



# **US ROCKIES REGION PLANNING**

**COLORADO NOTHERN ZONE - 83**

**BERNHARDT STATE 23-36 PAD**

**P\_BERNHARDT STATE 22-36**

**P\_BERNHARDT STATE 22-36**

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

## **Standard Planning Report**

**04 November, 2009**





Azimuths to True North  
Magnetic North: 9.08°  
Magnetic Field  
Strength: 53287.7nT  
Dip Angle: 67.06°  
Date: 11/4/2009  
Model: IGRF200510

#### WELL DETAILS: P\_BERNHARDT STATE 22-36

+N/-S	+E/-W	Northing	Ground Level:	4834.00	Easting	Latitude	Longitude	Slot
0.00	0.00	1372585.71	3182958.09	40° 21' 15.444 N	104° 50' 36.672 W			

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2665.00	2698.29	PARKMAN TOP
4393.00	4471.05	SUSSEX TOP
4776.00	4863.97	SHANNON TOP
6987.00	7095.21	NIO A TOP
7310.00	7418.21	CODELL TOP
7760.00	7868.21	JSAND TOP

#### SECTION DETAILS

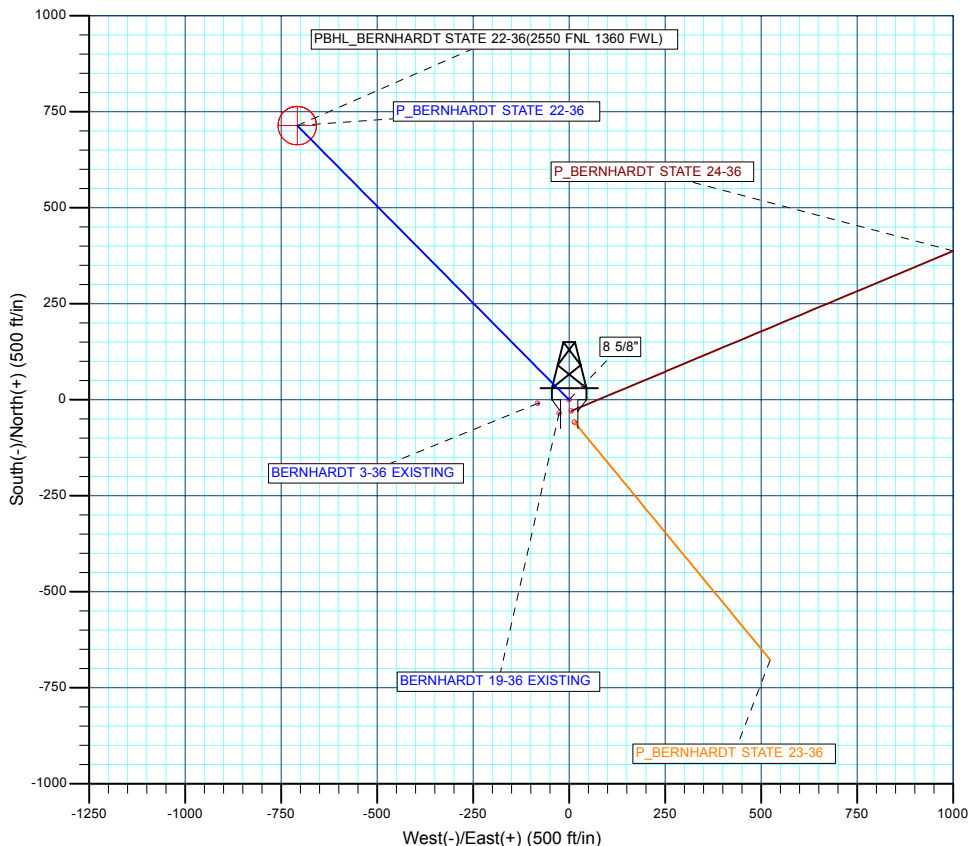
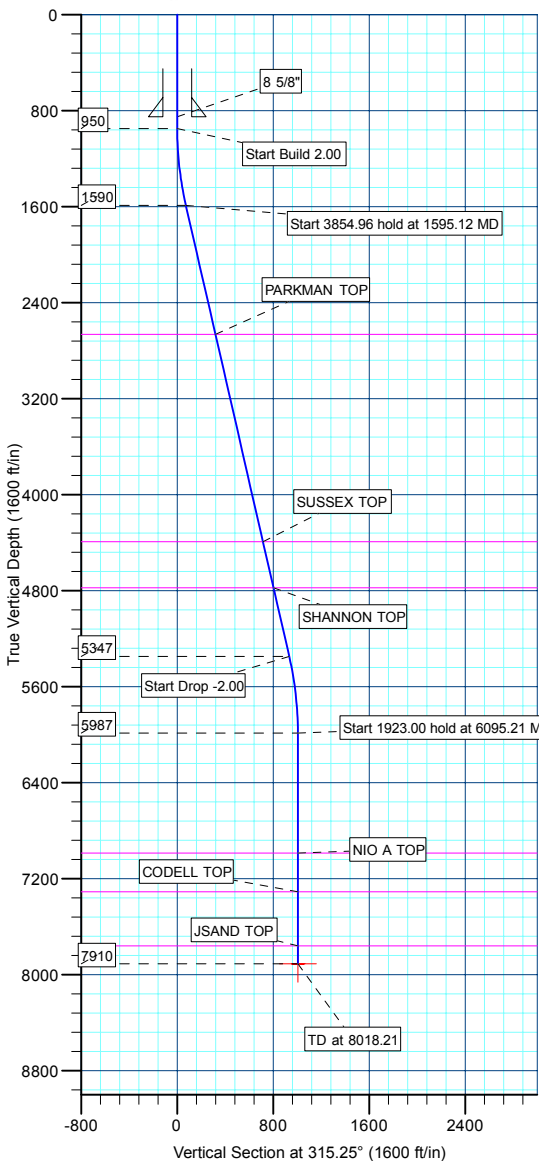
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	
1595.12	12.90	315.25	1589.68	51.37	-50.92	2.00	315.25	72.33	
5450.09	12.90	315.25	5347.32	662.66	-656.95	0.00	0.00	933.11	
6095.21	0.00	0.00	5987.00	714.03	-707.87	2.00	180.00	1005.45	
8018.21	0.00	0.00	7910.00	714.03	-707.87	0.00	0.00	1005.45	PBHL_BERNHARDT STATE 22-36(2550 FNL 1360 FWL)

#### CASING DETAILS

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



KB ELEV<sub>WELL</sub> @ 4849.00ft (Original Well Elev)  
iRD ELEV: 4834.00



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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7910.00	714.03	-707.87	1373294.47	3182244.9540	40° 21' 22.500 N	104° 50' 45.816 W	Circle (Radius: 50.00)

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 22-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site:</b>	BERNHARDT STATE 23-36 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT STATE 22-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT STATE 22-36		
<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		

<b>Site</b>	BERNHARDT STATE 23-36 PAD, SECTION 36 T5N R67W			
<b>Site Position:</b>		<b>Northing:</b>	1,372,585.71 ft	<b>Latitude:</b> 40° 21' 15.444 N
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,182,958.09 ft	<b>Longitude:</b> 104° 50' 36.672 W
<b>Position Uncertainty:</b>	0.00 ft	<b>Slot Radius:</b>	in	<b>Grid Convergence:</b> 0.42 °

<b>Well</b>	P_BERNHARDT STATE 22-36			
<b>Well Position</b>	<b>+N/-S</b>	0.00 ft	<b>Northing:</b>	1,372,585.71 ft
	<b>+E/-W</b>	0.00 ft	<b>Easting:</b>	3,182,958.09 ft
<b>Position Uncertainty</b>		0.00 ft	<b>Wellhead Elevation:</b>	ft
			<b>Ground Level:</b>	4,834.00 ft

<b>Wellbore</b>	P_BERNHARDT STATE 22-36				
<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	67.06	53,288

<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	315.25

<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	
1,595.12	12.90	315.25	1,589.68	51.37	-50.92	2.00	2.00	0.00	315.25	
5,450.09	12.90	315.25	5,347.32	662.66	-656.95	0.00	0.00	0.00	0.00	
6,095.21	0.00	0.00	5,987.00	714.03	-707.87	2.00	-2.00	0.00	180.00	
8,018.21	0.00	0.00	7,910.00	714.03	-707.87	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 22-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site:</b>	BERNHARDT STATE 23-36 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT STATE 22-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT STATE 22-36		
<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	315.25	1,000.00	0.31	-0.31	0.44	2.00	2.00	0.00
1,100.00	3.00	315.25	1,099.93	2.79	-2.76	3.93	2.00	2.00	0.00
1,200.00	5.00	315.25	1,199.68	7.74	-7.68	10.90	2.00	2.00	0.00
1,300.00	7.00	315.25	1,299.13	15.16	-15.03	21.35	2.00	2.00	0.00
1,400.00	9.00	315.25	1,398.15	25.05	-24.83	35.27	2.00	2.00	0.00
1,500.00	11.00	315.25	1,496.63	37.38	-37.06	52.63	2.00	2.00	0.00
<b>Start 3854.96 hold at 1595.12 MD</b>									
1,595.12	12.90	315.25	1,589.68	51.37	-50.92	72.33	2.00	2.00	0.00
1,600.00	12.90	315.25	1,594.44	52.14	-51.69	73.42	0.00	0.00	0.00
1,700.00	12.90	315.25	1,691.91	68.00	-67.41	95.75	0.00	0.00	0.00
1,800.00	12.90	315.25	1,789.39	83.85	-83.13	118.08	0.00	0.00	0.00
1,900.00	12.90	315.25	1,886.86	99.71	-98.85	140.41	0.00	0.00	0.00
2,000.00	12.90	315.25	1,984.34	115.57	-114.57	162.74	0.00	0.00	0.00
2,100.00	12.90	315.25	2,081.81	131.43	-130.29	185.07	0.00	0.00	0.00
2,200.00	12.90	315.25	2,179.29	147.28	-146.01	207.40	0.00	0.00	0.00
2,300.00	12.90	315.25	2,276.76	163.14	-161.74	229.72	0.00	0.00	0.00
2,400.00	12.90	315.25	2,374.24	179.00	-177.46	252.05	0.00	0.00	0.00
2,500.00	12.90	315.25	2,471.71	194.86	-193.18	274.38	0.00	0.00	0.00
2,600.00	12.90	315.25	2,569.19	210.71	-208.90	296.71	0.00	0.00	0.00
<b>PARKMAN TOP</b>									
2,698.29	12.90	315.25	2,665.00	226.30	-224.35	318.66	0.00	0.00	0.00
2,700.00	12.90	315.25	2,666.66	226.57	-224.62	319.04	0.00	0.00	0.00
2,800.00	12.90	315.25	2,764.14	242.43	-240.34	341.37	0.00	0.00	0.00
2,900.00	12.90	315.25	2,861.62	258.29	-256.06	363.70	0.00	0.00	0.00
3,000.00	12.90	315.25	2,959.09	274.14	-271.78	386.03	0.00	0.00	0.00
3,100.00	12.90	315.25	3,056.57	290.00	-287.50	408.36	0.00	0.00	0.00
3,200.00	12.90	315.25	3,154.04	305.86	-303.22	430.69	0.00	0.00	0.00
3,300.00	12.90	315.25	3,251.52	321.71	-318.94	453.02	0.00	0.00	0.00
3,400.00	12.90	315.25	3,348.99	337.57	-334.66	475.35	0.00	0.00	0.00
3,500.00	12.90	315.25	3,446.47	353.43	-350.38	497.68	0.00	0.00	0.00
3,600.00	12.90	315.25	3,543.94	369.29	-366.10	520.00	0.00	0.00	0.00
3,700.00	12.90	315.25	3,641.42	385.14	-381.82	542.33	0.00	0.00	0.00
3,800.00	12.90	315.25	3,738.89	401.00	-397.55	564.66	0.00	0.00	0.00
3,900.00	12.90	315.25	3,836.37	416.86	-413.27	586.99	0.00	0.00	0.00
4,000.00	12.90	315.25	3,933.84	432.72	-428.99	609.32	0.00	0.00	0.00
4,100.00	12.90	315.25	4,031.32	448.57	-444.71	631.65	0.00	0.00	0.00
4,200.00	12.90	315.25	4,128.79	464.43	-460.43	653.98	0.00	0.00	0.00
4,300.00	12.90	315.25	4,226.27	480.29	-476.15	676.31	0.00	0.00	0.00
4,400.00	12.90	315.25	4,323.74	496.14	-491.87	698.64	0.00	0.00	0.00
<b>SUSSEX TOP</b>									
4,471.05	12.90	315.25	4,393.00	507.41	-503.04	714.50	0.00	0.00	0.00
4,500.00	12.90	315.25	4,421.22	512.00	-507.59	720.97	0.00	0.00	0.00
4,600.00	12.90	315.25	4,518.69	527.86	-523.31	743.30	0.00	0.00	0.00
4,700.00	12.90	315.25	4,616.17	543.72	-539.03	765.63	0.00	0.00	0.00
4,800.00	12.90	315.25	4,713.64	559.57	-554.75	787.95	0.00	0.00	0.00
<b>SHANNON TOP</b>									
4,863.97	12.90	315.25	4,776.00	569.72	-564.81	802.24	0.00	0.00	0.00
4,900.00	12.90	315.25	4,811.12	575.43	-570.47	810.28	0.00	0.00	0.00
5,000.00	12.90	315.25	4,908.59	591.29	-586.19	832.61	0.00	0.00	0.00
5,100.00	12.90	315.25	5,006.07	607.15	-601.91	854.94	0.00	0.00	0.00
5,200.00	12.90	315.25	5,103.54	623.00	-617.63	877.27	0.00	0.00	0.00
5,300.00	12.90	315.25	5,201.02	638.86	-633.36	899.60	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 22-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site:</b>	BERNHARDT STATE 23-36 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT STATE 22-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT STATE 22-36		
<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	12.90	315.25	5,298.49	654.72	-649.08	921.93	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
5,450.09	12.90	315.25	5,347.32	662.66	-656.95	933.11	0.00	0.00	0.00
5,500.00	11.90	315.25	5,396.06	670.27	-664.50	943.83	2.00	-2.00	0.00
5,600.00	9.90	315.25	5,494.25	683.71	-677.82	962.75	2.00	-2.00	0.00
5,700.00	7.90	315.25	5,593.04	694.70	-688.71	978.23	2.00	-2.00	0.00
5,800.00	5.90	315.25	5,692.31	703.23	-697.18	990.25	2.00	-2.00	0.00
5,900.00	3.90	315.25	5,791.94	709.31	-703.19	998.80	2.00	-2.00	0.00
6,000.00	1.90	315.25	5,891.81	712.90	-706.76	1,003.86	2.00	-2.00	0.00
<b>Start 1923.00 hold at 6095.21 MD</b>									
6,095.21	0.00	0.00	5,987.00	714.03	-707.87	1,005.45	2.00	-2.00	0.00
6,100.00	0.00	0.00	5,991.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
6,200.00	0.00	0.00	6,091.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
6,300.00	0.00	0.00	6,191.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
6,400.00	0.00	0.00	6,291.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
6,500.00	0.00	0.00	6,391.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
6,600.00	0.00	0.00	6,491.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
6,700.00	0.00	0.00	6,591.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
6,800.00	0.00	0.00	6,691.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
6,900.00	0.00	0.00	6,791.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
7,000.00	0.00	0.00	6,891.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
<b>NIO A TOP</b>									
7,095.21	0.00	0.00	6,987.00	714.03	-707.87	1,005.45	0.00	0.00	0.00
7,100.00	0.00	0.00	6,991.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
7,200.00	0.00	0.00	7,091.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
7,300.00	0.00	0.00	7,191.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
7,400.00	0.00	0.00	7,291.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
<b>CODELL TOP</b>									
7,418.21	0.00	0.00	7,310.00	714.03	-707.87	1,005.45	0.00	0.00	0.00
7,500.00	0.00	0.00	7,391.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
7,600.00	0.00	0.00	7,491.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
7,700.00	0.00	0.00	7,591.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
7,800.00	0.00	0.00	7,691.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
<b>JSAND TOP</b>									
7,868.21	0.00	0.00	7,760.00	714.03	-707.87	1,005.45	0.00	0.00	0.00
7,900.00	0.00	0.00	7,791.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
8,000.00	0.00	0.00	7,891.79	714.03	-707.87	1,005.45	0.00	0.00	0.00
<b>PBHL_BERNHARDT STATE 22-36(2550 FNL 1360 FWL)</b>									
8,018.21	0.00	0.00	7,910.00	714.03	-707.87	1,005.45	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	7,910.00	714.03	-707.87	1,373,294.47	3,182,244.95	40° 21' 22.500 N	104° 50' 45.816 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 22-36
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site:</b>	BERNHARDT STATE 23-36 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT STATE 22-36	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT STATE 22-36		
<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 (°)	
2,698.29	2,665.00	PARKMAN TOP				
4,471.05	4,393.00	SUSSEX TOP				
4,863.97	4,776.00	SHANNON TOP				
7,095.21	6,987.00	NIO A TOP				
7,418.21	7,310.00	CODELL TOP				
7,868.21	7,760.00	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	
1,595.12	1,589.68	51.37	-50.92	Start 3854.96 hold at 1595.12 MD	
5,450.09	5,347.32	662.66	-656.95	Start Drop -2.00	
6,095.21	5,987.00	714.03	-707.87	Start 1923.00 hold at 6095.21 MD	
8,018.21	7,910.00	714.03	-707.87	TD at 8018.21	



# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83  
BERNHARDT STATE 23-36 PAD  
P\_BERNHARDT STATE 22-36**

**P\_BERNHARDT STATE 22-36  
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 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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	8,018.21	PLAN #1 11-04-09 RHS (P_BERNHARDT	MWD	MWD - Standard

<b>Summary</b>						
<b>Site Name</b>	<b>Reference Measured Depth (ft)</b>	<b>Offset Measured Depth (ft)</b>	<b>Distance Between Centres (ft)</b>	<b>Distance Between Ellipses (ft)</b>	<b>Separation Factor</b>	<b>Warning</b>
<b>Offset Well - Wellbore - Design</b>						
BERNHARDT STATE 23-36 PAD						
BERNHARDT 19-36 EXISTING - BERNHARDT 19-36 E	950.00	950.00	43.54	5.83	1.155	Level 2, CC
BERNHARDT 19-36 EXISTING - BERNHARDT 19-36 E	1,200.00	1,199.68	46.46	-1.77	0.963	Level 1, ES, SF
BERNHARDT 3-36 EXISTING - BERNHARDT 3-36 EXIS	1,491.11	1,487.90	64.87	4.29	1.071	Level 2, CC
BERNHARDT 3-36 EXISTING - BERNHARDT 3-36 EXIS	1,595.12	1,589.68	68.30	3.43	1.053	Level 2, ES, SF
P_BERNHARDT STATE 23-36 - P_BERNHARDT STATI	950.00	950.00	59.95	55.93	14.941	CC, ES
P_BERNHARDT STATE 23-36 - P_BERNHARDT STATI	1,000.00	999.06	60.70	56.48	14.385	SF
P_BERNHARDT STATE 24-36 - P_BERNHARDT STATI	950.00	950.00	29.68	25.67	7.398	CC, ES
P_BERNHARDT STATE 24-36 - P_BERNHARDT STATI	1,100.00	1,100.04	32.69	28.03	7.022	SF

<b>Offset Design</b> BERNHARDT STATE 23-36 PAD - BERNHARDT 19-36 EXISTING - BERNHARDT 19-36 EXISTING - E											
<b>Survey Program:</b> 0-UNKNOWN											
<b>Reference</b>				<b>Offset</b>				<b>Semi Major Axis</b>			
<b>Measured Depth (ft)</b>				<b>Vertical Depth (ft)</b>				<b>Reference</b>			
<b>Measured Depth (ft)</b>				<b>Vertical Depth (ft)</b>				<b>Offset</b>			
<b>Measured Depth (ft)</b>				<b>Vertical Depth (ft)</b>				<b>Highside Toolface (°)</b>			
<b>Measured Depth (ft)</b>				<b>Vertical Depth (ft)</b>				<b>Offset Wellbore Centre +N/-S (ft)</b>			
<b>Measured Depth (ft)</b>				<b>Vertical Depth (ft)</b>				<b>Offset Wellbore Centre +E/-W (ft)</b>			
<b>Measured Depth (ft)</b>				<b>Vertical Depth (ft)</b>				<b>Distance Between Centres (ft)</b>			
<b>Measured Depth (ft)</b>				<b>Vertical Depth (ft)</b>				<b>Distance Between Ellipses (ft)</b>			
<b>Measured Depth (ft)</b>				<b>Vertical Depth (ft)</b>				<b>Minimum Separation (ft)</b>			
<b>Measured Depth (ft)</b>				<b>Vertical Depth (ft)</b>				<b>Separation Factor</b>			
<b>Measured Depth (ft)</b>				<b>Vertical Depth (ft)</b>				<b>Warning</b>			
0.00	0.00	0.00	0.00	0.00	0.00	-143.47	-34.98	-25.92	43.54		
100.00	100.00	100.00	100.00	0.10	1.70	-143.47	-34.98	-25.92	43.54	41.74	1.80 24.249
200.00	200.00	200.00	200.00	0.32	5.70	-143.47	-34.98	-25.92	43.54	37.52	6.02 7.232
300.00	300.00	300.00	300.00	0.55	9.70	-143.47	-34.98	-25.92	43.54	33.29	10.25 4.250
400.00	400.00	400.00	400.00	0.77	13.70	-143.47	-34.98	-25.92	43.54	29.07	14.47 3.009
500.00	500.00	500.00	500.00	0.99	17.70	-143.47	-34.98	-25.92	43.54	24.85	18.69 2.329
600.00	600.00	600.00	600.00	1.22	21.70	-143.47	-34.98	-25.92	43.54	20.62	22.92 1.900
700.00	700.00	700.00	700.00	1.44	25.70	-143.47	-34.98	-25.92	43.54	16.40	27.14 1.604
800.00	800.00	800.00	800.00	1.67	29.70	-143.47	-34.98	-25.92	43.54	12.17	31.37 1.388 Level 3
900.00	900.00	900.00	900.00	1.89	33.70	-143.47	-34.98	-25.92	43.54	7.95	35.59 1.223 Level 2
950.00	950.00	950.00	950.00	2.01	35.70	-143.47	-34.98	-25.92	43.54	5.83	37.71 1.155 Level 2, CC
1,000.00	1,000.00	1,000.00	1,000.00	2.12	37.70	-99.28	-34.98	-25.92	43.61	3.79	39.82 1.095 Level 2
1,100.00	1,099.93	1,099.93	1,099.93	2.34	41.70	-103.72	-34.98	-25.92	44.30	0.27	44.03 1.006 Level 2
1,200.00	1,199.68	1,199.68	1,199.68	2.56	45.69	-112.05	-34.98	-25.92	46.46	-1.77	48.23 0.963 Level 1, ES, SF
1,300.00	1,299.13	1,299.13	1,299.13	2.80	49.67	-122.81	-34.98	-25.92	51.32	-1.05	52.37 0.980 Level 1
1,400.00	1,398.15	1,398.15	1,398.15	3.06	53.63	-133.86	-34.98	-25.92	60.04	3.67	56.37 1.065 Level 2
1,500.00	1,496.63	1,496.63	1,496.63	3.36	57.57	-143.49	-34.98	-25.92	73.22	13.02	60.20 1.216 Level 2
1,595.12	1,589.68	1,589.68	1,589.68	3.68	61.29	-150.78	-34.98	-25.92	89.90	26.23	63.66 1.412 Level 3
1,600.00	1,594.44	1,594.44	1,594.44	3.69	61.48	-151.11	-34.98	-25.92	90.86	27.00	63.86 1.423 Level 3
1,700.00	1,691.91	1,691.91	1,691.91	4.07	65.38	-156.66	-34.98	-25.92	111.03	43.22	67.80 1.637

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 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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						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	
1,800.00	1,789.39	1,789.39	1,789.39	4.46	69.28	-160.50	-34.98	-25.92	131.89	60.10	71.79	1.837	
1,900.00	1,886.86	1,886.86	1,886.86	4.87	73.17	-163.28	-34.98	-25.92	153.17	77.38	75.80	2.021	
2,000.00	1,984.34	1,984.34	1,984.34	5.29	77.07	-165.39	-34.98	-25.92	174.72	94.89	79.82	2.189	
2,100.00	2,081.81	2,081.81	2,081.81	5.72	80.97	-167.03	-34.98	-25.92	196.44	112.58	83.86	2.342	
2,200.00	2,179.29	2,179.29	2,179.29	6.16	84.87	-168.34	-34.98	-25.92	218.28	130.38	87.90	2.483	
2,300.00	2,276.76	2,276.76	2,276.76	6.60	88.77	-169.42	-34.98	-25.92	240.21	148.26	91.95	2.612	
2,400.00	2,374.24	2,374.24	2,374.24	7.05	92.67	-170.31	-34.98	-25.92	262.21	166.21	96.00	2.731	
2,500.00	2,471.71	2,471.71	2,471.71	7.50	96.57	-171.07	-34.98	-25.92	284.26	184.20	100.05	2.841	
2,600.00	2,569.19	2,569.19	2,569.19	7.95	100.47	-171.72	-34.98	-25.92	306.35	202.24	104.11	2.943	
2,700.00	2,666.66	2,666.66	2,666.66	8.41	104.37	-172.28	-34.98	-25.92	328.47	220.30	108.17	3.037	
2,800.00	2,764.14	2,764.14	2,764.14	8.87	108.27	-172.77	-34.98	-25.92	350.62	238.39	112.23	3.124	
2,900.00	2,861.62	2,861.62	2,861.62	9.33	112.16	-173.20	-34.98	-25.92	372.79	256.50	116.29	3.206	
3,000.00	2,959.09	2,959.09	2,959.09	9.80	116.06	-173.58	-34.98	-25.92	394.98	274.62	120.35	3.282	
3,100.00	3,056.57	3,056.57	3,056.57	10.26	119.96	-173.93	-34.98	-25.92	417.18	292.76	124.42	3.353	
3,200.00	3,154.04	3,154.04	3,154.04	10.73	123.86	-174.23	-34.98	-25.92	439.40	310.91	128.48	3.420	
3,300.00	3,251.52	3,251.52	3,251.52	11.19	127.76	-174.51	-34.98	-25.92	461.62	329.08	132.55	3.483	
3,400.00	3,348.99	3,348.99	3,348.99	11.66	131.66	-174.77	-34.98	-25.92	483.86	347.25	136.62	3.542	
3,500.00	3,446.47	3,446.47	3,446.47	12.13	135.56	-175.00	-34.98	-25.92	506.10	365.42	140.68	3.597	
3,600.00	3,543.94	3,543.94	3,543.94	12.60	139.46	-175.21	-34.98	-25.92	528.36	383.61	144.75	3.650	
3,700.00	3,641.42	3,641.42	3,641.42	13.07	143.36	-175.40	-34.98	-25.92	550.61	401.80	148.82	3.700	
3,800.00	3,738.89	3,738.89	3,738.89	13.54	147.26	-175.58	-34.98	-25.92	572.88	419.99	152.89	3.747	
3,900.00	3,836.37	3,836.37	3,836.37	14.02	151.15	-175.75	-34.98	-25.92	595.15	438.19	156.96	3.792	
4,000.00	3,933.84	3,933.84	3,933.84	14.49	155.05	-175.90	-34.98	-25.92	617.42	456.39	161.03	3.834	
4,100.00	4,031.32	4,031.32	4,031.32	14.96	158.95	-176.04	-34.98	-25.92	639.70	474.60	165.10	3.875	
4,200.00	4,128.79	4,128.79	4,128.79	15.43	162.85	-176.18	-34.98	-25.92	661.98	492.81	169.17	3.913	
4,300.00	4,226.27	4,226.27	4,226.27	15.91	166.75	-176.30	-34.98	-25.92	684.26	511.02	173.24	3.950	
4,400.00	4,323.74	4,323.74	4,323.74	16.38	170.65	-176.42	-34.98	-25.92	706.55	529.24	177.31	3.985	
4,500.00	4,421.22	4,421.22	4,421.22	16.86	174.55	-176.53	-34.98	-25.92	728.84	547.45	181.38	4.018	
4,600.00	4,518.69	4,518.69	4,518.69	17.33	178.45	-176.63	-34.98	-25.92	751.13	565.67	185.45	4.050	
4,700.00	4,616.17	4,616.17	4,616.17	17.81	182.35	-176.73	-34.98	-25.92	773.42	583.90	189.52	4.081	
4,800.00	4,713.64	4,713.64	4,713.64	18.28	186.25	-176.82	-34.98	-25.92	795.72	602.12	193.60	4.110	
4,900.00	4,811.12	4,811.12	4,811.12	18.76	190.14	-176.91	-34.98	-25.92	818.01	620.34	197.67	4.138	
5,000.00	4,908.59	4,908.59	4,908.59	19.23	194.04	-176.99	-34.98	-25.92	840.31	638.57	201.74	4.165	
5,100.00	5,006.07	5,006.07	5,006.07	19.71	197.94	-177.07	-34.98	-25.92	862.61	656.80	205.81	4.191	
5,200.00	5,103.54	5,103.54	5,103.54	20.18	201.84	-177.14	-34.98	-25.92	884.92	675.03	209.89	4.216	
5,300.00	5,201.02	5,201.02	5,201.02	20.66	205.74	-177.21	-34.98	-25.92	907.22	693.26	213.96	4.240	
5,400.00	5,298.49	5,298.49	5,298.49	21.14	209.64	-177.28	-34.98	-25.92	929.52	711.49	218.03	4.263	
5,450.09	5,347.32	5,347.32	5,347.32	21.37	211.59	-177.31	-34.98	-25.92	940.70	720.62	220.07	4.274	
5,500.00	5,396.06	5,396.06	5,396.06	21.58	213.54	-177.35	-34.98	-25.92	951.41	728.58	222.83	4.270	
5,600.00	5,494.25	5,494.25	5,494.25	21.91	217.47	-177.42	-34.98	-25.92	970.30	742.01	228.29	4.250	
5,700.00	5,593.04	5,593.04	5,593.04	22.20	221.42	-177.47	-34.98	-25.92	985.76	752.20	233.57	4.220	
5,800.00	5,692.31	5,692.31	5,692.31	22.44	225.39	-177.51	-34.98	-25.92	997.77	759.17	238.61	4.182	
5,900.00	5,791.94	5,791.94	5,791.94	22.65	229.38	-177.54	-34.98	-25.92	1,006.31	762.93	243.38	4.135	
6,000.00	5,891.81	5,891.81	5,891.81	22.81	233.37	-177.56	-34.98	-25.92	1,011.38	763.49	247.89	4.080	
6,095.21	5,987.00	5,987.00	5,987.00	22.93	237.18	137.68	-34.98	-25.92	1,012.96	761.06	251.90	4.021	
6,100.00	5,991.79	5,991.79	5,991.79	22.93	237.37	137.68	-34.98	-25.92	1,012.96	760.86	252.10	4.018	
6,200.00	6,091.79	6,091.79	6,091.79	23.06	241.37	137.68	-34.98	-25.92	1,012.96	756.67	256.29	3.952	
6,300.00	6,191.79	6,191.79	6,191.79	23.18	245.37	137.68	-34.98	-25.92	1,012.96	752.48	260.48	3.889	
6,400.00	6,291.79	6,291.79	6,291.79	23.31	249.37	137.68	-34.98	-25.92	1,012.96	748.28	264.67	3.827	
6,500.00	6,391.79	6,391.79	6,391.79	23.44	253.37	137.68	-34.98	-25.92	1,012.96	744.09	268.87	3.768	
6,600.00	6,491.79	6,491.79	6,491.79	23.57	257.37	137.68	-34.98	-25.92	1,012.96	739.90	273.06	3.710	
6,700.00	6,591.79	6,591.79	6,591.79	23.71	261.37	137.68	-34.98	-25.92	1,012.96	735.70	277.25	3.654	

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 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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>												<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
6,800.00	6,691.79	6,691.79	6,691.79	23.84	265.37	137.68	-34.98	-25.92	1,012.96	731.51	281.45	3.599	
6,900.00	6,791.79	6,791.79	6,791.79	23.98	269.37	137.68	-34.98	-25.92	1,012.96	727.31	285.65	3.546	
7,000.00	6,891.79	6,891.79	6,891.79	24.11	273.37	137.68	-34.98	-25.92	1,012.96	723.11	289.84	3.495	
7,100.00	6,991.79	6,991.79	6,991.79	24.25	277.37	137.68	-34.98	-25.92	1,012.96	718.92	294.04	3.445	
7,200.00	7,091.79	7,091.79	7,091.79	24.39	281.37	137.68	-34.98	-25.92	1,012.96	714.72	298.24	3.396	
7,300.00	7,191.79	7,191.79	7,191.79	24.53	285.37	137.68	-34.98	-25.92	1,012.96	710.52	302.44	3.349	
7,400.00	7,291.79	7,291.79	7,291.79	24.67	289.37	137.68	-34.98	-25.92	1,012.96	706.32	306.64	3.303	
7,500.00	7,391.79	7,391.79	7,391.79	24.82	293.37	137.68	-34.98	-25.92	1,012.96	702.12	310.84	3.259	
7,600.00	7,491.79	7,491.79	7,491.79	24.96	297.37	137.68	-34.98	-25.92	1,012.96	697.92	315.04	3.215	
7,662.21	7,554.00	7,554.00	7,554.00	25.05	299.86	137.68	-34.98	-25.92	1,012.96	695.30	317.65	3.189	
7,700.00	7,591.79	7,580.00	7,580.00	25.11	300.90	137.68	-34.98	-25.92	1,013.03	694.26	318.77	3.178	
7,800.00	7,691.79	7,580.00	7,580.00	25.25	300.90	137.68	-34.98	-25.92	1,019.11	700.14	318.97	3.195	
7,900.00	7,791.79	7,580.00	7,580.00	25.40	300.90	137.68	-34.98	-25.92	1,034.86	715.69	319.17	3.242	
8,000.00	7,891.79	7,580.00	7,580.00	25.55	300.90	137.68	-34.98	-25.92	1,059.86	740.48	319.38	3.319	
8,018.21	7,910.00	7,580.00	7,580.00	25.58	300.90	137.68	-34.98	-25.92	1,065.35	745.94	319.41	3.335	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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						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	-96.60	-9.48	-81.94	82.48				
100.00	100.00	100.00	100.00	0.10	1.70	-96.60	-9.48	-81.94	82.48	80.69	1.80	45.939	
200.00	200.00	200.00	200.00	0.32	5.70	-96.60	-9.48	-81.94	82.48	76.46	6.02	13.701	
300.00	300.00	300.00	300.00	0.55	9.70	-96.60	-9.48	-81.94	82.48	72.24	10.25	8.051	
400.00	400.00	400.00	400.00	0.77	13.70	-96.60	-9.48	-81.94	82.48	68.01	14.47	5.700	
500.00	500.00	500.00	500.00	0.99	17.70	-96.60	-9.48	-81.94	82.48	63.79	18.69	4.412	
600.00	600.00	600.00	600.00	1.22	21.70	-96.60	-9.48	-81.94	82.48	59.57	22.92	3.599	
700.00	700.00	700.00	700.00	1.44	25.70	-96.60	-9.48	-81.94	82.48	55.34	27.14	3.039	
800.00	800.00	800.00	800.00	1.67	29.70	-96.60	-9.48	-81.94	82.48	51.12	31.37	2.629	
900.00	900.00	900.00	900.00	1.89	33.70	-96.60	-9.48	-81.94	82.48	46.89	35.59	2.317	
950.00	950.00	950.00	950.00	2.01	35.70	-96.60	-9.48	-81.94	82.48	44.78	37.71	2.188	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	37.70	-52.09	-9.48	-81.94	82.22	42.40	39.81	2.065	
1,100.00	1,099.93	1,099.93	1,099.93	2.34	41.70	-54.10	-9.48	-81.94	80.12	36.11	44.01	1.820	
1,200.00	1,199.68	1,199.68	1,199.68	2.56	45.69	-58.40	-9.48	-81.94	76.23	28.04	48.19	1.582	
1,300.00	1,299.13	1,299.13	1,299.13	2.80	49.67	-65.63	-9.48	-81.94	71.30	18.91	52.39	1.361 Level 3	
1,400.00	1,398.15	1,398.15	1,398.15	3.06	53.63	-76.57	-9.48	-81.94	66.73	10.08	56.65	1.178 Level 2	
1,491.11	1,487.90	1,487.90	1,487.90	3.33	57.22	-90.00	-9.48	-81.94	64.87	4.29	60.58	1.071 Level 2, CC	
1,500.00	1,496.63	1,496.63	1,496.63	3.36	57.57	-91.46	-9.48	-81.94	64.89	3.93	60.95	1.065 Level 2	
1,595.12	1,589.68	1,589.68	1,589.68	3.68	61.29	-107.81	-9.48	-81.94	68.30	3.43	64.87	1.053 Level 2, ES, SF	
1,600.00	1,594.44	1,594.44	1,594.44	3.69	61.48	-108.66	-9.48	-81.94	68.65	3.58	65.06	1.055 Level 2	
1,700.00	1,691.91	1,691.91	1,691.91	4.07	65.38	-123.95	-9.48	-81.94	78.83	9.91	68.92	1.144 Level 2	
1,800.00	1,789.39	1,789.39	1,789.39	4.46	69.28	-135.25	-9.48	-81.94	93.35	20.62	72.72	1.284 Level 3	
1,900.00	1,886.86	1,886.86	1,886.86	4.87	73.17	-143.35	-9.48	-81.94	110.50	33.94	76.56	1.443 Level 3	
2,000.00	1,984.34	1,984.34	1,984.34	5.29	77.07	-149.23	-9.48	-81.94	129.24	48.79	80.45	1.606	
2,100.00	2,081.81	2,081.81	2,081.81	5.72	80.97	-153.61	-9.48	-81.94	148.98	64.59	84.38	1.765	
2,200.00	2,179.29	2,179.29	2,179.29	6.16	84.87	-156.96	-9.48	-81.94	169.36	81.01	88.35	1.917	
2,300.00	2,276.76	2,276.76	2,276.76	6.60	88.77	-159.58	-9.48	-81.94	190.18	97.84	92.34	2.060	
2,400.00	2,374.24	2,374.24	2,374.24	7.05	92.67	-161.69	-9.48	-81.94	211.30	114.96	96.34	2.193	
2,500.00	2,471.71	2,471.71	2,471.71	7.50	96.57	-163.41	-9.48	-81.94	232.66	132.29	100.36	2.318	
2,600.00	2,569.19	2,569.19	2,569.19	7.95	100.47	-164.85	-9.48	-81.94	254.18	149.79	104.39	2.435	
2,700.00	2,666.66	2,666.66	2,666.66	8.41	104.37	-166.06	-9.48	-81.94	275.82	167.40	108.43	2.544	
2,800.00	2,764.14	2,764.14	2,764.14	8.87	108.27	-167.09	-9.48	-81.94	297.57	185.11	112.47	2.646	
2,900.00	2,861.62	2,861.62	2,861.62	9.33	112.16	-167.99	-9.48	-81.94	319.40	202.89	116.51	2.741	
3,000.00	2,959.09	2,959.09	2,959.09	9.80	116.06	-168.77	-9.48	-81.94	341.30	220.74	120.56	2.831	
3,100.00	3,056.57	3,056.57	3,056.57	10.26	119.96	-169.45	-9.48	-81.94	363.24	238.63	124.61	2.915	
3,200.00	3,154.04	3,154.04	3,154.04	10.73	123.86	-170.06	-9.48	-81.94	385.24	256.57	128.67	2.994	
3,300.00	3,251.52	3,251.52	3,251.52	11.19	127.76	-170.60	-9.48	-81.94	407.26	274.54	132.72	3.069	
3,400.00	3,348.99	3,348.99	3,348.99	11.66	131.66	-171.09	-9.48	-81.94	429.32	292.54	136.78	3.139	
3,500.00	3,446.47	3,446.47	3,446.47	12.13	135.56	-171.53	-9.48	-81.94	451.41	310.57	140.84	3.205	
3,600.00	3,543.94	3,543.94	3,543.94	12.60	139.46	-171.93	-9.48	-81.94	473.52	328.61	144.90	3.268	
3,700.00	3,641.42	3,641.42	3,641.42	13.07	143.36	-172.29	-9.48	-81.94	495.64	346.68	148.97	3.327	
3,800.00	3,738.89	3,738.89	3,738.89	13.54	147.26	-172.62	-9.48	-81.94	517.79	364.76	153.03	3.384	
3,900.00	3,836.37	3,836.37	3,836.37	14.02	151.15	-172.92	-9.48	-81.94	539.95	382.86	157.09	3.437	
4,000.00	3,933.84	3,933.84	3,933.84	14.49	155.05	-173.20	-9.48	-81.94	562.12	400.96	161.16	3.488	
4,100.00	4,031.32	4,031.32	4,031.32	14.96	158.95	-173.46	-9.48	-81.94	584.31	419.08	165.23	3.536	
4,200.00	4,128.79	4,128.79	4,128.79	15.43	162.85	-173.70	-9.48	-81.94	606.51	437.21	169.29	3.583	
4,300.00	4,226.27	4,226.27	4,226.27	15.91	166.75	-173.93	-9.48	-81.94	628.71	455.35	173.36	3.627	
4,400.00	4,323.74	4,323.74	4,323.74	16.38	170.65	-174.13	-9.48	-81.94	650.93	473.50	177.43	3.669	
4,500.00	4,421.22	4,421.22	4,421.22	16.86	174.55	-174.33	-9.48	-81.94	673.15	491.65	181.50	3.709	
4,600.00	4,518.69	4,518.69	4,518.69	17.33	178.45	-174.51	-9.48	-81.94	695.38	509.81	185.56	3.747	
4,700.00	4,616.17	4,616.17	4,616.17	17.81	182.35	-174.68	-9.48	-81.94	717.61	527.98	189.63	3.784	
4,800.00	4,713.64	4,713.64	4,713.64	18.28	186.25	-174.84	-9.48	-81.94	739.85	546.15	193.70	3.820	

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 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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							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	4,811.12	4,811.12	4,811.12	18.76	190.14	-174.99	-9.48	-81.94	762.10	564.32	197.77	3.853		
5,000.00	4,908.59	4,908.59	4,908.59	19.23	194.04	-175.13	-9.48	-81.94	784.35	582.50	201.84	3.886		
5,100.00	5,006.07	5,006.07	5,006.07	19.71	197.94	-175.27	-9.48	-81.94	806.60	600.69	205.91	3.917		
5,200.00	5,103.54	5,103.54	5,103.54	20.18	201.84	-175.40	-9.48	-81.94	828.86	618.88	209.98	3.947		
5,300.00	5,201.02	5,201.02	5,201.02	20.66	205.74	-175.52	-9.48	-81.94	851.12	637.07	214.06	3.976		
5,400.00	5,298.49	5,298.49	5,298.49	21.14	209.64	-175.63	-9.48	-81.94	873.39	655.26	218.13	4.004		
5,450.09	5,347.32	5,347.32	5,347.32	21.37	211.59	-175.69	-9.48	-81.94	884.54	664.38	220.17	4.018		
5,500.00	5,396.06	5,396.06	5,396.06	21.58	213.54	-175.75	-9.48	-81.94	895.24	672.32	222.92	4.016		
5,600.00	5,494.25	5,494.25	5,494.25	21.91	217.47	-175.87	-9.48	-81.94	914.10	685.75	228.35	4.003		
5,700.00	5,593.04	5,593.04	5,593.04	22.20	221.42	-175.96	-9.48	-81.94	929.54	695.92	233.62	3.979		
5,800.00	5,692.31	5,692.31	5,692.31	22.44	225.39	-176.03	-9.48	-81.94	941.53	702.88	238.65	3.945		
5,900.00	5,791.94	5,791.94	5,791.94	22.65	229.38	-176.08	-9.48	-81.94	950.06	706.63	243.43	3.903		
6,000.00	5,891.81	5,891.81	5,891.81	22.81	233.37	-176.10	-9.48	-81.94	955.12	707.19	247.93	3.852		
6,095.21	5,987.00	5,987.00	5,987.00	22.93	237.18	139.14	-9.48	-81.94	956.69	704.76	251.94	3.797		
6,100.00	5,991.79	5,991.79	5,991.79	22.93	237.37	139.14	-9.48	-81.94	956.69	704.56	252.14	3.794		
6,200.00	6,091.79	6,091.79	6,091.79	23.06	241.37	139.14	-9.48	-81.94	956.69	700.37	256.33	3.732		
6,300.00	6,191.79	6,191.79	6,191.79	23.18	245.37	139.14	-9.48	-81.94	956.69	696.18	260.52	3.672		
6,400.00	6,291.79	6,291.79	6,291.79	23.31	249.37	139.14	-9.48	-81.94	956.69	691.98	264.71	3.614		
6,500.00	6,391.79	6,391.79	6,391.79	23.44	253.37	139.14	-9.48	-81.94	956.69	687.79	268.90	3.558		
6,600.00	6,491.79	6,491.79	6,491.79	23.57	257.37	139.14	-9.48	-81.94	956.69	683.60	273.10	3.503		
6,700.00	6,591.79	6,591.79	6,591.79	23.71	261.37	139.14	-9.48	-81.94	956.69	679.40	277.29	3.450		
6,800.00	6,691.79	6,691.79	6,691.79	23.84	265.37	139.14	-9.48	-81.94	956.69	675.21	281.49	3.399		
6,900.00	6,791.79	6,791.79	6,791.79	23.98	269.37	139.14	-9.48	-81.94	956.69	671.01	285.68	3.349		
7,000.00	6,891.79	6,891.79	6,891.79	24.11	273.37	139.14	-9.48	-81.94	956.69	666.81	289.88	3.300		
7,100.00	6,991.79	6,991.79	6,991.79	24.25	277.37	139.14	-9.48	-81.94	956.69	662.62	294.08	3.253		
7,200.00	7,091.79	7,091.79	7,091.79	24.39	281.37	139.14	-9.48	-81.94	956.69	658.42	298.28	3.207		
7,300.00	7,191.79	7,191.79	7,191.79	24.53	285.37	139.14	-9.48	-81.94	956.69	654.22	302.47	3.163		
7,400.00	7,291.79	7,291.79	7,291.79	24.67	289.37	139.14	-9.48	-81.94	956.69	650.02	306.67	3.120		
7,500.00	7,391.79	7,391.79	7,391.79	24.82	293.37	139.14	-9.48	-81.94	956.69	645.82	310.87	3.077		
7,600.00	7,491.79	7,491.79	7,491.79	24.96	297.37	139.14	-9.48	-81.94	956.69	641.62	315.08	3.036		
7,700.00	7,591.79	7,510.00	7,510.00	25.11	298.10	139.14	-9.48	-81.94	960.18	644.18	316.00	3.039		
7,800.00	7,691.79	7,510.00	7,510.00	25.25	298.10	139.14	-9.48	-81.94	973.81	657.61	316.21	3.080		
7,900.00	7,791.79	7,510.00	7,510.00	25.40	298.10	139.14	-9.48	-81.94	997.33	680.92	316.41	3.152		
8,000.00	7,891.79	7,510.00	7,510.00	25.55	298.10	139.14	-9.48	-81.94	1,030.06	713.45	316.61	3.253		
8,018.21	7,910.00	7,510.00	7,510.00	25.58	298.10	139.14	-9.48	-81.94	1,036.95	720.30	316.65	3.275		

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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		
0.00	0.00	0.00	0.00	0.00	0.00	166.56	-58.30	13.93	59.95					
100.00	100.00	100.00	100.00	0.10	0.10	166.56	-58.30	13.93	59.95	59.75	0.19	313.767		
200.00	200.00	200.00	200.00	0.32	0.32	166.56	-58.30	13.93	59.95	59.31	0.64	93.580		
300.00	300.00	300.00	300.00	0.55	0.55	166.56	-58.30	13.93	59.95	58.86	1.09	54.990		
400.00	400.00	400.00	400.00	0.77	0.77	166.56	-58.30	13.93	59.95	58.41	1.54	38.935		
500.00	500.00	500.00	500.00	0.99	0.99	166.56	-58.30	13.93	59.95	57.96	1.99	30.136		
600.00	600.00	600.00	600.00	1.22	1.22	166.56	-58.30	13.93	59.95	57.51	2.44	24.581		
700.00	700.00	700.00	700.00	1.44	1.44	166.56	-58.30	13.93	59.95	57.06	2.89	20.755		
800.00	800.00	800.00	800.00	1.67	1.67	166.56	-58.30	13.93	59.95	56.61	3.34	17.960		
900.00	900.00	900.00	900.00	1.89	1.89	166.56	-58.30	13.93	59.95	56.16	3.79	15.828		
950.00	950.00	950.00	950.00	2.01	2.01	166.56	-58.30	13.93	59.95	55.93	4.01	14.941 CC, ES		
1,000.00	1,000.00	999.06	999.06	2.12	2.10	-149.07	-58.63	14.20	60.70	56.48	4.22	14.385 SF		
1,100.00	1,099.93	1,096.84	1,096.77	2.34	2.28	-151.76	-61.21	16.33	66.86	62.25	4.61	14.502		
1,200.00	1,199.68	1,193.58	1,193.28	2.56	2.47	-155.85	-66.29	20.51	79.48	74.47	5.00	15.884		
1,300.00	1,299.13	1,288.62	1,287.83	2.80	2.67	-159.95	-73.73	26.64	98.83	93.44	5.39	18.320		
1,400.00	1,398.15	1,381.36	1,379.73	3.06	2.90	-163.39	-83.32	34.54	124.94	119.16	5.78	21.613		
1,500.00	1,496.63	1,472.35	1,469.47	3.36	3.14	-166.06	-94.90	44.08	157.54	151.38	6.16	25.572		
1,595.12	1,589.68	1,560.57	1,556.35	3.68	3.41	-168.01	-106.75	53.83	192.58	186.05	6.53	29.512		
1,600.00	1,594.44	1,565.07	1,560.78	3.69	3.42	-168.11	-107.35	54.33	194.45	187.91	6.55	29.705		
1,700.00	1,691.91	1,657.19	1,651.49	4.07	3.72	-169.69	-119.72	64.52	232.98	226.00	6.98	33.395		
1,800.00	1,789.39	1,749.31	1,742.21	4.46	4.03	-170.82	-132.10	74.71	271.62	264.20	7.41	36.632		
1,900.00	1,886.86	1,841.43	1,832.92	4.87	4.35	-171.68	-144.47	84.90	310.32	302.46	7.86	39.483		
2,000.00	1,984.34	1,933.55	1,923.64	5.29	4.67	-172.34	-156.84	95.09	349.07	340.76	8.31	42.006		
2,100.00	2,081.81	2,025.67	2,014.35	5.72	5.01	-172.87	-169.21	105.28	387.85	379.09	8.77	44.249		
2,200.00	2,179.29	2,117.79	2,105.07	6.16	5.35	-173.30	-181.58	115.47	426.66	417.43	9.22	46.253		
2,300.00	2,276.76	2,209.91	2,195.78	6.60	5.69	-173.67	-193.96	125.66	465.48	455.79	9.69	48.051		
2,400.00	2,374.24	2,302.03	2,286.50	7.05	6.04	-173.97	-206.33	135.85	504.32	494.16	10.15	49.672		
2,500.00	2,471.71	2,394.15	2,377.21	7.50	6.39	-174.24	-218.70	146.04	543.16	532.54	10.62	51.138		
2,600.00	2,569.19	2,486.27	2,467.93	7.95	6.74	-174.46	-231.07	156.23	582.02	570.93	11.09	52.470		
2,700.00	2,666.66	2,578.39	2,558.64	8.41	7.10	-174.66	-243.45	166.42	620.88	609.31	11.57	53.684		
2,800.00	2,764.14	2,670.51	2,649.35	8.87	7.45	-174.84	-255.82	176.60	659.75	647.71	12.04	54.796		
2,900.00	2,861.62	2,762.62	2,740.07	9.33	7.81	-174.99	-268.19	186.79	698.62	686.10	12.52	55.817		
3,000.00	2,959.09	2,854.74	2,830.78	9.80	8.17	-175.13	-280.56	196.98	737.49	724.50	12.99	56.757		
3,100.00	3,056.57	2,946.86	2,921.50	10.26	8.53	-175.26	-292.93	207.17	776.37	762.90	13.47	57.625		
3,200.00	3,154.04	3,038.98	3,012.21	10.73	8.90	-175.37	-305.31	217.36	815.26	801.30	13.95	58.429		
3,300.00	3,251.52	3,131.10	3,102.93	11.19	9.26	-175.48	-317.68	227.55	854.14	839.71	14.43	59.175		
3,400.00	3,348.99	3,223.22	3,193.64	11.66	9.63	-175.57	-330.05	237.74	893.03	878.11	14.92	59.870		
3,500.00	3,446.47	3,315.34	3,284.36	12.13	9.99	-175.66	-342.42	247.93	931.92	916.52	15.40	60.518		
3,600.00	3,543.94	3,407.46	3,375.07	12.60	10.36	-175.74	-354.79	258.12	970.81	954.92	15.88	61.123		
3,700.00	3,641.42	3,499.58	3,465.79	13.07	10.72	-175.81	-367.17	268.31	1,009.70	993.33	16.37	61.691		
3,800.00	3,738.89	3,591.70	3,556.50	13.54	11.09	-175.88	-379.54	278.50	1,048.59	1,031.74	16.85	62.223		
3,900.00	3,836.37	3,683.82	3,647.22	14.02	11.46	-175.94	-391.91	288.69	1,087.48	1,070.15	17.34	62.723		
4,000.00	3,933.84	3,775.94	3,737.93	14.49	11.83	-176.00	-404.28	298.88	1,126.38	1,108.56	17.82	63.195		
4,100.00	4,031.32	3,868.06	3,828.65	14.96	12.20	-176.06	-416.65	309.07	1,165.28	1,146.97	18.31	63.639		
4,200.00	4,128.79	3,960.18	3,919.36	15.43	12.56	-176.11	-429.03	319.26	1,204.17	1,185.38	18.80	64.059		
4,300.00	4,226.27	4,052.30	4,010.08	15.91	12.93	-176.15	-441.40	329.45	1,243.07	1,223.79	19.29	64.457		
4,400.00	4,323.74	4,144.42	4,100.79	16.38	13.30	-176.20	-453.77	339.64	1,281.97	1,262.20	19.77	64.834		
4,500.00	4,421.22	4,236.54	4,191.51	16.86	13.67	-176.24	-466.14	349.83	1,320.87	1,300.61	20.26	65.191		
4,600.00	4,518.69	4,328.66	4,282.22	17.33	14.04	-176.28	-478.51	360.01	1,359.77	1,339.02	20.75	65.530		
4,700.00	4,616.17	4,420.78	4,372.94	17.81	14.41	-176.32	-490.89	370.20	1,398.67	1,377.43	21.24	65.853		
4,800.00	4,713.64	4,512.90	4,463.65	18.28	14.78	-176.36	-503.26	380.39	1,437.57	1,415.84	21.73	66.161		
4,900.00	4,811.12	4,605.02	4,554.37	18.76	15.15	-176.39	-515.63	390.58	1,476.47	1,454.25	22.22	66.454		

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 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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	4,908.59	4,697.14	4,645.08	19.23	15.53	-176.42	-528.00	400.77	1,515.37	1,492.66	22.71	66.734	
5,100.00	5,006.07	4,789.26	4,735.80	19.71	15.90	-176.45	-540.37	410.96	1,554.27	1,531.08	23.20	67.001	
5,200.00	5,103.54	4,881.38	4,826.51	20.18	16.27	-176.48	-552.75	421.15	1,593.18	1,569.49	23.69	67.257	
5,300.00	5,201.02	4,973.50	4,917.22	20.66	16.64	-176.51	-565.12	431.34	1,632.08	1,607.90	24.18	67.501	
5,400.00	5,298.49	5,065.62	5,007.94	21.14	17.01	-176.54	-577.49	441.53	1,670.98	1,646.31	24.67	67.736	
5,450.09	5,347.32	5,111.76	5,053.37	21.37	17.20	-176.55	-583.69	446.63	1,690.47	1,665.55	24.91	67.849	
5,500.00	5,396.06	5,157.91	5,098.82	21.58	17.38	-176.58	-589.88	451.74	1,709.48	1,684.26	25.22	67.773	
5,600.00	5,494.25	5,251.32	5,190.81	21.91	17.76	-176.65	-602.43	462.07	1,745.16	1,719.36	25.79	67.655	
5,700.00	5,593.04	5,345.92	5,283.97	22.20	18.14	-176.70	-615.14	472.53	1,777.55	1,751.22	26.33	67.501	
5,800.00	5,692.31	5,441.60	5,378.18	22.44	18.53	-176.73	-627.99	483.12	1,806.63	1,779.79	26.84	67.313	
5,900.00	5,791.94	5,538.23	5,473.34	22.65	18.92	-176.76	-640.96	493.81	1,832.36	1,805.05	27.31	67.096	
6,000.00	5,891.81	5,774.43	5,707.14	22.81	19.58	-176.76	-666.55	514.88	1,851.86	1,823.86	28.00	66.145	
6,095.21	5,987.00	6,043.71	5,975.94	22.93	20.04	138.49	-677.55	523.94	1,858.48	1,829.84	28.64	64.887	
6,100.00	5,991.79	6,057.33	5,989.56	22.93	20.06	138.49	-677.58	523.97	1,858.50	1,829.82	28.68	64.812	
6,200.00	6,091.79	6,159.56	6,091.79	23.06	20.19	138.49	-677.59	523.97	1,858.50	1,829.45	29.05	63.978	
6,300.00	6,191.79	6,259.56	6,191.79	23.18	20.31	138.49	-677.59	523.97	1,858.50	1,829.08	29.42	63.181	
6,400.00	6,291.79	6,359.56	6,291.79	23.31	20.44	138.49	-677.59	523.97	1,858.50	1,828.71	29.78	62.397	
6,500.00	6,391.79	6,459.56	6,391.79	23.44	20.57	138.49	-677.59	523.97	1,858.50	1,828.34	30.16	61.629	
6,600.00	6,491.79	6,559.56	6,491.79	23.57	20.69	138.49	-677.59	523.97	1,858.50	1,827.97	30.53	60.875	
6,700.00	6,591.79	6,659.56	6,591.79	23.71	20.83	138.49	-677.59	523.97	1,858.50	1,827.59	30.91	60.136	
6,800.00	6,691.79	6,759.56	6,691.79	23.84	20.96	138.49	-677.59	523.97	1,858.50	1,827.22	31.28	59.410	
6,900.00	6,791.79	6,859.56	6,791.79	23.98	21.09	138.49	-677.59	523.97	1,858.50	1,826.84	31.66	58.698	
7,000.00	6,891.79	6,959.56	6,891.79	24.11	21.23	138.49	-677.59	523.97	1,858.50	1,826.46	32.04	58.000	
7,100.00	6,991.79	7,059.56	6,991.79	24.25	21.37	138.49	-677.59	523.97	1,858.50	1,826.07	32.43	57.315	
7,200.00	7,091.79	7,159.56	7,091.79	24.39	21.50	138.49	-677.59	523.97	1,858.50	1,825.69	32.81	56.643	
7,300.00	7,191.79	7,259.56	7,191.79	24.53	21.64	138.49	-677.59	523.97	1,858.50	1,825.30	33.20	55.984	
7,400.00	7,291.79	7,359.56	7,291.79	24.67	21.79	138.49	-677.59	523.97	1,858.50	1,824.91	33.58	55.338	
7,500.00	7,391.79	7,459.56	7,391.79	24.82	21.93	138.49	-677.59	523.97	1,858.50	1,824.53	33.97	54.704	
7,600.00	7,491.79	7,559.56	7,491.79	24.96	22.07	138.49	-677.59	523.97	1,858.50	1,824.13	34.36	54.081	
7,700.00	7,591.79	7,659.56	7,591.79	25.11	22.22	138.49	-677.59	523.97	1,858.50	1,823.74	34.76	53.471	
7,800.00	7,691.79	7,759.56	7,691.79	25.25	22.37	138.49	-677.59	523.97	1,858.50	1,823.35	35.15	52.872	
7,900.00	7,791.79	7,859.56	7,791.79	25.40	22.51	138.49	-677.59	523.97	1,858.50	1,822.95	35.55	52.285	
8,000.00	7,891.79	7,959.56	7,891.79	25.55	22.66	138.49	-677.59	523.97	1,858.50	1,822.56	35.94	51.708	
8,018.21	7,910.00	7,977.77	7,910.00	25.58	22.69	138.49	-677.59	523.97	1,858.50	1,822.49	36.01	51.605	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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		
0.00	0.00	0.00	0.00	0.00	0.00	169.18	-29.15	5.57	29.68					
100.00	100.00	100.00	100.00	0.10	0.10	169.18	-29.15	5.57	29.68	29.49	0.19	155.350		
200.00	200.00	200.00	200.00	0.32	0.32	169.18	-29.15	5.57	29.68	29.04	0.64	46.333		
300.00	300.00	300.00	300.00	0.55	0.55	169.18	-29.15	5.57	29.68	28.59	1.09	27.226		
400.00	400.00	400.00	400.00	0.77	0.77	169.18	-29.15	5.57	29.68	28.14	1.54	19.277		
500.00	500.00	500.00	500.00	0.99	0.99	169.18	-29.15	5.57	29.68	27.69	1.99	14.921		
600.00	600.00	600.00	600.00	1.22	1.22	169.18	-29.15	5.57	29.68	27.24	2.44	12.170		
700.00	700.00	700.00	700.00	1.44	1.44	169.18	-29.15	5.57	29.68	26.79	2.89	10.276		
800.00	800.00	800.00	800.00	1.67	1.67	169.18	-29.15	5.57	29.68	26.34	3.34	8.892		
900.00	900.00	900.00	900.00	1.89	1.89	169.18	-29.15	5.57	29.68	25.89	3.79	7.837		
950.00	950.00	950.00	950.00	2.01	2.01	169.18	-29.15	5.57	29.68	25.67	4.01	7.398 CC, ES		
1,000.00	1,000.00	1,000.10	1,000.09	2.12	2.11	-147.36	-28.98	5.98	29.96	25.73	4.23	7.082		
1,100.00	1,099.93	1,100.04	1,099.97	2.34	2.33	-156.68	-27.63	9.20	32.69	28.03	4.66	7.022 SF		
1,200.00	1,199.68	1,199.23	1,198.92	2.56	2.54	-170.59	-24.97	15.57	40.13	35.05	5.08	7.901		
1,300.00	1,299.13	1,297.19	1,296.34	2.80	2.78	176.86	-21.03	24.95	54.01	48.51	5.50	9.819		
1,400.00	1,398.15	1,393.47	1,391.70	3.06	3.03	167.90	-15.92	37.17	74.59	68.67	5.93	12.588		
1,500.00	1,496.63	1,487.64	1,484.49	3.36	3.30	161.91	-9.72	51.97	101.44	95.08	6.36	15.950		
1,595.12	1,589.68	1,574.92	1,569.98	3.68	3.59	158.03	-2.92	68.19	132.38	125.59	6.79	19.504		
1,600.00	1,594.44	1,579.33	1,574.29	3.69	3.60	157.87	-2.55	69.08	134.10	127.28	6.81	19.687		
1,700.00	1,691.91	1,668.81	1,661.29	4.07	3.94	155.07	5.51	88.31	170.57	163.24	7.33	23.285		
1,800.00	1,789.39	1,756.36	1,745.76	4.46	4.32	152.72	14.41	109.56	209.42	201.56	7.86	26.634		
1,900.00	1,886.86	1,841.91	1,827.57	4.87	4.73	150.70	24.06	132.60	250.62	242.20	8.42	29.759		
2,000.00	1,984.34	1,925.37	1,906.63	5.29	5.17	148.92	34.38	157.25	294.14	285.14	9.00	32.686		
2,100.00	2,081.81	2,006.68	1,982.88	5.72	5.65	147.33	45.29	183.29	339.91	330.32	9.59	35.440		
2,200.00	2,179.29	2,085.79	2,056.27	6.16	6.17	145.91	56.71	210.53	387.90	377.70	10.20	38.031		
2,300.00	2,276.76	2,162.68	2,126.79	6.60	6.72	144.63	68.54	238.80	438.03	427.21	10.82	40.486		
2,400.00	2,374.24	2,243.71	2,200.37	7.05	7.33	143.40	81.65	270.08	489.90	478.43	11.47	42.716		
2,500.00	2,471.71	2,328.63	2,277.42	7.50	7.99	142.34	95.45	303.02	542.07	529.93	12.14	44.639		
2,600.00	2,569.19	2,413.55	2,354.47	7.95	8.67	141.47	109.24	335.95	594.36	581.53	12.83	46.343		
2,700.00	2,666.66	2,498.47	2,431.52	8.41	9.35	140.74	123.04	368.88	646.73	633.22	13.51	47.860		
2,800.00	2,764.14	2,583.39	2,508.56	8.87	10.05	140.11	136.83	401.82	699.17	684.96	14.21	49.214		
2,900.00	2,861.62	2,668.30	2,585.61	9.33	10.75	139.58	150.63	434.75	751.66	736.75	14.90	50.431		
3,000.00	2,959.09	2,753.22	2,662.66	9.80	11.45	139.11	164.43	467.68	804.19	788.58	15.61	51.530		
3,100.00	3,056.57	2,838.14	2,739.71	10.26	12.16	138.70	178.22	500.62	856.75	840.44	16.31	52.526		
3,200.00	3,154.04	2,923.06	2,816.75	10.73	12.87	138.34	192.02	533.55	909.35	892.33	17.02	53.432		
3,300.00	3,251.52	3,007.98	2,893.80	11.19	13.59	138.01	205.81	566.48	961.96	944.23	17.73	54.258		
3,400.00	3,348.99	3,092.90	2,970.85	11.66	14.30	137.72	219.61	599.42	1,014.60	996.16	18.44	55.015		
3,500.00	3,446.47	3,177.82	3,047.90	12.13	15.02	137.46	233.40	632.35	1,067.25	1,048.10	19.16	55.709		
3,600.00	3,543.94	3,262.74	3,124.94	12.60	15.75	137.22	247.20	665.28	1,119.92	1,100.05	19.87	56.349		
3,700.00	3,641.42	3,347.66	3,201.99	13.07	16.47	137.01	261.00	698.22	1,172.60	1,152.01	20.59	56.941		
3,800.00	3,738.89	3,432.58	3,279.04	13.54	17.19	136.81	274.79	731.15	1,225.30	1,203.98	21.31	57.490		
3,900.00	3,836.37	3,517.49	3,356.09	14.02	17.92	136.63	288.59	764.08	1,278.00	1,255.96	22.03	57.999		
4,000.00	3,933.84	3,602.41	3,433.13	14.49	18.65	136.46	302.38	797.02	1,330.71	1,307.95	22.76	58.473		
4,100.00	4,031.32	3,687.33	3,510.18	14.96	19.37	136.31	316.18	829.95	1,383.42	1,359.94	23.48	58.916		
4,200.00	4,128.79	3,772.25	3,587.23	15.43	20.10	136.17	329.98	862.88	1,436.15	1,411.94	24.21	59.329		
4,300.00	4,226.27	3,857.17	3,664.28	15.91	20.83	136.04	343.77	895.82	1,488.88	1,463.95	24.93	59.717		
4,400.00	4,323.74	3,942.09	3,741.32	16.38	21.56	135.91	357.57	928.75	1,541.62	1,515.96	25.66	60.081		
4,500.00	4,421.22	4,027.01	3,818.37	16.86	22.29	135.80	371.36	961.68	1,594.36	1,567.97	26.39	60.423		
4,600.00	4,518.69	4,111.93	3,895.42	17.33	23.03	135.69	385.16	994.62	1,647.10	1,619.99	27.11	60.745		
4,700.00	4,616.17	4,196.85	3,972.47	17.81	23.76	135.59	398.95	1,027.55	1,699.85	1,672.01	27.84	61.050		
4,800.00	4,713.64	4,281.77	4,049.51	18.28	24.49	135.49	412.75	1,060.48	1,752.60	1,724.03	28.57	61.337		
4,900.00	4,811.12	4,366.69	4,126.56	18.76	25.22	135.40	426.55	1,093.42	1,805.36	1,776.05	29.30	61.609		

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

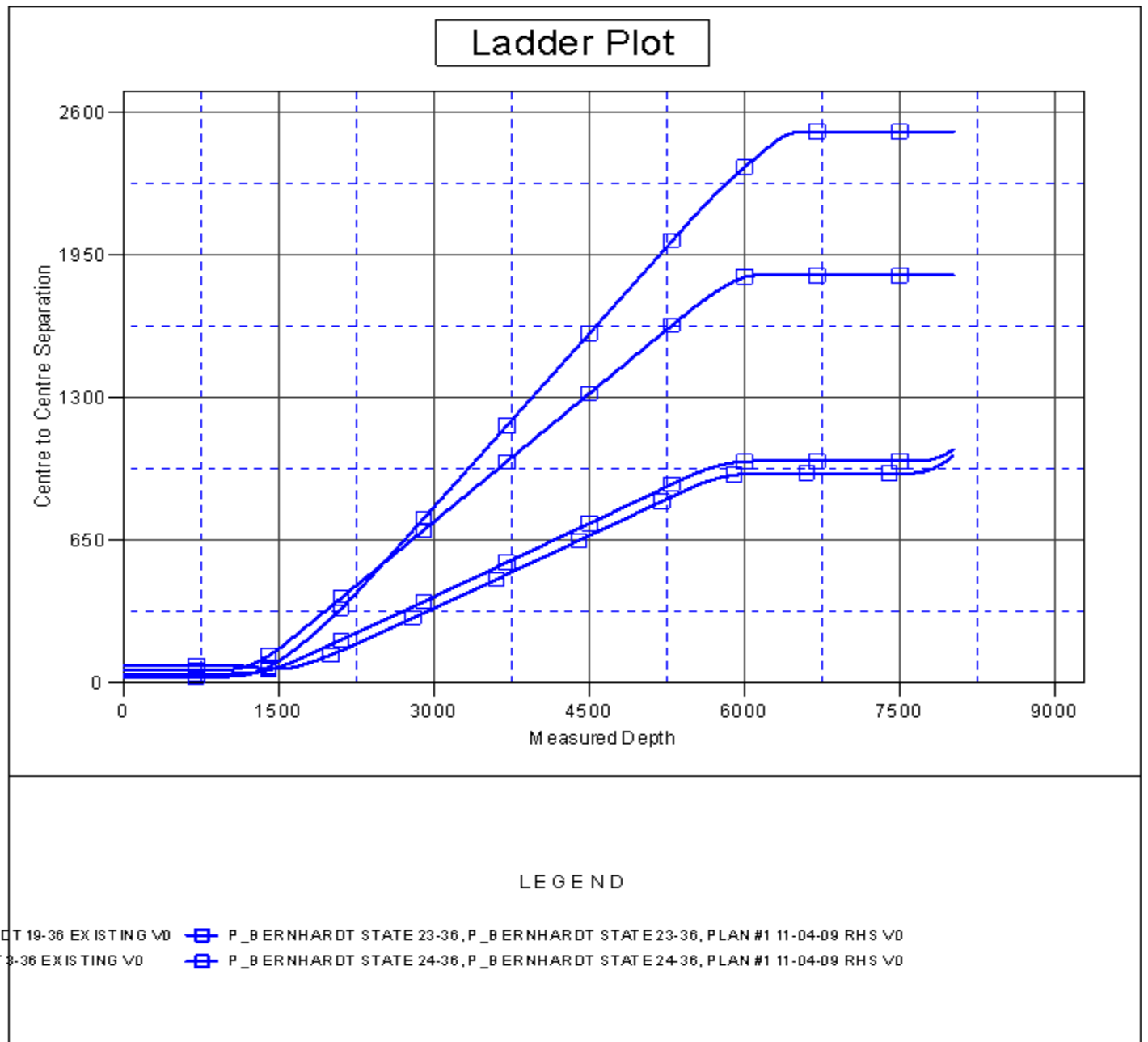
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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	4,908.59	4,451.60	4,203.61	19.23	25.96	135.32	440.34	1,126.35	1,858.12	1,828.08	30.03	61.867	
5,100.00	5,006.07	4,536.52	4,280.66	19.71	26.69	135.24	454.14	1,159.28	1,910.88	1,880.11	30.77	62.111	
5,200.00	5,103.54	4,621.44	4,357.70	20.18	27.42	135.16	467.93	1,192.22	1,963.64	1,932.15	31.50	62.344	
5,300.00	5,201.02	4,706.36	4,434.75	20.66	28.16	135.09	481.73	1,225.15	2,016.41	1,984.18	32.23	62.565	
5,400.00	5,298.49	4,791.28	4,511.80	21.14	28.89	135.02	495.52	1,258.08	2,069.18	2,036.22	32.96	62.775	
5,450.09	5,347.32	4,833.81	4,550.39	21.37	29.26	134.99	502.43	1,274.58	2,095.61	2,062.28	33.33	62.877	
5,500.00	5,396.06	4,876.35	4,588.98	21.58	29.63	135.38	509.35	1,291.08	2,121.69	2,087.86	33.82	62.728	
5,600.00	5,494.25	4,962.46	4,667.11	21.91	30.37	136.06	523.33	1,324.47	2,172.33	2,137.58	34.75	62.507	
5,700.00	5,593.04	5,049.65	4,746.22	22.20	31.13	136.63	537.50	1,358.29	2,220.82	2,185.18	35.64	62.312	
5,800.00	5,692.31	5,137.82	4,826.22	22.44	31.89	137.08	551.82	1,392.48	2,267.09	2,230.61	36.48	62.148	
5,900.00	5,791.94	5,226.87	4,907.01	22.65	32.66	137.43	566.29	1,427.01	2,311.13	2,273.87	37.26	62.021	
6,000.00	5,891.81	5,316.68	4,988.49	22.81	33.44	137.69	580.88	1,461.84	2,352.92	2,314.93	37.99	61.932	
6,095.21	5,987.00	5,402.80	5,066.63	22.93	34.19	93.10	594.87	1,495.24	2,390.61	2,351.98	38.63	61.886	
6,100.00	5,991.79	5,407.14	5,070.57	22.93	34.23	93.08	595.58	1,496.93	2,392.45	2,353.80	38.65	61.896	
6,200.00	6,091.79	5,497.88	5,152.89	23.06	35.01	92.65	610.32	1,532.12	2,431.02	2,391.86	39.16	62.085	
6,300.00	6,191.79	5,651.42	5,292.66	23.18	36.21	91.97	634.88	1,590.75	2,469.49	2,429.63	39.85	61.965	
6,400.00	6,291.79	6,125.09	5,741.22	23.31	38.73	90.49	693.02	1,729.54	2,498.92	2,457.61	41.30	60.502	
6,500.00	6,391.79	6,640.22	6,249.79	23.44	40.16	89.80	722.94	1,800.97	2,512.87	2,470.46	42.42	59.242	
6,600.00	6,491.79	6,882.33	6,491.79	23.57	40.40	89.75	725.01	1,805.91	2,513.81	2,470.94	42.87	58.639	
6,700.00	6,591.79	6,982.33	6,591.79	23.71	40.48	89.75	725.01	1,805.91	2,513.81	2,470.67	43.14	58.268	
6,800.00	6,691.79	7,082.33	6,691.79	23.84	40.56	89.75	725.01	1,805.91	2,513.81	2,470.39	43.42	57.896	
6,900.00	6,791.79	7,182.33	6,791.79	23.98	40.63	89.75	725.01	1,805.91	2,513.81	2,470.11	43.70	57.526	
7,000.00	6,891.79	7,282.33	6,891.79	24.11	40.71	89.75	725.01	1,805.91	2,513.81	2,469.83	43.98	57.156	
7,100.00	6,991.79	7,382.33	6,991.79	24.25	40.80	89.75	725.01	1,805.91	2,513.81	2,469.55	44.27	56.788	
7,200.00	7,091.79	7,482.33	7,091.79	24.39	40.88	89.75	725.01	1,805.91	2,513.81	2,469.26	44.55	56.421	
7,300.00	7,191.79	7,582.33	7,191.79	24.53	40.96	89.75	725.01	1,805.91	2,513.81	2,468.97	44.85	56.055	
7,400.00	7,291.79	7,682.33	7,291.79	24.67	41.05	89.75	725.01	1,805.91	2,513.81	2,468.67	45.14	55.691	
7,500.00	7,391.79	7,782.33	7,391.79	24.82	41.13	89.75	725.01	1,805.91	2,513.81	2,468.38	45.43	55.329	
7,600.00	7,491.79	7,882.33	7,491.79	24.96	41.22	89.75	725.01	1,805.91	2,513.81	2,468.08	45.73	54.968	
7,700.00	7,591.79	7,982.33	7,591.79	25.11	41.30	89.75	725.01	1,805.91	2,513.81	2,467.78	46.03	54.609	
7,800.00	7,691.79	8,082.33	7,691.79	25.25	41.39	89.75	725.01	1,805.91	2,513.81	2,467.48	46.34	54.252	
7,900.00	7,791.79	8,182.33	7,791.79	25.40	41.48	89.75	725.01	1,805.91	2,513.81	2,467.17	46.64	53.897	
8,000.00	7,891.79	8,282.33	7,891.79	25.55	41.57	89.75	725.01	1,805.91	2,513.81	2,466.86	46.95	53.544	
8,018.21	7,910.00	8,300.54	7,910.00	25.58	41.59	89.75	725.01	1,805.91	2,513.81	2,466.81	47.00	53.480	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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

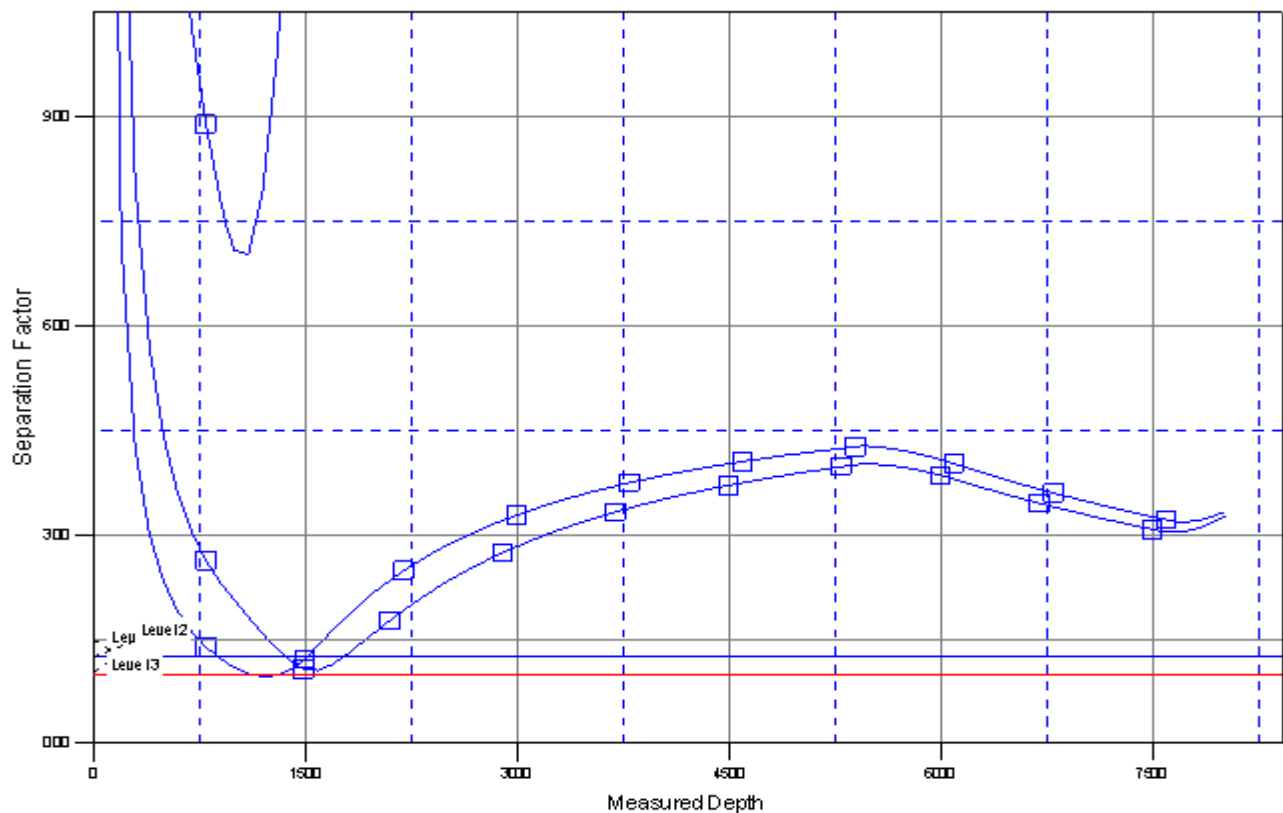
Reference Depths are relative to WELL @ 4849.00ft (Original Well Elev) Coordinates are relative to: P\_BERNHARDT STATE 22-36  
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone  
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.42°





<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT STATE 22-36
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Reference Site:</b>	BERNHARDT STATE 23-36 PAD	<b>MD Reference:</b>	WELL @ 4849.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT STATE 22-36	<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 22-36	<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 @ 4849.00ft (Original Well Elev) Coordinates are relative to: P\_BERNHARDT STATE 22-36  
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

RT 19-36 EXISTING V0  P\_BERNHARDT STATE 23-36, P\_BERNHARDT STATE 23-36, PLAN #1 11-04-09 RHS V0  
T 3-36 EXISTING V0  P\_BERNHARDT STATE 24-36, P\_BERNHARDT STATE 24-36, PLAN #1 11-04-09 RHS V0