



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_NRC 19-8 PAD

P_NRC 14-8

P_NRC 14-8

Plan: PLAN #1 1-20-10 RHS

Standard Planning Report

04 February, 2010





Azimuths to True North
Magnetic North: 9.10°

Magnetic Field
Strength: 53082.3nT
Dip Angle: 66.80°
Date: 1/20/2010
Model: IGRF2010

WELL DETAILS: P_NRC 14-8

| +N/-S | +E/-W | Northing | Ground Level: | Easting | Latitude | Longitude | Slot |
|-------|-------|------------|---------------|------------|-----------------|-------------------|------|
| 0.00 | 0.00 | 1266236.70 | 5024.00 | 3162168.79 | 40° 3' 45.918 N | 104° 55' 14.182 W | |

FORMATION TOP DETAILS

| TVDPath | MDPath | Formation |
|---------|---------|-----------|
| 3216.00 | 3413.36 | PARKMAN |
| 4666.00 | 4923.05 | SUSSEX |
| 5141.00 | 5398.05 | SHANNON |
| 7356.00 | 7613.05 | NIO A |
| 7696.00 | 7953.05 | CODELL |
| 8146.00 | 8403.05 | JSAND |
| 8316.00 | 8573.05 | DAKOTA |

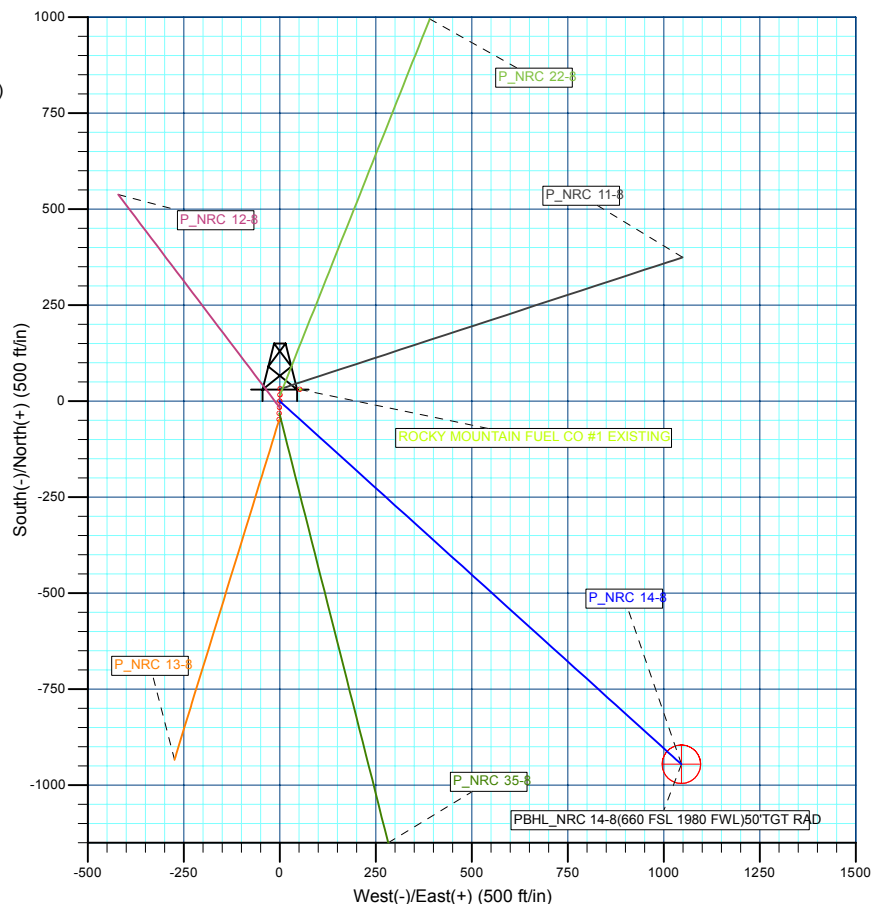
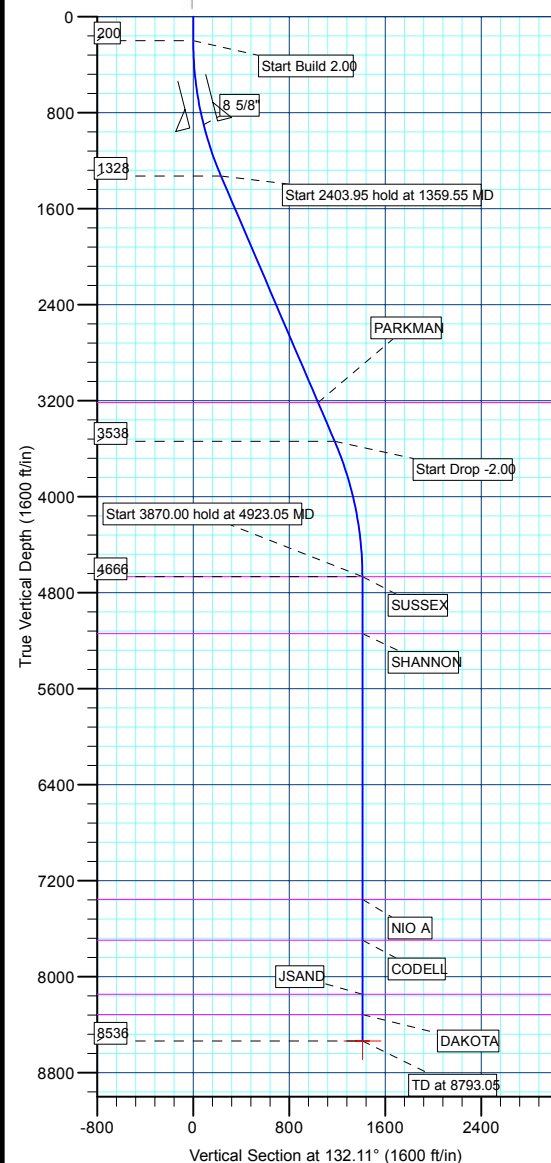
SECTION DETAILS

| MD | Inc | Azi | TVD | +N/-S | +E/-W | DLeg | TFace | VSec | Target |
|---------|-------|--------|---------|---------|---------|------|--------|---------|---|
| 0.00 | 0.00 | 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 | |
| 1359.55 | 23.19 | 132.11 | 1328.15 | -155.23 | 171.73 | 2.00 | 132.11 | 231.48 | |
| 3763.50 | 23.19 | 132.11 | 3537.85 | -790.04 | 874.01 | 0.00 | 0.00 | 1178.15 | |
| 4923.05 | 0.00 | 0.00 | 4666.00 | -945.26 | 1045.73 | 2.00 | 180.00 | 1409.64 | |
| 8793.05 | 0.00 | 0.00 | 8536.00 | -945.26 | 1045.73 | 0.00 | 0.00 | 1409.64 | PBHL_NRC 14-8(660 FSL 1980 FWL)50°TGT RAD |

CASING DETAILS

| TVD | MD | Name | Size |
|--------|--------|--------|------|
| 900.00 | 907.16 | 8 5/8" | 8.62 |

KB ELEV: WELL @ 5039.00ft (Original Well Elev)
3RD ELEV: 5024.00



WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Shape |
|------|---------|---------|---------|------------|------------|-----------------|------------------|------------------------|
| PBHL | 8536.00 | -945.26 | 1045.73 | 1265298.29 | 3163220.67 | 40° 3' 36.576 N | 104° 55' 0.732 W | Circle (Radius: 50.00) |

| | | | |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site: | WELD_NRC 19-8 PAD | North Reference: | True |
| Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_NRC 14-8 | | |
| Design: | PLAN #1 1-20-10 RHS | | |

| | | | |
|--------------------|--|----------------------|----------------|
| Project | COLORADO NORTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP | | |
| Map System: | US State Plane 1983 | System Datum: | Mean Sea Level |
| Geo Datum: | North American Datum 1983 | | |
| Map Zone: | Colorado Northern Zone | | |

| Site | | | | | | WELD_NRC 19-8 PAD, SECTION 8 T1N R67W | | | | | | | | | | | |
|-----------------------|--|--|----------|--|--|---------------------------------------|--|--|-----------------|--|--|-------------------|--|--|-------------------|--|--|
| Site Position: | | | | | | Northing: | | | 1,266,268.78 ft | | | Latitude: | | | 40° 3' 46.235 N | | |
| From: | | | Lat/Long | | | Easting: | | | 3,162,169.70 ft | | | Longitude: | | | 104° 55' 14.167 W | | |
| Position Uncertainty: | | | 0.00 ft | | | Slot Radius: | | | in | | | Grid Convergence: | | | 0.37 ° | | |

| | | | | | | |
|----------------------|-------------|-----------|---------------------|-----------------|---------------|-------------------|
| Well | P_NRC 14-8, | | | | | |
| Well Position | +N/-S | -32.07 ft | Northing: | 1,266,236.70 ft | Latitude: | 40° 3' 45.918 N |
| | +E/-W | -1.12 ft | Easting: | 3,162,168.79 ft | Longitude: | 104° 55' 14.182 W |
| Position Uncertainty | | 0.00 ft | Wellhead Elevation: | ft | Ground Level: | 5,024.00 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | P_NRC 14-8 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 1/20/2010 | 9.10 | 66.80 | 53,082 |

| | | | | |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| Design | PLAN #1 1-20-10 RHS | | | |
| 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 | 132.11 |

| 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 | |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,359.55 | 23.19 | 132.11 | 1,328.15 | -155.23 | 171.73 | 2.00 | 2.00 | 0.00 | 132.11 | |
| 3,763.50 | 23.19 | 132.11 | 3,537.85 | -790.04 | 874.01 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 4,923.05 | 0.00 | 0.00 | 4,666.00 | -945.26 | 1,045.73 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 8,793.05 | 0.00 | 0.00 | 8,536.00 | -945.26 | 1,045.73 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL_NRC 14-8(6) |

| | | | |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site: | WELD_NRC 19-8 PAD | North Reference: | True |
| Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_NRC 14-8 | | |
| Design: | PLAN #1 1-20-10 RHS | | |

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) |
|---|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| Start Build 2.00 | | | | | | | | | |
| 200.00 | 0.00 | 0.00 | 200.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 300.00 | 2.00 | 132.11 | 299.98 | -1.17 | 1.29 | 1.75 | 2.00 | 2.00 | 0.00 |
| 400.00 | 4.00 | 132.11 | 399.84 | -4.68 | 5.18 | 6.98 | 2.00 | 2.00 | 0.00 |
| 500.00 | 6.00 | 132.11 | 499.45 | -10.52 | 11.64 | 15.69 | 2.00 | 2.00 | 0.00 |
| 600.00 | 8.00 | 132.11 | 598.70 | -18.70 | 20.68 | 27.88 | 2.00 | 2.00 | 0.00 |
| 700.00 | 10.00 | 132.11 | 697.47 | -29.19 | 32.29 | 43.52 | 2.00 | 2.00 | 0.00 |
| 800.00 | 12.00 | 132.11 | 795.62 | -41.98 | 46.44 | 62.60 | 2.00 | 2.00 | 0.00 |
| 900.00 | 14.00 | 132.11 | 893.06 | -57.06 | 63.13 | 85.10 | 2.00 | 2.00 | 0.00 |
| 8 5/8" | | | | | | | | | |
| 907.16 | 14.14 | 132.11 | 900.00 | -58.23 | 64.42 | 86.84 | 2.00 | 2.00 | 0.00 |
| 1,000.00 | 16.00 | 132.11 | 989.64 | -74.42 | 82.33 | 110.98 | 2.00 | 2.00 | 0.00 |
| 1,100.00 | 18.00 | 132.11 | 1,085.27 | -94.02 | 104.02 | 140.21 | 2.00 | 2.00 | 0.00 |
| 1,200.00 | 20.00 | 132.11 | 1,179.82 | -115.85 | 128.17 | 172.77 | 2.00 | 2.00 | 0.00 |
| 1,300.00 | 22.00 | 132.11 | 1,273.17 | -139.88 | 154.75 | 208.60 | 2.00 | 2.00 | 0.00 |
| Start 2403.95 hold at 1359.55 MD | | | | | | | | | |
| 1,359.55 | 23.19 | 132.11 | 1,328.15 | -155.23 | 171.73 | 231.48 | 2.00 | 2.00 | 0.00 |
| 1,400.00 | 23.19 | 132.11 | 1,365.33 | -165.91 | 183.54 | 247.41 | 0.00 | 0.00 | 0.00 |
| 1,500.00 | 23.19 | 132.11 | 1,457.25 | -192.31 | 212.75 | 286.79 | 0.00 | 0.00 | 0.00 |
| 1,600.00 | 23.19 | 132.11 | 1,549.17 | -218.72 | 241.97 | 326.17 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 23.19 | 132.11 | 1,641.09 | -245.13 | 271.18 | 365.55 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 23.19 | 132.11 | 1,733.01 | -271.54 | 300.40 | 404.93 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 23.19 | 132.11 | 1,824.93 | -297.94 | 329.61 | 444.31 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 23.19 | 132.11 | 1,916.85 | -324.35 | 358.82 | 483.69 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 23.19 | 132.11 | 2,008.77 | -350.76 | 388.04 | 523.07 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 23.19 | 132.11 | 2,100.69 | -377.16 | 417.25 | 562.45 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 23.19 | 132.11 | 2,192.61 | -403.57 | 446.46 | 601.83 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 23.19 | 132.11 | 2,284.53 | -429.98 | 475.68 | 641.21 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 23.19 | 132.11 | 2,376.44 | -456.38 | 504.89 | 680.59 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 23.19 | 132.11 | 2,468.36 | -482.79 | 534.11 | 719.97 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 23.19 | 132.11 | 2,560.28 | -509.20 | 563.32 | 759.35 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 23.19 | 132.11 | 2,652.20 | -535.61 | 592.53 | 798.73 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 23.19 | 132.11 | 2,744.12 | -562.01 | 621.75 | 838.11 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 23.19 | 132.11 | 2,836.04 | -588.42 | 650.96 | 877.49 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 23.19 | 132.11 | 2,927.96 | -614.83 | 680.17 | 916.87 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 23.19 | 132.11 | 3,019.88 | -641.23 | 709.39 | 956.25 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 23.19 | 132.11 | 3,111.80 | -667.64 | 738.60 | 995.63 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 23.19 | 132.11 | 3,203.72 | -694.05 | 767.82 | 1,035.01 | 0.00 | 0.00 | 0.00 |
| PARKMAN | | | | | | | | | |
| 3,413.36 | 23.19 | 132.11 | 3,216.00 | -697.58 | 771.72 | 1,040.27 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 23.19 | 132.11 | 3,295.64 | -720.45 | 797.03 | 1,074.39 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 23.19 | 132.11 | 3,387.56 | -746.86 | 826.24 | 1,113.77 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 23.19 | 132.11 | 3,479.48 | -773.27 | 855.46 | 1,153.15 | 0.00 | 0.00 | 0.00 |
| Start Drop -2.00 | | | | | | | | | |
| 3,763.50 | 23.19 | 132.11 | 3,537.85 | -790.04 | 874.01 | 1,178.15 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 22.46 | 132.11 | 3,571.49 | -799.53 | 884.51 | 1,192.31 | 2.00 | -2.00 | 0.00 |
| 3,900.00 | 20.46 | 132.11 | 3,664.55 | -824.07 | 911.65 | 1,228.90 | 2.00 | -2.00 | 0.00 |
| 4,000.00 | 18.46 | 132.11 | 3,758.84 | -846.41 | 936.37 | 1,262.21 | 2.00 | -2.00 | 0.00 |
| 4,100.00 | 16.46 | 132.11 | 3,854.22 | -866.53 | 958.62 | 1,292.22 | 2.00 | -2.00 | 0.00 |
| 4,200.00 | 14.46 | 132.11 | 3,950.60 | -884.40 | 978.40 | 1,318.88 | 2.00 | -2.00 | 0.00 |
| 4,300.00 | 12.46 | 132.11 | 4,047.85 | -900.01 | 995.67 | 1,342.15 | 2.00 | -2.00 | 0.00 |
| 4,400.00 | 10.46 | 132.11 | 4,145.85 | -913.33 | 1,010.41 | 1,362.02 | 2.00 | -2.00 | 0.00 |
| 4,500.00 | 8.46 | 132.11 | 4,244.48 | -924.36 | 1,022.60 | 1,378.46 | 2.00 | -2.00 | 0.00 |

| | | | |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site: | WELD_NRC 19-8 PAD | North Reference: | True |
| Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_NRC 14-8 | | |
| Design: | PLAN #1 1-20-10 RHS | | |

| 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) |
| 4,600.00 | 6.46 | 132.11 | 4,343.63 | -933.06 | 1,032.23 | 1,391.44 | 2.00 | -2.00 | 0.00 |
| 4,700.00 | 4.46 | 132.11 | 4,443.17 | -939.44 | 1,039.29 | 1,400.96 | 2.00 | -2.00 | 0.00 |
| 4,800.00 | 2.46 | 132.11 | 4,542.98 | -943.49 | 1,043.77 | 1,407.00 | 2.00 | -2.00 | 0.00 |
| 4,900.00 | 0.46 | 132.11 | 4,642.95 | -945.20 | 1,045.66 | 1,409.55 | 2.00 | -2.00 | 0.00 |
| Start 3870.00 hold at 4923.05 MD - SUSSEX | | | | | | | | | |
| 4,923.05 | 0.00 | 0.00 | 4,666.00 | -945.26 | 1,045.73 | 1,409.64 | 2.00 | -2.00 | -573.07 |
| 5,000.00 | 0.00 | 0.00 | 4,742.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 0.00 | 0.00 | 4,842.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 0.00 | 0.00 | 4,942.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 0.00 | 0.00 | 5,042.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| SHANNON | | | | | | | | | |
| 5,398.05 | 0.00 | 0.00 | 5,141.00 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 0.00 | 0.00 | 5,142.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 0.00 | 0.00 | 5,242.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 0.00 | 0.00 | 5,342.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 5,700.00 | 0.00 | 0.00 | 5,442.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 5,800.00 | 0.00 | 0.00 | 5,542.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 5,900.00 | 0.00 | 0.00 | 5,642.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 6,000.00 | 0.00 | 0.00 | 5,742.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 6,100.00 | 0.00 | 0.00 | 5,842.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 6,200.00 | 0.00 | 0.00 | 5,942.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 0.00 | 0.00 | 6,042.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 0.00 | 0.00 | 6,142.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 0.00 | 0.00 | 6,242.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 0.00 | 0.00 | 6,342.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 0.00 | 0.00 | 6,442.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 0.00 | 0.00 | 6,542.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 0.00 | 0.00 | 6,642.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 0.00 | 0.00 | 6,742.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 0.00 | 0.00 | 6,842.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 0.00 | 0.00 | 6,942.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 0.00 | 0.00 | 7,042.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 0.00 | 0.00 | 7,142.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 0.00 | 0.00 | 7,242.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 0.00 | 0.00 | 7,342.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| NIO A | | | | | | | | | |
| 7,613.05 | 0.00 | 0.00 | 7,356.00 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 0.00 | 0.00 | 7,442.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 0.00 | 0.00 | 7,542.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 0.00 | 0.00 | 7,642.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| CODELL | | | | | | | | | |
| 7,953.05 | 0.00 | 0.00 | 7,696.00 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 0.00 | 0.00 | 7,742.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 0.00 | 0.00 | 7,842.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 8,200.00 | 0.00 | 0.00 | 7,942.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 8,300.00 | 0.00 | 0.00 | 8,042.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 8,400.00 | 0.00 | 0.00 | 8,142.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| JSAND | | | | | | | | | |
| 8,403.05 | 0.00 | 0.00 | 8,146.00 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 8,500.00 | 0.00 | 0.00 | 8,242.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| DAKOTA | | | | | | | | | |
| 8,573.05 | 0.00 | 0.00 | 8,316.00 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| 8,600.00 | 0.00 | 0.00 | 8,342.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site: | WELD_NRC 19-8 PAD | North Reference: | True |
| Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_NRC 14-8 | | |
| Design: | PLAN #1 1-20-10 RHS | | |

| 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) |
| 8,700.00 | 0.00 | 0.00 | 8,442.95 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |
| PBHL_NRC 14-8(660 FSL 1980 FWL)50'TGT RAD | | | | | | | | | |
| 8,793.05 | 0.00 | 0.00 | 8,536.00 | -945.26 | 1,045.73 | 1,409.64 | 0.00 | 0.00 | 0.00 |

| Design Targets | | | | | | | | | |
|---------------------------|---------------|--------------|----------|------------|------------|---------------|--------------|-----------------|------------------|
| Target Name | Dip Angle (°) | Dip Dir. (°) | TVD (ft) | +N/-S (ft) | +E/-W (ft) | Northing (ft) | Easting (ft) | Latitude | Longitude |
| - hit/miss target | | | | | | | | | |
| - Shape | | | | | | | | | |
| PBHL_NRC 14-8(660 | 0.00 | 0.00 | 8,536.00 | -945.26 | 1,045.73 | 1,265,298.29 | 3,163,220.67 | 40° 3' 36.576 N | 104° 55' 0.732 W |
| - plan hits target center | | | | | | | | | |
| - Circle (radius 50.00) | | | | | | | | | |

| Casing Points | | | | | |
|---------------------|---------------------|--------|----------------------|--------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (in) | Hole Diameter (in) | |
| 907.16 | 900.00 | 8 5/8" | 8.62 | 11.00 | |

| Formations | | | | | | |
|---------------------|---------------------|---------|-----------|---------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) | |
| 3,413.36 | 3,216.00 | PARKMAN | | | | |
| 4,923.05 | 4,666.00 | SUSSEX | | | | |
| 5,398.05 | 5,141.00 | SHANNON | | | | |
| 7,613.05 | 7,356.00 | NIO A | | | | |
| 7,953.05 | 7,696.00 | CODELL | | | | |
| 8,403.05 | 8,146.00 | JSAND | | | | |
| 8,573.05 | 8,316.00 | DAKOTA | | 0.00 | | |

| Plan Annotations | | | | |
|---------------------|---------------------|------------|------------|----------------------------------|
| Measured Depth (ft) | Vertical Depth (ft) | +N/-S (ft) | +E/-W (ft) | Comment |
| 200.00 | 200.00 | 0.00 | 0.00 | Start Build 2.00 |
| 1,359.55 | 1,328.15 | -155.23 | 171.73 | Start 2403.95 hold at 1359.55 MD |
| 3,763.50 | 3,537.85 | -790.04 | 874.01 | Start Drop -2.00 |
| 4,923.05 | 4,666.00 | -945.26 | 1,045.73 | Start 3870.00 hold at 4923.05 MD |
| 8,793.05 | 8,536.00 | -945.26 | 1,045.73 | TD at 8793.05 |



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_NRC 19-8 PAD
P_NRC 14-8**

**P_NRC 14-8
PLAN #1 1-20-10 RHS**

Anticollision Report

04 February, 2010



| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| | | | |
|-------------------------------------|---|-----------------------|---------------------|
| Reference | PLAN #1 1-20-10 RHS | | |
| Filter type: | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| Interpolation Method: | Stations | Error Model: | ISCSWA |
| Depth Range: | 0.00 to 20,000.00ft | Scan Method: | Closest Approach 3D |
| Results Limited by: | Maximum center-center distance of 10,000.00ft | Error Surface: | Elliptical Conic |
| Warning Levels Evaluated at: | 2.00 Sigma | | |

| Survey Tool Program | | Date | 2/4/2010 | | |
|---------------------|------------|----------------------------------|-----------|----------------|--|
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description | |
| 0.00 | 8,793.05 | PLAN #1 1-20-10 RHS (P_NRC 14-8) | 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_NRC 19-8 PAD | | | | | | | |
| P_NRC 11-8 - P_NRC 11-8 - PLAN #1 1-20-10 RHS | 200.00 | 200.00 | 32.09 | 31.45 | 50.093 | CC, ES | |
| P_NRC 11-8 - P_NRC 11-8 - PLAN #1 1-20-10 RHS | 500.00 | 499.45 | 43.87 | 41.93 | 22.534 | SF | |
| P_NRC 12-8 - P_NRC 12-8 - PLAN #1 1-20-10 RHS | 443.36 | 443.07 | 12.26 | 10.54 | 7.130 | CC, ES | |
| P_NRC 12-8 - P_NRC 12-8 - PLAN #1 1-20-10 RHS | 500.00 | 499.45 | 13.38 | 11.41 | 6.763 | SF | |
| P_NRC 13-8 - P_NRC 13-8 - PLAN #1 1-20-10 RHS | 621.49 | 619.97 | 36.34 | 33.70 | 13.766 | CC, ES | |
| P_NRC 13-8 - P_NRC 13-8 - PLAN #1 1-20-10 RHS | 700.00 | 697.47 | 38.45 | 35.39 | 12.583 | SF | |
| P_NRC 22-8 - P_NRC 22-8 - PLAN #1 1-20-10 RHS | 200.00 | 200.00 | 16.04 | 15.40 | 25.036 | CC, ES | |
| P_NRC 22-8 - P_NRC 22-8 - PLAN #1 1-20-10 RHS | 400.00 | 399.84 | 21.22 | 19.72 | 14.140 | SF | |
| P_NRC 35-8 - P_NRC 35-8 - PLAN #1 1-20-10 RHS | 542.24 | 541.42 | 24.26 | 22.05 | 10.971 | CC, ES | |
| P_NRC 35-8 - P_NRC 35-8 - PLAN #1 1-20-10 RHS | 600.00 | 598.70 | 25.38 | 22.88 | 10.162 | SF | |
| ROCKY MOUNTAIN FUEL CO #1 EXISTING - ROCKY MOUNTAIN FUEL CO #1 EXISTING | 519.96 | 502.30 | 57.88 | 38.75 | 3.025 | CC | |
| ROCKY MOUNTAIN FUEL CO #1 EXISTING - ROCKY MOUNTAIN FUEL CO #1 EXISTING | 600.00 | 581.70 | 58.75 | 36.21 | 2.607 | ES | |
| ROCKY MOUNTAIN FUEL CO #1 EXISTING - ROCKY MOUNTAIN FUEL CO #1 EXISTING | 700.00 | 680.47 | 63.32 | 36.58 | 2.368 | SF | |

| Offset Design | | | | | | | | | | | | | WELD_NRC 19-8 PAD - P_NRC 11-8 - P_NRC 11-8 - PLAN #1 1-20-10 RHS | | Offset Site Error: | | 0.00 ft | |
|-----------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|---|---------|--------------------|--|---------|--|
| Survey Program: 0-MWD | | | | | | | | | | | | | Offset Well Error: | | 0.00 ft | | | |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre | | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | | | | | | |
| | | | | | | | +N/-S (ft) | +E/-W (ft) | | | | | | | | | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 32.07 | 1.12 | 32.09 | | | | | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | 2.00 | 32.07 | 1.12 | 32.09 | 31.90 | 0.19 | 167.958 | | | | | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | 2.00 | 32.07 | 1.12 | 32.09 | 31.45 | 0.64 | 50.093 | CC, ES | | | | | |
| 300.00 | 299.98 | 299.98 | 299.98 | 0.53 | 0.55 | -132.40 | 32.07 | 1.12 | 33.24 | 32.17 | 1.07 | 31.036 | | | | | | |
| 400.00 | 399.84 | 399.84 | 399.84 | 0.74 | 0.77 | -138.34 | 32.07 | 1.12 | 36.97 | 35.47 | 1.50 | 24.614 | | | | | | |
| 500.00 | 499.45 | 499.45 | 499.45 | 0.99 | 0.99 | -145.84 | 32.07 | 1.12 | 43.87 | 41.93 | 1.95 | 22.534 | SF | | | | | |
| 600.00 | 598.70 | 598.70 | 598.70 | 1.28 | 1.22 | -152.96 | 32.07 | 1.12 | 54.40 | 52.01 | 2.40 | 22.702 | | | | | | |
| 700.00 | 697.47 | 697.47 | 697.47 | 1.62 | 1.44 | -158.79 | 32.07 | 1.12 | 68.73 | 65.88 | 2.85 | 24.146 | | | | | | |
| 800.00 | 795.62 | 795.62 | 795.62 | 2.01 | 1.66 | -163.23 | 32.07 | 1.12 | 86.82 | 83.52 | 3.30 | 26.340 | | | | | | |
| 900.00 | 893.06 | 893.06 | 893.06 | 2.46 | 1.88 | -166.55 | 32.07 | 1.12 | 108.58 | 104.83 | 3.75 | 28.980 | | | | | | |
| 1,000.00 | 989.64 | 989.64 | 989.64 | 2.97 | 2.10 | -169.03 | 32.07 | 1.12 | 133.92 | 129.72 | 4.20 | 31.893 | | | | | | |
| 1,100.00 | 1,085.27 | 1,087.02 | 1,087.01 | 3.55 | 2.31 | -170.46 | 32.48 | 2.38 | 162.29 | 157.63 | 4.65 | 34.879 | | | | | | |
| 1,200.00 | 1,179.82 | 1,184.38 | 1,184.25 | 4.19 | 2.51 | -170.66 | 33.91 | 6.76 | 192.85 | 187.73 | 5.12 | 37.692 | | | | | | |
| 1,300.00 | 1,273.17 | 1,281.39 | 1,280.93 | 4.91 | 2.73 | -170.09 | 36.36 | 14.24 | 225.53 | 219.93 | 5.60 | 40.242 | | | | | | |
| 1,359.55 | 1,328.15 | 1,338.92 | 1,338.13 | 5.36 | 2.87 | -169.52 | 38.29 | 20.15 | 246.01 | 240.10 | 5.91 | 41.613 | | | | | | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - P_NRC 11-8 - P_NRC 11-8 - PLAN #1 1-20-10 RHS | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---------------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | Warning |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 1,400.00 | 1,365.33 | 1,377.97 | 1,376.87 | 5.68 | 2.96 | -169.10 | 39.80 | 24.78 | 260.10 | 253.95 | 6.15 | 42.295 | |
| 1,500.00 | 1,457.25 | 1,474.84 | 1,472.67 | 6.48 | 3.22 | -167.78 | 44.27 | 38.44 | 294.27 | 287.49 | 6.78 | 43.428 | |
| 1,600.00 | 1,549.17 | 1,572.00 | 1,568.21 | 7.28 | 3.51 | -166.17 | 49.75 | 55.22 | 327.59 | 320.13 | 7.47 | 43.881 | |
| 1,700.00 | 1,641.09 | 1,669.23 | 1,663.16 | 8.09 | 3.85 | -164.33 | 56.25 | 75.08 | 360.23 | 352.00 | 8.23 | 43.760 | |
| 1,800.00 | 1,733.01 | 1,766.30 | 1,757.19 | 8.90 | 4.24 | -162.31 | 63.72 | 97.96 | 392.38 | 383.29 | 9.09 | 43.172 | |
| 1,900.00 | 1,824.93 | 1,862.99 | 1,850.00 | 9.72 | 4.68 | -160.16 | 72.15 | 123.74 | 424.24 | 414.19 | 10.05 | 42.229 | |
| 2,000.00 | 1,916.85 | 1,959.09 | 1,941.27 | 10.53 | 5.17 | -157.91 | 81.49 | 152.30 | 456.02 | 444.91 | 11.11 | 41.041 | |
| 2,100.00 | 2,008.77 | 2,054.38 | 2,030.74 | 11.35 | 5.73 | -155.58 | 91.68 | 183.48 | 487.93 | 475.64 | 12.29 | 39.713 | |
| 2,200.00 | 2,100.69 | 2,148.67 | 2,118.14 | 12.17 | 6.35 | -153.21 | 102.66 | 217.09 | 520.20 | 506.63 | 13.57 | 38.334 | |
| 2,300.00 | 2,192.61 | 2,241.53 | 2,203.09 | 12.99 | 7.01 | -150.82 | 114.32 | 252.74 | 553.03 | 538.09 | 14.94 | 37.008 | |
| 2,400.00 | 2,284.53 | 2,333.36 | 2,286.80 | 13.81 | 7.70 | -148.65 | 126.05 | 288.63 | 586.65 | 570.29 | 16.36 | 35.852 | |
| 2,500.00 | 2,376.44 | 2,425.20 | 2,370.51 | 14.63 | 8.41 | -146.70 | 137.78 | 324.52 | 620.97 | 603.17 | 17.80 | 34.883 | |
| 2,600.00 | 2,468.36 | 2,517.03 | 2,454.22 | 15.45 | 9.13 | -144.95 | 149.51 | 360.41 | 655.88 | 636.63 | 19.25 | 34.068 | |
| 2,700.00 | 2,560.28 | 2,608.87 | 2,537.94 | 16.27 | 9.86 | -143.37 | 161.24 | 396.30 | 691.29 | 670.58 | 20.71 | 33.378 | |
| 2,800.00 | 2,652.20 | 2,700.70 | 2,621.65 | 17.10 | 10.60 | -141.94 | 172.97 | 432.18 | 727.14 | 704.96 | 22.17 | 32.793 | |
| 2,900.00 | 2,744.12 | 2,792.54 | 2,705.36 | 17.92 | 11.34 | -140.64 | 184.70 | 468.07 | 763.35 | 739.71 | 23.64 | 32.292 | |
| 3,000.00 | 2,836.04 | 2,884.37 | 2,789.08 | 18.74 | 12.09 | -139.46 | 196.43 | 503.96 | 799.88 | 774.78 | 25.10 | 31.863 | |
| 3,100.00 | 2,927.96 | 2,976.21 | 2,872.79 | 19.57 | 12.84 | -138.38 | 208.17 | 539.85 | 836.69 | 810.12 | 26.57 | 31.492 | |
| 3,200.00 | 3,019.88 | 3,068.04 | 2,956.50 | 20.39 | 13.60 | -137.39 | 219.90 | 575.74 | 873.74 | 845.71 | 28.03 | 31.171 | |
| 3,300.00 | 3,111.80 | 3,159.87 | 3,040.22 | 21.22 | 14.36 | -136.47 | 231.63 | 611.63 | 911.01 | 881.51 | 29.49 | 30.890 | |
| 3,400.00 | 3,203.72 | 3,251.71 | 3,123.93 | 22.04 | 15.12 | -135.63 | 243.36 | 647.52 | 948.46 | 917.51 | 30.95 | 30.644 | |
| 3,500.00 | 3,295.64 | 3,343.54 | 3,207.64 | 22.86 | 15.89 | -134.85 | 255.09 | 683.41 | 986.07 | 953.67 | 32.41 | 30.427 | |
| 3,600.00 | 3,387.56 | 3,435.38 | 3,291.36 | 23.69 | 16.65 | -134.13 | 266.82 | 719.30 | 1,023.84 | 989.98 | 33.86 | 30.236 | |
| 3,700.00 | 3,479.48 | 3,527.21 | 3,375.07 | 24.51 | 17.42 | -133.45 | 278.55 | 755.19 | 1,061.74 | 1,026.42 | 35.31 | 30.066 | |
| 3,763.50 | 3,537.85 | 3,585.53 | 3,428.23 | 25.04 | 17.91 | -133.05 | 286.00 | 777.98 | 1,085.86 | 1,049.63 | 36.23 | 29.968 | |
| 3,800.00 | 3,571.49 | 3,619.08 | 3,458.82 | 25.30 | 18.19 | -133.04 | 290.29 | 791.09 | 1,099.61 | 1,062.85 | 36.76 | 29.914 | |
| 3,900.00 | 3,664.55 | 3,717.04 | 3,548.33 | 25.89 | 18.94 | -132.88 | 302.65 | 828.92 | 1,135.72 | 1,097.61 | 38.10 | 29.805 | |
| 4,000.00 | 3,758.84 | 3,821.78 | 3,645.34 | 26.44 | 19.59 | -132.71 | 314.91 | 866.43 | 1,168.95 | 1,129.63 | 39.32 | 29.730 | |
| 4,100.00 | 3,854.22 | 3,928.63 | 3,745.73 | 26.93 | 20.21 | -132.56 | 326.28 | 901.19 | 1,199.10 | 1,158.65 | 40.45 | 29.644 | |
| 4,200.00 | 3,950.60 | 4,037.44 | 3,849.29 | 27.38 | 20.78 | -132.43 | 336.64 | 932.91 | 1,226.09 | 1,184.60 | 41.49 | 29.552 | |
| 4,300.00 | 4,047.85 | 4,148.05 | 3,955.78 | 27.78 | 21.30 | -132.33 | 345.92 | 961.30 | 1,249.80 | 1,207.38 | 42.43 | 29.457 | |
| 4,400.00 | 4,145.85 | 4,260.27 | 4,064.92 | 28.12 | 21.76 | -132.24 | 354.03 | 986.09 | 1,270.17 | 1,226.91 | 43.26 | 29.361 | |
| 4,500.00 | 4,244.48 | 4,373.89 | 4,176.38 | 28.42 | 22.17 | -132.16 | 360.87 | 1,007.03 | 1,287.12 | 1,243.14 | 43.98 | 29.265 | |
| 4,600.00 | 4,343.63 | 4,488.68 | 4,289.78 | 28.66 | 22.52 | -132.10 | 366.39 | 1,023.90 | 1,300.59 | 1,256.00 | 44.59 | 29.169 | |
| 4,700.00 | 4,443.17 | 4,604.38 | 4,404.71 | 28.85 | 22.80 | -132.05 | 370.51 | 1,036.52 | 1,310.52 | 1,265.45 | 45.08 | 29.073 | |
| 4,800.00 | 4,542.98 | 4,720.73 | 4,520.73 | 29.00 | 23.01 | -132.01 | 373.20 | 1,044.75 | 1,316.88 | 1,271.44 | 45.44 | 28.980 | |
| 4,900.00 | 4,642.95 | 4,837.46 | 4,637.38 | 29.09 | 23.16 | -131.99 | 374.43 | 1,048.51 | 1,319.65 | 1,273.96 | 45.69 | 28.882 | |
| 4,923.05 | 4,666.00 | 4,864.40 | 4,664.32 | 29.11 | 23.19 | 0.13 | 374.50 | 1,048.73 | 1,319.77 | 1,274.04 | 45.73 | 28.858 | |
| 5,000.00 | 4,742.95 | 4,943.03 | 4,742.95 | 29.16 | 23.26 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,273.90 | 45.88 | 28.769 | |
| 5,100.00 | 4,842.95 | 5,043.03 | 4,842.95 | 29.23 | 23.36 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,273.72 | 46.06 | 28.652 | |
| 5,200.00 | 4,942.95 | 5,143.03 | 4,942.95 | 29.30 | 23.45 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,273.53 | 46.25 | 28.535 | |
| 5,300.00 | 5,042.95 | 5,243.03 | 5,042.95 | 29.38 | 23.55 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,273.33 | 46.45 | 28.416 | |
| 5,400.00 | 5,142.95 | 5,343.03 | 5,142.95 | 29.45 | 23.66 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,273.14 | 46.64 | 28.296 | |
| 5,500.00 | 5,242.95 | 5,443.03 | 5,242.95 | 29.53 | 23.76 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,272.94 | 46.84 | 28.175 | |
| 5,600.00 | 5,342.95 | 5,543.03 | 5,342.95 | 29.60 | 23.86 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,272.73 | 47.05 | 28.052 | |
| 5,700.00 | 5,442.95 | 5,643.03 | 5,442.95 | 29.68 | 23.97 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,272.52 | 47.25 | 27.929 | |
| 5,800.00 | 5,542.95 | 5,743.03 | 5,542.95 | 29.76 | 24.08 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,272.31 | 47.47 | 27.805 | |
| 5,900.00 | 5,642.95 | 5,843.03 | 5,642.95 | 29.84 | 24.19 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,272.10 | 47.68 | 27.680 | |
| 6,000.00 | 5,742.95 | 5,943.03 | 5,742.95 | 29.92 | 24.30 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,271.88 | 47.90 | 27.555 | |
| 6,100.00 | 5,842.95 | 6,043.03 | 5,842.95 | 30.01 | 24.41 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,271.66 | 48.12 | 27.429 | |
| 6,200.00 | 5,942.95 | 6,143.03 | 5,942.95 | 30.10 | 24.52 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,271.44 | 48.34 | 27.302 | |
| 6,300.00 | 6,042.95 | 6,243.03 | 6,042.95 | 30.18 | 24.64 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,271.21 | 48.57 | 27.174 | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - P_NRC 11-8 - P_NRC 11-8 - PLAN #1 1-20-10 RHS | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|--|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---------------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | Offset | Semi Major Axis | | Distance | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 6,400.00 | 6,142.95 | 6,343.03 | 6,142.95 | 30.27 | 24.76 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,270.98 | 48.80 | 27.046 | |
| 6,500.00 | 6,242.95 | 6,443.03 | 6,242.95 | 30.36 | 24.87 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,270.75 | 49.03 | 26.918 | |
| 6,600.00 | 6,342.95 | 6,543.03 | 6,342.95 | 30.45 | 24.99 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,270.51 | 49.27 | 26.789 | |
| 6,700.00 | 6,442.95 | 6,643.03 | 6,442.95 | 30.55 | 25.12 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,270.27 | 49.51 | 26.659 | |
| 6,800.00 | 6,542.95 | 6,743.03 | 6,542.95 | 30.64 | 25.24 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,270.03 | 49.75 | 26.530 | |
| 6,900.00 | 6,642.95 | 6,843.03 | 6,642.95 | 30.74 | 25.36 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,269.79 | 49.99 | 26.400 | |
| | | | | | | | | | | | | | |
| 7,000.00 | 6,742.95 | 6,943.03 | 6,742.95 | 30.83 | 25.49 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,269.54 | 50.24 | 26.270 | |
| 7,100.00 | 6,842.95 | 7,043.03 | 6,842.95 | 30.93 | 25.62 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,269.29 | 50.49 | 26.140 | |
| 7,200.00 | 6,942.95 | 7,143.03 | 6,942.95 | 31.03 | 25.74 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,269.04 | 50.74 | 26.009 | |
| 7,300.00 | 7,042.95 | 7,243.03 | 7,042.95 | 31.13 | 25.87 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,268.78 | 51.00 | 25.879 | |
| 7,400.00 | 7,142.95 | 7,343.03 | 7,142.95 | 31.23 | 26.00 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,268.52 | 51.26 | 25.749 | |
| | | | | | | | | | | | | | |
| 7,500.00 | 7,242.95 | 7,443.03 | 7,242.95 | 31.34 | 26.14 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,268.26 | 51.52 | 25.618 | |
| 7,600.00 | 7,342.95 | 7,543.03 | 7,342.95 | 31.44 | 26.27 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,268.00 | 51.78 | 25.488 | |
| 7,700.00 | 7,442.95 | 7,643.03 | 7,442.95 | 31.55 | 26.41 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,267.73 | 52.05 | 25.357 | |
| 7,800.00 | 7,542.95 | 7,743.03 | 7,542.95 | 31.65 | 26.54 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,267.46 | 52.32 | 25.227 | |
| 7,900.00 | 7,642.95 | 7,843.03 | 7,642.95 | 31.76 | 26.68 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,267.19 | 52.59 | 25.097 | |
| | | | | | | | | | | | | | |
| 8,000.00 | 7,742.95 | 7,943.03 | 7,742.95 | 31.87 | 26.82 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,266.92 | 52.86 | 24.967 | |
| 8,100.00 | 7,842.95 | 8,043.03 | 7,842.95 | 31.98 | 26.96 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,266.64 | 53.14 | 24.837 | |
| 8,200.00 | 7,942.95 | 8,143.03 | 7,942.95 | 32.10 | 27.10 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,266.36 | 53.41 | 24.708 | |
| 8,300.00 | 8,042.95 | 8,243.03 | 8,042.95 | 32.21 | 27.24 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,266.08 | 53.70 | 24.579 | |
| 8,400.00 | 8,142.95 | 8,343.03 | 8,142.95 | 32.32 | 27.38 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,265.80 | 53.98 | 24.450 | |
| | | | | | | | | | | | | | |
| 8,500.00 | 8,242.95 | 8,443.03 | 8,242.95 | 32.44 | 27.53 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,265.52 | 54.26 | 24.322 | |
| 8,600.00 | 8,342.95 | 8,543.03 | 8,342.95 | 32.56 | 27.67 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,265.23 | 54.55 | 24.194 | |
| 8,700.00 | 8,442.95 | 8,643.03 | 8,442.95 | 32.67 | 27.82 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,264.94 | 54.84 | 24.066 | |
| 8,793.05 | 8,536.00 | 8,736.08 | 8,536.00 | 32.78 | 27.95 | 0.13 | 374.51 | 1,048.76 | 1,319.78 | 1,264.67 | 55.11 | 23.947 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - P_NRC 12-8 - P_NRC 12-8 - PLAN #1 1-20-10 RHS | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|--|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---------------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | Offset | Semi Major Axis | | Distance | | Warning | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -178.00 | -16.02 | -0.56 | 16.03 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | -178.00 | -16.02 | -0.56 | 16.03 | 15.84 | 0.19 | 83.924 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | -178.00 | -16.02 | -0.56 | 16.03 | 15.39 | 0.64 | 25.030 | |
| 300.00 | 299.98 | 299.98 | 299.98 | 0.53 | 0.55 | 55.02 | -16.02 | -0.56 | 14.97 | 13.90 | 1.07 | 13.970 | |
| 400.00 | 399.84 | 399.84 | 399.84 | 0.74 | 0.77 | 74.75 | -16.02 | -0.56 | 12.71 | 11.20 | 1.51 | 8.413 | |
| 443.36 | 443.07 | 443.07 | 443.07 | 0.85 | 0.87 | 90.00 | -16.02 | -0.56 | 12.26 | 10.54 | 1.72 | 7.130 CC, ES | |
| 500.00 | 499.45 | 499.45 | 499.45 | 0.99 | 0.99 | 113.51 | -16.02 | -0.56 | 13.38 | 11.41 | 1.98 | 6.763 SF | |
| 600.00 | 598.70 | 598.70 | 598.70 | 1.28 | 1.22 | 144.79 | -16.02 | -0.56 | 21.41 | 18.99 | 2.42 | 8.844 | |
| 700.00 | 697.47 | 697.47 | 697.47 | 1.62 | 1.44 | 159.44 | -16.02 | -0.56 | 35.39 | 32.53 | 2.85 | 12.398 | |
| 800.00 | 795.62 | 795.62 | 795.62 | 2.01 | 1.66 | 166.51 | -16.02 | -0.56 | 53.69 | 50.40 | 3.29 | 16.306 | |
| 900.00 | 893.06 | 893.06 | 893.06 | 2.46 | 1.88 | 170.41 | -16.02 | -0.56 | 75.77 | 72.03 | 3.74 | 20.263 | |
| 1,000.00 | 989.64 | 989.64 | 989.64 | 2.97 | 2.10 | 172.78 | -16.02 | -0.56 | 101.39 | 97.20 | 4.19 | 24.199 | |
| 1,100.00 | 1,085.27 | 1,081.67 | 1,081.66 | 3.55 | 2.30 | 174.43 | -15.10 | -1.26 | 131.63 | 127.00 | 4.63 | 28.412 | |
| 1,200.00 | 1,179.82 | 1,170.25 | 1,170.15 | 4.19 | 2.50 | 175.80 | -11.99 | -3.62 | 168.07 | 163.00 | 5.07 | 33.159 | |
| 1,300.00 | 1,273.17 | 1,255.29 | 1,254.95 | 4.91 | 2.69 | 176.90 | -6.97 | -7.43 | 210.48 | 204.98 | 5.50 | 38.269 | |
| 1,359.55 | 1,328.15 | 1,304.09 | 1,303.52 | 5.36 | 2.80 | 177.45 | -3.18 | -10.30 | 238.45 | 232.70 | 5.75 | 41.438 | |
| 1,400.00 | 1,365.33 | 1,336.55 | 1,335.77 | 5.68 | 2.88 | 177.80 | -0.29 | -12.49 | 258.32 | 252.37 | 5.95 | 43.408 | |
| 1,500.00 | 1,457.25 | 1,415.02 | 1,413.57 | 6.48 | 3.08 | 178.55 | 7.89 | -18.69 | 309.12 | 302.69 | 6.44 | 48.031 | |
| 1,600.00 | 1,549.17 | 1,490.98 | 1,488.58 | 7.28 | 3.29 | 179.16 | 17.42 | -25.92 | 362.21 | 355.29 | 6.92 | 52.341 | |
| 1,700.00 | 1,641.09 | 1,564.45 | 1,560.81 | 8.09 | 3.51 | 179.68 | 28.14 | -34.05 | 417.48 | 410.07 | 7.40 | 56.379 | |
| 1,800.00 | 1,733.01 | 1,635.45 | 1,630.25 | 8.90 | 3.75 | -179.88 | 39.90 | -42.97 | 474.82 | 466.93 | 7.89 | 60.210 | |
| 1,900.00 | 1,824.93 | 1,714.72 | 1,707.52 | 9.72 | 4.03 | -179.46 | 54.01 | -53.66 | 533.43 | 525.04 | 8.39 | 63.587 | |
| 2,000.00 | 1,916.85 | 1,795.67 | 1,786.42 | 10.53 | 4.34 | -179.11 | 68.42 | -64.59 | 592.08 | 583.18 | 8.90 | 66.536 | |
| 2,100.00 | 2,008.77 | 1,876.62 | 1,865.32 | 11.35 | 4.66 | -178.82 | 82.84 | -75.52 | 650.74 | 641.33 | 9.41 | 69.129 | |
| 2,200.00 | 2,100.69 | 1,957.57 | 1,944.22 | 12.17 | 4.98 | -178.59 | 97.26 | -86.45 | 709.41 | 699.48 | 9.93 | 71.435 | |
| 2,300.00 | 2,192.61 | 2,038.51 | 2,023.12 | 12.99 | 5.32 | -178.38 | 111.67 | -97.38 | 768.09 | 757.64 | 10.45 | 73.496 | |
| 2,400.00 | 2,284.53 | 2,119.46 | 2,102.02 | 13.81 | 5.66 | -178.21 | 126.09 | -108.31 | 826.78 | 815.80 | 10.97 | 75.348 | |
| 2,500.00 | 2,376.44 | 2,200.41 | 2,180.92 | 14.63 | 6.01 | -178.06 | 140.50 | -119.24 | 885.46 | 873.97 | 11.50 | 77.018 | |
| 2,600.00 | 2,468.36 | 2,281.35 | 2,259.82 | 15.45 | 6.36 | -177.93 | 154.92 | -130.17 | 944.16 | 932.13 | 12.02 | 78.527 | |
| 2,700.00 | 2,560.28 | 2,362.30 | 2,338.72 | 16.27 | 6.72 | -177.81 | 169.33 | -141.10 | 1,002.85 | 990.30 | 12.55 | 79.900 | |
| 2,800.00 | 2,652.20 | 2,443.25 | 2,417.62 | 17.10 | 7.08 | -177.71 | 183.75 | -152.03 | 1,061.55 | 1,048.47 | 13.08 | 81.156 | |
| 2,900.00 | 2,744.12 | 2,524.19 | 2,496.52 | 17.92 | 7.44 | -177.62 | 198.17 | -162.96 | 1,120.25 | 1,106.63 | 13.61 | 82.307 | |
| 3,000.00 | 2,836.04 | 2,605.14 | 2,575.42 | 18.74 | 7.80 | -177.53 | 212.58 | -173.89 | 1,178.95 | 1,164.80 | 14.14 | 83.366 | |
| 3,100.00 | 2,927.96 | 2,686.09 | 2,654.32 | 19.57 | 8.17 | -177.46 | 227.00 | -184.82 | 1,237.65 | 1,222.97 | 14.67 | 84.342 | |
| 3,200.00 | 3,019.88 | 2,767.04 | 2,733.22 | 20.39 | 8.53 | -177.39 | 241.41 | -195.76 | 1,296.35 | 1,281.14 | 15.21 | 85.244 | |
| 3,300.00 | 3,111.80 | 2,847.98 | 2,812.12 | 21.22 | 8.90 | -177.33 | 255.83 | -206.69 | 1,355.06 | 1,339.31 | 15.74 | 86.081 | |
| 3,400.00 | 3,203.72 | 2,928.93 | 2,891.02 | 22.04 | 9.27 | -177.27 | 270.24 | -217.62 | 1,413.76 | 1,397.48 | 16.28 | 86.860 | |
| 3,500.00 | 3,295.64 | 3,009.88 | 2,969.92 | 22.86 | 9.65 | -177.22 | 284.66 | -228.55 | 1,472.47 | 1,455.66 | 16.81 | 87.587 | |
| 3,600.00 | 3,387.56 | 3,090.82 | 3,048.82 | 23.69 | 10.02 | -177.17 | 299.08 | -239.48 | 1,531.17 | 1,513.83 | 17.35 | 88.265 | |
| 3,700.00 | 3,479.48 | 3,171.77 | 3,127.72 | 24.51 | 10.39 | -177.12 | 313.49 | -250.41 | 1,589.88 | 1,572.00 | 17.88 | 88.899 | |
| 3,763.50 | 3,537.85 | 3,223.17 | 3,177.82 | 25.04 | 10.63 | -177.09 | 322.65 | -257.35 | 1,627.16 | 1,608.94 | 18.22 | 89.282 | |
| 3,800.00 | 3,571.49 | 3,252.85 | 3,206.75 | 25.30 | 10.77 | -177.10 | 327.93 | -261.36 | 1,648.40 | 1,629.93 | 18.47 | 89.253 | |
| 3,900.00 | 3,664.55 | 3,335.53 | 3,287.33 | 25.89 | 11.15 | -177.13 | 342.66 | -272.52 | 1,704.64 | 1,685.53 | 19.11 | 89.224 | |
| 4,000.00 | 3,758.84 | 3,420.11 | 3,369.77 | 26.44 | 11.55 | -177.14 | 357.72 | -283.94 | 1,757.96 | 1,738.25 | 19.72 | 89.161 | |
| 4,100.00 | 3,854.22 | 3,506.49 | 3,453.97 | 26.93 | 11.95 | -177.15 | 373.10 | -295.61 | 1,808.31 | 1,788.00 | 20.30 | 89.070 | |
| 4,200.00 | 3,950.60 | 3,594.58 | 3,539.83 | 27.38 | 12.36 | -177.14 | 388.79 | -307.50 | 1,855.61 | 1,834.75 | 20.86 | 88.957 | |
| 4,300.00 | 4,047.85 | 3,684.26 | 3,627.24 | 27.78 | 12.78 | -177.13 | 404.76 | -319.61 | 1,899.81 | 1,878.43 | 21.39 | 88.827 | |
| 4,400.00 | 4,145.85 | 3,775.41 | 3,716.09 | 28.12 | 13.21 | -177.12 | 420.99 | -331.92 | 1,940.87 | 1,918.98 | 21.88 | 88.685 | |
| 4,500.00 | 4,244.48 | 3,867.95 | 3,806.28 | 28.42 | 13.64 | -177.09 | 437.47 | -344.41 | 1,978.72 | 1,956.37 | 22.35 | 88.534 | |
| 4,600.00 | 4,343.63 | 3,961.73 | 3,897.70 | 28.66 | 14.08 | -177.06 | 454.18 | -357.08 | 2,013.32 | 1,990.54 | 22.78 | 88.377 | |
| 4,700.00 | 4,443.17 | 4,056.67 | 3,990.23 | 28.85 | 14.52 | -177.02 | 471.08 | -369.90 | 2,044.64 | 2,021.46 | 23.18 | 88.216 | |
| 4,800.00 | 4,542.98 | 4,264.45 | 4,193.63 | 29.00 | 15.34 | -176.91 | 504.78 | -395.44 | 2,071.44 | 2,047.67 | 23.78 | 87.123 | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - P_NRC 12-8 - P_NRC 12-8 - PLAN #1 1-20-10 RHS | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | Offset | Semi Major Axis | | Distance | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 4,900.00 | 4,642.95 | 4,617.51 | 4,544.36 | 29.09 | 16.18 | -176.79 | 535.46 | -418.71 | 2,084.81 | 2,060.29 | 24.52 | 85.012 | |
| 4,923.05 | 4,666.00 | 4,700.28 | 4,627.08 | 29.11 | 16.31 | -44.67 | 537.65 | -420.37 | 2,085.67 | 2,060.99 | 24.68 | 84.519 | |
| 5,000.00 | 4,742.95 | 4,816.15 | 4,742.95 | 29.16 | 16.45 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,060.82 | 24.99 | 83.472 | |
| 5,100.00 | 4,842.95 | 4,916.15 | 4,842.95 | 29.23 | 16.59 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,060.48 | 25.32 | 82.370 | |
| 5,200.00 | 4,942.95 | 5,016.15 | 4,942.95 | 29.30 | 16.73 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,060.15 | 25.66 | 81.287 | |
| 5,300.00 | 5,042.95 | 5,116.15 | 5,042.95 | 29.38 | 16.87 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,059.80 | 26.00 | 80.221 | |
| 5,400.00 | 5,142.95 | 5,216.15 | 5,142.95 | 29.45 | 17.01 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,059.46 | 26.34 | 79.175 | |
| 5,500.00 | 5,242.95 | 5,316.15 | 5,242.95 | 29.53 | 17.16 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,059.11 | 26.69 | 78.146 | |
| 5,600.00 | 5,342.95 | 5,416.15 | 5,342.95 | 29.60 | 17.30 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,058.76 | 27.04 | 77.136 | |
| 5,700.00 | 5,442.95 | 5,516.15 | 5,442.95 | 29.68 | 17.45 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,058.41 | 27.39 | 76.144 | |
| 5,800.00 | 5,542.95 | 5,616.15 | 5,542.95 | 29.76 | 17.60 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,058.06 | 27.75 | 75.170 | |
| 5,900.00 | 5,642.95 | 5,716.15 | 5,642.95 | 29.84 | 17.75 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,057.70 | 28.11 | 74.214 | |
| 6,000.00 | 5,742.95 | 5,816.15 | 5,742.95 | 29.92 | 17.90 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,057.34 | 28.47 | 73.275 | |
| 6,100.00 | 5,842.95 | 5,916.15 | 5,842.95 | 30.01 | 18.06 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,056.98 | 28.83 | 72.354 | |
| 6,200.00 | 5,942.95 | 6,016.15 | 5,942.95 | 30.10 | 18.21 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,056.61 | 29.19 | 71.451 | |
| 6,300.00 | 6,042.95 | 6,116.15 | 6,042.95 | 30.18 | 18.37 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,056.25 | 29.56 | 70.564 | |
| 6,400.00 | 6,142.95 | 6,216.15 | 6,142.95 | 30.27 | 18.53 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,055.88 | 29.93 | 69.694 | |
| 6,500.00 | 6,242.95 | 6,316.15 | 6,242.95 | 30.36 | 18.69 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,055.51 | 30.30 | 68.840 | |
| 6,600.00 | 6,342.95 | 6,416.15 | 6,342.95 | 30.45 | 18.85 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,055.13 | 30.67 | 68.003 | |
| 6,700.00 | 6,442.95 | 6,516.15 | 6,442.95 | 30.55 | 19.01 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,054.76 | 31.05 | 67.182 | |
| 6,800.00 | 6,542.95 | 6,616.15 | 6,542.95 | 30.64 | 19.18 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,054.38 | 31.42 | 66.376 | |
| 6,900.00 | 6,642.95 | 6,716.15 | 6,642.95 | 30.74 | 19.34 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,054.00 | 31.80 | 65.586 | |
| 7,000.00 | 6,742.95 | 6,816.15 | 6,742.95 | 30.83 | 19.51 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,053.62 | 32.18 | 64.811 | |
| 7,100.00 | 6,842.95 | 6,916.15 | 6,842.95 | 30.93 | 19.68 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,053.24 | 32.56 | 64.051 | |
| 7,200.00 | 6,942.95 | 7,016.15 | 6,942.95 | 31.03 | 19.84 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,052.86 | 32.95 | 63.305 | |
| 7,300.00 | 7,042.95 | 7,116.15 | 7,042.95 | 31.13 | 20.01 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,052.47 | 33.33 | 62.573 | |
| 7,400.00 | 7,142.95 | 7,216.15 | 7,142.95 | 31.23 | 20.18 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,052.08 | 33.72 | 61.855 | |
| 7,500.00 | 7,242.95 | 7,316.15 | 7,242.95 | 31.34 | 20.36 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,051.70 | 34.11 | 61.151 | |
| 7,600.00 | 7,342.95 | 7,416.15 | 7,342.95 | 31.44 | 20.53 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,051.31 | 34.50 | 60.460 | |
| 7,700.00 | 7,442.95 | 7,516.15 | 7,442.95 | 31.55 | 20.70 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,050.92 | 34.89 | 59.783 | |
| 7,800.00 | 7,542.95 | 7,616.15 | 7,542.95 | 31.65 | 20.88 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,050.52 | 35.28 | 59.118 | |
| 7,900.00 | 7,642.95 | 7,716.15 | 7,642.95 | 31.76 | 21.05 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,050.13 | 35.68 | 58.465 | |
| 8,000.00 | 7,742.95 | 7,816.15 | 7,742.95 | 31.87 | 21.23 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,049.73 | 36.07 | 57.825 | |
| 8,100.00 | 7,842.95 | 7,916.15 | 7,842.95 | 31.98 | 21.41 | -44.67 | 538.05 | -420.68 | 2,085.81 | 2,049.34 | 36.47 | 57.197 | |
| 8,200.00 | 7,942.95 | 7,944.20 | 7,871.00 | 32.10 | 21.46 | -44.67 | 538.05 | -420.68 | 2,087.05 | 2,050.33 | 36.71 | 56.851 | |
| 8,300.00 | 8,042.95 | 7,944.20 | 7,871.00 | 32.21 | 21.46 | -44.67 | 538.05 | -420.68 | 2,092.88 | 2,055.98 | 36.90 | 56.724 | |
| 8,400.00 | 8,142.95 | 7,944.20 | 7,871.00 | 32.32 | 21.46 | -44.67 | 538.05 | -420.68 | 2,103.46 | 2,066.38 | 37.08 | 56.725 | |
| 8,500.00 | 8,242.95 | 7,944.20 | 7,871.00 | 32.44 | 21.46 | -44.67 | 538.05 | -420.68 | 2,118.71 | 2,081.44 | 37.27 | 56.850 | |
| 8,600.00 | 8,342.95 | 7,944.20 | 7,871.00 | 32.56 | 21.46 | -44.67 | 538.05 | -420.68 | 2,138.53 | 2,101.08 | 37.46 | 57.095 | |
| 8,700.00 | 8,442.95 | 7,944.20 | 7,871.00 | 32.67 | 21.46 | -44.67 | 538.05 | -420.68 | 2,162.80 | 2,125.16 | 37.64 | 57.454 | |
| 8,793.05 | 8,536.00 | 7,944.20 | 7,871.00 | 32.78 | 21.46 | -44.67 | 538.05 | -420.68 | 2,189.25 | 2,151.43 | 37.82 | 57.886 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - P_NRC 13-8 - P_NRC 13-8 - PLAN #1 1-20-10 RHS | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|--|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---------------------------|---------|
| Survey Program: 0-MWMD | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | Offset | Semi Major Axis | | Distance | | Warning | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -178.32 | -47.72 | -1.40 | 47.74 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | -178.32 | -47.72 | -1.40 | 47.74 | 47.55 | 0.19 | 249.863 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | -178.32 | -47.72 | -1.40 | 47.74 | 47.10 | 0.64 | 74.521 | |
| 300.00 | 299.98 | 299.98 | 299.98 | 0.53 | 0.55 | 51.22 | -47.72 | -1.40 | 46.62 | 45.55 | 1.07 | 43.517 | |
| 400.00 | 399.84 | 399.84 | 399.84 | 0.74 | 0.77 | 56.64 | -47.72 | -1.40 | 43.54 | 42.03 | 1.51 | 28.876 | |
| 500.00 | 499.45 | 499.45 | 499.45 | 0.99 | 0.99 | 67.32 | -47.72 | -1.40 | 39.41 | 37.43 | 1.98 | 19.901 | |
| 600.00 | 598.70 | 598.70 | 598.70 | 1.28 | 1.22 | 85.20 | -47.72 | -1.40 | 36.47 | 33.96 | 2.51 | 14.546 | |
| 621.49 | 619.97 | 619.97 | 619.97 | 1.35 | 1.26 | 89.99 | -47.72 | -1.40 | 36.34 | 33.70 | 2.64 | 13.766 CC, ES | |
| 700.00 | 697.47 | 697.47 | 697.47 | 1.62 | 1.44 | 108.80 | -47.72 | -1.40 | 38.45 | 35.39 | 3.06 | 12.583 SF | |
| 800.00 | 795.62 | 795.62 | 795.62 | 2.01 | 1.66 | 130.43 | -47.72 | -1.40 | 48.18 | 44.64 | 3.54 | 13.609 | |
| 900.00 | 893.06 | 893.06 | 893.06 | 2.46 | 1.88 | 145.33 | -47.72 | -1.40 | 65.20 | 61.23 | 3.97 | 16.418 | |
| 1,000.00 | 989.64 | 989.64 | 989.64 | 2.97 | 2.10 | 154.71 | -47.72 | -1.40 | 87.88 | 83.49 | 4.39 | 20.008 | |
| 1,100.00 | 1,085.27 | 1,085.64 | 1,085.63 | 3.55 | 2.29 | 160.09 | -48.94 | -1.78 | 115.00 | 110.19 | 4.81 | 23.916 | |
| 1,200.00 | 1,179.82 | 1,181.28 | 1,181.16 | 4.19 | 2.46 | 162.46 | -53.20 | -3.09 | 145.45 | 140.20 | 5.24 | 27.732 | |
| 1,300.00 | 1,273.17 | 1,276.38 | 1,275.95 | 4.91 | 2.64 | 163.22 | -60.45 | -5.32 | 178.72 | 172.99 | 5.73 | 31.206 | |
| 1,359.55 | 1,328.15 | 1,332.69 | 1,331.94 | 5.36 | 2.75 | 163.20 | -66.16 | -7.08 | 199.80 | 193.76 | 6.04 | 33.069 | |
| 1,400.00 | 1,365.33 | 1,370.86 | 1,369.82 | 5.68 | 2.84 | 163.13 | -70.62 | -8.46 | 214.39 | 208.10 | 6.28 | 34.113 | |
| 1,500.00 | 1,457.25 | 1,465.43 | 1,463.38 | 6.48 | 3.06 | 162.44 | -83.77 | -12.51 | 250.12 | 243.19 | 6.93 | 36.069 | |
| 1,600.00 | 1,549.17 | 1,560.10 | 1,556.53 | 7.28 | 3.33 | 161.27 | -99.88 | -17.47 | 285.46 | 277.80 | 7.66 | 37.257 | |
| 1,700.00 | 1,641.09 | 1,654.66 | 1,648.98 | 8.09 | 3.63 | 159.77 | -118.89 | -23.33 | 320.52 | 312.04 | 8.48 | 37.815 | |
| 1,800.00 | 1,733.01 | 1,748.92 | 1,740.42 | 8.90 | 3.99 | 158.04 | -140.74 | -30.06 | 355.47 | 346.09 | 9.38 | 37.877 | |
| 1,900.00 | 1,824.93 | 1,842.67 | 1,830.57 | 9.72 | 4.39 | 156.15 | -165.31 | -37.62 | 390.49 | 380.10 | 10.39 | 37.574 | |
| 2,000.00 | 1,916.85 | 1,935.72 | 1,919.17 | 10.53 | 4.84 | 154.14 | -192.47 | -45.99 | 425.76 | 414.27 | 11.49 | 37.046 | |
| 2,100.00 | 2,008.77 | 2,028.12 | 2,006.69 | 11.35 | 5.34 | 152.26 | -220.79 | -54.72 | 461.44 | 448.78 | 12.66 | 36.437 | |
| 2,200.00 | 2,100.69 | 2,120.52 | 2,094.20 | 12.17 | 5.85 | 150.64 | -249.12 | -63.44 | 497.50 | 483.64 | 13.85 | 35.909 | |
| 2,300.00 | 2,192.61 | 2,212.92 | 2,181.72 | 12.99 | 6.38 | 149.24 | -277.44 | -72.17 | 533.86 | 518.80 | 15.06 | 35.449 | |
| 2,400.00 | 2,284.53 | 2,305.31 | 2,269.23 | 13.81 | 6.92 | 148.01 | -305.77 | -80.89 | 570.47 | 554.19 | 16.28 | 35.048 | |
| 2,500.00 | 2,376.44 | 2,397.71 | 2,356.75 | 14.63 | 7.47 | 146.94 | -334.10 | -89.62 | 607.28 | 589.78 | 17.50 | 34.700 | |
| 2,600.00 | 2,468.36 | 2,490.11 | 2,444.26 | 15.45 | 8.03 | 145.98 | -362.42 | -98.35 | 644.26 | 625.53 | 18.73 | 34.397 | |
| 2,700.00 | 2,560.28 | 2,582.51 | 2,531.78 | 16.27 | 8.59 | 145.12 | -390.75 | -107.07 | 681.37 | 661.41 | 19.96 | 34.131 | |
| 2,800.00 | 2,652.20 | 2,674.91 | 2,619.30 | 17.10 | 9.16 | 144.36 | -419.07 | -115.80 | 718.61 | 697.41 | 21.20 | 33.899 | |
| 2,900.00 | 2,744.12 | 2,767.31 | 2,706.81 | 17.92 | 9.73 | 143.67 | -447.40 | -124.52 | 755.94 | 733.51 | 22.44 | 33.694 | |
| 3,000.00 | 2,836.04 | 2,859.71 | 2,794.33 | 18.74 | 10.31 | 143.04 | -475.73 | -133.25 | 793.36 | 769.69 | 23.67 | 33.513 | |
| 3,100.00 | 2,927.96 | 2,952.10 | 2,881.84 | 19.57 | 10.89 | 142.47 | -504.05 | -141.98 | 830.86 | 805.95 | 24.91 | 33.352 | |
| 3,200.00 | 3,019.88 | 3,044.50 | 2,969.36 | 20.39 | 11.47 | 141.95 | -532.38 | -150.70 | 868.42 | 842.27 | 26.15 | 33.208 | |
| 3,300.00 | 3,111.80 | 3,136.90 | 3,056.87 | 21.22 | 12.05 | 141.47 | -560.71 | -159.43 | 906.04 | 878.65 | 27.39 | 33.080 | |
| 3,400.00 | 3,203.72 | 3,229.30 | 3,144.39 | 22.04 | 12.63 | 141.03 | -589.03 | -168.15 | 943.71 | 915.08 | 28.63 | 32.964 | |
| 3,500.00 | 3,295.64 | 3,321.70 | 3,231.90 | 22.86 | 13.22 | 140.62 | -617.36 | -176.88 | 981.42 | 951.56 | 29.87 | 32.860 | |
| 3,600.00 | 3,387.56 | 3,414.10 | 3,319.42 | 23.69 | 13.81 | 140.25 | -645.68 | -185.61 | 1,019.18 | 988.07 | 31.10 | 32.767 | |
| 3,700.00 | 3,479.48 | 3,506.50 | 3,406.94 | 24.51 | 14.39 | 139.90 | -674.01 | -194.33 | 1,056.96 | 1,024.62 | 32.34 | 32.681 | |
| 3,763.50 | 3,537.85 | 3,565.17 | 3,462.51 | 25.04 | 14.77 | 139.69 | -692.00 | -199.87 | 1,080.98 | 1,047.85 | 33.13 | 32.632 | |
| 3,800.00 | 3,571.49 | 3,598.95 | 3,494.51 | 25.30 | 14.98 | 139.75 | -702.35 | -203.06 | 1,094.62 | 1,061.06 | 33.56 | 32.615 | |
| 3,900.00 | 3,664.55 | 3,692.05 | 3,582.69 | 25.89 | 15.58 | 139.84 | -730.90 | -211.86 | 1,130.33 | 1,095.65 | 34.68 | 32.591 | |
| 4,000.00 | 3,758.84 | 3,785.87 | 3,671.54 | 26.44 | 16.18 | 139.79 | -759.66 | -220.72 | 1,163.61 | 1,127.82 | 35.79 | 32.510 | |
| 4,100.00 | 3,854.22 | 3,880.28 | 3,760.97 | 26.93 | 16.78 | 139.62 | -788.60 | -229.63 | 1,194.46 | 1,157.57 | 36.89 | 32.380 | |
| 4,200.00 | 3,950.60 | 3,986.55 | 3,862.21 | 27.38 | 17.27 | 139.35 | -819.42 | -239.13 | 1,222.46 | 1,184.61 | 37.85 | 32.296 | |
| 4,300.00 | 4,047.85 | 4,094.89 | 3,966.60 | 27.78 | 17.72 | 139.12 | -847.13 | -247.66 | 1,247.11 | 1,208.39 | 38.71 | 32.213 | |
| 4,400.00 | 4,145.85 | 4,204.99 | 4,073.72 | 28.12 | 18.13 | 138.92 | -871.41 | -255.14 | 1,268.30 | 1,228.81 | 39.48 | 32.123 | |
| 4,500.00 | 4,244.48 | 4,316.61 | 4,183.24 | 28.42 | 18.50 | 138.76 | -891.98 | -261.48 | 1,285.95 | 1,245.80 | 40.15 | 32.028 | |
| 4,600.00 | 4,343.63 | 4,429.51 | 4,294.78 | 28.66 | 18.82 | 138.62 | -908.63 | -266.61 | 1,299.99 | 1,259.27 | 40.72 | 31.928 | |
| 4,700.00 | 4,443.17 | 4,543.42 | 4,407.92 | 28.85 | 19.09 | 138.52 | -921.16 | -270.47 | 1,310.36 | 1,269.19 | 41.18 | 31.824 | |
| 4,800.00 | 4,542.98 | 4,658.04 | 4,522.21 | 29.00 | 19.31 | 138.45 | -929.42 | -273.01 | 1,317.02 | 1,275.50 | 41.53 | 31.715 | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - P_NRC 13-8 - P_NRC 13-8 - PLAN #1 1-20-10 RHS | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | Offset | Semi Major Axis | | Distance | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 4,900.00 | 4,642.95 | 4,773.08 | 4,637.18 | 29.09 | 19.47 | 138.40 | -933.31 | -274.21 | 1,319.94 | 1,278.17 | 41.77 | 31.601 | |
| 4,923.05 | 4,666.00 | 4,799.63 | 4,663.72 | 29.11 | 19.51 | -89.49 | -933.58 | -274.29 | 1,320.08 | 1,278.26 | 41.82 | 31.569 | |
| 5,000.00 | 4,742.95 | 4,878.86 | 4,742.95 | 29.16 | 19.59 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,278.12 | 41.97 | 31.453 | |
| 5,100.00 | 4,842.95 | 4,978.86 | 4,842.95 | 29.23 | 19.69 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,277.93 | 42.16 | 31.312 | |
| 5,200.00 | 4,942.95 | 5,078.86 | 4,942.95 | 29.30 | 19.79 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,277.74 | 42.35 | 31.172 | |
| 5,300.00 | 5,042.95 | 5,178.86 | 5,042.95 | 29.38 | 19.89 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,277.55 | 42.54 | 31.029 | |
| 5,400.00 | 5,142.95 | 5,278.86 | 5,142.95 | 29.45 | 20.00 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,277.35 | 42.74 | 30.885 | |
| 5,500.00 | 5,242.95 | 5,378.86 | 5,242.95 | 29.53 | 20.10 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,277.15 | 42.94 | 30.740 | |
| 5,600.00 | 5,342.95 | 5,478.86 | 5,342.95 | 29.60 | 20.21 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,276.94 | 43.15 | 30.593 | |
| 5,700.00 | 5,442.95 | 5,578.86 | 5,442.95 | 29.68 | 20.32 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,276.73 | 43.36 | 30.445 | |
| 5,800.00 | 5,542.95 | 5,678.86 | 5,542.95 | 29.76 | 20.44 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,276.52 | 43.57 | 30.296 | |
| 5,900.00 | 5,642.95 | 5,778.86 | 5,642.95 | 29.84 | 20.55 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,276.30 | 43.79 | 30.145 | |
| 6,000.00 | 5,742.95 | 5,878.86 | 5,742.95 | 29.92 | 20.67 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,276.08 | 44.01 | 29.994 | |
| 6,100.00 | 5,842.95 | 5,978.86 | 5,842.95 | 30.01 | 20.78 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,275.86 | 44.24 | 29.842 | |
| 6,200.00 | 5,942.95 | 6,078.86 | 5,942.95 | 30.10 | 20.90 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,275.63 | 44.46 | 29.689 | |
| 6,300.00 | 6,042.95 | 6,178.86 | 6,042.95 | 30.18 | 21.03 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,275.40 | 44.69 | 29.536 | |
| 6,400.00 | 6,142.95 | 6,278.86 | 6,142.95 | 30.27 | 21.15 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,275.16 | 44.93 | 29.381 | |
| 6,500.00 | 6,242.95 | 6,378.86 | 6,242.95 | 30.36 | 21.27 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,274.93 | 45.17 | 29.227 | |
| 6,600.00 | 6,342.95 | 6,478.86 | 6,342.95 | 30.45 | 21.40 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,274.68 | 45.41 | 29.071 | |
| 6,700.00 | 6,442.95 | 6,578.86 | 6,442.95 | 30.55 | 21.53 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,274.44 | 45.65 | 28.916 | |
| 6,800.00 | 6,542.95 | 6,678.86 | 6,542.95 | 30.64 | 21.66 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,274.19 | 45.90 | 28.760 | |
| 6,900.00 | 6,642.95 | 6,778.86 | 6,642.95 | 30.74 | 21.79 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,273.94 | 46.15 | 28.604 | |
| 7,000.00 | 6,742.95 | 6,878.86 | 6,742.95 | 30.83 | 21.92 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,273.69 | 46.40 | 28.447 | |
| 7,100.00 | 6,842.95 | 6,978.86 | 6,842.95 | 30.93 | 22.06 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,273.43 | 46.66 | 28.291 | |
| 7,200.00 | 6,942.95 | 7,078.86 | 6,942.95 | 31.03 | 22.19 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,273.17 | 46.92 | 28.134 | |
| 7,300.00 | 7,042.95 | 7,178.86 | 7,042.95 | 31.13 | 22.33 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,272.91 | 47.18 | 27.978 | |
| 7,400.00 | 7,142.95 | 7,278.86 | 7,142.95 | 31.23 | 22.47 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,272.64 | 47.45 | 27.821 | |
| 7,500.00 | 7,242.95 | 7,378.86 | 7,242.95 | 31.34 | 22.61 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,272.38 | 47.72 | 27.665 | |
| 7,600.00 | 7,342.95 | 7,478.86 | 7,342.95 | 31.44 | 22.75 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,272.10 | 47.99 | 27.509 | |
| 7,700.00 | 7,442.95 | 7,578.86 | 7,442.95 | 31.55 | 22.89 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,271.83 | 48.26 | 27.353 | |
| 7,800.00 | 7,542.95 | 7,678.86 | 7,542.95 | 31.65 | 23.03 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,271.55 | 48.54 | 27.197 | |
| 7,900.00 | 7,642.95 | 7,778.86 | 7,642.95 | 31.76 | 23.18 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,271.28 | 48.82 | 27.042 | |
| 8,000.00 | 7,742.95 | 7,878.86 | 7,742.95 | 31.87 | 23.33 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,270.99 | 49.10 | 26.887 | |
| 8,100.00 | 7,842.95 | 7,978.86 | 7,842.95 | 31.98 | 23.47 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,270.71 | 49.38 | 26.732 | |
| 8,200.00 | 7,942.95 | 8,078.86 | 7,942.95 | 32.10 | 23.62 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,270.42 | 49.67 | 26.578 | |
| 8,300.00 | 8,042.95 | 8,178.86 | 8,042.95 | 32.21 | 23.77 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,270.13 | 49.96 | 26.424 | |
| 8,400.00 | 8,142.95 | 8,278.86 | 8,142.95 | 32.32 | 23.92 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,269.84 | 50.25 | 26.271 | |
| 8,500.00 | 8,242.95 | 8,378.86 | 8,242.95 | 32.44 | 24.08 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,269.55 | 50.54 | 26.118 | |
| 8,600.00 | 8,342.95 | 8,478.86 | 8,342.95 | 32.56 | 24.23 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,269.25 | 50.84 | 25.966 | |
| 8,700.00 | 8,442.95 | 8,578.86 | 8,442.95 | 32.67 | 24.39 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,268.96 | 51.14 | 25.815 | |
| 8,793.05 | 8,536.00 | 8,671.91 | 8,536.00 | 32.78 | 24.53 | -89.49 | -933.63 | -274.31 | 1,320.09 | 1,268.68 | 51.42 | 25.674 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - P_NRC 22-8 - P_NRC 22-8 - PLAN #1 1-20-10 RHS | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 2.00 | 16.03 | 0.56 | 16.04 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | 2.00 | 16.03 | 0.56 | 16.04 | 15.85 | 0.19 | 83.946 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | 2.00 | 16.03 | 0.56 | 16.04 | 15.40 | 0.64 | 25.036 CC, ES | |
| 300.00 | 299.98 | 299.98 | 299.98 | 0.53 | 0.55 | -134.54 | 16.03 | 0.56 | 17.21 | 16.14 | 1.07 | 16.074 | |
| 400.00 | 399.84 | 399.84 | 399.84 | 0.74 | 0.77 | -144.61 | 16.03 | 0.56 | 21.22 | 19.72 | 1.50 | 14.140 SF | |
| 500.00 | 499.45 | 499.45 | 499.45 | 0.99 | 0.99 | -154.64 | 16.03 | 0.56 | 28.77 | 26.83 | 1.94 | 14.829 | |
| 600.00 | 598.70 | 598.70 | 598.70 | 1.28 | 1.22 | -162.04 | 16.03 | 0.56 | 40.13 | 37.75 | 2.38 | 16.843 | |
| 700.00 | 697.47 | 697.47 | 697.47 | 1.62 | 1.44 | -166.98 | 16.03 | 0.56 | 55.23 | 52.41 | 2.83 | 19.536 | |
| 800.00 | 795.62 | 795.62 | 795.62 | 2.01 | 1.66 | -170.24 | 16.03 | 0.56 | 73.96 | 70.69 | 3.27 | 22.589 | |
| 900.00 | 893.06 | 893.06 | 893.06 | 2.46 | 1.88 | -172.45 | 16.03 | 0.56 | 96.21 | 92.49 | 3.72 | 25.840 | |
| 1,000.00 | 989.64 | 989.64 | 989.64 | 2.97 | 2.10 | -174.00 | 16.03 | 0.56 | 121.93 | 117.75 | 4.18 | 29.199 | |
| 1,100.00 | 1,085.27 | 1,083.38 | 1,083.37 | 3.55 | 2.30 | -174.65 | 17.16 | 1.01 | 151.57 | 146.95 | 4.63 | 32.760 | |
| 1,200.00 | 1,179.82 | 1,174.99 | 1,174.88 | 4.19 | 2.51 | -174.27 | 20.99 | 2.54 | 185.83 | 180.75 | 5.08 | 36.568 | |
| 1,300.00 | 1,273.17 | 1,264.29 | 1,263.92 | 4.91 | 2.71 | -173.36 | 27.35 | 5.06 | 224.63 | 219.08 | 5.55 | 40.500 | |
| 1,359.55 | 1,328.15 | 1,316.24 | 1,315.60 | 5.36 | 2.83 | -172.69 | 32.23 | 7.01 | 249.86 | 244.03 | 5.83 | 42.862 | |
| 1,400.00 | 1,365.33 | 1,351.07 | 1,350.20 | 5.68 | 2.92 | -172.24 | 35.99 | 8.50 | 267.64 | 261.59 | 6.05 | 44.246 | |
| 1,500.00 | 1,457.25 | 1,436.18 | 1,434.50 | 6.48 | 3.14 | -171.04 | 46.82 | 12.82 | 312.54 | 305.93 | 6.61 | 47.305 | |
| 1,600.00 | 1,549.17 | 1,519.75 | 1,516.91 | 7.28 | 3.37 | -169.75 | 59.71 | 17.95 | 358.82 | 351.63 | 7.19 | 49.900 | |
| 1,700.00 | 1,641.09 | 1,601.69 | 1,597.28 | 8.09 | 3.62 | -168.44 | 74.52 | 23.84 | 406.54 | 398.73 | 7.80 | 52.104 | |
| 1,800.00 | 1,733.01 | 1,686.47 | 1,680.05 | 8.90 | 3.91 | -167.12 | 91.54 | 30.62 | 455.43 | 446.97 | 8.46 | 53.848 | |
| 1,900.00 | 1,824.93 | 1,773.20 | 1,764.71 | 9.72 | 4.22 | -166.02 | 109.08 | 37.59 | 504.54 | 495.41 | 9.14 | 55.220 | |
| 2,000.00 | 1,916.85 | 1,859.93 | 1,849.36 | 10.53 | 4.54 | -165.11 | 126.61 | 44.57 | 553.78 | 543.95 | 9.83 | 56.342 | |
| 2,100.00 | 2,008.77 | 1,946.67 | 1,934.02 | 11.35 | 4.88 | -164.35 | 144.14 | 51.55 | 603.10 | 592.57 | 10.53 | 57.271 | |
| 2,200.00 | 2,100.69 | 2,033.40 | 2,018.67 | 12.17 | 5.22 | -163.70 | 161.67 | 58.53 | 652.49 | 641.25 | 11.24 | 58.050 | |
| 2,300.00 | 2,192.61 | 2,120.13 | 2,103.32 | 12.99 | 5.58 | -163.15 | 179.20 | 65.50 | 701.94 | 689.98 | 11.96 | 58.709 | |
| 2,400.00 | 2,284.53 | 2,206.86 | 2,187.98 | 13.81 | 5.93 | -162.66 | 196.73 | 72.48 | 751.43 | 738.75 | 12.68 | 59.273 | |
| 2,500.00 | 2,376.44 | 2,293.59 | 2,272.63 | 14.63 | 6.30 | -162.24 | 214.26 | 79.46 | 800.96 | 787.55 | 13.40 | 59.758 | |
| 2,600.00 | 2,468.36 | 2,380.32 | 2,357.28 | 15.45 | 6.66 | -161.87 | 231.79 | 86.44 | 850.51 | 836.38 | 14.13 | 60.180 | |
| 2,700.00 | 2,560.28 | 2,467.05 | 2,441.94 | 16.27 | 7.03 | -161.53 | 249.32 | 93.41 | 900.09 | 885.23 | 14.87 | 60.551 | |
| 2,800.00 | 2,652.20 | 2,553.78 | 2,526.59 | 17.10 | 7.41 | -161.23 | 266.85 | 100.39 | 949.69 | 934.09 | 15.60 | 60.878 | |
| 2,900.00 | 2,744.12 | 2,640.51 | 2,611.25 | 17.92 | 7.78 | -160.96 | 284.38 | 107.37 | 999.31 | 982.97 | 16.34 | 61.168 | |
| 3,000.00 | 2,836.04 | 2,727.24 | 2,695.90 | 18.74 | 8.16 | -160.72 | 301.91 | 114.35 | 1,048.94 | 1,031.87 | 17.08 | 61.428 | |
| 3,100.00 | 2,927.96 | 2,813.97 | 2,780.55 | 19.57 | 8.54 | -160.50 | 319.44 | 121.32 | 1,098.59 | 1,080.77 | 17.82 | 61.661 | |
| 3,200.00 | 3,019.88 | 2,900.71 | 2,865.21 | 20.39 | 8.92 | -160.30 | 336.97 | 128.30 | 1,148.25 | 1,129.69 | 18.56 | 61.871 | |
| 3,300.00 | 3,111.80 | 2,987.44 | 2,949.86 | 21.22 | 9.30 | -160.11 | 354.50 | 135.28 | 1,197.92 | 1,178.61 | 19.30 | 62.062 | |
| 3,400.00 | 3,203.72 | 3,074.17 | 3,034.51 | 22.04 | 9.69 | -159.94 | 372.03 | 142.26 | 1,247.59 | 1,227.54 | 20.05 | 62.235 | |
| 3,500.00 | 3,295.64 | 3,160.90 | 3,119.17 | 22.86 | 10.07 | -159.78 | 389.56 | 149.23 | 1,297.28 | 1,276.48 | 20.79 | 62.393 | |
| 3,600.00 | 3,387.56 | 3,247.63 | 3,203.82 | 23.69 | 10.46 | -159.64 | 407.09 | 156.21 | 1,346.97 | 1,325.43 | 21.54 | 62.538 | |
| 3,700.00 | 3,479.48 | 3,334.36 | 3,288.47 | 24.51 | 10.85 | -159.50 | 424.62 | 163.19 | 1,396.66 | 1,374.38 | 22.29 | 62.671 | |
| 3,763.50 | 3,537.85 | 3,389.43 | 3,342.23 | 25.04 | 11.09 | -159.42 | 435.76 | 167.62 | 1,428.22 | 1,405.46 | 22.76 | 62.751 | |
| 3,800.00 | 3,571.49 | 3,421.20 | 3,373.23 | 25.30 | 11.23 | -159.51 | 442.18 | 170.17 | 1,446.18 | 1,423.12 | 23.06 | 62.715 | |
| 3,900.00 | 3,664.55 | 3,509.25 | 3,459.18 | 25.89 | 11.63 | -159.72 | 459.97 | 177.26 | 1,493.41 | 1,469.57 | 23.84 | 62.639 | |
| 4,000.00 | 3,758.84 | 3,598.75 | 3,546.53 | 26.44 | 12.03 | -159.86 | 478.06 | 184.46 | 1,537.74 | 1,513.14 | 24.61 | 62.493 | |
| 4,100.00 | 3,854.22 | 3,689.58 | 3,635.18 | 26.93 | 12.44 | -159.93 | 496.42 | 191.76 | 1,579.14 | 1,553.79 | 25.35 | 62.290 | |
| 4,200.00 | 3,950.60 | 3,781.62 | 3,725.03 | 27.38 | 12.85 | -159.94 | 515.03 | 199.17 | 1,617.55 | 1,591.48 | 26.07 | 62.041 | |
| 4,300.00 | 4,047.85 | 3,874.78 | 3,815.95 | 27.78 | 13.27 | -159.89 | 533.86 | 206.66 | 1,652.96 | 1,626.19 | 26.77 | 61.754 | |
| 4,400.00 | 4,145.85 | 3,968.92 | 3,907.84 | 28.12 | 13.70 | -159.79 | 552.89 | 214.24 | 1,685.33 | 1,657.90 | 27.43 | 61.436 | |
| 4,500.00 | 4,244.48 | 4,063.95 | 4,000.59 | 28.42 | 14.13 | -159.64 | 572.09 | 221.88 | 1,714.64 | 1,686.57 | 28.07 | 61.092 | |
| 4,600.00 | 4,343.63 | 4,159.74 | 4,094.08 | 28.66 | 14.56 | -159.43 | 591.45 | 229.59 | 1,740.88 | 1,712.21 | 28.67 | 60.727 | |
| 4,700.00 | 4,443.17 | 4,256.17 | 4,188.21 | 28.85 | 15.00 | -159.17 | 610.95 | 237.35 | 1,764.04 | 1,734.81 | 29.23 | 60.344 | |
| 4,800.00 | 4,542.98 | 4,353.14 | 4,282.85 | 29.00 | 15.44 | -158.86 | 630.54 | 245.15 | 1,784.11 | 1,754.35 | 29.76 | 59.945 | |
| 4,900.00 | 4,642.95 | 4,450.51 | 4,377.89 | 29.09 | 15.88 | -158.51 | 650.23 | 252.98 | 1,801.11 | 1,770.85 | 30.25 | 59.533 | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - P_NRC 22-8 - P_NRC 22-8 - PLAN #1 1-20-10 RHS | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | Offset | Semi Major Axis | | Distance | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 4,923.05 | 4,666.00 | 4,473.00 | 4,399.85 | 29.11 | 15.98 | -26.30 | 654.77 | 254.79 | 1,804.59 | 1,774.23 | 30.36 | 59.434 | |
| 5,000.00 | 4,742.95 | 4,548.11 | 4,473.15 | 29.16 | 16.32 | -25.92 | 669.95 | 260.83 | 1,815.98 | 1,785.18 | 30.80 | 58.964 | |
| 5,100.00 | 4,842.95 | 4,645.71 | 4,568.42 | 29.23 | 16.76 | -25.42 | 689.68 | 268.69 | 1,830.91 | 1,799.55 | 31.36 | 58.384 | |
| 5,200.00 | 4,942.95 | 4,743.32 | 4,663.69 | 29.30 | 17.21 | -24.93 | 709.41 | 276.54 | 1,845.97 | 1,814.05 | 31.92 | 57.832 | |
| 5,300.00 | 5,042.95 | 4,840.92 | 4,758.96 | 29.38 | 17.65 | -24.45 | 729.14 | 284.39 | 1,861.16 | 1,828.68 | 32.48 | 57.307 | |
| 5,400.00 | 5,142.95 | 4,938.53 | 4,854.22 | 29.45 | 18.10 | -23.98 | 748.87 | 292.24 | 1,876.48 | 1,843.45 | 33.03 | 56.808 | |
| 5,500.00 | 5,242.95 | 5,036.13 | 4,949.49 | 29.53 | 18.54 | -23.51 | 768.60 | 300.09 | 1,891.93 | 1,858.35 | 33.58 | 56.333 | |
| 5,600.00 | 5,342.95 | 5,133.74 | 5,044.76 | 29.60 | 18.98 | -23.05 | 788.32 | 307.95 | 1,907.50 | 1,873.37 | 34.14 | 55.881 | |
| 5,700.00 | 5,442.95 | 5,231.34 | 5,140.03 | 29.68 | 19.43 | -22.60 | 808.05 | 315.80 | 1,923.20 | 1,888.51 | 34.68 | 55.450 | |
| 5,800.00 | 5,542.95 | 5,328.95 | 5,235.29 | 29.76 | 19.87 | -22.16 | 827.78 | 323.65 | 1,939.01 | 1,903.78 | 35.23 | 55.041 | |
| 5,900.00 | 5,642.95 | 5,426.55 | 5,330.56 | 29.84 | 20.32 | -21.72 | 847.51 | 331.50 | 1,954.93 | 1,919.16 | 35.77 | 54.650 | |
| 6,000.00 | 5,742.95 | 5,524.16 | 5,425.83 | 29.92 | 20.76 | -21.29 | 867.24 | 339.36 | 1,970.96 | 1,934.65 | 36.31 | 54.278 | |
| 6,100.00 | 5,842.95 | 5,621.76 | 5,521.09 | 30.01 | 21.21 | -20.87 | 886.97 | 347.21 | 1,987.11 | 1,950.26 | 36.85 | 53.923 | |
| 6,200.00 | 5,942.95 | 5,719.37 | 5,616.36 | 30.10 | 21.65 | -20.45 | 906.69 | 355.06 | 2,003.36 | 1,965.97 | 37.39 | 53.585 | |
| 6,300.00 | 6,042.95 | 5,816.97 | 5,711.63 | 30.18 | 22.10 | -20.04 | 926.42 | 362.91 | 2,019.71 | 1,981.79 | 37.92 | 53.263 | |
| 6,400.00 | 6,142.95 | 5,917.30 | 5,808.46 | 30.27 | 22.76 | -19.38 | 946.13 | 370.73 | 2,036.42 | 1,998.07 | 38.45 | 52.942 | |
| 6,500.00 | 6,242.95 | 6,013.33 | 6,102.67 | 30.36 | 23.31 | -18.87 | 965.84 | 378.52 | 2,053.43 | 2,015.11 | 38.97 | 52.620 | |
| 6,600.00 | 6,342.95 | 6,109.35 | 6,201.34 | 30.45 | 23.86 | -18.66 | 985.55 | 386.29 | 2,070.43 | 2,032.11 | 39.49 | 52.300 | |
| 6,700.00 | 6,442.95 | 6,205.36 | 6,301.34 | 30.55 | 24.41 | -18.66 | 1,005.26 | 394.04 | 2,087.43 | 2,049.11 | 40.01 | 51.980 | |
| 6,800.00 | 6,542.95 | 6,301.37 | 6,401.34 | 30.64 | 24.96 | -18.66 | 1,025.07 | 399.44 | 2,104.43 | 2,066.11 | 40.53 | 51.660 | |
| 6,900.00 | 6,642.95 | 6,397.38 | 6,501.34 | 30.74 | 25.51 | -18.66 | 1,044.88 | 404.84 | 2,121.43 | 2,083.11 | 41.05 | 51.340 | |
| 7,000.00 | 6,742.95 | 6,493.39 | 6,601.34 | 30.83 | 26.06 | -18.66 | 1,064.69 | 410.24 | 2,138.43 | 2,100.11 | 41.57 | 51.020 | |
| 7,100.00 | 6,842.95 | 6,589.40 | 6,701.34 | 30.93 | 26.61 | -18.66 | 1,084.50 | 415.64 | 2,155.43 | 2,117.11 | 42.09 | 50.700 | |
| 7,200.00 | 6,942.95 | 6,685.41 | 6,801.34 | 31.03 | 27.16 | -18.66 | 1,104.31 | 421.04 | 2,172.43 | 2,134.11 | 42.61 | 50.380 | |
| 7,300.00 | 7,042.95 | 6,781.42 | 6,901.34 | 31.13 | 27.71 | -18.66 | 1,124.12 | 426.44 | 2,189.43 | 2,151.11 | 43.13 | 50.060 | |
| 7,400.00 | 7,142.95 | 6,877.43 | 7,001.34 | 31.23 | 28.26 | -18.66 | 1,143.93 | 431.84 | 2,206.43 | 2,168.11 | 43.65 | 49.740 | |
| 7,500.00 | 7,242.95 | 6,973.44 | 7,101.34 | 31.34 | 28.81 | -18.66 | 1,163.74 | 437.24 | 2,223.43 | 2,185.11 | 44.17 | 49.420 | |
| 7,600.00 | 7,342.95 | 7,069.45 | 7,201.34 | 31.44 | 29.36 | -18.66 | 1,183.55 | 442.64 | 2,240.43 | 2,202.11 | 44.69 | 49.100 | |
| 7,700.00 | 7,442.95 | 7,165.46 | 7,301.34 | 31.55 | 29.91 | -18.66 | 1,203.36 | 448.04 | 2,257.43 | 2,219.11 | 45.21 | 48.780 | |
| 7,800.00 | 7,542.95 | 7,261.47 | 7,401.34 | 31.65 | 30.46 | -18.66 | 1,223.17 | 453.44 | 2,274.43 | 2,236.11 | 45.73 | 48.460 | |
| 7,900.00 | 7,642.95 | 7,357.48 | 7,501.34 | 31.76 | 31.01 | -18.66 | 1,242.98 | 458.84 | 2,291.43 | 2,253.11 | 46.25 | 48.140 | |
| 8,000.00 | 7,742.95 | 7,453.49 | 7,601.34 | 31.87 | 31.56 | -18.66 | 1,262.79 | 464.24 | 2,308.43 | 2,270.11 | 46.77 | 47.820 | |
| 8,100.00 | 7,842.95 | 7,549.50 | 7,701.34 | 31.98 | 32.11 | -18.66 | 1,282.60 | 469.64 | 2,325.43 | 2,287.11 | 47.29 | 47.500 | |
| 8,200.00 | 7,942.95 | 7,645.51 | 7,801.34 | 32.10 | 32.66 | -18.66 | 1,302.41 | 475.04 | 2,342.43 | 2,304.11 | 47.81 | 47.180 | |
| 8,300.00 | 8,042.95 | 7,741.52 | 7,901.34 | 32.21 | 33.21 | -18.66 | 1,322.22 | 480.44 | 2,359.43 | 2,321.11 | 48.33 | 46.860 | |
| 8,400.00 | 8,142.95 | 7,837.53 | 8,001.34 | 32.32 | 33.76 | -18.66 | 1,342.03 | 485.84 | 2,376.43 | 2,338.11 | 48.85 | 46.540 | |
| 8,500.00 | 8,242.95 | 7,933.54 | 8,101.34 | 32.44 | 34.31 | -18.66 | 1,361.84 | 491.24 | 2,393.43 | 2,355.11 | 49.37 | 46.220 | |
| 8,522.57 | 8,265.52 | 8,376.53 | 8,265.52 | 32.47 | 26.35 | -18.66 | 995.58 | 390.44 | 2,048.49 | 2,002.56 | 45.93 | 44.599 | |
| 8,600.00 | 8,342.95 | 8,397.01 | 8,286.00 | 32.56 | 26.38 | -18.66 | 995.58 | 390.44 | 2,049.28 | 2,003.19 | 46.09 | 44.460 | |
| 8,700.00 | 8,442.95 | 8,397.01 | 8,286.00 | 32.67 | 26.38 | -18.66 | 995.58 | 390.44 | 2,054.49 | 2,008.24 | 46.25 | 44.417 | |
| 8,793.05 | 8,536.00 | 8,397.01 | 8,286.00 | 32.78 | 26.38 | -18.66 | 995.58 | 390.44 | 2,063.69 | 2,017.28 | 46.41 | 44.470 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - P_NRC 35-8 - P_NRC 35-8 - PLAN #1 1-20-10 RHS | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWMD | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -177.98 | -31.69 | -1.12 | 31.71 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | -177.98 | -31.69 | -1.12 | 31.71 | 31.52 | 0.19 | 165.964 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | -177.98 | -31.69 | -1.12 | 31.71 | 31.07 | 0.64 | 49.498 | |
| 300.00 | 299.98 | 299.98 | 299.98 | 0.53 | 0.55 | 52.43 | -31.69 | -1.12 | 30.61 | 29.54 | 1.07 | 28.572 | |
| 400.00 | 399.84 | 399.84 | 399.84 | 0.74 | 0.77 | 61.07 | -31.69 | -1.12 | 27.73 | 26.22 | 1.51 | 18.382 | |
| 500.00 | 499.45 | 499.45 | 499.45 | 0.99 | 0.99 | 79.04 | -31.69 | -1.12 | 24.71 | 22.73 | 1.99 | 12.442 | |
| 542.24 | 541.42 | 541.42 | 541.42 | 1.11 | 1.09 | 90.00 | -31.69 | -1.12 | 24.26 | 22.05 | 2.21 | 10.971 CC, ES | |
| 600.00 | 598.70 | 598.70 | 598.70 | 1.28 | 1.22 | 106.94 | -31.69 | -1.12 | 25.38 | 22.88 | 2.50 | 10.162 SF | |
| 700.00 | 697.47 | 697.47 | 697.47 | 1.62 | 1.44 | 133.17 | -31.69 | -1.12 | 33.50 | 30.53 | 2.97 | 11.296 | |
| 800.00 | 795.62 | 795.62 | 795.62 | 2.01 | 1.66 | 149.55 | -31.69 | -1.12 | 48.66 | 45.27 | 3.40 | 14.330 | |
| 900.00 | 893.06 | 893.06 | 893.06 | 2.46 | 1.88 | 158.87 | -31.69 | -1.12 | 69.08 | 65.25 | 3.82 | 18.061 | |
| 1,000.00 | 989.64 | 989.64 | 989.64 | 2.97 | 2.10 | 164.43 | -31.69 | -1.12 | 93.75 | 89.49 | 4.26 | 22.007 | |
| 1,100.00 | 1,085.27 | 1,087.89 | 1,087.87 | 3.55 | 2.29 | 167.59 | -32.99 | -0.79 | 121.31 | 116.62 | 4.69 | 25.873 | |
| 1,200.00 | 1,179.82 | 1,186.96 | 1,186.83 | 4.19 | 2.47 | 168.89 | -37.60 | 0.38 | 150.01 | 144.89 | 5.12 | 29.289 | |
| 1,300.00 | 1,273.17 | 1,286.58 | 1,286.10 | 4.91 | 2.66 | 169.17 | -45.57 | 2.40 | 179.65 | 174.06 | 5.59 | 32.156 | |
| 1,359.55 | 1,328.15 | 1,346.15 | 1,345.31 | 5.36 | 2.78 | 169.02 | -51.93 | 4.01 | 197.71 | 191.83 | 5.88 | 33.598 | |
| 1,400.00 | 1,365.33 | 1,386.80 | 1,385.63 | 5.68 | 2.87 | 168.87 | -56.96 | 5.29 | 209.89 | 203.78 | 6.11 | 34.328 | |
| 1,500.00 | 1,457.25 | 1,488.31 | 1,485.95 | 6.48 | 3.12 | 168.10 | -71.93 | 9.08 | 238.32 | 231.60 | 6.72 | 35.442 | |
| 1,600.00 | 1,549.17 | 1,591.09 | 1,586.90 | 7.28 | 3.42 | 166.92 | -90.59 | 13.81 | 264.38 | 256.98 | 7.40 | 35.728 | |
| 1,700.00 | 1,641.09 | 1,694.88 | 1,688.09 | 8.09 | 3.78 | 165.40 | -112.98 | 19.49 | 288.13 | 279.98 | 8.16 | 35.322 | |
| 1,800.00 | 1,733.01 | 1,799.44 | 1,789.10 | 8.90 | 4.20 | 163.58 | -139.11 | 26.12 | 309.70 | 300.68 | 9.02 | 34.350 | |
| 1,900.00 | 1,824.93 | 1,904.48 | 1,889.53 | 9.72 | 4.70 | 161.48 | -168.95 | 33.68 | 329.22 | 319.22 | 10.00 | 32.930 | |
| 2,000.00 | 1,916.85 | 2,008.07 | 1,987.42 | 10.53 | 5.26 | 159.17 | -201.77 | 42.01 | 346.96 | 335.85 | 11.11 | 31.237 | |
| 2,100.00 | 2,008.77 | 2,105.66 | 2,079.28 | 11.35 | 5.82 | 157.06 | -233.72 | 50.11 | 364.51 | 352.24 | 12.27 | 29.718 | |
| 2,200.00 | 2,100.69 | 2,203.25 | 2,171.13 | 12.17 | 6.41 | 155.15 | -265.67 | 58.21 | 382.50 | 369.02 | 13.48 | 28.383 | |
| 2,300.00 | 2,192.61 | 2,300.84 | 2,262.98 | 12.99 | 7.01 | 153.41 | -297.62 | 66.31 | 400.87 | 386.14 | 14.73 | 27.218 | |
| 2,400.00 | 2,284.53 | 2,398.42 | 2,354.84 | 13.81 | 7.63 | 151.82 | -329.57 | 74.41 | 419.58 | 403.56 | 16.01 | 26.202 | |
| 2,500.00 | 2,376.44 | 2,496.01 | 2,446.69 | 14.63 | 8.25 | 150.36 | -361.51 | 82.51 | 438.57 | 421.24 | 17.32 | 25.315 | |
| 2,600.00 | 2,468.36 | 2,593.60 | 2,538.55 | 15.45 | 8.88 | 149.03 | -393.46 | 90.61 | 457.81 | 439.16 | 18.66 | 24.538 | |
| 2,700.00 | 2,560.28 | 2,691.19 | 2,630.40 | 16.27 | 9.52 | 147.80 | -425.41 | 98.71 | 477.28 | 457.28 | 20.01 | 23.857 | |
| 2,800.00 | 2,652.20 | 2,788.78 | 2,722.26 | 17.10 | 10.16 | 146.67 | -457.36 | 106.81 | 496.95 | 475.58 | 21.37 | 23.256 | |
| 2,900.00 | 2,744.12 | 2,886.37 | 2,814.11 | 17.92 | 10.80 | 145.63 | -489.31 | 114.91 | 516.78 | 494.04 | 22.74 | 22.725 | |
| 3,000.00 | 2,836.04 | 2,983.96 | 2,905.96 | 18.74 | 11.45 | 144.66 | -521.26 | 123.01 | 536.78 | 512.65 | 24.12 | 22.252 | |
| 3,100.00 | 2,927.96 | 3,081.54 | 2,997.82 | 19.57 | 12.10 | 143.76 | -553.20 | 131.11 | 556.91 | 531.39 | 25.51 | 21.830 | |
| 3,200.00 | 3,019.88 | 3,179.13 | 3,089.67 | 20.39 | 12.75 | 142.92 | -585.15 | 139.22 | 577.16 | 550.25 | 26.91 | 21.451 | |
| 3,300.00 | 3,111.80 | 3,276.72 | 3,181.53 | 21.22 | 13.40 | 142.14 | -617.10 | 147.32 | 597.52 | 569.22 | 28.30 | 21.111 | |
| 3,400.00 | 3,203.72 | 3,374.31 | 3,273.38 | 22.04 | 14.06 | 141.41 | -649.05 | 155.42 | 617.99 | 588.28 | 29.71 | 20.803 | |
| 3,500.00 | 3,295.64 | 3,471.90 | 3,365.24 | 22.86 | 14.72 | 140.73 | -681.00 | 163.52 | 638.54 | 607.43 | 31.11 | 20.525 | |
| 3,600.00 | 3,387.56 | 3,569.49 | 3,457.09 | 23.69 | 15.38 | 140.09 | -712.95 | 171.62 | 659.18 | 626.66 | 32.52 | 20.271 | |
| 3,700.00 | 3,479.48 | 3,667.08 | 3,548.94 | 24.51 | 16.04 | 139.48 | -744.90 | 179.72 | 679.89 | 645.96 | 33.93 | 20.039 | |
| 3,763.50 | 3,537.85 | 3,729.05 | 3,607.27 | 25.04 | 16.46 | 139.12 | -765.18 | 184.86 | 693.08 | 658.25 | 34.82 | 19.903 | |
| 3,800.00 | 3,571.49 | 3,764.69 | 3,640.82 | 25.30 | 16.70 | 139.01 | -776.85 | 187.82 | 700.50 | 665.18 | 35.32 | 19.833 | |
| 3,900.00 | 3,664.55 | 3,862.57 | 3,732.95 | 25.89 | 17.36 | 138.56 | -808.90 | 195.95 | 719.13 | 682.50 | 36.62 | 19.636 | |
| 4,000.00 | 3,758.84 | 3,960.68 | 3,825.29 | 26.44 | 18.03 | 137.94 | -841.01 | 204.09 | 735.30 | 697.36 | 37.95 | 19.377 | |
| 4,100.00 | 3,854.22 | 4,058.89 | 3,917.74 | 26.93 | 18.69 | 137.14 | -873.17 | 212.24 | 749.11 | 709.82 | 39.28 | 19.069 | |
| 4,200.00 | 3,950.60 | 4,157.10 | 4,010.17 | 27.38 | 19.36 | 136.18 | -905.32 | 220.40 | 760.63 | 720.00 | 40.63 | 18.720 | |
| 4,300.00 | 4,047.85 | 4,255.18 | 4,102.49 | 27.78 | 20.03 | 135.04 | -937.43 | 228.54 | 769.98 | 728.00 | 41.98 | 18.340 | |
| 4,400.00 | 4,145.85 | 4,353.00 | 4,194.57 | 28.12 | 20.69 | 133.74 | -969.45 | 236.66 | 777.31 | 733.97 | 43.34 | 17.936 | |
| 4,500.00 | 4,244.48 | 4,450.46 | 4,286.30 | 28.42 | 21.36 | 132.26 | -1,001.36 | 244.75 | 782.77 | 738.09 | 44.69 | 17.516 | |
| 4,600.00 | 4,343.63 | 4,547.44 | 4,377.57 | 28.66 | 22.02 | 130.61 | -1,033.11 | 252.80 | 786.56 | 740.54 | 46.03 | 17.090 | |
| 4,700.00 | 4,443.17 | 4,643.80 | 4,468.28 | 28.85 | 22.68 | 128.78 | -1,064.66 | 260.80 | 788.90 | 741.56 | 47.34 | 16.664 | |
| 4,800.00 | 4,542.98 | 4,739.45 | 4,558.30 | 29.00 | 23.33 | 126.77 | -1,095.97 | 268.74 | 790.04 | 741.42 | 48.62 | 16.248 | |

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - P_NRC 35-8 - P_NRC 35-8 - PLAN #1 1-20-10 RHS | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-MWD | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | Offset | Semi Major Axis | | Distance | | | | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 4,900.00 | 4,642.95 | 4,834.25 | 4,647.54 | 29.09 | 23.98 | 124.59 | -1,127.01 | 276.61 | 790.27 | 740.41 | 49.86 | 15.850 | |
| 4,923.05 | 4,666.00 | 4,855.98 | 4,667.98 | 29.11 | 24.13 | -103.83 | -1,134.12 | 278.41 | 790.22 | 740.09 | 50.14 | 15.761 | |
| 4,940.45 | 4,683.40 | 4,872.35 | 4,683.40 | 29.12 | 24.24 | -104.23 | -1,139.48 | 279.77 | 790.20 | 739.85 | 50.35 | 15.694 | |
| 5,000.00 | 4,742.95 | 4,928.40 | 4,736.15 | 29.16 | 24.62 | -105.60 | -1,157.83 | 284.42 | 790.46 | 739.39 | 51.07 | 15.478 | |
| 5,100.00 | 4,842.95 | 5,022.53 | 4,824.75 | 29.23 | 25.26 | -107.90 | -1,188.64 | 292.23 | 792.04 | 739.82 | 52.22 | 15.169 | |
| 5,200.00 | 4,942.95 | 5,116.65 | 4,913.34 | 29.30 | 25.91 | -110.19 | -1,219.46 | 300.05 | 795.05 | 741.75 | 53.30 | 14.918 | |
| 5,300.00 | 5,042.95 | 5,210.77 | 5,001.93 | 29.38 | 26.55 | -112.46 | -1,250.27 | 307.86 | 799.48 | 745.17 | 54.31 | 14.722 | |
| 5,400.00 | 5,142.95 | 5,304.90 | 5,090.53 | 29.45 | 27.19 | -114.70 | -1,281.09 | 315.67 | 805.30 | 750.06 | 55.24 | 14.577 | |
| 5,500.00 | 5,242.95 | 5,399.02 | 5,179.12 | 29.53 | 27.84 | -116.91 | -1,311.90 | 323.49 | 812.49 | 756.38 | 56.11 | 14.481 | |
| 5,600.00 | 5,342.95 | 5,493.15 | 5,267.71 | 29.60 | 28.48 | -119.09 | -1,342.71 | 331.30 | 821.00 | 764.10 | 56.90 | 14.429 | |
| 5,700.00 | 5,442.95 | 5,587.27 | 5,356.31 | 29.68 | 29.13 | -121.22 | -1,373.53 | 339.11 | 830.80 | 773.18 | 57.62 | 14.419 | |
| 5,800.00 | 5,542.95 | 5,687.55 | 5,450.91 | 29.76 | 29.75 | -123.40 | -1,405.77 | 347.29 | 841.64 | 783.40 | 58.24 | 14.451 | |
| 5,900.00 | 5,642.95 | 5,794.31 | 5,552.74 | 29.84 | 30.24 | -125.44 | -1,436.81 | 355.16 | 852.43 | 793.75 | 58.69 | 14.526 | |
| 6,000.00 | 5,742.95 | 5,903.45 | 5,658.02 | 29.92 | 30.68 | -127.23 | -1,464.71 | 362.23 | 862.68 | 803.63 | 59.05 | 14.610 | |
| 6,100.00 | 5,842.95 | 6,014.75 | 5,766.41 | 30.01 | 31.08 | -128.76 | -1,489.15 | 368.43 | 872.01 | 812.66 | 59.36 | 14.691 | |
| 6,200.00 | 5,942.95 | 6,127.90 | 5,877.54 | 30.10 | 31.44 | -130.03 | -1,509.79 | 373.66 | 880.14 | 820.51 | 59.63 | 14.761 | |
| 6,300.00 | 6,042.95 | 6,242.61 | 5,990.96 | 30.18 | 31.74 | -131.03 | -1,526.36 | 377.86 | 886.80 | 826.94 | 59.87 | 14.813 | |
| 6,400.00 | 6,142.95 | 6,358.53 | 6,106.17 | 30.27 | 31.99 | -131.75 | -1,538.61 | 380.97 | 891.81 | 831.72 | 60.09 | 14.842 | |
| 6,500.00 | 6,242.95 | 6,475.29 | 6,222.65 | 30.36 | 32.18 | -132.21 | -1,546.38 | 382.94 | 895.01 | 834.71 | 60.30 | 14.844 | |
| 6,600.00 | 6,342.95 | 6,592.51 | 6,339.82 | 30.45 | 32.32 | -132.39 | -1,549.54 | 383.74 | 896.32 | 835.83 | 60.49 | 14.816 | |
| 6,700.00 | 6,442.95 | 6,695.64 | 6,442.95 | 30.55 | 32.41 | -132.39 | -1,549.62 | 383.76 | 896.35 | 835.67 | 60.68 | 14.771 | |
| 6,800.00 | 6,542.95 | 6,795.64 | 6,542.95 | 30.64 | 32.48 | -132.39 | -1,549.62 | 383.76 | 896.35 | 835.49 | 60.87 | 14.727 | |
| 6,900.00 | 6,642.95 | 6,895.64 | 6,642.95 | 30.74 | 32.56 | -132.39 | -1,549.62 | 383.76 | 896.35 | 835.30 | 61.05 | 14.682 | |
| 7,000.00 | 6,742.95 | 6,995.64 | 6,742.95 | 30.83 | 32.64 | -132.39 | -1,549.62 | 383.76 | 896.35 | 835.12 | 61.24 | 14.638 | |
| 7,100.00 | 6,842.95 | 7,095.64 | 6,842.95 | 30.93 | 32.73 | -132.39 | -1,549.62 | 383.76 | 896.35 | 834.93 | 61.42 | 14.593 | |
| 7,200.00 | 6,942.95 | 7,195.64 | 6,942.95 | 31.03 | 32.81 | -132.39 | -1,549.62 | 383.76 | 896.35 | 834.74 | 61.62 | 14.547 | |
| 7,300.00 | 7,042.95 | 7,295.64 | 7,042.95 | 31.13 | 32.89 | -132.39 | -1,549.62 | 383.76 | 896.35 | 834.54 | 61.81 | 14.501 | |
| 7,400.00 | 7,142.95 | 7,395.64 | 7,142.95 | 31.23 | 32.98 | -132.39 | -1,549.62 | 383.76 | 896.35 | 834.34 | 62.01 | 14.455 | |
| 7,500.00 | 7,242.95 | 7,495.64 | 7,242.95 | 31.34 | 33.06 | -132.39 | -1,549.62 | 383.76 | 896.35 | 834.15 | 62.21 | 14.409 | |
| 7,600.00 | 7,342.95 | 7,595.64 | 7,342.95 | 31.44 | 33.15 | -132.39 | -1,549.62 | 383.76 | 896.35 | 833.94 | 62.41 | 14.362 | |
| 7,700.00 | 7,442.95 | 7,695.64 | 7,442.95 | 31.55 | 33.24 | -132.39 | -1,549.62 | 383.76 | 896.35 | 833.74 | 62.62 | 14.315 | |
| 7,800.00 | 7,542.95 | 7,795.64 | 7,542.95 | 31.65 | 33.33 | -132.39 | -1,549.62 | 383.76 | 896.35 | 833.53 | 62.82 | 14.268 | |
| 7,900.00 | 7,642.95 | 7,895.64 | 7,642.95 | 31.76 | 33.42 | -132.39 | -1,549.62 | 383.76 | 896.35 | 833.32 | 63.03 | 14.220 | |
| 8,000.00 | 7,742.95 | 7,995.64 | 7,742.95 | 31.87 | 33.52 | -132.39 | -1,549.62 | 383.76 | 896.35 | 833.11 | 63.25 | 14.172 | |
| 8,100.00 | 7,842.95 | 8,095.64 | 7,842.95 | 31.98 | 33.61 | -132.39 | -1,549.62 | 383.76 | 896.35 | 832.89 | 63.46 | 14.124 | |
| 8,200.00 | 7,942.95 | 8,195.64 | 7,942.95 | 32.10 | 33.71 | -132.39 | -1,549.62 | 383.76 | 896.35 | 832.67 | 63.68 | 14.076 | |
| 8,300.00 | 8,042.95 | 8,295.64 | 8,042.95 | 32.21 | 33.80 | -132.39 | -1,549.62 | 383.76 | 896.35 | 832.45 | 63.90 | 14.027 | |
| 8,400.00 | 8,142.95 | 8,395.64 | 8,142.95 | 32.32 | 33.90 | -132.39 | -1,549.62 | 383.76 | 896.35 | 832.23 | 64.12 | 13.979 | |
| 8,500.00 | 8,242.95 | 8,495.64 | 8,242.95 | 32.44 | 34.00 | -132.39 | -1,549.62 | 383.76 | 896.35 | 832.01 | 64.35 | 13.930 | |
| 8,522.54 | 8,265.49 | 8,518.18 | 8,265.49 | 32.47 | 34.02 | -132.39 | -1,549.62 | 383.76 | 896.35 | 831.95 | 64.40 | 13.919 | |
| 8,600.00 | 8,342.95 | 8,538.69 | 8,286.00 | 32.56 | 34.05 | -132.39 | -1,549.62 | 383.76 | 898.16 | 833.65 | 64.51 | 13.922 | |
| 8,700.00 | 8,442.95 | 8,538.69 | 8,286.00 | 32.67 | 34.05 | -132.39 | -1,549.62 | 383.76 | 909.99 | 845.36 | 64.63 | 14.080 | |
| 8,793.05 | 8,536.00 | 8,538.69 | 8,286.00 | 32.78 | 34.05 | -132.39 | -1,549.62 | 383.76 | 930.56 | 865.82 | 64.74 | 14.374 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - ROCKY MOUNTAIN FUEL CO #1 EXISTING - ROCKY MOUNTAIN FUEL CO | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| Survey Program: 0-UNKNOWN | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 59.25 | 30.97 | 52.06 | 62.92 | | | | |
| 100.00 | 100.00 | 83.00 | 83.00 | 0.10 | 1.66 | 59.25 | 30.97 | 52.06 | 60.57 | 58.82 | 1.76 | 34.505 | |
| 200.00 | 200.00 | 183.00 | 183.00 | 0.32 | 5.32 | 59.25 | 30.97 | 52.06 | 60.57 | 54.93 | 5.64 | 10.740 | |
| 300.00 | 299.98 | 282.98 | 282.98 | 0.53 | 9.32 | -74.46 | 30.97 | 52.06 | 60.08 | 50.24 | 9.84 | 6.103 | |
| 400.00 | 399.84 | 382.84 | 382.84 | 0.74 | 13.31 | -79.38 | 30.97 | 52.06 | 58.90 | 44.84 | 14.05 | 4.191 | |
| 500.00 | 499.45 | 482.45 | 482.45 | 0.99 | 17.30 | -87.87 | 30.97 | 52.06 | 57.92 | 39.64 | 18.29 | 3.167 | |
| 519.96 | 519.30 | 502.30 | 502.30 | 1.05 | 18.09 | -89.99 | 30.97 | 52.06 | 57.88 | 38.75 | 19.14 | 3.025 CC | |
| 600.00 | 598.70 | 581.70 | 581.70 | 1.28 | 21.27 | -99.73 | 30.97 | 52.06 | 58.75 | 36.21 | 22.54 | 2.607 ES | |
| 700.00 | 697.47 | 680.47 | 680.47 | 1.62 | 25.22 | -113.59 | 30.97 | 52.06 | 63.32 | 36.58 | 26.74 | 2.368 SF | |
| 800.00 | 795.62 | 778.62 | 778.62 | 2.01 | 29.14 | -127.10 | 30.97 | 52.06 | 73.16 | 42.37 | 30.79 | 2.376 | |
| 900.00 | 893.06 | 876.06 | 876.06 | 2.46 | 33.04 | -138.42 | 30.97 | 52.06 | 88.72 | 54.08 | 34.64 | 2.561 | |
| 1,000.00 | 989.64 | 972.64 | 972.64 | 2.97 | 36.91 | -147.11 | 30.97 | 52.06 | 109.65 | 71.34 | 38.31 | 2.862 | |
| 1,100.00 | 1,085.27 | 1,068.27 | 1,068.27 | 3.55 | 40.73 | -153.55 | 30.97 | 52.06 | 135.36 | 93.55 | 41.80 | 3.238 | |
| 1,200.00 | 1,179.82 | 1,162.82 | 1,162.82 | 4.19 | 44.51 | -158.32 | 30.97 | 52.06 | 165.37 | 120.24 | 45.14 | 3.664 | |
| 1,300.00 | 1,273.17 | 1,256.17 | 1,256.17 | 4.91 | 48.25 | -161.88 | 30.97 | 52.06 | 199.34 | 151.04 | 48.29 | 4.127 | |
| 1,359.55 | 1,328.15 | 1,311.15 | 1,311.15 | 5.36 | 50.45 | -163.58 | 30.97 | 52.06 | 221.33 | 171.24 | 50.09 | 4.419 | |
| 1,400.00 | 1,365.33 | 1,348.33 | 1,348.33 | 5.68 | 51.93 | -164.66 | 30.97 | 52.06 | 236.74 | 185.19 | 51.55 | 4.592 | |
| 1,500.00 | 1,457.25 | 1,440.25 | 1,440.25 | 6.48 | 55.61 | -166.82 | 30.97 | 52.06 | 275.10 | 219.91 | 55.18 | 4.985 | |
| 1,600.00 | 1,549.17 | 1,532.17 | 1,532.17 | 7.28 | 59.29 | -168.46 | 30.97 | 52.06 | 313.70 | 254.86 | 58.84 | 5.331 | |
| 1,700.00 | 1,641.09 | 1,624.09 | 1,624.09 | 8.09 | 62.96 | -169.73 | 30.97 | 52.06 | 352.48 | 289.97 | 62.52 | 5.638 | |
| 1,800.00 | 1,733.01 | 1,716.01 | 1,716.01 | 8.90 | 66.64 | -170.76 | 30.97 | 52.06 | 391.38 | 325.18 | 66.21 | 5.912 | |
| 1,900.00 | 1,824.93 | 1,807.93 | 1,807.93 | 9.72 | 70.32 | -171.60 | 30.97 | 52.06 | 430.37 | 360.46 | 69.90 | 6.157 | |
| 2,000.00 | 1,916.85 | 1,899.85 | 1,899.85 | 10.53 | 73.99 | -172.30 | 30.97 | 52.06 | 469.42 | 395.81 | 73.61 | 6.377 | |
| 2,100.00 | 2,008.77 | 1,991.77 | 1,991.77 | 11.35 | 77.67 | -172.90 | 30.97 | 52.06 | 508.52 | 431.21 | 77.32 | 6.577 | |
| 2,200.00 | 2,100.69 | 2,083.69 | 2,083.69 | 12.17 | 81.35 | -173.40 | 30.97 | 52.06 | 547.66 | 466.64 | 81.03 | 6.759 | |
| 2,300.00 | 2,192.61 | 2,175.61 | 2,175.61 | 12.99 | 85.02 | -173.85 | 30.97 | 52.06 | 586.84 | 502.09 | 84.74 | 6.925 | |
| 2,400.00 | 2,284.53 | 2,267.53 | 2,267.53 | 13.81 | 88.70 | -174.23 | 30.97 | 52.06 | 626.04 | 537.57 | 88.46 | 7.077 | |
| 2,500.00 | 2,376.44 | 2,359.44 | 2,359.44 | 14.63 | 92.38 | -174.57 | 30.97 | 52.06 | 665.26 | 573.07 | 92.19 | 7.217 | |
| 2,600.00 | 2,468.36 | 2,451.36 | 2,451.36 | 15.45 | 96.05 | -174.87 | 30.97 | 52.06 | 704.50 | 608.59 | 95.91 | 7.346 | |
| 2,700.00 | 2,560.28 | 2,543.28 | 2,543.28 | 16.27 | 99.73 | -175.15 | 30.97 | 52.06 | 743.75 | 644.12 | 99.63 | 7.465 | |
| 2,800.00 | 2,652.20 | 2,635.20 | 2,635.20 | 17.10 | 103.41 | -175.39 | 30.97 | 52.06 | 783.02 | 679.66 | 103.36 | 7.576 | |
| 2,900.00 | 2,744.12 | 2,727.12 | 2,727.12 | 17.92 | 107.08 | -175.61 | 30.97 | 52.06 | 822.29 | 715.21 | 107.09 | 7.679 | |
| 3,000.00 | 2,836.04 | 2,819.04 | 2,819.04 | 18.74 | 110.76 | -175.81 | 30.97 | 52.06 | 861.58 | 750.77 | 110.82 | 7.775 | |
| 3,100.00 | 2,927.96 | 2,910.96 | 2,910.96 | 19.57 | 114.44 | -175.99 | 30.97 | 52.06 | 900.88 | 786.33 | 114.54 | 7.865 | |
| 3,200.00 | 3,019.88 | 3,002.88 | 3,002.88 | 20.39 | 118.12 | -176.16 | 30.97 | 52.06 | 940.18 | 821.90 | 118.27 | 7.949 | |
| 3,300.00 | 3,111.80 | 3,094.80 | 3,094.80 | 21.22 | 121.79 | -176.32 | 30.97 | 52.06 | 979.49 | 857.48 | 122.00 | 8.028 | |
| 3,400.00 | 3,203.72 | 3,186.72 | 3,186.72 | 22.04 | 125.47 | -176.46 | 30.97 | 52.06 | 1,018.80 | 893.06 | 125.74 | 8.103 | |
| 3,500.00 | 3,295.64 | 3,278.64 | 3,278.64 | 22.86 | 129.15 | -176.59 | 30.97 | 52.06 | 1,058.12 | 928.65 | 129.47 | 8.173 | |
| 3,600.00 | 3,387.56 | 3,370.56 | 3,370.56 | 23.69 | 132.82 | -176.71 | 30.97 | 52.06 | 1,097.44 | 964.24 | 133.20 | 8.239 | |
| 3,700.00 | 3,479.48 | 3,462.48 | 3,462.48 | 24.51 | 136.50 | -176.83 | 30.97 | 52.06 | 1,136.77 | 999.84 | 136.93 | 8.302 | |
| 3,763.50 | 3,537.85 | 3,520.85 | 3,520.85 | 25.04 | 138.83 | -176.89 | 30.97 | 52.06 | 1,161.74 | 1,022.44 | 139.30 | 8.340 | |
| 3,800.00 | 3,571.49 | 3,554.49 | 3,554.49 | 25.30 | 140.18 | -176.95 | 30.97 | 52.06 | 1,175.88 | 1,034.53 | 141.36 | 8.318 | |
| 3,900.00 | 3,664.55 | 3,647.55 | 3,647.55 | 25.89 | 143.90 | -177.08 | 30.97 | 52.06 | 1,212.43 | 1,065.48 | 146.94 | 8.251 | |
| 4,000.00 | 3,758.84 | 3,741.84 | 3,741.84 | 26.44 | 147.67 | -177.19 | 30.97 | 52.06 | 1,245.70 | 1,093.23 | 152.48 | 8.170 | |
| 4,100.00 | 3,854.22 | 3,837.22 | 3,837.22 | 26.93 | 151.49 | -177.29 | 30.97 | 52.06 | 1,275.68 | 1,117.74 | 157.93 | 8.077 | |
| 4,200.00 | 3,950.60 | 3,933.60 | 3,933.60 | 27.38 | 155.34 | -177.37 | 30.97 | 52.06 | 1,302.31 | 1,139.01 | 163.30 | 7.975 | |
| 4,300.00 | 4,047.85 | 4,030.85 | 4,030.85 | 27.78 | 159.23 | -177.44 | 30.97 | 52.06 | 1,325.56 | 1,157.01 | 168.55 | 7.865 | |
| 4,400.00 | 4,145.85 | 4,128.85 | 4,128.85 | 28.12 | 163.15 | -177.49 | 30.97 | 52.06 | 1,345.41 | 1,171.74 | 173.67 | 7.747 | |
| 4,500.00 | 4,244.48 | 4,227.48 | 4,227.48 | 28.42 | 167.10 | -177.54 | 30.97 | 52.06 | 1,361.83 | 1,183.20 | 178.63 | 7.624 | |
| 4,600.00 | 4,343.63 | 4,326.63 | 4,326.63 | 28.66 | 171.07 | -177.57 | 30.97 | 52.06 | 1,374.81 | 1,191.38 | 183.43 | 7.495 | |
| 4,700.00 | 4,443.17 | 4,426.17 | 4,426.17 | 28.85 | 175.05 | -177.60 | 30.97 | 52.06 | 1,384.32 | 1,196.29 | 188.03 | 7.362 | |
| 4,800.00 | 4,542.98 | 4,525.98 | 4,525.98 | 29.00 | 179.04 | -177.61 | 30.97 | 52.06 | 1,390.35 | 1,197.93 | 192.42 | 7.226 | |

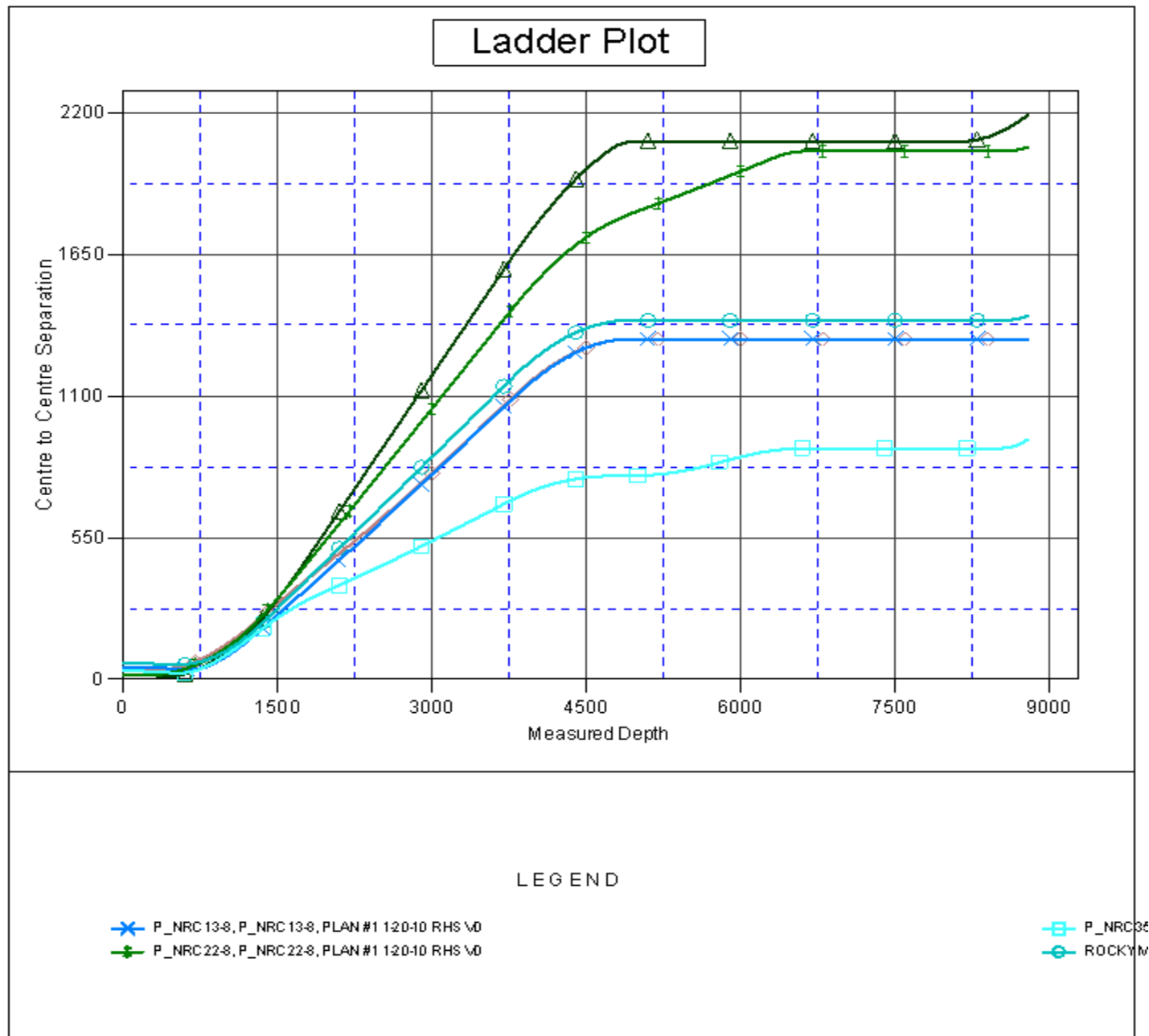
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_NRC 19-8 PAD - ROCKY MOUNTAIN FUEL CO #1 EXISTING - ROCKY MOUNTAIN FUEL CO | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---------------------------|---------|
| Survey Program: 0-UNKNOWN | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | |
| Measured Depth (ft) | Vertical Depth (ft) | Measured Depth (ft) | Vertical Depth (ft) | Reference (ft) | Offset (ft) | Highside Toolface (°) | Offset Wellbore Centre +N/-S (ft) | +E/-W (ft) | Between Centres (ft) | Between Ellipses (ft) | Minimum Separation (ft) | Separation Factor | Warning |
| 4,900.00 | 4,642.95 | 4,625.95 | 4,625.95 | 29.09 | 183.04 | -177.62 | 30.97 | 52.06 | 1,392.89 | 1,196.32 | 196.57 | 7.086 | |
| 4,923.05 | 4,666.00 | 4,649.00 | 4,649.00 | 29.11 | 183.96 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,195.49 | 197.50 | 7.053 | |
| 5,000.00 | 4,742.95 | 4,725.95 | 4,725.95 | 29.16 | 187.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,192.30 | 200.69 | 6.941 | |
| 5,100.00 | 4,842.95 | 4,825.95 | 4,825.95 | 29.23 | 191.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,188.16 | 204.82 | 6.801 | |
| 5,200.00 | 4,942.95 | 4,925.95 | 4,925.95 | 29.30 | 195.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,184.02 | 208.97 | 6.666 | |
| 5,300.00 | 5,042.95 | 5,025.95 | 5,025.95 | 29.38 | 199.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,179.88 | 213.11 | 6.537 | |
| 5,400.00 | 5,142.95 | 5,125.95 | 5,125.95 | 29.45 | 203.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,175.73 | 217.25 | 6.412 | |
| 5,500.00 | 5,242.95 | 5,225.95 | 5,225.95 | 29.53 | 207.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,171.59 | 221.40 | 6.292 | |
| 5,600.00 | 5,342.95 | 5,325.95 | 5,325.95 | 29.60 | 211.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,167.44 | 225.55 | 6.176 | |
| 5,700.00 | 5,442.95 | 5,425.95 | 5,425.95 | 29.68 | 215.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,163.29 | 229.70 | 6.064 | |
| 5,800.00 | 5,542.95 | 5,525.95 | 5,525.95 | 29.76 | 219.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,159.13 | 233.86 | 5.957 | |
| 5,900.00 | 5,642.95 | 5,625.95 | 5,625.95 | 29.84 | 223.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,154.98 | 238.01 | 5.853 | |
| 6,000.00 | 5,742.95 | 5,725.95 | 5,725.95 | 29.92 | 227.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,150.82 | 242.17 | 5.752 | |
| 6,100.00 | 5,842.95 | 5,825.95 | 5,825.95 | 30.01 | 231.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,146.66 | 246.33 | 5.655 | |
| 6,200.00 | 5,942.95 | 5,925.95 | 5,925.95 | 30.10 | 235.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,142.50 | 250.49 | 5.561 | |
| 6,300.00 | 6,042.95 | 6,025.95 | 6,025.95 | 30.18 | 239.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,138.34 | 254.65 | 5.470 | |
| 6,400.00 | 6,142.95 | 6,125.95 | 6,125.95 | 30.27 | 243.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,134.18 | 258.81 | 5.382 | |
| 6,500.00 | 6,242.95 | 6,225.95 | 6,225.95 | 30.36 | 247.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,130.01 | 262.97 | 5.297 | |
| 6,600.00 | 6,342.95 | 6,325.95 | 6,325.95 | 30.45 | 251.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,125.85 | 267.14 | 5.214 | |
| 6,700.00 | 6,442.95 | 6,425.95 | 6,425.95 | 30.55 | 255.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,121.68 | 271.31 | 5.134 | |
| 6,800.00 | 6,542.95 | 6,525.95 | 6,525.95 | 30.64 | 259.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,117.51 | 275.48 | 5.057 | |
| 6,900.00 | 6,642.95 | 6,625.95 | 6,625.95 | 30.74 | 263.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,113.34 | 279.65 | 4.981 | |
| 7,000.00 | 6,742.95 | 6,725.95 | 6,725.95 | 30.83 | 267.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,109.17 | 283.82 | 4.908 | |
| 7,100.00 | 6,842.95 | 6,825.95 | 6,825.95 | 30.93 | 271.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,105.00 | 287.99 | 4.837 | |
| 7,200.00 | 6,942.95 | 6,925.95 | 6,925.95 | 31.03 | 275.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,100.82 | 292.17 | 4.768 | |
| 7,300.00 | 7,042.95 | 7,025.95 | 7,025.95 | 31.13 | 279.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,096.65 | 296.34 | 4.701 | |
| 7,400.00 | 7,142.95 | 7,125.95 | 7,125.95 | 31.23 | 283.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,092.47 | 300.52 | 4.635 | |
| 7,500.00 | 7,242.95 | 7,225.95 | 7,225.95 | 31.34 | 287.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,088.29 | 304.69 | 4.572 | |
| 7,600.00 | 7,342.95 | 7,325.95 | 7,325.95 | 31.44 | 291.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,084.11 | 308.87 | 4.510 | |
| 7,700.00 | 7,442.95 | 7,425.95 | 7,425.95 | 31.55 | 295.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,079.93 | 313.05 | 4.450 | |
| 7,800.00 | 7,542.95 | 7,525.95 | 7,525.95 | 31.65 | 299.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,075.75 | 317.23 | 4.391 | |
| 7,900.00 | 7,642.95 | 7,625.95 | 7,625.95 | 31.76 | 303.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,071.57 | 321.41 | 4.334 | |
| 8,000.00 | 7,742.95 | 7,725.95 | 7,725.95 | 31.87 | 307.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,067.39 | 325.60 | 4.278 | |
| 8,100.00 | 7,842.95 | 7,825.95 | 7,825.95 | 31.98 | 311.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,063.21 | 329.78 | 4.224 | |
| 8,200.00 | 7,942.95 | 7,925.95 | 7,925.95 | 32.10 | 315.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,059.02 | 333.96 | 4.171 | |
| 8,300.00 | 8,042.95 | 8,025.95 | 8,025.95 | 32.21 | 319.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,054.84 | 338.15 | 4.119 | |
| 8,400.00 | 8,142.95 | 8,125.95 | 8,125.95 | 32.32 | 323.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,050.65 | 342.34 | 4.069 | |
| 8,500.00 | 8,242.95 | 8,225.95 | 8,225.95 | 32.44 | 327.04 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,046.46 | 346.52 | 4.020 | |
| 8,556.17 | 8,299.12 | 8,282.12 | 8,282.12 | 32.50 | 329.28 | -45.51 | 30.97 | 52.06 | 1,392.99 | 1,044.11 | 348.87 | 3.993 | |
| 8,600.00 | 8,342.95 | 8,302.00 | 8,302.00 | 32.56 | 330.08 | -45.51 | 30.97 | 52.06 | 1,393.19 | 1,043.44 | 349.75 | 3.983 | |
| 8,700.00 | 8,442.95 | 8,302.00 | 8,302.00 | 32.67 | 330.08 | -45.51 | 30.97 | 52.06 | 1,398.49 | 1,048.55 | 349.94 | 3.996 | |
| 8,793.05 | 8,536.00 | 8,302.00 | 8,302.00 | 32.78 | 330.08 | -45.51 | 30.97 | 52.06 | 1,409.79 | 1,059.67 | 350.12 | 4.027 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 5039.00ft (Original Well Elev) Coordinates are relative to: P_NRC 14-8
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.37°



| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_NRC 14-8 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Reference Site: | WELD_NRC 19-8 PAD | MD Reference: | WELL @ 5039.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_NRC 14-8 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_NRC 14-8 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 1-20-10 RHS | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 5039.00ft (Original Well Elev) Coordinates are relative to: P_NRC 14-8
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.37°

