



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_BERNHARDT STATE 3 PAD
P_BERNHARDT STATE 29-36**

P_BERNHARDT STATE 29-36

Plan: PLAN #1 11-04-09 RHS

Standard Planning Report

04 November, 2009





Azimuths to True North
 Magnetic North: 9.08°
 Magnetic Field
 Strength: 53291.0snT
 Dip Angle: 67.07°
 Date: 11/4/2009
 Model: IGRF200510

WELL DETAILS: P_BERNHARDT STATE 29-36

| +N/-S | +E/-W | Northing | Easting | Ground Level: | 4886.00 | Latitude | Longitude | Slot |
|-------|-------|------------|------------|------------------|-------------------|----------|-----------|------|
| 0.00 | 0.00 | 1375197.02 | 3182860.72 | 40° 21' 41.256 N | 104° 50' 37.680 W | | | |

FORMATION TOP DETAILS

| TVDPath | MDPath | Formation |
|---------|---------|-------------|
| 2724.00 | 2750.69 | PARKMAN TOP |
| 4452.00 | 4511.53 | SUSSEX TOP |
| 4835.00 | 4901.80 | SHANNON TOP |
| 7046.00 | 7128.80 | NIO A TOP |
| 7369.00 | 7451.80 | CODELL TOP |
| 7819.00 | 7901.80 | JSAND TOP |

SECTION DETAILS

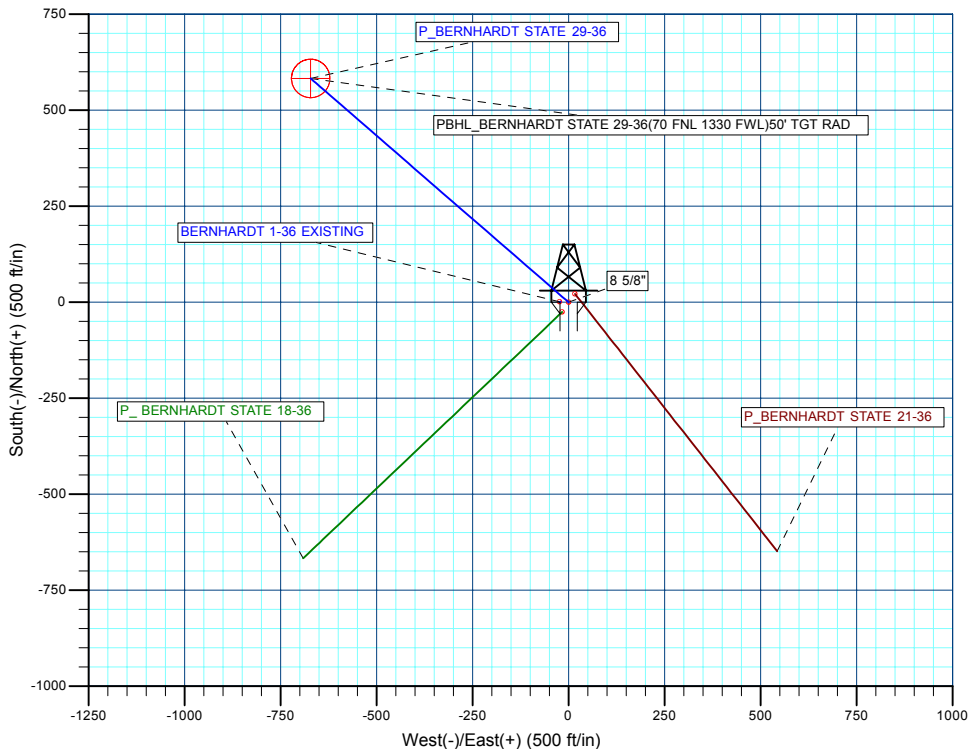
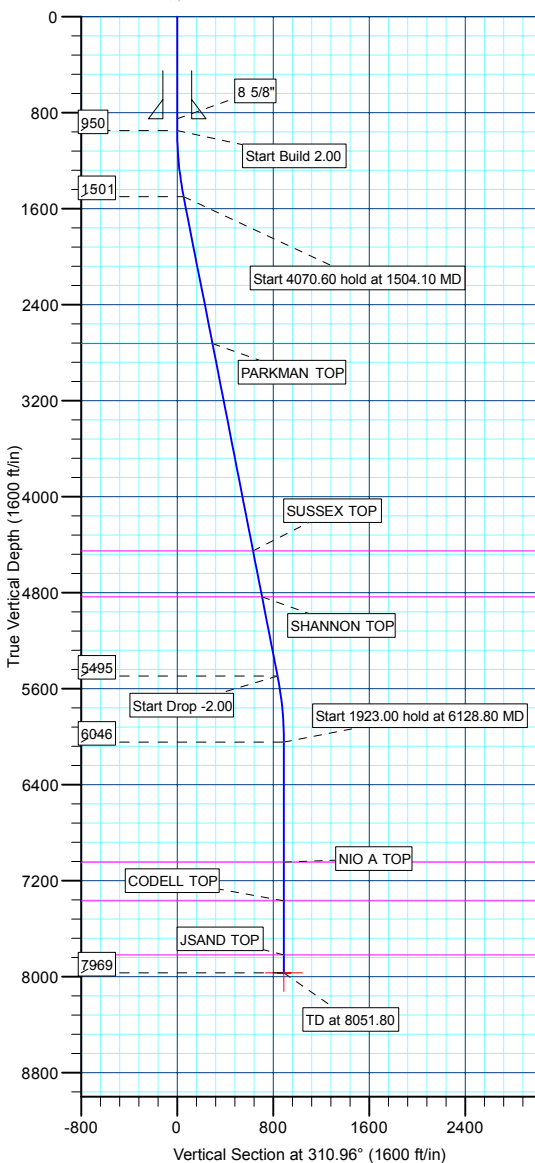
| MD | Inc | Azi | TVD | +N/-S | +E/-W | DLeg | TFace | VSec | Target |
|---------|-------|--------|---------|--------|---------|------|--------|--------|---|
| 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 950.00 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1504.10 | 11.08 | 310.96 | 1500.65 | 35.02 | -40.34 | 2.00 | 310.96 | 53.42 | |
| 5574.70 | 11.08 | 310.96 | 5495.35 | 547.89 | -631.23 | 0.00 | 0.00 | 835.84 | |
| 6128.80 | 0.00 | 0.00 | 6046.00 | 582.90 | -671.58 | 2.00 | 180.00 | 889.26 | |
| 8051.80 | 0.00 | 0.00 | 7969.00 | 582.90 | -671.58 | 0.00 | 0.00 | 889.26 | PBHL_BERNHARDT STATE 29-36(70 FNL 1330 FWL) |

CASING DETAILS

| TVD | MD | Name | Size |
|--------|--------|--------|------|
| 850.00 | 850.00 | 8 5/8" | 8.62 |



KB ELEV: WELL @ 4901.00ft (Original Well Elev)
 iRD ELEV: 4886.00



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

| Name | TVD | +N/-S | +E/-W | Northing | Easting | Latitude | Longitude | Shape |
|------|---------|--------|---------|------------|--------------|------------------|-------------------|------------------------|
| PBHL | 7969.00 | 582.90 | -671.58 | 1375774.94 | 3182184.8540 | 40° 21' 47.016 N | 104° 50' 46.356 W | Circle (Radius: 50.00) |

| | | | |
|------------------|----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_BERNHARDT STATE 29-36 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Project: | COLORADO NOTHERN ZONE - 83 | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site: | WELD_BERNHARDT STATE 3 PAD | North Reference: | True |
| Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_BERNHARDT STATE 29-36 | | |
| Design: | PLAN #1 11-04-09 RHS | | |

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

| | | | | |
|------------------------------|---|---------------------|-----------------|-------------------------------------|
| Site | WELD_BERNHARDT STATE 3 PAD, SECTION 36 T5N R67W | | | |
| Site Position: | | Northing: | 1,375,171.42 ft | Latitude: 40° 21' 41.004 N |
| From: | Lat/Long | Easting: | 3,182,844.19 ft | Longitude: 104° 50' 37.896 W |
| Position Uncertainty: | 0.00 ft | Slot Radius: | in | Grid Convergence: 0.42 ° |

| | | | | |
|-----------------------------|-------------------------|----------|----------------------------|-----------------|
| Well | P_BERNHARDT STATE 29-36 | | | |
| Well Position | +N/-S | 25.48 ft | Northing: | 1,375,197.02 ft |
| | +E/-W | 16.72 ft | Easting: | 3,182,860.72 ft |
| Position Uncertainty | | 0.00 ft | Wellhead Elevation: | ft |
| | | | Ground Level: | 4,886.00 ft |

| | | | | | |
|------------------|-------------------------|--------------------|------------------------|----------------------|----------------------------|
| Wellbore | P_BERNHARDT STATE 29-36 | | | | |
| Magnetics | Model Name | Sample Date | Declination (°) | Dip Angle (°) | Field Strength (nT) |
| | IGRF200510 | 11/4/2009 | 9.08 | 67.07 | 53,291 |

| | | | | |
|--------------------------|------------------------------|-------------------|----------------------|----------------------|
| Design | PLAN #1 11-04-09 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 | 310.96 |

| 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 | |
| 950.00 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 1,504.10 | 11.08 | 310.96 | 1,500.65 | 35.02 | -40.34 | 2.00 | 2.00 | 0.00 | 310.96 | |
| 5,574.70 | 11.08 | 310.96 | 5,495.35 | 547.89 | -631.23 | 0.00 | 0.00 | 0.00 | 0.00 | |
| 6,128.80 | 0.00 | 0.00 | 6,046.00 | 582.90 | -671.58 | 2.00 | -2.00 | 0.00 | 180.00 | |
| 8,051.80 | 0.00 | 0.00 | 7,969.00 | 582.90 | -671.58 | 0.00 | 0.00 | 0.00 | 0.00 | PBHL_BERNHARD |

| | | | |
|------------------|----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_BERNHARDT STATE 29-36 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Project: | COLORADO NOTHERN ZONE - 83 | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site: | WELD_BERNHARDT STATE 3 PAD | North Reference: | True |
| Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_BERNHARDT STATE 29-36 | | |
| Design: | PLAN #1 11-04-09 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 | | | | | | | | | |
| 950.00 | 0.00 | 0.00 | 950.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 1,000.00 | 1.00 | 310.96 | 1,000.00 | 0.29 | -0.33 | 0.44 | 2.00 | 2.00 | 0.00 |
| 1,100.00 | 3.00 | 310.96 | 1,099.93 | 2.57 | -2.97 | 3.93 | 2.00 | 2.00 | 0.00 |
| 1,200.00 | 5.00 | 310.96 | 1,199.68 | 7.15 | -8.23 | 10.90 | 2.00 | 2.00 | 0.00 |
| 1,300.00 | 7.00 | 310.96 | 1,299.13 | 14.00 | -16.13 | 21.35 | 2.00 | 2.00 | 0.00 |
| 1,400.00 | 9.00 | 310.96 | 1,398.15 | 23.12 | -26.64 | 35.27 | 2.00 | 2.00 | 0.00 |
| 1,500.00 | 11.00 | 310.96 | 1,496.63 | 34.50 | -39.75 | 52.63 | 2.00 | 2.00 | 0.00 |
| Start 4070.60 hold at 1504.10 MD | | | | | | | | | |
| 1,504.10 | 11.08 | 310.96 | 1,500.65 | 35.02 | -40.34 | 53.42 | 2.00 | 2.00 | 0.00 |
| 1,600.00 | 11.08 | 310.96 | 1,594.76 | 47.10 | -54.26 | 71.85 | 0.00 | 0.00 | 0.00 |
| 1,700.00 | 11.08 | 310.96 | 1,692.90 | 59.70 | -68.78 | 91.07 | 0.00 | 0.00 | 0.00 |
| 1,800.00 | 11.08 | 310.96 | 1,791.03 | 72.30 | -83.30 | 110.30 | 0.00 | 0.00 | 0.00 |
| 1,900.00 | 11.08 | 310.96 | 1,889.17 | 84.90 | -97.81 | 129.52 | 0.00 | 0.00 | 0.00 |
| 2,000.00 | 11.08 | 310.96 | 1,987.30 | 97.50 | -112.33 | 148.74 | 0.00 | 0.00 | 0.00 |
| 2,100.00 | 11.08 | 310.96 | 2,085.44 | 110.10 | -126.84 | 167.96 | 0.00 | 0.00 | 0.00 |
| 2,200.00 | 11.08 | 310.96 | 2,183.58 | 122.69 | -141.36 | 187.18 | 0.00 | 0.00 | 0.00 |
| 2,300.00 | 11.08 | 310.96 | 2,281.71 | 135.29 | -155.88 | 206.40 | 0.00 | 0.00 | 0.00 |
| 2,400.00 | 11.08 | 310.96 | 2,379.85 | 147.89 | -170.39 | 225.62 | 0.00 | 0.00 | 0.00 |
| 2,500.00 | 11.08 | 310.96 | 2,477.98 | 160.49 | -184.91 | 244.84 | 0.00 | 0.00 | 0.00 |
| 2,600.00 | 11.08 | 310.96 | 2,576.12 | 173.09 | -199.42 | 264.07 | 0.00 | 0.00 | 0.00 |
| 2,700.00 | 11.08 | 310.96 | 2,674.25 | 185.69 | -213.94 | 283.29 | 0.00 | 0.00 | 0.00 |
| PARKMAN TOP | | | | | | | | | |
| 2,750.69 | 11.08 | 310.96 | 2,724.00 | 192.08 | -221.30 | 293.03 | 0.00 | 0.00 | 0.00 |
| 2,800.00 | 11.08 | 310.96 | 2,772.39 | 198.29 | -228.46 | 302.51 | 0.00 | 0.00 | 0.00 |
| 2,900.00 | 11.08 | 310.96 | 2,870.52 | 210.89 | -242.97 | 321.73 | 0.00 | 0.00 | 0.00 |
| 3,000.00 | 11.08 | 310.96 | 2,968.66 | 223.49 | -257.49 | 340.95 | 0.00 | 0.00 | 0.00 |
| 3,100.00 | 11.08 | 310.96 | 3,066.79 | 236.09 | -272.00 | 360.17 | 0.00 | 0.00 | 0.00 |
| 3,200.00 | 11.08 | 310.96 | 3,164.93 | 248.69 | -286.52 | 379.39 | 0.00 | 0.00 | 0.00 |
| 3,300.00 | 11.08 | 310.96 | 3,263.06 | 261.29 | -301.04 | 398.62 | 0.00 | 0.00 | 0.00 |
| 3,400.00 | 11.08 | 310.96 | 3,361.20 | 273.89 | -315.55 | 417.84 | 0.00 | 0.00 | 0.00 |
| 3,500.00 | 11.08 | 310.96 | 3,459.33 | 286.49 | -330.07 | 437.06 | 0.00 | 0.00 | 0.00 |
| 3,600.00 | 11.08 | 310.96 | 3,557.47 | 299.09 | -344.59 | 456.28 | 0.00 | 0.00 | 0.00 |
| 3,700.00 | 11.08 | 310.96 | 3,655.60 | 311.69 | -359.10 | 475.50 | 0.00 | 0.00 | 0.00 |
| 3,800.00 | 11.08 | 310.96 | 3,753.74 | 324.28 | -373.62 | 494.72 | 0.00 | 0.00 | 0.00 |
| 3,900.00 | 11.08 | 310.96 | 3,851.88 | 336.88 | -388.13 | 513.94 | 0.00 | 0.00 | 0.00 |
| 4,000.00 | 11.08 | 310.96 | 3,950.01 | 349.48 | -402.65 | 533.17 | 0.00 | 0.00 | 0.00 |
| 4,100.00 | 11.08 | 310.96 | 4,048.15 | 362.08 | -417.17 | 552.39 | 0.00 | 0.00 | 0.00 |
| 4,200.00 | 11.08 | 310.96 | 4,146.28 | 374.68 | -431.68 | 571.61 | 0.00 | 0.00 | 0.00 |
| 4,300.00 | 11.08 | 310.96 | 4,244.42 | 387.28 | -446.20 | 590.83 | 0.00 | 0.00 | 0.00 |
| 4,400.00 | 11.08 | 310.96 | 4,342.55 | 399.88 | -460.71 | 610.05 | 0.00 | 0.00 | 0.00 |
| 4,500.00 | 11.08 | 310.96 | 4,440.69 | 412.48 | -475.23 | 629.27 | 0.00 | 0.00 | 0.00 |
| SUSSEX TOP | | | | | | | | | |
| 4,511.53 | 11.08 | 310.96 | 4,452.00 | 413.93 | -476.90 | 631.49 | 0.00 | 0.00 | 0.00 |
| 4,600.00 | 11.08 | 310.96 | 4,538.82 | 425.08 | -489.75 | 648.49 | 0.00 | 0.00 | 0.00 |
| 4,700.00 | 11.08 | 310.96 | 4,636.96 | 437.68 | -504.26 | 667.71 | 0.00 | 0.00 | 0.00 |
| 4,800.00 | 11.08 | 310.96 | 4,735.09 | 450.28 | -518.78 | 686.94 | 0.00 | 0.00 | 0.00 |
| 4,900.00 | 11.08 | 310.96 | 4,833.23 | 462.88 | -533.29 | 706.16 | 0.00 | 0.00 | 0.00 |
| SHANNON TOP | | | | | | | | | |
| 4,901.80 | 11.08 | 310.96 | 4,835.00 | 463.10 | -533.56 | 706.50 | 0.00 | 0.00 | 0.00 |
| 5,000.00 | 11.08 | 310.96 | 4,931.36 | 475.48 | -547.81 | 725.38 | 0.00 | 0.00 | 0.00 |
| 5,100.00 | 11.08 | 310.96 | 5,029.50 | 488.08 | -562.33 | 744.60 | 0.00 | 0.00 | 0.00 |
| 5,200.00 | 11.08 | 310.96 | 5,127.63 | 500.68 | -576.84 | 763.82 | 0.00 | 0.00 | 0.00 |
| 5,300.00 | 11.08 | 310.96 | 5,225.77 | 513.27 | -591.36 | 783.04 | 0.00 | 0.00 | 0.00 |

| | | | |
|------------------|----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_BERNHARDT STATE 29-36 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Project: | COLORADO NOTHERN ZONE - 83 | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site: | WELD_BERNHARDT STATE 3 PAD | North Reference: | True |
| Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_BERNHARDT STATE 29-36 | | |
| Design: | PLAN #1 11-04-09 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) |
| 5,400.00 | 11.08 | 310.96 | 5,323.91 | 525.87 | -605.87 | 802.26 | 0.00 | 0.00 | 0.00 |
| 5,500.00 | 11.08 | 310.96 | 5,422.04 | 538.47 | -620.39 | 821.49 | 0.00 | 0.00 | 0.00 |
| Start Drop -2.00 | | | | | | | | | |
| 5,574.70 | 11.08 | 310.96 | 5,495.35 | 547.89 | -631.23 | 835.84 | 0.00 | 0.00 | 0.00 |
| 5,600.00 | 10.58 | 310.96 | 5,520.20 | 551.00 | -634.82 | 840.60 | 2.00 | -2.00 | 0.00 |
| 5,700.00 | 8.58 | 310.96 | 5,618.80 | 561.90 | -647.39 | 857.23 | 2.00 | -2.00 | 0.00 |
| 5,800.00 | 6.58 | 310.96 | 5,717.92 | 570.55 | -657.34 | 870.42 | 2.00 | -2.00 | 0.00 |
| 5,900.00 | 4.58 | 310.96 | 5,817.44 | 576.92 | -664.68 | 880.13 | 2.00 | -2.00 | 0.00 |
| 6,000.00 | 2.58 | 310.96 | 5,917.24 | 581.00 | -669.39 | 886.37 | 2.00 | -2.00 | 0.00 |
| 6,100.00 | 0.58 | 310.96 | 6,017.20 | 582.81 | -671.47 | 889.12 | 2.00 | -2.00 | 0.00 |
| Start 1923.00 hold at 6128.80 MD | | | | | | | | | |
| 6,128.80 | 0.00 | 0.00 | 6,046.00 | 582.90 | -671.58 | 889.26 | 2.00 | -2.00 | 0.00 |
| 6,200.00 | 0.00 | 0.00 | 6,117.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 6,300.00 | 0.00 | 0.00 | 6,217.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 6,400.00 | 0.00 | 0.00 | 6,317.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 6,500.00 | 0.00 | 0.00 | 6,417.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 6,600.00 | 0.00 | 0.00 | 6,517.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 6,700.00 | 0.00 | 0.00 | 6,617.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 6,800.00 | 0.00 | 0.00 | 6,717.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 6,900.00 | 0.00 | 0.00 | 6,817.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 7,000.00 | 0.00 | 0.00 | 6,917.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 7,100.00 | 0.00 | 0.00 | 7,017.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| NIO A TOP | | | | | | | | | |
| 7,128.80 | 0.00 | 0.00 | 7,046.00 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 7,200.00 | 0.00 | 0.00 | 7,117.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 7,300.00 | 0.00 | 0.00 | 7,217.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 7,400.00 | 0.00 | 0.00 | 7,317.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| CODELL TOP | | | | | | | | | |
| 7,451.80 | 0.00 | 0.00 | 7,369.00 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 7,500.00 | 0.00 | 0.00 | 7,417.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 7,600.00 | 0.00 | 0.00 | 7,517.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 7,700.00 | 0.00 | 0.00 | 7,617.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 7,800.00 | 0.00 | 0.00 | 7,717.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 7,900.00 | 0.00 | 0.00 | 7,817.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| JSAND TOP | | | | | | | | | |
| 7,901.80 | 0.00 | 0.00 | 7,819.00 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| 8,000.00 | 0.00 | 0.00 | 7,917.20 | 582.90 | -671.58 | 889.26 | 0.00 | 0.00 | 0.00 |
| PBHL_BERNHARDT STATE 29-36(70 FNL 1330 FWL) | | | | | | | | | |
| 8,051.80 | 0.00 | 0.00 | 7,969.00 | 582.90 | -671.58 | 889.26 | 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_BERNHARDT | 0.00 | 0.00 | 7,969.00 | 582.90 | -671.58 | 1,375,774.94 | 3,182,184.85 | 40° 21' 47.016 N | 104° 50' 46.356 W |
| - plan hits target center | | | | | | | | | |
| - Circle (radius 50.00) | | | | | | | | | |

| | | | |
|------------------|----------------------------|-------------------------------------|---------------------------------------|
| Database: | EDM 2003.21 Single User Db | Local Co-ordinate Reference: | Well P_BERNHARDT STATE 29-36 |
| Company: | US ROCKIES REGION PLANNING | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Project: | COLORADO NOTHERN ZONE - 83 | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site: | WELD_BERNHARDT STATE 3 PAD | North Reference: | True |
| Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Wellbore: | P_BERNHARDT STATE 29-36 | | |
| Design: | PLAN #1 11-04-09 RHS | | |

| Casing Points | | | | | |
|---------------------|---------------------|--------|----------------------|--------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Casing Diameter (in) | Hole Diameter (in) | |
| 850.00 | 850.00 | 8 5/8" | 8.62 | 11.00 | |

| Formations | | | | | | |
|---------------------|---------------------|-------------|-----------|---------|-------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Name | Lithology | Dip (°) | Dip Direction (°) | |
| 2,750.69 | 2,724.00 | PARKMAN TOP | | | | |
| 4,511.53 | 4,452.00 | SUSSEX TOP | | | | |
| 4,901.80 | 4,835.00 | SHANNON TOP | | | | |
| 7,128.80 | 7,046.00 | NIO A TOP | | | | |
| 7,451.80 | 7,369.00 | CODELL TOP | | | | |
| 7,901.80 | 7,819.00 | JSAND TOP | | | | |

| Plan Annotations | | | | | |
|---------------------|---------------------|-------------------|------------|----------------------------------|--|
| Measured Depth (ft) | Vertical Depth (ft) | Local Coordinates | | | |
| | | +N/-S (ft) | +E/-W (ft) | Comment | |
| 950.00 | 950.00 | 0.00 | 0.00 | Start Build 2.00 | |
| 1,504.10 | 1,500.65 | 35.02 | -40.34 | Start 4070.60 hold at 1504.10 MD | |
| 5,574.70 | 5,495.35 | 547.89 | -631.23 | Start Drop -2.00 | |
| 6,128.80 | 6,046.00 | 582.90 | -671.58 | Start 1923.00 hold at 6128.80 MD | |
| 8,051.80 | 7,969.00 | 582.90 | -671.58 | TD at 8051.80 | |



US ROCKIES REGION PLANNING

**COLORADO NOTHERN ZONE - 83
WELD_BERNHARDT STATE 3 PAD
P_BERNHARDT STATE 29-36**

**P_BERNHARDT STATE 29-36
PLAN #1 11-04-09 RHS**

Anticollision Report

04 November, 2009



| | | | |
|---------------------------|----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_BERNHARDT STATE 29-36 |
| Project: | COLORADO NOTHERN ZONE - 83 | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Reference Site: | WELD_BERNHARDT STATE 3 PAD | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_BERNHARDT STATE 29-36 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 11-04-09 RHS | Offset TVD Reference: | Offset Datum |

| | | | |
|-------------------------------------|---|-----------------------|---------------------|
| Reference | PLAN #1 11-04-09 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 | 11/4/2009 | | |
| From (ft) | To (ft) | Survey (Wellbore) | Tool Name | Description |
| 0.00 | 8,051.80 | PLAN #1 11-04-09 RHS (P_BERNHARDT | MWD | MWD - Standard |

| Summary | | | | | | |
|---|-------------------------------|----------------------------|-------------------------------|--------------------------------|-------------------|-----------------|
| Site Name | Reference Measured Depth (ft) | Offset Measured Depth (ft) | Distance Between Centres (ft) | Distance Between Ellipses (ft) | Separation Factor | Warning |
| Offset Well - Wellbore - Design | | | | | | |
| WELD_BERNHARDT STATE 3 PAD | | | | | | |
| BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXIS | 1,276.95 | 1,276.24 | 14.24 | -37.26 | 0.277 | Level 1, CC |
| BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXIS | 1,300.00 | 1,299.13 | 14.50 | -37.97 | 0.276 | Level 1, ES, SF |
| P_BERNHARDT STATE 18-36 - P_BERNHARDT STA | 950.00 | 950.00 | 30.48 | 26.46 | 7.596 | CC, ES |
| P_BERNHARDT STATE 18-36 - P_BERNHARDT STA | 1,000.00 | 999.48 | 30.96 | 26.74 | 7.333 | SF |
| P_BERNHARDT STATE 21-36 - P_BERNHARDT STATI | 1,061.33 | 1,061.43 | 27.19 | 22.73 | 6.090 | CC, ES |
| P_BERNHARDT STATE 21-36 - P_BERNHARDT STATI | 1,100.00 | 1,099.95 | 27.42 | 22.80 | 5.938 | SF |

| Offset Design | | WELD_BERNHARDT STATE 3 PAD - BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXISTING - | | | | | | | | | | 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) | Offset Wellbore Centre +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 | -86.43 | 1.46 | -23.41 | 23.45 | | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 1.70 | -86.43 | 1.46 | -23.41 | 23.45 | 21.66 | 1.80 | 13.062 | | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 5.70 | -86.43 | 1.46 | -23.41 | 23.45 | 17.43 | 6.02 | 3.896 | | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.55 | 9.70 | -86.43 | 1.46 | -23.41 | 23.45 | 13.21 | 10.25 | 2.289 | | |
| 400.00 | 400.00 | 400.00 | 400.00 | 0.77 | 13.70 | -86.43 | 1.46 | -23.41 | 23.45 | 8.98 | 14.47 | 1.621 | | |
| 500.00 | 500.00 | 500.00 | 500.00 | 0.99 | 17.70 | -86.43 | 1.46 | -23.41 | 23.45 | 4.76 | 18.69 | 1.255 | Level 3 | |
| 600.00 | 600.00 | 600.00 | 600.00 | 1.22 | 21.70 | -86.43 | 1.46 | -23.41 | 23.45 | 0.53 | 22.92 | 1.023 | Level 2 | |
| 700.00 | 700.00 | 700.00 | 700.00 | 1.44 | 25.70 | -86.43 | 1.46 | -23.41 | 23.45 | -3.69 | 27.14 | 0.864 | Level 1 | |
| 800.00 | 800.00 | 800.00 | 800.00 | 1.67 | 29.70 | -86.43 | 1.46 | -23.41 | 23.45 | -7.92 | 31.37 | 0.748 | Level 1 | |
| 900.00 | 900.00 | 900.00 | 900.00 | 1.89 | 33.70 | -86.43 | 1.46 | -23.41 | 23.45 | -12.14 | 35.59 | 0.659 | Level 1 | |
| 950.00 | 950.00 | 950.00 | 950.00 | 2.01 | 35.70 | -86.43 | 1.46 | -23.41 | 23.45 | -14.25 | 37.71 | 0.622 | Level 1 | |
| 1,000.00 | 1,000.00 | 1,000.00 | 1,000.00 | 2.12 | 37.70 | -38.05 | 1.46 | -23.41 | 23.11 | -16.70 | 39.81 | 0.580 | Level 1 | |
| 1,100.00 | 1,099.93 | 1,099.93 | 1,099.93 | 2.33 | 41.70 | -44.11 | 1.46 | -23.41 | 20.47 | -23.52 | 44.00 | 0.465 | Level 1 | |
| 1,200.00 | 1,199.68 | 1,199.68 | 1,199.68 | 2.56 | 45.69 | -61.58 | 1.46 | -23.41 | 16.21 | -31.99 | 48.20 | 0.336 | Level 1 | |
| 1,276.95 | 1,276.24 | 1,276.24 | 1,276.24 | 2.74 | 48.75 | -90.00 | 1.46 | -23.41 | 14.24 | -37.26 | 51.50 | 0.277 | Level 1, CC | |
| 1,300.00 | 1,299.13 | 1,299.13 | 1,299.13 | 2.80 | 49.67 | -100.73 | 1.46 | -23.41 | 14.50 | -37.97 | 52.46 | 0.276 | Level 1, ES, SF | |
| 1,400.00 | 1,398.15 | 1,398.15 | 1,398.15 | 3.06 | 53.63 | -139.08 | 1.46 | -23.41 | 21.90 | -34.41 | 56.30 | 0.389 | Level 1 | |
| 1,504.10 | 1,500.65 | 1,500.65 | 1,500.65 | 3.37 | 57.73 | -157.36 | 1.46 | -23.41 | 37.59 | -22.51 | 60.09 | 0.625 | Level 1 | |
| 1,600.00 | 1,594.76 | 1,594.76 | 1,594.76 | 3.68 | 61.49 | -164.75 | 1.46 | -23.41 | 55.09 | -8.83 | 63.92 | 0.862 | Level 1 | |
| 1,700.00 | 1,692.90 | 1,692.90 | 1,692.90 | 4.03 | 65.42 | -168.67 | 1.46 | -23.41 | 73.82 | 5.85 | 67.98 | 1.086 | Level 2 | |
| 1,800.00 | 1,791.03 | 1,791.03 | 1,791.03 | 4.39 | 69.34 | -171.00 | 1.46 | -23.41 | 92.76 | 20.71 | 72.05 | 1.287 | Level 3 | |

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_BERNHARDT STATE 29-36 |
| Project: | COLORADO NOTHERN ZONE - 83 | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Reference Site: | WELD_BERNHARDT STATE 3 PAD | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_BERNHARDT STATE 29-36 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 11-04-09 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_BERNHARDT STATE 3 PAD - BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXISTING - | | | | | | | | | | | | | 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 | | |
| 1,900.00 | 1,889.17 | 1,889.17 | 1,889.17 | 4.76 | 73.27 | -172.54 | 1.46 | -23.41 | 111.79 | 35.65 | 76.14 | 1.468 | Level 3 | |
| 2,000.00 | 1,987.30 | 1,987.30 | 1,987.30 | 5.14 | 77.19 | -173.64 | 1.46 | -23.41 | 130.88 | 50.65 | 80.23 | 1.631 | | |
| 2,100.00 | 2,085.44 | 2,085.44 | 2,085.44 | 5.53 | 81.12 | -174.45 | 1.46 | -23.41 | 150.00 | 65.67 | 84.33 | 1.779 | | |
| 2,200.00 | 2,183.58 | 2,183.58 | 2,183.58 | 5.92 | 85.04 | -175.08 | 1.46 | -23.41 | 169.15 | 80.72 | 88.43 | 1.913 | | |
| 2,300.00 | 2,281.71 | 2,281.71 | 2,281.71 | 6.32 | 88.97 | -175.58 | 1.46 | -23.41 | 188.31 | 95.78 | 92.53 | 2.035 | | |
| 2,400.00 | 2,379.85 | 2,379.85 | 2,379.85 | 6.72 | 92.89 | -175.99 | 1.46 | -23.41 | 207.48 | 110.85 | 96.63 | 2.147 | | |
| 2,500.00 | 2,477.98 | 2,477.98 | 2,477.98 | 7.12 | 96.82 | -176.33 | 1.46 | -23.41 | 226.66 | 125.92 | 100.73 | 2.250 | | |
| 2,600.00 | 2,576.12 | 2,576.12 | 2,576.12 | 7.53 | 100.74 | -176.62 | 1.46 | -23.41 | 245.84 | 141.00 | 104.84 | 2.345 | | |
| 2,700.00 | 2,674.25 | 2,674.25 | 2,674.25 | 7.94 | 104.67 | -176.86 | 1.46 | -23.41 | 265.03 | 156.09 | 108.94 | 2.433 | | |
| 2,800.00 | 2,772.39 | 2,772.39 | 2,772.39 | 8.35 | 108.60 | -177.07 | 1.46 | -23.41 | 284.23 | 171.18 | 113.05 | 2.514 | | |
| 2,900.00 | 2,870.52 | 2,870.52 | 2,870.52 | 8.76 | 112.52 | -177.26 | 1.46 | -23.41 | 303.43 | 186.27 | 117.16 | 2.590 | | |
| 3,000.00 | 2,968.66 | 2,968.66 | 2,968.66 | 9.17 | 116.45 | -177.42 | 1.46 | -23.41 | 322.63 | 201.36 | 121.27 | 2.660 | | |
| 3,100.00 | 3,066.79 | 3,066.79 | 3,066.79 | 9.59 | 120.37 | -177.57 | 1.46 | -23.41 | 341.83 | 216.46 | 125.38 | 2.726 | | |
| 3,200.00 | 3,164.93 | 3,164.93 | 3,164.93 | 10.00 | 124.30 | -177.70 | 1.46 | -23.41 | 361.04 | 231.55 | 129.49 | 2.788 | | |
| 3,300.00 | 3,263.06 | 3,263.06 | 3,263.06 | 10.42 | 128.22 | -177.81 | 1.46 | -23.41 | 380.25 | 246.65 | 133.59 | 2.846 | | |
| 3,400.00 | 3,361.20 | 3,361.20 | 3,361.20 | 10.84 | 132.15 | -177.92 | 1.46 | -23.41 | 399.46 | 261.75 | 137.71 | 2.901 | | |
| 3,500.00 | 3,459.33 | 3,459.33 | 3,459.33 | 11.25 | 136.07 | -178.01 | 1.46 | -23.41 | 418.66 | 276.85 | 141.82 | 2.952 | | |
| 3,600.00 | 3,557.47 | 3,557.47 | 3,557.47 | 11.67 | 140.00 | -178.10 | 1.46 | -23.41 | 437.88 | 291.95 | 145.93 | 3.001 | | |
| 3,700.00 | 3,655.60 | 3,655.60 | 3,655.60 | 12.09 | 143.92 | -178.18 | 1.46 | -23.41 | 457.09 | 307.05 | 150.04 | 3.046 | | |
| 3,800.00 | 3,753.74 | 3,753.74 | 3,753.74 | 12.51 | 147.85 | -178.25 | 1.46 | -23.41 | 476.30 | 322.15 | 154.15 | 3.090 | | |
| 3,900.00 | 3,851.88 | 3,851.88 | 3,851.88 | 12.93 | 151.78 | -178.32 | 1.46 | -23.41 | 495.51 | 337.25 | 158.26 | 3.131 | | |
| 4,000.00 | 3,950.01 | 3,950.01 | 3,950.01 | 13.35 | 155.70 | -178.38 | 1.46 | -23.41 | 514.73 | 352.35 | 162.37 | 3.170 | | |
| 4,100.00 | 4,048.15 | 4,048.15 | 4,048.15 | 13.77 | 159.63 | -178.44 | 1.46 | -23.41 | 533.94 | 367.46 | 166.48 | 3.207 | | |
| 4,200.00 | 4,146.28 | 4,146.28 | 4,146.28 | 14.20 | 163.55 | -178.50 | 1.46 | -23.41 | 553.16 | 382.56 | 170.60 | 3.242 | | |
| 4,300.00 | 4,244.42 | 4,244.42 | 4,244.42 | 14.62 | 167.48 | -178.55 | 1.46 | -23.41 | 572.37 | 397.66 | 174.71 | 3.276 | | |
| 4,400.00 | 4,342.55 | 4,342.55 | 4,342.55 | 15.04 | 171.40 | -178.59 | 1.46 | -23.41 | 591.59 | 412.77 | 178.82 | 3.308 | | |
| 4,500.00 | 4,440.69 | 4,440.69 | 4,440.69 | 15.46 | 175.33 | -178.64 | 1.46 | -23.41 | 610.80 | 427.87 | 182.93 | 3.339 | | |
| 4,600.00 | 4,538.82 | 4,538.82 | 4,538.82 | 15.88 | 179.25 | -178.68 | 1.46 | -23.41 | 630.02 | 442.97 | 187.05 | 3.368 | | |
| 4,700.00 | 4,636.96 | 4,636.96 | 4,636.96 | 16.31 | 183.18 | -178.72 | 1.46 | -23.41 | 649.23 | 458.08 | 191.16 | 3.396 | | |
| 4,800.00 | 4,735.09 | 4,735.09 | 4,735.09 | 16.73 | 187.10 | -178.76 | 1.46 | -23.41 | 668.45 | 473.18 | 195.27 | 3.423 | | |
| 4,900.00 | 4,833.23 | 4,833.23 | 4,833.23 | 17.15 | 191.03 | -178.79 | 1.46 | -23.41 | 687.67 | 488.28 | 199.38 | 3.449 | | |
| 5,000.00 | 4,931.36 | 4,931.36 | 4,931.36 | 17.58 | 194.95 | -178.82 | 1.46 | -23.41 | 706.89 | 503.39 | 203.50 | 3.474 | | |
| 5,100.00 | 5,029.50 | 5,029.50 | 5,029.50 | 18.00 | 198.88 | -178.85 | 1.46 | -23.41 | 726.10 | 518.49 | 207.61 | 3.497 | | |
| 5,200.00 | 5,127.63 | 5,127.63 | 5,127.63 | 18.42 | 202.81 | -178.88 | 1.46 | -23.41 | 745.32 | 533.60 | 211.72 | 3.520 | | |
| 5,300.00 | 5,225.77 | 5,225.77 | 5,225.77 | 18.85 | 206.73 | -178.91 | 1.46 | -23.41 | 764.54 | 548.70 | 215.84 | 3.542 | | |
| 5,400.00 | 5,323.91 | 5,323.91 | 5,323.91 | 19.27 | 210.66 | -178.94 | 1.46 | -23.41 | 783.76 | 563.81 | 219.95 | 3.563 | | |
| 5,500.00 | 5,422.04 | 5,422.04 | 5,422.04 | 19.70 | 214.58 | -178.96 | 1.46 | -23.41 | 802.98 | 578.91 | 224.06 | 3.584 | | |
| 5,574.70 | 5,495.35 | 5,495.35 | 5,495.35 | 20.01 | 217.51 | -178.98 | 1.46 | -23.41 | 817.33 | 590.19 | 227.14 | 3.598 | | |
| 5,600.00 | 5,520.20 | 5,520.20 | 5,520.20 | 20.11 | 218.51 | -178.99 | 1.46 | -23.41 | 822.08 | 593.58 | 228.50 | 3.598 | | |
| 5,700.00 | 5,618.80 | 5,618.80 | 5,618.80 | 20.41 | 222.45 | -179.02 | 1.46 | -23.41 | 838.72 | 604.86 | 233.86 | 3.586 | | |
| 5,800.00 | 5,717.92 | 5,717.92 | 5,717.92 | 20.67 | 226.42 | -179.04 | 1.46 | -23.41 | 851.90 | 612.89 | 239.01 | 3.564 | | |
| 5,900.00 | 5,817.44 | 5,817.44 | 5,817.44 | 20.89 | 230.40 | -179.05 | 1.46 | -23.41 | 861.61 | 617.72 | 243.90 | 3.533 | | |
| 6,000.00 | 5,917.24 | 5,917.24 | 5,917.24 | 21.07 | 234.39 | -179.06 | 1.46 | -23.41 | 867.85 | 619.33 | 248.52 | 3.492 | | |
| 6,100.00 | 6,017.20 | 6,017.20 | 6,017.20 | 21.21 | 238.39 | -179.06 | 1.46 | -23.41 | 870.60 | 617.76 | 252.84 | 3.443 | | |
| 6,128.80 | 6,046.00 | 6,046.00 | 6,046.00 | 21.24 | 239.54 | 131.89 | 1.46 | -23.41 | 870.74 | 616.71 | 254.03 | 3.428 | | |
| 6,200.00 | 6,117.20 | 6,117.20 | 6,117.20 | 21.33 | 242.39 | 131.89 | 1.46 | -23.41 | 870.74 | 613.74 | 257.01 | 3.388 | | |
| 6,300.00 | 6,217.20 | 6,217.20 | 6,217.20 | 21.47 | 246.39 | 131.89 | 1.46 | -23.41 | 870.74 | 609.54 | 261.20 | 3.334 | | |
| 6,400.00 | 6,317.20 | 6,317.20 | 6,317.20 | 21.61 | 250.39 | 131.89 | 1.46 | -23.41 | 870.74 | 605.35 | 265.40 | 3.281 | | |
| 6,500.00 | 6,417.20 | 6,417.20 | 6,417.20 | 21.75 | 254.39 | 131.89 | 1.46 | -23.41 | 870.74 | 601.15 | 269.60 | 3.230 | | |
| 6,600.00 | 6,517.20 | 6,517.20 | 6,517.20 | 21.89 | 258.39 | 131.89 | 1.46 | -23.41 | 870.74 | 596.95 | 273.79 | 3.180 | | |
| 6,700.00 | 6,617.20 | 6,617.20 | 6,617.20 | 22.04 | 262.39 | 131.89 | 1.46 | -23.41 | 870.74 | 592.75 | 277.99 | 3.132 | | |
| 6,800.00 | 6,717.20 | 6,717.20 | 6,717.20 | 22.18 | 266.39 | 131.89 | 1.46 | -23.41 | 870.74 | 588.55 | 282.19 | 3.086 | | |

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_BERNHARDT STATE 29-36 |
| Project: | COLORADO NOTHERN ZONE - 83 | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Reference Site: | WELD_BERNHARDT STATE 3 PAD | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_BERNHARDT STATE 29-36 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 11-04-09 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_BERNHARDT STATE 3 PAD - BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXISTING - | | | | | | | | | | | | | 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 | | |
| 6,900.00 | 6,817.20 | 6,817.20 | 6,817.20 | 22.33 | 270.39 | 131.89 | 1.46 | -23.41 | 870.74 | 584.35 | 286.39 | 3.040 | | |
| 7,000.00 | 6,917.20 | 6,917.20 | 6,917.20 | 22.48 | 274.39 | 131.89 | 1.46 | -23.41 | 870.74 | 580.15 | 290.59 | 2.996 | | |
| 7,100.00 | 7,017.20 | 7,017.20 | 7,017.20 | 22.62 | 278.39 | 131.89 | 1.46 | -23.41 | 870.74 | 575.95 | 294.79 | 2.954 | | |
| 7,200.00 | 7,117.20 | 7,117.20 | 7,117.20 | 22.78 | 282.39 | 131.89 | 1.46 | -23.41 | 870.74 | 571.75 | 299.00 | 2.912 | | |
| 7,300.00 | 7,217.20 | 7,217.20 | 7,217.20 | 22.93 | 286.39 | 131.89 | 1.46 | -23.41 | 870.74 | 567.54 | 303.20 | 2.872 | | |
| 7,400.00 | 7,317.20 | 7,317.20 | 7,317.20 | 23.08 | 290.39 | 131.89 | 1.46 | -23.41 | 870.74 | 563.34 | 307.40 | 2.833 | | |
| 7,500.00 | 7,417.20 | 7,417.20 | 7,417.20 | 23.23 | 294.39 | 131.89 | 1.46 | -23.41 | 870.74 | 559.14 | 311.61 | 2.794 | | |
| 7,600.00 | 7,517.20 | 7,517.20 | 7,517.20 | 23.39 | 298.39 | 131.89 | 1.46 | -23.41 | 870.74 | 554.93 | 315.81 | 2.757 | | |
| 7,700.00 | 7,617.20 | 7,522.00 | 7,522.00 | 23.54 | 298.58 | 131.89 | 1.46 | -23.41 | 875.93 | 559.73 | 316.21 | 2.770 | | |
| 7,800.00 | 7,717.20 | 7,522.00 | 7,522.00 | 23.70 | 298.58 | 131.89 | 1.46 | -23.41 | 892.36 | 575.94 | 316.41 | 2.820 | | |
| 7,900.00 | 7,817.20 | 7,522.00 | 7,522.00 | 23.86 | 298.58 | 131.89 | 1.46 | -23.41 | 919.42 | 602.80 | 316.62 | 2.904 | | |
| 8,000.00 | 7,917.20 | 7,522.00 | 7,522.00 | 24.02 | 298.58 | 131.89 | 1.46 | -23.41 | 956.23 | 639.41 | 316.82 | 3.018 | | |
| 8,051.80 | 7,969.00 | 7,522.00 | 7,522.00 | 24.10 | 298.58 | 131.89 | 1.46 | -23.41 | 978.78 | 661.85 | 316.93 | 3.088 | | |

| | | | |
|---------------------------|----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_BERNHARDT STATE 29-36 |
| Project: | COLORADO NOTHERN ZONE - 83 | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Reference Site: | WELD_BERNHARDT STATE 3 PAD | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_BERNHARDT STATE 29-36 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 11-04-09 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design WELD_BERNHARDT STATE 3 PAD - P_BERNHARDT STATE 18-36 - P_BERNHARDT STATE 18-36 | | | | | | | | | | | | | 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 | -146.73 | -25.48 | -16.72 | 30.48 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | -146.73 | -25.48 | -16.72 | 30.48 | 30.29 | 0.19 | 159.519 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | -146.73 | -25.48 | -16.72 | 30.48 | 29.84 | 0.64 | 47.576 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.55 | 0.55 | -146.73 | -25.48 | -16.72 | 30.48 | 29.39 | 1.09 | 27.957 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 0.77 | 0.77 | -146.73 | -25.48 | -16.72 | 30.48 | 28.94 | 1.54 | 19.794 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 0.99 | 0.99 | -146.73 | -25.48 | -16.72 | 30.48 | 28.49 | 1.99 | 15.321 | |
| 600.00 | 600.00 | 600.00 | 600.00 | 1.22 | 1.22 | -146.73 | -25.48 | -16.72 | 30.48 | 28.04 | 2.44 | 12.497 | |
| 700.00 | 700.00 | 700.00 | 700.00 | 1.44 | 1.44 | -146.73 | -25.48 | -16.72 | 30.48 | 27.59 | 2.89 | 10.552 | |
| 800.00 | 800.00 | 800.00 | 800.00 | 1.67 | 1.67 | -146.73 | -25.48 | -16.72 | 30.48 | 27.14 | 3.34 | 9.131 | |
| 900.00 | 900.00 | 900.00 | 900.00 | 1.89 | 1.89 | -146.73 | -25.48 | -16.72 | 30.48 | 26.69 | 3.79 | 8.047 | |
| 950.00 | 950.00 | 950.00 | 950.00 | 2.01 | 2.01 | -146.73 | -25.48 | -16.72 | 30.48 | 26.46 | 4.01 | 7.596 CC, ES | |
| 1,000.00 | 1,000.00 | 999.48 | 999.48 | 2.12 | 2.11 | -98.29 | -25.77 | -17.03 | 30.96 | 26.74 | 4.22 | 7.333 SF | |
| 1,100.00 | 1,099.93 | 1,098.28 | 1,098.21 | 2.33 | 2.29 | -102.49 | -28.12 | -19.50 | 34.91 | 30.29 | 4.62 | 7.556 | |
| 1,200.00 | 1,199.68 | 1,196.60 | 1,196.30 | 2.56 | 2.50 | -108.47 | -32.79 | -24.41 | 43.22 | 38.18 | 5.04 | 8.583 | |
| 1,300.00 | 1,299.13 | 1,294.13 | 1,293.30 | 2.80 | 2.74 | -113.97 | -39.70 | -31.68 | 56.21 | 50.73 | 5.48 | 10.260 | |
| 1,400.00 | 1,398.15 | 1,390.57 | 1,388.83 | 3.06 | 3.05 | -118.18 | -48.78 | -41.22 | 73.95 | 67.99 | 5.96 | 12.400 | |
| 1,504.10 | 1,500.65 | 1,489.50 | 1,486.32 | 3.37 | 3.44 | -121.24 | -60.38 | -53.43 | 97.35 | 90.82 | 6.53 | 14.911 | |
| 1,600.00 | 1,594.76 | 1,580.89 | 1,575.89 | 3.68 | 3.89 | -123.14 | -72.87 | -66.57 | 122.07 | 114.94 | 7.12 | 17.133 | |
| 1,700.00 | 1,692.90 | 1,677.38 | 1,670.39 | 4.03 | 4.41 | -124.38 | -86.29 | -80.68 | 148.19 | 140.39 | 7.80 | 19.007 | |
| 1,800.00 | 1,791.03 | 1,773.87 | 1,764.90 | 4.39 | 4.96 | -125.24 | -99.71 | -94.80 | 174.36 | 165.86 | 8.50 | 20.511 | |
| 1,900.00 | 1,889.17 | 1,870.35 | 1,859.40 | 4.76 | 5.53 | -125.88 | -113.12 | -108.91 | 200.55 | 191.32 | 9.23 | 21.726 | |
| 2,000.00 | 1,987.30 | 1,966.84 | 1,953.90 | 5.14 | 6.12 | -126.37 | -126.54 | -123.02 | 226.77 | 216.79 | 9.98 | 22.720 | |
| 2,100.00 | 2,085.44 | 2,063.33 | 2,048.40 | 5.53 | 6.71 | -126.76 | -139.96 | -137.14 | 252.99 | 242.25 | 10.75 | 23.542 | |
| 2,200.00 | 2,183.58 | 2,159.82 | 2,142.90 | 5.92 | 7.32 | -127.08 | -153.38 | -151.25 | 279.23 | 267.70 | 11.52 | 24.230 | |
| 2,300.00 | 2,281.71 | 2,256.30 | 2,237.40 | 6.32 | 7.93 | -127.34 | -166.79 | -165.36 | 305.47 | 293.15 | 12.31 | 24.811 | |
| 2,400.00 | 2,379.85 | 2,352.79 | 2,331.91 | 6.72 | 8.55 | -127.56 | -180.21 | -179.47 | 331.71 | 318.60 | 13.11 | 25.306 | |
| 2,500.00 | 2,477.98 | 2,449.28 | 2,426.41 | 7.12 | 9.17 | -127.75 | -193.63 | -193.59 | 357.96 | 344.05 | 13.91 | 25.733 | |
| 2,600.00 | 2,576.12 | 2,545.77 | 2,520.91 | 7.53 | 9.79 | -127.91 | -207.04 | -207.70 | 384.21 | 369.50 | 14.72 | 26.104 | |
| 2,700.00 | 2,674.25 | 2,642.25 | 2,615.41 | 7.94 | 10.42 | -128.05 | -220.46 | -221.81 | 410.47 | 394.94 | 15.53 | 26.428 | |
| 2,800.00 | 2,772.39 | 2,738.74 | 2,709.91 | 8.35 | 11.05 | -128.18 | -233.88 | -235.93 | 436.73 | 420.38 | 16.35 | 26.713 | |
| 2,900.00 | 2,870.52 | 2,835.23 | 2,804.41 | 8.76 | 11.68 | -128.29 | -247.30 | -250.04 | 462.99 | 445.82 | 17.17 | 26.966 | |
| 3,000.00 | 2,968.66 | 2,931.71 | 2,898.92 | 9.17 | 12.31 | -128.38 | -260.71 | -264.15 | 489.25 | 471.25 | 17.99 | 27.192 | |
| 3,100.00 | 3,066.79 | 3,028.20 | 2,993.42 | 9.59 | 12.95 | -128.47 | -274.13 | -278.27 | 515.51 | 496.69 | 18.82 | 27.394 | |
| 3,200.00 | 3,164.93 | 3,124.69 | 3,087.92 | 10.00 | 13.58 | -128.55 | -287.55 | -292.38 | 541.77 | 522.12 | 19.65 | 27.577 | |
| 3,300.00 | 3,263.06 | 3,221.18 | 3,182.42 | 10.42 | 14.22 | -128.63 | -300.97 | -306.49 | 568.03 | 547.56 | 20.48 | 27.741 | |
| 3,400.00 | 3,361.20 | 3,317.66 | 3,276.92 | 10.84 | 14.86 | -128.69 | -314.38 | -320.60 | 594.30 | 572.99 | 21.31 | 27.891 | |
| 3,500.00 | 3,459.33 | 3,414.15 | 3,371.42 | 11.25 | 15.50 | -128.75 | -327.80 | -334.72 | 620.56 | 598.42 | 22.14 | 28.028 | |
| 3,600.00 | 3,557.47 | 3,510.64 | 3,465.93 | 11.67 | 16.13 | -128.81 | -341.22 | -348.83 | 646.83 | 623.85 | 22.98 | 28.153 | |
| 3,700.00 | 3,655.60 | 3,607.12 | 3,560.43 | 12.09 | 16.77 | -128.86 | -354.63 | -362.94 | 673.09 | 649.28 | 23.81 | 28.268 | |
| 3,800.00 | 3,753.74 | 3,703.61 | 3,654.93 | 12.51 | 17.41 | -128.91 | -368.05 | -377.06 | 699.36 | 674.71 | 24.65 | 28.374 | |
| 3,900.00 | 3,851.88 | 3,800.10 | 3,749.43 | 12.93 | 18.05 | -128.95 | -381.47 | -391.17 | 725.63 | 700.14 | 25.49 | 28.472 | |
| 4,000.00 | 3,950.01 | 3,896.59 | 3,843.93 | 13.35 | 18.69 | -128.99 | -394.89 | -405.28 | 751.89 | 725.57 | 26.32 | 28.563 | |
| 4,100.00 | 4,048.15 | 3,993.07 | 3,938.43 | 13.77 | 19.34 | -129.03 | -408.30 | -419.40 | 778.16 | 751.00 | 27.16 | 28.647 | |
| 4,200.00 | 4,146.28 | 4,089.56 | 4,032.94 | 14.20 | 19.98 | -129.07 | -421.72 | -433.51 | 804.43 | 776.43 | 28.00 | 28.726 | |
| 4,300.00 | 4,244.42 | 4,186.05 | 4,127.44 | 14.62 | 20.62 | -129.10 | -435.14 | -447.62 | 830.70 | 801.85 | 28.84 | 28.799 | |
| 4,400.00 | 4,342.55 | 4,282.53 | 4,221.94 | 15.04 | 21.26 | -129.13 | -448.55 | -461.73 | 856.97 | 827.28 | 29.69 | 28.868 | |
| 4,500.00 | 4,440.69 | 4,379.02 | 4,316.44 | 15.46 | 21.90 | -129.16 | -461.97 | -475.85 | 883.23 | 852.71 | 30.53 | 28.932 | |
| 4,600.00 | 4,538.82 | 4,475.51 | 4,410.94 | 15.88 | 22.55 | -129.19 | -475.39 | -489.96 | 909.50 | 878.13 | 31.37 | 28.992 | |
| 4,700.00 | 4,636.96 | 4,572.00 | 4,505.45 | 16.31 | 23.19 | -129.21 | -488.81 | -504.07 | 935.77 | 903.56 | 32.21 | 29.049 | |
| 4,800.00 | 4,735.09 | 4,668.48 | 4,599.95 | 16.73 | 23.83 | -129.24 | -502.22 | -518.19 | 962.04 | 928.98 | 33.06 | 29.102 | |
| 4,900.00 | 4,833.23 | 4,764.97 | 4,694.45 | 17.15 | 24.47 | -129.26 | -515.64 | -532.30 | 988.31 | 954.41 | 33.90 | 29.153 | |
| 5,000.00 | 4,931.36 | 4,861.46 | 4,788.95 | 17.58 | 25.12 | -129.28 | -529.06 | -546.41 | 1,014.58 | 979.84 | 34.75 | 29.201 | |

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_BERNHARDT STATE 29-36 |
| Project: | COLORADO NOTHERN ZONE - 83 | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Reference Site: | WELD_BERNHARDT STATE 3 PAD | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_BERNHARDT STATE 29-36 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 11-04-09 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 | |
| 5,100.00 | 5,029.50 | 4,957.94 | 4,883.45 | 18.00 | 25.76 | -129.31 | -542.48 | -560.53 | 1,040.85 | 1,005.26 | 35.59 | 29.246 | |
| 5,200.00 | 5,127.63 | 5,054.43 | 4,977.95 | 18.42 | 26.41 | -129.33 | -555.89 | -574.64 | 1,067.12 | 1,030.69 | 36.43 | 29.289 | |
| 5,300.00 | 5,225.77 | 5,150.92 | 5,072.46 | 18.85 | 27.05 | -129.35 | -569.31 | -588.75 | 1,093.39 | 1,056.11 | 37.28 | 29.329 | |
| 5,400.00 | 5,323.91 | 5,247.41 | 5,166.96 | 19.27 | 27.69 | -129.36 | -582.73 | -602.86 | 1,119.66 | 1,081.53 | 38.13 | 29.368 | |
| 5,500.00 | 5,422.04 | 5,343.89 | 5,261.46 | 19.70 | 28.34 | -129.38 | -596.14 | -616.98 | 1,145.93 | 1,106.96 | 38.97 | 29.405 | |
| 5,574.70 | 5,495.35 | 5,415.97 | 5,332.05 | 20.01 | 28.82 | -129.39 | -606.17 | -627.52 | 1,165.55 | 1,125.95 | 39.60 | 29.431 | |
| 5,600.00 | 5,520.20 | 5,440.40 | 5,355.98 | 20.11 | 28.98 | -129.50 | -609.56 | -631.09 | 1,172.13 | 1,132.28 | 39.85 | 29.412 | |
| 5,700.00 | 5,618.80 | 5,537.29 | 5,450.88 | 20.41 | 29.63 | -129.81 | -623.04 | -645.27 | 1,196.78 | 1,156.03 | 40.75 | 29.369 | |
| 5,800.00 | 5,717.92 | 5,666.66 | 5,577.97 | 20.67 | 30.14 | -129.93 | -639.65 | -662.74 | 1,218.27 | 1,176.77 | 41.51 | 29.350 | |
| 5,900.00 | 5,817.44 | 5,807.38 | 5,717.28 | 20.89 | 30.47 | -130.00 | -653.27 | -677.07 | 1,234.32 | 1,192.23 | 42.09 | 29.324 | |
| 6,000.00 | 5,917.24 | 5,949.96 | 5,859.25 | 21.07 | 30.72 | -130.05 | -662.25 | -686.51 | 1,244.72 | 1,202.16 | 42.56 | 29.245 | |
| 6,100.00 | 6,017.20 | 6,093.63 | 6,002.78 | 21.21 | 30.89 | -130.06 | -666.36 | -690.84 | 1,249.40 | 1,206.48 | 42.92 | 29.110 | |
| 6,128.80 | 6,046.00 | 6,135.09 | 6,044.24 | 21.24 | 30.93 | -179.10 | -666.63 | -691.11 | 1,249.68 | 1,206.68 | 43.00 | 29.061 | |
| 6,200.00 | 6,117.20 | 6,208.05 | 6,117.20 | 21.33 | 30.99 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,206.50 | 43.18 | 28.942 | |
| 6,300.00 | 6,217.20 | 6,308.05 | 6,217.20 | 21.47 | 31.08 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,206.24 | 43.45 | 28.763 | |
| 6,400.00 | 6,317.20 | 6,408.05 | 6,317.20 | 21.61 | 31.16 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,205.97 | 43.72 | 28.585 | |
| 6,500.00 | 6,417.20 | 6,508.05 | 6,417.20 | 21.75 | 31.25 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,205.69 | 43.99 | 28.407 | |
| 6,600.00 | 6,517.20 | 6,608.05 | 6,517.20 | 21.89 | 31.33 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,205.42 | 44.27 | 28.230 | |
| 6,700.00 | 6,617.20 | 6,708.05 | 6,617.20 | 22.04 | 31.42 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,205.14 | 44.55 | 28.053 | |
| 6,800.00 | 6,717.20 | 6,808.05 | 6,717.20 | 22.18 | 31.51 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,204.85 | 44.83 | 27.877 | |
| 6,900.00 | 6,817.20 | 6,908.05 | 6,817.20 | 22.33 | 31.60 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,204.57 | 45.11 | 27.701 | |
| 7,000.00 | 6,917.20 | 7,008.05 | 6,917.20 | 22.48 | 31.69 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,204.28 | 45.40 | 27.526 | |
| 7,100.00 | 7,017.20 | 7,108.05 | 7,017.20 | 22.62 | 31.79 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,203.99 | 45.69 | 27.351 | |
| 7,200.00 | 7,117.20 | 7,208.05 | 7,117.20 | 22.78 | 31.88 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,203.70 | 45.98 | 27.178 | |
| 7,300.00 | 7,217.20 | 7,308.05 | 7,217.20 | 22.93 | 31.98 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,203.41 | 46.28 | 27.005 | |
| 7,400.00 | 7,317.20 | 7,408.05 | 7,317.20 | 23.08 | 32.08 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,203.11 | 46.57 | 26.832 | |
| 7,500.00 | 7,417.20 | 7,508.05 | 7,417.20 | 23.23 | 32.18 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,202.81 | 46.87 | 26.661 | |
| 7,600.00 | 7,517.20 | 7,608.05 | 7,517.20 | 23.39 | 32.28 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,202.51 | 47.17 | 26.491 | |
| 7,700.00 | 7,617.20 | 7,708.05 | 7,617.20 | 23.54 | 32.38 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,202.20 | 47.48 | 26.321 | |
| 7,800.00 | 7,717.20 | 7,808.05 | 7,717.20 | 23.70 | 32.48 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,201.90 | 47.78 | 26.152 | |
| 7,900.00 | 7,817.20 | 7,908.05 | 7,817.20 | 23.86 | 32.58 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,201.59 | 48.09 | 25.985 | |
| 8,000.00 | 7,917.20 | 8,008.05 | 7,917.20 | 24.02 | 32.69 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,201.28 | 48.40 | 25.818 | |
| 8,051.80 | 7,969.00 | 8,059.85 | 7,969.00 | 24.10 | 32.74 | -179.10 | -666.63 | -691.12 | 1,249.68 | 1,201.12 | 48.57 | 25.732 | |

| | | | |
|---------------------------|----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_BERNHARDT STATE 29-36 |
| Project: | COLORADO NOTHERN ZONE - 83 | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Reference Site: | WELD_BERNHARDT STATE 3 PAD | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_BERNHARDT STATE 29-36 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 11-04-09 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 Tooface (") | 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 | 37.39 | 21.87 | 16.72 | 27.53 | | | | |
| 100.00 | 100.00 | 100.00 | 100.00 | 0.10 | 0.10 | 37.39 | 21.87 | 16.72 | 27.53 | 27.34 | 0.19 | 144.110 | |
| 200.00 | 200.00 | 200.00 | 200.00 | 0.32 | 0.32 | 37.39 | 21.87 | 16.72 | 27.53 | 26.89 | 0.64 | 42.980 | |
| 300.00 | 300.00 | 300.00 | 300.00 | 0.55 | 0.55 | 37.39 | 21.87 | 16.72 | 27.53 | 26.44 | 1.09 | 25.256 | |
| 400.00 | 400.00 | 400.00 | 400.00 | 0.77 | 0.77 | 37.39 | 21.87 | 16.72 | 27.53 | 25.99 | 1.54 | 17.882 | |
| 500.00 | 500.00 | 500.00 | 500.00 | 0.99 | 0.99 | 37.39 | 21.87 | 16.72 | 27.53 | 25.54 | 1.99 | 13.841 | |
| 600.00 | 600.00 | 600.00 | 600.00 | 1.22 | 1.22 | 37.39 | 21.87 | 16.72 | 27.53 | 25.09 | 2.44 | 11.290 | |
| 700.00 | 700.00 | 700.00 | 700.00 | 1.44 | 1.44 | 37.39 | 21.87 | 16.72 | 27.53 | 24.64 | 2.89 | 9.533 | |
| 800.00 | 800.00 | 800.00 | 800.00 | 1.67 | 1.67 | 37.39 | 21.87 | 16.72 | 27.53 | 24.19 | 3.34 | 8.249 | |
| 900.00 | 900.00 | 900.00 | 900.00 | 1.89 | 1.89 | 37.39 | 21.87 | 16.72 | 27.53 | 23.75 | 3.79 | 7.270 | |
| 950.00 | 950.00 | 950.00 | 950.00 | 2.01 | 2.01 | 37.39 | 21.87 | 16.72 | 27.53 | 23.52 | 4.01 | 6.862 | |
| 1,000.00 | 1,000.00 | 1,000.11 | 1,000.10 | 2.12 | 2.11 | 88.24 | 21.53 | 16.99 | 27.41 | 23.19 | 4.22 | 6.492 | |
| 1,061.33 | 1,061.31 | 1,061.43 | 1,061.41 | 2.25 | 2.22 | 95.45 | 20.17 | 18.06 | 27.19 | 22.73 | 4.47 | 6.090 CC, ES | |
| 1,100.00 | 1,099.93 | 1,099.95 | 1,099.88 | 2.33 | 2.29 | 102.76 | 18.79 | 19.14 | 27.42 | 22.80 | 4.62 | 5.938 SF | |
| 1,200.00 | 1,199.68 | 1,198.72 | 1,198.41 | 2.56 | 2.48 | 127.61 | 13.39 | 23.39 | 32.26 | 27.24 | 5.02 | 6.428 | |
| 1,300.00 | 1,299.13 | 1,295.73 | 1,294.89 | 2.80 | 2.69 | 149.07 | 5.49 | 29.59 | 46.70 | 41.29 | 5.41 | 8.636 | |
| 1,400.00 | 1,398.15 | 1,390.35 | 1,388.62 | 3.06 | 2.92 | 161.86 | -4.68 | 37.59 | 70.63 | 64.84 | 5.79 | 12.202 | |
| 1,504.10 | 1,500.65 | 1,485.93 | 1,482.81 | 3.37 | 3.18 | 169.30 | -17.42 | 47.60 | 103.93 | 97.75 | 6.18 | 16.822 | |
| 1,600.00 | 1,594.76 | 1,575.12 | 1,570.48 | 3.68 | 3.46 | 173.34 | -30.29 | 57.71 | 138.26 | 131.68 | 6.58 | 21.001 | |
| 1,700.00 | 1,692.90 | 1,668.12 | 1,661.91 | 4.03 | 3.77 | 175.86 | -43.71 | 68.26 | 174.45 | 167.44 | 7.02 | 24.867 | |
| 1,800.00 | 1,791.03 | 1,761.13 | 1,753.33 | 4.39 | 4.09 | 177.52 | -57.14 | 78.80 | 210.83 | 203.38 | 7.46 | 28.280 | |
| 1,900.00 | 1,889.17 | 1,854.13 | 1,844.76 | 4.76 | 4.42 | 178.69 | -70.56 | 89.35 | 247.32 | 239.42 | 7.90 | 31.301 | |
| 2,000.00 | 1,987.30 | 1,947.13 | 1,936.18 | 5.14 | 4.77 | 179.55 | -83.98 | 99.90 | 283.88 | 275.53 | 8.35 | 33.984 | |
| 2,100.00 | 2,085.44 | 2,040.14 | 2,027.60 | 5.53 | 5.12 | -179.78 | -97.40 | 110.44 | 320.48 | 311.67 | 8.81 | 36.379 | |
| 2,200.00 | 2,183.58 | 2,133.14 | 2,119.03 | 5.92 | 5.47 | -179.24 | -110.82 | 120.99 | 357.11 | 347.84 | 9.27 | 38.524 | |
| 2,300.00 | 2,281.71 | 2,226.14 | 2,210.45 | 6.32 | 5.83 | -178.81 | -124.25 | 131.54 | 393.76 | 384.03 | 9.73 | 40.455 | |
| 2,400.00 | 2,379.85 | 2,319.15 | 2,301.88 | 6.72 | 6.20 | -178.45 | -137.67 | 142.08 | 430.43 | 420.23 | 10.20 | 42.201 | |
| 2,500.00 | 2,477.98 | 2,412.15 | 2,393.30 | 7.12 | 6.57 | -178.15 | -151.09 | 152.63 | 467.11 | 456.44 | 10.67 | 43.784 | |
| 2,600.00 | 2,576.12 | 2,505.16 | 2,484.72 | 7.53 | 6.94 | -177.89 | -164.51 | 163.18 | 503.80 | 492.66 | 11.14 | 45.226 | |
| 2,700.00 | 2,674.25 | 2,598.16 | 2,576.15 | 7.94 | 7.31 | -177.66 | -177.93 | 173.72 | 540.49 | 528.88 | 11.61 | 46.544 | |
| 2,800.00 | 2,772.39 | 2,691.16 | 2,667.57 | 8.35 | 7.69 | -177.47 | -191.36 | 184.27 | 577.20 | 565.11 | 12.09 | 47.753 | |
| 2,900.00 | 2,870.52 | 2,784.17 | 2,758.99 | 8.76 | 8.06 | -177.30 | -204.78 | 194.82 | 613.90 | 601.34 | 12.56 | 48.864 | |
| 3,000.00 | 2,968.66 | 2,877.17 | 2,850.42 | 9.17 | 8.44 | -177.14 | -218.20 | 205.36 | 650.62 | 637.58 | 13.04 | 49.890 | |
| 3,100.00 | 3,066.79 | 2,970.17 | 2,941.84 | 9.59 | 8.82 | -177.01 | -231.62 | 215.91 | 687.33 | 673.81 | 13.52 | 50.839 | |
| 3,200.00 | 3,164.93 | 3,063.18 | 3,033.27 | 10.00 | 9.20 | -176.88 | -245.04 | 226.46 | 724.05 | 710.05 | 14.00 | 51.720 | |
| 3,300.00 | 3,263.06 | 3,156.18 | 3,124.69 | 10.42 | 9.58 | -176.77 | -258.47 | 237.00 | 760.78 | 746.30 | 14.48 | 52.539 | |
| 3,400.00 | 3,361.20 | 3,249.19 | 3,216.11 | 10.84 | 9.97 | -176.67 | -271.89 | 247.55 | 797.50 | 782.54 | 14.96 | 53.302 | |
| 3,500.00 | 3,459.33 | 3,342.19 | 3,307.54 | 11.25 | 10.35 | -176.58 | -285.31 | 258.10 | 834.23 | 818.78 | 15.44 | 54.016 | |
| 3,600.00 | 3,557.47 | 3,435.19 | 3,398.96 | 11.67 | 10.73 | -176.50 | -298.73 | 268.64 | 870.95 | 855.03 | 15.93 | 54.683 | |
| 3,700.00 | 3,655.60 | 3,528.20 | 3,490.39 | 12.09 | 11.12 | -176.42 | -312.15 | 279.19 | 907.68 | 891.27 | 16.41 | 55.309 | |
| 3,800.00 | 3,753.74 | 3,621.20 | 3,581.81 | 12.51 | 11.50 | -176.35 | -325.58 | 289.74 | 944.41 | 927.52 | 16.90 | 55.898 | |
| 3,900.00 | 3,851.88 | 3,714.21 | 3,673.23 | 12.93 | 11.89 | -176.28 | -339.00 | 300.28 | 981.15 | 963.77 | 17.38 | 56.452 | |
| 4,000.00 | 3,950.01 | 3,807.21 | 3,764.66 | 13.35 | 12.27 | -176.22 | -352.42 | 310.83 | 1,017.88 | 1,000.01 | 17.87 | 56.974 | |
| 4,100.00 | 4,048.15 | 3,900.21 | 3,856.08 | 13.77 | 12.66 | -176.16 | -365.84 | 321.38 | 1,054.61 | 1,036.26 | 18.35 | 57.468 | |
| 4,200.00 | 4,146.28 | 3,993.22 | 3,947.50 | 14.20 | 13.05 | -176.11 | -379.26 | 331.92 | 1,091.35 | 1,072.51 | 18.84 | 57.934 | |
| 4,300.00 | 4,244.42 | 4,086.22 | 4,038.93 | 14.62 | 13.44 | -176.06 | -392.69 | 342.47 | 1,128.08 | 1,108.76 | 19.32 | 58.376 | |
| 4,400.00 | 4,342.55 | 4,179.22 | 4,130.35 | 15.04 | 13.82 | -176.01 | -406.11 | 353.02 | 1,164.82 | 1,145.01 | 19.81 | 58.795 | |
| 4,500.00 | 4,440.69 | 4,272.23 | 4,221.78 | 15.46 | 14.21 | -175.97 | -419.53 | 363.56 | 1,201.56 | 1,181.26 | 20.30 | 59.193 | |
| 4,600.00 | 4,538.82 | 4,365.23 | 4,313.20 | 15.88 | 14.60 | -175.93 | -432.95 | 374.11 | 1,238.29 | 1,217.51 | 20.79 | 59.572 | |
| 4,700.00 | 4,636.96 | 4,458.24 | 4,404.62 | 16.31 | 14.99 | -175.89 | -446.37 | 384.66 | 1,275.03 | 1,253.76 | 21.27 | 59.932 | |
| 4,800.00 | 4,735.09 | 4,551.24 | 4,496.05 | 16.73 | 15.38 | -175.85 | -459.80 | 395.20 | 1,311.77 | 1,290.01 | 21.76 | 60.276 | |
| 4,900.00 | 4,833.23 | 4,644.24 | 4,587.47 | 17.15 | 15.77 | -175.82 | -473.22 | 405.75 | 1,348.51 | 1,326.26 | 22.25 | 60.604 | |

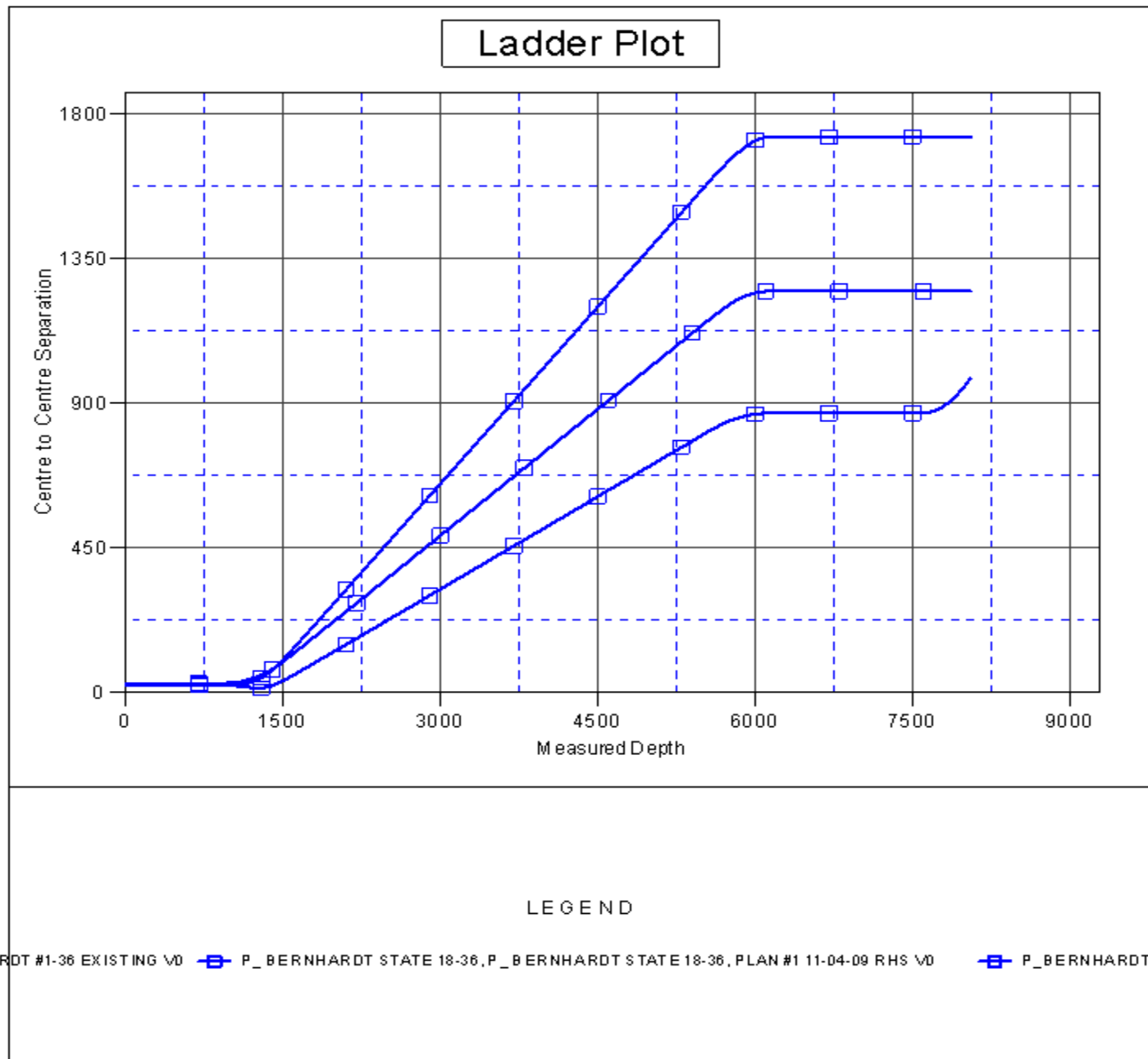
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

| | | | |
|---------------------------|----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_BERNHARDT STATE 29-36 |
| Project: | COLORADO NOTHERN ZONE - 83 | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Reference Site: | WELD_BERNHARDT STATE 3 PAD | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_BERNHARDT STATE 29-36 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 11-04-09 RHS | Offset TVD Reference: | Offset Datum |

| Offset Design | | | | | | | | | | | | Offset Site Error: | 0.00 ft |
|--|---------------------|---------------------|---------------------|-----------------|-------------|-----------------------|-----------------------------------|------------|----------------------|-----------------------|-------------------------|--------------------|---------|
| WELD_BERNHARDT STATE 3 PAD - P_BERNHARDT STATE 21-36 - P_BERNHARDT STATE 21-36 | | | | | | | | | | | | Offset Well Error: | 0.00 ft |
| Survey Program: 0-MWD | | | | | | | | | | | | | |
| 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 |
| 5,000.00 | 4,931.36 | 4,737.25 | 4,678.90 | 17.58 | 16.16 | -175.79 | -486.64 | 416.30 | 1,385.25 | 1,362.51 | 22.74 | 60.917 | |
| 5,100.00 | 5,029.50 | 4,830.25 | 4,770.32 | 18.00 | 16.55 | -175.76 | -500.06 | 426.84 | 1,421.99 | 1,398.76 | 23.23 | 61.216 | |
| 5,200.00 | 5,127.63 | 4,923.25 | 4,861.74 | 18.42 | 16.93 | -175.73 | -513.48 | 437.39 | 1,458.73 | 1,435.01 | 23.72 | 61.502 | |
| 5,300.00 | 5,225.77 | 5,016.26 | 4,953.17 | 18.85 | 17.32 | -175.70 | -526.91 | 447.94 | 1,495.47 | 1,471.26 | 24.21 | 61.777 | |
| 5,400.00 | 5,323.91 | 5,109.26 | 5,044.59 | 19.27 | 17.71 | -175.67 | -540.33 | 458.48 | 1,532.21 | 1,507.51 | 24.70 | 62.040 | |
| 5,500.00 | 5,422.04 | 5,202.27 | 5,136.01 | 19.70 | 18.10 | -175.65 | -553.75 | 469.03 | 1,568.95 | 1,543.76 | 25.19 | 62.292 | |
| 5,574.70 | 5,495.35 | 5,271.74 | 5,204.31 | 20.01 | 18.40 | -175.63 | -563.78 | 476.91 | 1,596.40 | 1,570.84 | 25.55 | 62.474 | |
| 5,600.00 | 5,520.20 | 5,295.31 | 5,227.48 | 20.11 | 18.49 | -175.64 | -567.18 | 479.58 | 1,605.59 | 1,579.88 | 25.71 | 62.452 | |
| 5,700.00 | 5,618.80 | 5,389.24 | 5,319.81 | 20.41 | 18.89 | -175.66 | -580.73 | 490.23 | 1,639.88 | 1,613.60 | 26.28 | 62.398 | |
| 5,800.00 | 5,717.92 | 5,484.30 | 5,413.26 | 20.67 | 19.29 | -175.67 | -594.45 | 501.01 | 1,670.88 | 1,644.06 | 26.82 | 62.297 | |
| 5,900.00 | 5,817.44 | 5,580.38 | 5,507.71 | 20.89 | 19.69 | -175.67 | -608.32 | 511.91 | 1,698.55 | 1,671.22 | 27.33 | 62.155 | |
| 6,000.00 | 5,917.24 | 5,682.13 | 5,726.90 | 21.07 | 20.31 | -175.61 | -634.40 | 532.40 | 1,719.81 | 1,691.79 | 28.02 | 61.387 | |
| 6,100.00 | 6,017.20 | 6,049.91 | 5,974.03 | 21.21 | 20.76 | -175.58 | -647.71 | 542.86 | 1,729.34 | 1,700.68 | 28.66 | 60.340 | |
| 6,128.80 | 6,046.00 | 6,121.89 | 6,046.00 | 21.24 | 20.86 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,701.01 | 28.83 | 59.996 | |
| 6,200.00 | 6,117.20 | 6,193.09 | 6,117.20 | 21.33 | 20.95 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,700.76 | 29.09 | 59.467 | |
| 6,300.00 | 6,217.20 | 6,293.09 | 6,217.20 | 21.47 | 21.07 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,700.39 | 29.46 | 58.724 | |
| 6,400.00 | 6,317.20 | 6,393.09 | 6,317.20 | 21.61 | 21.19 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,700.02 | 29.83 | 57.997 | |
| 6,500.00 | 6,417.20 | 6,493.09 | 6,417.20 | 21.75 | 21.31 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,699.65 | 30.20 | 57.283 | |
| 6,600.00 | 6,517.20 | 6,593.09 | 6,517.20 | 21.89 | 21.44 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,699.27 | 30.57 | 56.583 | |
| 6,700.00 | 6,617.20 | 6,693.09 | 6,617.20 | 22.04 | 21.56 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,698.90 | 30.95 | 55.896 | |
| 6,800.00 | 6,717.20 | 6,793.09 | 6,717.20 | 22.18 | 21.69 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,698.52 | 31.33 | 55.222 | |
| 6,900.00 | 6,817.20 | 6,893.09 | 6,817.20 | 22.33 | 21.82 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,698.14 | 31.70 | 54.561 | |
| 7,000.00 | 6,917.20 | 6,993.09 | 6,917.20 | 22.48 | 21.95 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,697.76 | 32.09 | 53.913 | |
| 7,100.00 | 7,017.20 | 7,093.09 | 7,017.20 | 22.62 | 22.09 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,697.38 | 32.47 | 53.277 | |
| 7,200.00 | 7,117.20 | 7,193.09 | 7,117.20 | 22.78 | 22.22 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,696.99 | 32.85 | 52.653 | |
| 7,300.00 | 7,217.20 | 7,293.09 | 7,217.20 | 22.93 | 22.36 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,696.60 | 33.24 | 52.041 | |
| 7,400.00 | 7,317.20 | 7,393.09 | 7,317.20 | 23.08 | 22.49 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,696.22 | 33.63 | 51.441 | |
| 7,500.00 | 7,417.20 | 7,493.09 | 7,417.20 | 23.23 | 22.63 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,695.83 | 34.02 | 50.852 | |
| 7,600.00 | 7,517.20 | 7,593.09 | 7,517.20 | 23.39 | 22.77 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,695.44 | 34.41 | 50.274 | |
| 7,700.00 | 7,617.20 | 7,693.09 | 7,617.20 | 23.54 | 22.91 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,695.04 | 34.80 | 49.707 | |
| 7,800.00 | 7,717.20 | 7,793.09 | 7,717.20 | 23.70 | 23.06 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,694.65 | 35.19 | 49.151 | |
| 7,900.00 | 7,817.20 | 7,893.09 | 7,817.20 | 23.86 | 23.20 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,694.26 | 35.59 | 48.606 | |
| 8,000.00 | 7,917.20 | 7,993.09 | 7,917.20 | 24.02 | 23.34 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,693.86 | 35.99 | 48.071 | |
| 8,051.80 | 7,969.00 | 8,044.89 | 7,969.00 | 24.10 | 23.42 | 135.38 | -648.42 | 543.42 | 1,729.84 | 1,693.65 | 36.19 | 47.797 | |

| | | | |
|---------------------------|----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_BERNHARDT STATE 29-36 |
| Project: | COLORADO NOTHERN ZONE - 83 | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Reference Site: | WELD_BERNHARDT STATE 3 PAD | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_BERNHARDT STATE 29-36 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 11-04-09 RHS | Offset TVD Reference: | Offset Datum |

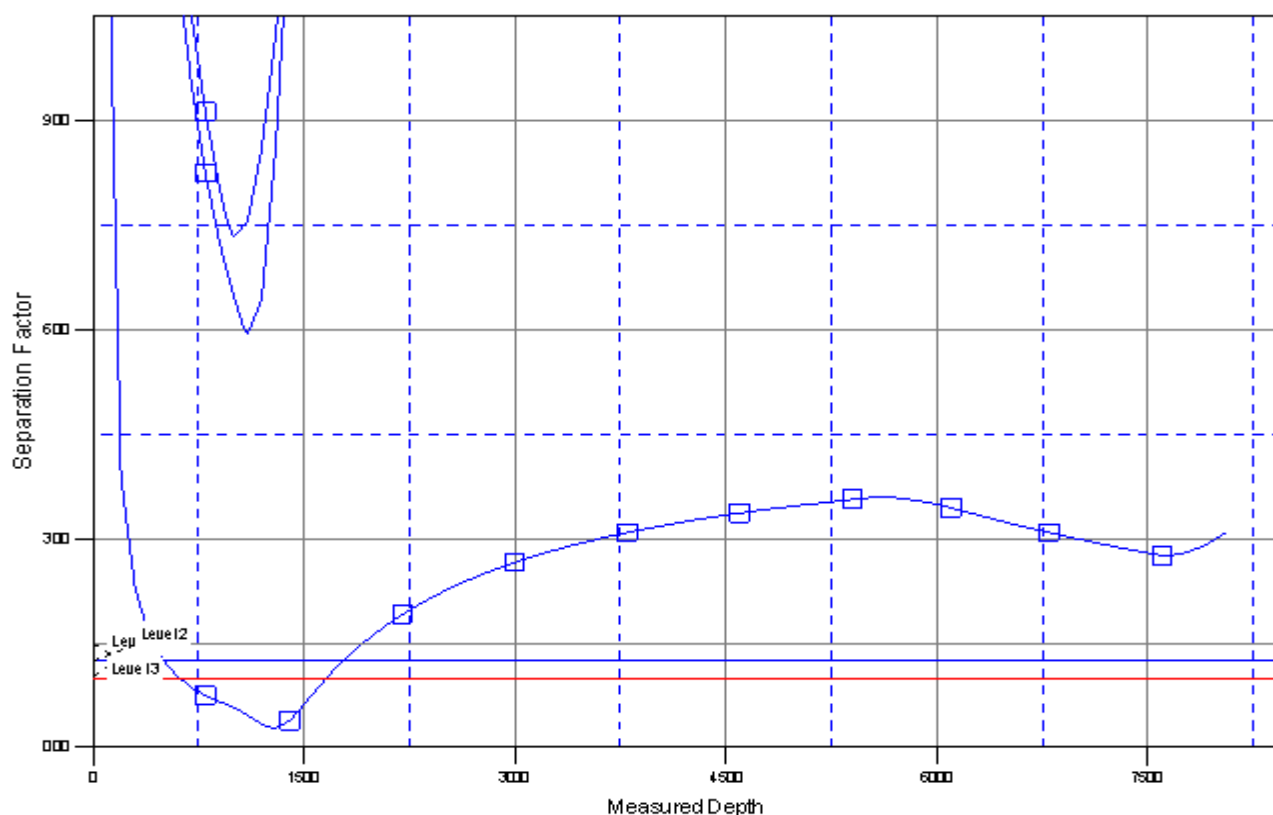
Reference Depths are relative to WELL @ 4901.00ft (Original Well Elev) Coordinates are relative to: P_BERNHARDT STATE 29-36
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.42°



| | | | |
|---------------------------|----------------------------|-------------------------------------|---------------------------------------|
| Company: | US ROCKIES REGION PLANNING | Local Co-ordinate Reference: | Well P_BERNHARDT STATE 29-36 |
| Project: | COLORADO NOTHERN ZONE - 83 | TVD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Reference Site: | WELD_BERNHARDT STATE 3 PAD | MD Reference: | WELL @ 4901.00ft (Original Well Elev) |
| Site Error: | 0.00ft | North Reference: | True |
| Reference Well: | P_BERNHARDT STATE 29-36 | Survey Calculation Method: | Minimum Curvature |
| Well Error: | 0.00ft | Output errors are at | 2.00 sigma |
| Reference Wellbore | P_BERNHARDT STATE 29-36 | Database: | EDM 2003.21 Single User Db |
| Reference Design: | PLAN #1 11-04-09 RHS | Offset TVD Reference: | Offset Datum |

Reference Depths are relative to WELL @ 4901.00ft (Original Well Elev) Coordinates are relative to: P_BERNHARDT STATE 29-36
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: 0.42°

Separation Factor Plot



LEGEND

WELL #1-36 EXISTING W0  P_BERNHARDT STATE 18-36, P_BERNHARDT STATE 18-36, PLAN #1 11-04-09 RHS W0  P_BERNHARDT STATE 18-36