

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_POWER PAD

POWERS 2N-23HZ

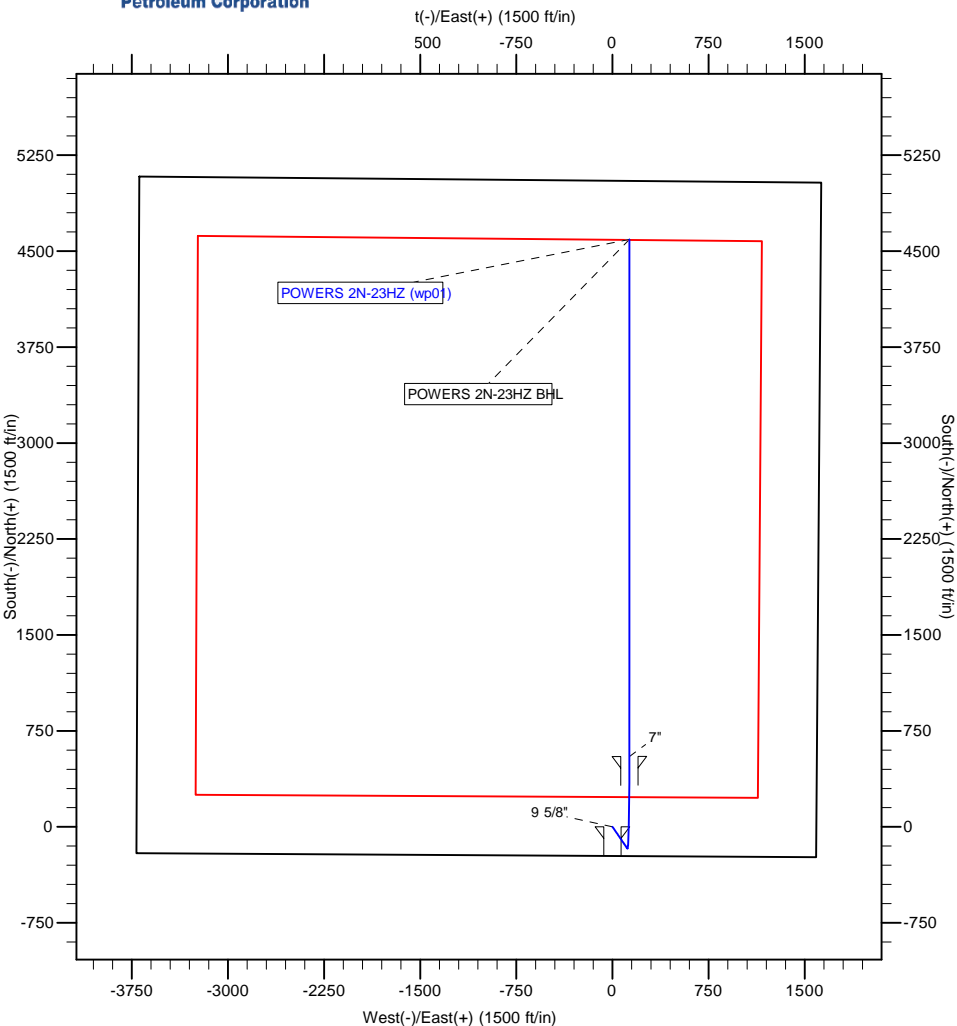
POWERS 2N-23HZ

Plan: POWERS 2N-23HZ (wp01)

Standard Planning Report

29 April, 2011





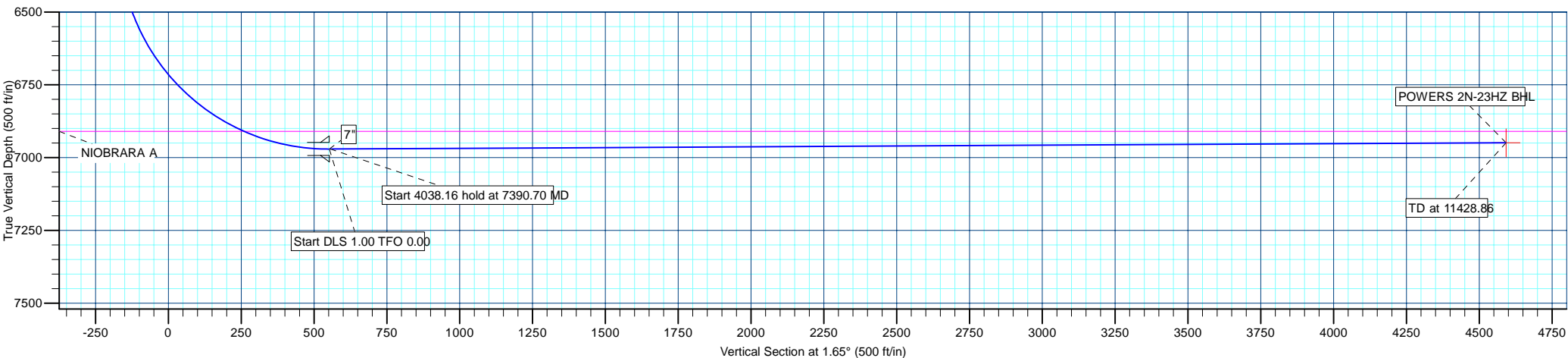
| WELL DETAILS: POWERS 2N-23HZ | | | | | | |
|------------------------------|-------|------------|-----------------------|------------------|-------------|------|
| +N/-S | +E/-W | Northing | Ground Level: Easting | 4909.00 Latitude | Longitude | Slot |
| 0.00 | 0.00 | 1286819.96 | 3244019.85 | 40.117418 | -104.627462 | |

| WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG) | | | | | | |
|---|---------|---------|--------|-----------|-------------|-------|
| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | Shape |
| POWERS 2N-23HZ BHL | 6949.00 | 4590.29 | 132.54 | 40.130019 | -104.626988 | Point |

| SECTION DETAILS | | | | | | | | | |
|-----------------|-------|--------|---------|---------|--------|------|---------|---------|--------------------|
| MD | Inc | Azi | TVD | +N/-S | +E/-W | Dleg | TFace | Vsect | Target |
| 0.00 | 0.00 | 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 | |
| 1011.90 | 2.24 | 145.70 | 1011.87 | -1.81 | 1.23 | 2.00 | 145.70 | -1.77 | |
| 6235.90 | 2.24 | 145.70 | 6231.89 | -170.32 | 116.18 | 0.00 | 0.00 | -166.90 | |
| 7387.51 | 90.28 | 360.00 | 6971.00 | 549.00 | 132.54 | 8.00 | -145.67 | 552.60 | |
| 7390.70 | 90.31 | 360.00 | 6970.98 | 552.19 | 132.54 | 1.00 | 0.00 | 555.79 | |
| 11428.86 | 90.31 | 360.00 | 6949.00 | 4590.29 | 132.54 | 0.00 | 0.00 | 4592.20 | POWERS 2N-23HZ BHL |

| FORMATION TOP DETAILS | | |
|-----------------------|---------|----------------|
| TVDPath | MDPath | Formation |
| 705.00 | 705.00 | BASE FOX HILLS |
| 3955.00 | 3957.27 | PARKMAN |
| 4321.00 | 4323.55 | SUSSEX |
| 6910.00 | 7086.22 | NIOBRARA A |

| CASING DETAILS | | | |
|----------------|---------|--------|-------|
| TVD | MD | Name | Size |
| 750.00 | 750.00 | 9 5/8" | 9-5/8 |
| 6971.00 | 7387.51 | 7" | 7 |



| | | | |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| Database: | edm5000p | Local Co-ordinate Reference: | Well POWERS 2N-23HZ |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Site: | WELD_POWERS PAD | North Reference: | True |
| Well: | POWERS 2N-23HZ | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | POWERS 2N-23HZ | | |
| Design: | POWERS 2N-23HZ (wp01) | | |

| | | | |
|--------------------|-----------------------------|----------------------|----------------|
| Project | COLORADO NORTHERN ZONE - 83 | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Northern Zone | | |

| Site | | WELD_POWERS PAD | | | |
|-----------------------|----------|-----------------|-----------------|-------------------|-------------|
| Site Position: | | Northing: | 1,286,819.50 ft | Latitude: | 40.117418 |
| From: | Lat/Long | Easting: | 3,243,972.03 ft | Longitude: | -104.627633 |
| Position Uncertainty: | 0.00 ft | Slot Radius: | 0 " | Grid Convergence: | 0.56 |

| | | | | | | |
|----------------------|----------------|----------|---------------------|-----------------|---------------|-------------|
| Well | POWERS 2N-23HZ | | | | | |
| Well Position | +N-S | -0.01 ft | Northing: | 1,286,819.96 ft | Latitude: | 40.117418 |
| | +E-W | 47.82 ft | Easting: | 3,244,019.85 ft | Longitude: | -104.627462 |
| Position Uncertainty | | 0.00 ft | Wellhead Elevation: | | Ground Level: | 4,909.00 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | POWERS 2N-23HZ | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 4/29/2011 | 8.78 | 66.85 | 53,010 |

| | | | | |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| Design | POWERS 2N-23HZ (wp01) | | | |
| Audit Notes: | | | | |
| Version: | Phase: | PLAN | Tie On Depth: | 0.00 |
| Vertical Section: | Depth From (TVD) (ft) | +N/-S (ft) | +E/-W (ft) | Direction (°) |
| | 0.00 | 0.00 | 0.00 | 1.65 |

| Plan Sections | | | | | | | | | | |
|----------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|----------------------|---------------------|---------|----------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | 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 | |
| 900.00 | 0.00 | 0.00 | 900.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,011.90 | 2.24 | 145.70 | 1,011.87 | -1.81 | 1.23 | 2.00 | 2.00 | 0.00 | 145.70 | |
| 6,235.90 | 2.24 | 145.70 | 6,231.89 | -170.32 | 116.18 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 7,387.51 | 90.28 | 360.00 | 6,971.00 | 549.00 | 132.54 | 8.00 | 7.65 | -12.65 | -145.67 | |
| 7,390.70 | 90.31 | 360.00 | 6,970.98 | 552.19 | 132.54 | 1.00 | 1.00 | 0.00 | 0.00 | |
| 11,428.86 | 90.31 | 360.00 | 6,949.00 | 4,590.29 | 132.54 | 0.00 | 0.00 | 0.00 | 0.00 | POWERS 2N-23HZ |

| | | | |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| Database: | edm5000p | Local Co-ordinate Reference: | Well POWERS 2N-23HZ |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Site: | WELD_POWERS PAD | North Reference: | True |
| Well: | POWERS 2N-23HZ | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | POWERS 2N-23HZ | | |
| Design: | POWERS 2N-23HZ (wp01) | | |

| Planned Survey | | | | | | | | | |
|---|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | 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 |
| 400.00 | 0.00 | 0.00 | 400.00 | 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 |
| 600.00 | 0.00 | 0.00 | 600.00 | 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 |
| 705.00 | 0.00 | 0.00 | 705.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| BASE FOX HILLS | | | | | | | | | |
| 750.00 | 0.00 | 0.00 | 750.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 9 5/8" | | | | | | | | | |
| 800.00 | 0.00 | 0.00 | 800.00 | 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 |
| Start Build 2.00 | | | | | | | | | |
| 1,000.00 | 2.00 | 145.70 | 999.98 | -1.44 | 0.98 | -1.41 | 2.00 | 2.00 | 0.00 |
| 1,011.90 | 2.24 | 145.70 | 1,011.87 | -1.81 | 1.23 | -1.77 | 2.00 | 2.00 | 0.00 |
| Start 5224.01 hold at 1011.90 MD | | | | | | | | | |
| 1,100.00 | 2.24 | 145.70 | 1,099.90 | -4.65 | 3.17 | -4.55 | 0.00 | 0.00 | 0.00 |
| 1,200.00 | 2.24 | 145.70 | 1,199.83 | -7.87 | 5.37 | -7.71 | 0.00 | 0.00 | 0.00 |
| 1,300.00 | 2.24 | 145.70 | 1,299.75 | -11.10 | 7.57 | -10.88 | 0.00 | 0.00 | 0.00 |
| 1,400.00 | 2.24 | 145.70 | 1,399.68 | -14.32 | 9.77 | -14.04 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 2.24 | 145.70 | 1,499.60 | -17.55 | 11.97 | -17.20 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 2.24 | 145.70 | 1,599.52 | -20.78 | 14.17 | -20.36 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 2.24 | 145.70 | 1,699.45 | -24.00 | 16.37 | -23.52 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 2.24 | 145.70 | 1,799.37 | -27.23 | 18.57 | -26.68 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 2.24 | 145.70 | 1,899.29 | -30.45 | 20.77 | -29.84 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 2.24 | 145.70 | 1,999.22 | -33.68 | 22.97 | -33.00 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 2.24 | 145.70 | 2,099.14 | -36.91 | 25.17 | -36.16 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 2.24 | 145.70 | 2,199.07 | -40.13 | 27.38 | -39.32 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 2.24 | 145.70 | 2,298.99 | -43.36 | 29.58 | -42.49 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 2.24 | 145.70 | 2,398.91 | -46.58 | 31.78 | -45.65 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 2.24 | 145.70 | 2,498.84 | -49.81 | 33.98 | -48.81 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 2.24 | 145.70 | 2,598.76 | -53.03 | 36.18 | -51.97 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 2.24 | 145.70 | 2,698.68 | -56.26 | 38.38 | -55.13 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 2.24 | 145.70 | 2,798.61 | -59.49 | 40.58 | -58.29 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 2.24 | 145.70 | 2,898.53 | -62.71 | 42.78 | -61.45 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 2.24 | 145.70 | 2,998.46 | -65.94 | 44.98 | -64.61 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 2.24 | 145.70 | 3,098.38 | -69.16 | 47.18 | -67.77 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 2.24 | 145.70 | 3,198.30 | -72.39 | 49.38 | -70.93 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 2.24 | 145.70 | 3,298.23 | -75.62 | 51.58 | -74.10 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 2.24 | 145.70 | 3,398.15 | -78.84 | 53.78 | -77.26 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 2.24 | 145.70 | 3,498.07 | -82.07 | 55.98 | -80.42 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 2.24 | 145.70 | 3,598.00 | -85.29 | 58.18 | -83.58 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 2.24 | 145.70 | 3,697.92 | -88.52 | 60.38 | -86.74 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 2.24 | 145.70 | 3,797.85 | -91.75 | 62.58 | -89.90 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 2.24 | 145.70 | 3,897.77 | -94.97 | 64.78 | -93.06 | 0.00 | 0.00 | 0.00 |
| 3,957.27 | 2.24 | 145.70 | 3,955.00 | -96.82 | 66.04 | -94.87 | 0.00 | 0.00 | 0.00 |
| PARKMAN | | | | | | | | | |
| 4,000.00 | 2.24 | 145.70 | 3,997.69 | -98.20 | 66.98 | -96.22 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 2.24 | 145.70 | 4,097.62 | -101.42 | 69.18 | -99.38 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 2.24 | 145.70 | 4,197.54 | -104.65 | 71.38 | -102.54 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 2.24 | 145.70 | 4,297.46 | -107.87 | 73.58 | -105.71 | 0.00 | 0.00 | 0.00 |
| 4,323.55 | 2.24 | 145.70 | 4,321.00 | -108.63 | 74.10 | -106.45 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
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| Company: | US ROCKIES REGION PLANNING | TVD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Site: | WELD_POWERS PAD | North Reference: | True |
| Well: | POWERS 2N-23HZ | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | POWERS 2N-23HZ | | |
| Design: | POWERS 2N-23HZ (wp01) | | |

| Planned Survey | | | | | | | | | |
|---|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| SUSSEX | | | | | | | | | |
| 4,400.00 | 2.24 | 145.70 | 4,397.39 | -111.10 | 75.79 | -108.87 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 2.24 | 145.70 | 4,497.31 | -114.33 | 77.99 | -112.03 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 2.24 | 145.70 | 4,597.24 | -117.55 | 80.19 | -115.19 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 2.24 | 145.70 | 4,697.16 | -120.78 | 82.39 | -118.35 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 2.24 | 145.70 | 4,797.08 | -124.00 | 84.59 | -121.51 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 2.24 | 145.70 | 4,897.01 | -127.23 | 86.79 | -124.67 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 2.24 | 145.70 | 4,996.93 | -130.46 | 88.99 | -127.83 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 2.24 | 145.70 | 5,096.85 | -133.68 | 91.19 | -130.99 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 2.24 | 145.70 | 5,196.78 | -136.91 | 93.39 | -134.15 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 2.24 | 145.70 | 5,296.70 | -140.13 | 95.59 | -137.32 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 2.24 | 145.70 | 5,396.62 | -143.36 | 97.79 | -140.48 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 2.24 | 145.70 | 5,496.55 | -146.58 | 99.99 | -143.64 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 2.24 | 145.70 | 5,596.47 | -149.81 | 102.19 | -146.80 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 2.24 | 145.70 | 5,696.40 | -153.04 | 104.39 | -149.96 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 2.24 | 145.70 | 5,796.32 | -156.26 | 106.59 | -153.12 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 2.24 | 145.70 | 5,896.24 | -159.49 | 108.79 | -156.28 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 2.24 | 145.70 | 5,996.17 | -162.71 | 110.99 | -159.44 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 2.24 | 145.70 | 6,096.09 | -165.94 | 113.19 | -162.60 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 2.24 | 145.70 | 6,196.01 | -169.17 | 115.39 | -165.76 | 0.00 | 0.00 | 0.00 |
| 6,235.90 | 2.24 | 145.70 | 6,231.89 | -170.32 | 116.18 | -166.90 | 0.00 | 0.00 | 0.00 |
| Start DLS 8.00 TFO -145.67 | | | | | | | | | |
| 6,300.00 | 3.51 | 21.03 | 6,295.95 | -169.52 | 117.59 | -166.06 | 8.00 | 1.99 | -194.50 |
| 6,400.00 | 11.35 | 6.31 | 6,395.03 | -156.86 | 119.78 | -153.34 | 8.00 | 7.84 | -14.72 |
| 6,500.00 | 19.32 | 3.61 | 6,491.40 | -130.53 | 121.90 | -126.96 | 8.00 | 7.97 | -2.70 |
| 6,600.00 | 27.31 | 2.45 | 6,583.16 | -91.04 | 123.93 | -87.43 | 8.00 | 7.99 | -1.16 |
| 6,700.00 | 35.30 | 1.79 | 6,668.53 | -39.16 | 125.81 | -35.52 | 8.00 | 7.99 | -0.66 |
| 6,800.00 | 43.29 | 1.35 | 6,745.86 | 24.09 | 127.52 | 27.76 | 8.00 | 8.00 | -0.44 |
| 6,900.00 | 51.29 | 1.02 | 6,813.63 | 97.50 | 129.02 | 101.18 | 8.00 | 8.00 | -0.33 |
| 7,000.00 | 59.29 | 0.76 | 6,870.53 | 179.63 | 130.29 | 183.31 | 8.00 | 8.00 | -0.26 |
| 7,086.22 | 66.18 | 0.56 | 6,910.00 | 256.21 | 131.16 | 259.89 | 8.00 | 8.00 | -0.22 |
| NIOBRARA A | | | | | | | | | |
| 7,100.00 | 67.29 | 0.53 | 6,915.44 | 268.88 | 131.29 | 272.55 | 8.00 | 8.00 | -0.21 |
| 7,200.00 | 75.28 | 0.34 | 6,947.51 | 363.51 | 132.00 | 367.17 | 8.00 | 8.00 | -0.20 |
| 7,300.00 | 83.28 | 0.15 | 6,966.09 | 461.68 | 132.42 | 465.31 | 8.00 | 8.00 | -0.18 |
| 7,387.51 | 90.28 | 360.00 | 6,971.00 | 549.00 | 132.54 | 552.60 | 8.00 | 8.00 | -0.18 |
| Start DLS 1.00 TFO 0.00 - 7" | | | | | | | | | |
| 7,390.70 | 90.31 | 360.00 | 6,970.98 | 552.19 | 132.54 | 555.79 | 1.00 | 1.00 | 0.00 |
| Start 4038.16 hold at 7390.70 MD | | | | | | | | | |
| 7,400.00 | 90.31 | 360.00 | 6,970.93 | 561.49 | 132.54 | 565.08 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 90.31 | 360.00 | 6,970.39 | 661.49 | 132.54 | 665.04 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 90.31 | 360.00 | 6,969.84 | 761.49 | 132.54 | 765.00 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 90.31 | 360.00 | 6,969.30 | 861.49 | 132.54 | 864.95 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 90.31 | 360.00 | 6,968.76 | 961.49 | 132.54 | 964.91 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 90.31 | 360.00 | 6,968.21 | 1,061.48 | 132.54 | 1,064.87 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 90.31 | 360.00 | 6,967.67 | 1,161.48 | 132.54 | 1,164.82 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 90.31 | 360.00 | 6,967.12 | 1,261.48 | 132.54 | 1,264.78 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 90.31 | 360.00 | 6,966.58 | 1,361.48 | 132.54 | 1,364.74 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 90.31 | 360.00 | 6,966.03 | 1,461.48 | 132.54 | 1,464.69 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 90.31 | 360.00 | 6,965.49 | 1,561.48 | 132.54 | 1,564.65 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 90.31 | 360.00 | 6,964.94 | 1,661.48 | 132.54 | 1,664.61 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 90.31 | 360.00 | 6,964.40 | 1,761.47 | 132.54 | 1,764.57 | 0.00 | 0.00 | 0.00 |
| 8,700.00 | 90.31 | 360.00 | 6,963.86 | 1,861.47 | 132.54 | 1,864.52 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| Database: | edm5000p | Local Co-ordinate Reference: | Well POWERS 2N-23HZ |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Site: | WELD_POWERS PAD | North Reference: | True |
| Well: | POWERS 2N-23HZ | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | POWERS 2N-23HZ | | |
| Design: | POWERS 2N-23HZ (wp01) | | |

| Planned Survey | | | | | | | | | |
|-------------------------------------|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Measured Depth (ft) | Inclination (°) | Azimuth (°) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Vertical Section (ft) | Dogleg Rate (°/100ft) | Build Rate (°/100ft) | Turn Rate (°/100ft) |
| 8,800.00 | 90.31 | 360.00 | 6,963.31 | 1,961.47 | 132.54 | 1,964.48 | 0.00 | 0.00 | 0.00 |
| 8,900.00 | 90.31 | 360.00 | 6,962.77 | 2,061.47 | 132.54 | 2,064.44 | 0.00 | 0.00 | 0.00 |
| 9,000.00 | 90.31 | 360.00 | 6,962.22 | 2,161.47 | 132.54 | 2,164.39 | 0.00 | 0.00 | 0.00 |
| 9,100.00 | 90.31 | 360.00 | 6,961.68 | 2,261.47 | 132.54 | 2,264.35 | 0.00 | 0.00 | 0.00 |
| 9,200.00 | 90.31 | 360.00 | 6,961.13 | 2,361.46 | 132.54 | 2,364.31 | 0.00 | 0.00 | 0.00 |
| 9,300.00 | 90.31 | 360.00 | 6,960.59 | 2,461.46 | 132.54 | 2,464.26 | 0.00 | 0.00 | 0.00 |
| 9,400.00 | 90.31 | 360.00 | 6,960.05 | 2,561.46 | 132.54 | 2,564.22 | 0.00 | 0.00 | 0.00 |
| 9,500.00 | 90.31 | 360.00 | 6,959.50 | 2,661.46 | 132.54 | 2,664.18 | 0.00 | 0.00 | 0.00 |
| 9,600.00 | 90.31 | 360.00 | 6,958.96 | 2,761.46 | 132.54 | 2,764.13 | 0.00 | 0.00 | 0.00 |
| 9,700.00 | 90.31 | 360.00 | 6,958.41 | 2,861.46 | 132.54 | 2,864.09 | 0.00 | 0.00 | 0.00 |
| 9,800.00 | 90.31 | 360.00 | 6,957.87 | 2,961.46 | 132.54 | 2,964.05 | 0.00 | 0.00 | 0.00 |
| 9,900.00 | 90.31 | 360.00 | 6,957.32 | 3,061.45 | 132.54 | 3,064.00 | 0.00 | 0.00 | 0.00 |
| 10,000.00 | 90.31 | 360.00 | 6,956.78 | 3,161.45 | 132.54 | 3,163.96 | 0.00 | 0.00 | 0.00 |
| 10,100.00 | 90.31 | 360.00 | 6,956.23 | 3,261.45 | 132.54 | 3,263.92 | 0.00 | 0.00 | 0.00 |
| 10,200.00 | 90.31 | 360.00 | 6,955.69 | 3,361.45 | 132.54 | 3,363.88 | 0.00 | 0.00 | 0.00 |
| 10,300.00 | 90.31 | 360.00 | 6,955.15 | 3,461.45 | 132.54 | 3,463.83 | 0.00 | 0.00 | 0.00 |
| 10,400.00 | 90.31 | 360.00 | 6,954.60 | 3,561.45 | 132.54 | 3,563.79 | 0.00 | 0.00 | 0.00 |
| 10,500.00 | 90.31 | 360.00 | 6,954.06 | 3,661.45 | 132.54 | 3,663.75 | 0.00 | 0.00 | 0.00 |
| 10,600.00 | 90.31 | 360.00 | 6,953.51 | 3,761.44 | 132.54 | 3,763.70 | 0.00 | 0.00 | 0.00 |
| 10,700.00 | 90.31 | 360.00 | 6,952.97 | 3,861.44 | 132.54 | 3,863.66 | 0.00 | 0.00 | 0.00 |
| 10,800.00 | 90.31 | 360.00 | 6,952.42 | 3,961.44 | 132.54 | 3,963.62 | 0.00 | 0.00 | 0.00 |
| 10,900.00 | 90.31 | 360.00 | 6,951.88 | 4,061.44 | 132.54 | 4,063.57 | 0.00 | 0.00 | 0.00 |
| 11,000.00 | 90.31 | 360.00 | 6,951.33 | 4,161.44 | 132.54 | 4,163.53 | 0.00 | 0.00 | 0.00 |
| 11,100.00 | 90.31 | 360.00 | 6,950.79 | 4,261.44 | 132.54 | 4,263.49 | 0.00 | 0.00 | 0.00 |
| 11,200.00 | 90.31 | 360.00 | 6,950.25 | 4,361.44 | 132.54 | 4,363.44 | 0.00 | 0.00 | 0.00 |
| 11,300.00 | 90.31 | 360.00 | 6,949.70 | 4,461.43 | 132.54 | 4,463.40 | 0.00 | 0.00 | 0.00 |
| 11,400.00 | 90.31 | 360.00 | 6,949.16 | 4,561.43 | 132.54 | 4,563.36 | 0.00 | 0.00 | 0.00 |
| 11,428.86 | 90.31 | 360.00 | 6,949.00 | 4,590.29 | 132.54 | 4,592.20 | 0.00 | 0.00 | 0.00 |
| TD at 11428.86 - POWERS 2N-23HZ BHL | | | | | | | | | |

| Design Targets | | | | | | | | | |
|--|---------------|--------------|----------|------------|------------|---------------|--------------|-----------|-------------|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude | Longitude |
| POWERS 2N-23HZ B - hit/miss target - Shape - plan hits target center - Point | 0.00 | 0.00 | 6,949.00 | 4,590.29 | 132.54 | 1,291,411.33 | 3,244,107.21 | 40.130019 | -104.626988 |

| Casing Points | | | | | |
|---------------------|---------------------|--------|---------------------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (") | Hole Diameter (") | |
| 750.00 | 750.00 | 9 5/8" | 9-5/8 | 12-1/4 | |
| 7,387.51 | 6,971.00 | 7" | 7 | 8-3/4 | |

| | | | |
|------------------|-----------------------------|-------------------------------------|--------------------------------|
| Database: | edm5000p | Local Co-ordinate Reference: | Well POWERS 2N-23HZ |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Site: | WELD_POWERS PAD | North Reference: | True |
| Well: | POWERS 2N-23HZ | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | POWERS 2N-23HZ | | |
| Design: | POWERS 2N-23HZ (wp01) | | |

| Formations | | | | | |
|---------------------|---------------------|----------------|-----------|---------|-------------------|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) |
| 705.00 | 705.00 | BASE FOX HILLS | | 0.00 | |
| 3,957.27 | 3,955.00 | PARKMAN | | 0.00 | |
| 4,323.55 | 4,321.00 | SUSSEX | | 0.00 | |
| 7,086.22 | 6,910.00 | NIOBRARA A | | 0.00 | |

| Plan Annotations | | | | |
|---------------------|---------------------|-------------------|------------|----------------------------------|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | Comment |
| | | +N/-S (ft) | +E/-W (ft) | |
| 900.00 | 900.00 | 0.00 | 0.00 | Start Build 2.00 |
| 1,011.90 | 1,011.87 | -1.81 | 1.23 | Start 5224.01 hold at 1011.90 MD |
| 6,235.90 | 6,231.89 | -170.32 | 116.18 | Start DLS 8.00 TFO -145.67 |
| 7,387.51 | 6,971.00 | 549.00 | 132.54 | Start DLS 1.00 TFO 0.00 |
| 7,390.70 | 6,970.98 | 552.19 | 132.54 | Start 4038.16 hold at 7390.70 MD |
| 11,428.86 | 6,949.00 | 4,590.29 | 132.54 | TD at 11428.86 |

US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_POWER PAD
POWERS 2N-23HZ**

**POWERS 2N-23HZ
POWERS 2N-23HZ (wp01)**

Anticollision Summary Report

29 April, 2011



APC
Anticollision Summary Report



| | | | |
|---------------------------|-----------------------------|-------------------------------------|--------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well POWERS 2N-23HZ |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Reference Site: | WELD_POWER PAD | MD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Site Error: | 0.00 ft | North Reference: | True |
| Reference Well: | POWERS 2N-23HZ | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | POWERS 2N-23HZ | Database: | edm5000p |
| Reference Design: | POWERS 2N-23HZ (wp01) | Offset TVD Reference: | Offset Datum |

| | | | |
|-------------------------------------|---|-----------------------|---------------------|
| Reference | POWERS 2N-23HZ (wp01) | | |
| Filter type: | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| Interpolation Method: | MD + Stations Interval 25.00ft | Error Model: | ISCWSA |
| Depth Range: | Unlimited | Scan Method: | Closest Approach 3D |
| Results Limited by: | Maximum center-center distance of 1,000.00 ft | Error Surface: | Elliptical Conic |
| Warning Levels Evaluated at: | 2.00 Sigma | | |

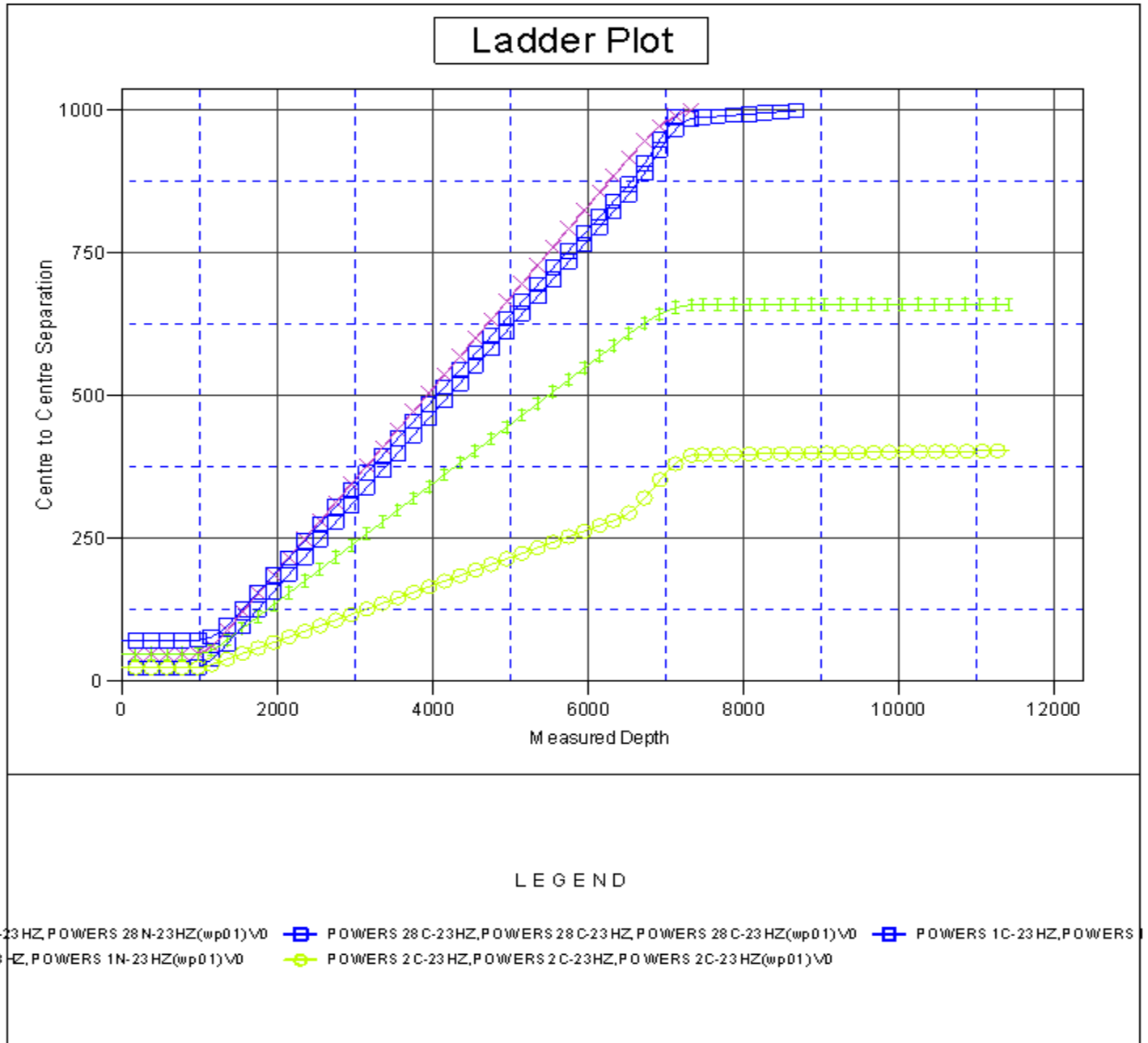
| | | | | |
|----------------------------|-----------------------|----------------------------------|------------------|--------------------|
| Survey Tool Program | Date 4/29/2011 | | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
| 0.00 | 11,428.86 | POWERS 2N-23HZ (wp01) (POWERS 2N | MWD | MWD - Standard |

| Summary | | | | | | |
|---|-------------------------------|----------------------------|-------------------------------|--------------------------------|-------------------|---------|
| Site Name | Reference Measured Depth (ft) | Offset Measured Depth (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Separation Factor | Warning |
| Offset Well - Wellbore - Design | | | | | | |
| WELD_POWER PAD | | | | | | |
| POWERS 1C-23HZ - POWERS 1C-23HZ - POWERS 1C | 900.00 | 900.00 | 72.16 | 68.38 | 19.075 | CC |
| POWERS 1C-23HZ - POWERS 1C-23HZ - POWERS 1C | 925.00 | 924.39 | 72.20 | 68.32 | 18.594 | ES |
| POWERS 1C-23HZ - POWERS 1C-23HZ - POWERS 1C | 1,150.00 | 1,143.67 | 78.42 | 73.68 | 16.513 | SF |
| POWERS 1N-23HZ - POWERS 1N-23HZ - POWERS 1N | 900.00 | 900.00 | 48.10 | 44.32 | 12.717 | CC |
| POWERS 1N-23HZ - POWERS 1N-23HZ - POWERS 1N | 925.00 | 924.60 | 48.15 | 44.26 | 12.398 | ES |
| POWERS 1N-23HZ - POWERS 1N-23HZ - POWERS 1N | 11,428.86 | 11,463.77 | 660.01 | 480.69 | 3.681 | SF |
| POWERS 28C-23HZ - POWERS 28C-23HZ - POWERS | 900.00 | 900.00 | 23.77 | 19.99 | 6.284 | CC, ES |
| POWERS 28C-23HZ - POWERS 28C-23HZ - POWERS | 950.00 | 949.59 | 24.44 | 20.45 | 6.133 | SF |
| POWERS 28N-23HZ - POWERS 28N-23HZ - POWERS | 900.00 | 900.00 | 47.82 | 44.04 | 12.642 | CC, ES |
| POWERS 28N-23HZ - POWERS 28N-23HZ - POWERS | 1,000.00 | 998.32 | 50.49 | 46.30 | 12.066 | SF |
| POWERS 2C-23HZ - POWERS 2C-23HZ - POWERS 2C | 900.00 | 900.00 | 24.05 | 20.27 | 6.359 | CC |
| POWERS 2C-23HZ - POWERS 2C-23HZ - POWERS 2C | 925.00 | 924.81 | 24.09 | 20.21 | 6.204 | ES |
| POWERS 2C-23HZ - POWERS 2C-23HZ - POWERS 2C | 11,428.86 | 11,661.26 | 404.52 | 254.04 | 2.688 | SF |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|--------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well POWERS 2N-23HZ |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Reference Site: | WELD_POWERS PAD | MD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Site Error: | 0.00 ft | North Reference: | True |
| Reference Well: | POWERS 2N-23HZ | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | POWERS 2N-23HZ | Database: | edm5000p |
| Reference Design: | POWERS 2N-23HZ (wp01) | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to 17' RKB + 4909' GL @ 4926.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: POWERS 2N-23HZ
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.56°



| | | | |
|---------------------------|-----------------------------|-------------------------------------|--------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well POWERS 2N-23HZ |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Reference Site: | WELD_POWERS PAD | MD Reference: | 17' RKB + 4909' GL @ 4926.00ft |
| Site Error: | 0.00 ft | North Reference: | True |
| Reference Well: | POWERS 2N-23HZ | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00 ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | POWERS 2N-23HZ | Database: | edm5000p |
| Reference Design: | POWERS 2N-23HZ (wp01) | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to 17' RKB + 4909' GL @ 4926.00ft
Offset Depths are relative to Offset Datum
Central Meridian is -105.500000

Coordinates are relative to: POWERS 2N-23HZ
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.56°

