



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

Riverbend 7-13 PAD

P_Riverbend 21-13

P_Riverbend 21-13

Plan: PLAN #1 6-21-10 RHS

Standard Planning Report

21 June, 2010

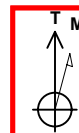




Project: COLORADO NORTHERN ZONE - 83
 Site: Riverbend 7-13 PAD
 Well: P_Riverbend 21-13
 Wellbore: P_Riverbend 21-13
 Section: SECTION 13 T1N R67W
 SHL: 2045 FNL 1755 FWL
 Design: PLAN #1 6-21-10 RHS
 Latitude: 40° 3' 9.774 N
 Longitude: 104° 50' 9.578 W
 GL: 4917.00
 KB: WELL @ 4932.00ft (Original Well Elev)



Weatherford®



Azimuths to True North
 Magnetic North: 9.00°
 Magnetic Field
 Strength: 53043.5nT
 Dip Angle: 66.79°
 Date: 6/21/2010
 Model: IGRF2010

| FORMATION TOP DETAILS | | |
|-----------------------|---------|-----------|
| TVDPath | MDPath | Formation |
| 3263.00 | 3318.26 | PARKMAN |
| 4593.00 | 4689.19 | SUSSEX |
| 7125.00 | 7253.95 | NIO |
| 7472.00 | 7600.95 | CODELL |
| 7557.00 | 7685.95 | GREENHORN |
| 7907.00 | 8035.95 | JSAND |

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

| SECTION DETAILS | | | | | | | | | |
|-----------------|-------|--------|---------|--------|---------|------|--------|---------|----------------------------------|
| MD | Inc | Azi | TVD | +N/-S | +E/-W | DLeg | TFace | VSec | Annotation |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1000.00 | 0.00 | 0.00 | 1000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | Start Build 2.00 |
| 1701.80 | 14.04 | 310.75 | 1694.80 | 55.84 | -64.79 | 2.00 | 310.75 | 85.53 | Start 3850.35 hold at 1701.80 MD |
| 5552.15 | 14.04 | 310.75 | 5430.20 | 665.45 | -772.20 | 0.00 | 0.00 | 1019.36 | Start Drop -2.00 |
| 6253.95 | 0.00 | 0.00 | 6125.00 | 721.28 | -836.99 | 2.00 | 180.00 | 1104.90 | Start 1917.00 hold at 6253.95 MD |
| 8170.95 | 0.00 | 0.00 | 8042.00 | 721.28 | -836.99 | 0.00 | 0.00 | 1104.90 | TD at 8170.95 |

LEGEND

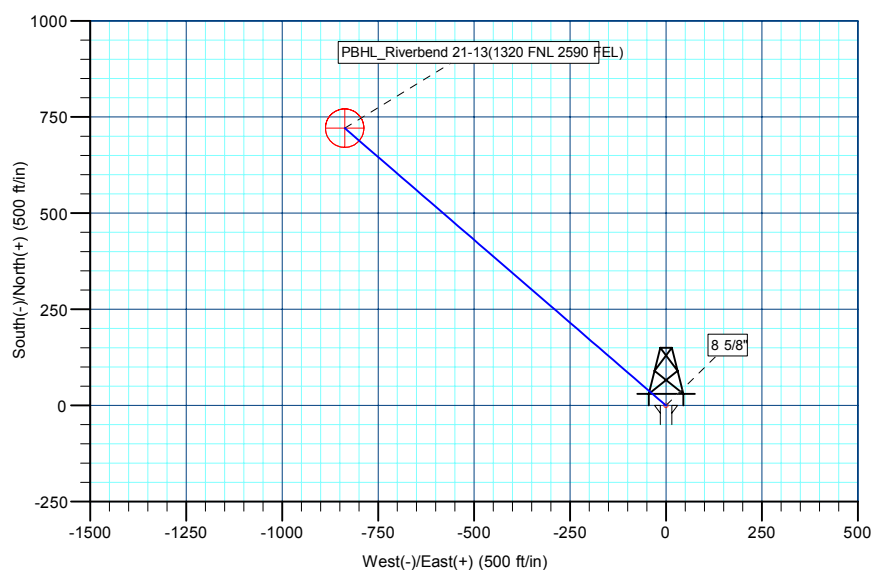
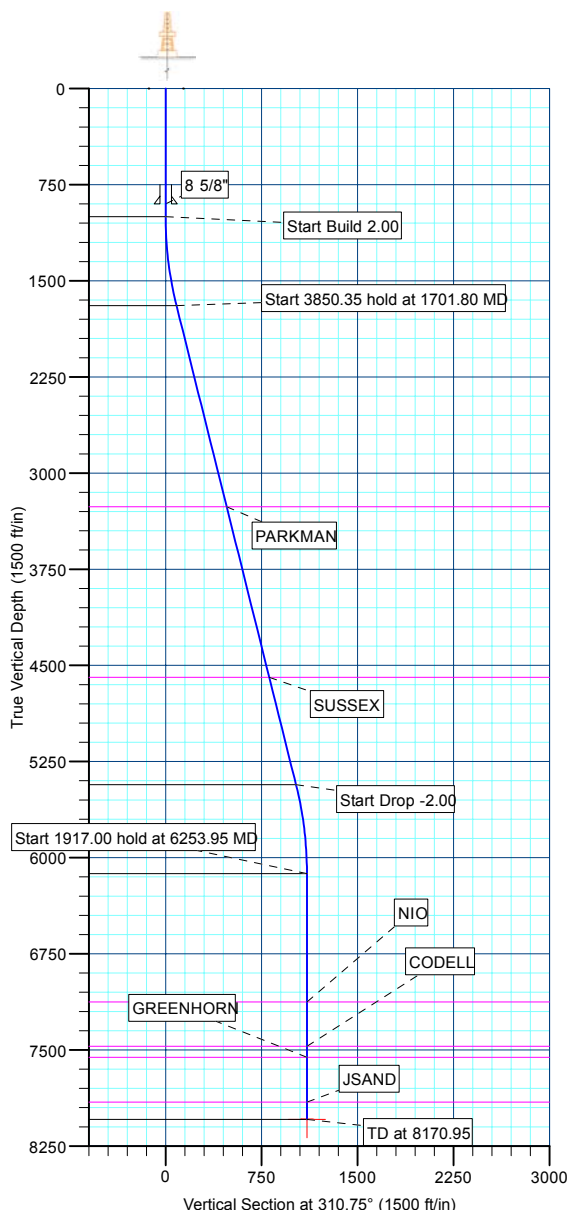
CHIKUMA UNIT #2 EXISTING, CHIKUMA UNIT #2 EXISTING, CHIKUMA UNIT #2 EXISTING V0
 HARRY S CHIKUMA #5 EXISTING, HARRY S CHIKUMA #5 EXISTING, HARRY S CHIKUMA #5 EXISTING V0
 HARRY S CHIKUMA G.U. B #1 EXISTING, HARRY S CHIKUMA G.U. B #1 EXISTING, HARRY S CHIKUMA G.U. B #1 EXISTING V0
 P_Riverbend 24-13, P_Riverbend 24-13, PLAN #1 6-21-10 RHS V0
 P_Riverbend 25-13, P_Riverbend 25-13, PLAN #1 6-21-10 RHS V0
 P_Riverbend 5-18, P_Riverbend 5-1, PLAN #1 6-21-10 RHS V0
 P_Riverbend 6-13, P_Riverbend 6-13, PLAN #1 6-21-10 RHS V0
 P_Riverbend 6-13, P_Riverbend 6-13, PLAN #1 6-21-10 RH V0
 P_Riverbend 7-13, P_Riverbend 7-13, PLAN #1 6-21-10 RH V0
 P_Riverbend 8-13, P_Riverbend 8-13, PLAN #1 6-21-10 RHS V0
 PLAN #1 6-21-10 RHS

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

| Name | TVD | +N/-S | +E/-W | Latitude | Longitude | Shape |
|------|---------|--------|---------|-----------------|-------------------|------------------------|
| PBHL | 8042.00 | 721.28 | -836.99 | 40° 3' 16.902 N | 104° 50' 20.342 W | Circle (Radius: 50.00) |

WELL DETAILS: P_Riverbend 21-13

| +N/-S | +E/-W | Northing | Ground Level: | 4917.00 | Latitude | Longitude | Slot |
|-------|-------|------------|---------------|------------|----------------|------------------|------|
| 0.00 | 0.00 | 1262745.52 | Easting | 3185878.14 | 40° 3' 9.774 N | 104° 50' 9.578 W | |



Plan: PLAN #1 6-21-10 RHS (P_Riverbend 21-13/P_Riverbend 21-13)

Created By: Robert H. Scott Date: 15:22, June 21 2010

| | | | |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site: | Riverbend 7-13 PAD | North Reference: | True |
| Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_Riverbend 21-13 | | |
| Design: | PLAN #1 6-21-10 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 Riverbend 7-13 PAD, SECTION 13 T1N R67W | | | | | |
|--|--|--------------|--|-------------------|--|
| Site Position: | | Northing: | | 1,262,745.52 ft | |
| From: | | Easting: | | 3,185,878.14 ft | |
| Position Uncertainty: | | Slot Radius: | | Grid Convergence: | |
| Lat/Long | | | | 40° 3' 9.774 N | |
| 0.00 ft | | in | | 104° 50' 9.578 W | |
| | | | | 0.43 ° | |

| | | | | | | |
|----------------------|-------------------|---------|---------------------|-----------------|---------------|------------------|
| Well | P_Riverbend 21-13 | | | | | |
| Well Position | +N/-S | 0.00 ft | Northing: | 1,262,745.52 ft | Latitude: | 40° 3' 9.774 N |
| | +E/-W | 0.00 ft | Easting: | 3,185,878.14 ft | Longitude: | 104° 50' 9.578 W |
| Position Uncertainty | | 0.00 ft | Wellhead Elevation: | ft | Ground Level: | 4,917.00 ft |

| | | | | | |
|------------------|-------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | P_Riverbend 21-13 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF2010 | 6/21/2010 | 9.00 | 66.79 | 53,043 |

| | | | | |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| Design | PLAN #1 6-21-10 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 | 310.75 |

| 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 | |
| 1,000.00 | 0.00 | 0.00 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,701.80 | 14.04 | 310.75 | 1,694.80 | 55.84 | -64.79 | 2.00 | 2.00 | 0.00 | 310.75 | |
| 5,552.15 | 14.04 | 310.75 | 5,430.20 | 665.45 | -772.20 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,253.95 | 0.00 | 0.00 | 6,125.00 | 721.28 | -836.99 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 8,170.95 | 0.00 | 0.00 | 8,042.00 | 721.28 | -836.99 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL_Riverbend 2 |

| | | | |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site: | Riverbend 7-13 PAD | North Reference: | True |
| Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_Riverbend 21-13 | | |
| Design: | PLAN #1 6-21-10 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 | | | | | | | | | |
| 1,000.00 | 0.00 | 0.00 | 1,000.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,100.00 | 2.00 | 310.75 | 1,099.98 | 1.14 | -1.32 | 1.75 | 2.00 | 2.00 | 0.00 |
| 1,200.00 | 4.00 | 310.75 | 1,199.84 | 4.56 | -5.29 | 6.98 | 2.00 | 2.00 | 0.00 |
| 1,300.00 | 6.00 | 310.75 | 1,299.45 | 10.24 | -11.89 | 15.69 | 2.00 | 2.00 | 0.00 |
| 1,400.00 | 8.00 | 310.75 | 1,398.70 | 18.20 | -21.12 | 27.88 | 2.00 | 2.00 | 0.00 |
| 1,500.00 | 10.00 | 310.75 | 1,497.47 | 28.41 | -32.97 | 43.52 | 2.00 | 2.00 | 0.00 |
| 1,600.00 | 12.00 | 310.75 | 1,595.62 | 40.87 | -47.42 | 62.60 | 2.00 | 2.00 | 0.00 |
| 1,700.00 | 14.00 | 310.75 | 1,693.06 | 55.55 | -64.46 | 85.10 | 2.00 | 2.00 | 0.00 |
| Start 3850.35 hold at 1701.80 MD | | | | | | | | | |
| 1,701.80 | 14.04 | 310.75 | 1,694.80 | 55.84 | -64.79 | 85.53 | 2.00 | 2.00 | 0.00 |
| 1,800.00 | 14.04 | 310.75 | 1,790.07 | 71.38 | -82.83 | 109.35 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 14.04 | 310.75 | 1,887.08 | 87.22 | -101.21 | 133.60 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 14.04 | 310.75 | 1,984.10 | 103.05 | -119.58 | 157.86 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 14.04 | 310.75 | 2,081.11 | 118.88 | -137.95 | 182.11 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 14.04 | 310.75 | 2,178.13 | 134.71 | -156.32 | 206.36 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 14.04 | 310.75 | 2,275.14 | 150.55 | -174.70 | 230.61 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 14.04 | 310.75 | 2,372.16 | 166.38 | -193.07 | 254.87 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 14.04 | 310.75 | 2,469.17 | 182.21 | -211.44 | 279.12 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 14.04 | 310.75 | 2,566.18 | 198.04 | -229.81 | 303.37 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 14.04 | 310.75 | 2,663.20 | 213.88 | -248.19 | 327.63 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 14.04 | 310.75 | 2,760.21 | 229.71 | -266.56 | 351.88 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 14.04 | 310.75 | 2,857.23 | 245.54 | -284.93 | 376.13 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 14.04 | 310.75 | 2,954.24 | 261.37 | -303.30 | 400.39 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 14.04 | 310.75 | 3,051.26 | 277.21 | -321.68 | 424.64 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 14.04 | 310.75 | 3,148.27 | 293.04 | -340.05 | 448.89 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 14.04 | 310.75 | 3,245.28 | 308.87 | -358.42 | 473.15 | 0.00 | 0.00 | 0.00 |
| PARKMAN | | | | | | | | | |
| 3,318.26 | 14.04 | 310.75 | 3,263.00 | 311.76 | -361.78 | 477.58 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 14.04 | 310.75 | 3,342.30 | 324.70 | -376.79 | 497.40 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 14.04 | 310.75 | 3,439.31 | 340.54 | -395.17 | 521.65 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 14.04 | 310.75 | 3,536.33 | 356.37 | -413.54 | 545.91 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 14.04 | 310.75 | 3,633.34 | 372.20 | -431.91 | 570.16 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 14.04 | 310.75 | 3,730.36 | 388.03 | -450.28 | 594.41 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 14.04 | 310.75 | 3,827.37 | 403.87 | -468.66 | 618.67 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 14.04 | 310.75 | 3,924.39 | 419.70 | -487.03 | 642.92 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 14.04 | 310.75 | 4,021.40 | 435.53 | -505.40 | 667.17 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 14.04 | 310.75 | 4,118.41 | 451.37 | -523.77 | 691.42 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 14.04 | 310.75 | 4,215.43 | 467.20 | -542.14 | 715.68 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 14.04 | 310.75 | 4,312.44 | 483.03 | -560.52 | 739.93 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 14.04 | 310.75 | 4,409.46 | 498.86 | -578.89 | 764.18 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 14.04 | 310.75 | 4,506.47 | 514.70 | -597.26 | 788.44 | 0.00 | 0.00 | 0.00 |
| SUSSEX | | | | | | | | | |
| 4,689.19 | 14.04 | 310.75 | 4,593.00 | 528.82 | -613.65 | 810.07 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 14.04 | 310.75 | 4,603.49 | 530.53 | -615.63 | 812.69 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 14.04 | 310.75 | 4,700.50 | 546.36 | -634.01 | 836.94 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 14.04 | 310.75 | 4,797.51 | 562.19 | -652.38 | 861.20 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 14.04 | 310.75 | 4,894.53 | 578.03 | -670.75 | 885.45 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 14.04 | 310.75 | 4,991.54 | 593.86 | -689.12 | 909.70 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 14.04 | 310.75 | 5,088.56 | 609.69 | -707.50 | 933.96 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 14.04 | 310.75 | 5,185.57 | 625.52 | -725.87 | 958.21 | 0.00 | 0.00 | 0.00 |
| 5,400.00 | 14.04 | 310.75 | 5,282.59 | 641.36 | -744.24 | 982.46 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 14.04 | 310.75 | 5,379.60 | 657.19 | -762.61 | 1,006.72 | 0.00 | 0.00 | 0.00 |
| Start Drop -2.00 | | | | | | | | | |

| | | | |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site: | Riverbend 7-13 PAD | North Reference: | True |
| Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_Riverbend 21-13 | | |
| Design: | PLAN #1 6-21-10 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) |
|--|-----------------|-------------|---------------------|------------|------------|-----------------------|-----------------------|----------------------|---------------------|
| 5,552.15 | 14.04 | 310.75 | 5,430.20 | 665.45 | -772.20 | 1,019.36 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 13.08 | 310.75 | 5,476.71 | 672.77 | -780.69 | 1,030.58 | 2.00 | -2.00 | 0.00 |
| 5,700.00 | 11.08 | 310.75 | 5,574.49 | 686.43 | -796.54 | 1,051.51 | 2.00 | -2.00 | 0.00 |
| 5,800.00 | 9.08 | 310.75 | 5,672.94 | 697.85 | -809.80 | 1,069.01 | 2.00 | -2.00 | 0.00 |
| 5,900.00 | 7.08 | 310.75 | 5,771.94 | 707.03 | -820.45 | 1,083.06 | 2.00 | -2.00 | 0.00 |
| 6,000.00 | 5.08 | 310.75 | 5,871.38 | 713.94 | -828.47 | 1,093.65 | 2.00 | -2.00 | 0.00 |
| 6,100.00 | 3.08 | 310.75 | 5,971.12 | 718.58 | -833.86 | 1,100.76 | 2.00 | -2.00 | 0.00 |
| 6,200.00 | 1.08 | 310.75 | 6,071.05 | 720.95 | -836.60 | 1,104.39 | 2.00 | -2.00 | 0.00 |
| Start 1917.00 hold at 6253.95 MD | | | | | | | | | |
| 6,253.95 | 0.00 | 0.00 | 6,125.00 | 721.28 | -836.99 | 1,104.90 | 2.00 | -2.00 | 0.00 |
| 6,300.00 | 0.00 | 0.00 | 6,171.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 0.00 | 0.00 | 6,271.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 0.00 | 0.00 | 6,371.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 0.00 | 0.00 | 6,471.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 0.00 | 0.00 | 6,571.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 0.00 | 0.00 | 6,671.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 0.00 | 0.00 | 6,771.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 0.00 | 0.00 | 6,871.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 0.00 | 0.00 | 6,971.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 0.00 | 0.00 | 7,071.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| NIO | | | | | | | | | |
| 7,253.95 | 0.00 | 0.00 | 7,125.00 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 0.00 | 0.00 | 7,171.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 0.00 | 0.00 | 7,271.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 0.00 | 0.00 | 7,371.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 0.00 | 0.00 | 7,471.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| CODELL | | | | | | | | | |
| 7,600.95 | 0.00 | 0.00 | 7,472.00 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| GREENHORN | | | | | | | | | |
| 7,685.95 | 0.00 | 0.00 | 7,557.00 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 0.00 | 0.00 | 7,571.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 0.00 | 0.00 | 7,671.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 0.00 | 0.00 | 7,771.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 0.00 | 0.00 | 7,871.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| JSAND | | | | | | | | | |
| 8,035.95 | 0.00 | 0.00 | 7,907.00 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| 8,100.00 | 0.00 | 0.00 | 7,971.05 | 721.28 | -836.99 | 1,104.90 | 0.00 | 0.00 | 0.00 |
| PBHL_Riverbend 21-13(1320 FNL 2590 FEL) | | | | | | | | | |
| 8,170.95 | 0.00 | 0.00 | 8,042.00 | 721.28 | -836.99 | 1,104.90 | 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_Riverbend 21-13 | 0.00 | 0.00 | 8,042.00 | 721.28 | -836.99 | 1,263,460.51 | 3,185,035.77 | 40° 3' 16.902 N | 104° 50' 20.342 W |
| - plan hits target center | | | | | | | | | |
| - Circle (radius 50.00) | | | | | | | | | |

| | | | |
|------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Project: | COLORADO NORTHERN ZONE - 83 | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site: | Riverbend 7-13 PAD | North Reference: | True |
| Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_Riverbend 21-13 | | |
| Design: | PLAN #1 6-21-10 RHS | | |

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

| Formations | | | | | | |
|---------------------|---------------------|-----------|-----------|---------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) | |
| 3,318.26 | 3,263.00 | PARKMAN | | | | |
| 4,689.19 | 4,593.00 | SUSSEX | | | | |
| 7,253.95 | 7,125.00 | NIO | | | | |
| 7,600.95 | 7,472.00 | CODELL | | | | |
| 7,685.95 | 7,557.00 | GREENHORN | | | | |
| 8,035.95 | 7,907.00 | JSAND | | | | |

| Plan Annotations | | | | | |
|---------------------|---------------------|-------------------|------------|----------------------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | | |
| | | +N/-S (ft) | +E/-W (ft) | Comment | |
| 1,000.00 | 1,000.00 | 0.00 | 0.00 | Start Build 2.00 | |
| 1,701.80 | 1,694.80 | 55.84 | -64.79 | Start 3850.35 hold at 1701.80 MD | |
| 5,552.15 | 5,430.20 | 665.45 | -772.20 | Start Drop -2.00 | |
| 6,253.95 | 6,125.00 | 721.28 | -836.99 | Start 1917.00 hold at 6253.95 MD | |
| 8,170.95 | 8,042.00 | 721.28 | -836.99 | TD at 8170.95 | |



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
Riverbend 7-13 PAD
P_Riverbend 21-13**

**P_Riverbend 21-13
PLAN #1 6-21-10 RHS**

Anticollision Report

21 June, 2010



| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| | | | |
|-------------------------------------|---|-----------------------|---------------------|
| Reference | PLAN #1 6-21-10 RHS | | |
| Filter type: | NO GLOBAL FILTER: Using user defined selection & filtering criteria | | |
| Interpolation Method: | Stations | Error Model: | ISCWSA |
| 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 | 6/21/2010 | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
| 0.00 | 8,170.95 | PLAN #1 6-21-10 RHS (P_Riverbend 21-1 | 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 | | | | | | |
| Riverbend 7-13 PAD | | | | | | |
| CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT #2 EXI | 2,236.77 | 2,198.84 | 27.18 | -65.44 | 0.293 | Level 1, CC, ES, SF |
| HARRY S CHIKUMA #5 EXISTING - HARRY S CHIKUM | 5,078.38 | 4,892.00 | 1,034.26 | 819.83 | 4.823 | CC, ES |
| HARRY S CHIKUMA #5 EXISTING - HARRY S CHIKUM | 5,100.00 | 4,892.00 | 1,034.49 | 819.95 | 4.822 | SF |
| HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S. | 0.00 | 0.00 | 548.99 | | | |
| HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S. | 2,600.00 | 2,535.39 | 572.50 | 464.93 | 5.322 | ES |
| HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S. | 8,170.95 | 8,026.13 | 1,011.22 | 667.62 | 2.943 | SF |
| P_Riverbend 24-13 - P_Riverbend 24-13 - PLAN #1 6-21 | 1,000.00 | 1,000.00 | 16.24 | 12.00 | 3.832 | CC, ES, SF |
| P_Riverbend 25-13 - P_Riverbend 25-13 - PLAN #1 6-21 | 1,000.00 | 1,000.00 | 15.96 | 11.72 | 3.766 | CC |
| P_Riverbend 25-13 - P_Riverbend 25-13 - PLAN #1 6-21 | 1,100.00 | 1,099.50 | 16.21 | 11.56 | 3.482 | ES, SF |
| P_Riverbend 5-18 - P_Riverbend 5-1 - PLAN #1 6-21-10 | 300.00 | 300.00 | 48.15 | 47.06 | 44.170 | CC, ES |
| P_Riverbend 5-18 - P_Riverbend 5-1 - PLAN #1 6-21-10 | 700.00 | 690.95 | 75.48 | 72.60 | 26.237 | SF |
| P_Riverbend 6-13 - P_Riverbend 6-13 - PLAN #1 6-21-1 | 300.00 | 300.00 | 47.87 | 46.78 | 43.914 | CC, ES |
| P_Riverbend 6-13 - P_Riverbend 6-13 - PLAN #1 6-21-1 | 8,170.95 | 8,235.00 | 953.90 | 899.17 | 17.430 | SF |
| P_Riverbend 7-13 - P_Riverbend 7-13 - PLAN #1 6-21-1 | 1,000.00 | 1,000.00 | 31.91 | 27.68 | 7.532 | CC |
| P_Riverbend 7-13 - P_Riverbend 7-13 - PLAN #1 6-21-1 | 1,100.00 | 1,098.91 | 32.30 | 27.64 | 6.932 | ES |
| P_Riverbend 7-13 - P_Riverbend 7-13 - PLAN #1 6-21-1 | 1,400.00 | 1,396.79 | 39.03 | 33.08 | 6.553 | SF |
| P_Riverbend 8-13 - P_Riverbend 8-13 - PLAN #1 6-21-1 | 1,000.00 | 1,000.00 | 32.19 | 27.96 | 7.599 | CC, ES |
| P_Riverbend 8-13 - P_Riverbend 8-13 - PLAN #1 6-21-1 | 1,100.00 | 1,098.79 | 35.24 | 30.58 | 7.557 | SF |

| Offset Design | | Riverbend 7-13 PAD - CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---------------------------|----------------|---|----------------|-----------------|--------|-------------------|------------------------|------------------------|-----------------|------------------|--------------------|-------------------|--------------------|---------|
| Survey Program: 0-UNKNOWN | | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Reference | | Offset | | Semi Major Axis | | | Distance | | | | | | | Warning |
| Measured Depth | Vertical Depth | Measured Depth | Vertical Depth | Reference | Offset | Highside Toolface | Offset Wellbore Centre | Offset Wellbore Centre | Between Centres | Between Ellipses | Minimum Separation | Separation Factor | | |
| (ft) | (ft) | (ft) | (ft) | (ft) | (ft) | (°) | +N/-S (ft) | +E/-W (ft) | (ft) | (ft) | (ft) | | | |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -75.90 | 44.79 | -178.32 | 184.64 | | | | | |
| 100.00 | 100.00 | 82.35 | 82.35 | 0.10 | 1.65 | -75.72 | 45.38 | -178.32 | 184.01 | 182.26 | 1.74 | 105.586 | | |
| 200.00 | 200.00 | 181.52 | 181.49 | 0.32 | 5.27 | -75.03 | 47.66 | -178.32 | 184.59 | 179.01 | 5.58 | 33.070 | | |
| 300.00 | 300.00 | 281.31 | 281.21 | 0.55 | 9.28 | -74.00 | 51.12 | -178.32 | 185.51 | 175.71 | 9.80 | 18.933 | | |
| 400.00 | 400.00 | 381.24 | 381.09 | 0.77 | 13.29 | -72.97 | 54.61 | -178.32 | 186.50 | 172.48 | 14.02 | 13.302 | | |
| 500.00 | 500.00 | 481.18 | 480.97 | 0.99 | 17.30 | -71.96 | 58.09 | -178.32 | 187.56 | 169.31 | 18.24 | 10.281 | | |
| 600.00 | 600.00 | 581.12 | 580.85 | 1.22 | 21.32 | -70.95 | 61.58 | -178.32 | 188.67 | 166.20 | 22.46 | 8.398 | | |
| 700.00 | 700.00 | 681.06 | 680.73 | 1.44 | 25.33 | -69.95 | 65.07 | -178.32 | 189.83 | 163.15 | 26.69 | 7.114 | | |
| 800.00 | 800.00 | 781.00 | 780.61 | 1.67 | 29.35 | -68.97 | 68.56 | -178.32 | 191.06 | 160.15 | 30.91 | 6.182 | | |
| 900.00 | 900.00 | 880.94 | 880.48 | 1.89 | 33.36 | -68.00 | 72.04 | -178.32 | 192.34 | 157.21 | 35.13 | 5.476 | | |

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_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---------------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---------------------------|---------|
| Survey Program: 0-UNKNOWN | | | | | | | | | | | | 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 | |
| 1,000.00 | 1,000.00 | 980.88 | 980.36 | 2.12 | 37.37 | -67.04 | 75.53 | -178.32 | 193.68 | 154.33 | 39.35 | 4.922 | |
| 1,100.00 | 1,099.98 | 1,080.84 | 1,080.26 | 2.34 | 41.39 | -17.00 | 79.02 | -178.32 | 193.39 | 149.70 | 43.69 | 4.426 | |
| 1,200.00 | 1,199.84 | 1,180.75 | 1,180.12 | 2.56 | 45.40 | -16.52 | 82.51 | -178.32 | 189.80 | 141.94 | 47.86 | 3.966 | |
| 1,300.00 | 1,299.45 | 1,280.51 | 1,279.81 | 2.79 | 49.41 | -16.34 | 85.99 | -178.32 | 182.88 | 130.92 | 51.95 | 3.520 | |
| 1,400.00 | 1,398.70 | 1,379.97 | 1,379.21 | 3.04 | 53.40 | -16.49 | 89.46 | -178.32 | 172.62 | 116.66 | 55.96 | 3.085 | |
| 1,500.00 | 1,497.47 | 1,479.03 | 1,478.21 | 3.31 | 57.38 | -17.02 | 92.92 | -178.32 | 159.04 | 99.17 | 59.86 | 2.657 | |
| 1,600.00 | 1,595.62 | 1,577.57 | 1,576.69 | 3.63 | 61.34 | -18.10 | 96.36 | -178.32 | 142.19 | 78.53 | 63.66 | 2.234 | |
| 1,701.80 | 1,694.80 | 1,677.21 | 1,676.27 | 3.99 | 65.34 | -20.06 | 99.83 | -178.32 | 121.76 | 54.35 | 67.41 | 1.806 | |
| 1,800.00 | 1,790.07 | 1,772.96 | 1,771.96 | 4.38 | 69.19 | -22.89 | 103.18 | -178.32 | 100.64 | 29.16 | 71.49 | 1.408 Level 3 | |
| 1,900.00 | 1,887.08 | 1,870.47 | 1,869.41 | 4.80 | 73.11 | -27.31 | 106.58 | -178.32 | 79.51 | 3.78 | 75.73 | 1.050 Level 2 | |
| 2,000.00 | 1,984.10 | 1,967.97 | 1,966.86 | 5.24 | 77.02 | -34.80 | 109.98 | -178.32 | 59.15 | -21.04 | 80.19 | 0.738 Level 1 | |
| 2,100.00 | 2,081.11 | 2,065.48 | 2,064.30 | 5.69 | 80.94 | -49.42 | 113.38 | -178.32 | 40.74 | -44.42 | 85.16 | 0.478 Level 1 | |
| 2,200.00 | 2,178.13 | 2,162.99 | 2,161.75 | 6.15 | 84.86 | -80.53 | 116.79 | -178.32 | 28.38 | -62.47 | 90.85 | 0.312 Level 1 | |
| 2,236.77 | 2,213.80 | 2,198.84 | 2,197.59 | 6.32 | 86.30 | -96.84 | 118.04 | -178.32 | 27.18 | -65.44 | 92.62 | 0.293 Level 1, CC, ES, SF | |
| 2,300.00 | 2,275.14 | 2,260.50 | 2,259.20 | 6.62 | 88.77 | -123.55 | 120.19 | -178.32 | 30.59 | -63.88 | 94.47 | 0.324 Level 1 | |
| 2,400.00 | 2,372.16 | 2,358.01 | 2,356.65 | 7.09 | 92.69 | -149.25 | 123.59 | -178.32 | 45.28 | -51.77 | 97.06 | 0.467 Level 1 | |
| 2,500.00 | 2,469.17 | 2,455.51 | 2,454.10 | 7.57 | 96.60 | -161.32 | 127.00 | -178.32 | 64.42 | -36.04 | 100.46 | 0.641 Level 1 | |
| 2,600.00 | 2,566.18 | 2,553.02 | 2,551.55 | 8.05 | 100.52 | -167.76 | 130.40 | -178.32 | 85.05 | -19.20 | 104.25 | 0.816 Level 1 | |
| 2,700.00 | 2,663.20 | 2,650.53 | 2,649.00 | 8.54 | 104.44 | -171.67 | 133.80 | -178.32 | 106.31 | -1.88 | 108.18 | 0.983 Level 1 | |
| 2,800.00 | 2,760.21 | 2,748.04 | 2,746.44 | 9.03 | 108.35 | -174.27 | 137.21 | -178.32 | 127.88 | 15.70 | 112.19 | 1.140 Level 2 | |
| 2,900.00 | 2,857.23 | 2,845.54 | 2,843.89 | 9.52 | 112.27 | -176.12 | 140.61 | -178.32 | 149.63 | 33.41 | 116.22 | 1.288 Level 3 | |
| 3,000.00 | 2,954.24 | 2,943.05 | 2,941.34 | 10.02 | 116.19 | -177.49 | 144.01 | -178.32 | 171.50 | 51.23 | 120.27 | 1.426 Level 3 | |
| 3,100.00 | 3,051.26 | 3,040.56 | 3,038.79 | 10.52 | 120.10 | -178.56 | 147.41 | -178.32 | 193.44 | 69.10 | 124.34 | 1.556 | |
| 3,200.00 | 3,148.27 | 3,138.07 | 3,136.24 | 11.01 | 124.02 | -179.41 | 150.82 | -178.32 | 215.43 | 87.02 | 128.41 | 1.678 | |
| 3,300.00 | 3,245.28 | 3,235.58 | 3,233.69 | 11.51 | 127.94 | -179.90 | 154.22 | -178.32 | 237.45 | 104.97 | 132.48 | 1.792 | |
| 3,400.00 | 3,342.30 | 3,333.08 | 3,331.13 | 12.01 | 131.85 | -179.32 | 157.62 | -178.32 | 259.50 | 122.94 | 136.56 | 1.900 | |
| 3,500.00 | 3,439.31 | 3,430.59 | 3,428.58 | 12.52 | 135.77 | -178.84 | 161.03 | -178.32 | 281.58 | 140.94 | 140.64 | 2.002 | |
| 3,600.00 | 3,536.33 | 3,528.10 | 3,526.03 | 13.02 | 139.69 | -178.42 | 164.43 | -178.32 | 303.67 | 158.94 | 144.73 | 2.098 | |
| 3,700.00 | 3,633.34 | 3,625.61 | 3,623.48 | 13.52 | 143.60 | -178.06 | 167.83 | -178.32 | 325.77 | 176.96 | 148.81 | 2.189 | |
| 3,800.00 | 3,730.36 | 3,723.11 | 3,720.93 | 14.03 | 147.52 | -177.75 | 171.24 | -178.32 | 347.88 | 194.99 | 152.90 | 2.275 | |
| 3,900.00 | 3,827.37 | 3,820.62 | 3,818.38 | 14.53 | 151.44 | -177.48 | 174.64 | -178.32 | 370.01 | 213.02 | 156.98 | 2.357 | |
| 4,000.00 | 3,924.39 | 3,918.13 | 3,915.82 | 15.04 | 155.35 | -177.23 | 178.04 | -178.32 | 392.14 | 231.06 | 161.07 | 2.435 | |
| 4,100.00 | 4,021.40 | 4,015.64 | 4,013.27 | 15.54 | 159.27 | -177.01 | 181.44 | -178.32 | 414.27 | 249.11 | 165.16 | 2.508 | |
| 4,200.00 | 4,118.41 | 4,113.15 | 4,110.72 | 16.05 | 163.19 | -176.82 | 184.85 | -178.32 | 436.41 | 267.16 | 169.25 | 2.579 | |
| 4,300.00 | 4,215.43 | 4,210.65 | 4,208.17 | 16.56 | 167.10 | -176.64 | 188.25 | -178.32 | 458.56 | 285.22 | 173.34 | 2.645 | |
| 4,400.00 | 4,312.44 | 4,308.16 | 4,305.62 | 17.06 | 171.02 | -176.48 | 191.65 | -178.32 | 480.71 | 303.28 | 177.43 | 2.709 | |
| 4,500.00 | 4,409.46 | 4,405.67 | 4,403.07 | 17.57 | 174.94 | -176.33 | 195.06 | -178.32 | 502.86 | 321.34 | 181.52 | 2.770 | |
| 4,600.00 | 4,506.47 | 4,503.18 | 4,500.51 | 18.08 | 178.85 | -176.20 | 198.46 | -178.32 | 525.01 | 339.40 | 185.61 | 2.829 | |
| 4,700.00 | 4,603.49 | 4,600.68 | 4,597.96 | 18.59 | 182.77 | -176.08 | 201.86 | -178.32 | 547.17 | 357.46 | 189.71 | 2.884 | |
| 4,800.00 | 4,700.50 | 4,698.19 | 4,695.41 | 19.10 | 186.69 | -175.96 | 205.26 | -178.32 | 569.33 | 375.53 | 193.80 | 2.938 | |
| 4,900.00 | 4,797.51 | 4,795.00 | 4,792.18 | 19.61 | 189.37 | -175.89 | 207.60 | -178.32 | 592.29 | 395.59 | 196.70 | 3.011 | |
| 5,000.00 | 4,894.53 | 4,892.00 | 4,889.18 | 20.12 | 189.37 | -175.89 | 207.60 | -178.32 | 626.91 | 429.93 | 196.98 | 3.183 | |
| 5,100.00 | 4,991.54 | 4,989.00 | 4,986.18 | 20.63 | 189.37 | -175.89 | 207.60 | -178.32 | 674.70 | 477.44 | 197.26 | 3.420 | |
| 5,200.00 | 5,088.56 | 5,086.00 | 5,083.18 | 21.14 | 189.37 | -175.89 | 207.60 | -178.32 | 733.09 | 535.55 | 197.54 | 3.711 | |
| 5,300.00 | 5,185.57 | 5,183.00 | 5,180.18 | 21.65 | 189.37 | -175.89 | 207.60 | -178.32 | 799.77 | 601.94 | 197.82 | 4.043 | |
| 5,400.00 | 5,282.59 | 5,280.00 | 5,277.18 | 22.16 | 189.37 | -175.89 | 207.60 | -178.32 | 872.83 | 674.73 | 198.10 | 4.406 | |
| 5,500.00 | 5,379.60 | 5,377.00 | 5,374.18 | 22.67 | 189.37 | -175.89 | 207.60 | -178.32 | 950.81 | 752.42 | 198.39 | 4.793 | |
| 5,552.15 | 5,430.20 | 5,427.60 | 5,424.18 | 22.93 | 189.37 | -175.89 | 207.60 | -178.32 | 993.05 | 794.51 | 198.53 | 5.002 | |
| 5,600.00 | 5,476.71 | 5,474.00 | 5,471.18 | 23.14 | 189.37 | -175.99 | 207.60 | -178.32 | 1,032.37 | 833.04 | 199.33 | 5.179 | |
| 5,700.00 | 5,574.49 | 5,571.80 | 5,568.18 | 23.50 | 189.37 | -176.19 | 207.60 | -178.32 | 1,115.35 | 914.55 | 200.80 | 5.554 | |
| 5,800.00 | 5,672.94 | 5,670.20 | 5,667.18 | 23.81 | 189.37 | -176.39 | 207.60 | -178.32 | 1,199.14 | 997.12 | 202.01 | 5.936 | |
| 5,900.00 | 5,771.94 | 5,769.20 | 5,766.18 | 24.08 | 189.37 | -176.58 | 207.60 | -178.32 | 1,283.49 | 1,080.52 | 202.97 | 6.324 | |

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_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---------------------------|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|---------------------------|---------|
| Survey Program: 0-UNKNOWN | | | | | | | | | | | | 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 | |
| 6,000.00 | 5,871.38 | 4,765.00 | 4,762.18 | 24.31 | 189.37 | 176.77 | 207.60 | -178.32 | 1,368.20 | 1,164.53 | 203.67 | 6.718 | |
| 6,100.00 | 5,971.12 | 4,765.00 | 4,762.18 | 24.49 | 189.37 | 176.94 | 207.60 | -178.32 | 1,453.12 | 1,249.01 | 204.11 | 7.119 | |
| 6,200.00 | 6,071.05 | 4,765.00 | 4,762.18 | 24.63 | 189.37 | 177.11 | 207.60 | -178.32 | 1,538.12 | 1,333.83 | 204.28 | 7.529 | |
| 6,253.95 | 6,125.00 | 4,765.00 | 4,762.18 | 24.69 | 189.37 | 127.95 | 207.60 | -178.32 | 1,583.97 | 1,379.69 | 204.27 | 7.754 | |
| 6,300.00 | 6,171.05 | 4,765.00 | 4,762.18 | 24.74 | 189.37 | 127.95 | 207.60 | -178.32 | 1,623.27 | 1,418.92 | 204.35 | 7.944 | |
| 6,400.00 | 6,271.05 | 4,765.00 | 4,762.18 | 24.86 | 189.37 | 127.95 | 207.60 | -178.32 | 1,709.79 | 1,505.25 | 204.54 | 8.359 | |
| 6,500.00 | 6,371.05 | 4,765.00 | 4,762.18 | 24.98 | 189.37 | 127.95 | 207.60 | -178.32 | 1,797.71 | 1,592.98 | 204.73 | 8.781 | |
| 6,600.00 | 6,471.05 | 4,765.00 | 4,762.18 | 25.11 | 189.37 | 127.95 | 207.60 | -178.32 | 1,886.83 | 1,681.92 | 204.91 | 9.208 | |
| 6,700.00 | 6,571.05 | 4,765.00 | 4,762.18 | 25.23 | 189.37 | 127.95 | 207.60 | -178.32 | 1,976.99 | 1,771.89 | 205.10 | 9.639 | |
| 6,800.00 | 6,671.05 | 4,765.00 | 4,762.18 | 25.36 | 189.37 | 127.95 | 207.60 | -178.32 | 2,068.06 | 1,862.77 | 205.29 | 10.074 | |
| 6,900.00 | 6,771.05 | 4,765.00 | 4,762.18 | 25.48 | 189.37 | 127.95 | 207.60 | -178.32 | 2,159.92 | 1,954.44 | 205.48 | 10.511 | |
| 7,000.00 | 6,871.05 | 4,765.00 | 4,762.18 | 25.61 | 189.37 | 127.95 | 207.60 | -178.32 | 2,252.47 | 2,046.80 | 205.67 | 10.952 | |
| 7,100.00 | 6,971.05 | 4,765.00 | 4,762.18 | 25.74 | 189.37 | 127.95 | 207.60 | -178.32 | 2,345.63 | 2,139.77 | 205.87 | 11.394 | |
| 7,200.00 | 7,071.05 | 4,765.00 | 4,762.18 | 25.87 | 189.37 | 127.95 | 207.60 | -178.32 | 2,439.34 | 2,233.28 | 206.06 | 11.838 | |
| 7,300.00 | 7,171.05 | 4,765.00 | 4,762.18 | 26.01 | 189.37 | 127.95 | 207.60 | -178.32 | 2,533.52 | 2,327.27 | 206.25 | 12.283 | |
| 7,400.00 | 7,271.05 | 4,765.00 | 4,762.18 | 26.14 | 189.37 | 127.95 | 207.60 | -178.32 | 2,628.14 | 2,421.69 | 206.45 | 12.730 | |
| 7,500.00 | 7,371.05 | 4,765.00 | 4,762.18 | 26.27 | 189.37 | 127.95 | 207.60 | -178.32 | 2,723.14 | 2,516.49 | 206.65 | 13.178 | |
| 7,600.00 | 7,471.05 | 4,765.00 | 4,762.18 | 26.41 | 189.37 | 127.95 | 207.60 | -178.32 | 2,818.49 | 2,611.64 | 206.84 | 13.626 | |
| 7,700.00 | 7,571.05 | 4,765.00 | 4,762.18 | 26.55 | 189.37 | 127.95 | 207.60 | -178.32 | 2,914.14 | 2,707.11 | 207.04 | 14.075 | |
| 7,800.00 | 7,671.05 | 4,765.00 | 4,762.18 | 26.69 | 189.37 | 127.95 | 207.60 | -178.32 | 3,010.08 | 2,802.85 | 207.24 | 14.525 | |
| 7,900.00 | 7,771.05 | 4,765.00 | 4,762.18 | 26.83 | 189.37 | 127.95 | 207.60 | -178.32 | 3,106.28 | 2,898.85 | 207.43 | 14.975 | |
| 8,000.00 | 7,871.05 | 4,765.00 | 4,762.18 | 26.97 | 189.37 | 127.95 | 207.60 | -178.32 | 3,202.71 | 2,995.08 | 207.63 | 15.425 | |
| 8,100.00 | 7,971.05 | 4,765.00 | 4,762.18 | 27.11 | 189.37 | 127.95 | 207.60 | -178.32 | 3,299.35 | 3,091.52 | 207.83 | 15.875 | |
| 8,170.95 | 8,042.00 | 4,765.00 | 4,762.18 | 27.21 | 189.37 | 127.95 | 207.60 | -178.32 | 3,368.04 | 3,160.07 | 207.97 | 16.195 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|---------------------------|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|--------------------|---------|
| Survey Program: 0-UNKNOWN | | | | | | | | | | | | | 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 | -95.48 | -148.23 | -1,544.42 | 1,551.57 | | | | | |
| 100.00 | 100.00 | 90.33 | 90.33 | 0.10 | 1.81 | -95.46 | -147.51 | -1,544.42 | 1,551.46 | 1,549.55 | 1.90 | 815.274 | | |
| 200.00 | 200.00 | 192.92 | 192.88 | 0.32 | 5.73 | -95.36 | -144.98 | -1,544.42 | 1,551.22 | 1,545.18 | 6.04 | 256.752 | | |
| 300.00 | 300.00 | 293.04 | 292.94 | 0.55 | 9.75 | -95.23 | -141.49 | -1,544.42 | 1,550.90 | 1,540.62 | 10.28 | 150.897 | | |
| 400.00 | 400.00 | 392.98 | 392.82 | 0.77 | 13.76 | -95.11 | -138.00 | -1,544.42 | 1,550.59 | 1,536.08 | 14.51 | 106.883 | | |
| 500.00 | 500.00 | 492.92 | 492.70 | 0.99 | 17.77 | -94.98 | -134.51 | -1,544.42 | 1,550.28 | 1,531.54 | 18.74 | 82.740 | | |
| 600.00 | 600.00 | 592.86 | 592.58 | 1.22 | 21.79 | -94.85 | -131.02 | -1,544.42 | 1,549.98 | 1,527.01 | 22.97 | 67.490 | | |
| 700.00 | 700.00 | 692.79 | 692.45 | 1.44 | 25.80 | -94.72 | -127.54 | -1,544.42 | 1,549.69 | 1,522.49 | 27.20 | 56.983 | | |
| 800.00 | 800.00 | 792.73 | 792.33 | 1.67 | 29.82 | -94.59 | -124.05 | -1,544.42 | 1,549.40 | 1,517.98 | 31.42 | 49.305 | | |
| 900.00 | 900.00 | 892.67 | 892.21 | 1.89 | 33.83 | -94.46 | -120.56 | -1,544.42 | 1,549.13 | 1,513.48 | 35.65 | 43.449 | | |
| 1,000.00 | 1,000.00 | 992.61 | 992.09 | 2.12 | 37.85 | -94.33 | -117.07 | -1,544.42 | 1,548.86 | 1,508.98 | 39.88 | 38.835 | | |
| 1,100.00 | 1,099.98 | 1,092.57 | 1,091.99 | 2.34 | 41.86 | -45.03 | -113.58 | -1,544.42 | 1,547.37 | 1,503.19 | 44.18 | 35.023 | | |
| 1,200.00 | 1,199.84 | 1,192.49 | 1,191.84 | 2.56 | 45.87 | -45.09 | -110.10 | -1,544.42 | 1,543.41 | 1,495.05 | 48.36 | 31.913 | | |
| 1,300.00 | 1,299.45 | 1,292.24 | 1,291.53 | 2.79 | 49.88 | -45.28 | -106.62 | -1,544.42 | 1,536.99 | 1,484.49 | 52.50 | 29.274 | | |
| 1,400.00 | 1,398.70 | 1,391.71 | 1,390.94 | 3.04 | 53.88 | -45.60 | -103.14 | -1,544.42 | 1,528.14 | 1,471.54 | 56.60 | 27.000 | | |
| 1,500.00 | 1,497.47 | 1,490.77 | 1,489.94 | 3.31 | 57.85 | -46.06 | -99.69 | -1,544.42 | 1,516.88 | 1,456.24 | 60.64 | 25.013 | | |
| 1,600.00 | 1,595.62 | 1,589.30 | 1,588.41 | 3.63 | 61.81 | -46.65 | -96.25 | -1,544.42 | 1,503.28 | 1,438.63 | 64.64 | 23.255 | | |
| 1,701.80 | 1,694.80 | 1,688.94 | 1,687.99 | 3.99 | 65.81 | -47.39 | -92.77 | -1,544.42 | 1,487.08 | 1,418.41 | 68.68 | 21.653 | | |
| 1,800.00 | 1,790.07 | 1,784.69 | 1,783.69 | 4.38 | 69.66 | -47.94 | -89.43 | -1,544.42 | 1,470.42 | 1,397.59 | 72.83 | 20.190 | | |
| 1,900.00 | 1,887.08 | 1,882.20 | 1,881.13 | 4.80 | 73.58 | -48.51 | -86.03 | -1,544.42 | 1,453.59 | 1,376.51 | 77.08 | 18.858 | | |
| 2,000.00 | 1,984.10 | 1,979.71 | 1,978.58 | 5.24 | 77.49 | -49.09 | -82.62 | -1,544.42 | 1,436.91 | 1,355.56 | 81.35 | 17.663 | | |
| 2,100.00 | 2,081.11 | 2,077.21 | 2,076.03 | 5.69 | 81.41 | -49.68 | -79.22 | -1,544.42 | 1,420.37 | 1,334.74 | 85.64 | 16.586 | | |
| 2,200.00 | 2,178.13 | 2,174.72 | 2,173.48 | 6.15 | 85.33 | -50.29 | -75.82 | -1,544.42 | 1,403.99 | 1,314.06 | 89.94 | 15.611 | | |
| 2,300.00 | 2,275.14 | 2,272.23 | 2,270.93 | 6.62 | 89.24 | -50.91 | -72.42 | -1,544.42 | 1,387.78 | 1,293.53 | 94.25 | 14.724 | | |
| 2,400.00 | 2,372.16 | 2,369.74 | 2,368.38 | 7.09 | 93.16 | -51.55 | -69.01 | -1,544.42 | 1,371.73 | 1,273.15 | 98.58 | 13.915 | | |
| 2,500.00 | 2,469.17 | 2,467.25 | 2,465.82 | 7.57 | 97.08 | -52.20 | -65.61 | -1,544.42 | 1,355.85 | 1,252.93 | 102.92 | 13.174 | | |
| 2,600.00 | 2,566.18 | 2,564.75 | 2,563.27 | 8.05 | 100.99 | -52.87 | -62.21 | -1,544.42 | 1,340.15 | 1,232.88 | 107.27 | 12.493 | | |
| 2,700.00 | 2,663.20 | 2,662.26 | 2,660.72 | 8.54 | 104.91 | -53.55 | -58.80 | -1,544.42 | 1,324.64 | 1,213.00 | 111.64 | 11.866 | | |
| 2,800.00 | 2,760.21 | 2,759.77 | 2,758.17 | 9.03 | 108.83 | -54.25 | -55.40 | -1,544.42 | 1,309.32 | 1,193.31 | 116.01 | 11.286 | | |
| 2,900.00 | 2,857.23 | 2,857.28 | 2,855.62 | 9.52 | 112.74 | -54.96 | -52.00 | -1,544.42 | 1,294.20 | 1,173.80 | 120.40 | 10.749 | | |
| 3,000.00 | 2,954.24 | 2,954.78 | 2,953.07 | 10.02 | 116.66 | -55.69 | -48.59 | -1,544.42 | 1,279.29 | 1,154.49 | 124.79 | 10.251 | | |
| 3,100.00 | 3,051.26 | 3,052.29 | 3,050.51 | 10.52 | 120.58 | -56.43 | -45.19 | -1,544.42 | 1,264.59 | 1,135.39 | 129.20 | 9.788 | | |
| 3,200.00 | 3,148.27 | 3,149.80 | 3,147.96 | 11.01 | 124.49 | -57.20 | -41.79 | -1,544.42 | 1,250.11 | 1,116.49 | 133.62 | 9.356 | | |
| 3,300.00 | 3,245.28 | 3,247.31 | 3,245.41 | 11.51 | 128.41 | -57.98 | -38.39 | -1,544.42 | 1,235.86 | 1,097.81 | 138.04 | 8.953 | | |
| 3,400.00 | 3,342.30 | 3,344.82 | 3,342.86 | 12.01 | 132.33 | -58.77 | -34.98 | -1,544.42 | 1,221.84 | 1,079.36 | 142.48 | 8.576 | | |
| 3,500.00 | 3,439.31 | 3,442.32 | 3,440.31 | 12.52 | 136.24 | -59.59 | -31.58 | -1,544.42 | 1,208.07 | 1,061.15 | 146.92 | 8.222 | | |
| 3,600.00 | 3,536.33 | 3,539.83 | 3,537.76 | 13.02 | 140.16 | -60.42 | -28.18 | -1,544.42 | 1,194.55 | 1,043.18 | 151.38 | 7.891 | | |
| 3,700.00 | 3,633.34 | 3,637.34 | 3,635.21 | 13.52 | 144.07 | -61.28 | -24.77 | -1,544.42 | 1,181.30 | 1,025.46 | 155.84 | 7.580 | | |
| 3,800.00 | 3,730.36 | 3,734.85 | 3,732.65 | 14.03 | 147.99 | -62.15 | -21.37 | -1,544.42 | 1,168.32 | 1,008.00 | 160.32 | 7.288 | | |
| 3,900.00 | 3,827.37 | 3,832.36 | 3,830.10 | 14.53 | 151.91 | -63.03 | -17.97 | -1,544.42 | 1,155.61 | 990.81 | 164.80 | 7.012 | | |
| 4,000.00 | 3,924.39 | 3,929.86 | 3,927.55 | 15.04 | 155.82 | -63.94 | -14.56 | -1,544.42 | 1,143.20 | 973.91 | 169.29 | 6.753 | | |
| 4,100.00 | 4,021.40 | 4,027.37 | 4,025.00 | 15.54 | 159.74 | -64.87 | -11.16 | -1,544.42 | 1,131.08 | 957.30 | 173.79 | 6.508 | | |
| 4,200.00 | 4,118.41 | 4,124.88 | 4,122.45 | 16.05 | 163.66 | -65.81 | -7.76 | -1,544.42 | 1,119.28 | 940.98 | 178.29 | 6.278 | | |
| 4,300.00 | 4,215.43 | 4,222.39 | 4,219.90 | 16.56 | 167.57 | -66.78 | -4.36 | -1,544.42 | 1,107.79 | 924.98 | 182.81 | 6.060 | | |
| 4,400.00 | 4,312.44 | 4,319.89 | 4,317.34 | 17.06 | 171.49 | -67.76 | -0.95 | -1,544.42 | 1,096.63 | 909.30 | 187.33 | 5.854 | | |
| 4,500.00 | 4,409.46 | 4,417.40 | 4,414.79 | 17.57 | 175.41 | -68.77 | 2.45 | -1,544.42 | 1,085.81 | 893.96 | 191.85 | 5.660 | | |
| 4,600.00 | 4,506.47 | 4,514.91 | 4,512.24 | 18.08 | 179.32 | -69.79 | 5.85 | -1,544.42 | 1,075.34 | 878.95 | 196.38 | 5.476 | | |
| 4,700.00 | 4,603.49 | 4,612.42 | 4,609.69 | 18.59 | 183.24 | -70.83 | 9.26 | -1,544.42 | 1,065.23 | 864.31 | 200.92 | 5.302 | | |
| 4,800.00 | 4,700.50 | 4,709.93 | 4,707.14 | 19.10 | 187.16 | -71.89 | 12.66 | -1,544.42 | 1,055.48 | 850.02 | 205.46 | 5.137 | | |
| 4,900.00 | 4,797.51 | 4,807.43 | 4,804.59 | 19.61 | 191.07 | -72.97 | 16.06 | -1,544.42 | 1,046.12 | 836.12 | 210.00 | 4.981 | | |
| 5,000.00 | 4,894.53 | 4,892.00 | 4,889.10 | 20.12 | 194.47 | -73.92 | 19.01 | -1,544.42 | 1,037.23 | 823.21 | 214.02 | 4.846 | | |
| 5,078.38 | 4,970.57 | 4,892.00 | 4,889.10 | 20.52 | 194.47 | -73.92 | 19.01 | -1,544.42 | 1,034.26 | 819.83 | 214.43 | 4.823 CC, ES | | |

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_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - HARRY S CHIKUMA #5 EXISTING - HARRY S CHIKUMA #5 EXISTING - HARR | | | | | | | | | | | | | Offset Site Error: 0.00 ft |
|--|---------------------|---------------------|---------------------|----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|-------------------|-----------------------------------|
| Survey Program: 0-UNKNOWN | | | | | | | | | | | | | 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 | |
| 5,100.00 | 4,991.54 | 4,892.00 | 4,889.10 | 20.63 | 194.47 | -73.92 | 19.01 | -1,544.42 | 1,034.49 | 819.95 | 214.54 | 4.822 SF | |
| 5,200.00 | 5,088.56 | 4,892.00 | 4,889.10 | 21.14 | 194.47 | -73.92 | 19.01 | -1,544.42 | 1,041.39 | 826.33 | 215.06 | 4.842 | |
| 5,300.00 | 5,185.57 | 4,892.00 | 4,889.10 | 21.65 | 194.47 | -73.92 | 19.01 | -1,544.42 | 1,057.74 | 842.16 | 215.58 | 4.906 | |
| 5,400.00 | 5,282.59 | 4,892.00 | 4,889.10 | 22.16 | 194.47 | -73.92 | 19.01 | -1,544.42 | 1,083.11 | 867.01 | 216.10 | 5.012 | |
| 5,500.00 | 5,379.60 | 4,892.00 | 4,889.10 | 22.67 | 194.47 | -73.92 | 19.01 | -1,544.42 | 1,116.90 | 900.27 | 216.63 | 5.156 | |
| 5,552.15 | 5,430.20 | 4,892.00 | 4,889.10 | 22.93 | 194.47 | -73.92 | 19.01 | -1,544.42 | 1,137.61 | 920.71 | 216.90 | 5.245 | |
| 5,600.00 | 5,476.71 | 4,892.00 | 4,889.10 | 23.14 | 194.47 | -74.37 | 19.01 | -1,544.42 | 1,158.45 | 941.19 | 217.26 | 5.332 | |
| 5,700.00 | 5,574.49 | 4,892.00 | 4,889.10 | 23.50 | 194.47 | -75.46 | 19.01 | -1,544.42 | 1,207.57 | 989.65 | 217.92 | 5.541 | |
| 5,800.00 | 5,672.94 | 4,892.00 | 4,889.10 | 23.81 | 194.47 | -76.77 | 19.01 | -1,544.42 | 1,263.42 | 1,044.93 | 218.49 | 5.782 | |
| 5,900.00 | 5,771.94 | 4,892.00 | 4,889.10 | 24.08 | 194.47 | -78.30 | 19.01 | -1,544.42 | 1,325.09 | 1,106.12 | 218.98 | 6.051 | |
| 6,000.00 | 5,871.38 | 4,892.00 | 4,889.10 | 24.31 | 194.47 | -80.05 | 19.01 | -1,544.42 | 1,391.74 | 1,172.37 | 219.38 | 6.344 | |
| 6,100.00 | 5,971.12 | 4,892.00 | 4,889.10 | 24.49 | 194.47 | -82.04 | 19.01 | -1,544.42 | 1,462.62 | 1,242.93 | 219.68 | 6.658 | |
| 6,200.00 | 6,071.05 | 4,892.00 | 4,889.10 | 24.63 | 194.47 | -84.25 | 19.01 | -1,544.42 | 1,537.04 | 1,317.15 | 219.89 | 6.990 | |
| 6,253.95 | 6,125.00 | 4,892.00 | 4,889.10 | 24.69 | 194.47 | -134.79 | 19.01 | -1,544.42 | 1,578.47 | 1,358.51 | 219.97 | 7.176 | |
| 6,300.00 | 6,171.05 | 4,892.00 | 4,889.10 | 24.74 | 194.47 | -134.79 | 19.01 | -1,544.42 | 1,614.44 | 1,394.42 | 220.02 | 7.338 | |
| 6,400.00 | 6,271.05 | 4,892.00 | 4,889.10 | 24.86 | 194.47 | -134.79 | 19.01 | -1,544.42 | 1,694.22 | 1,474.09 | 220.14 | 7.696 | |
| 6,500.00 | 6,371.05 | 4,892.00 | 4,889.10 | 24.98 | 194.47 | -134.79 | 19.01 | -1,544.42 | 1,776.06 | 1,555.80 | 220.26 | 8.064 | |
| 6,600.00 | 6,471.05 | 4,892.00 | 4,889.10 | 25.11 | 194.47 | -134.79 | 19.01 | -1,544.42 | 1,859.67 | 1,639.29 | 220.38 | 8.438 | |
| 6,700.00 | 6,571.05 | 4,892.00 | 4,889.10 | 25.23 | 194.47 | -134.79 | 19.01 | -1,544.42 | 1,944.83 | 1,724.32 | 220.50 | 8.820 | |
| 6,800.00 | 6,671.05 | 4,892.00 | 4,889.10 | 25.36 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,031.34 | 1,810.71 | 220.63 | 9.207 | |
| 6,900.00 | 6,771.05 | 4,892.00 | 4,889.10 | 25.48 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,119.04 | 1,898.28 | 220.76 | 9.599 | |
| 7,000.00 | 6,871.05 | 4,892.00 | 4,889.10 | 25.61 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,207.79 | 1,986.90 | 220.89 | 9.995 | |
| 7,100.00 | 6,971.05 | 4,892.00 | 4,889.10 | 25.74 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,297.46 | 2,076.44 | 221.01 | 10.395 | |
| 7,200.00 | 7,071.05 | 4,892.00 | 4,889.10 | 25.87 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,387.95 | 2,166.80 | 221.15 | 10.798 | |
| 7,300.00 | 7,171.05 | 4,892.00 | 4,889.10 | 26.01 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,479.17 | 2,257.89 | 221.28 | 11.204 | |
| 7,400.00 | 7,271.05 | 4,892.00 | 4,889.10 | 26.14 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,571.05 | 2,349.64 | 221.41 | 11.612 | |
| 7,500.00 | 7,371.05 | 4,892.00 | 4,889.10 | 26.27 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,663.51 | 2,441.96 | 221.55 | 12.022 | |
| 7,600.00 | 7,471.05 | 4,892.00 | 4,889.10 | 26.41 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,756.49 | 2,534.81 | 221.68 | 12.434 | |
| 7,700.00 | 7,571.05 | 4,892.00 | 4,889.10 | 26.55 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,849.96 | 2,628.14 | 221.82 | 12.848 | |
| 7,800.00 | 7,671.05 | 4,892.00 | 4,889.10 | 26.69 | 194.47 | -134.79 | 19.01 | -1,544.42 | 2,943.85 | 2,721.89 | 221.96 | 13.263 | |
| 7,900.00 | 7,771.05 | 4,892.00 | 4,889.10 | 26.83 | 194.47 | -134.79 | 19.01 | -1,544.42 | 3,038.13 | 2,816.03 | 222.10 | 13.679 | |
| 8,000.00 | 7,871.05 | 4,892.00 | 4,889.10 | 26.97 | 194.47 | -134.79 | 19.01 | -1,544.42 | 3,132.76 | 2,910.53 | 222.24 | 14.096 | |
| 8,100.00 | 7,971.05 | 4,892.00 | 4,889.10 | 27.11 | 194.47 | -134.79 | 19.01 | -1,544.42 | 3,227.72 | 3,005.34 | 222.38 | 14.514 | |
| 8,170.95 | 8,042.00 | 4,892.00 | 4,889.10 | 27.21 | 194.47 | -134.79 | 19.01 | -1,544.42 | 3,295.28 | 3,072.80 | 222.48 | 14.812 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design | | Riverbend 7-13 PAD - HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S. CHIKUMA G.U. B #1 EX | | | | | | | | | | 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 | 18.19 | 521.27 | 171.32 | 548.99 | | | | |
| 100.00 | 100.00 | 75.16 | 75.16 | 0.10 | 1.50 | 18.18 | 521.76 | 171.32 | 549.21 | 547.61 | 1.60 | 343.249 | |
| 200.00 | 200.00 | 166.78 | 166.75 | 0.32 | 4.68 | 18.11 | 523.69 | 171.32 | 551.22 | 546.22 | 5.00 | 110.286 | |
| 300.00 | 300.00 | 263.68 | 263.60 | 0.55 | 8.57 | 18.01 | 526.98 | 171.32 | 554.43 | 545.32 | 9.11 | 60.863 | |
| 400.00 | 400.00 | 363.62 | 363.48 | 0.77 | 12.58 | 17.90 | 530.47 | 171.32 | 557.75 | 544.41 | 13.34 | 41.795 | |
| 500.00 | 500.00 | 463.56 | 463.35 | 0.99 | 16.60 | 17.79 | 533.96 | 171.32 | 561.08 | 543.50 | 17.58 | 31.914 | |
| 600.00 | 600.00 | 563.49 | 563.23 | 1.22 | 20.61 | 17.68 | 537.44 | 171.32 | 564.40 | 542.58 | 21.82 | 25.870 | |
| 700.00 | 700.00 | 663.43 | 663.11 | 1.44 | 24.62 | 17.57 | 540.93 | 171.32 | 567.73 | 541.67 | 26.05 | 21.792 | |
| 800.00 | 800.00 | 763.37 | 762.99 | 1.67 | 28.64 | 17.47 | 544.42 | 171.32 | 571.06 | 540.77 | 30.29 | 18.854 | |
| 900.00 | 900.00 | 863.31 | 862.87 | 1.89 | 32.65 | 17.36 | 547.91 | 171.32 | 574.39 | 539.86 | 34.52 | 16.637 | |
| 1,000.00 | 1,000.00 | 963.25 | 962.74 | 2.12 | 36.67 | 17.26 | 551.40 | 171.32 | 577.72 | 538.96 | 38.76 | 14.905 | |
| 1,100.00 | 1,099.98 | 1,063.21 | 1,062.64 | 2.34 | 40.68 | 66.51 | 554.88 | 171.32 | 580.35 | 537.48 | 42.87 | 13.536 | |
| 1,200.00 | 1,199.84 | 1,163.13 | 1,162.50 | 2.56 | 44.69 | 66.86 | 558.37 | 171.32 | 581.61 | 534.52 | 47.10 | 12.349 | |
| 1,300.00 | 1,299.45 | 1,262.88 | 1,262.19 | 2.79 | 48.70 | 67.55 | 561.85 | 171.32 | 581.55 | 530.24 | 51.32 | 11.332 | |
| 1,400.00 | 1,398.70 | 1,362.34 | 1,361.60 | 3.04 | 52.70 | 68.57 | 565.32 | 171.32 | 580.29 | 524.75 | 55.54 | 10.448 | |
| 1,500.00 | 1,497.47 | 1,461.40 | 1,460.60 | 3.31 | 56.67 | 69.93 | 568.78 | 171.32 | 578.00 | 518.24 | 59.77 | 9.671 | |
| 1,600.00 | 1,595.62 | 1,559.94 | 1,559.07 | 3.63 | 60.63 | 71.63 | 572.22 | 171.32 | 574.91 | 510.91 | 64.01 | 8.982 | |
| 1,701.80 | 1,694.80 | 1,659.58 | 1,658.65 | 3.99 | 64.63 | 73.71 | 575.70 | 171.32 | 571.26 | 502.90 | 68.36 | 8.357 | |
| 1,800.00 | 1,790.07 | 1,755.33 | 1,754.34 | 4.38 | 68.48 | 75.83 | 579.04 | 171.32 | 568.00 | 495.39 | 72.60 | 7.823 | |
| 1,900.00 | 1,887.08 | 1,852.84 | 1,851.79 | 4.80 | 72.40 | 78.00 | 582.44 | 171.32 | 565.52 | 488.57 | 76.95 | 7.349 | |
| 2,000.00 | 1,984.10 | 1,950.35 | 1,949.24 | 5.24 | 76.31 | 80.19 | 585.84 | 171.32 | 563.91 | 482.60 | 81.32 | 6.935 | |
| 2,100.00 | 2,081.11 | 2,047.85 | 2,046.69 | 5.69 | 80.23 | 82.39 | 589.25 | 171.32 | 563.17 | 477.48 | 85.69 | 6.572 | |
| 2,134.85 | 2,114.92 | 2,081.83 | 2,080.65 | 5.85 | 81.60 | 83.16 | 590.43 | 171.32 | 563.12 | 475.90 | 87.22 | 6.456 | |
| 2,200.00 | 2,178.13 | 2,145.36 | 2,144.14 | 6.15 | 84.15 | 84.59 | 592.65 | 171.32 | 563.30 | 473.23 | 90.07 | 6.254 | |
| 2,300.00 | 2,275.14 | 2,242.87 | 2,241.58 | 6.62 | 88.06 | 86.79 | 596.05 | 171.32 | 564.31 | 469.86 | 94.45 | 5.974 | |
| 2,400.00 | 2,372.16 | 2,340.38 | 2,339.03 | 7.09 | 91.98 | 88.97 | 599.46 | 171.32 | 566.18 | 467.35 | 98.83 | 5.729 | |
| 2,500.00 | 2,469.17 | 2,437.88 | 2,436.48 | 7.57 | 95.90 | 91.14 | 602.86 | 171.32 | 568.92 | 465.71 | 103.21 | 5.512 | |
| 2,600.00 | 2,566.18 | 2,535.39 | 2,533.93 | 8.05 | 99.81 | 93.29 | 606.26 | 171.32 | 572.50 | 464.93 | 107.57 | 5.322 ES | |
| 2,700.00 | 2,663.20 | 2,632.90 | 2,631.38 | 8.54 | 103.73 | 95.41 | 609.67 | 171.32 | 576.91 | 464.98 | 111.92 | 5.154 | |
| 2,800.00 | 2,760.21 | 2,730.41 | 2,728.83 | 9.03 | 107.65 | 97.49 | 613.07 | 171.32 | 582.13 | 465.87 | 116.27 | 5.007 | |
| 2,900.00 | 2,857.23 | 2,827.92 | 2,826.27 | 9.52 | 111.56 | 99.54 | 616.47 | 171.32 | 588.15 | 467.56 | 120.59 | 4.877 | |
| 3,000.00 | 2,954.24 | 2,925.42 | 2,923.72 | 10.02 | 115.48 | 101.54 | 619.87 | 171.32 | 594.93 | 470.03 | 124.90 | 4.763 | |
| 3,100.00 | 3,051.26 | 3,022.93 | 3,021.17 | 10.52 | 119.40 | 103.50 | 623.28 | 171.32 | 602.46 | 473.26 | 129.20 | 4.663 | |
| 3,200.00 | 3,148.27 | 3,120.44 | 3,118.62 | 11.01 | 123.31 | 105.41 | 626.68 | 171.32 | 610.69 | 477.22 | 133.48 | 4.575 | |
| 3,300.00 | 3,245.28 | 3,217.95 | 3,216.07 | 11.51 | 127.23 | 107.27 | 630.08 | 171.32 | 619.62 | 481.88 | 137.74 | 4.498 | |
| 3,400.00 | 3,342.30 | 3,315.45 | 3,313.52 | 12.01 | 131.15 | 109.08 | 633.49 | 171.32 | 629.20 | 487.21 | 141.99 | 4.431 | |
| 3,500.00 | 3,439.31 | 3,412.96 | 3,410.96 | 12.52 | 135.06 | 110.83 | 636.89 | 171.32 | 639.40 | 493.18 | 146.22 | 4.373 | |
| 3,600.00 | 3,536.33 | 3,510.47 | 3,508.41 | 13.02 | 138.98 | 112.53 | 640.29 | 171.32 | 650.21 | 499.77 | 150.43 | 4.322 | |
| 3,700.00 | 3,633.34 | 3,607.98 | 3,605.86 | 13.52 | 142.90 | 114.17 | 643.69 | 171.32 | 661.58 | 506.94 | 154.63 | 4.278 | |
| 3,800.00 | 3,730.36 | 3,705.49 | 3,703.31 | 14.03 | 146.81 | 115.76 | 647.10 | 171.32 | 673.49 | 514.67 | 158.82 | 4.241 | |
| 3,900.00 | 3,827.37 | 3,802.99 | 3,800.76 | 14.53 | 150.73 | 117.30 | 650.50 | 171.32 | 685.91 | 522.92 | 162.99 | 4.208 | |
| 4,000.00 | 3,924.39 | 3,900.50 | 3,898.21 | 15.04 | 154.65 | 118.78 | 653.90 | 171.32 | 698.81 | 531.66 | 167.15 | 4.181 | |
| 4,100.00 | 4,021.40 | 3,998.01 | 3,995.66 | 15.54 | 158.56 | 120.21 | 657.31 | 171.32 | 712.17 | 540.87 | 171.30 | 4.157 | |
| 4,200.00 | 4,118.41 | 4,095.52 | 4,093.10 | 16.05 | 162.48 | 121.58 | 660.71 | 171.32 | 725.97 | 550.53 | 175.44 | 4.138 | |
| 4,300.00 | 4,215.43 | 4,193.03 | 4,190.55 | 16.56 | 166.39 | 122.91 | 664.11 | 171.32 | 740.17 | 560.60 | 179.57 | 4.122 | |
| 4,400.00 | 4,312.44 | 4,290.53 | 4,288.00 | 17.06 | 170.31 | 124.19 | 667.52 | 171.32 | 754.76 | 571.07 | 183.69 | 4.109 | |
| 4,500.00 | 4,409.46 | 4,388.04 | 4,385.45 | 17.57 | 174.23 | 125.42 | 670.92 | 171.32 | 769.71 | 581.91 | 187.80 | 4.099 | |
| 4,600.00 | 4,506.47 | 4,485.55 | 4,482.90 | 18.08 | 178.14 | 126.60 | 674.32 | 171.32 | 785.00 | 593.10 | 191.91 | 4.091 | |
| 4,700.00 | 4,603.49 | 4,583.06 | 4,580.35 | 18.59 | 182.06 | 127.74 | 677.72 | 171.32 | 800.62 | 604.61 | 196.00 | 4.085 | |
| 4,800.00 | 4,700.50 | 4,680.56 | 4,677.79 | 19.10 | 185.98 | 128.83 | 681.13 | 171.32 | 816.54 | 616.44 | 200.10 | 4.081 | |
| 4,900.00 | 4,797.51 | 4,778.07 | 4,775.24 | 19.61 | 189.89 | 129.89 | 684.53 | 171.32 | 832.74 | 628.56 | 204.18 | 4.078 | |
| 5,000.00 | 4,894.53 | 4,875.58 | 4,872.69 | 20.12 | 193.81 | 130.90 | 687.93 | 171.32 | 849.22 | 640.96 | 208.27 | 4.078 | |

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_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design | | Riverbend 7-13 PAD - HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S. CHIKUMA G.U. B #1 EX | | | | | | | | | | 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 |
| 5,100.00 | 4,991.54 | 4,973.09 | 4,970.14 | 20.63 | 197.73 | 131.88 | 691.34 | 171.32 | 865.95 | 653.61 | 212.34 | 4.078 | |
| 5,200.00 | 5,088.56 | 5,070.60 | 5,067.59 | 21.14 | 201.64 | 132.82 | 694.74 | 171.32 | 882.93 | 666.51 | 216.42 | 4.080 | |
| 5,300.00 | 5,185.57 | 5,168.10 | 5,165.04 | 21.65 | 205.56 | 133.72 | 698.14 | 171.32 | 900.12 | 679.64 | 220.49 | 4.082 | |
| 5,400.00 | 5,282.59 | 5,265.61 | 5,262.48 | 22.16 | 209.48 | 134.59 | 701.55 | 171.32 | 917.54 | 692.98 | 224.56 | 4.086 | |
| 5,500.00 | 5,379.60 | 5,363.12 | 5,359.93 | 22.67 | 213.39 | 135.43 | 704.95 | 171.32 | 935.15 | 706.53 | 228.62 | 4.090 | |
| 5,552.15 | 5,430.20 | 5,413.97 | 5,410.76 | 22.93 | 215.44 | 135.86 | 706.72 | 171.32 | 944.42 | 713.67 | 230.74 | 4.093 | |
| 5,600.00 | 5,476.71 | 5,460.71 | 5,457.47 | 23.14 | 217.31 | 136.34 | 708.35 | 171.32 | 952.68 | 719.58 | 233.10 | 4.087 | |
| 5,700.00 | 5,574.49 | 5,558.91 | 5,555.61 | 23.50 | 221.26 | 137.20 | 711.78 | 171.32 | 968.19 | 730.23 | 237.96 | 4.069 | |
| 5,800.00 | 5,672.94 | 5,657.70 | 5,654.34 | 23.81 | 225.23 | 137.87 | 715.23 | 171.32 | 981.27 | 738.49 | 242.78 | 4.042 | |
| 5,900.00 | 5,771.94 | 5,756.96 | 5,753.54 | 24.08 | 229.21 | 138.35 | 718.69 | 171.32 | 991.83 | 744.33 | 247.50 | 4.007 | |
| 6,000.00 | 5,871.38 | 5,856.58 | 5,853.09 | 24.31 | 233.21 | 138.66 | 722.17 | 171.32 | 999.82 | 747.71 | 252.11 | 3.966 | |
| 6,100.00 | 5,971.12 | 5,956.42 | 5,952.87 | 24.49 | 237.22 | 138.80 | 725.65 | 171.32 | 1,005.20 | 748.62 | 256.58 | 3.918 | |
| 6,200.00 | 6,071.05 | 6,056.37 | 6,052.76 | 24.63 | 241.24 | 138.78 | 729.14 | 171.32 | 1,007.96 | 747.07 | 260.89 | 3.864 | |
| 6,253.95 | 6,125.00 | 6,110.30 | 6,106.66 | 24.69 | 243.41 | 89.45 | 731.02 | 171.32 | 1,008.35 | 745.21 | 263.14 | 3.832 | |
| 6,300.00 | 6,171.05 | 6,156.32 | 6,152.65 | 24.74 | 245.25 | 89.36 | 732.63 | 171.32 | 1,008.37 | 743.31 | 265.07 | 3.804 | |
| 6,400.00 | 6,271.05 | 6,256.26 | 6,252.53 | 24.86 | 249.27 | 89.16 | 736.12 | 171.32 | 1,008.42 | 739.16 | 269.26 | 3.745 | |
| 6,500.00 | 6,371.05 | 6,356.20 | 6,352.41 | 24.98 | 253.28 | 88.96 | 739.61 | 171.32 | 1,008.47 | 735.03 | 273.45 | 3.688 | |
| 6,600.00 | 6,471.05 | 6,456.14 | 6,452.28 | 25.11 | 257.30 | 88.76 | 743.09 | 171.32 | 1,008.54 | 730.91 | 277.64 | 3.633 | |
| 6,700.00 | 6,571.05 | 6,556.07 | 6,552.16 | 25.23 | 261.31 | 88.56 | 746.58 | 171.32 | 1,008.63 | 726.79 | 281.83 | 3.579 | |
| 6,800.00 | 6,671.05 | 6,656.01 | 6,652.04 | 25.36 | 265.32 | 88.36 | 750.07 | 171.32 | 1,008.72 | 722.69 | 286.02 | 3.527 | |
| 6,900.00 | 6,771.05 | 6,755.95 | 6,751.92 | 25.48 | 269.34 | 88.17 | 753.56 | 171.32 | 1,008.82 | 718.61 | 290.22 | 3.476 | |
| 7,000.00 | 6,871.05 | 6,855.89 | 6,851.80 | 25.61 | 273.35 | 87.97 | 757.05 | 171.32 | 1,008.94 | 714.53 | 294.41 | 3.427 | |
| 7,100.00 | 6,971.05 | 6,955.83 | 6,951.67 | 25.74 | 277.37 | 87.77 | 760.53 | 171.32 | 1,009.07 | 710.46 | 298.61 | 3.379 | |
| 7,200.00 | 7,071.05 | 7,055.77 | 7,051.55 | 25.87 | 281.38 | 87.57 | 764.02 | 171.32 | 1,009.21 | 706.41 | 302.81 | 3.333 | |
| 7,300.00 | 7,171.05 | 7,155.71 | 7,151.43 | 26.01 | 285.40 | 87.38 | 767.51 | 171.32 | 1,009.37 | 702.36 | 307.01 | 3.288 | |
| 7,400.00 | 7,271.05 | 7,255.65 | 7,251.31 | 26.14 | 289.41 | 87.18 | 771.00 | 171.32 | 1,009.53 | 698.33 | 311.20 | 3.244 | |
| 7,500.00 | 7,371.05 | 7,355.59 | 7,351.19 | 26.27 | 293.42 | 86.98 | 774.48 | 171.32 | 1,009.71 | 694.31 | 315.40 | 3.201 | |
| 7,600.00 | 7,471.05 | 7,455.53 | 7,451.07 | 26.41 | 297.44 | 86.78 | 777.97 | 171.32 | 1,009.90 | 690.30 | 319.60 | 3.160 | |
| 7,700.00 | 7,571.05 | 7,555.47 | 7,550.94 | 26.55 | 301.45 | 86.58 | 781.46 | 171.32 | 1,010.10 | 686.30 | 323.81 | 3.119 | |
| 7,800.00 | 7,671.05 | 7,655.40 | 7,650.82 | 26.69 | 305.47 | 86.39 | 784.95 | 171.32 | 1,010.32 | 682.31 | 328.01 | 3.080 | |
| 7,900.00 | 7,771.05 | 7,755.34 | 7,750.70 | 26.83 | 309.48 | 86.19 | 788.44 | 171.32 | 1,010.54 | 678.33 | 332.21 | 3.042 | |
| 8,000.00 | 7,871.05 | 7,855.28 | 7,850.58 | 26.97 | 313.50 | 85.99 | 791.92 | 171.32 | 1,010.78 | 674.37 | 336.41 | 3.005 | |
| 8,100.00 | 7,971.05 | 7,955.22 | 7,950.46 | 27.11 | 317.51 | 85.80 | 795.41 | 171.32 | 1,011.03 | 670.42 | 340.62 | 2.968 | |
| 8,170.95 | 8,042.00 | 8,026.13 | 8,021.32 | 27.21 | 320.36 | 85.66 | 797.89 | 171.32 | 1,011.22 | 667.62 | 343.60 | 2.943 SF | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - P_Riverbend 24-13 - P_Riverbend 24-13 - PLAN #1 6-21-10 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 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 90.04 | -0.01 | 16.24 | 16.24 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | 90.04 | -0.01 | 16.24 | 16.24 | 16.05 | 0.19 | 84.984 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | 90.04 | -0.01 | 16.24 | 16.24 | 15.60 | 0.64 | 25.346 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.55 | 0.55 | 90.04 | -0.01 | 16.24 | 16.24 | 15.15 | 1.09 | 14.894 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 0.77 | 0.77 | 90.04 | -0.01 | 16.24 | 16.24 | 14.70 | 1.54 | 10.546 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 0.99 | 0.99 | 90.04 | -0.01 | 16.24 | 16.24 | 14.25 | 1.99 | 8.162 | |
| 600.00 | 600.00 | 600.00 | 600.00 | 1.22 | 1.22 | 90.04 | -0.01 | 16.24 | 16.24 | 13.80 | 2.44 | 6.658 | |
| 700.00 | 700.00 | 700.00 | 700.00 | 1.44 | 1.44 | 90.04 | -0.01 | 16.24 | 16.24 | 13.35 | 2.89 | 5.622 | |
| 800.00 | 800.00 | 800.00 | 800.00 | 1.67 | 1.67 | 90.04 | -0.01 | 16.24 | 16.24 | 12.90 | 3.34 | 4.864 | |
| 900.00 | 900.00 | 900.00 | 900.00 | 1.89 | 1.89 | 90.04 | -0.01 | 16.24 | 16.24 | 12.45 | 3.79 | 4.287 | |
| 1,000.00 | 1,000.00 | 1,000.00 | 1,000.00 | 2.12 | 2.12 | 90.04 | -0.01 | 16.24 | 16.24 | 12.00 | 4.24 | 3.832 CC, ES, SF | |
| 1,100.00 | 1,099.98 | 1,099.53 | 1,099.51 | 2.34 | 2.32 | 146.90 | -1.38 | 17.30 | 18.79 | 14.14 | 4.65 | 4.040 | |
| 1,200.00 | 1,199.84 | 1,198.35 | 1,198.20 | 2.56 | 2.50 | 160.34 | -5.43 | 20.45 | 27.65 | 22.62 | 5.04 | 5.490 | |
| 1,300.00 | 1,299.45 | 1,295.77 | 1,295.24 | 2.79 | 2.69 | 169.85 | -12.06 | 25.59 | 43.82 | 38.40 | 5.42 | 8.083 | |
| 1,400.00 | 1,398.70 | 1,391.13 | 1,389.91 | 3.04 | 2.91 | 175.28 | -21.07 | 32.59 | 67.11 | 61.31 | 5.80 | 11.568 | |
| 1,500.00 | 1,497.47 | 1,486.08 | 1,483.88 | 3.31 | 3.14 | 178.36 | -31.83 | 40.95 | 96.32 | 90.14 | 6.18 | 15.582 | |
| 1,600.00 | 1,595.62 | 1,580.50 | 1,577.31 | 3.63 | 3.40 | -179.96 | -42.61 | 49.33 | 129.09 | 122.53 | 6.56 | 19.676 | |
| 1,701.80 | 1,694.80 | 1,675.39 | 1,671.20 | 3.99 | 3.67 | -178.96 | -53.45 | 57.75 | 165.88 | 158.94 | 6.94 | 23.890 | |
| 1,800.00 | 1,790.07 | 1,766.27 | 1,761.13 | 4.38 | 3.94 | -178.36 | -63.83 | 65.81 | 203.02 | 195.65 | 7.37 | 27.546 | |
| 1,900.00 | 1,887.08 | 1,858.83 | 1,852.71 | 4.80 | 4.22 | -177.93 | -74.41 | 74.02 | 240.85 | 233.04 | 7.81 | 30.829 | |
| 2,000.00 | 1,984.10 | 1,951.39 | 1,944.30 | 5.24 | 4.51 | -177.63 | -84.98 | 82.24 | 278.69 | 270.43 | 8.26 | 33.733 | |
| 2,100.00 | 2,081.11 | 2,043.94 | 2,035.88 | 5.69 | 4.80 | -177.39 | -95.55 | 90.45 | 316.53 | 307.82 | 8.72 | 36.315 | |
| 2,200.00 | 2,178.13 | 2,136.50 | 2,127.46 | 6.15 | 5.10 | -177.21 | -106.12 | 98.66 | 354.38 | 345.21 | 9.18 | 38.621 | |
| 2,300.00 | 2,275.14 | 2,229.05 | 2,219.04 | 6.62 | 5.40 | -177.06 | -116.70 | 106.87 | 392.23 | 382.59 | 9.64 | 40.689 | |
| 2,400.00 | 2,372.16 | 2,321.61 | 2,310.62 | 7.09 | 5.71 | -176.94 | -127.27 | 115.09 | 430.09 | 419.98 | 10.11 | 42.552 | |
| 2,500.00 | 2,469.17 | 2,414.16 | 2,402.21 | 7.57 | 6.02 | -176.83 | -137.84 | 123.30 | 467.94 | 457.36 | 10.58 | 44.238 | |
| 2,600.00 | 2,566.18 | 2,506.72 | 2,493.79 | 8.05 | 6.33 | -176.75 | -148.41 | 131.51 | 505.80 | 494.74 | 11.05 | 45.769 | |
| 2,700.00 | 2,663.20 | 2,599.27 | 2,585.37 | 8.54 | 6.65 | -176.67 | -158.99 | 139.72 | 543.65 | 532.12 | 11.53 | 47.165 | |
| 2,800.00 | 2,760.21 | 2,691.83 | 2,676.95 | 9.03 | 6.96 | -176.61 | -169.56 | 147.93 | 581.51 | 569.50 | 12.00 | 48.441 | |
| 2,900.00 | 2,857.23 | 2,784.39 | 2,768.54 | 9.52 | 7.28 | -176.55 | -180.13 | 156.15 | 619.36 | 606.88 | 12.48 | 49.613 | |
| 3,000.00 | 2,954.24 | 2,876.94 | 2,860.12 | 10.02 | 7.60 | -176.50 | -190.70 | 164.36 | 657.22 | 644.26 | 12.97 | 50.691 | |
| 3,100.00 | 3,051.26 | 2,969.50 | 2,951.70 | 10.52 | 7.92 | -176.45 | -201.27 | 172.57 | 695.08 | 681.63 | 13.45 | 51.686 | |
| 3,200.00 | 3,148.27 | 3,062.05 | 3,043.28 | 11.01 | 8.24 | -176.41 | -211.85 | 180.78 | 732.94 | 719.01 | 13.93 | 52.608 | |
| 3,300.00 | 3,245.28 | 3,154.61 | 3,134.86 | 11.51 | 8.56 | -176.37 | -222.42 | 189.00 | 770.80 | 756.38 | 14.42 | 53.464 | |
| 3,400.00 | 3,342.30 | 3,247.16 | 3,226.45 | 12.01 | 8.88 | -176.34 | -232.99 | 197.21 | 808.66 | 793.75 | 14.90 | 54.259 | |
| 3,500.00 | 3,439.31 | 3,339.72 | 3,318.03 | 12.52 | 9.21 | -176.31 | -243.56 | 205.42 | 846.51 | 831.12 | 15.39 | 55.002 | |
| 3,600.00 | 3,536.33 | 3,432.27 | 3,409.61 | 13.02 | 9.53 | -176.28 | -254.14 | 213.63 | 884.37 | 868.50 | 15.88 | 55.695 | |
| 3,700.00 | 3,633.34 | 3,524.83 | 3,501.19 | 13.52 | 9.86 | -176.26 | -264.71 | 221.85 | 922.23 | 905.87 | 16.37 | 56.345 | |
| 3,800.00 | 3,730.36 | 3,617.39 | 3,592.78 | 14.03 | 10.18 | -176.24 | -275.28 | 230.06 | 960.09 | 943.24 | 16.86 | 56.954 | |
| 3,900.00 | 3,827.37 | 3,709.94 | 3,684.36 | 14.53 | 10.51 | -176.21 | -285.85 | 238.27 | 997.95 | 980.61 | 17.35 | 57.527 | |
| 4,000.00 | 3,924.39 | 3,802.50 | 3,775.94 | 15.04 | 10.83 | -176.19 | -296.43 | 246.48 | 1,035.81 | 1,017.97 | 17.84 | 58.066 | |
| 4,100.00 | 4,021.40 | 3,895.05 | 3,867.52 | 15.54 | 11.16 | -176.17 | -307.00 | 254.69 | 1,073.67 | 1,055.34 | 18.33 | 58.575 | |
| 4,200.00 | 4,118.41 | 3,987.61 | 3,959.11 | 16.05 | 11.49 | -176.16 | -317.57 | 262.91 | 1,111.53 | 1,092.71 | 18.82 | 59.055 | |
| 4,300.00 | 4,215.43 | 4,080.16 | 4,050.69 | 16.56 | 11.82 | -176.14 | -328.14 | 271.12 | 1,149.39 | 1,130.08 | 19.31 | 59.510 | |
| 4,400.00 | 4,312.44 | 4,172.72 | 4,142.27 | 17.06 | 12.14 | -176.13 | -338.71 | 279.33 | 1,187.25 | 1,167.45 | 19.81 | 59.940 | |
| 4,500.00 | 4,409.46 | 4,265.27 | 4,233.85 | 17.57 | 12.47 | -176.11 | -349.29 | 287.54 | 1,225.11 | 1,204.81 | 20.30 | 60.349 | |
| 4,600.00 | 4,506.47 | 4,357.83 | 4,325.43 | 18.08 | 12.80 | -176.10 | -359.86 | 295.76 | 1,262.97 | 1,242.18 | 20.79 | 60.736 | |
| 4,700.00 | 4,603.49 | 4,450.39 | 4,417.02 | 18.59 | 13.13 | -176.09 | -370.43 | 303.97 | 1,300.83 | 1,279.54 | 21.29 | 61.105 | |
| 4,800.00 | 4,700.50 | 4,542.94 | 4,508.60 | 19.10 | 13.46 | -176.07 | -381.00 | 312.18 | 1,338.69 | 1,316.91 | 21.78 | 61.457 | |
| 4,900.00 | 4,797.51 | 4,635.50 | 4,600.18 | 19.61 | 13.79 | -176.06 | -391.58 | 320.39 | 1,376.55 | 1,354.28 | 22.28 | 61.791 | |
| 5,000.00 | 4,894.53 | 4,728.05 | 4,691.76 | 20.12 | 14.12 | -176.05 | -402.15 | 328.60 | 1,414.41 | 1,391.64 | 22.77 | 62.111 | |
| 5,100.00 | 4,991.54 | 4,820.61 | 4,783.35 | 20.63 | 14.44 | -176.04 | -412.72 | 336.82 | 1,452.28 | 1,429.01 | 23.27 | 62.416 | |

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_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - P_Riverbend 24-13 - P_Riverbend 24-13 - PLAN #1 6-21-10 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 | |
| 5,200.00 | 5,088.56 | 4,913.16 | 4,874.93 | 21.14 | 14.77 | -176.03 | -423.29 | 345.03 | 1,490.14 | 1,466.37 | 23.76 | 62.708 | |
| 5,300.00 | 5,185.57 | 5,005.72 | 4,966.51 | 21.65 | 15.10 | -176.02 | -433.87 | 353.24 | 1,528.00 | 1,503.74 | 24.26 | 62.987 | |
| 5,400.00 | 5,282.59 | 5,098.27 | 5,058.09 | 22.16 | 15.43 | -176.02 | -444.44 | 361.45 | 1,565.86 | 1,541.10 | 24.75 | 63.255 | |
| 5,500.00 | 5,379.60 | 5,190.83 | 5,149.68 | 22.67 | 15.76 | -176.01 | -455.01 | 369.67 | 1,603.72 | 1,578.47 | 25.25 | 63.511 | |
| 5,552.15 | 5,430.20 | 5,239.10 | 5,197.44 | 22.93 | 15.94 | -176.00 | -460.52 | 373.95 | 1,623.46 | 1,597.95 | 25.51 | 63.641 | |
| 5,600.00 | 5,476.71 | 5,283.53 | 5,241.40 | 23.14 | 16.09 | -176.02 | -465.60 | 377.89 | 1,641.21 | 1,615.40 | 25.81 | 63.590 | |
| 5,700.00 | 5,574.49 | 5,377.32 | 5,334.20 | 23.50 | 16.43 | -176.06 | -476.31 | 386.21 | 1,675.89 | 1,649.51 | 26.39 | 63.515 | |
| 5,800.00 | 5,672.94 | 5,472.26 | 5,428.14 | 23.81 | 16.77 | -176.08 | -487.16 | 394.64 | 1,707.29 | 1,680.36 | 26.93 | 63.400 | |
| 5,900.00 | 5,771.94 | 5,568.22 | 5,523.10 | 24.08 | 17.11 | -176.09 | -498.12 | 403.15 | 1,735.36 | 1,707.93 | 27.44 | 63.250 | |
| 6,000.00 | 5,871.38 | 5,665.11 | 5,618.97 | 24.31 | 17.46 | -176.09 | -509.19 | 411.75 | 1,760.08 | 1,732.17 | 27.91 | 63.070 | |
| 6,100.00 | 5,971.12 | 5,767.15 | 5,739.76 | 24.49 | 17.87 | -176.06 | -522.91 | 422.41 | 1,781.30 | 1,752.91 | 28.39 | 62.746 | |
| 6,200.00 | 6,071.05 | 6,047.53 | 5,999.09 | 24.63 | 18.41 | -176.00 | -540.55 | 436.11 | 1,793.42 | 1,764.39 | 29.04 | 61.758 | |
| 6,253.95 | 6,125.00 | 6,173.47 | 6,125.00 | 24.69 | 18.61 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,765.48 | 29.34 | 61.178 | |
| 6,300.00 | 6,171.05 | 6,219.51 | 6,171.05 | 24.74 | 18.67 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,765.31 | 29.50 | 60.840 | |
| 6,400.00 | 6,271.05 | 6,319.51 | 6,271.05 | 24.86 | 18.81 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,764.95 | 29.86 | 60.100 | |
| 6,500.00 | 6,371.05 | 6,419.51 | 6,371.05 | 24.98 | 18.94 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,764.58 | 30.23 | 59.373 | |
| 6,600.00 | 6,471.05 | 6,519.51 | 6,471.05 | 25.11 | 19.08 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,764.22 | 30.60 | 58.659 | |
| 6,700.00 | 6,571.05 | 6,619.51 | 6,571.05 | 25.23 | 19.22 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,763.85 | 30.97 | 57.958 | |
| 6,800.00 | 6,671.05 | 6,719.51 | 6,671.05 | 25.36 | 19.36 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,763.47 | 31.34 | 57.270 | |
| 6,900.00 | 6,771.05 | 6,819.51 | 6,771.05 | 25.48 | 19.51 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,763.10 | 31.71 | 56.594 | |
| 7,000.00 | 6,871.05 | 6,919.51 | 6,871.05 | 25.61 | 19.65 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,762.72 | 32.09 | 55.931 | |
| 7,100.00 | 6,971.05 | 7,019.51 | 6,971.05 | 25.74 | 19.80 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,762.35 | 32.47 | 55.280 | |
| 7,200.00 | 7,071.05 | 7,119.51 | 7,071.05 | 25.87 | 19.95 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,761.97 | 32.85 | 54.641 | |
| 7,300.00 | 7,171.05 | 7,219.51 | 7,171.05 | 26.01 | 20.10 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,761.58 | 33.23 | 54.013 | |
| 7,400.00 | 7,271.05 | 7,319.51 | 7,271.05 | 26.14 | 20.25 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,761.20 | 33.61 | 53.397 | |
| 7,500.00 | 7,371.05 | 7,419.51 | 7,371.05 | 26.27 | 20.40 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,760.82 | 34.00 | 52.793 | |
| 7,600.00 | 7,471.05 | 7,519.51 | 7,471.05 | 26.41 | 20.55 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,760.43 | 34.38 | 52.199 | |
| 7,700.00 | 7,571.05 | 7,619.51 | 7,571.05 | 26.55 | 20.71 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,760.04 | 34.77 | 51.617 | |
| 7,800.00 | 7,671.05 | 7,719.51 | 7,671.05 | 26.69 | 20.86 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,759.65 | 35.16 | 51.045 | |
| 7,900.00 | 7,771.05 | 7,819.51 | 7,771.05 | 26.83 | 21.02 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,759.26 | 35.55 | 50.484 | |
| 8,000.00 | 7,871.05 | 7,919.51 | 7,871.05 | 26.97 | 21.18 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,758.87 | 35.94 | 49.933 | |
| 8,100.00 | 7,971.05 | 8,019.51 | 7,971.05 | 27.11 | 21.34 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,758.48 | 36.34 | 49.392 | |
| 8,143.42 | 8,014.47 | 8,062.94 | 8,014.47 | 27.17 | 21.41 | 134.75 | -542.40 | 437.55 | 1,794.81 | 1,758.30 | 36.51 | 49.161 | |
| 8,170.95 | 8,042.00 | 8,080.47 | 8,032.00 | 27.21 | 21.44 | 134.75 | -542.40 | 437.55 | 1,794.84 | 1,758.24 | 36.60 | 49.042 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | 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 | -90.05 | -0.01 | -15.96 | 15.96 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | -90.05 | -0.01 | -15.96 | 15.96 | 15.77 | 0.19 | 83.519 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | -90.05 | -0.01 | -15.96 | 15.96 | 15.32 | 0.64 | 24.909 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.55 | 0.55 | -90.05 | -0.01 | -15.96 | 15.96 | 14.87 | 1.09 | 14.637 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 0.77 | 0.77 | -90.05 | -0.01 | -15.96 | 15.96 | 14.42 | 1.54 | 10.364 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 0.99 | 0.99 | -90.05 | -0.01 | -15.96 | 15.96 | 13.97 | 1.99 | 8.022 | |
| 600.00 | 600.00 | 600.00 | 600.00 | 1.22 | 1.22 | -90.05 | -0.01 | -15.96 | 15.96 | 13.52 | 2.44 | 6.543 | |
| 700.00 | 700.00 | 700.00 | 700.00 | 1.44 | 1.44 | -90.05 | -0.01 | -15.96 | 15.96 | 13.07 | 2.89 | 5.525 | |
| 800.00 | 800.00 | 800.00 | 800.00 | 1.67 | 1.67 | -90.05 | -0.01 | -15.96 | 15.96 | 12.62 | 3.34 | 4.781 | |
| 900.00 | 900.00 | 900.00 | 900.00 | 1.89 | 1.89 | -90.05 | -0.01 | -15.96 | 15.96 | 12.17 | 3.79 | 4.213 | |
| 1,000.00 | 1,000.00 | 1,000.00 | 1,000.00 | 2.12 | 2.12 | -90.05 | -0.01 | -15.96 | 15.96 | 11.72 | 4.24 | 3.766 CC | |
| 1,000.23 | 1,000.23 | 1,000.23 | 1,000.23 | 2.12 | 2.12 | -90.05 | -0.01 | -15.96 | 15.96 | 11.72 | 4.24 | 3.765 | |
| 1,100.00 | 1,099.98 | 1,099.50 | 1,099.48 | 2.34 | 2.32 | -48.22 | -0.98 | -17.39 | 16.21 | 11.56 | 4.66 | 3.482 ES, SF | |
| 1,200.00 | 1,199.84 | 1,198.73 | 1,198.57 | 2.56 | 2.51 | -67.71 | -3.85 | -21.68 | 18.46 | 13.41 | 5.06 | 3.649 | |
| 1,300.00 | 1,299.45 | 1,297.43 | 1,296.90 | 2.79 | 2.71 | -88.34 | -8.61 | -28.76 | 25.43 | 19.95 | 5.49 | 4.637 | |
| 1,400.00 | 1,398.70 | 1,395.36 | 1,394.10 | 3.04 | 2.94 | -102.10 | -15.20 | -38.57 | 37.96 | 32.02 | 5.94 | 6.393 | |
| 1,500.00 | 1,497.47 | 1,492.26 | 1,489.84 | 3.31 | 3.19 | -110.04 | -23.54 | -50.98 | 55.51 | 49.08 | 6.43 | 8.639 | |
| 1,600.00 | 1,595.62 | 1,587.92 | 1,583.80 | 3.63 | 3.48 | -114.65 | -33.54 | -65.86 | 77.56 | 70.60 | 6.96 | 11.147 | |
| 1,701.80 | 1,694.80 | 1,685.59 | 1,679.26 | 3.99 | 3.82 | -117.89 | -45.06 | -83.01 | 103.69 | 96.14 | 7.56 | 13.723 | |
| 1,800.00 | 1,790.07 | 1,780.02 | 1,771.53 | 4.38 | 4.17 | -120.71 | -56.26 | -99.68 | 130.08 | 121.89 | 8.19 | 15.880 | |
| 1,900.00 | 1,887.08 | 1,876.18 | 1,865.49 | 4.80 | 4.54 | -122.60 | -67.67 | -116.66 | 157.14 | 148.27 | 8.87 | 17.719 | |
| 2,000.00 | 1,984.10 | 1,972.34 | 1,959.45 | 5.24 | 4.92 | -123.94 | -79.07 | -133.64 | 184.32 | 174.75 | 9.57 | 19.262 | |
| 2,100.00 | 2,081.11 | 2,068.50 | 2,053.41 | 5.69 | 5.32 | -124.93 | -90.48 | -150.62 | 211.57 | 201.28 | 10.29 | 20.564 | |
| 2,200.00 | 2,178.13 | 2,164.66 | 2,147.36 | 6.15 | 5.73 | -125.70 | -101.89 | -167.60 | 238.86 | 227.84 | 11.02 | 21.671 | |
| 2,300.00 | 2,275.14 | 2,260.82 | 2,241.32 | 6.62 | 6.14 | -126.31 | -113.29 | -184.58 | 266.18 | 254.41 | 11.77 | 22.619 | |
| 2,400.00 | 2,372.16 | 2,356.98 | 2,335.28 | 7.09 | 6.56 | -126.81 | -124.70 | -201.57 | 293.53 | 281.01 | 12.52 | 23.437 | |
| 2,500.00 | 2,469.17 | 2,453.14 | 2,429.24 | 7.57 | 6.98 | -127.22 | -136.11 | -218.55 | 320.89 | 307.60 | 13.29 | 24.149 | |
| 2,600.00 | 2,566.18 | 2,549.30 | 2,523.20 | 8.05 | 7.40 | -127.57 | -147.52 | -235.53 | 348.27 | 334.21 | 14.06 | 24.772 | |
| 2,700.00 | 2,663.20 | 2,645.46 | 2,617.16 | 8.54 | 7.83 | -127.86 | -158.92 | -252.51 | 375.66 | 360.82 | 14.84 | 25.322 | |
| 2,800.00 | 2,760.21 | 2,741.62 | 2,711.12 | 9.03 | 8.26 | -128.12 | -170.33 | -269.49 | 403.05 | 387.43 | 15.62 | 25.809 | |
| 2,900.00 | 2,857.23 | 2,837.78 | 2,805.08 | 9.52 | 8.70 | -128.34 | -181.74 | -286.47 | 430.45 | 414.05 | 16.40 | 26.243 | |
| 3,000.00 | 2,954.24 | 2,933.94 | 2,899.03 | 10.02 | 9.13 | -128.54 | -193.14 | -303.45 | 457.86 | 440.67 | 17.19 | 26.633 | |
| 3,100.00 | 3,051.26 | 3,030.10 | 2,992.99 | 10.52 | 9.57 | -128.72 | -204.55 | -320.43 | 485.27 | 467.29 | 17.98 | 26.984 | |
| 3,200.00 | 3,148.27 | 3,126.26 | 3,086.95 | 11.01 | 10.01 | -128.87 | -215.96 | -337.41 | 512.68 | 493.91 | 18.78 | 27.302 | |
| 3,300.00 | 3,245.28 | 3,222.42 | 3,180.91 | 11.51 | 10.45 | -129.01 | -227.37 | -354.39 | 540.10 | 520.53 | 19.58 | 27.590 | |
| 3,400.00 | 3,342.30 | 3,318.58 | 3,274.87 | 12.01 | 10.89 | -129.14 | -238.77 | -371.37 | 567.52 | 547.15 | 20.38 | 27.853 | |
| 3,500.00 | 3,439.31 | 3,414.74 | 3,368.83 | 12.52 | 11.33 | -129.25 | -250.18 | -388.35 | 594.95 | 573.77 | 21.18 | 28.094 | |
| 3,600.00 | 3,536.33 | 3,510.90 | 3,462.79 | 13.02 | 11.77 | -129.36 | -261.59 | -405.33 | 622.37 | 600.39 | 21.98 | 28.316 | |
| 3,700.00 | 3,633.34 | 3,607.06 | 3,556.75 | 13.52 | 12.22 | -129.45 | -272.99 | -422.31 | 649.80 | 627.01 | 22.78 | 28.520 | |
| 3,800.00 | 3,730.36 | 3,703.22 | 3,650.71 | 14.03 | 12.66 | -129.54 | -284.40 | -439.29 | 677.23 | 653.64 | 23.59 | 28.709 | |
| 3,900.00 | 3,827.37 | 3,799.38 | 3,744.66 | 14.53 | 13.11 | -129.62 | -295.81 | -456.27 | 704.66 | 680.26 | 24.40 | 28.883 | |
| 4,000.00 | 3,924.39 | 3,895.54 | 3,838.62 | 15.04 | 13.55 | -129.70 | -307.22 | -473.25 | 732.09 | 706.88 | 25.20 | 29.046 | |
| 4,100.00 | 4,021.40 | 3,991.70 | 3,932.58 | 15.54 | 14.00 | -129.77 | -318.62 | -490.23 | 759.52 | 733.51 | 26.01 | 29.197 | |
| 4,200.00 | 4,118.41 | 4,087.86 | 4,026.54 | 16.05 | 14.44 | -129.83 | -330.03 | -507.21 | 786.95 | 760.13 | 26.82 | 29.338 | |
| 4,300.00 | 4,215.43 | 4,184.02 | 4,120.50 | 16.56 | 14.89 | -129.89 | -341.44 | -524.19 | 814.39 | 786.75 | 27.63 | 29.470 | |
| 4,400.00 | 4,312.44 | 4,280.18 | 4,214.46 | 17.06 | 15.34 | -129.95 | -352.84 | -541.17 | 841.82 | 813.37 | 28.45 | 29.594 | |
| 4,500.00 | 4,409.46 | 4,376.34 | 4,308.42 | 17.57 | 15.79 | -130.00 | -364.25 | -558.15 | 869.26 | 840.00 | 29.26 | 29.710 | |
| 4,600.00 | 4,506.47 | 4,472.50 | 4,402.38 | 18.08 | 16.23 | -130.05 | -375.66 | -575.14 | 896.69 | 866.62 | 30.07 | 29.819 | |
| 4,700.00 | 4,603.49 | 4,568.66 | 4,496.33 | 18.59 | 16.68 | -130.10 | -387.07 | -592.12 | 924.13 | 893.24 | 30.88 | 29.922 | |
| 4,800.00 | 4,700.50 | 4,664.82 | 4,590.29 | 19.10 | 17.13 | -130.15 | -398.47 | -609.10 | 951.57 | 919.87 | 31.70 | 30.020 | |
| 4,900.00 | 4,797.51 | 4,760.97 | 4,684.25 | 19.61 | 17.58 | -130.19 | -409.88 | -626.08 | 979.00 | 946.49 | 32.51 | 30.112 | |
| 5,000.00 | 4,894.53 | 4,857.13 | 4,778.21 | 20.12 | 18.03 | -130.23 | -421.29 | -643.06 | 1,006.44 | 973.11 | 33.33 | 30.199 | |

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_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - P_Riverbend 25-13 - P_Riverbend 25-13 - PLAN #1 6-21-10 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 |
| | | | | | | | | | | | | | |
| 5,100.00 | 4,991.54 | 4,953.29 | 4,872.17 | 20.63 | 18.48 | -130.26 | -432.69 | -660.04 | 1,033.88 | 999.74 | 34.14 | 30.281 | |
| 5,200.00 | 5,088.56 | 5,049.45 | 4,966.13 | 21.14 | 18.93 | -130.30 | -444.10 | -677.02 | 1,061.32 | 1,026.36 | 34.96 | 30.360 | |
| 5,300.00 | 5,185.57 | 5,145.61 | 5,060.09 | 21.65 | 19.38 | -130.33 | -455.51 | -694.00 | 1,088.76 | 1,052.98 | 35.77 | 30.434 | |
| 5,400.00 | 5,282.59 | 5,241.77 | 5,154.05 | 22.16 | 19.83 | -130.36 | -466.92 | -710.98 | 1,116.20 | 1,079.61 | 36.59 | 30.505 | |
| 5,500.00 | 5,379.60 | 5,337.93 | 5,248.01 | 22.67 | 20.28 | -130.39 | -478.32 | -727.96 | 1,143.64 | 1,106.23 | 37.41 | 30.573 | |
| 5,552.15 | 5,430.20 | 5,388.09 | 5,297.01 | 22.93 | 20.51 | -130.41 | -484.27 | -736.82 | 1,157.95 | 1,120.12 | 37.83 | 30.607 | |
| 5,600.00 | 5,476.71 | 5,434.16 | 5,342.03 | 23.14 | 20.73 | -130.61 | -489.74 | -744.95 | 1,170.83 | 1,132.58 | 38.24 | 30.616 | |
| 5,700.00 | 5,574.49 | 5,530.89 | 5,436.54 | 23.50 | 21.18 | -130.91 | -501.21 | -762.03 | 1,196.12 | 1,157.10 | 39.02 | 30.653 | |
| 5,800.00 | 5,672.94 | 5,629.91 | 5,533.30 | 23.81 | 21.64 | -131.04 | -512.95 | -779.51 | 1,219.21 | 1,179.44 | 39.77 | 30.660 | |
| 5,900.00 | 5,771.94 | 5,757.88 | 5,658.98 | 24.08 | 22.08 | -131.02 | -526.38 | -799.49 | 1,238.74 | 1,198.28 | 40.47 | 30.611 | |
| 6,000.00 | 5,871.38 | 5,887.78 | 5,787.52 | 24.31 | 22.42 | -131.00 | -536.79 | -814.99 | 1,253.61 | 1,212.57 | 41.05 | 30.542 | |
| 6,100.00 | 5,971.12 | 6,019.11 | 5,918.19 | 24.49 | 22.70 | -130.98 | -544.01 | -825.73 | 1,263.72 | 1,222.20 | 41.52 | 30.437 | |
| 6,200.00 | 6,071.05 | 6,151.34 | 6,050.23 | 24.63 | 22.91 | -130.96 | -547.89 | -831.51 | 1,269.02 | 1,227.13 | 41.89 | 30.297 | |
| 6,253.95 | 6,125.00 | 6,222.86 | 6,121.74 | 24.69 | 23.01 | 179.80 | -548.57 | -832.53 | 1,269.86 | 1,227.82 | 42.05 | 30.202 | |
| 6,300.00 | 6,171.05 | 6,272.17 | 6,171.05 | 24.74 | 23.06 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,227.71 | 42.17 | 30.116 | |
| 6,400.00 | 6,271.05 | 6,372.17 | 6,271.05 | 24.86 | 23.18 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,227.44 | 42.43 | 29.925 | |
| 6,500.00 | 6,371.05 | 6,472.17 | 6,371.05 | 24.98 | 23.29 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,227.17 | 42.71 | 29.735 | |
| 6,600.00 | 6,471.05 | 6,572.17 | 6,471.05 | 25.11 | 23.41 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,226.90 | 42.98 | 29.545 | |
| 6,700.00 | 6,571.05 | 6,672.17 | 6,571.05 | 25.23 | 23.53 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,226.62 | 43.26 | 29.355 | |
| 6,800.00 | 6,671.05 | 6,772.17 | 6,671.05 | 25.36 | 23.65 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,226.34 | 43.54 | 29.166 | |
| 6,900.00 | 6,771.05 | 6,872.17 | 6,771.05 | 25.48 | 23.77 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,226.05 | 43.82 | 28.977 | |
| 7,000.00 | 6,871.05 | 6,972.17 | 6,871.05 | 25.61 | 23.90 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,225.77 | 44.11 | 28.789 | |
| 7,100.00 | 6,971.05 | 7,072.17 | 6,971.05 | 25.74 | 24.02 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,225.48 | 44.40 | 28.601 | |
| 7,200.00 | 7,071.05 | 7,172.17 | 7,071.05 | 25.87 | 24.15 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,225.19 | 44.69 | 28.415 | |
| 7,300.00 | 7,171.05 | 7,272.17 | 7,171.05 | 26.01 | 24.28 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,224.89 | 44.98 | 28.229 | |
| 7,400.00 | 7,271.05 | 7,372.17 | 7,271.05 | 26.14 | 24.41 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,224.59 | 45.28 | 28.044 | |
| 7,500.00 | 7,371.05 | 7,472.17 | 7,371.05 | 26.27 | 24.54 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,224.30 | 45.58 | 27.860 | |
| 7,600.00 | 7,471.05 | 7,572.17 | 7,471.05 | 26.41 | 24.67 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,223.99 | 45.88 | 27.677 | |
| 7,700.00 | 7,571.05 | 7,672.17 | 7,571.05 | 26.55 | 24.81 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,223.69 | 46.19 | 27.494 | |
| 7,800.00 | 7,671.05 | 7,772.17 | 7,671.05 | 26.69 | 24.94 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,223.38 | 46.49 | 27.313 | |
| 7,900.00 | 7,771.05 | 7,872.17 | 7,771.05 | 26.83 | 25.08 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,223.07 | 46.80 | 27.133 | |
| 8,000.00 | 7,871.05 | 7,972.17 | 7,871.05 | 26.97 | 25.22 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,222.76 | 47.11 | 26.954 | |
| 8,100.00 | 7,971.05 | 8,072.17 | 7,971.05 | 27.11 | 25.35 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,222.45 | 47.43 | 26.776 | |
| 8,170.95 | 8,042.00 | 8,143.12 | 8,042.00 | 27.21 | 25.45 | 179.80 | -548.59 | -832.55 | 1,269.88 | 1,222.23 | 47.65 | 26.650 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - P_Riverbend 5-18 - P_Riverbend 5-1 - PLAN #1 6-21-10 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 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 89.58 | 0.35 | 48.15 | 48.15 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | 89.58 | 0.35 | 48.15 | 48.15 | 47.96 | 0.19 | 252.029 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | 89.58 | 0.35 | 48.15 | 48.15 | 47.51 | 0.64 | 75.167 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.55 | 0.55 | 89.58 | 0.35 | 48.15 | 48.15 | 47.06 | 1.09 | 44.170 CC, ES | |
| 400.00 | 400.00 | 398.31 | 398.29 | 0.77 | 0.75 | 89.53 | 0.41 | 49.83 | 49.87 | 48.34 | 1.52 | 32.710 | |
| 500.00 | 500.00 | 496.39 | 496.23 | 0.99 | 0.97 | 89.40 | 0.58 | 54.87 | 55.01 | 53.05 | 1.96 | 28.084 | |
| 600.00 | 600.00 | 594.01 | 593.49 | 1.22 | 1.21 | 89.22 | 0.86 | 63.21 | 63.55 | 61.15 | 2.41 | 26.392 | |
| 700.00 | 700.00 | 690.95 | 689.73 | 1.44 | 1.47 | 89.05 | 1.25 | 74.77 | 75.48 | 72.60 | 2.88 | 26.237 SF | |
| 800.00 | 800.00 | 786.99 | 784.65 | 1.67 | 1.78 | 88.89 | 1.74 | 89.42 | 90.74 | 87.37 | 3.37 | 26.932 | |
| 900.00 | 900.00 | 881.95 | 877.95 | 1.89 | 2.13 | 88.75 | 2.33 | 107.02 | 109.29 | 105.40 | 3.89 | 28.101 | |
| 1,000.00 | 1,000.00 | 975.62 | 969.38 | 2.12 | 2.52 | 88.64 | 3.01 | 127.40 | 131.07 | 126.63 | 4.44 | 29.524 | |
| 1,100.00 | 1,099.98 | 1,067.51 | 1,058.36 | 2.34 | 2.96 | 137.86 | 3.78 | 150.29 | 157.24 | 152.62 | 4.63 | 33.990 | |
| 1,200.00 | 1,199.84 | 1,156.91 | 1,144.19 | 2.56 | 3.43 | 138.34 | 4.62 | 175.28 | 188.95 | 183.89 | 5.06 | 37.330 | |
| 1,300.00 | 1,299.45 | 1,243.41 | 1,226.45 | 2.79 | 3.95 | 139.01 | 5.52 | 202.00 | 226.05 | 220.56 | 5.49 | 41.157 | |
| 1,400.00 | 1,398.70 | 1,326.66 | 1,304.83 | 3.04 | 4.49 | 139.71 | 6.46 | 230.05 | 268.40 | 262.48 | 5.92 | 45.338 | |
| 1,500.00 | 1,497.47 | 1,406.38 | 1,379.09 | 3.31 | 5.05 | 140.34 | 7.44 | 259.03 | 315.78 | 309.44 | 6.35 | 49.766 | |
| 1,600.00 | 1,595.62 | 1,482.35 | 1,449.07 | 3.63 | 5.63 | 140.85 | 8.43 | 288.56 | 367.99 | 361.21 | 6.77 | 54.338 | |
| 1,701.80 | 1,694.80 | 1,556.49 | 1,516.59 | 3.99 | 6.23 | 141.23 | 9.46 | 319.15 | 425.82 | 418.60 | 7.21 | 59.048 | |
| 1,800.00 | 1,790.07 | 1,635.43 | 1,588.14 | 4.38 | 6.90 | 142.42 | 10.58 | 352.49 | 483.72 | 476.00 | 7.72 | 62.663 | |
| 1,900.00 | 1,887.08 | 1,715.82 | 1,661.00 | 4.80 | 7.59 | 143.38 | 11.72 | 386.45 | 542.79 | 534.54 | 8.25 | 65.773 | |
| 2,000.00 | 1,984.10 | 1,796.21 | 1,733.86 | 5.24 | 8.29 | 144.15 | 12.86 | 420.40 | 601.94 | 593.14 | 8.80 | 68.411 | |
| 2,100.00 | 2,081.11 | 1,876.60 | 1,806.71 | 5.69 | 8.98 | 144.78 | 14.00 | 454.36 | 661.15 | 651.80 | 9.36 | 70.663 | |
| 2,200.00 | 2,178.13 | 1,956.99 | 1,879.57 | 6.15 | 9.68 | 145.31 | 15.14 | 488.31 | 720.41 | 710.49 | 9.92 | 72.604 | |
| 2,300.00 | 2,275.14 | 2,037.38 | 1,952.43 | 6.62 | 10.39 | 145.76 | 16.28 | 522.27 | 779.70 | 769.20 | 10.50 | 74.290 | |
| 2,400.00 | 2,372.16 | 2,117.77 | 2,025.29 | 7.09 | 11.09 | 146.14 | 17.42 | 556.22 | 839.01 | 827.94 | 11.07 | 75.763 | |
| 2,500.00 | 2,469.17 | 2,198.16 | 2,098.14 | 7.57 | 11.80 | 146.48 | 18.56 | 590.18 | 898.35 | 886.69 | 11.66 | 77.058 | |
| 2,600.00 | 2,566.18 | 2,278.55 | 2,171.00 | 8.05 | 12.51 | 146.77 | 19.71 | 624.13 | 957.70 | 945.46 | 12.25 | 78.203 | |
| 2,700.00 | 2,663.20 | 2,358.94 | 2,243.86 | 8.54 | 13.21 | 147.03 | 20.85 | 658.09 | 1,017.07 | 1,004.23 | 12.84 | 79.222 | |
| 2,800.00 | 2,760.21 | 2,439.33 | 2,316.72 | 9.03 | 13.92 | 147.26 | 21.99 | 692.04 | 1,076.45 | 1,063.02 | 13.43 | 80.133 | |
| 2,900.00 | 2,857.23 | 2,519.72 | 2,389.57 | 9.52 | 14.63 | 147.46 | 23.13 | 725.99 | 1,135.84 | 1,121.81 | 14.03 | 80.952 | |
| 3,000.00 | 2,954.24 | 2,600.11 | 2,462.43 | 10.02 | 15.35 | 147.65 | 24.27 | 759.95 | 1,195.24 | 1,180.61 | 14.63 | 81.692 | |
| 3,100.00 | 3,051.26 | 2,680.50 | 2,535.29 | 10.52 | 16.06 | 147.82 | 25.41 | 793.90 | 1,254.65 | 1,239.42 | 15.23 | 82.362 | |
| 3,200.00 | 3,148.27 | 2,760.88 | 2,608.15 | 11.01 | 16.77 | 147.97 | 26.55 | 827.86 | 1,314.06 | 1,298.22 | 15.84 | 82.972 | |
| 3,300.00 | 3,245.28 | 2,841.27 | 2,681.00 | 11.51 | 17.48 | 148.11 | 27.69 | 861.81 | 1,373.48 | 1,357.04 | 16.44 | 83.529 | |
| 3,400.00 | 3,342.30 | 2,921.66 | 2,753.86 | 12.01 | 18.20 | 148.24 | 28.83 | 895.77 | 1,432.90 | 1,415.85 | 17.05 | 84.040 | |
| 3,500.00 | 3,439.31 | 3,002.05 | 2,826.72 | 12.52 | 18.91 | 148.36 | 29.97 | 929.72 | 1,492.33 | 1,474.67 | 17.66 | 84.510 | |
| 3,600.00 | 3,536.33 | 3,082.44 | 2,899.58 | 13.02 | 19.62 | 148.47 | 31.11 | 963.68 | 1,551.76 | 1,533.50 | 18.27 | 84.943 | |
| 3,700.00 | 3,633.34 | 3,162.83 | 2,972.43 | 13.52 | 20.34 | 148.57 | 32.26 | 997.63 | 1,611.20 | 1,592.32 | 18.88 | 85.343 | |
| 3,800.00 | 3,730.36 | 3,243.22 | 3,045.29 | 14.03 | 21.05 | 148.66 | 33.40 | 1,031.59 | 1,670.64 | 1,651.15 | 19.49 | 85.715 | |
| 3,900.00 | 3,827.37 | 3,323.61 | 3,118.15 | 14.53 | 21.77 | 148.75 | 34.54 | 1,065.54 | 1,730.08 | 1,709.97 | 20.10 | 86.060 | |
| 4,000.00 | 3,924.39 | 3,404.00 | 3,191.01 | 15.04 | 22.48 | 148.83 | 35.68 | 1,099.50 | 1,789.52 | 1,768.80 | 20.72 | 86.381 | |
| 4,100.00 | 4,021.40 | 3,484.39 | 3,263.86 | 15.54 | 23.20 | 148.91 | 36.82 | 1,133.45 | 1,848.97 | 1,827.64 | 21.33 | 86.682 | |
| 4,200.00 | 4,118.41 | 3,564.78 | 3,336.72 | 16.05 | 23.91 | 148.98 | 37.96 | 1,167.41 | 1,908.41 | 1,886.47 | 21.95 | 86.962 | |
| 4,300.00 | 4,215.43 | 3,645.17 | 3,409.58 | 16.56 | 24.63 | 149.05 | 39.10 | 1,201.36 | 1,967.86 | 1,945.30 | 22.56 | 87.226 | |
| 4,400.00 | 4,312.44 | 3,725.56 | 3,482.44 | 17.06 | 25.35 | 149.11 | 40.24 | 1,235.32 | 2,027.31 | 2,004.14 | 23.18 | 87.473 | |
| 4,500.00 | 4,409.46 | 3,805.95 | 3,555.29 | 17.57 | 26.06 | 149.17 | 41.38 | 1,269.27 | 2,086.76 | 2,062.97 | 23.79 | 87.706 | |
| 4,600.00 | 4,506.47 | 3,886.34 | 3,628.15 | 18.08 | 26.78 | 149.23 | 42.52 | 1,303.23 | 2,146.22 | 2,121.81 | 24.41 | 87.925 | |
| 4,700.00 | 4,603.49 | 3,966.73 | 3,701.01 | 18.59 | 27.49 | 149.28 | 43.66 | 1,337.18 | 2,205.67 | 2,180.65 | 25.03 | 88.132 | |
| 4,800.00 | 4,700.50 | 4,047.12 | 3,773.87 | 19.10 | 28.21 | 149.33 | 44.81 | 1,371.14 | 2,265.13 | 2,239.48 | 25.64 | 88.328 | |
| 4,900.00 | 4,797.51 | 4,127.50 | 3,846.72 | 19.61 | 28.93 | 149.38 | 45.95 | 1,405.09 | 2,324.59 | 2,298.32 | 26.26 | 88.513 | |
| 5,000.00 | 4,894.53 | 4,207.89 | 3,919.58 | 20.12 | 29.64 | 149.42 | 47.09 | 1,439.05 | 2,384.04 | 2,357.16 | 26.88 | 88.689 | |
| 5,100.00 | 4,991.54 | 4,288.28 | 3,992.44 | 20.63 | 30.36 | 149.47 | 48.23 | 1,473.00 | 2,443.50 | 2,416.00 | 27.50 | 88.855 | |

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_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - P_Riverbend 5-18 - P_Riverbend 5-1 - PLAN #1 6-21-10 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 |
| 5,200.00 | 5,088.56 | 4,368.67 | 4,065.30 | 21.14 | 31.08 | 149.51 | 49.37 | 1,506.96 | 2,502.96 | 2,474.84 | 28.12 | 89.014 | |
| 5,300.00 | 5,185.57 | 4,449.06 | 4,138.16 | 21.65 | 31.79 | 149.55 | 50.51 | 1,540.91 | 2,562.42 | 2,533.69 | 28.74 | 89.164 | |
| 5,400.00 | 5,282.59 | 4,529.45 | 4,211.01 | 22.16 | 32.51 | 149.58 | 51.65 | 1,574.87 | 2,621.89 | 2,592.53 | 29.36 | 89.308 | |
| 5,500.00 | 5,379.60 | 4,609.84 | 4,283.87 | 22.67 | 33.23 | 149.62 | 52.79 | 1,608.82 | 2,681.35 | 2,651.37 | 29.98 | 89.445 | |
| 5,552.15 | 5,430.20 | 4,651.77 | 4,321.87 | 22.93 | 33.60 | 149.64 | 53.39 | 1,626.53 | 2,712.36 | 2,682.06 | 30.30 | 89.514 | |
| 5,600.00 | 5,476.71 | 4,690.44 | 4,356.91 | 23.14 | 33.94 | 150.00 | 53.94 | 1,642.86 | 2,740.53 | 2,709.79 | 30.74 | 89.143 | |
| 5,700.00 | 5,574.49 | 4,772.56 | 4,431.34 | 23.50 | 34.68 | 150.68 | 55.10 | 1,677.55 | 2,797.59 | 2,765.97 | 31.62 | 88.466 | |
| 5,800.00 | 5,672.94 | 4,856.35 | 4,507.28 | 23.81 | 35.42 | 151.26 | 56.29 | 1,712.94 | 2,852.12 | 2,819.65 | 32.47 | 87.827 | |
| 5,900.00 | 5,771.94 | 4,941.71 | 4,584.64 | 24.08 | 36.18 | 151.75 | 57.50 | 1,748.99 | 2,904.07 | 2,870.78 | 33.29 | 87.236 | |
| 6,000.00 | 5,871.38 | 5,028.53 | 4,663.33 | 24.31 | 36.96 | 152.16 | 58.73 | 1,785.67 | 2,953.37 | 2,919.30 | 34.06 | 86.701 | |
| 6,100.00 | 5,971.12 | 5,116.72 | 4,743.26 | 24.49 | 37.75 | 152.50 | 59.99 | 1,822.92 | 2,999.97 | 2,965.18 | 34.79 | 86.225 | |
| 6,200.00 | 6,071.05 | 5,206.16 | 4,824.32 | 24.63 | 38.54 | 152.76 | 61.25 | 1,860.69 | 3,043.84 | 3,008.37 | 35.47 | 85.810 | |
| 6,253.95 | 6,125.00 | 5,254.90 | 4,868.49 | 24.69 | 38.98 | 103.63 | 61.95 | 1,881.28 | 3,066.35 | 3,030.54 | 35.82 | 85.610 | |
| 6,300.00 | 6,171.05 | 5,296.63 | 4,906.31 | 24.74 | 39.35 | 103.54 | 62.54 | 1,898.91 | 3,085.23 | 3,049.19 | 36.04 | 85.608 | |
| 6,400.00 | 6,271.05 | 5,387.26 | 4,988.45 | 24.86 | 40.16 | 103.33 | 63.82 | 1,937.19 | 3,126.24 | 3,089.71 | 36.53 | 85.581 | |
| 6,500.00 | 6,371.05 | 5,477.89 | 5,070.59 | 24.98 | 40.97 | 103.13 | 65.11 | 1,975.47 | 3,167.28 | 3,130.26 | 37.02 | 85.557 | |
| 6,600.00 | 6,471.05 | 5,568.52 | 5,152.73 | 25.11 | 41.78 | 102.94 | 66.40 | 2,013.75 | 3,208.35 | 3,170.85 | 37.51 | 85.535 | |
| 6,700.00 | 6,571.05 | 5,659.15 | 5,234.87 | 25.23 | 42.59 | 102.75 | 67.68 | 2,052.03 | 3,249.46 | 3,211.46 | 38.00 | 85.515 | |
| 6,800.00 | 6,671.05 | 5,749.78 | 5,317.01 | 25.36 | 43.39 | 102.56 | 68.97 | 2,090.31 | 3,290.59 | 3,252.11 | 38.49 | 85.496 | |
| 6,900.00 | 6,771.05 | 7,255.69 | 6,771.05 | 25.48 | 49.38 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,272.88 | 42.05 | 78.837 | |
| 7,000.00 | 6,871.05 | 7,355.69 | 6,871.05 | 25.61 | 49.45 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,272.59 | 42.33 | 78.302 | |
| 7,100.00 | 6,971.05 | 7,455.69 | 6,971.05 | 25.74 | 49.51 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,272.30 | 42.63 | 77.770 | |
| 7,200.00 | 7,071.05 | 7,555.69 | 7,071.05 | 25.87 | 49.58 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,272.01 | 42.92 | 77.239 | |
| 7,300.00 | 7,171.05 | 7,655.69 | 7,171.05 | 26.01 | 49.65 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,271.71 | 43.21 | 76.711 | |
| 7,400.00 | 7,271.05 | 7,755.69 | 7,271.05 | 26.14 | 49.72 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,271.41 | 43.51 | 76.186 | |
| 7,500.00 | 7,371.05 | 7,855.69 | 7,371.05 | 26.27 | 49.79 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,271.11 | 43.81 | 75.663 | |
| 7,600.00 | 7,471.05 | 7,955.69 | 7,471.05 | 26.41 | 49.86 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,270.81 | 44.11 | 75.144 | |
| 7,700.00 | 7,571.05 | 8,055.69 | 7,571.05 | 26.55 | 49.93 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,270.51 | 44.42 | 74.627 | |
| 7,800.00 | 7,671.05 | 8,155.69 | 7,671.05 | 26.69 | 50.01 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,270.20 | 44.73 | 74.114 | |
| 7,900.00 | 7,771.05 | 8,255.69 | 7,771.05 | 26.83 | 50.08 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,269.89 | 45.04 | 73.604 | |
| 8,000.00 | 7,871.05 | 8,355.69 | 7,871.05 | 26.97 | 50.16 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,269.58 | 45.35 | 73.097 | |
| 8,100.00 | 7,971.05 | 8,455.69 | 7,971.05 | 27.11 | 50.23 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,269.26 | 45.66 | 72.594 | |
| 8,140.96 | 8,012.01 | 8,496.65 | 8,012.01 | 27.17 | 50.26 | 101.16 | 79.89 | 2,415.29 | 3,314.93 | 3,269.13 | 45.79 | 72.389 | |
| 8,170.95 | 8,042.00 | 8,511.65 | 8,027.00 | 27.21 | 50.27 | 101.16 | 79.89 | 2,415.29 | 3,314.96 | 3,269.09 | 45.87 | 72.272 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - P_Riverbend 6-13 - P_Riverbend 6-13 - PLAN #1 6-21-10 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 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | -90.45 | -0.38 | -47.87 | 47.87 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | -90.45 | -0.38 | -47.87 | 47.87 | 47.68 | 0.19 | 250.565 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | -90.45 | -0.38 | -47.87 | 47.87 | 47.23 | 0.64 | 74.730 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.55 | 0.55 | -90.45 | -0.38 | -47.87 | 47.87 | 46.78 | 1.09 | 43.914 CC, ES | |
| 400.00 | 400.00 | 398.32 | 398.30 | 0.77 | 0.75 | -90.36 | -0.31 | -49.55 | 49.59 | 48.06 | 1.52 | 32.516 | |
| 500.00 | 500.00 | 496.41 | 496.25 | 0.99 | 0.97 | -90.11 | -0.10 | -54.59 | 54.72 | 52.76 | 1.96 | 27.902 | |
| 600.00 | 600.00 | 594.04 | 593.52 | 1.22 | 1.21 | -89.78 | 0.24 | -62.93 | 63.27 | 60.85 | 2.42 | 26.189 | |
| 700.00 | 700.00 | 690.99 | 689.77 | 1.44 | 1.48 | -89.45 | 0.71 | -74.49 | 75.19 | 72.30 | 2.89 | 25.987 | |
| 800.00 | 800.00 | 787.04 | 784.70 | 1.67 | 1.78 | -89.16 | 1.31 | -89.14 | 90.45 | 87.05 | 3.40 | 26.609 | |
| 900.00 | 900.00 | 882.01 | 878.01 | 1.89 | 2.13 | -88.91 | 2.04 | -106.74 | 109.00 | 105.06 | 3.94 | 27.678 | |
| 1,000.00 | 1,000.00 | 975.69 | 969.45 | 2.12 | 2.53 | -88.71 | 2.87 | -127.12 | 130.77 | 126.26 | 4.51 | 28.979 | |
| 1,100.00 | 1,099.98 | 1,068.25 | 1,059.08 | 2.34 | 2.98 | -39.39 | 3.82 | -150.18 | 154.40 | 149.76 | 4.64 | 33.267 | |
| 1,200.00 | 1,199.84 | 1,162.05 | 1,149.17 | 2.56 | 3.47 | -39.95 | 4.89 | -176.27 | 178.33 | 173.23 | 5.11 | 34.917 | |
| 1,300.00 | 1,299.45 | 1,259.50 | 1,242.59 | 2.79 | 4.02 | -41.00 | 6.02 | -203.95 | 200.35 | 194.75 | 5.60 | 35.808 | |
| 1,400.00 | 1,398.70 | 1,357.37 | 1,336.42 | 3.04 | 4.58 | -42.44 | 7.16 | -231.76 | 219.93 | 213.83 | 6.10 | 36.055 | |
| 1,500.00 | 1,497.47 | 1,455.54 | 1,430.54 | 3.31 | 5.15 | -44.21 | 8.30 | -259.65 | 237.20 | 230.57 | 6.63 | 35.769 | |
| 1,600.00 | 1,595.62 | 1,553.90 | 1,524.84 | 3.63 | 5.72 | -46.29 | 9.45 | -287.59 | 252.34 | 245.14 | 7.20 | 35.027 | |
| 1,701.80 | 1,694.80 | 1,654.09 | 1,620.90 | 3.99 | 6.31 | -48.74 | 10.62 | -316.05 | 265.78 | 257.93 | 7.85 | 33.860 | |
| 1,800.00 | 1,790.07 | 1,750.73 | 1,713.55 | 4.38 | 6.88 | -51.33 | 11.74 | -343.51 | 278.14 | 269.60 | 8.54 | 32.558 | |
| 1,900.00 | 1,887.08 | 1,849.15 | 1,807.90 | 4.80 | 7.46 | -53.73 | 12.89 | -371.47 | 291.27 | 281.97 | 9.30 | 31.326 | |
| 2,000.00 | 1,984.10 | 1,947.56 | 1,902.25 | 5.24 | 8.04 | -55.93 | 14.03 | -399.43 | 304.86 | 294.76 | 10.10 | 30.197 | |
| 2,100.00 | 2,081.11 | 2,045.97 | 1,996.61 | 5.69 | 8.63 | -57.94 | 15.18 | -427.39 | 318.85 | 307.92 | 10.93 | 29.171 | |
| 2,200.00 | 2,178.13 | 2,144.39 | 2,090.96 | 6.15 | 9.22 | -59.78 | 16.32 | -455.34 | 333.21 | 321.41 | 11.80 | 28.246 | |
| 2,300.00 | 2,275.14 | 2,242.80 | 2,185.31 | 6.62 | 9.80 | -61.47 | 17.47 | -483.30 | 347.87 | 335.19 | 12.69 | 27.416 | |
| 2,400.00 | 2,372.16 | 2,341.22 | 2,279.66 | 7.09 | 10.39 | -63.02 | 18.62 | -511.26 | 362.82 | 349.21 | 13.60 | 26.671 | |
| 2,500.00 | 2,469.17 | 2,439.63 | 2,374.01 | 7.57 | 10.98 | -64.45 | 19.76 | -539.22 | 378.00 | 363.46 | 14.54 | 26.004 | |
| 2,600.00 | 2,566.18 | 2,538.04 | 2,468.37 | 8.05 | 11.57 | -65.77 | 20.91 | -567.18 | 393.40 | 377.91 | 15.48 | 25.406 | |
| 2,700.00 | 2,663.20 | 2,636.46 | 2,562.72 | 8.54 | 12.16 | -66.99 | 22.05 | -595.14 | 408.98 | 392.54 | 16.45 | 24.869 | |
| 2,800.00 | 2,760.21 | 2,734.87 | 2,657.07 | 9.03 | 12.75 | -68.12 | 23.20 | -623.10 | 424.74 | 407.32 | 17.42 | 24.387 | |
| 2,900.00 | 2,857.23 | 2,833.29 | 2,751.42 | 9.52 | 13.34 | -69.18 | 24.35 | -651.06 | 440.65 | 422.25 | 18.40 | 23.951 | |
| 3,000.00 | 2,954.24 | 2,931.70 | 2,845.77 | 10.02 | 13.93 | -70.15 | 25.49 | -679.01 | 456.69 | 437.30 | 19.39 | 23.558 | |
| 3,100.00 | 3,051.26 | 3,030.11 | 2,940.13 | 10.52 | 14.52 | -71.06 | 26.64 | -706.97 | 472.85 | 452.47 | 20.38 | 23.201 | |
| 3,200.00 | 3,148.27 | 3,128.53 | 3,034.48 | 11.01 | 15.11 | -71.91 | 27.78 | -734.93 | 489.12 | 467.74 | 21.38 | 22.877 | |
| 3,300.00 | 3,245.28 | 3,226.94 | 3,128.83 | 11.51 | 15.70 | -72.71 | 28.93 | -762.89 | 505.49 | 483.11 | 22.39 | 22.582 | |
| 3,400.00 | 3,342.30 | 3,325.36 | 3,223.18 | 12.01 | 16.30 | -73.46 | 30.08 | -790.85 | 521.96 | 498.56 | 23.39 | 22.312 | |
| 3,500.00 | 3,439.31 | 3,423.77 | 3,317.53 | 12.52 | 16.89 | -74.16 | 31.22 | -818.81 | 538.50 | 514.09 | 24.41 | 22.065 | |
| 3,600.00 | 3,536.33 | 3,522.18 | 3,411.89 | 13.02 | 17.48 | -74.82 | 32.37 | -846.77 | 555.11 | 529.69 | 25.42 | 21.838 | |
| 3,700.00 | 3,633.34 | 3,620.60 | 3,506.24 | 13.52 | 18.07 | -75.44 | 33.51 | -874.73 | 571.80 | 545.36 | 26.44 | 21.629 | |
| 3,800.00 | 3,730.36 | 3,719.01 | 3,600.59 | 14.03 | 18.66 | -76.02 | 34.66 | -902.69 | 588.54 | 561.09 | 27.46 | 21.436 | |
| 3,900.00 | 3,827.37 | 3,817.43 | 3,694.94 | 14.53 | 19.26 | -76.57 | 35.81 | -930.64 | 605.34 | 576.87 | 28.48 | 21.258 | |
| 4,000.00 | 3,924.39 | 3,915.84 | 3,789.30 | 15.04 | 19.85 | -77.10 | 36.95 | -958.60 | 622.20 | 592.70 | 29.50 | 21.092 | |
| 4,100.00 | 4,021.40 | 4,014.25 | 3,883.65 | 15.54 | 20.44 | -77.59 | 38.10 | -986.56 | 639.10 | 608.58 | 30.52 | 20.939 | |
| 4,200.00 | 4,118.41 | 4,112.67 | 3,978.00 | 16.05 | 21.03 | -78.06 | 39.24 | -1,014.52 | 656.04 | 624.50 | 31.55 | 20.796 | |
| 4,300.00 | 4,215.43 | 4,211.08 | 4,072.35 | 16.56 | 21.62 | -78.51 | 40.39 | -1,042.48 | 673.03 | 640.46 | 32.57 | 20.663 | |
| 4,400.00 | 4,312.44 | 4,309.50 | 4,166.70 | 17.06 | 22.22 | -78.94 | 41.54 | -1,070.44 | 690.05 | 656.46 | 33.60 | 20.538 | |
| 4,500.00 | 4,409.46 | 4,407.91 | 4,261.06 | 17.57 | 22.81 | -79.34 | 42.68 | -1,098.40 | 707.11 | 672.49 | 34.63 | 20.422 | |
| 4,600.00 | 4,506.47 | 4,506.32 | 4,355.41 | 18.08 | 23.40 | -79.73 | 43.83 | -1,126.36 | 724.21 | 688.55 | 35.65 | 20.312 | |
| 4,700.00 | 4,603.49 | 4,604.74 | 4,449.76 | 18.59 | 23.99 | -80.09 | 44.97 | -1,154.31 | 741.33 | 704.65 | 36.68 | 20.210 | |
| 4,800.00 | 4,700.50 | 4,703.15 | 4,544.11 | 19.10 | 24.59 | -80.44 | 46.12 | -1,182.27 | 758.48 | 720.77 | 37.71 | 20.113 | |
| 4,900.00 | 4,797.51 | 4,801.57 | 4,638.46 | 19.61 | 25.18 | -80.78 | 47.27 | -1,210.23 | 775.66 | 736.92 | 38.74 | 20.022 | |
| 5,000.00 | 4,894.53 | 4,899.98 | 4,732.82 | 20.12 | 25.77 | -81.10 | 48.41 | -1,238.19 | 792.86 | 753.09 | 39.77 | 19.937 | |
| 5,100.00 | 4,991.54 | 4,998.39 | 4,827.17 | 20.63 | 26.37 | -81.41 | 49.56 | -1,266.15 | 810.09 | 769.29 | 40.80 | 19.856 | |

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_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - P_Riverbend 6-13 - P_Riverbend 6-13 - PLAN #1 6-21-10 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 |
| 5,200.00 | 5,088.56 | 5,096.81 | 4,921.52 | 21.14 | 26.96 | -81.70 | 50.70 | -1,294.11 | 827.33 | 785.50 | 41.83 | 19.779 | |
| 5,300.00 | 5,185.57 | 5,195.22 | 5,015.87 | 21.65 | 27.55 | -81.98 | 51.85 | -1,322.07 | 844.60 | 801.74 | 42.86 | 19.706 | |
| 5,400.00 | 5,282.59 | 5,293.64 | 5,110.22 | 22.16 | 28.14 | -82.26 | 53.00 | -1,350.03 | 861.89 | 818.00 | 43.89 | 19.638 | |
| 5,500.00 | 5,379.60 | 5,392.05 | 5,204.58 | 22.67 | 28.74 | -82.52 | 54.14 | -1,377.98 | 879.19 | 834.27 | 44.92 | 19.572 | |
| 5,552.15 | 5,430.20 | 5,443.38 | 5,253.79 | 22.93 | 29.05 | -82.65 | 54.74 | -1,392.57 | 888.22 | 842.77 | 45.46 | 19.539 | |
| 5,600.00 | 5,476.71 | 5,490.47 | 5,298.93 | 23.14 | 29.33 | -82.91 | 55.29 | -1,405.94 | 896.56 | 850.61 | 45.95 | 19.512 | |
| 5,700.00 | 5,574.49 | 5,616.50 | 5,420.49 | 23.50 | 29.88 | -83.39 | 56.65 | -1,439.15 | 912.84 | 865.97 | 46.87 | 19.475 | |
| 5,800.00 | 5,672.94 | 5,744.02 | 5,544.86 | 23.81 | 30.35 | -83.79 | 57.80 | -1,467.28 | 926.47 | 878.79 | 47.68 | 19.431 | |
| 5,900.00 | 5,771.94 | 5,872.41 | 5,671.21 | 24.08 | 30.74 | -84.11 | 58.73 | -1,489.98 | 937.40 | 889.02 | 48.37 | 19.378 | |
| 6,000.00 | 5,871.38 | 6,001.49 | 5,799.13 | 24.31 | 31.07 | -84.35 | 59.43 | -1,507.08 | 945.58 | 896.62 | 48.95 | 19.316 | |
| 6,100.00 | 5,971.12 | 6,131.05 | 5,928.18 | 24.49 | 31.30 | -84.52 | 59.90 | -1,518.44 | 950.98 | 901.57 | 49.41 | 19.248 | |
| 6,200.00 | 6,071.05 | 6,260.89 | 6,057.90 | 24.63 | 31.47 | -84.61 | 60.13 | -1,523.97 | 953.59 | 903.84 | 49.75 | 19.169 | |
| 6,253.95 | 6,125.00 | 6,328.00 | 6,125.00 | 24.69 | 31.53 | -133.88 | 60.15 | -1,524.54 | 953.84 | 903.96 | 49.88 | 19.122 | |
| 6,300.00 | 6,171.05 | 6,374.04 | 6,171.05 | 24.74 | 31.57 | -133.88 | 60.15 | -1,524.54 | 953.84 | 903.86 | 49.98 | 19.085 | |
| 6,400.00 | 6,271.05 | 6,474.04 | 6,271.05 | 24.86 | 31.66 | -133.88 | 60.15 | -1,524.54 | 953.84 | 903.64 | 50.21 | 18.998 | |
| 6,500.00 | 6,371.05 | 6,574.04 | 6,371.05 | 24.98 | 31.76 | -133.88 | 60.15 | -1,524.54 | 953.84 | 903.40 | 50.44 | 18.910 | |
| 6,600.00 | 6,471.05 | 6,674.04 | 6,471.05 | 25.11 | 31.85 | -133.88 | 60.15 | -1,524.54 | 953.84 | 903.17 | 50.68 | 18.822 | |
| 6,700.00 | 6,571.05 | 6,774.04 | 6,571.05 | 25.23 | 31.95 | -133.88 | 60.15 | -1,524.54 | 953.84 | 902.93 | 50.92 | 18.733 | |
| 6,800.00 | 6,671.05 | 6,874.04 | 6,671.05 | 25.36 | 32.04 | -133.88 | 60.15 | -1,524.54 | 953.84 | 902.68 | 51.16 | 18.645 | |
| 6,900.00 | 6,771.05 | 6,974.04 | 6,771.05 | 25.48 | 32.14 | -133.88 | 60.15 | -1,524.54 | 953.84 | 902.44 | 51.40 | 18.556 | |
| 7,000.00 | 6,871.05 | 7,074.04 | 6,871.05 | 25.61 | 32.24 | -133.88 | 60.15 | -1,524.54 | 953.84 | 902.19 | 51.65 | 18.467 | |
| 7,100.00 | 6,971.05 | 7,174.04 | 6,971.05 | 25.74 | 32.34 | -133.88 | 60.15 | -1,524.54 | 953.84 | 901.94 | 51.90 | 18.378 | |
| 7,200.00 | 7,071.05 | 7,274.04 | 7,071.05 | 25.87 | 32.45 | -133.88 | 60.15 | -1,524.54 | 953.84 | 901.69 | 52.15 | 18.289 | |
| 7,300.00 | 7,171.05 | 7,374.04 | 7,171.05 | 26.01 | 32.55 | -133.88 | 60.15 | -1,524.54 | 953.84 | 901.43 | 52.41 | 18.200 | |
| 7,400.00 | 7,271.05 | 7,474.04 | 7,271.05 | 26.14 | 32.66 | -133.88 | 60.15 | -1,524.54 | 953.84 | 901.18 | 52.67 | 18.111 | |
| 7,500.00 | 7,371.05 | 7,574.04 | 7,371.05 | 26.27 | 32.76 | -133.88 | 60.15 | -1,524.54 | 953.84 | 900.92 | 52.93 | 18.021 | |
| 7,600.00 | 7,471.05 | 7,674.04 | 7,471.05 | 26.41 | 32.87 | -133.88 | 60.15 | -1,524.54 | 953.84 | 900.65 | 53.19 | 17.932 | |
| 7,700.00 | 7,571.05 | 7,774.04 | 7,571.05 | 26.55 | 32.98 | -133.88 | 60.15 | -1,524.54 | 953.84 | 900.39 | 53.46 | 17.843 | |
| 7,800.00 | 7,671.05 | 7,874.04 | 7,671.05 | 26.69 | 33.09 | -133.88 | 60.15 | -1,524.54 | 953.84 | 900.12 | 53.72 | 17.754 | |
| 7,900.00 | 7,771.05 | 7,974.04 | 7,771.05 | 26.83 | 33.20 | -133.88 | 60.15 | -1,524.54 | 953.84 | 899.85 | 54.00 | 17.665 | |
| 8,000.00 | 7,871.05 | 8,074.04 | 7,871.05 | 26.97 | 33.31 | -133.88 | 60.15 | -1,524.54 | 953.84 | 899.58 | 54.27 | 17.576 | |
| 8,100.00 | 7,971.05 | 8,174.04 | 7,971.05 | 27.11 | 33.42 | -133.88 | 60.15 | -1,524.54 | 953.84 | 899.30 | 54.54 | 17.488 | |
| 8,143.42 | 8,014.47 | 8,217.47 | 8,014.47 | 27.17 | 33.47 | -133.88 | 60.15 | -1,524.54 | 953.84 | 899.18 | 54.66 | 17.449 | |
| 8,170.95 | 8,042.00 | 8,235.00 | 8,032.00 | 27.21 | 33.49 | -133.88 | 60.15 | -1,524.54 | 953.90 | 899.17 | 54.73 | 17.430 SF | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | 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 | -90.02 | -0.01 | -31.91 | 31.91 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | -90.02 | -0.01 | -31.91 | 31.91 | 31.72 | 0.19 | 167.038 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | -90.02 | -0.01 | -31.91 | 31.91 | 31.27 | 0.64 | 49.818 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.55 | 0.55 | -90.02 | -0.01 | -31.91 | 31.91 | 30.82 | 1.09 | 29.275 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 0.77 | 0.77 | -90.02 | -0.01 | -31.91 | 31.91 | 30.37 | 1.54 | 20.727 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 0.99 | 0.99 | -90.02 | -0.01 | -31.91 | 31.91 | 29.92 | 1.99 | 16.043 | |
| 600.00 | 600.00 | 600.00 | 600.00 | 1.22 | 1.22 | -90.02 | -0.01 | -31.91 | 31.91 | 29.47 | 2.44 | 13.086 | |
| 700.00 | 700.00 | 700.00 | 700.00 | 1.44 | 1.44 | -90.02 | -0.01 | -31.91 | 31.91 | 29.02 | 2.89 | 11.049 | |
| 800.00 | 800.00 | 800.00 | 800.00 | 1.67 | 1.67 | -90.02 | -0.01 | -31.91 | 31.91 | 28.58 | 3.34 | 9.561 | |
| 900.00 | 900.00 | 900.00 | 900.00 | 1.89 | 1.89 | -90.02 | -0.01 | -31.91 | 31.91 | 28.13 | 3.79 | 8.426 | |
| 1,000.00 | 1,000.00 | 1,000.00 | 1,000.00 | 2.12 | 2.12 | -90.02 | -0.01 | -31.91 | 31.91 | 27.68 | 4.24 | 7.532 CC | |
| 1,100.00 | 1,099.98 | 1,098.91 | 1,098.89 | 2.34 | 2.32 | -43.51 | -0.43 | -33.57 | 32.30 | 27.64 | 4.66 | 6.932 ES | |
| 1,200.00 | 1,199.84 | 1,197.66 | 1,197.51 | 2.56 | 2.52 | -51.23 | -1.68 | -38.52 | 33.90 | 28.83 | 5.07 | 6.690 | |
| 1,300.00 | 1,299.45 | 1,297.30 | 1,296.89 | 2.79 | 2.73 | -62.68 | -3.42 | -45.41 | 36.29 | 30.79 | 5.49 | 6.606 | |
| 1,400.00 | 1,398.70 | 1,396.79 | 1,396.13 | 3.04 | 2.95 | -77.19 | -5.15 | -52.29 | 39.03 | 33.08 | 5.96 | 6.553 SF | |
| 1,500.00 | 1,497.47 | 1,495.95 | 1,495.03 | 3.31 | 3.17 | -93.57 | -6.88 | -59.15 | 44.01 | 37.55 | 6.47 | 6.807 | |
| 1,600.00 | 1,595.62 | 1,594.64 | 1,593.47 | 3.63 | 3.40 | -109.32 | -8.60 | -65.98 | 52.88 | 45.88 | 7.00 | 7.559 | |
| 1,701.80 | 1,694.80 | 1,694.51 | 1,693.08 | 3.99 | 3.64 | -122.67 | -10.34 | -72.89 | 66.70 | 59.18 | 7.52 | 8.869 | |
| 1,800.00 | 1,790.07 | 1,790.51 | 1,788.84 | 4.38 | 3.87 | -132.00 | -12.02 | -79.54 | 83.48 | 75.46 | 8.02 | 10.407 | |
| 1,900.00 | 1,887.08 | 1,888.27 | 1,886.35 | 4.80 | 4.11 | -138.23 | -13.72 | -86.30 | 102.04 | 93.51 | 8.53 | 11.965 | |
| 2,000.00 | 1,984.10 | 1,986.03 | 1,983.87 | 5.24 | 4.35 | -142.52 | -15.43 | -93.06 | 121.41 | 112.37 | 9.04 | 13.434 | |
| 2,100.00 | 2,081.11 | 2,083.79 | 2,081.38 | 5.69 | 4.59 | -145.62 | -17.14 | -99.83 | 141.26 | 131.71 | 9.55 | 14.791 | |
| 2,200.00 | 2,178.13 | 2,181.56 | 2,178.89 | 6.15 | 4.83 | -147.96 | -18.84 | -106.59 | 161.41 | 151.34 | 10.07 | 16.034 | |
| 2,300.00 | 2,275.14 | 2,279.32 | 2,276.40 | 6.62 | 5.07 | -149.78 | -20.55 | -113.36 | 181.76 | 171.17 | 10.59 | 17.168 | |
| 2,400.00 | 2,372.16 | 2,377.08 | 2,373.92 | 7.09 | 5.32 | -151.23 | -22.25 | -120.12 | 202.25 | 191.14 | 11.12 | 18.195 | |
| 2,500.00 | 2,469.17 | 2,474.84 | 2,471.43 | 7.57 | 5.57 | -152.41 | -23.96 | -126.89 | 222.85 | 211.20 | 11.65 | 19.131 | |
| 2,600.00 | 2,566.18 | 2,572.60 | 2,568.94 | 8.05 | 5.81 | -153.40 | -25.66 | -133.65 | 243.52 | 231.33 | 12.18 | 19.987 | |
| 2,700.00 | 2,663.20 | 2,670.37 | 2,666.46 | 8.54 | 6.06 | -154.23 | -27.37 | -140.42 | 264.24 | 251.52 | 12.72 | 20.772 | |
| 2,800.00 | 2,760.21 | 2,768.13 | 2,763.97 | 9.03 | 6.31 | -154.94 | -29.07 | -147.18 | 285.02 | 271.76 | 13.26 | 21.493 | |
| 2,900.00 | 2,857.23 | 2,865.89 | 2,861.48 | 9.52 | 6.56 | -155.55 | -30.78 | -153.95 | 305.83 | 292.02 | 13.80 | 22.158 | |
| 3,000.00 | 2,954.24 | 2,963.65 | 2,958.99 | 10.02 | 6.81 | -156.08 | -32.49 | -160.71 | 326.66 | 312.32 | 14.35 | 22.772 | |
| 3,100.00 | 3,051.26 | 3,061.41 | 3,056.51 | 10.52 | 7.06 | -156.55 | -34.19 | -167.47 | 347.53 | 332.64 | 14.89 | 23.341 | |
| 3,200.00 | 3,148.27 | 3,159.18 | 3,154.02 | 11.01 | 7.32 | -156.97 | -35.90 | -174.24 | 368.41 | 352.97 | 15.43 | 23.869 | |
| 3,300.00 | 3,245.28 | 3,256.94 | 3,251.53 | 11.51 | 7.57 | -157.34 | -37.60 | -181.00 | 389.31 | 373.33 | 15.98 | 24.360 | |
| 3,400.00 | 3,342.30 | 3,354.70 | 3,349.05 | 12.01 | 7.82 | -157.68 | -39.31 | -187.77 | 410.22 | 393.69 | 16.53 | 24.818 | |
| 3,500.00 | 3,439.31 | 3,452.46 | 3,446.56 | 12.52 | 8.07 | -157.98 | -41.01 | -194.53 | 431.15 | 414.07 | 17.08 | 25.247 | |
| 3,600.00 | 3,536.33 | 3,550.22 | 3,544.07 | 13.02 | 8.33 | -158.26 | -42.72 | -201.30 | 452.08 | 434.46 | 17.63 | 25.648 | |
| 3,700.00 | 3,633.34 | 3,647.99 | 3,641.58 | 13.52 | 8.58 | -158.51 | -44.42 | -208.06 | 473.03 | 454.85 | 18.18 | 26.024 | |
| 3,800.00 | 3,730.36 | 3,745.75 | 3,739.10 | 14.03 | 8.83 | -158.73 | -46.13 | -214.83 | 493.98 | 475.25 | 18.73 | 26.378 | |
| 3,900.00 | 3,827.37 | 3,843.51 | 3,836.61 | 14.53 | 9.09 | -158.94 | -47.83 | -221.59 | 514.94 | 495.66 | 19.28 | 26.711 | |
| 4,000.00 | 3,924.39 | 3,941.27 | 3,934.12 | 15.04 | 9.34 | -159.14 | -49.54 | -228.35 | 535.90 | 516.07 | 19.83 | 27.025 | |
| 4,100.00 | 4,021.40 | 4,039.04 | 4,031.64 | 15.54 | 9.60 | -159.32 | -51.25 | -235.12 | 556.88 | 536.49 | 20.38 | 27.322 | |
| 4,200.00 | 4,118.41 | 4,136.80 | 4,129.15 | 16.05 | 9.85 | -159.48 | -52.95 | -241.88 | 577.85 | 556.92 | 20.93 | 27.603 | |
| 4,300.00 | 4,215.43 | 4,234.56 | 4,226.66 | 16.56 | 10.11 | -159.64 | -54.66 | -248.65 | 598.83 | 577.34 | 21.49 | 27.868 | |
| 4,400.00 | 4,312.44 | 4,332.32 | 4,324.17 | 17.06 | 10.36 | -159.78 | -56.36 | -255.41 | 619.82 | 597.77 | 22.04 | 28.121 | |
| 4,500.00 | 4,409.46 | 4,430.08 | 4,421.69 | 17.57 | 10.62 | -159.92 | -58.07 | -262.18 | 640.80 | 618.21 | 22.60 | 28.360 | |
| 4,600.00 | 4,506.47 | 4,527.85 | 4,519.20 | 18.08 | 10.87 | -160.04 | -59.77 | -268.94 | 661.79 | 638.64 | 23.15 | 28.588 | |
| 4,700.00 | 4,603.49 | 4,625.61 | 4,616.71 | 18.59 | 11.13 | -160.16 | -61.48 | -275.71 | 682.79 | 659.08 | 23.70 | 28.805 | |
| 4,800.00 | 4,700.50 | 4,723.37 | 4,714.23 | 19.10 | 11.38 | -160.27 | -63.18 | -282.47 | 703.78 | 679.52 | 24.26 | 29.012 | |
| 4,900.00 | 4,797.51 | 4,821.13 | 4,811.74 | 19.61 | 11.64 | -160.38 | -64.89 | -289.24 | 724.78 | 699.97 | 24.81 | 29.209 | |
| 5,000.00 | 4,894.53 | 4,918.89 | 4,909.25 | 20.12 | 11.89 | -160.48 | -66.60 | -296.00 | 745.78 | 720.41 | 25.37 | 29.397 | |
| 5,100.00 | 4,991.54 | 5,016.66 | 5,006.76 | 20.63 | 12.15 | -160.57 | -68.30 | -302.76 | 766.79 | 740.86 | 25.92 | 29.578 | |

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_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - P_Riverbend 7-13 - P_Riverbend 7-13 - PLAN #1 6-21-10 RH | | | | | | | | | | | | 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 |
| 5,200.00 | 5,088.56 | 5,114.42 | 5,104.28 | 21.14 | 12.41 | -160.66 | -70.01 | -309.53 | 787.79 | 761.31 | 26.48 | 29.750 | |
| 5,300.00 | 5,185.57 | 5,212.18 | 5,201.79 | 21.65 | 12.66 | -160.74 | -71.71 | -316.29 | 808.80 | 781.76 | 27.04 | 29.915 | |
| 5,400.00 | 5,282.59 | 5,309.94 | 5,299.30 | 22.16 | 12.92 | -160.82 | -73.42 | -323.06 | 829.80 | 802.21 | 27.59 | 30.074 | |
| 5,500.00 | 5,379.60 | 5,407.70 | 5,396.82 | 22.67 | 13.17 | -160.90 | -75.12 | -329.82 | 850.81 | 822.67 | 28.15 | 30.226 | |
| 5,552.15 | 5,430.20 | 5,458.69 | 5,447.67 | 22.93 | 13.31 | -160.94 | -76.01 | -333.35 | 861.77 | 833.33 | 28.44 | 30.302 | |
| 5,600.00 | 5,476.71 | 5,505.55 | 5,494.41 | 23.14 | 13.43 | -161.03 | -76.83 | -336.59 | 871.46 | 842.73 | 28.73 | 30.335 | |
| 5,700.00 | 5,574.49 | 5,603.94 | 5,592.55 | 23.50 | 13.69 | -161.14 | -78.55 | -343.40 | 889.30 | 860.02 | 29.28 | 30.373 | |
| 5,800.00 | 5,672.94 | 5,702.85 | 5,691.21 | 23.81 | 13.95 | -161.16 | -80.27 | -350.24 | 903.88 | 874.08 | 29.80 | 30.328 | |
| 5,900.00 | 5,771.94 | 5,802.18 | 5,790.29 | 24.08 | 14.21 | -161.09 | -82.00 | -357.12 | 915.19 | 884.89 | 30.30 | 30.205 | |
| 6,000.00 | 5,871.38 | 5,901.79 | 5,889.65 | 24.31 | 14.47 | -160.93 | -83.74 | -364.01 | 923.23 | 892.46 | 30.76 | 30.009 | |
| 6,100.00 | 5,971.12 | 5,997.21 | 5,984.84 | 24.49 | 14.70 | -160.72 | -85.30 | -370.20 | 928.11 | 896.95 | 31.16 | 29.782 | |
| 6,200.00 | 6,071.05 | 6,089.05 | 6,076.62 | 24.63 | 14.86 | -160.59 | -86.16 | -373.60 | 930.50 | 899.06 | 31.44 | 29.599 | |
| 6,253.95 | 6,125.00 | 6,138.65 | 6,126.21 | 24.69 | 14.95 | 150.19 | -86.32 | -374.25 | 930.78 | 899.22 | 31.56 | 29.493 | |
| 6,276.72 | 6,147.76 | 6,160.20 | 6,147.76 | 24.72 | 14.99 | 150.19 | -86.33 | -374.28 | 930.77 | 899.14 | 31.63 | 29.424 | |
| 6,300.00 | 6,171.05 | 6,183.48 | 6,171.05 | 24.74 | 15.03 | 150.19 | -86.33 | -374.28 | 930.77 | 899.06 | 31.71 | 29.352 | |
| 6,400.00 | 6,271.05 | 6,283.48 | 6,271.05 | 24.86 | 15.21 | 150.19 | -86.33 | -374.28 | 930.77 | 898.71 | 32.07 | 29.027 | |
| 6,500.00 | 6,371.05 | 6,383.48 | 6,371.05 | 24.98 | 15.39 | 150.19 | -86.33 | -374.28 | 930.77 | 898.35 | 32.42 | 28.707 | |
| 6,600.00 | 6,471.05 | 6,483.48 | 6,471.05 | 25.11 | 15.57 | 150.19 | -86.33 | -374.28 | 930.77 | 897.99 | 32.78 | 28.393 | |
| 6,700.00 | 6,571.05 | 6,583.48 | 6,571.05 | 25.23 | 15.76 | 150.19 | -86.33 | -374.28 | 930.77 | 897.63 | 33.14 | 28.083 | |
| 6,800.00 | 6,671.05 | 6,683.48 | 6,671.05 | 25.36 | 15.94 | 150.19 | -86.33 | -374.28 | 930.77 | 897.27 | 33.51 | 27.778 | |
| 6,900.00 | 6,771.05 | 6,783.48 | 6,771.05 | 25.48 | 16.13 | 150.19 | -86.33 | -374.28 | 930.77 | 896.90 | 33.87 | 27.478 | |
| 7,000.00 | 6,871.05 | 6,883.48 | 6,871.05 | 25.61 | 16.32 | 150.19 | -86.33 | -374.28 | 930.77 | 896.53 | 34.24 | 27.183 | |
| 7,100.00 | 6,971.05 | 6,983.48 | 6,971.05 | 25.74 | 16.50 | 150.19 | -86.33 | -374.28 | 930.77 | 896.16 | 34.61 | 26.893 | |
| 7,200.00 | 7,071.05 | 7,083.48 | 7,071.05 | 25.87 | 16.69 | 150.19 | -86.33 | -374.28 | 930.77 | 895.79 | 34.98 | 26.607 | |
| 7,300.00 | 7,171.05 | 7,183.48 | 7,171.05 | 26.01 | 16.88 | 150.19 | -86.33 | -374.28 | 930.77 | 895.42 | 35.36 | 26.326 | |
| 7,400.00 | 7,271.05 | 7,283.48 | 7,271.05 | 26.14 | 17.07 | 150.19 | -86.33 | -374.28 | 930.77 | 895.04 | 35.73 | 26.050 | |
| 7,500.00 | 7,371.05 | 7,383.48 | 7,371.05 | 26.27 | 17.27 | 150.19 | -86.33 | -374.28 | 930.77 | 894.67 | 36.11 | 25.778 | |
| 7,600.00 | 7,471.05 | 7,483.48 | 7,471.05 | 26.41 | 17.46 | 150.19 | -86.33 | -374.28 | 930.77 | 894.29 | 36.49 | 25.511 | |
| 7,700.00 | 7,571.05 | 7,583.48 | 7,571.05 | 26.55 | 17.65 | 150.19 | -86.33 | -374.28 | 930.77 | 893.91 | 36.87 | 25.248 | |
| 7,800.00 | 7,671.05 | 7,683.48 | 7,671.05 | 26.69 | 17.84 | 150.19 | -86.33 | -374.28 | 930.77 | 893.53 | 37.25 | 24.989 | |
| 7,900.00 | 7,771.05 | 7,783.48 | 7,771.05 | 26.83 | 18.04 | 150.19 | -86.33 | -374.28 | 930.77 | 893.14 | 37.63 | 24.735 | |
| 8,000.00 | 7,871.05 | 7,883.48 | 7,871.05 | 26.97 | 18.23 | 150.19 | -86.33 | -374.28 | 930.77 | 892.76 | 38.02 | 24.484 | |
| 8,100.00 | 7,971.05 | 7,983.48 | 7,971.05 | 27.11 | 18.43 | 150.19 | -86.33 | -374.28 | 930.77 | 892.37 | 38.40 | 24.238 | |
| 8,170.95 | 8,042.00 | 8,054.44 | 8,042.00 | 27.21 | 18.57 | 150.19 | -86.33 | -374.28 | 930.77 | 892.10 | 38.68 | 24.066 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - P_Riverbend 8-13 - P_Riverbend 8-13 - PLAN #1 6-21-10 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 |
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 89.37 | 0.35 | 32.19 | 32.19 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | 89.37 | 0.35 | 32.19 | 32.19 | 32.00 | 0.19 | 168.514 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | 89.37 | 0.35 | 32.19 | 32.19 | 31.55 | 0.64 | 50.258 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.55 | 0.55 | 89.37 | 0.35 | 32.19 | 32.19 | 31.10 | 1.09 | 29.533 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 0.77 | 0.77 | 89.37 | 0.35 | 32.19 | 32.19 | 30.66 | 1.54 | 20.910 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 0.99 | 0.99 | 89.37 | 0.35 | 32.19 | 32.19 | 30.21 | 1.99 | 16.185 | |
| 600.00 | 600.00 | 600.00 | 600.00 | 1.22 | 1.22 | 89.37 | 0.35 | 32.19 | 32.19 | 29.76 | 2.44 | 13.202 | |
| 700.00 | 700.00 | 700.00 | 700.00 | 1.44 | 1.44 | 89.37 | 0.35 | 32.19 | 32.19 | 29.31 | 2.89 | 11.147 | |
| 800.00 | 800.00 | 800.00 | 800.00 | 1.67 | 1.67 | 89.37 | 0.35 | 32.19 | 32.19 | 28.86 | 3.34 | 9.646 | |
| 900.00 | 900.00 | 900.00 | 900.00 | 1.89 | 1.89 | 89.37 | 0.35 | 32.19 | 32.19 | 28.41 | 3.79 | 8.501 | |
| 1,000.00 | 1,000.00 | 1,000.00 | 1,000.00 | 2.12 | 2.12 | 89.37 | 0.35 | 32.19 | 32.19 | 27.96 | 4.24 | 7.599 CC, ES | |
| 1,100.00 | 1,099.98 | 1,098.79 | 1,098.77 | 2.34 | 2.33 | 140.28 | 0.46 | 33.89 | 35.24 | 30.58 | 4.66 | 7.557 SF | |
| 1,200.00 | 1,199.84 | 1,196.97 | 1,196.82 | 2.56 | 2.53 | 143.87 | 0.80 | 38.95 | 44.49 | 39.42 | 5.07 | 8.774 | |
| 1,300.00 | 1,299.45 | 1,293.95 | 1,293.44 | 2.79 | 2.75 | 147.33 | 1.35 | 47.23 | 60.08 | 54.61 | 5.48 | 10.971 | |
| 1,400.00 | 1,398.70 | 1,389.18 | 1,387.98 | 3.04 | 2.98 | 149.90 | 2.10 | 58.53 | 81.96 | 76.08 | 5.88 | 13.940 | |
| 1,500.00 | 1,497.47 | 1,482.13 | 1,479.86 | 3.31 | 3.23 | 151.63 | 3.04 | 72.58 | 109.97 | 103.69 | 6.28 | 17.505 | |
| 1,600.00 | 1,595.62 | 1,572.34 | 1,568.54 | 3.63 | 3.50 | 152.75 | 4.13 | 89.05 | 143.90 | 137.22 | 6.69 | 21.524 | |
| 1,701.80 | 1,694.80 | 1,660.95 | 1,655.10 | 3.99 | 3.81 | 153.46 | 5.39 | 107.93 | 184.27 | 177.17 | 7.10 | 25.957 | |
| 1,800.00 | 1,790.07 | 1,743.67 | 1,735.35 | 4.38 | 4.13 | 154.11 | 6.72 | 127.97 | 227.18 | 219.63 | 7.55 | 30.092 | |
| 1,900.00 | 1,887.08 | 1,825.68 | 1,814.30 | 4.80 | 4.49 | 154.36 | 8.19 | 150.10 | 273.31 | 265.29 | 8.02 | 34.077 | |
| 2,000.00 | 1,984.10 | 1,905.40 | 1,890.41 | 5.24 | 4.88 | 154.38 | 9.77 | 173.77 | 321.76 | 313.26 | 8.50 | 37.850 | |
| 2,100.00 | 2,081.11 | 1,982.82 | 1,963.65 | 5.69 | 5.30 | 154.25 | 11.43 | 198.76 | 372.45 | 363.46 | 8.99 | 41.420 | |
| 2,200.00 | 2,178.13 | 2,057.91 | 2,034.03 | 6.15 | 5.76 | 154.05 | 13.17 | 224.89 | 425.28 | 415.79 | 9.49 | 44.808 | |
| 2,300.00 | 2,275.14 | 2,130.69 | 2,101.56 | 6.62 | 6.24 | 153.80 | 14.97 | 251.96 | 480.15 | 470.16 | 10.00 | 48.037 | |
| 2,400.00 | 2,372.16 | 2,200.00 | 2,165.21 | 7.09 | 6.72 | 153.53 | 16.79 | 279.32 | 536.99 | 526.49 | 10.50 | 51.142 | |
| 2,500.00 | 2,469.17 | 2,278.22 | 2,236.45 | 7.57 | 7.32 | 153.22 | 18.93 | 311.58 | 595.29 | 584.25 | 11.04 | 53.907 | |
| 2,600.00 | 2,566.18 | 2,359.35 | 2,310.28 | 8.05 | 7.95 | 152.94 | 21.16 | 345.13 | 653.71 | 642.10 | 11.60 | 56.341 | |
| 2,700.00 | 2,663.20 | 2,440.48 | 2,384.11 | 8.54 | 8.59 | 152.72 | 23.39 | 378.67 | 712.13 | 699.96 | 12.17 | 58.519 | |
| 2,800.00 | 2,760.21 | 2,521.61 | 2,457.94 | 9.03 | 9.24 | 152.52 | 25.62 | 412.22 | 770.56 | 757.82 | 12.74 | 60.475 | |
| 2,900.00 | 2,857.23 | 2,602.73 | 2,531.77 | 9.52 | 9.90 | 152.36 | 27.86 | 445.77 | 829.00 | 815.68 | 13.32 | 62.238 | |
| 3,000.00 | 2,954.24 | 2,683.86 | 2,605.61 | 10.02 | 10.57 | 152.21 | 30.09 | 479.32 | 887.44 | 873.53 | 13.90 | 63.829 | |
| 3,100.00 | 3,051.26 | 2,764.99 | 2,679.44 | 10.52 | 11.24 | 152.09 | 32.32 | 512.87 | 945.88 | 931.39 | 14.49 | 65.274 | |
| 3,200.00 | 3,148.27 | 2,846.12 | 2,753.27 | 11.01 | 11.92 | 151.98 | 34.55 | 546.42 | 1,004.33 | 989.24 | 15.08 | 66.590 | |
| 3,300.00 | 3,245.28 | 2,927.24 | 2,827.10 | 11.51 | 12.60 | 151.88 | 36.78 | 579.97 | 1,062.77 | 1,047.10 | 15.68 | 67.794 | |
| 3,400.00 | 3,342.30 | 3,008.37 | 2,900.93 | 12.01 | 13.28 | 151.79 | 39.01 | 613.52 | 1,121.22 | 1,104.95 | 16.27 | 68.897 | |
| 3,500.00 | 3,439.31 | 3,089.50 | 2,974.77 | 12.52 | 13.97 | 151.71 | 41.24 | 647.07 | 1,179.68 | 1,162.80 | 16.87 | 69.910 | |
| 3,600.00 | 3,536.33 | 3,170.63 | 3,048.60 | 13.02 | 14.66 | 151.64 | 43.47 | 680.62 | 1,238.13 | 1,220.65 | 17.48 | 70.844 | |
| 3,700.00 | 3,633.34 | 3,251.76 | 3,122.43 | 13.52 | 15.35 | 151.57 | 45.70 | 714.17 | 1,296.58 | 1,278.50 | 18.08 | 71.707 | |
| 3,800.00 | 3,730.36 | 3,332.88 | 3,196.26 | 14.03 | 16.04 | 151.51 | 47.94 | 747.72 | 1,355.04 | 1,336.35 | 18.69 | 72.508 | |
| 3,900.00 | 3,827.37 | 3,414.01 | 3,270.09 | 14.53 | 16.73 | 151.45 | 50.17 | 781.27 | 1,413.49 | 1,394.20 | 19.30 | 73.251 | |
| 4,000.00 | 3,924.39 | 3,495.14 | 3,343.93 | 15.04 | 17.42 | 151.40 | 52.40 | 814.82 | 1,471.95 | 1,452.04 | 19.91 | 73.943 | |
| 4,100.00 | 4,021.40 | 3,601.34 | 3,440.76 | 15.54 | 18.28 | 151.35 | 55.29 | 858.35 | 1,530.21 | 1,509.62 | 20.59 | 74.305 | |
| 4,200.00 | 4,118.41 | 3,774.80 | 3,601.82 | 16.05 | 19.36 | 151.37 | 59.56 | 922.51 | 1,584.96 | 1,563.52 | 21.44 | 73.910 | |
| 4,300.00 | 4,215.43 | 3,961.34 | 3,779.04 | 16.56 | 20.36 | 151.53 | 63.42 | 980.52 | 1,634.62 | 1,612.32 | 22.30 | 73.286 | |
| 4,400.00 | 4,312.44 | 4,160.76 | 3,972.23 | 17.06 | 21.24 | 151.84 | 66.69 | 1,029.67 | 1,678.63 | 1,655.47 | 23.16 | 72.488 | |
| 4,500.00 | 4,409.46 | 4,372.30 | 4,180.39 | 17.57 | 21.94 | 152.29 | 69.17 | 1,067.02 | 1,716.43 | 1,692.45 | 23.98 | 71.569 | |
| 4,600.00 | 4,506.47 | 4,594.60 | 4,401.47 | 18.08 | 22.44 | 152.91 | 70.67 | 1,089.65 | 1,747.53 | 1,722.76 | 24.76 | 70.575 | |
| 4,700.00 | 4,603.49 | 4,796.74 | 4,603.49 | 18.59 | 22.69 | 153.59 | 71.06 | 1,095.39 | 1,771.65 | 1,746.22 | 25.43 | 69.671 | |
| 4,800.00 | 4,700.50 | 4,893.75 | 4,700.50 | 19.10 | 22.78 | 153.94 | 71.06 | 1,095.39 | 1,793.53 | 1,767.61 | 25.92 | 69.202 | |
| 4,900.00 | 4,797.51 | 4,990.76 | 4,797.51 | 19.61 | 22.88 | 154.27 | 71.06 | 1,095.39 | 1,815.47 | 1,789.06 | 26.40 | 68.755 | |
| 5,000.00 | 4,894.53 | 5,087.78 | 4,894.53 | 20.12 | 22.97 | 154.60 | 71.06 | 1,095.39 | 1,837.47 | 1,810.57 | 26.89 | 68.328 | |
| 5,100.00 | 4,991.54 | 5,184.79 | 4,991.54 | 20.63 | 23.07 | 154.92 | 71.06 | 1,095.39 | 1,859.52 | 1,832.14 | 27.38 | 67.919 | |

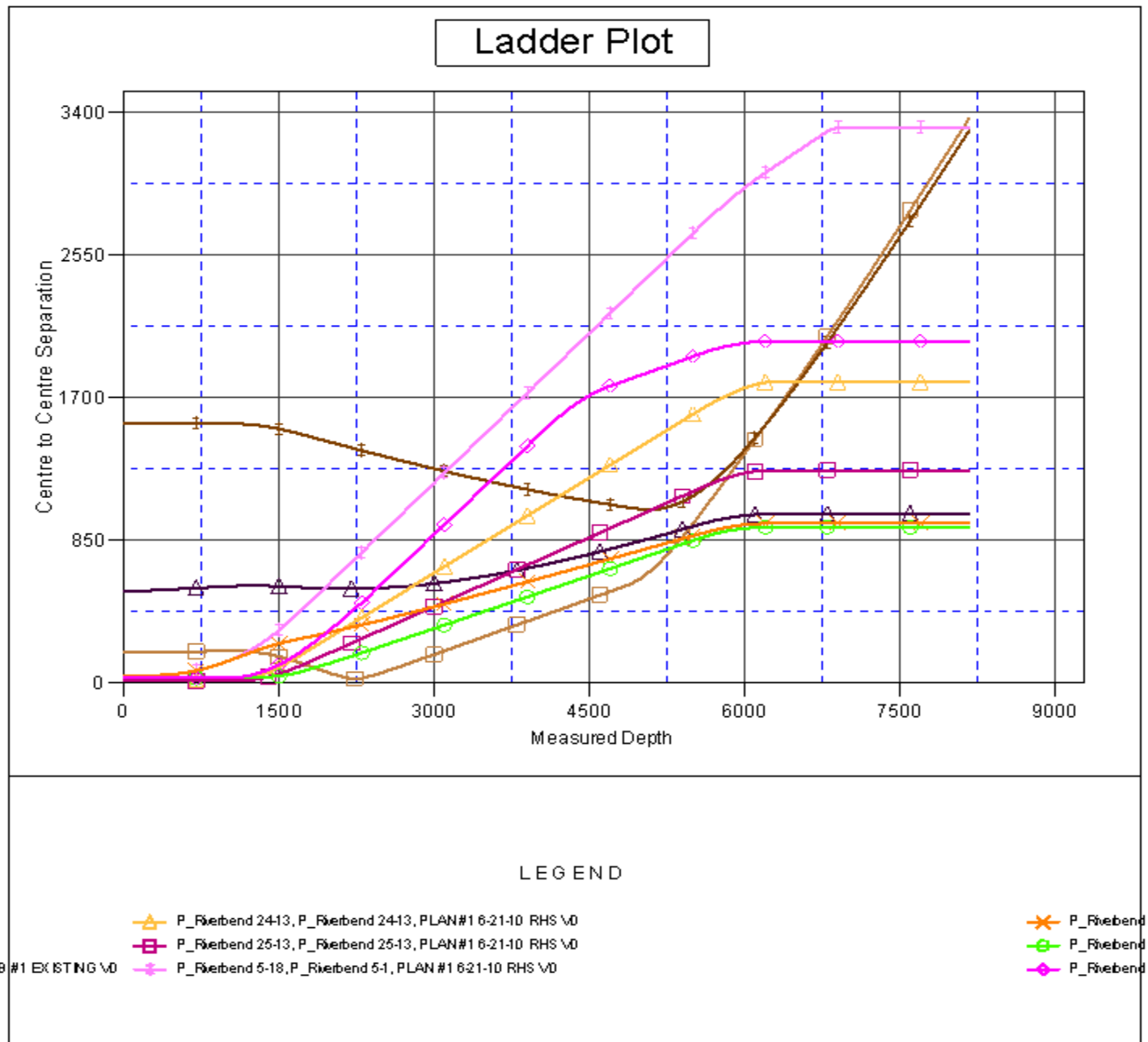
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design Riverbend 7-13 PAD - P_Riverbend 8-13 - P_Riverbend 8-13 - PLAN #1 6-21-10 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 | |
| 5,200.00 | 5,088.56 | 5,281.81 | 5,088.56 | 21.14 | 23.17 | 155.23 | 71.06 | 1,095.39 | 1,881.63 | 1,853.77 | 27.86 | 67.528 | |
| 5,300.00 | 5,185.57 | 5,378.82 | 5,185.57 | 21.65 | 23.27 | 155.53 | 71.06 | 1,095.39 | 1,903.79 | 1,875.44 | 28.35 | 67.154 | |
| 5,400.00 | 5,282.59 | 5,475.84 | 5,282.59 | 22.16 | 23.37 | 155.83 | 71.06 | 1,095.39 | 1,926.01 | 1,897.17 | 28.83 | 66.796 | |
| 5,500.00 | 5,379.60 | 5,572.85 | 5,379.60 | 22.67 | 23.48 | 156.12 | 71.06 | 1,095.39 | 1,948.27 | 1,918.95 | 29.32 | 66.452 | |
| 5,552.15 | 5,430.20 | 5,623.45 | 5,430.20 | 22.93 | 23.53 | 156.27 | 71.06 | 1,095.39 | 1,959.89 | 1,930.32 | 29.57 | 66.279 | |
| 5,600.00 | 5,476.71 | 5,669.96 | 5,476.71 | 23.14 | 23.58 | 156.48 | 71.06 | 1,095.39 | 1,970.22 | 1,940.32 | 29.89 | 65.909 | |
| 5,700.00 | 5,574.49 | 5,767.74 | 5,574.49 | 23.50 | 23.69 | 156.88 | 71.06 | 1,095.39 | 1,989.50 | 1,958.99 | 30.51 | 65.210 | |
| 5,800.00 | 5,672.94 | 5,866.19 | 5,672.94 | 23.81 | 23.80 | 157.20 | 71.06 | 1,095.39 | 2,005.65 | 1,974.57 | 31.08 | 64.537 | |
| 5,900.00 | 5,771.94 | 5,965.19 | 5,771.94 | 24.08 | 23.91 | 157.46 | 71.06 | 1,095.39 | 2,018.64 | 1,987.04 | 31.60 | 63.886 | |
| 6,000.00 | 5,871.38 | 6,064.63 | 5,871.38 | 24.31 | 24.03 | 157.65 | 71.06 | 1,095.39 | 2,028.43 | 1,996.36 | 32.07 | 63.255 | |
| 6,100.00 | 5,971.12 | 6,164.37 | 5,971.12 | 24.49 | 24.14 | 157.77 | 71.06 | 1,095.39 | 2,035.02 | 2,002.53 | 32.49 | 62.641 | |
| 6,200.00 | 6,071.05 | 6,264.30 | 6,071.05 | 24.63 | 24.26 | 157.84 | 71.06 | 1,095.39 | 2,038.38 | 2,005.52 | 32.86 | 62.040 | |
| 6,253.95 | 6,125.00 | 6,318.25 | 6,125.00 | 24.69 | 24.33 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,005.81 | 33.03 | 61.719 | |
| 6,300.00 | 6,171.05 | 6,364.29 | 6,171.05 | 24.74 | 24.38 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,005.66 | 33.18 | 61.439 | |
| 6,400.00 | 6,271.05 | 6,464.29 | 6,271.05 | 24.86 | 24.50 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,005.32 | 33.52 | 60.817 | |
| 6,500.00 | 6,371.05 | 6,564.29 | 6,371.05 | 24.98 | 24.62 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,004.98 | 33.87 | 60.203 | |
| 6,600.00 | 6,471.05 | 6,664.29 | 6,471.05 | 25.11 | 24.75 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,004.64 | 34.21 | 59.597 | |
| 6,700.00 | 6,571.05 | 6,764.29 | 6,571.05 | 25.23 | 24.87 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,004.29 | 34.56 | 58.998 | |
| 6,800.00 | 6,671.05 | 6,864.29 | 6,671.05 | 25.36 | 25.00 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,003.94 | 34.91 | 58.408 | |
| 6,900.00 | 6,771.05 | 6,964.29 | 6,771.05 | 25.48 | 25.13 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,003.59 | 35.26 | 57.826 | |
| 7,000.00 | 6,871.05 | 7,064.29 | 6,871.05 | 25.61 | 25.26 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,003.23 | 35.61 | 57.251 | |
| 7,100.00 | 6,971.05 | 7,164.29 | 6,971.05 | 25.74 | 25.39 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,002.88 | 35.97 | 56.685 | |
| 7,200.00 | 7,071.05 | 7,264.29 | 7,071.05 | 25.87 | 25.52 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,002.52 | 36.33 | 56.126 | |
| 7,300.00 | 7,171.05 | 7,364.29 | 7,171.05 | 26.01 | 25.65 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,002.16 | 36.69 | 55.576 | |
| 7,400.00 | 7,271.05 | 7,464.29 | 7,271.05 | 26.14 | 25.79 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,001.80 | 37.05 | 55.033 | |
| 7,500.00 | 7,371.05 | 7,564.29 | 7,371.05 | 26.27 | 25.92 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,001.43 | 37.41 | 54.497 | |
| 7,600.00 | 7,471.05 | 7,664.29 | 7,471.05 | 26.41 | 26.06 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,001.07 | 37.78 | 53.970 | |
| 7,700.00 | 7,571.05 | 7,764.29 | 7,571.05 | 26.55 | 26.20 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,000.70 | 38.14 | 53.450 | |
| 7,800.00 | 7,671.05 | 7,864.29 | 7,671.05 | 26.69 | 26.34 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 2,000.33 | 38.51 | 52.938 | |
| 7,900.00 | 7,771.05 | 7,964.29 | 7,771.05 | 26.83 | 26.48 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 1,999.96 | 38.88 | 52.433 | |
| 8,000.00 | 7,871.05 | 8,064.29 | 7,871.05 | 26.97 | 26.62 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 1,999.59 | 39.26 | 51.935 | |
| 8,100.00 | 7,971.05 | 8,164.29 | 7,971.05 | 27.11 | 26.76 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 1,999.21 | 39.63 | 51.445 | |
| 8,143.42 | 8,014.47 | 8,207.72 | 8,014.47 | 27.17 | 26.83 | 108.60 | 71.06 | 1,095.39 | 2,038.85 | 1,999.05 | 39.79 | 51.234 | |
| 8,170.95 | 8,042.00 | 8,225.25 | 8,032.00 | 27.21 | 26.85 | 108.60 | 71.06 | 1,095.39 | 2,038.87 | 1,998.99 | 39.88 | 51.126 | |

| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 4932.00ft (Original Well Elev) Coordinates are relative to: P_Riverbend 21-13
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.43°



| | | | |
|---------------------------|-----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_Riverbend 21-13 |
| Project: | COLORADO NORTHERN ZONE - 83 | TVD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Reference Site: | Riverbend 7-13 PAD | MD Reference: | WELL @ 4932.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_Riverbend 21-13 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_Riverbend 21-13 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 6-21-10 RHS | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 4932.00ft (Original Well Elev) Coordinates are relative to: P_Riverbend 21-13
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: 0.43°

