5,049.08 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 90.00 | 180.00 | 5,750.00 | -5,148.99 | 32.52 | 5,149.08 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 90.00 | 180.00 | 5,750.00 | -5,248.99 | 32.51 | 5,249.08 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.00 | 180.00 | 5,750.00 | -5,348.99 | 32.50 | 5,349.08 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.00 | 180.00 | 5,750.00 | -5,448.99 | 32.49 | 5,449.08 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.00 | 180.00 | 5,750.00 | -5,548.99 | 32.48 | 5,549.08 | 0.00 | 0.00 | 0.00 |
| 11,500.00 | 90.00 | 180.00 | 5,750.00 | -5,648.99 | 32.48 | 5,649.08 | 0.00 | 0.00 | 0.00 |
| 11,600.00 | 90.00 | 180.00 | 5,750.00 | -5,748.99 | 32.47 | 5,749.08 | 0.00 | 0.00 | 0.00 |
| 11,700.00 | 90.00 | 180.00 | 5,750.00 | -5,848.99 | 32.46 | 5,849.08 | 0.00 | 0.00 | 0.00 |
| 11,800.00 | 90.00 | 180.00 | 5,750.00 | -5,948.99 | 32.45 | 5,949.08 | 0.00 | 0.00 | 0.00 |
| 11,900.00 | 90.00 | 180.00 | 5,750.00 | -6,048.99 | 32.44 | 6,049.08 | 0.00 | 0.00 | 0.00 |
| 12,000.00 | 90.00 | 180.00 | 5,750.00 | -6,148.99 | 32.43 | 6,149.07 | 0.00 | 0.00 | 0.00 |
| 12,100.00 | 90.00 | 180.00 | 5,750.00 | -6,248.99 | 32.43 | 6,249.07 | 0.00 | 0.00 | 0.00 |
| 12,200.00 | 90.00 | 180.00 | 5,750.00 | -6,348.99 | 32.42 | 6,349.07 | 0.00 | 0.00 | 0.00 |



WOG

Planning Report

| | | | |
|------------------|-------------------------|-------------------------------------|---|
| Database: | LandmarkEDM | Local Co-ordinate Reference: | Well Horsetail #07G-1811 |
| Company: | Whiting Petroleum Corp. | TVD Reference: | WELL @ 4913.00usft (Original Well Elev) |
| Project: | Weld County, CO | MD Reference: | WELL @ 4913.00usft (Original Well Elev) |
| Site: | Sec 7-T10N-R57W | North Reference: | True |
| Well: | Horsetail #07G-1811 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | H2 | | |
| Design: | Design #1 | | |

| Planned Survey | | | | | | | | | | |
|-----------------------|-----------------|-------------|-----------------------|--------------|--------------|-------------------------|-----------------------|----------------------|---------------------|--|
| Measured Depth (usft) | Inclination (°) | Azimuth (°) | Vertical Depth (usft) | +N/-S (usft) | +E/-W (usft) | Vertical Section (usft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) | |
| 12,300.00 | 90.00 | 180.00 | 5,750.00 | -6,448.99 | 32.41 | 6,449.07 | 0.00 | 0.00 | 0.00 | |
| 12,400.00 | 90.00 | 180.00 | 5,750.00 | -6,548.99 | 32.40 | 6,549.07 | 0.00 | 0.00 | 0.00 | |
| 12,500.00 | 90.00 | 180.00 | 5,750.00 | -6,648.99 | 32.39 | 6,649.07 | 0.00 | 0.00 | 0.00 | |
| 12,600.00 | 90.00 | 180.00 | 5,750.00 | -6,748.99 | 32.38 | 6,749.07 | 0.00 | 0.00 | 0.00 | |
| 12,700.00 | 90.00 | 180.00 | 5,750.00 | -6,848.99 | 32.38 | 6,849.07 | 0.00 | 0.00 | 0.00 | |
| 12,800.00 | 90.00 | 180.00 | 5,750.00 | -6,948.99 | 32.37 | 6,949.07 | 0.00 | 0.00 | 0.00 | |
| 12,900.00 | 90.00 | 180.00 | 5,750.00 | -7,048.99 | 32.36 | 7,049.07 | 0.00 | 0.00 | 0.00 | |
| 13,000.00 | 90.00 | 180.00 | 5,750.00 | -7,148.99 | 32.35 | 7,149.07 | 0.00 | 0.00 | 0.00 | |
| 13,100.00 | 90.00 | 180.00 | 5,750.00 | -7,248.99 | 32.34 | 7,249.06 | 0.00 | 0.00 | 0.00 | |
| 13,200.00 | 90.00 | 180.00 | 5,750.00 | -7,348.99 | 32.33 | 7,349.06 | 0.00 | 0.00 | 0.00 | |
| 13,300.00 | 90.00 | 180.00 | 5,750.00 | -7,448.99 | 32.33 | 7,449.06 | 0.00 | 0.00 | 0.00 | |
| 13,400.00 | 90.00 | 180.00 | 5,750.00 | -7,548.99 | 32.32 | 7,549.06 | 0.00 | 0.00 | 0.00 | |
| 13,500.00 | 90.00 | 180.00 | 5,750.00 | -7,648.99 | 32.31 | 7,649.06 | 0.00 | 0.00 | 0.00 | |
| 13,600.00 | 90.00 | 180.00 | 5,750.00 | -7,748.99 | 32.30 | 7,749.06 | 0.00 | 0.00 | 0.00 | |
| 13,700.00 | 90.00 | 180.00 | 5,750.00 | -7,848.99 | 32.29 | 7,849.06 | 0.00 | 0.00 | 0.00 | |
| 13,775.46 | 90.00 | 180.00 | 5,750.00 | -7,924.45 | 32.29 | 7,924.52 | 0.00 | 0.00 | 0.00 | |
| TD at 13775.46' MD | | | | | | | | | | |

| Design Targets | | | | | | | | | | |
|---------------------------|---------------|--------------|------------|--------------|--------------|-----------------|----------------|------------------|-------------------|--|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (usft) | +N/-S (usft) | +E/-W (usft) | Northing (usft) | Easting (usft) | Latitude | Longitude | |
| - hit/miss target | | | | | | | | | | |
| - Shape | | | | | | | | | | |
| PBHL 1811A | 0.00 | 0.00 | 5,750.00 | -7,924.45 | 32.29 | 1,550,458.58 | 3,472,820.28 | 40° 49' 54.780 N | 103° 47' 28.800 W | |
| - plan hits target center | | | | | | | | | | |
| - Point | | | | | | | | | | |

| Casing Points | | | | | | | | | | |
|-----------------------|-----------------------|------|--|--|--|----------------------|--------------------|--|--|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name | | | | Casing Diameter (in) | Hole Diameter (in) | | | |
| 6,058.16 | 5,750.00 | 7" | | | | 7.000 | 8.750 | | | |

| Formations | | | | | | | | | | |
|-----------------------|-----------------------|----------------|-----------|---------|-------------------|--|--|--|--|--|
| Measured Depth (usft) | Vertical Depth (usft) | Name | Lithology | Dip (°) | Dip Direction (°) | | | | | |
| 1,552.73 | 1,550.00 | Upper Pierre | | | | | | | | |
| 3,507.49 | 3,500.00 | Hygiene | | | | | | | | |
| 3,657.85 | 3,650.00 | Lower Pierre | | | | | | | | |
| 5,542.59 | 5,515.00 | P200 Marker | | | | | | | | |
| 5,560.75 | 5,530.00 | P300 Marker | | | | | | | | |
| 5,585.68 | 5,550.00 | P350 Marker | | | | | | | | |
| 5,832.80 | 5,702.00 | Sharon Springs | | | | | | | | |
| 5,845.04 | 5,707.00 | Niobrara | | | | | | | | |
| 5,902.81 | 5,727.00 | Top A Chalk | | | | | | | | |



WOG

Planning Report

| | | | |
|------------------|-------------------------|-------------------------------------|---|
| Database: | LandmarkEDM | Local Co-ordinate Reference: | Well Horsetail #07G-1811 |
| Company: | Whiting Petroleum Corp. | TVD Reference: | WELL @ 4913.00usft (Original Well Elev) |
| Project: | Weld County, CO | MD Reference: | WELL @ 4913.00usft (Original Well Elev) |
| Site: | Sec 7-T10N-R57W | North Reference: | True |
| Well: | Horsetail #07G-1811 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | Hz | | |
| Design: | Design #1 | | |

| Plan Annotations | | | | |
|-----------------------------|-----------------------------|-------------------|-----------------|---------------------|
| Measured Depth (usft) | Vertical Depth (usft) | Local Coordinates | | Comment |
| | | +N/-S (usft) | +E/-W (usft) | |
| 300.00 | 300.00 | 0.00 | 0.00 | Build 2°/100' |
| 500.00 | 499.84 | 6.94 | 0.73 | Hold 4° Inc |
| 4,822.00 | 4,811.31 | 306.78 | 32.24 | Drop 2°/100' |
| 5,022.00 | 5,011.15 | 313.72 | 32.97 | Hold Vertical |
| 5,239.98 | 5,229.13 | 313.72 | 32.97 | KOP, Build 11°/100' |
| 6,058.16 | 5,750.00 | -207.15 | 32.93 | LP @ 90° Inc, Hold |
| 13,775.46 | 5,750.00 | -7,924.45 | 32.29 | TD at 13775.46' MD |