



# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83  
WELD\_BERNHARDT STATE 3 PAD  
P\_BERNHARDT STATE 21-36**

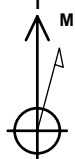
**P\_BERNHARDT STATE 21-36**

**Plan: PLAN #1 11-04-09 RHS**

## **Standard Planning Report**

**04 November, 2009**





Azimuths to True North  
Magnetic North: 9.08°  
  
Magnetic Field  
Strength: 53291.1snT  
Dip Angle: 67.07°  
Date: 11/4/2009  
Model: IGRF200510

#### WELL DETAILS: P\_BERNHARDT STATE 21-36

+N/-S	+E/-W	Northing	Easting	Ground Level:	Latitude	Longitude	Slot
0.00	0.00	1375219.01	3182877.28	4886.00	40° 21' 41.472 N	104° 50' 37.464 W	

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2724.00	2748.57	PARKMAN TOP
4452.00	4506.43	SUSSEX TOP
4835.00	4896.05	SHANNON TOP
7046.00	7121.89	NIO A TOP
7369.00	7444.89	CODELL TOP
7819.00	7894.89	JSAND TOP

#### SECTION DETAILS

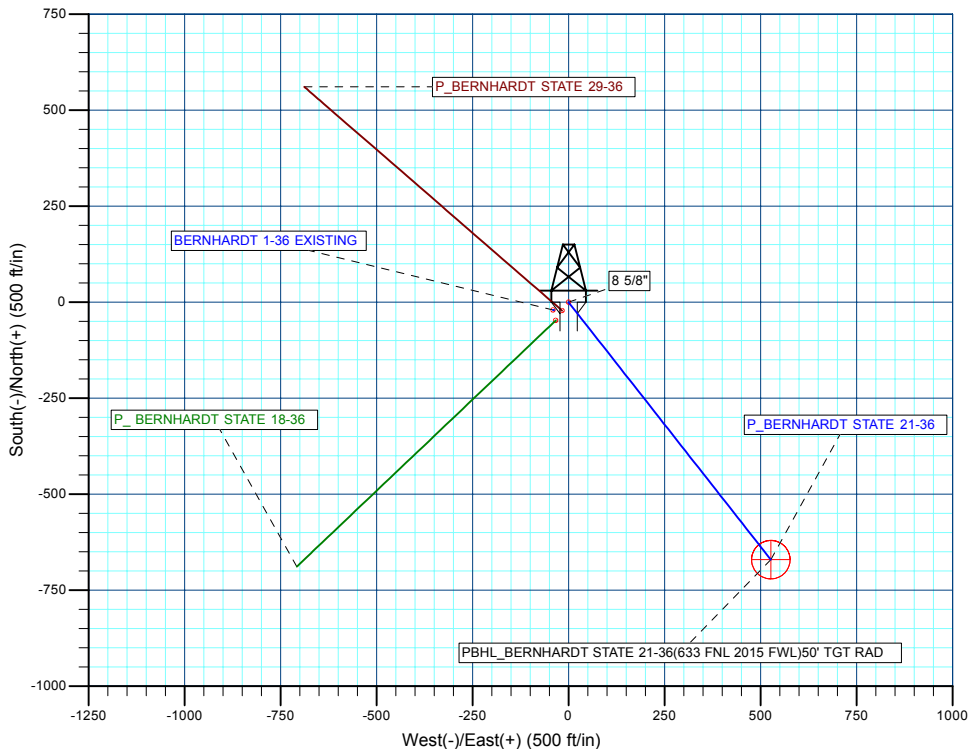
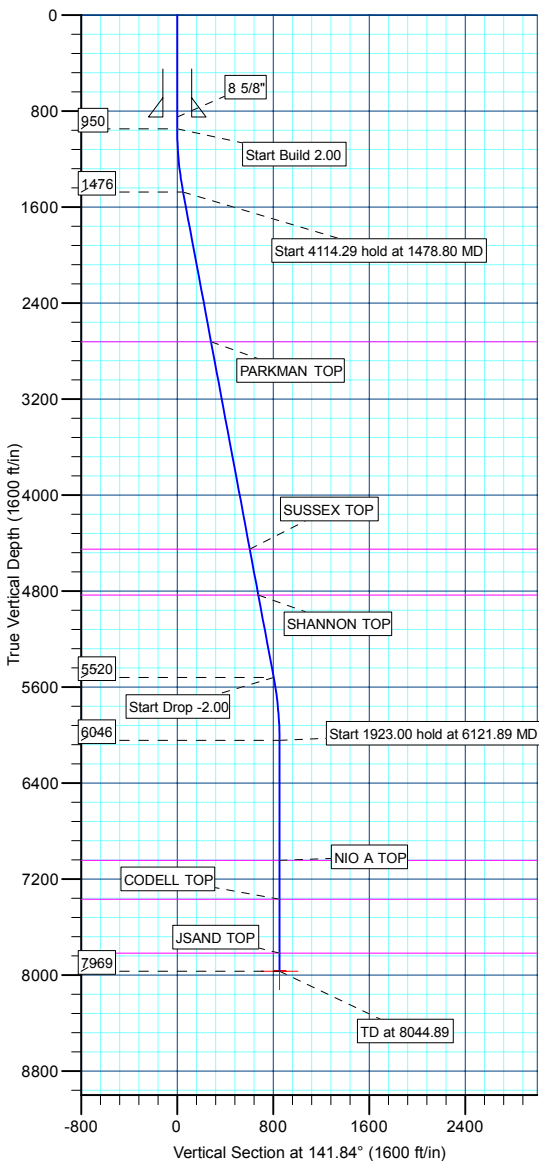
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	
1478.80	10.58	141.84	1475.80	-38.27	30.07	2.00	141.84	48.67	
5593.09	10.58	141.84	5520.20	-632.02	496.63	0.00	0.00	803.80	
6121.89	0.00	0.00	6046.00	-670.29	526.70	2.00	180.00	852.47	
8044.89	0.00	0.00	7969.00	-670.29	526.70	0.00	0.00	852.47	PBHL_BERNHARDT STATE 21-36(633 FNL 2015 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	-670.29	526.70	1374552.64	3183408.9340	21° 34.848 N	104° 50' 30.660 W	Circle (Radius: 50.00)

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT STATE 21-36		
<b>Design:</b>	PLAN #1 11-04-09 RHS		

<b>Project</b>	COLORADO NOTHERN ZONE - 83, KERR MCGEE OIL & GAS ONSHORE LP		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 21-36					
Well Position	+N/-S	47.35 ft	Northing:	1,375,219.01 ft	Latitude:	40° 21' 41.472 N
	+E/-W	33.44 ft	Easting:	3,182,877.28 ft	Longitude:	104° 50' 37.464 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,886.00 ft

<b>Wellbore</b>	P_BERNHARDT STATE 21-36				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	11/4/2009	9.08	67.07	53,291

<b>Design</b>	PLAN #1 11-04-09 RHS			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	141.84

<b>Plan Sections</b>										
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	
1,478.80	10.58	141.84	1,475.80	-38.27	30.07	2.00	2.00	0.00	141.84	
5,593.09	10.58	141.84	5,520.20	-632.02	496.63	0.00	0.00	0.00	0.00	
6,121.89	0.00	0.00	6,046.00	-670.29	526.70	2.00	-2.00	0.00	180.00	
8,044.89	0.00	0.00	7,969.00	-670.29	526.70	0.00	0.00	0.00	0.00	PBHL_BERNHARD

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT STATE 21-36		
<b>Design:</b>	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)
<b>Start Build 2.00</b>									
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	141.84	1,000.00	-0.34	0.27	0.44	2.00	2.00	0.00
1,100.00	3.00	141.84	1,099.93	-3.09	2.43	3.93	2.00	2.00	0.00
1,200.00	5.00	141.84	1,199.68	-8.57	6.74	10.90	2.00	2.00	0.00
1,300.00	7.00	141.84	1,299.13	-16.79	13.19	21.35	2.00	2.00	0.00
1,400.00	9.00	141.84	1,398.15	-27.73	21.79	35.27	2.00	2.00	0.00
<b>Start 4114.29 hold at 1478.80 MD</b>									
1,478.80	10.58	141.84	1,475.80	-38.27	30.07	48.67	2.00	2.00	0.00
1,500.00	10.58	141.84	1,496.64	-41.33	32.47	52.56	0.00	0.00	0.00
1,600.00	10.58	141.84	1,594.94	-55.76	43.81	70.91	0.00	0.00	0.00
1,700.00	10.58	141.84	1,693.24	-70.19	55.15	89.27	0.00	0.00	0.00
1,800.00	10.58	141.84	1,791.55	-84.62	66.49	107.62	0.00	0.00	0.00
1,900.00	10.58	141.84	1,889.85	-99.05	77.83	125.97	0.00	0.00	0.00
2,000.00	10.58	141.84	1,988.15	-113.48	89.17	144.33	0.00	0.00	0.00
2,100.00	10.58	141.84	2,086.45	-127.91	100.51	162.68	0.00	0.00	0.00
2,200.00	10.58	141.84	2,184.75	-142.35	111.85	181.03	0.00	0.00	0.00
2,300.00	10.58	141.84	2,283.05	-156.78	123.19	199.39	0.00	0.00	0.00
2,400.00	10.58	141.84	2,381.35	-171.21	134.53	217.74	0.00	0.00	0.00
2,500.00	10.58	141.84	2,479.65	-185.64	145.87	236.10	0.00	0.00	0.00
2,600.00	10.58	141.84	2,577.96	-200.07	157.21	254.45	0.00	0.00	0.00
2,700.00	10.58	141.84	2,676.26	-214.50	168.55	272.80	0.00	0.00	0.00
<b>PARKMAN TOP</b>									
2,748.57	10.58	141.84	2,724.00	-221.51	174.06	281.72	0.00	0.00	0.00
2,800.00	10.58	141.84	2,774.56	-228.94	179.89	291.16	0.00	0.00	0.00
2,900.00	10.58	141.84	2,872.86	-243.37	191.23	309.51	0.00	0.00	0.00
3,000.00	10.58	141.84	2,971.16	-257.80	202.57	327.87	0.00	0.00	0.00
3,100.00	10.58	141.84	3,069.46	-272.23	213.91	346.22	0.00	0.00	0.00
3,200.00	10.58	141.84	3,167.76	-286.66	225.25	364.57	0.00	0.00	0.00
3,300.00	10.58	141.84	3,266.06	-301.09	236.59	382.93	0.00	0.00	0.00
3,400.00	10.58	141.84	3,364.37	-315.53	247.93	401.28	0.00	0.00	0.00
3,500.00	10.58	141.84	3,462.67	-329.96	259.27	419.64	0.00	0.00	0.00
3,600.00	10.58	141.84	3,560.97	-344.39	270.61	437.99	0.00	0.00	0.00
3,700.00	10.58	141.84	3,659.27	-358.82	281.95	456.34	0.00	0.00	0.00
3,800.00	10.58	141.84	3,757.57	-373.25	293.29	474.70	0.00	0.00	0.00
3,900.00	10.58	141.84	3,855.87	-387.68	304.63	493.05	0.00	0.00	0.00
4,000.00	10.58	141.84	3,954.17	-402.11	315.97	511.41	0.00	0.00	0.00
4,100.00	10.58	141.84	4,052.47	-416.55	327.31	529.76	0.00	0.00	0.00
4,200.00	10.58	141.84	4,150.78	-430.98	338.65	548.11	0.00	0.00	0.00
4,300.00	10.58	141.84	4,249.08	-445.41	349.99	566.47	0.00	0.00	0.00
4,400.00	10.58	141.84	4,347.38	-459.84	361.33	584.82	0.00	0.00	0.00
4,500.00	10.58	141.84	4,445.68	-474.27	372.67	603.18	0.00	0.00	0.00
<b>SUSSEX TOP</b>									
4,506.43	10.58	141.84	4,452.00	-475.20	373.40	604.36	0.00	0.00	0.00
4,600.00	10.58	141.84	4,543.98	-488.70	384.01	621.53	0.00	0.00	0.00
4,700.00	10.58	141.84	4,642.28	-503.14	395.35	639.88	0.00	0.00	0.00
4,800.00	10.58	141.84	4,740.58	-517.57	406.69	658.24	0.00	0.00	0.00
<b>SHANNON TOP</b>									
4,896.05	10.58	141.84	4,835.00	-531.43	417.59	675.87	0.00	0.00	0.00
4,900.00	10.58	141.84	4,838.88	-532.00	418.03	676.59	0.00	0.00	0.00
5,000.00	10.58	141.84	4,937.19	-546.43	429.37	694.94	0.00	0.00	0.00
5,100.00	10.58	141.84	5,035.49	-560.86	440.71	713.30	0.00	0.00	0.00
5,200.00	10.58	141.84	5,133.79	-575.29	452.05	731.65	0.00	0.00	0.00
5,300.00	10.58	141.84	5,232.09	-589.73	463.39	750.01	0.00	0.00	0.00

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT STATE 21-36		
<b>Design:</b>	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	10.58	141.84	5,330.39	-604.16	474.73	768.36	0.00	0.00	0.00
5,500.00	10.58	141.84	5,428.69	-618.59	486.07	786.71	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,593.09	10.58	141.84	5,520.20	-632.02	496.63	803.80	0.00	0.00	0.00
5,600.00	10.44	141.84	5,526.99	-633.01	497.41	805.06	2.00	-2.00	0.00
5,700.00	8.44	141.84	5,625.64	-645.91	507.54	821.46	2.00	-2.00	0.00
5,800.00	6.44	141.84	5,724.79	-656.08	515.54	834.40	2.00	-2.00	0.00
5,900.00	4.44	141.84	5,824.33	-663.53	521.39	843.88	2.00	-2.00	0.00
6,000.00	2.44	141.84	5,924.15	-668.25	525.10	849.87	2.00	-2.00	0.00
6,100.00	0.44	141.84	6,024.11	-670.22	526.65	852.38	2.00	-2.00	0.00
<b>Start 1923.00 hold at 6121.89 MD</b>									
6,121.89	0.00	0.00	6,046.00	-670.29	526.70	852.47	2.00	-2.00	0.00
6,200.00	0.00	0.00	6,124.11	-670.29	526.70	852.47	0.00	0.00	0.00
6,300.00	0.00	0.00	6,224.11	-670.29	526.70	852.47	0.00	0.00	0.00
6,400.00	0.00	0.00	6,324.11	-670.29	526.70	852.47	0.00	0.00	0.00
6,500.00	0.00	0.00	6,424.11	-670.29	526.70	852.47	0.00	0.00	0.00
6,600.00	0.00	0.00	6,524.11	-670.29	526.70	852.47	0.00	0.00	0.00
6,700.00	0.00	0.00	6,624.11	-670.29	526.70	852.47	0.00	0.00	0.00
6,800.00	0.00	0.00	6,724.11	-670.29	526.70	852.47	0.00	0.00	0.00
6,900.00	0.00	0.00	6,824.11	-670.29	526.70	852.47	0.00	0.00	0.00
7,000.00	0.00	0.00	6,924.11	-670.29	526.70	852.47	0.00	0.00	0.00
7,100.00	0.00	0.00	7,024.11	-670.29	526.70	852.47	0.00	0.00	0.00
<b>NIO A TOP</b>									
7,121.89	0.00	0.00	7,046.00	-670.29	526.70	852.47	0.00	0.00	0.00
7,200.00	0.00	0.00	7,124.11	-670.29	526.70	852.47	0.00	0.00	0.00
7,300.00	0.00	0.00	7,224.11	-670.29	526.70	852.47	0.00	0.00	0.00
7,400.00	0.00	0.00	7,324.11	-670.29	526.70	852.47	0.00	0.00	0.00
<b>CODELL TOP</b>									
7,444.89	0.00	0.00	7,369.00	-670.29	526.70	852.47	0.00	0.00	0.00
7,500.00	0.00	0.00	7,424.11	-670.29	526.70	852.47	0.00	0.00	0.00
7,600.00	0.00	0.00	7,524.11	-670.29	526.70	852.47	0.00	0.00	0.00
7,700.00	0.00	0.00	7,624.11	-670.29	526.70	852.47	0.00	0.00	0.00
7,800.00	0.00	0.00	7,724.11	-670.29	526.70	852.47	0.00	0.00	0.00
<b>JSAND TOP</b>									
7,894.89	0.00	0.00	7,819.00	-670.29	526.70	852.47	0.00	0.00	0.00
7,900.00	0.00	0.00	7,824.11	-670.29	526.70	852.47	0.00	0.00	0.00
8,000.00	0.00	0.00	7,924.11	-670.29	526.70	852.47	0.00	0.00	0.00
<b>PBHL_BERNHARDT STATE 21-36(633 FNL 2015 FWL)</b>									
8,044.89	0.00	0.00	7,969.00	-670.29	526.70	852.47	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	-670.29	526.70	1,374,552.64	3,183,408.93	40° 21' 34.848 N	104° 50' 30.660 W
- plan hits target center									
- Circle (radius 50.00)									

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT STATE 21-36		
<b>Design:</b>	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 (°)	
2,748.57	2,724.00	PARKMAN TOP				
4,506.43	4,452.00	SUSSEX TOP				
4,896.05	4,835.00	SHANNON TOP				
7,121.89	7,046.00	NIO A TOP				
7,444.89	7,369.00	CODELL TOP				
7,894.89	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	
1,478.80	1,475.80	-38.27	30.07	Start 4114.29 hold at 1478.80 MD	
5,593.09	5,520.20	-632.02	496.63	Start Drop -2.00	
6,121.89	6,046.00	-670.29	526.70	Start 1923.00 hold at 6121.89 MD	
8,044.89	7,969.00	-670.29	526.70	TD at 8044.89	



# **US ROCKIES REGION PLANNING**

**COLORADO NOTHERN ZONE - 83  
WELD\_BERNHARDT STATE 3 PAD  
P\_BERNHARDT STATE 21-36**

**P\_BERNHARDT STATE 21-36  
PLAN #1 11-04-09 RHS**

## **Anticollision Report**

**04 November, 2009**



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_BERNHARDT STATE 21-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 11-04-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	PLAN #1 11-04-09 RHS		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	0.00 to 20,000.00ft	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.00ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	11/4/2009		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	8,044.89	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	950.00	950.00	45.02	7.31	1.194	Level 2, CC
BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXIS	1,200.00	1,199.68	48.34	0.19	1.004	Level 2, ES, SF
P_BERNHARDT STATE 18-36 - P_BERNHARDT STA	950.00	950.00	57.97	53.96	14.448	CC, ES
P_BERNHARDT STATE 18-36 - P_BERNHARDT STA	1,100.00	1,096.90	60.78	56.22	13.306	SF
P_BERNHARDT STATE 29-36 - P_BERNHARDT STATI	1,061.39	1,061.29	27.19	22.72	6.089	CC, ES
P_BERNHARDT STATE 29-36 - P_BERNHARDT STATI	1,100.00	1,099.68	27.41	22.80	5.937	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								
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	-116.96	-20.41	-40.13	45.02						
100.00	100.00	100.00	100.00	0.10	1.70	-116.96	-20.41	-40.13	45.02	43.22	1.80	25.073			
200.00	200.00	200.00	200.00	0.32	5.70	-116.96	-20.41	-40.13	45.02	39.00	6.02	7.478			
300.00	300.00	300.00	300.00	0.55	9.70	-116.96	-20.41	-40.13	45.02	34.77	10.25	4.394			
400.00	400.00	400.00	400.00	0.77	13.70	-116.96	-20.41	-40.13	45.02	30.55	14.47	3.111			
500.00	500.00	500.00	500.00	0.99	17.70	-116.96	-20.41	-40.13	45.02	26.33	18.69	2.408			
600.00	600.00	600.00	600.00	1.22	21.70	-116.96	-20.41	-40.13	45.02	22.10	22.92	1.964			
700.00	700.00	700.00	700.00	1.44	25.70	-116.96	-20.41	-40.13	45.02	17.88	27.14	1.659			
800.00	800.00	800.00	800.00	1.67	29.70	-116.96	-20.41	-40.13	45.02	13.65	31.37	1.435	Level 3		
900.00	900.00	900.00	900.00	1.89	33.70	-116.96	-20.41	-40.13	45.02	9.43	35.59	1.265	Level 3		
950.00	950.00	950.00	950.00	2.01	35.70	-116.96	-20.41	-40.13	45.02	7.31	37.71	1.194	Level 2, CC		
1,000.00	1,000.00	1,000.00	1,000.00	2.11	37.70	101.74	-20.41	-40.13	45.11	5.30	39.81	1.133	Level 2		
1,100.00	1,099.93	1,099.93	1,099.93	2.29	41.70	105.99	-20.41	-40.13	45.94	1.96	43.98	1.045	Level 2		
1,200.00	1,199.68	1,199.68	1,199.68	2.48	45.69	113.90	-20.41	-40.13	48.34	0.19	48.14	1.004	Level 2, ES, SF		
1,300.00	1,299.13	1,299.13	1,299.13	2.69	49.67	124.08	-20.41	-40.13	53.44	1.20	52.24	1.023	Level 2		
1,400.00	1,398.15	1,398.15	1,398.15	2.94	53.63	134.55	-20.41	-40.13	62.35	6.13	56.22	1.109	Level 2		
1,478.80	1,475.80	1,475.80	1,475.80	3.16	56.73	141.96	-20.41	-40.13	72.43	13.20	59.23	1.223	Level 2		
1,500.00	1,496.64	1,496.64	1,496.64	3.22	57.57	143.76	-20.41	-40.13	75.55	15.48	60.08	1.258	Level 3		
1,600.00	1,594.94	1,594.94	1,594.94	3.54	61.50	150.58	-20.41	-40.13	91.08	27.00	64.08	1.421	Level 3		
1,700.00	1,693.24	1,693.24	1,693.24	3.88	65.43	155.37	-20.41	-40.13	107.50	39.38	68.12	1.578			
1,800.00	1,791.55	1,791.55	1,791.55	4.23	69.36	158.89	-20.41	-40.13	124.46	52.29	72.18	1.724			

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



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_BERNHARDT STATE 21-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 11-04-09 RHS	<b>Offset TVD Reference:</b>	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						
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
1,900.00	1,889.85	1,889.85	1,889.85	4.59	73.29	161.56	-20.41	-40.13	141.77	65.52	76.25	1.859	
2,000.00	1,988.15	1,988.15	1,988.15	4.96	77.23	163.64	-20.41	-40.13	159.32	78.99	80.33	1.983	
2,100.00	2,086.45	2,086.45	2,086.45	5.34	81.16	165.31	-20.41	-40.13	177.02	92.61	84.42	2.097	
2,200.00	2,184.75	2,184.75	2,184.75	5.73	85.09	166.68	-20.41	-40.13	194.85	106.34	88.51	2.201	
2,300.00	2,283.05	2,283.05	2,283.05	6.12	89.02	167.82	-20.41	-40.13	212.77	120.16	92.61	2.297	
2,400.00	2,381.35	2,381.35	2,381.35	6.52	92.95	168.78	-20.41	-40.13	230.75	134.04	96.71	2.386	
2,500.00	2,479.65	2,479.65	2,479.65	6.92	96.89	169.60	-20.41	-40.13	248.79	147.98	100.82	2.468	
2,600.00	2,577.96	2,577.96	2,577.96	7.32	100.82	170.31	-20.41	-40.13	266.88	161.95	104.92	2.544	
2,700.00	2,676.26	2,676.26	2,676.26	7.72	104.75	170.93	-20.41	-40.13	284.99	175.96	109.03	2.614	
2,800.00	2,774.56	2,774.56	2,774.56	8.13	108.68	171.48	-20.41	-40.13	303.14	190.00	113.14	2.679	
2,900.00	2,872.86	2,872.86	2,872.86	8.53	112.61	171.97	-20.41	-40.13	321.31	204.06	117.25	2.740	
3,000.00	2,971.16	2,971.16	2,971.16	8.94	116.55	172.40	-20.41	-40.13	339.50	218.13	121.36	2.797	
3,100.00	3,069.46	3,069.46	3,069.46	9.35	120.48	172.79	-20.41	-40.13	357.70	232.23	125.48	2.851	
3,200.00	3,167.76	3,167.76	3,167.76	9.76	124.41	173.14	-20.41	-40.13	375.92	246.33	129.59	2.901	
3,300.00	3,266.06	3,266.06	3,266.06	10.17	128.34	173.46	-20.41	-40.13	394.16	260.45	133.71	2.948	
3,400.00	3,364.37	3,364.37	3,364.37	10.59	132.27	173.75	-20.41	-40.13	412.40	274.58	137.82	2.992	
3,500.00	3,462.67	3,462.67	3,462.67	11.00	136.21	174.01	-20.41	-40.13	430.65	288.71	141.94	3.034	
3,600.00	3,560.97	3,560.97	3,560.97	11.41	140.14	174.26	-20.41	-40.13	448.91	302.86	146.06	3.074	
3,700.00	3,659.27	3,659.27	3,659.27	11.83	144.07	174.48	-20.41	-40.13	467.18	317.01	150.17	3.111	
3,800.00	3,757.57	3,757.57	3,757.57	12.24	148.00	174.69	-20.41	-40.13	485.46	331.16	154.29	3.146	
3,900.00	3,855.87	3,855.87	3,855.87	12.66	151.93	174.88	-20.41	-40.13	503.74	345.33	158.41	3.180	
4,000.00	3,954.17	3,954.17	3,954.17	13.08	155.87	175.06	-20.41	-40.13	522.02	359.49	162.53	3.212	
4,100.00	4,052.47	4,052.47	4,052.47	13.49	159.80	175.23	-20.41	-40.13	540.31	373.66	166.65	3.242	
4,200.00	4,150.78	4,150.78	4,150.78	13.91	163.73	175.39	-20.41	-40.13	558.61	387.84	170.77	3.271	
4,300.00	4,249.08	4,249.08	4,249.08	14.33	167.66	175.53	-20.41	-40.13	576.91	402.02	174.89	3.299	
4,400.00	4,347.38	4,347.38	4,347.38	14.75	171.60	175.67	-20.41	-40.13	595.21	416.20	179.01	3.325	
4,500.00	4,445.68	4,445.68	4,445.68	15.16	175.53	175.80	-20.41	-40.13	613.51	430.38	183.13	3.350	
4,600.00	4,543.98	4,543.98	4,543.98	15.58	179.46	175.92	-20.41	-40.13	631.82	444.57	187.25	3.374	
4,700.00	4,642.28	4,642.28	4,642.28	16.00	183.39	176.04	-20.41	-40.13	650.13	458.76	191.37	3.397	
4,800.00	4,740.58	4,740.58	4,740.58	16.42	187.32	176.15	-20.41	-40.13	668.44	472.95	195.49	3.419	
4,900.00	4,838.88	4,838.88	4,838.88	16.84	191.26	176.25	-20.41	-40.13	686.76	487.14	199.62	3.440	
5,000.00	4,937.19	4,937.19	4,937.19	17.26	195.19	176.35	-20.41	-40.13	705.08	501.34	203.74	3.461	
5,100.00	5,035.49	5,035.49	5,035.49	17.68	199.12	176.44	-20.41	-40.13	723.39	515.54	207.86	3.480	
5,200.00	5,133.79	5,133.79	5,133.79	18.10	203.05	176.53	-20.41	-40.13	741.71	529.73	211.98	3.499	
5,300.00	5,232.09	5,232.09	5,232.09	18.51	206.98	176.61	-20.41	-40.13	760.04	543.93	216.10	3.517	
5,400.00	5,330.39	5,330.39	5,330.39	18.93	210.92	176.69	-20.41	-40.13	778.36	558.14	220.22	3.534	
5,500.00	5,428.69	5,428.69	5,428.69	19.35	214.85	176.77	-20.41	-40.13	796.69	572.34	224.35	3.551	
5,593.09	5,520.20	5,520.20	5,520.20	19.74	218.51	176.84	-20.41	-40.13	813.75	585.56	228.18	3.566	
5,600.00	5,526.99	5,526.99	5,526.99	19.77	218.78	176.84	-20.41	-40.13	815.00	586.45	228.55	3.566	
5,700.00	5,625.64	5,625.64	5,625.64	20.05	222.73	176.92	-20.41	-40.13	831.38	597.52	233.86	3.555	
5,800.00	5,724.79	5,724.79	5,724.79	20.30	226.69	176.98	-20.41	-40.13	844.30	605.31	239.00	3.533	
5,900.00	5,824.33	5,824.33	5,824.33	20.52	230.67	177.03	-20.41	-40.13	853.77	609.89	243.88	3.501	
6,000.00	5,924.15	5,924.15	5,924.15	20.69	234.67	177.05	-20.41	-40.13	859.75	611.26	248.49	3.460	
6,100.00	6,024.11	6,024.11	6,024.11	20.83	238.66	177.06	-20.41	-40.13	862.26	609.45	252.81	3.411	
6,121.89	6,046.00	6,046.00	6,046.00	20.86	239.54	-41.10	-20.41	-40.13	862.34	608.63	253.72	3.399	
6,200.00	6,124.11	6,124.11	6,124.11	20.96	242.66	-41.10	-20.41	-40.13	862.34	605.36	256.98	3.356	
6,300.00	6,224.11	6,224.11	6,224.11	21.08	246.66	-41.10	-20.41	-40.13	862.34	601.19	261.16	3.302	
6,400.00	6,324.11	6,324.11	6,324.11	21.20	250.66	-41.10	-20.41	-40.13	862.34	597.01	265.33	3.250	
6,500.00	6,424.11	6,424.11	6,424.11	21.32	254.66	-41.10	-20.41	-40.13	862.34	592.84	269.51	3.200	
6,600.00	6,524.11	6,524.11	6,524.11	21.45	258.66	-41.10	-20.41	-40.13	862.34	588.66	273.69	3.151	
6,700.00	6,624.11	6,624.11	6,624.11	21.57	262.66	-41.10	-20.41	-40.13	862.34	584.48	277.86	3.103	
6,800.00	6,724.11	6,724.11	6,724.11	21.70	266.66	-41.10	-20.41	-40.13	862.34	580.30	282.04	3.057	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_BERNHARDT STATE 21-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 11-04-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> WELD_BERNHARDT STATE 3 PAD - BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXISTING -												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-UNKNOWN												<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
6,900.00	6,824.11	6,824.11	6,824.11	21.83	270.66	-41.10	-20.41	-40.13	862.34	576.12	286.23	3.013	
7,000.00	6,924.11	6,924.11	6,924.11	21.96	274.66	-41.10	-20.41	-40.13	862.34	571.94	290.41	2.969	
7,100.00	7,024.11	7,024.11	7,024.11	22.09	278.66	-41.10	-20.41	-40.13	862.34	567.75	294.59	2.927	
7,200.00	7,124.11	7,124.11	7,124.11	22.23	282.66	-41.10	-20.41	-40.13	862.34	563.57	298.78	2.886	
7,300.00	7,224.11	7,224.11	7,224.11	22.37	286.66	-41.10	-20.41	-40.13	862.34	559.38	302.96	2.846	
7,400.00	7,324.11	7,324.11	7,324.11	22.50	290.66	-41.10	-20.41	-40.13	862.34	555.20	307.15	2.808	
7,500.00	7,424.11	7,424.11	7,424.11	22.64	294.66	-41.10	-20.41	-40.13	862.34	551.01	311.34	2.770	
7,565.95	7,490.06	7,490.06	7,490.06	22.73	297.30	-41.10	-20.41	-40.13	862.34	548.25	314.10	2.745	
7,600.00	7,524.11	7,522.00	7,522.00	22.78	298.58	-41.10	-20.41	-40.13	862.35	546.91	315.44	2.734	
7,700.00	7,624.11	7,522.00	7,522.00	22.92	298.58	-41.10	-20.41	-40.13	868.37	552.74	315.63	2.751	
7,800.00	7,724.11	7,522.00	7,522.00	23.07	298.58	-41.10	-20.41	-40.13	885.71	569.89	315.82	2.804	
7,900.00	7,824.11	7,522.00	7,522.00	23.21	298.58	-41.10	-20.41	-40.13	913.73	597.72	316.01	2.891	
8,000.00	7,924.11	7,522.00	7,522.00	23.35	298.58	-41.10	-20.41	-40.13	951.49	635.29	316.20	3.009	
8,044.89	7,969.00	7,522.00	7,522.00	23.42	298.58	-41.10	-20.41	-40.13	971.31	655.02	316.29	3.071	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_BERNHARDT STATE 21-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 11-04-09 RHS	<b>Offset TVD Reference:</b>	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	-144.77	-47.35	-33.44	57.97					
100.00	100.00	100.00	100.00	0.10	0.10	-144.77	-47.35	-33.44	57.97	57.78	0.19	303.416		
200.00	200.00	200.00	200.00	0.32	0.32	-144.77	-47.35	-33.44	57.97	57.33	0.64	90.492		
300.00	300.00	300.00	300.00	0.55	0.55	-144.77	-47.35	-33.44	57.97	56.88	1.09	53.176		
400.00	400.00	400.00	400.00	0.77	0.77	-144.77	-47.35	-33.44	57.97	56.43	1.54	37.650		
500.00	500.00	500.00	500.00	0.99	0.99	-144.77	-47.35	-33.44	57.97	55.98	1.99	29.142		
600.00	600.00	600.00	600.00	1.22	1.22	-144.77	-47.35	-33.44	57.97	55.53	2.44	23.770		
700.00	700.00	700.00	700.00	1.44	1.44	-144.77	-47.35	-33.44	57.97	55.08	2.89	20.070		
800.00	800.00	800.00	800.00	1.67	1.67	-144.77	-47.35	-33.44	57.97	54.63	3.34	17.367		
900.00	900.00	900.00	900.00	1.89	1.89	-144.77	-47.35	-33.44	57.97	54.18	3.79	15.306		
950.00	950.00	950.00	950.00	2.01	2.01	-144.77	-47.35	-33.44	57.97	53.96	4.01	14.448 CC, ES		
1,000.00	1,000.00	999.02	999.02	2.11	2.10	73.87	-47.64	-33.74	58.27	54.06	4.21	13.840		
1,100.00	1,099.93	1,096.90	1,096.84	2.29	2.29	77.50	-49.94	-36.17	60.78	56.22	4.57	13.306 SF		
1,200.00	1,199.68	1,194.32	1,194.02	2.48	2.49	83.84	-54.52	-40.99	66.49	61.55	4.95	13.445		
1,300.00	1,299.13	1,290.95	1,290.15	2.69	2.73	91.33	-61.31	-48.13	76.31	70.96	5.35	14.267		
1,400.00	1,398.15	1,386.52	1,384.83	2.94	3.03	98.54	-70.22	-57.50	90.94	85.14	5.79	15.701		
1,478.80	1,475.80	1,460.89	1,458.19	3.16	3.32	103.46	-78.65	-66.37	106.03	99.84	6.18	17.146		
1,500.00	1,496.64	1,480.75	1,477.72	3.22	3.41	104.70	-81.13	-68.97	110.60	104.31	6.29	17.570		
1,600.00	1,594.94	1,575.54	1,570.65	3.54	3.86	109.15	-94.00	-82.51	134.20	127.33	6.86	19.550		
1,700.00	1,693.24	1,672.17	1,665.29	3.88	4.38	112.26	-107.43	-96.64	158.78	151.28	7.50	21.184		
1,800.00	1,791.55	1,768.79	1,759.93	4.23	4.93	114.53	-120.87	-110.77	183.68	175.51	8.17	22.488		
1,900.00	1,889.85	1,865.42	1,854.56	4.59	5.50	116.26	-134.31	-124.91	208.79	199.91	8.87	23.528		
2,000.00	1,988.15	1,962.05	1,949.20	4.96	6.09	117.62	-147.74	-139.04	234.03	224.43	9.61	24.363		
2,100.00	2,086.45	2,058.67	2,043.84	5.34	6.69	118.72	-161.18	-153.17	259.38	249.02	10.36	25.039		
2,200.00	2,184.75	2,155.30	2,138.48	5.73	7.29	119.62	-174.62	-167.31	284.80	273.68	11.13	25.593		
2,300.00	2,283.05	2,251.93	2,233.12	6.12	7.90	120.37	-188.05	-181.44	310.28	298.37	11.91	26.053		
2,400.00	2,381.35	2,348.55	2,327.76	6.52	8.52	121.01	-201.49	-195.57	335.80	323.10	12.70	26.438		
2,500.00	2,479.65	2,445.18	2,422.39	6.92	9.14	121.56	-214.93	-209.71	361.35	347.85	13.50	26.764		
2,600.00	2,577.96	2,541.81	2,517.03	7.32	9.77	122.03	-228.36	-223.84	386.93	372.62	14.31	27.043		
2,700.00	2,676.26	2,638.43	2,611.67	7.72	10.40	122.45	-241.80	-237.97	412.53	397.41	15.12	27.284		
2,800.00	2,774.56	2,735.06	2,706.31	8.13	11.03	122.82	-255.24	-252.11	438.15	422.21	15.94	27.493		
2,900.00	2,872.86	2,831.69	2,800.95	8.53	11.66	123.14	-268.67	-266.24	463.78	447.03	16.76	27.677		
3,000.00	2,971.16	2,928.31	2,895.58	8.94	12.29	123.44	-282.11	-280.38	489.43	471.85	17.58	27.840		
3,100.00	3,069.46	3,024.94	2,990.22	9.35	12.93	123.70	-295.55	-294.51	515.09	496.68	18.41	27.984		
3,200.00	3,167.76	3,121.57	3,084.86	9.76	13.56	123.94	-308.98	-308.64	540.75	521.52	19.23	28.114		
3,300.00	3,266.06	3,218.19	3,179.50	10.17	14.20	124.16	-322.42	-322.78	566.43	546.36	20.06	28.231		
3,400.00	3,364.37	3,314.82	3,274.14	10.59	14.84	124.36	-335.86	-336.91	592.11	571.21	20.90	28.337		
3,500.00	3,462.67	3,411.45	3,368.78	11.00	15.48	124.54	-349.29	-351.04	617.80	596.07	21.73	28.433		
3,600.00	3,560.97	3,508.07	3,463.41	11.41	16.12	124.70	-362.73	-365.18	643.49	620.93	22.56	28.522		
3,700.00	3,659.27	3,604.70	3,558.05	11.83	16.76	124.86	-376.17	-379.31	669.19	645.79	23.40	28.603		
3,800.00	3,757.57	3,701.33	3,652.69	12.24	17.40	125.00	-389.60	-393.44	694.89	670.66	24.23	28.678		
3,900.00	3,855.87	3,797.95	3,747.33	12.66	18.04	125.14	-403.04	-407.58	720.60	695.53	25.07	28.747		
4,000.00	3,954.17	3,894.58	3,841.97	13.08	18.68	125.26	-416.48	-421.71	746.31	720.40	25.90	28.812		
4,100.00	4,052.47	3,991.20	3,936.61	13.49	19.32	125.37	-429.91	-435.84	772.02	745.28	26.74	28.872		
4,200.00	4,150.78	4,087.83	4,031.24	13.91	19.97	125.48	-443.35	-449.98	797.73	770.16	27.58	28.929		
4,300.00	4,249.08	4,184.46	4,125.88	14.33	20.61	125.58	-456.79	-464.11	823.45	795.04	28.41	28.982		
4,400.00	4,347.38	4,281.08	4,220.52	14.75	21.25	125.68	-470.22	-478.24	849.17	819.92	29.25	29.032		
4,500.00	4,445.68	4,377.71	4,315.16	15.16	21.89	125.77	-483.66	-492.38	874.89	844.80	30.09	29.079		
4,600.00	4,543.98	4,474.34	4,409.80	15.58	22.54	125.85	-497.10	-506.51	900.61	869.69	30.92	29.124		
4,700.00	4,642.28	4,570.96	4,504.44	16.00	23.18	125.93	-510.53	-520.64	926.34	894.58	31.76	29.167		
4,800.00	4,740.58	4,667.59	4,599.07	16.42	23.83	126.01	-523.97	-534.78	952.07	919.47	32.60	29.207		
4,900.00	4,838.88	4,764.22	4,693.71	16.84	24.47	126.08	-537.41	-548.91	977.80	944.36	33.43	29.246		

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_BERNHARDT STATE 21-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 11-04-09 RHS	<b>Offset TVD Reference:</b>	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	
5,000.00	4,937.19	4,860.84	4,788.35	17.26	25.11	126.15	-550.84	-563.04	1,003.53	969.26	34.27	29.283	
5,100.00	5,035.49	4,957.47	4,882.99	17.68	25.76	126.21	-564.28	-577.18	1,029.26	994.15	35.11	29.319	
5,200.00	5,133.79	5,054.10	4,977.63	18.10	26.40	126.27	-577.72	-591.31	1,054.99	1,019.05	35.94	29.353	
5,300.00	5,232.09	5,150.72	5,072.27	18.51	27.05	126.33	-591.15	-605.44	1,080.72	1,043.94	36.78	29.386	
5,400.00	5,330.39	5,247.35	5,166.90	18.93	27.69	126.39	-604.59	-619.58	1,106.46	1,068.84	37.61	29.417	
5,500.00	5,428.69	5,343.98	5,261.54	19.35	28.34	126.44	-618.03	-633.71	1,132.19	1,093.74	38.45	29.448	
5,593.09	5,520.20	5,433.93	5,349.64	19.74	28.94	126.49	-630.53	-646.87	1,156.15	1,116.92	39.22	29.475	
5,600.00	5,526.99	5,440.60	5,356.18	19.77	28.98	126.52	-631.46	-647.84	1,157.92	1,118.63	39.29	29.469	
5,700.00	5,625.64	5,537.53	5,451.11	20.05	29.63	126.90	-644.94	-662.02	1,182.51	1,142.32	40.19	29.422	
5,800.00	5,724.79	5,668.82	5,580.10	20.30	30.15	127.09	-661.76	-679.72	1,203.99	1,163.05	40.94	29.407	
5,900.00	5,824.33	5,811.91	5,721.78	20.52	30.48	127.21	-675.50	-694.17	1,219.94	1,178.42	41.51	29.386	
6,000.00	5,924.15	5,956.90	5,866.18	20.69	30.73	127.29	-684.43	-703.56	1,230.13	1,188.15	41.97	29.306	
6,100.00	6,024.11	6,102.97	6,012.12	20.83	30.90	127.32	-688.33	-707.66	1,234.49	1,192.17	42.32	29.167	
6,121.89	6,046.00	6,135.00	6,044.15	20.86	30.93	-90.84	-688.50	-707.83	1,234.67	1,192.28	42.39	29.125	
6,200.00	6,124.11	6,214.96	6,124.11	20.96	31.00	-90.85	-688.50	-707.84	1,234.67	1,192.08	42.59	28.991	
6,300.00	6,224.11	6,314.96	6,224.11	21.08	31.08	-90.85	-688.50	-707.84	1,234.67	1,191.85	42.82	28.834	
6,400.00	6,324.11	6,414.96	6,324.11	21.20	31.17	-90.85	-688.50	-707.84	1,234.67	1,191.62	43.05	28.678	
6,500.00	6,424.11	6,514.96	6,424.11	21.32	31.25	-90.85	-688.50	-707.84	1,234.67	1,191.38	43.29	28.520	
6,600.00	6,524.11	6,614.96	6,524.11	21.45	31.34	-90.85	-688.50	-707.84	1,234.67	1,191.14	43.53	28.362	
6,700.00	6,624.11	6,714.96	6,624.11	21.57	31.43	-90.85	-688.50	-707.84	1,234.67	1,190.89	43.78	28.204	
6,800.00	6,724.11	6,814.96	6,724.11	21.70	31.52	-90.85	-688.50	-707.84	1,234.67	1,190.65	44.02	28.045	
6,900.00	6,824.11	6,914.96	6,824.11	21.83	31.61	-90.85	-688.50	-707.84	1,234.67	1,190.40	44.27	27.887	
7,000.00	6,924.11	7,014.96	6,924.11	21.96	31.70	-90.85	-688.50	-707.84	1,234.67	1,190.14	44.53	27.728	
7,100.00	7,024.11	7,114.96	7,024.11	22.09	31.79	-90.85	-688.50	-707.84	1,234.67	1,189.89	44.78	27.569	
7,200.00	7,124.11	7,214.96	7,124.11	22.23	31.89	-90.85	-688.50	-707.84	1,234.67	1,189.63	45.04	27.410	
7,300.00	7,224.11	7,314.96	7,224.11	22.37	31.99	-90.85	-688.50	-707.84	1,234.67	1,189.36	45.31	27.251	
7,400.00	7,324.11	7,414.96	7,324.11	22.50	32.08	-90.85	-688.50	-707.84	1,234.67	1,189.10	45.57	27.092	
7,500.00	7,424.11	7,514.96	7,424.11	22.64	32.18	-90.85	-688.50	-707.84	1,234.67	1,188.83	45.84	26.933	
7,600.00	7,524.11	7,614.96	7,524.11	22.78	32.28	-90.85	-688.50	-707.84	1,234.67	1,188.56	46.11	26.775	
7,700.00	7,624.11	7,714.96	7,624.11	22.92	32.38	-90.85	-688.50	-707.84	1,234.67	1,188.28	46.39	26.617	
7,800.00	7,724.11	7,814.96	7,724.11	23.07	32.49	-90.85	-688.50	-707.84	1,234.67	1,188.01	46.66	26.459	
7,900.00	7,824.11	7,914.96	7,824.11	23.21	32.59	-90.85	-688.50	-707.84	1,234.67	1,187.73	46.94	26.302	
8,000.00	7,924.11	8,014.96	7,924.11	23.35	32.70	-90.85	-688.50	-707.84	1,234.67	1,187.45	47.22	26.145	
8,044.89	7,969.00	8,059.85	7,969.00	23.42	32.74	-90.85	-688.50	-707.84	1,234.67	1,187.32	47.35	26.074	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_BERNHARDT STATE 21-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 11-04-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design WELD_BERNHARDT STATE 3 PAD - P_BERNHARDT STATE 29-36 - P_BERNHARDT STATE 29-36													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	-142.60	-21.87	-16.72	27.53					
100.00	100.00	100.00	100.00	0.10	0.10	-142.60	-21.87	-16.72	27.53	27.34	0.19	144.093		
200.00	200.00	200.00	200.00	0.32	0.32	-142.60	-21.87	-16.72	27.53	26.89	0.64	42.975		
300.00	300.00	300.00	300.00	0.55	0.55	-142.60	-21.87	-16.72	27.53	26.44	1.09	25.254		
400.00	400.00	400.00	400.00	0.77	0.77	-142.60	-21.87	-16.72	27.53	25.99	1.54	17.880		
500.00	500.00	500.00	500.00	0.99	0.99	-142.60	-21.87	-16.72	27.53	25.54	1.99	13.839		
600.00	600.00	600.00	600.00	1.22	1.22	-142.60	-21.87	-16.72	27.53	25.09	2.44	11.288		
700.00	700.00	700.00	700.00	1.44	1.44	-142.60	-21.87	-16.72	27.53	24.64	2.89	9.531		
800.00	800.00	800.00	800.00	1.67	1.67	-142.60	-21.87	-16.72	27.53	24.19	3.34	8.248		
900.00	900.00	900.00	900.00	1.89	1.89	-142.60	-21.87	-16.72	27.53	23.74	3.79	7.269		
950.00	950.00	950.00	950.00	2.01	2.01	-142.60	-21.87	-16.72	27.53	23.52	4.01	6.862		
1,000.00	1,000.00	1,000.01	1,000.01	2.11	2.12	77.36	-21.58	-17.05	27.41	23.19	4.22	6.492		
1,061.39	1,061.36	1,061.29	1,061.26	2.22	2.25	84.56	-20.45	-18.35	27.19	22.72	4.47	6.089 CC, ES		
1,100.00	1,099.93	1,099.68	1,099.61	2.29	2.33	91.84	-19.31	-19.67	27.41	22.80	4.62	5.937 SF		
1,200.00	1,199.68	1,198.28	1,197.97	2.48	2.56	116.64	-14.82	-24.84	32.23	27.21	5.02	6.422		
1,300.00	1,299.13	1,295.12	1,294.28	2.69	2.79	138.05	-8.26	-32.40	46.64	41.23	5.41	8.619		
1,400.00	1,398.15	1,389.58	1,387.85	2.94	3.03	150.81	0.19	-42.14	70.52	64.73	5.79	12.173		
1,478.80	1,475.80	1,461.96	1,459.24	3.16	3.24	156.75	8.04	-51.18	94.97	88.88	6.09	15.593		
1,500.00	1,496.64	1,481.11	1,478.08	3.22	3.30	157.99	10.31	-53.79	102.24	96.06	6.18	16.555		
1,600.00	1,594.94	1,573.31	1,568.57	3.54	3.60	162.23	21.87	-67.11	137.93	131.34	6.59	20.922		
1,700.00	1,693.24	1,666.31	1,659.84	3.88	3.91	164.76	33.58	-80.61	174.11	167.09	7.02	24.794		
1,800.00	1,791.55	1,759.32	1,751.11	4.23	4.24	166.43	45.30	-94.11	210.49	203.03	7.46	28.214		
1,900.00	1,889.85	1,852.32	1,842.38	4.59	4.58	167.60	57.02	-107.61	246.98	239.08	7.91	31.241		
2,000.00	1,988.15	1,945.32	1,933.65	4.96	4.93	168.47	68.74	-121.11	283.54	275.18	8.36	33.930		
2,100.00	2,086.45	2,038.33	2,024.92	5.34	5.29	169.14	80.46	-134.61	320.14	311.32	8.81	36.329		
2,200.00	2,184.75	2,131.33	2,116.19	5.73	5.65	169.67	92.17	-148.11	356.77	347.49	9.27	38.479		
2,300.00	2,283.05	2,224.34	2,207.46	6.12	6.02	170.11	103.89	-161.61	393.42	383.68	9.73	40.414		
2,400.00	2,381.35	2,317.34	2,298.73	6.52	6.39	170.47	115.61	-175.11	430.08	419.88	10.20	42.163		
2,500.00	2,479.65	2,410.34	2,390.00	6.92	6.76	170.77	127.33	-188.61	466.76	456.10	10.67	43.750		
2,600.00	2,577.96	2,503.35	2,481.27	7.32	7.14	171.03	139.04	-202.11	503.45	492.31	11.14	45.196		
2,700.00	2,676.26	2,596.35	2,572.54	7.72	7.51	171.26	150.76	-215.61	540.15	528.54	11.61	46.516		
2,800.00	2,774.56	2,689.35	2,663.81	8.13	7.89	171.45	162.48	-229.12	576.85	564.77	12.09	47.728		
2,900.00	2,872.86	2,782.36	2,755.07	8.53	8.27	171.62	174.20	-242.62	613.56	601.00	12.56	48.842		
3,000.00	2,971.16	2,875.36	2,846.34	8.94	8.66	171.78	185.92	-256.12	650.28	637.24	13.04	49.870		
3,100.00	3,069.46	2,968.37	2,937.61	9.35	9.04	171.91	197.63	-269.62	686.99	673.47	13.52	50.822		
3,200.00	3,167.76	3,061.37	3,028.88	9.76	9.43	172.04	209.35	-283.12	723.71	709.71	14.00	51.704		
3,300.00	3,266.06	3,154.37	3,120.15	10.17	9.81	172.15	221.07	-296.62	760.43	745.96	14.48	52.525		
3,400.00	3,364.37	3,247.38	3,211.42	10.59	10.20	172.25	232.79	-310.12	797.16	782.20	14.96	53.291		
3,500.00	3,462.67	3,340.38	3,302.69	11.00	10.59	172.34	244.51	-323.62	833.88	818.44	15.44	54.006		
3,600.00	3,560.97	3,433.39	3,393.96	11.41	10.98	172.42	256.22	-337.12	870.61	854.69	15.92	54.675		
3,700.00	3,659.27	3,526.39	3,485.23	11.83	11.36	172.50	267.94	-350.62	907.34	890.93	16.41	55.303		
3,800.00	3,757.57	3,619.39	3,576.50	12.24	11.75	172.57	279.66	-364.12	944.07	927.18	16.89	55.893		
3,900.00	3,855.87	3,712.40	3,667.77	12.66	12.14	172.64	291.38	-377.62	980.80	963.43	17.38	56.448		
4,000.00	3,954.17	3,805.40	3,759.04	13.08	12.53	172.70	303.09	-391.12	1,017.54	999.68	17.86	56.972		
4,100.00	4,052.47	3,898.40	3,850.31	13.49	12.93	172.76	314.81	-404.62	1,054.27	1,035.92	18.35	57.467		
4,200.00	4,150.78	3,991.41	3,941.58	13.91	13.32	172.81	326.53	-418.12	1,091.01	1,072.17	18.83	57.935		
4,300.00	4,249.08	4,084.41	4,032.85	14.33	13.71	172.86	338.25	-431.62	1,127.74	1,108.42	19.32	58.378		
4,400.00	4,347.38	4,177.42	4,124.12	14.75	14.10	172.91	349.97	-445.12	1,164.48	1,144.67	19.80	58.798		
4,500.00	4,445.68	4,270.42	4,215.39	15.16	14.49	172.95	361.68	-458.62	1,201.21	1,180.92	20.29	59.197		
4,600.00	4,543.98	4,363.42	4,306.66	15.58	14.89	172.99	373.40	-472.12	1,237.95	1,217.17	20.78	59.577		
4,700.00	4,642.28	4,456.43	4,397.93	16.00	15.28	173.03	385.12	-485.63	1,274.69	1,253.42	21.27	59.939		
4,800.00	4,740.58	4,549.43	4,489.20	16.42	15.67	173.07	396.84	-499.13	1,311.43	1,289.67	21.75	60.283		

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_BERNHARDT STATE 21-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 11-04-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design WELD_BERNHARDT STATE 3 PAD - P_BERNHARDT STATE 29-36 - P_BERNHARDT STATE 29-36													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	
4,900.00	4,838.88	4,642.43	4,580.47	16.84	16.06	173.10	408.56	-512.63	1,348.17	1,325.92	22.24	60.612	
5,000.00	4,937.19	4,735.44	4,671.74	17.26	16.46	173.13	420.27	-526.13	1,384.90	1,362.17	22.73	60.926	
5,100.00	5,035.49	4,828.44	4,763.01	17.68	16.85	173.16	431.99	-539.63	1,421.64	1,398.42	23.22	61.226	
5,200.00	5,133.79	4,921.45	4,854.28	18.10	17.24	173.19	443.71	-553.13	1,458.38	1,434.68	23.71	61.514	
5,300.00	5,232.09	5,014.45	4,945.54	18.51	17.64	173.22	455.43	-566.63	1,495.12	1,470.93	24.20	61.789	
5,400.00	5,330.39	5,107.45	5,036.81	18.93	18.03	173.25	467.15	-580.13	1,531.86	1,507.18	24.69	62.053	
5,500.00	5,428.69	5,200.46	5,128.08	19.35	18.43	173.27	478.86	-593.63	1,568.61	1,543.43	25.18	62.306	
5,593.09	5,520.20	5,287.03	5,213.05	19.74	18.79	173.30	489.77	-606.20	1,602.81	1,577.18	25.63	62.533	
5,600.00	5,526.99	5,293.46	5,219.36	19.77	18.82	173.30	490.58	-607.13	1,605.34	1,579.66	25.67	62.526	
5,700.00	5,625.64	5,387.17	5,311.32	20.05	19.22	173.40	502.39	-620.73	1,640.24	1,613.98	26.26	62.459	
5,800.00	5,724.79	5,482.03	5,404.41	20.30	19.62	173.48	514.34	-634.50	1,671.86	1,645.05	26.82	62.344	
5,900.00	5,824.33	5,582.62	5,503.12	20.52	20.04	173.53	527.01	-649.10	1,700.18	1,672.83	27.35	62.166	
6,000.00	5,924.15	5,682.45	5,742.22	20.69	20.72	173.54	550.44	-676.10	1,720.81	1,692.74	28.07	61.313	
6,100.00	6,024.11	6,073.81	5,991.02	20.83	21.17	173.54	560.69	-687.90	1,729.55	1,700.85	28.70	60.259	
6,121.89	6,046.00	6,128.80	6,046.00	20.86	21.24	-44.62	561.03	-688.30	1,729.84	1,701.01	28.83	59.996	
6,200.00	6,124.11	6,206.91	6,124.11	20.96	21.34	-44.62	561.03	-688.30	1,729.84	1,700.73	29.12	59.414	
6,300.00	6,224.11	6,306.91	6,224.11	21.08	21.48	-44.62	561.03	-688.30	1,729.84	1,700.36	29.48	58.674	
6,400.00	6,324.11	6,406.91	6,324.11	21.20	21.62	-44.62	561.03	-688.30	1,729.84	1,699.99	29.85	57.947	
6,500.00	6,424.11	6,506.91	6,424.11	21.32	21.76	-44.62	561.03	-688.30	1,729.84	1,699.62	30.22	57.234	
6,600.00	6,524.11	6,606.91	6,524.11	21.45	21.90	-44.62	561.03	-688.30	1,729.84	1,699.25	30.60	56.535	
6,700.00	6,624.11	6,706.91	6,624.11	21.57	22.05	-44.62	561.03	-688.30	1,729.84	1,698.87	30.97	55.849	
6,800.00	6,724.11	6,806.91	6,724.11	21.70	22.19	-44.62	561.03	-688.30	1,729.84	1,698.49	31.35	55.176	
6,900.00	6,824.11	6,906.91	6,824.11	21.83	22.34	-44.62	561.03	-688.30	1,729.84	1,698.11	31.73	54.516	
7,000.00	6,924.11	7,006.91	6,924.11	21.96	22.49	-44.62	561.03	-688.30	1,729.84	1,697.73	32.11	53.869	
7,100.00	7,024.11	7,106.91	7,024.11	22.09	22.64	-44.62	561.03	-688.30	1,729.84	1,697.35	32.50	53.233	
7,200.00	7,124.11	7,206.91	7,124.11	22.23	22.79	-44.62	561.03	-688.30	1,729.84	1,696.96	32.88	52.610	
7,300.00	7,224.11	7,306.91	7,224.11	22.37	22.94	-44.62	561.03	-688.30	1,729.84	1,696.58	33.27	51.999	
7,400.00	7,324.11	7,406.91	7,324.11	22.50	23.09	-44.62	561.03	-688.30	1,729.84	1,696.19	33.65	51.400	
7,500.00	7,424.11	7,506.91	7,424.11	22.64	23.24	-44.62	561.03	-688.30	1,729.84	1,695.80	34.04	50.812	
7,600.00	7,524.11	7,606.91	7,524.11	22.78	23.40	-44.62	561.03	-688.30	1,729.84	1,695.41	34.44	50.235	
7,700.00	7,624.11	7,706.91	7,624.11	22.92	23.56	-44.62	561.03	-688.30	1,729.84	1,695.02	34.83	49.669	
7,800.00	7,724.11	7,806.91	7,724.11	23.07	23.71	-44.62	561.03	-688.30	1,729.84	1,694.62	35.22	49.113	
7,900.00	7,824.11	7,906.91	7,824.11	23.21	23.87	-44.62	561.03	-688.30	1,729.84	1,694.23	35.62	48.569	
8,000.00	7,924.11	8,006.91	7,924.11	23.35	24.03	-44.62	561.03	-688.30	1,729.84	1,693.83	36.01	48.034	
8,044.89	7,969.00	8,051.80	7,969.00	23.42	24.10	-44.62	561.03	-688.30	1,729.84	1,693.65	36.19	47.797	

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<b>Reference Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_BERNHARDT STATE 21-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 11-04-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4901.00ft (Original Well Elev) Coordinates are relative to: P\_BERNHARDT STATE 21-36  
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°

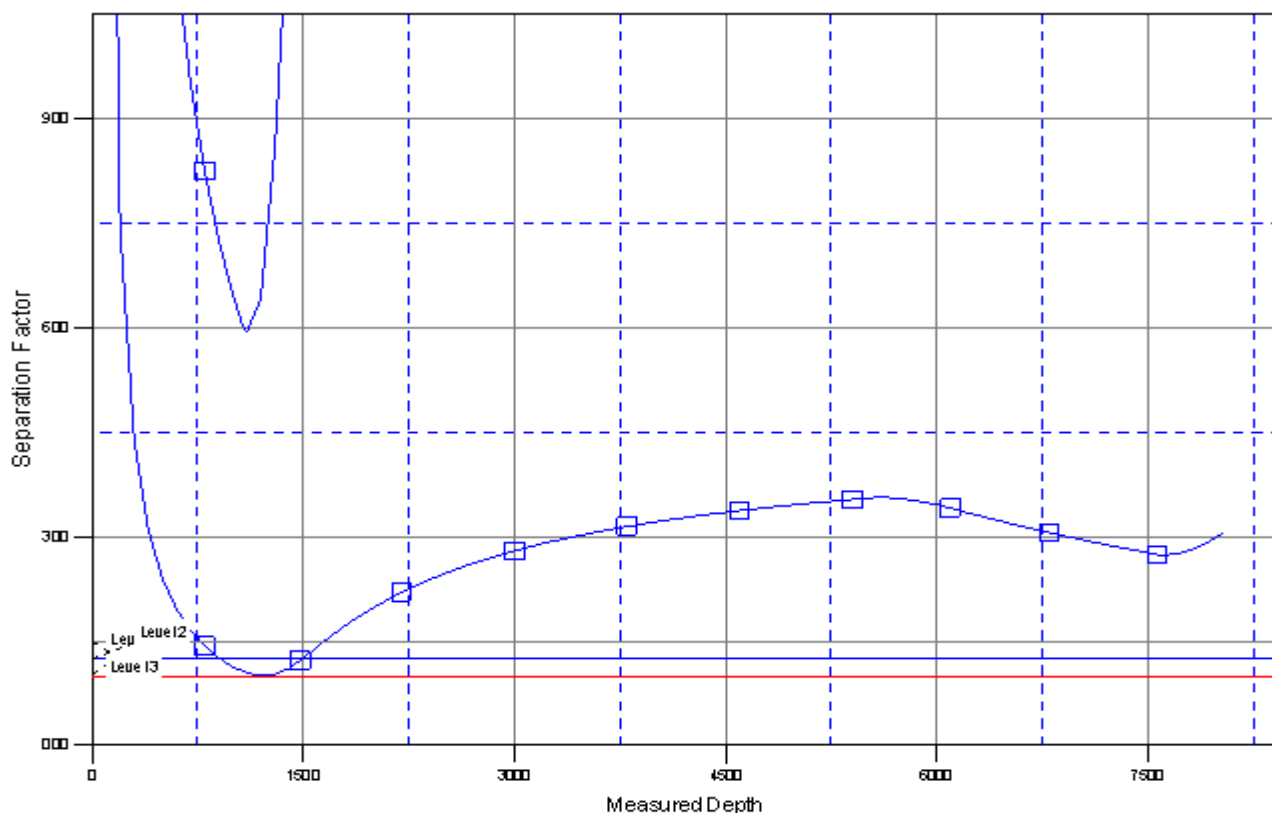




<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 21-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT STATE 3 PAD	<b>MD Reference:</b>	WELL @ 4901.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 21-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_BERNHARDT STATE 21-36	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 11-04-09 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4901.00ft (Original Well Elev) Coordinates are relative to: P\_BERNHARDT STATE 21-36  
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

—■— P\_BERNHARDT STATE 18-36, P\_BERNHARDT STATE 18-36, PLAN #1 11-04-09 RHS W/D
— P\_BERNHARDT STATE 21-36 EXISTING W/D