



# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83  
WELD\_BERNHARDT 8 PAD 4N67W1  
P\_BERNHARDT 24-1**

**P\_BERNHARDT 24-1**

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

## **Standard Planning Report**

**04 November, 2009**





Azimuths to True North  
Magnetic North: 9.08°  
Magnetic Field  
Strength: 53283.1nT  
Dip Angle: 67.06°  
Date: 11/4/2009  
Model: IGRF200510

#### WELL DETAILS: P\_BERNHARDT 24-1

+N/-S	+E/-W	Northing	Ground Level:	Easting	Latitude	Longitude	Slot
0.00	0.00	1369198.79	4825.00	3183599.18	40° 20' 41.928 N	104° 50' 28.716 W	

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
2642.00	2808.52	PARKMAN TOP
4370.00	4715.07	SUSSEX TOP
4753.00	5137.65	SHANNON TOP
6964.00	7446.45	NIO A TOP
7287.00	7769.45	CODELL TOP
7737.00	8219.45	JSAND TOP

#### SECTION DETAILS

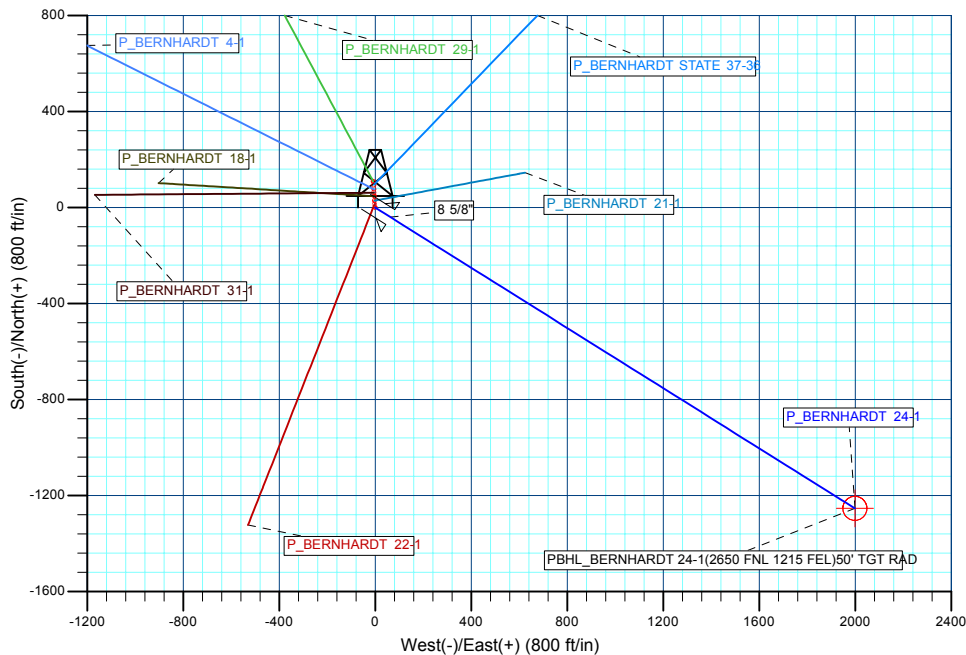
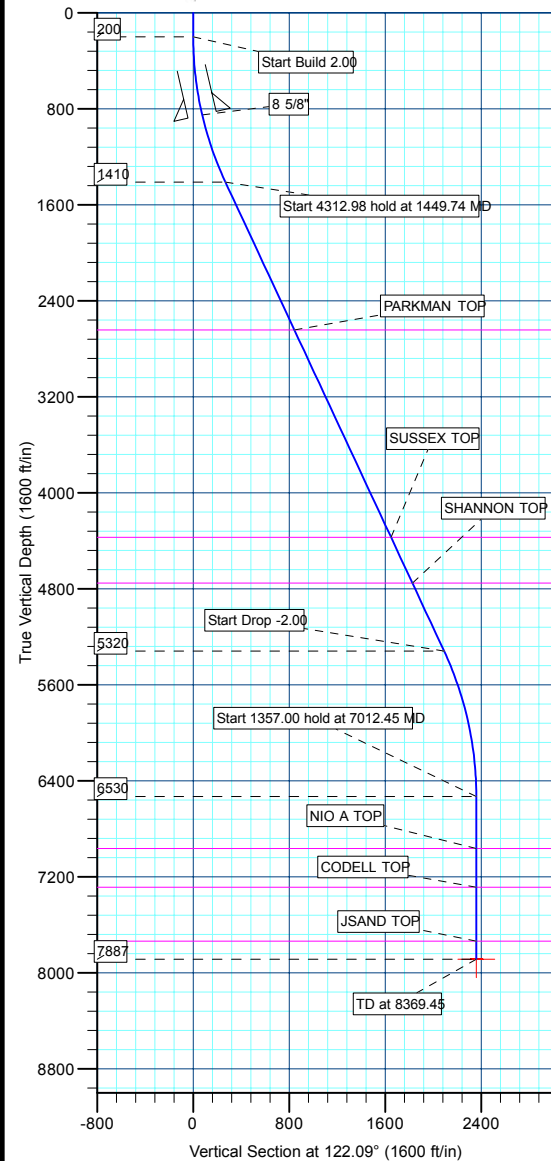
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	
1449.74	24.99	122.09	1410.47	-142.52	227.31	2.00	122.09	268.30	
5762.71	24.99	122.09	5319.53	-1110.56	1771.33	0.00	0.00	2090.68	
7012.45	0.00	0.00	6530.00	-1253.08	1998.65	2.00	180.00	2358.98	
8369.45	0.00	0.00	7887.00	-1253.08	1998.65	0.00	0.00	2358.98	PBHL_BERNHARDT 24-1(2650 FNL 1215 FEL)

#### CASING DETAILS

TVD	MD	Name	Size
850.00	855.71	8 5/8"	8.62



KB ELEV: WELL @ 4840.00ft (Original Well Elev)  
iRD ELEV: 4825.00



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

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	7887.00	-1253.08	1998.65	1367960.59	3185607.08	40° 20' 29.544 N	104° 50' 2.904 W	Circle (Radius: 50.00)

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT 24-1
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT 24-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT 24-1		
<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		

WELD_BERNHARDT 8 PAD 4N67W1, SECTION 1 T4N R67W					
Site Position:		Northing:	1,369,246.13 ft	Latitude:	40° 20' 42.396 N
From:	Lat/Long	Easting:	3,183,596.05 ft	Longitude:	104° 50' 28.752 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	0.43 °

Well	P_BERNHARDT 24-1					
Well Position	+N/-S	-47.37 ft	Northing:	1,369,198.79 ft	Latitude:	40° 20' 41.928 N
	+E/-W	2.79 ft	Easting:	3,183,599.18 ft	Longitude:	104° 50' 28.716 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,825.00 ft

<b>Wellbore</b>	P_BERNHARDT 24-1				
<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	53,283

<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	122.09

<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	
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,449.74	24.99	122.09	1,410.47	-142.52	227.31	2.00	2.00	0.00	122.09	
5,762.71	24.99	122.09	5,319.53	-1,110.56	1,771.33	0.00	0.00	0.00	0.00	
7,012.45	0.00	0.00	6,530.00	-1,253.08	1,998.65	2.00	-2.00	0.00	180.00	
8,369.45	0.00	0.00	7,887.00	-1,253.08	1,998.65	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 24-1
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT 24-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT 24-1		
<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>									
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	2.00	122.09	299.98	-0.93	1.48	1.75	2.00	2.00	0.00
400.00	4.00	122.09	399.84	-3.71	5.91	6.98	2.00	2.00	0.00
500.00	6.00	122.09	499.45	-8.34	13.30	15.69	2.00	2.00	0.00
600.00	8.00	122.09	598.70	-14.81	23.62	27.88	2.00	2.00	0.00
700.00	10.00	122.09	697.47	-23.12	36.87	43.52	2.00	2.00	0.00
800.00	12.00	122.09	795.62	-33.25	53.04	62.60	2.00	2.00	0.00
<b>8 5/8"</b>									
855.71	13.11	122.09	850.00	-39.69	63.30	74.71	2.00	2.00	0.00
900.00	14.00	122.09	893.06	-45.20	72.10	85.10	2.00	2.00	0.00
1,000.00	16.00	122.09	989.64	-58.95	94.03	110.98	2.00	2.00	0.00
1,100.00	18.00	122.09	1,085.27	-74.48	118.80	140.21	2.00	2.00	0.00
1,200.00	20.00	122.09	1,179.82	-91.77	146.38	172.77	2.00	2.00	0.00
1,300.00	22.00	122.09	1,273.17	-110.81	176.74	208.60	2.00	2.00	0.00
1,400.00	24.00	122.09	1,365.21	-131.56	209.84	247.67	2.00	2.00	0.00
<b>Start 4312.98 hold at 1449.74 MD</b>									
1,449.74	24.99	122.09	1,410.47	-142.52	227.31	268.30	2.00	2.00	0.00
1,500.00	24.99	122.09	1,456.03	-153.80	245.31	289.54	0.00	0.00	0.00
1,600.00	24.99	122.09	1,546.66	-176.24	281.11	331.79	0.00	0.00	0.00
1,700.00	24.99	122.09	1,637.30	-198.69	316.91	374.04	0.00	0.00	0.00
1,800.00	24.99	122.09	1,727.93	-221.13	352.71	416.30	0.00	0.00	0.00
1,900.00	24.99	122.09	1,818.57	-243.58	388.51	458.55	0.00	0.00	0.00
2,000.00	24.99	122.09	1,909.20	-266.02	424.31	500.80	0.00	0.00	0.00
2,100.00	24.99	122.09	1,999.84	-288.47	460.10	543.06	0.00	0.00	0.00
2,200.00	24.99	122.09	2,090.47	-310.91	495.90	585.31	0.00	0.00	0.00
2,300.00	24.99	122.09	2,181.11	-333.36	531.70	627.56	0.00	0.00	0.00
2,400.00	24.99	122.09	2,271.74	-355.80	567.50	669.82	0.00	0.00	0.00
2,500.00	24.99	122.09	2,362.38	-378.25	603.30	712.07	0.00	0.00	0.00
2,600.00	24.99	122.09	2,453.01	-400.69	639.10	754.32	0.00	0.00	0.00
2,700.00	24.99	122.09	2,543.65	-423.14	674.90	796.58	0.00	0.00	0.00
2,800.00	24.99	122.09	2,634.28	-445.58	710.70	838.83	0.00	0.00	0.00
<b>PARKMAN TOP</b>									
2,808.52	24.99	122.09	2,642.00	-447.49	713.75	842.43	0.00	0.00	0.00
2,900.00	24.99	122.09	2,724.91	-468.03	746.50	881.08	0.00	0.00	0.00
3,000.00	24.99	122.09	2,815.55	-490.47	782.30	923.34	0.00	0.00	0.00
3,100.00	24.99	122.09	2,906.18	-512.92	818.10	965.59	0.00	0.00	0.00
3,200.00	24.99	122.09	2,996.82	-535.36	853.90	1,007.84	0.00	0.00	0.00
3,300.00	24.99	122.09	3,087.45	-557.81	889.70	1,050.10	0.00	0.00	0.00
3,400.00	24.99	122.09	3,178.09	-580.25	925.50	1,092.35	0.00	0.00	0.00
3,500.00	24.99	122.09	3,268.72	-602.70	961.29	1,134.61	0.00	0.00	0.00
3,600.00	24.99	122.09	3,359.36	-625.14	997.09	1,176.86	0.00	0.00	0.00
3,700.00	24.99	122.09	3,449.99	-647.59	1,032.89	1,219.11	0.00	0.00	0.00
3,800.00	24.99	122.09	3,540.63	-670.03	1,068.69	1,261.37	0.00	0.00	0.00
3,900.00	24.99	122.09	3,631.26	-692.47	1,104.49	1,303.62	0.00	0.00	0.00
4,000.00	24.99	122.09	3,721.90	-714.92	1,140.29	1,345.87	0.00	0.00	0.00
4,100.00	24.99	122.09	3,812.53	-737.36	1,176.09	1,388.13	0.00	0.00	0.00
4,200.00	24.99	122.09	3,903.17	-759.81	1,211.89	1,430.38	0.00	0.00	0.00
4,300.00	24.99	122.09	3,993.80	-782.25	1,247.69	1,472.63	0.00	0.00	0.00
4,400.00	24.99	122.09	4,084.43	-804.70	1,283.49	1,514.89	0.00	0.00	0.00
4,500.00	24.99	122.09	4,175.07	-827.14	1,319.29	1,557.14	0.00	0.00	0.00
4,600.00	24.99	122.09	4,265.70	-849.59	1,355.09	1,599.39	0.00	0.00	0.00
4,700.00	24.99	122.09	4,356.34	-872.03	1,390.89	1,641.65	0.00	0.00	0.00

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<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT 24-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT 24-1		
<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>SUSSEX TOP</b>										
4,715.07	24.99	122.09	4,370.00	-875.42	1,396.28	1,648.02	0.00	0.00	0.00	
4,800.00	24.99	122.09	4,446.97	-894.48	1,426.69	1,683.90	0.00	0.00	0.00	
4,900.00	24.99	122.09	4,537.61	-916.92	1,462.48	1,726.15	0.00	0.00	0.00	
5,000.00	24.99	122.09	4,628.24	-939.37	1,498.28	1,768.41	0.00	0.00	0.00	
5,100.00	24.99	122.09	4,718.88	-961.81	1,534.08	1,810.66	0.00	0.00	0.00	
<b>SHANNON TOP</b>										
5,137.65	24.99	122.09	4,753.00	-970.26	1,547.56	1,826.57	0.00	0.00	0.00	
5,200.00	24.99	122.09	4,809.51	-984.26	1,569.88	1,852.91	0.00	0.00	0.00	
5,300.00	24.99	122.09	4,900.15	-1,006.70	1,605.68	1,895.17	0.00	0.00	0.00	
5,400.00	24.99	122.09	4,990.78	-1,029.15	1,641.48	1,937.42	0.00	0.00	0.00	
5,500.00	24.99	122.09	5,081.42	-1,051.59	1,677.28	1,979.68	0.00	0.00	0.00	
5,600.00	24.99	122.09	5,172.05	-1,074.04	1,713.08	2,021.93	0.00	0.00	0.00	
5,700.00	24.99	122.09	5,262.69	-1,096.48	1,748.88	2,064.18	0.00	0.00	0.00	
<b>Start Drop -2.00</b>										
5,762.71	24.99	122.09	5,319.53	-1,110.56	1,771.33	2,090.68	0.00	0.00	0.00	
5,800.00	24.25	122.09	5,353.42	-1,118.81	1,784.49	2,106.22	2.00	-2.00	0.00	
5,900.00	22.25	122.09	5,445.30	-1,139.78	1,817.93	2,145.69	2.00	-2.00	0.00	
6,000.00	20.25	122.09	5,538.49	-1,159.03	1,848.64	2,181.93	2.00	-2.00	0.00	
6,100.00	18.25	122.09	5,632.90	-1,176.54	1,876.57	2,214.89	2.00	-2.00	0.00	
6,200.00	16.25	122.09	5,728.40	-1,192.29	1,901.69	2,244.54	2.00	-2.00	0.00	
6,300.00	14.25	122.09	5,824.87	-1,206.26	1,923.97	2,270.84	2.00	-2.00	0.00	
6,400.00	12.25	122.09	5,922.20	-1,218.43	1,943.39	2,293.76	2.00	-2.00	0.00	
6,500.00	10.25	122.09	6,020.28	-1,228.79	1,959.92	2,313.27	2.00	-2.00	0.00	
6,600.00	8.25	122.09	6,118.97	-1,237.33	1,973.53	2,329.34	2.00	-2.00	0.00	
6,700.00	6.25	122.09	6,218.17	-1,244.03	1,984.22	2,341.96	2.00	-2.00	0.00	
6,800.00	4.25	122.09	6,317.74	-1,248.89	1,991.97	2,351.10	2.00	-2.00	0.00	
6,900.00	2.25	122.09	6,417.58	-1,251.90	1,996.78	2,356.77	2.00	-2.00	0.00	
7,000.00	0.25	122.09	6,517.55	-1,253.06	1,998.62	2,358.95	2.00	-2.00	0.00	
<b>Start 1357.00 hold at 7012.45 MD</b>										
7,012.45	0.00	0.00	6,530.00	-1,253.08	1,998.65	2,358.98	2.00	-2.00	-980.49	
7,100.00	0.00	0.00	6,617.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
7,200.00	0.00	0.00	6,717.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
7,300.00	0.00	0.00	6,817.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
7,400.00	0.00	0.00	6,917.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
<b>NIO A TOP</b>										
7,446.45	0.00	0.00	6,964.00	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
7,500.00	0.00	0.00	7,017.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
7,600.00	0.00	0.00	7,117.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
7,700.00	0.00	0.00	7,217.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
<b>CODELL TOP</b>										
7,769.45	0.00	0.00	7,287.00	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
7,800.00	0.00	0.00	7,317.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
7,900.00	0.00	0.00	7,417.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
8,000.00	0.00	0.00	7,517.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
8,100.00	0.00	0.00	7,617.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
8,200.00	0.00	0.00	7,717.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
<b>JSAND TOP</b>										
8,219.45	0.00	0.00	7,737.00	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
8,300.00	0.00	0.00	7,817.55	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	
<b>PBHL_BERNHARDT 24-1(2650 FNL 1215 FEL)</b>										
8,369.45	0.00	0.00	7,887.00	-1,253.08	1,998.65	2,358.98	0.00	0.00	0.00	

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<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>North Reference:</b>	True
<b>Well:</b>	P_BERNHARDT 24-1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_BERNHARDT 24-1		
<b>Design:</b>	PLAN #1 11-04-09 RHS		

Design Targets									
Target Name									
- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
PBHL_BERNHARDT	0.00	0.00	7,887.00	-1,253.08	1,998.65	1,367,960.59	3,185,607.08	40° 20' 29.544 N	104° 50' 2.904 W
- plan hits target center									
- Circle (radius 50.00)									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
855.71	850.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
2,808.52	2,642.00	PARKMAN TOP				
4,715.07	4,370.00	SUSSEX TOP				
5,137.65	4,753.00	SHANNON TOP				
7,446.45	6,964.00	NIO A TOP				
7,769.45	7,287.00	CODELL TOP				
8,219.45	7,737.00	JSAND TOP				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
200.00	200.00	0.00	0.00	Start Build 2.00	
1,449.74	1,410.47	-142.52	227.31	Start 4312.98 hold at 1449.74 MD	
5,762.71	5,319.53	-1,110.56	1,771.33	Start Drop -2.00	
7,012.45	6,530.00	-1,253.08	1,998.65	Start 1357.00 hold at 7012.45 MD	
8,369.45	7,887.00	-1,253.08	1,998.65	TD at 8369.45	



# **US ROCKIES REGION PLANNING**

**COLORADO NOTHERN ZONE - 83  
WELD\_BERNHARDT 8 PAD 4N67W1  
P\_BERNHARDT 24-1**

**P\_BERNHARDT 24-1  
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 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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	8,369.45	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 8 PAD 4N67W1						
P_BERNHARDT 18-1 - P_BERNHARDT 18-1 - PLAN #1	200.00	200.00	47.45	46.81	74.077	CC, ES
P_BERNHARDT 18-1 - P_BERNHARDT 18-1 - PLAN #1	600.00	598.70	67.56	65.14	27.960	SF
P_BERNHARDT 21-1 - P_BERNHARDT 21-1 - PLAN #1	200.00	200.00	29.27	28.63	45.696	CC, ES
P_BERNHARDT 21-1 - P_BERNHARDT 21-1 - PLAN #1	500.00	499.45	40.78	38.83	20.894	SF
P_BERNHARDT 22-1 - P_BERNHARDT 22-1 - PLAN #1	200.00	200.00	14.84	14.20	23.160	CC, ES
P_BERNHARDT 22-1 - P_BERNHARDT 22-1 - PLAN #1	400.00	399.84	20.24	18.74	13.466	SF
P_BERNHARDT 29-1 - P_BERNHARDT 29-1 - PLAN #1	200.00	200.00	109.61	108.97	171.106	CC, ES
P_BERNHARDT 29-1 - P_BERNHARDT 29-1 - PLAN #1	900.00	893.06	174.19	170.30	44.795	SF
P_BERNHARDT 31-1 - P_BERNHARDT 31-1 - PLAN #1	200.00	200.00	62.18	61.54	97.068	CC, ES
P_BERNHARDT 31-1 - P_BERNHARDT 31-1 - PLAN #1	600.00	592.29	95.15	92.73	39.250	SF
P_BERNHARDT 4-1 - P_BERNHARDT 4- - PLAN #1 11-	200.00	200.00	76.70	76.06	119.742	CC, ES
P_BERNHARDT 4-1 - P_BERNHARDT 4- - PLAN #1 11-	800.00	795.62	124.43	121.06	36.914	SF
P_BERNHARDT STATE 37-36 - P_BERNHARDT STATI	200.00	200.00	94.88	94.24	148.115	CC, ES
P_BERNHARDT STATE 37-36 - P_BERNHARDT STATI	8,369.92	8,252.14	2,828.96	2,754.35	37.915	SF

<b>Offset Design</b> WELD_BERNHARDT 8 PAD 4N67W1 - P_BERNHARDT 18-1 - P_BERNHARDT 18-1 - PLAN #1 11-04													<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD													<b>Offset Well Error:</b>	0.00 ft
Reference Measured Depth (ft)	Vertical Depth (ft)	Offset Measured Depth (ft)	Vertical Depth (ft)	Semi Major Axis Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +E/-W (ft)	Distance Between Centres (ft)	Distance Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-3.37	47.37	-2.79	47.45					
100.00	100.00	100.00	100.00	0.10	0.10	-3.37	47.37	-2.79	47.45	47.26	0.19	248.375		
200.00	200.00	200.00	200.00	0.32	0.32	-3.37	47.37	-2.79	47.45	46.81	0.64	74.077	CC, ES	
300.00	299.98	299.98	299.98	0.53	0.55	-127.12	47.37	-2.79	48.49	47.41	1.07	45.190		
400.00	399.84	399.84	399.84	0.74	0.77	-131.68	47.37	-2.79	51.81	50.31	1.51	34.371		
500.00	499.45	499.45	499.45	0.99	0.99	-138.03	47.37	-2.79	57.98	56.02	1.96	29.611		
600.00	598.70	598.70	598.70	1.28	1.22	-144.83	47.37	-2.79	67.56	65.14	2.42	27.960	SF	
700.00	697.47	697.47	697.47	1.62	1.44	-151.08	47.37	-2.79	80.88	78.01	2.88	28.132		
800.00	795.62	795.62	795.62	2.01	1.66	-156.32	47.37	-2.79	98.07	94.73	3.33	29.430		
900.00	893.06	893.06	893.06	2.46	1.88	-160.52	47.37	-2.79	119.07	115.28	3.79	31.437		
1,000.00	989.64	988.26	988.26	2.98	2.09	-163.84	47.39	-3.04	143.98	139.75	4.23	34.005		
1,100.00	1,085.27	1,079.36	1,079.32	3.56	2.27	-166.90	47.55	-5.70	174.43	169.77	4.66	37.471		
1,200.00	1,179.82	1,167.43	1,167.22	4.20	2.46	-169.69	47.87	-11.02	210.79	205.72	5.07	41.564		
1,300.00	1,273.17	1,252.07	1,251.51	4.92	2.65	-172.10	48.33	-18.67	252.94	247.45	5.49	46.094		

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 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 8 PAD 4N67W1 - P_BERNHARDT 18-1 - P_BERNHARDT 18-1 - PLAN #1 11-04												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
1,400.00	1,365.21	1,332.92	1,331.78	5.71	2.85	-174.16	48.92	-28.29	300.67	294.76	5.90	50.921	
1,449.74	1,410.47	1,371.65	1,370.12	6.12	2.95	-175.06	49.25	-33.70	326.39	320.28	6.11	53.398	
1,500.00	1,456.03	1,409.96	1,407.98	6.56	3.05	-175.95	49.60	-39.56	353.32	346.96	6.36	55.587	
1,600.00	1,546.66	1,484.35	1,481.25	7.42	3.28	-177.48	50.38	-52.39	408.48	401.63	6.85	59.642	
1,700.00	1,637.30	1,560.53	1,555.96	8.30	3.52	-178.84	51.29	-67.28	465.52	458.16	7.36	63.266	
1,800.00	1,727.93	1,641.92	1,635.70	9.18	3.81	-179.99	52.27	-83.52	523.02	515.13	7.89	66.282	
1,900.00	1,818.57	1,723.31	1,715.45	10.06	4.10	-179.05	53.26	-99.77	580.65	572.22	8.43	68.855	
2,000.00	1,909.20	1,804.69	1,795.20	10.94	4.41	-178.28	54.24	-116.01	638.36	629.38	8.98	71.064	
2,100.00	1,999.84	1,886.08	1,874.94	11.83	4.72	-177.63	55.23	-132.25	696.14	686.60	9.54	72.971	
2,200.00	2,090.47	1,967.47	1,954.69	12.72	5.05	-177.09	56.22	-148.49	753.97	743.87	10.10	74.634	
2,300.00	2,181.11	2,048.86	2,034.43	13.61	5.37	-176.62	57.20	-164.73	811.84	801.17	10.67	76.096	
2,400.00	2,271.74	2,130.25	2,114.18	14.50	5.70	-176.21	58.19	-180.98	869.73	858.50	11.24	77.389	
2,500.00	2,362.38	2,211.64	2,193.92	15.39	6.04	-175.86	59.17	-197.22	927.66	915.85	11.81	78.540	
2,600.00	2,453.01	2,293.03	2,273.67	16.28	6.37	-175.54	60.16	-213.46	985.60	973.21	12.39	79.567	
2,700.00	2,543.65	2,374.42	2,353.41	17.18	6.72	-175.26	61.15	-229.70	1,043.56	1,030.60	12.97	80.490	
2,800.00	2,634.28	2,455.80	2,433.16	18.07	7.06	-175.01	62.13	-245.94	1,101.54	1,088.00	13.55	81.324	
2,900.00	2,724.91	2,537.19	2,512.91	18.96	7.40	-174.79	63.12	-262.19	1,159.53	1,145.40	14.13	82.081	
3,000.00	2,815.55	2,618.58	2,592.65	19.86	7.75	-174.59	64.11	-278.43	1,217.53	1,202.82	14.71	82.770	
3,100.00	2,906.18	2,699.97	2,672.40	20.75	8.10	-174.40	65.09	-294.67	1,275.54	1,260.25	15.29	83.400	
3,200.00	2,996.82	2,781.36	2,752.14	21.65	8.45	-174.23	66.08	-310.91	1,333.56	1,317.68	15.88	83.977	
3,300.00	3,087.45	2,862.75	2,831.89	22.54	8.80	-174.08	67.06	-327.15	1,391.58	1,375.12	16.47	84.509	
3,400.00	3,178.09	2,944.14	2,911.63	23.44	9.15	-173.93	68.05	-343.40	1,449.61	1,432.56	17.05	84.999	
3,500.00	3,268.72	3,025.53	2,991.38	24.33	9.50	-173.80	69.04	-359.64	1,507.65	1,490.01	17.64	85.454	
3,600.00	3,359.36	3,106.91	3,071.12	25.23	9.85	-173.68	70.02	-375.88	1,565.69	1,547.46	18.23	85.875	
3,700.00	3,449.99	3,188.30	3,150.87	26.13	10.21	-173.57	71.01	-392.12	1,623.74	1,604.91	18.82	86.267	
3,800.00	3,540.63	3,269.69	3,230.61	27.02	10.56	-173.46	71.99	-408.36	1,681.79	1,662.37	19.41	86.633	
3,900.00	3,631.26	3,351.08	3,310.36	27.92	10.92	-173.36	72.98	-424.61	1,739.84	1,719.84	20.00	86.974	
4,000.00	3,721.90	3,432.47	3,390.11	28.82	11.27	-173.27	73.97	-440.85	1,797.90	1,777.30	20.60	87.295	
4,100.00	3,812.53	3,513.86	3,469.85	29.71	11.63	-173.19	74.95	-457.09	1,855.95	1,834.77	21.19	87.595	
4,200.00	3,903.17	3,595.25	3,549.60	30.61	11.99	-173.10	75.94	-473.33	1,914.02	1,892.24	21.78	87.877	
4,300.00	3,993.80	3,676.64	3,629.34	31.51	12.34	-173.03	76.92	-489.57	1,972.08	1,949.71	22.37	88.143	
4,400.00	4,084.43	3,758.02	3,709.09	32.40	12.70	-172.96	77.91	-505.82	2,030.15	2,007.18	22.97	88.394	
4,500.00	4,175.07	3,839.41	3,788.83	33.30	13.06	-172.89	78.90	-522.06	2,088.22	2,064.65	23.56	88.631	
4,600.00	4,265.70	3,920.80	3,868.58	34.20	13.42	-172.82	79.88	-538.30	2,146.29	2,122.13	24.15	88.855	
4,700.00	4,356.34	4,002.19	3,948.32	35.09	13.78	-172.76	80.87	-554.54	2,204.36	2,179.61	24.75	89.068	
4,800.00	4,446.97	4,083.58	4,028.07	35.99	14.13	-172.71	81.85	-570.78	2,262.43	2,237.09	25.34	89.269	
4,900.00	4,537.61	4,164.97	4,107.82	36.89	14.49	-172.65	82.84	-587.03	2,320.51	2,294.57	25.94	89.461	
5,000.00	4,628.24	4,246.36	4,187.56	37.79	14.85	-172.60	83.83	-603.27	2,378.58	2,352.05	26.53	89.643	
5,100.00	4,718.88	4,327.75	4,267.31	38.68	15.21	-172.55	84.81	-619.51	2,436.66	2,409.53	27.13	89.816	
5,200.00	4,809.51	4,409.13	4,347.05	39.58	15.57	-172.50	85.80	-635.75	2,494.74	2,467.01	27.73	89.982	
5,300.00	4,900.15	4,490.52	4,426.80	40.48	15.93	-172.46	86.79	-651.99	2,552.82	2,524.50	28.32	90.139	
5,400.00	4,990.78	4,571.91	4,506.54	41.38	16.29	-172.41	87.77	-668.24	2,610.90	2,581.98	28.92	90.290	
5,500.00	5,081.42	4,653.30	4,586.29	42.27	16.65	-172.37	88.76	-684.48	2,668.98	2,639.47	29.51	90.434	
5,600.00	5,172.05	4,734.69	4,666.03	43.17	17.01	-172.33	89.74	-700.72	2,727.06	2,696.95	30.11	90.572	
5,700.00	5,262.69	4,816.08	4,745.78	44.07	17.37	-172.29	90.73	-716.96	2,785.15	2,754.44	30.71	90.704	
5,762.71	5,319.53	4,867.12	4,795.79	44.63	17.60	-172.27	91.35	-727.15	2,821.57	2,790.49	31.08	90.784	
5,800.00	5,353.42	4,897.60	4,825.66	44.93	17.73	-172.33	91.72	-733.23	2,843.03	2,811.65	31.38	90.804	
5,900.00	5,445.30	4,980.70	4,907.08	45.58	18.10	-172.46	92.72	-749.81	2,898.63	2,866.50	32.13	90.204	
6,000.00	5,538.49	5,065.65	4,990.31	46.19	18.48	-172.57	93.75	-766.77	2,951.32	2,918.47	32.85	89.834	
6,100.00	5,632.90	5,152.36	5,075.28	46.74	18.86	-172.65	94.80	-784.07	3,001.04	2,967.51	33.53	89.497	
6,200.00	5,728.40	5,240.73	5,161.86	47.23	19.25	-172.72	95.87	-801.71	3,047.73	3,013.56	34.17	89.193	
6,300.00	5,824.87	5,330.64	5,249.95	47.67	19.65	-172.76	96.96	-819.65	3,091.34	3,056.58	34.76	88.923	

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 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 8 PAD 4N67W1 - P_BERNHARDT 18-1 - P_BERNHARDT 18-1 - PLAN #1 11-04												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<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
6,400.00	5,922.20	5,421.99	5,339.46	48.06	20.06	172.79	98.07	-837.88	3,131.81	3,096.50	35.31	88.687	
6,500.00	6,020.28	6,107.45	6,020.28	48.39	21.59	172.73	102.03	-903.10	3,157.21	3,120.37	36.84	85.693	
6,600.00	6,118.97	6,206.15	6,118.97	48.67	21.72	172.81	102.03	-903.10	3,173.16	3,135.96	37.20	85.310	
6,700.00	6,218.17	6,305.34	6,218.17	48.90	21.85	172.87	102.03	-903.10	3,185.68	3,148.19	37.49	84.971	
6,800.00	6,317.74	6,404.92	6,317.74	49.07	21.99	172.91	102.03	-903.10	3,194.76	3,157.03	37.73	84.675	
6,900.00	6,417.58	6,504.75	6,417.58	49.20	22.12	172.94	102.03	-903.10	3,200.38	3,162.47	37.91	84.420	
7,000.00	6,517.55	6,604.72	6,517.55	49.28	22.26	172.95	102.03	-903.10	3,202.54	3,164.51	38.03	84.207	
7,012.45	6,530.00	6,617.17	6,530.00	49.28	22.28	-64.97	102.03	-903.10	3,202.57	3,164.53	38.04	84.180	
7,100.00	6,617.55	6,704.72	6,617.55	49.33	22.40	-64.97	102.03	-903.10	3,202.57	3,164.26	38.31	83.600	
7,200.00	6,717.55	6,804.72	6,717.55	49.39	22.54	-64.97	102.03	-903.10	3,202.57	3,163.97	38.61	82.956	
7,300.00	6,817.55	6,904.72	6,817.55	49.45	22.68	-64.97	102.03	-903.10	3,202.57	3,163.67	38.91	82.316	
7,400.00	6,917.55	7,004.72	6,917.55	49.51	22.82	-64.97	102.03	-903.10	3,202.57	3,163.36	39.21	81.680	
7,500.00	7,017.55	7,104.72	7,017.55	49.58	22.96	-64.97	102.03	-903.10	3,202.57	3,163.06	39.51	81.049	
7,600.00	7,117.55	7,204.72	7,117.55	49.64	23.11	-64.97	102.03	-903.10	3,202.57	3,162.75	39.82	80.422	
7,700.00	7,217.55	7,304.72	7,217.55	49.70	23.26	-64.97	102.03	-903.10	3,202.57	3,162.44	40.13	79.799	
7,800.00	7,317.55	7,404.72	7,317.55	49.77	23.40	-64.97	102.03	-903.10	3,202.57	3,162.13	40.45	79.182	
7,900.00	7,417.55	7,504.72	7,417.55	49.83	23.55	-64.97	102.03	-903.10	3,202.57	3,161.81	40.76	78.569	
8,000.00	7,517.55	7,604.72	7,517.55	49.90	23.70	-64.97	102.03	-903.10	3,202.57	3,161.49	41.08	77.961	
8,100.00	7,617.55	7,704.72	7,617.55	49.97	23.85	-64.97	102.03	-903.10	3,202.57	3,161.17	41.40	77.358	
8,200.00	7,717.55	7,804.72	7,717.55	50.04	24.01	-64.97	102.03	-903.10	3,202.57	3,160.85	41.72	76.761	
8,300.00	7,817.55	7,904.72	7,817.55	50.11	24.16	-64.97	102.03	-903.10	3,202.57	3,160.53	42.05	76.168	
8,339.92	7,857.47	7,944.65	7,857.47	50.13	24.22	-64.97	102.03	-903.10	3,202.57	3,160.39	42.18	75.933	
8,369.45	7,887.00	7,959.17	7,872.00	50.16	24.24	-64.97	102.03	-903.10	3,202.61	3,160.36	42.24	75.812	
8,369.92	7,887.47	7,959.17	7,872.00	50.16	24.24	-64.97	102.03	-903.10	3,202.61	3,160.36	42.24	75.810	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 8 PAD 4N67W1 - P_BERNHARDT 21-1 - P_BERNHARDT 21-1 - PLAN #1 11-04													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-5.46	29.14	-2.79	29.27					
100.00	100.00	100.00	100.00	0.10	0.10	-5.46	29.14	-2.79	29.27	29.08	0.19	153.217		
200.00	200.00	200.00	200.00	0.32	0.32	-5.46	29.14	-2.79	29.27	28.63	0.64	45.696 CC, ES		
300.00	299.98	299.98	299.98	0.53	0.55	-130.14	29.14	-2.79	30.37	29.29	1.07	28.306		
400.00	399.84	399.84	399.84	0.74	0.77	-136.85	29.14	-2.79	33.98	32.47	1.51	22.561		
500.00	499.45	499.45	499.45	0.99	0.99	-145.17	29.14	-2.79	40.78	38.83	1.95	20.894 SF		
600.00	598.70	598.70	598.70	1.28	1.22	-152.86	29.14	-2.79	51.27	48.87	2.40	21.355		
700.00	697.47	697.47	697.47	1.62	1.44	-158.99	29.14	-2.79	65.60	62.75	2.85	23.018		
800.00	795.62	795.62	795.62	2.01	1.66	-163.57	29.14	-2.79	83.72	80.42	3.30	25.377		
900.00	893.06	893.06	893.06	2.46	1.88	-166.92	29.14	-2.79	105.52	101.77	3.75	28.144		
1,000.00	989.64	990.77	990.76	2.98	2.09	-169.31	29.19	-2.50	130.72	126.52	4.20	31.127		
1,100.00	1,085.27	1,090.08	1,090.02	3.56	2.30	-170.30	29.77	0.58	157.69	153.04	4.65	33.905		
1,200.00	1,179.82	1,189.70	1,189.42	4.20	2.51	-170.30	30.97	7.07	185.92	180.80	5.12	36.294		
1,300.00	1,273.17	1,289.54	1,288.75	4.92	2.75	-169.67	32.81	16.97	215.40	209.77	5.62	38.303		
1,400.00	1,365.21	1,387.19	1,385.54	5.71	2.99	-168.74	35.17	29.64	246.35	240.19	6.16	40.019		
1,449.74	1,410.47	1,434.10	1,432.01	6.12	3.12	-168.36	36.34	35.97	262.81	256.38	6.43	40.889		
1,500.00	1,456.03	1,481.37	1,478.83	6.56	3.25	-168.10	37.53	42.34	279.86	273.12	6.74	41.551		
1,600.00	1,546.66	1,575.42	1,571.99	7.42	3.52	-167.67	39.89	55.03	313.79	306.43	7.36	42.633		
1,700.00	1,637.30	1,669.46	1,665.14	8.30	3.79	-167.32	42.25	67.72	347.73	339.74	8.00	43.476		
1,800.00	1,727.93	1,763.51	1,758.30	9.18	4.07	-167.04	44.61	80.41	381.69	373.04	8.65	44.142		
1,900.00	1,818.57	1,857.55	1,851.45	10.06	4.36	-166.80	46.97	93.10	415.65	406.34	9.30	44.676		
2,000.00	1,909.20	1,951.59	1,944.60	10.94	4.65	-166.60	49.33	105.79	449.61	439.64	9.97	45.109		
2,100.00	1,999.84	2,045.64	2,037.76	11.83	4.95	-166.43	51.69	118.48	483.58	472.94	10.64	45.465		
2,200.00	2,090.47	2,139.68	2,130.91	12.72	5.25	-166.28	54.04	131.17	517.55	506.24	11.31	45.760		
2,300.00	2,181.11	2,233.73	2,224.07	13.61	5.55	-166.15	56.40	143.86	551.53	539.54	11.99	46.007		
2,400.00	2,271.74	2,327.77	2,317.22	14.50	5.85	-166.03	58.76	156.55	585.50	572.84	12.67	46.217		
2,500.00	2,362.38	2,421.82	2,410.38	15.39	6.16	-165.93	61.12	169.24	619.48	606.13	13.35	46.395		
2,600.00	2,453.01	2,515.86	2,503.53	16.28	6.46	-165.83	63.48	181.93	653.46	639.43	14.04	46.548		
2,700.00	2,543.65	2,609.91	2,596.69	17.18	6.77	-165.75	65.84	194.62	687.45	672.72	14.73	46.680		
2,800.00	2,634.28	2,703.95	2,689.84	18.07	7.08	-165.67	68.20	207.31	721.43	706.01	15.42	46.795		
2,900.00	2,724.91	2,797.99	2,782.99	18.96	7.39	-165.60	70.56	220.00	755.41	739.31	16.11	46.895		
3,000.00	2,815.55	2,892.04	2,876.15	19.86	7.70	-165.54	72.92	232.69	789.40	772.60	16.80	46.984		
3,100.00	2,906.18	2,986.08	2,969.30	20.75	8.01	-165.48	75.28	245.38	823.39	805.89	17.50	47.062		
3,200.00	2,996.82	3,080.13	3,062.46	21.65	8.33	-165.43	77.64	258.07	857.37	839.18	18.19	47.131		
3,300.00	3,087.45	3,174.17	3,155.61	22.54	8.64	-165.38	80.00	270.76	891.36	872.47	18.89	47.193		
3,400.00	3,178.09	3,268.22	3,248.77	23.44	8.96	-165.33	82.35	283.45	925.35	905.76	19.58	47.248		
3,500.00	3,268.72	3,362.26	3,341.92	24.33	9.27	-165.29	84.71	296.14	959.34	939.05	20.28	47.298		
3,600.00	3,359.36	3,456.31	3,435.08	25.23	9.59	-165.25	87.07	308.83	993.33	972.34	20.98	47.343		
3,700.00	3,449.99	3,550.35	3,528.23	26.13	9.90	-165.21	89.43	321.51	1,027.31	1,005.63	21.68	47.384		
3,800.00	3,540.63	3,644.39	3,621.39	27.02	10.22	-165.18	91.79	334.20	1,061.30	1,038.92	22.38	47.421		
3,900.00	3,631.26	3,738.44	3,714.54	27.92	10.53	-165.15	94.15	346.89	1,095.29	1,072.21	23.08	47.454		
4,000.00	3,721.90	3,832.48	3,807.69	28.82	10.85	-165.12	96.51	359.58	1,129.28	1,105.50	23.78	47.485		
4,100.00	3,812.53	3,926.53	3,900.85	29.71	11.17	-165.09	98.87	372.27	1,163.28	1,138.79	24.48	47.513		
4,200.00	3,903.17	4,020.57	3,994.00	30.61	11.48	-165.06	101.23	384.96	1,197.27	1,172.08	25.19	47.539		
4,300.00	3,993.80	4,114.62	4,087.16	31.51	11.80	-165.04	103.59	397.65	1,231.26	1,205.37	25.89	47.562		
4,400.00	4,084.43	4,208.66	4,180.31	32.40	12.12	-165.01	105.95	410.34	1,265.25	1,238.66	26.59	47.584		
4,500.00	4,175.07	4,302.71	4,273.47	33.30	12.44	-164.99	108.31	423.03	1,299.24	1,271.95	27.29	47.604		
4,600.00	4,265.70	4,396.75	4,366.62	34.20	12.76	-164.97	110.67	435.72	1,333.23	1,305.24	28.00	47.623		
4,700.00	4,356.34	4,490.79	4,459.78	35.09	13.07	-164.95	113.02	448.41	1,367.22	1,338.52	28.70	47.640		
4,800.00	4,446.97	4,584.84	4,552.93	35.99	13.39	-164.93	115.38	461.10	1,401.21	1,371.81	29.40	47.656		
4,900.00	4,537.61	4,678.88	4,646.08	36.89	13.71	-164.91	117.74	473.79	1,435.21	1,405.10	30.11	47.671		
5,000.00	4,628.24	4,772.93	4,739.24	37.79	14.03	-164.89	120.10	486.48	1,469.20	1,438.39	30.81	47.685		

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 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 8 PAD 4N67W1 - P_BERNHARDT 21-1 - P_BERNHARDT 21-1 - PLAN #1 11-04												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<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
5,100.00	4,718.88	4,866.97	4,832.39	38.68	14.35	-164.87	122.46	499.17	1,503.19	1,471.68	31.52	47.698	
5,200.00	4,809.51	4,961.02	4,925.55	39.58	14.67	-164.86	124.82	511.86	1,537.18	1,504.96	32.22	47.710	
5,300.00	4,900.15	5,055.06	5,018.70	40.48	14.99	-164.84	127.18	524.55	1,571.18	1,538.25	32.92	47.721	
5,400.00	4,990.78	5,149.11	5,111.86	41.38	15.31	-164.83	129.54	537.24	1,605.17	1,571.54	33.63	47.732	
5,500.00	5,081.42	5,243.15	5,205.01	42.27	15.62	-164.81	131.90	549.93	1,639.16	1,604.83	34.33	47.742	
5,600.00	5,172.05	5,337.19	5,298.17	43.17	15.94	-164.80	134.26	562.62	1,673.15	1,638.11	35.04	47.751	
5,700.00	5,262.69	5,431.24	5,391.32	44.07	16.26	-164.78	136.62	575.31	1,707.15	1,671.40	35.74	47.760	
5,762.71	5,319.53	5,490.22	5,449.74	44.63	16.46	-164.78	138.10	583.26	1,728.47	1,692.28	36.19	47.765	
5,800.00	5,353.42	5,525.36	5,484.55	44.93	16.58	-164.84	138.98	588.01	1,740.92	1,704.43	36.49	47.715	
5,900.00	5,445.30	5,614.52	5,572.87	45.58	16.87	-164.98	141.20	599.99	1,772.17	1,734.95	37.22	47.615	
6,000.00	5,538.49	5,685.84	5,643.69	46.19	17.04	-165.12	142.76	608.33	1,801.13	1,763.33	37.80	47.645	
6,100.00	5,632.90	5,757.30	5,714.83	46.74	17.20	-165.27	143.99	614.94	1,828.17	1,789.85	38.31	47.717	
6,200.00	5,728.40	5,828.86	5,786.21	47.23	17.34	-165.44	144.89	619.82	1,853.27	1,814.52	38.75	47.828	
6,300.00	5,824.87	5,900.00	5,857.28	47.67	17.47	-165.63	145.47	622.92	1,876.42	1,837.31	39.11	47.979	
6,400.00	5,922.20	5,972.11	5,929.38	48.06	17.57	-165.83	145.73	624.30	1,897.62	1,858.23	39.39	48.174	
6,500.00	6,020.28	6,063.01	6,020.28	48.39	17.72	-166.05	145.74	624.37	1,916.51	1,876.88	39.64	48.351	
6,600.00	6,118.97	6,161.71	6,118.97	48.67	17.87	-166.24	145.74	624.37	1,932.13	1,892.28	39.85	48.480	
6,700.00	6,218.17	6,260.90	6,218.17	48.90	18.03	-166.38	145.74	624.37	1,944.40	1,904.37	40.03	48.575	
6,800.00	6,317.74	6,360.48	6,317.74	49.07	18.19	-166.49	145.74	624.37	1,953.29	1,913.13	40.16	48.635	
6,900.00	6,417.58	6,460.31	6,417.58	49.20	18.36	-166.55	145.74	624.37	1,958.80	1,918.55	40.25	48.663	
7,000.00	6,517.55	6,560.28	6,517.55	49.28	18.52	-166.58	145.74	624.37	1,960.92	1,920.62	40.30	48.658	
7,012.45	6,530.00	6,572.73	6,530.00	49.28	18.54	-44.49	145.74	624.37	1,960.95	1,920.64	40.30	48.654	
7,100.00	6,617.55	6,660.28	6,617.55	49.33	18.69	-44.49	145.74	624.37	1,960.95	1,920.39	40.56	48.349	
7,200.00	6,717.55	6,760.28	6,717.55	49.39	18.85	-44.49	145.74	624.37	1,960.95	1,920.10	40.85	48.005	
7,300.00	6,817.55	6,860.28	6,817.55	49.45	19.02	-44.49	145.74	624.37	1,960.95	1,919.81	41.14	47.662	
7,400.00	6,917.55	6,960.28	6,917.55	49.51	19.19	-44.49	145.74	624.37	1,960.95	1,919.51	41.44	47.321	
7,500.00	7,017.55	7,060.28	7,017.55	49.58	19.36	-44.49	145.74	624.37	1,960.95	1,919.21	41.74	46.982	
7,600.00	7,117.55	7,160.28	7,117.55	49.64	19.53	-44.49	145.74	624.37	1,960.95	1,918.91	42.04	46.645	
7,700.00	7,217.55	7,260.28	7,217.55	49.70	19.71	-44.49	145.74	624.37	1,960.95	1,918.61	42.34	46.311	
7,800.00	7,317.55	7,360.28	7,317.55	49.77	19.88	-44.49	145.74	624.37	1,960.95	1,918.30	42.65	45.978	
7,900.00	7,417.55	7,460.28	7,417.55	49.83	20.06	-44.49	145.74	624.37	1,960.95	1,917.99	42.96	45.648	
8,000.00	7,517.55	7,560.28	7,517.55	49.90	20.23	-44.49	145.74	624.37	1,960.95	1,917.68	43.27	45.319	
8,100.00	7,617.55	7,660.28	7,617.55	49.97	20.41	-44.49	145.74	624.37	1,960.95	1,917.37	43.58	44.994	
8,200.00	7,717.55	7,760.28	7,717.55	50.04	20.59	-44.49	145.74	624.37	1,960.95	1,917.05	43.90	44.670	
8,300.00	7,817.55	7,860.28	7,817.55	50.11	20.76	-44.49	145.74	624.37	1,960.95	1,916.73	44.22	44.349	
8,369.45	7,887.00	7,929.73	7,887.00	50.16	20.89	-44.49	145.74	624.37	1,960.95	1,916.51	44.44	44.128	
8,369.92	7,887.47	7,930.20	7,887.47	50.16	20.89	-44.49	145.74	624.37	1,960.95	1,916.51	44.44	44.126	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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	-10.83	14.57	-2.79	14.84				
100.00	100.00	100.00	100.00	0.10	0.10	-10.83	14.57	-2.79	14.84	14.64	0.19	77.654	
200.00	200.00	200.00	200.00	0.32	0.32	-10.83	14.57	-2.79	14.84	14.20	0.64	23.160 CC, ES	
300.00	299.98	299.98	299.98	0.53	0.55	-137.46	14.57	-2.79	16.08	15.00	1.07	14.988	
400.00	399.84	399.84	399.84	0.74	0.77	-147.48	14.57	-2.79	20.24	18.74	1.50	13.466 SF	
500.00	499.45	499.45	499.45	0.99	0.99	-157.05	14.57	-2.79	27.99	26.05	1.94	14.407	
600.00	598.70	598.70	598.70	1.28	1.22	-163.89	14.57	-2.79	39.51	37.12	2.39	16.562	
700.00	697.47	697.47	697.47	1.62	1.44	-168.37	14.57	-2.79	54.71	51.88	2.83	19.335	
800.00	795.62	795.62	795.62	2.01	1.66	-171.31	14.57	-2.79	73.51	70.24	3.28	22.434	
900.00	893.06	893.06	893.06	2.46	1.88	-173.29	14.57	-2.79	95.82	92.09	3.73	25.712	
1,000.00	989.64	990.10	990.10	2.98	2.08	-174.80	14.31	-2.89	121.49	117.32	4.17	29.144	
1,100.00	1,085.27	1,087.00	1,086.94	3.56	2.26	-176.94	11.52	-3.99	149.92	145.34	4.58	32.730	
1,200.00	1,179.82	1,182.91	1,182.65	4.20	2.44	-179.48	5.77	-6.26	181.16	176.15	5.01	36.183	
1,300.00	1,273.17	1,277.57	1,276.86	4.92	2.63	177.86	-2.83	-9.65	215.43	209.97	5.46	39.439	
1,400.00	1,365.21	1,370.74	1,369.23	5.71	2.84	175.21	-14.12	-14.09	252.90	246.93	5.96	42.425	
1,449.74	1,410.47	1,416.46	1,414.40	6.12	2.96	173.92	-20.68	-16.68	272.75	266.52	6.23	43.794	
1,500.00	1,456.03	1,462.37	1,459.64	6.56	3.09	172.69	-27.94	-19.54	293.25	286.71	6.55	44.787	
1,600.00	1,546.66	1,553.28	1,548.84	7.42	3.37	170.30	-44.31	-25.99	334.25	327.00	7.25	46.113	
1,700.00	1,637.30	1,643.48	1,636.73	8.30	3.68	167.96	-63.14	-33.41	375.63	367.59	8.04	46.714	
1,800.00	1,727.93	1,732.78	1,723.08	9.18	4.04	165.68	-84.31	-41.75	417.54	408.62	8.92	46.810	
1,900.00	1,818.57	1,821.04	1,807.68	10.06	4.45	163.46	-107.68	-50.96	460.13	450.24	9.89	46.548	
2,000.00	1,909.20	1,908.11	1,890.35	10.94	4.90	161.29	-133.10	-60.98	503.51	492.58	10.93	46.059	
2,100.00	1,999.84	1,995.61	1,972.79	11.83	5.39	159.23	-160.37	-71.73	547.71	535.65	12.06	45.415	
2,200.00	2,090.47	2,083.58	2,055.64	12.72	5.91	157.44	-187.88	-82.57	592.43	579.21	13.22	44.817	
2,300.00	2,181.11	2,171.55	2,138.50	13.61	6.44	155.90	-215.38	-93.40	637.57	623.17	14.39	44.294	
2,400.00	2,271.74	2,259.52	2,221.35	14.50	6.98	154.56	-242.89	-104.24	683.03	667.45	15.58	43.840	
2,500.00	2,362.38	2,347.49	2,304.21	15.39	7.53	153.38	-270.39	-115.08	728.76	711.99	16.77	43.447	
2,600.00	2,453.01	2,435.46	2,387.06	16.28	8.09	152.34	-297.89	-125.92	774.71	756.74	17.97	43.105	
2,700.00	2,543.65	2,523.43	2,469.92	17.18	8.65	151.41	-325.40	-136.76	820.84	801.66	19.17	42.808	
2,800.00	2,634.28	2,611.40	2,552.77	18.07	9.22	150.58	-352.90	-147.60	867.12	846.74	20.38	42.548	
2,900.00	2,724.91	2,699.37	2,635.62	18.96	9.79	149.84	-380.41	-158.43	913.54	891.95	21.59	42.321	
3,000.00	2,815.55	2,787.34	2,718.48	19.86	10.37	149.16	-407.91	-169.27	960.07	937.27	22.79	42.120	
3,100.00	2,906.18	2,875.31	2,801.33	20.75	10.94	148.55	-435.41	-180.11	1,006.69	982.69	24.00	41.943	
3,200.00	2,996.82	2,963.28	2,884.19	21.65	11.52	147.99	-462.92	-190.95	1,053.39	1,028.18	25.21	41.786	
3,300.00	3,087.45	3,051.25	2,967.04	22.54	12.10	147.48	-490.42	-201.79	1,100.17	1,073.75	26.42	41.646	
3,400.00	3,178.09	3,139.22	3,049.90	23.44	12.69	147.01	-517.93	-212.63	1,147.01	1,119.39	27.62	41.522	
3,500.00	3,268.72	3,227.19	3,132.75	24.33	13.27	146.57	-545.43	-223.47	1,193.91	1,165.08	28.83	41.411	
3,600.00	3,359.36	3,315.16	3,215.61	25.23	13.86	146.17	-572.94	-234.30	1,240.86	1,210.82	30.04	41.311	
3,700.00	3,449.99	3,403.13	3,298.46	26.13	14.44	145.80	-600.44	-245.14	1,287.85	1,256.61	31.24	41.221	
3,800.00	3,540.63	3,491.10	3,381.31	27.02	15.03	145.45	-627.94	-255.98	1,334.88	1,302.43	32.45	41.140	
3,900.00	3,631.26	3,579.07	3,464.17	27.92	15.62	145.13	-655.45	-266.82	1,381.95	1,348.30	33.65	41.067	
4,000.00	3,721.90	3,667.04	3,547.02	28.82	16.21	144.83	-682.95	-277.66	1,429.05	1,394.19	34.85	41.001	
4,100.00	3,812.53	3,755.01	3,629.88	29.71	16.80	144.54	-710.46	-288.50	1,476.18	1,440.12	36.06	40.942	
4,200.00	3,903.17	3,842.99	3,712.73	30.61	17.39	144.28	-737.96	-299.33	1,523.33	1,486.07	37.26	40.888	
4,300.00	3,993.80	3,930.96	3,795.59	31.51	17.98	144.03	-765.46	-310.17	1,570.51	1,532.05	38.46	40.838	
4,400.00	4,084.43	4,018.93	3,878.44	32.40	18.57	143.79	-792.97	-321.01	1,617.71	1,578.05	39.66	40.794	
4,500.00	4,175.07	4,106.90	3,961.29	33.30	19.16	143.57	-820.47	-331.85	1,664.93	1,624.08	40.85	40.753	
4,600.00	4,265.70	4,194.87	4,044.15	34.20	19.75	143.36	-847.98	-342.69	1,712.17	1,670.12	42.05	40.716	
4,700.00	4,356.34	4,282.84	4,127.00	35.09	20.35	143.17	-875.48	-353.53	1,759.43	1,716.18	43.25	40.683	
4,800.00	4,446.97	4,370.81	4,209.86	35.99	20.94	142.98	-902.98	-364.36	1,806.70	1,762.25	44.44	40.652	
4,900.00	4,537.61	4,458.78	4,292.71	36.89	21.53	142.80	-930.49	-375.20	1,853.98	1,808.35	45.64	40.625	
5,000.00	4,628.24	4,546.75	4,375.57	37.79	22.13	142.63	-957.99	-386.04	1,901.28	1,854.45	46.83	40.600	

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 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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	
5,100.00	4,718.88	4,634.72	4,458.42	38.68	22.72	142.47	-985.50	-396.88	1,948.59	1,900.57	48.02	40.577	
5,200.00	4,809.51	4,722.69	4,541.28	39.58	23.31	142.31	-1,013.00	-407.72	1,995.92	1,946.70	49.21	40.556	
5,300.00	4,900.15	4,810.66	4,624.13	40.48	23.91	142.17	-1,040.50	-418.56	2,043.25	1,992.84	50.40	40.537	
5,400.00	4,990.78	4,898.63	4,706.98	41.38	24.50	142.03	-1,068.01	-429.39	2,090.59	2,039.00	51.59	40.521	
5,500.00	5,081.42	4,986.60	4,789.84	42.27	25.10	141.89	-1,095.51	-440.23	2,137.94	2,085.16	52.78	40.506	
5,600.00	5,172.05	5,074.57	4,872.69	43.17	25.69	141.77	-1,123.02	-451.07	2,185.31	2,131.34	53.97	40.492	
5,700.00	5,262.69	5,162.54	4,955.55	44.07	26.29	141.64	-1,150.52	-461.91	2,232.68	2,177.52	55.16	40.480	
5,762.71	5,319.53	5,218.34	5,008.10	44.63	26.66	141.57	-1,167.96	-468.78	2,262.39	2,206.49	55.90	40.472	
5,800.00	5,353.42	5,267.21	5,054.28	44.93	26.94	141.75	-1,182.85	-474.65	2,279.76	2,223.38	56.38	40.436	
5,900.00	5,445.30	5,401.49	5,182.49	45.58	27.56	142.25	-1,219.95	-489.27	2,323.51	2,266.04	57.47	40.433	
6,000.00	5,538.49	5,540.11	5,316.65	46.19	28.09	142.74	-1,252.34	-502.03	2,362.96	2,304.55	58.42	40.451	
6,100.00	5,632.90	5,682.55	5,456.10	46.74	28.56	143.24	-1,279.30	-512.66	2,397.96	2,338.71	59.25	40.472	
6,200.00	5,728.40	5,828.20	5,599.99	47.23	28.95	143.75	-1,300.16	-520.88	2,428.37	2,368.42	59.95	40.509	
6,300.00	5,824.87	5,976.36	5,747.34	47.67	29.26	144.28	-1,314.38	-526.48	2,454.06	2,393.57	60.49	40.567	
6,400.00	5,922.20	6,126.23	5,897.00	48.06	29.48	144.84	-1,321.52	-529.30	2,474.96	2,414.08	60.89	40.649	
6,500.00	6,020.28	6,249.51	6,020.28	48.39	29.60	145.33	-1,322.37	-529.63	2,491.30	2,430.15	61.15	40.740	
6,600.00	6,118.97	6,348.21	6,118.97	48.67	29.67	145.69	-1,322.37	-529.63	2,504.61	2,443.24	61.36	40.816	
6,700.00	6,218.17	6,447.40	6,218.17	48.90	29.75	145.97	-1,322.37	-529.63	2,515.07	2,453.53	61.54	40.869	
6,800.00	6,317.74	6,546.98	6,317.74	49.07	29.84	146.17	-1,322.37	-529.63	2,522.67	2,460.99	61.68	40.899	
6,900.00	6,417.58	6,646.81	6,417.58	49.20	29.92	146.30	-1,322.37	-529.63	2,527.39	2,465.60	61.79	40.903	
7,000.00	6,517.55	6,746.78	6,517.55	49.28	30.01	146.34	-1,322.37	-529.63	2,529.20	2,467.33	61.87	40.880	
7,012.45	6,530.00	6,759.23	6,530.00	49.28	30.02	-91.57	-1,322.37	-529.63	2,529.22	2,467.35	61.88	40.875	
7,100.00	6,617.55	6,846.78	6,617.55	49.33	30.09	-91.57	-1,322.37	-529.63	2,529.22	2,467.19	62.03	40.774	
7,200.00	6,717.55	6,946.78	6,717.55	49.39	30.18	-91.57	-1,322.37	-529.63	2,529.22	2,467.02	62.20	40.662	
7,300.00	6,817.55	7,046.78	6,817.55	49.45	30.27	-91.57	-1,322.37	-529.63	2,529.22	2,466.85	62.38	40.548	
7,400.00	6,917.55	7,146.78	6,917.55	49.51	30.36	-91.57	-1,322.37	-529.63	2,529.22	2,466.67	62.55	40.433	
7,500.00	7,017.55	7,246.78	7,017.55	49.58	30.45	-91.57	-1,322.37	-529.63	2,529.22	2,466.49	62.73	40.317	
7,600.00	7,117.55	7,346.78	7,117.55	49.64	30.55	-91.57	-1,322.37	-529.63	2,529.22	2,466.31	62.92	40.200	
7,700.00	7,217.55	7,446.78	7,217.55	49.70	30.64	-91.57	-1,322.37	-529.63	2,529.22	2,466.12	63.10	40.082	
7,800.00	7,317.55	7,546.78	7,317.55	49.77	30.74	-91.57	-1,322.37	-529.63	2,529.22	2,465.93	63.29	39.963	
7,900.00	7,417.55	7,646.78	7,417.55	49.83	30.84	-91.57	-1,322.37	-529.63	2,529.22	2,465.74	63.48	39.843	
8,000.00	7,517.55	7,746.78	7,517.55	49.90	30.94	-91.57	-1,322.37	-529.63	2,529.22	2,465.55	63.67	39.723	
8,100.00	7,617.55	7,846.78	7,617.55	49.97	31.04	-91.57	-1,322.37	-529.63	2,529.22	2,465.35	63.87	39.601	
8,200.00	7,717.55	7,946.78	7,717.55	50.04	31.14	-91.57	-1,322.37	-529.63	2,529.22	2,465.16	64.07	39.478	
8,300.00	7,817.55	8,046.78	7,817.55	50.11	31.24	-91.57	-1,322.37	-529.63	2,529.22	2,464.96	64.27	39.355	
8,369.45	7,887.00	8,116.23	7,887.00	50.16	31.31	-91.57	-1,322.37	-529.63	2,529.22	2,464.81	64.41	39.268	
8,369.92	7,887.47	8,116.70	7,887.47	50.16	31.31	-91.57	-1,322.37	-529.63	2,529.22	2,464.81	64.41	39.268	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 8 PAD 4N67W1 - P_BERNHARDT 29-1 - P_BERNHARDT 29-1 - PLAN #1 11-04												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	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	-4.38	109.29	-8.36	109.61				
100.00	100.00	100.00	100.00	0.10	0.10	-4.38	109.29	-8.36	109.61	109.42	0.19	573.707	
200.00	200.00	200.00	200.00	0.32	0.32	-4.38	109.29	-8.36	109.61	108.97	0.64	171.106 CC, ES	
300.00	299.98	299.98	299.98	0.53	0.55	-127.17	109.29	-8.36	110.65	109.58	1.07	103.132	
400.00	399.84	399.84	399.84	0.74	0.77	-129.22	109.29	-8.36	113.89	112.38	1.51	75.520	
500.00	499.45	499.45	499.45	0.99	0.99	-132.36	109.29	-8.36	119.60	117.64	1.96	60.920	
600.00	598.70	598.70	598.70	1.28	1.22	-136.26	109.29	-8.36	128.15	125.72	2.43	52.648	
700.00	697.47	697.47	697.47	1.62	1.44	-140.52	109.29	-8.36	139.92	137.01	2.92	47.988	
800.00	795.62	795.62	795.62	2.01	1.66	-144.80	109.29	-8.36	155.20	151.80	3.40	45.620	
900.00	893.06	893.06	893.06	2.46	1.88	-148.84	109.29	-8.36	174.19	170.30	3.89	44.795 SF	
1,000.00	989.64	987.09	987.09	2.98	2.09	-152.39	109.50	-8.48	197.20	192.83	4.37	45.157	
1,100.00	1,085.27	1,075.46	1,075.46	3.56	2.29	-155.29	111.71	-9.65	226.41	221.58	4.83	46.847	
1,200.00	1,179.82	1,160.97	1,160.97	4.20	2.48	-157.61	116.14	-12.01	262.07	256.77	5.30	49.484	
1,300.00	1,273.17	1,243.25	1,242.73	4.92	2.67	-159.41	122.52	-15.42	303.80	298.04	5.76	52.756	
1,400.00	1,365.21	1,321.96	1,320.91	5.71	2.86	-160.75	130.57	-19.70	351.24	345.01	6.22	56.445	
1,449.74	1,410.47	1,359.70	1,358.30	6.12	2.96	-161.28	135.10	-22.12	376.84	370.39	6.46	58.380	
1,500.00	1,456.03	1,400.00	1,398.15	6.56	3.07	-161.97	140.41	-24.95	403.67	396.96	6.72	60.111	
1,600.00	1,546.66	1,469.69	1,466.85	7.42	3.27	-162.92	150.77	-30.47	458.69	451.46	7.23	63.467	
1,700.00	1,637.30	1,540.06	1,535.90	8.30	3.49	-163.63	162.72	-36.85	515.79	508.05	7.75	66.593	
1,800.00	1,727.93	1,608.18	1,602.41	9.18	3.72	-164.15	175.72	-43.77	574.84	566.58	8.27	69.549	
1,900.00	1,818.57	1,674.10	1,666.41	10.06	3.97	-164.52	189.61	-51.18	635.71	626.92	8.79	72.324	
2,000.00	1,909.20	1,737.85	1,727.95	10.94	4.24	-164.78	204.29	-59.00	698.30	688.99	9.32	74.954	
2,100.00	1,999.84	1,800.00	1,787.58	11.83	4.51	-164.96	219.75	-67.24	762.52	752.68	9.84	77.464	
2,200.00	2,090.47	1,859.01	1,843.84	12.72	4.80	-165.07	235.49	-75.63	828.27	817.90	10.37	79.846	
2,300.00	2,181.11	1,928.39	1,909.63	13.61	5.16	-165.16	254.91	-85.98	895.15	884.22	10.93	81.902	
2,400.00	2,271.74	2,002.68	1,980.06	14.50	5.56	-165.24	275.75	-97.09	962.09	950.59	11.50	83.677	
2,500.00	2,362.38	2,076.96	2,050.49	15.39	5.98	-165.31	296.58	-108.20	1,029.03	1,016.96	12.07	85.235	
2,600.00	2,453.01	2,151.24	2,120.92	16.28	6.40	-165.38	317.42	-119.31	1,095.97	1,083.32	12.65	86.633	
2,700.00	2,543.65	2,225.53	2,191.35	17.18	6.83	-165.43	338.26	-130.41	1,162.91	1,149.68	13.23	87.891	
2,800.00	2,634.28	2,299.81	2,261.78	18.07	7.26	-165.48	359.10	-141.52	1,229.86	1,216.04	13.81	89.027	
2,900.00	2,724.91	2,374.09	2,332.21	18.96	7.71	-165.52	379.94	-152.63	1,296.80	1,282.40	14.40	90.044	
3,000.00	2,815.55	2,448.38	2,402.64	19.86	8.15	-165.56	400.78	-163.74	1,363.74	1,348.75	14.99	90.971	
3,100.00	2,906.18	2,522.66	2,473.07	20.75	8.60	-165.60	421.62	-174.84	1,430.69	1,415.11	15.58	91.819	
3,200.00	2,996.82	2,596.94	2,543.50	21.65	9.05	-165.63	442.46	-185.95	1,497.63	1,481.46	16.17	92.594	
3,300.00	3,087.45	2,671.23	2,613.93	22.54	9.51	-165.66	463.29	-197.06	1,564.58	1,547.81	16.77	93.300	
3,400.00	3,178.09	2,745.51	2,684.36	23.44	9.97	-165.69	484.13	-208.17	1,631.52	1,614.16	17.37	93.952	
3,500.00	3,268.72	2,819.79	2,754.79	24.33	10.43	-165.71	504.97	-219.28	1,698.47	1,680.51	17.96	94.555	
3,600.00	3,359.36	2,894.08	2,825.22	25.23	10.89	-165.74	525.81	-230.38	1,765.41	1,746.85	18.56	95.112	
3,700.00	3,449.99	2,968.36	2,895.65	26.13	11.35	-165.76	546.65	-241.49	1,832.36	1,813.20	19.16	95.627	
3,800.00	3,540.63	3,042.64	2,966.08	27.02	11.81	-165.78	567.49	-252.60	1,899.31	1,879.54	19.76	96.106	
3,900.00	3,631.26	3,116.93	3,036.51	27.92	12.28	-165.80	588.33	-263.71	1,966.25	1,945.89	20.36	96.553	
4,000.00	3,721.90	3,191.21	3,106.94	28.82	12.74	-165.81	609.17	-274.81	2,033.20	2,012.23	20.97	96.971	
4,100.00	3,812.53	3,265.49	3,177.37	29.71	13.21	-165.83	630.01	-285.92	2,100.14	2,078.57	21.57	97.360	
4,200.00	3,903.17	3,339.78	3,247.80	30.61	13.68	-165.85	650.84	-297.03	2,167.09	2,144.91	22.18	97.725	
4,300.00	3,993.80	3,414.06	3,318.23	31.51	14.15	-165.86	671.68	-308.14	2,234.04	2,211.26	22.78	98.069	
4,400.00	4,084.43	3,488.34	3,388.66	32.40	14.62	-165.87	692.52	-319.25	2,300.98	2,277.60	23.39	98.392	
4,500.00	4,175.07	3,562.63	3,459.09	33.30	15.09	-165.89	713.36	-330.35	2,367.93	2,343.94	23.99	98.695	
4,600.00	4,265.70	3,636.91	3,529.52	34.20	15.56	-165.90	734.20	-341.46	2,434.88	2,410.28	24.60	98.982	
4,700.00	4,356.34	3,711.19	3,599.95	35.09	16.03	-165.91	755.04	-352.57	2,501.82	2,476.62	25.21	99.254	
4,800.00	4,446.97	3,785.48	3,670.38	35.99	16.50	-165.92	775.88	-363.68	2,568.77	2,542.95	25.81	99.510	
4,900.00	4,537.61	3,859.76	3,740.81	36.89	16.97	-165.93	796.72	-374.79	2,635.72	2,609.29	26.42	99.753	
5,000.00	4,628.24	3,934.04	3,811.24	37.79	17.44	-165.94	817.55	-385.89	2,702.66	2,675.63	27.03	99.983	

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 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 8 PAD 4N67W1 - P_BERNHARDT 29-1 - P_BERNHARDT 29-1 - PLAN #1 11-04												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<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
5,100.00	4,718.88	4,008.33	3,881.67	38.68	17.92	-165.95	838.39	-397.00	2,769.61	2,741.97	27.64	100.202	
5,200.00	4,809.51	4,082.61	3,952.10	39.58	18.39	-165.96	859.23	-408.11	2,836.56	2,808.31	28.25	100.411	
5,300.00	4,900.15	4,156.90	4,022.53	40.48	18.86	-165.97	880.07	-419.22	2,903.50	2,874.64	28.86	100.609	
5,400.00	4,990.78	4,231.18	4,092.96	41.38	19.34	-165.98	900.91	-430.32	2,970.45	2,940.98	29.47	100.798	
5,500.00	5,081.42	4,305.46	4,163.39	42.27	19.81	-165.98	921.75	-441.43	3,037.40	3,007.32	30.08	100.978	
5,600.00	5,172.05	4,379.75	4,233.82	43.17	20.29	-165.99	942.59	-452.54	3,104.34	3,073.65	30.69	101.150	
5,700.00	5,262.69	4,454.03	4,304.25	44.07	20.76	-166.00	963.43	-463.65	3,171.29	3,139.99	31.30	101.315	
5,762.71	5,319.53	4,500.62	4,348.42	44.63	21.06	-166.00	976.49	-470.61	3,213.28	3,181.59	31.68	101.415	
5,800.00	5,353.42	4,528.47	4,374.83	44.93	21.24	-166.16	984.31	-474.78	3,238.06	3,206.08	31.98	101.255	
5,900.00	5,445.30	4,604.70	4,447.11	45.58	21.72	-166.55	1,005.69	-486.18	3,302.78	3,270.04	32.74	100.886	
6,000.00	5,538.49	4,683.07	4,521.41	46.19	22.22	-166.89	1,027.68	-497.90	3,364.87	3,331.40	33.47	100.526	
6,100.00	5,632.90	4,763.49	4,597.66	46.74	22.74	-167.18	1,050.24	-509.92	3,424.26	3,390.08	34.18	100.182	
6,200.00	5,728.40	4,845.85	4,675.75	47.23	23.27	-167.42	1,073.34	-522.24	3,480.89	3,446.03	34.86	99.863	
6,300.00	5,824.87	4,930.07	4,755.60	47.67	23.80	-167.63	1,096.97	-534.83	3,534.67	3,499.17	35.50	99.572	
6,400.00	5,922.20	5,016.04	4,837.11	48.06	24.36	-167.80	1,121.09	-547.69	3,585.56	3,549.46	36.10	99.314	
6,500.00	6,020.28	5,103.65	4,920.17	48.39	24.92	-167.93	1,145.66	-560.79	3,633.49	3,596.82	36.67	99.092	
6,600.00	6,118.97	5,192.96	5,007.96	48.67	25.48	-167.97	1,170.71	-574.08	3,681.32	3,644.32	37.25	98.871	
6,700.00	6,218.17	5,283.15	5,097.15	48.90	26.04	-167.82	1,196.31	-587.57	3,729.69	3,692.32	37.83	98.650	
6,800.00	6,317.74	5,373.73	5,187.73	49.07	26.60	-167.88	1,222.41	-601.25	3,778.69	3,740.96	38.41	98.429	
6,900.00	6,417.58	5,464.56	5,278.56	49.20	27.16	-167.93	1,248.91	-615.12	3,828.32	3,790.96	39.00	98.208	
7,000.00	6,517.55	5,555.53	5,369.53	49.28	27.72	-167.94	1,275.91	-629.19	3,878.69	3,841.96	39.58	97.987	
7,012.45	6,530.00	5,568.98	5,382.98	49.28	29.27	-45.86	1,322.41	-655.00	3,697.96	3,657.22	40.74	90.767	
7,100.00	6,617.55	5,659.53	5,473.53	49.33	29.37	-45.86	1,322.41	-655.00	3,697.96	3,656.97	40.99	90.218	
7,200.00	6,717.55	5,750.53	5,564.53	49.39	29.47	-45.86	1,322.41	-655.00	3,697.96	3,656.69	41.27	89.599	
7,300.00	6,817.55	5,841.53	5,654.53	49.45	29.58	-45.86	1,322.41	-655.00	3,697.96	3,656.40	41.56	88.983	
7,400.00	6,917.55	5,932.53	5,749.53	49.51	29.69	-45.86	1,322.41	-655.00	3,697.96	3,656.12	41.85	88.369	
7,500.00	7,017.55	6,023.53	5,844.53	49.58	29.80	-45.86	1,322.41	-655.00	3,697.96	3,655.82	42.14	87.757	
7,600.00	7,117.55	6,114.53	5,939.53	49.64	29.91	-45.86	1,322.41	-655.00	3,697.96	3,655.53	42.43	87.149	
7,700.00	7,217.55	6,205.53	6,034.53	49.70	30.02	-45.86	1,322.41	-655.00	3,697.96	3,655.23	42.73	86.544	
7,800.00	7,317.55	6,296.53	6,129.53	49.77	30.14	-45.86	1,322.41	-655.00	3,697.96	3,654.93	43.03	85.942	
7,900.00	7,417.55	6,387.53	6,224.53	49.83	30.25	-45.86	1,322.41	-655.00	3,697.96	3,654.63	43.33	85.343	
8,000.00	7,517.55	6,478.53	6,319.53	49.90	30.37	-45.86	1,322.41	-655.00	3,697.96	3,654.33	43.63	84.748	
8,100.00	7,617.55	6,569.53	6,414.53	49.97	30.49	-45.86	1,322.41	-655.00	3,697.96	3,654.02	43.94	84.157	
8,200.00	7,717.55	6,660.53	6,509.53	50.04	30.60	-45.86	1,322.41	-655.00	3,697.96	3,653.71	44.25	83.569	
8,300.00	7,817.55	6,751.53	6,604.53	50.11	30.72	-45.86	1,322.41	-655.00	3,697.96	3,653.40	44.56	82.985	
8,369.45	7,887.00	6,821.00	6,674.00	50.16	30.81	-45.86	1,322.41	-655.00	3,697.96	3,653.18	44.78	82.582	
8,369.92	7,887.47	6,821.47	6,674.47	50.16	30.81	-45.86	1,322.41	-655.00	3,697.96	3,653.18	44.78	82.579	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 8 PAD 4N67W1 - P_BERNHARDT 31-1 - P_BERNHARDT 31-1 - PLAN #1 11-04													Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (°)	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	-5.14	61.93	-5.57	62.18					
100.00	100.00	100.00	100.00	0.10	0.10	-5.14	61.93	-5.57	62.18	61.99	0.19	325.464		
200.00	200.00	200.00	200.00	0.32	0.32	-5.14	61.93	-5.57	62.18	61.54	0.64	97.068 CC, ES		
300.00	299.98	299.71	299.69	0.53	0.53	-130.02	61.92	-7.31	63.46	62.39	1.06	59.738		
400.00	399.84	398.75	398.59	0.74	0.76	-137.62	61.88	-12.47	68.12	66.63	1.49	45.669		
500.00	499.45	496.48	495.96	0.99	1.00	-147.79	61.81	-20.90	78.12	76.17	1.95	40.022		
600.00	598.70	592.29	591.06	1.28	1.28	-157.85	61.73	-32.39	95.15	92.73	2.42	39.250 SF		
700.00	697.47	685.61	683.28	1.62	1.59	-166.18	61.62	-46.63	119.81	116.92	2.90	41.369		
800.00	795.62	775.94	772.07	2.01	1.93	-172.51	61.49	-63.27	151.86	148.49	3.37	45.111		
900.00	893.06	862.86	856.96	2.46	2.31	-177.20	61.35	-81.92	190.73	186.89	3.84	49.713		
1,000.00	989.64	946.01	937.61	2.98	2.71	179.33	61.20	-102.16	235.86	231.55	4.31	54.735		
1,100.00	1,085.27	1,025.13	1,013.77	3.56	3.13	176.70	61.04	-123.58	286.75	281.96	4.78	59.936		
1,200.00	1,179.82	1,100.00	1,085.27	4.20	3.56	174.65	60.87	-145.78	342.92	337.66	5.26	65.177		
1,300.00	1,273.17	1,170.48	1,152.03	4.92	4.02	173.01	60.70	-168.39	403.98	398.23	5.75	70.295		
1,400.00	1,365.21	1,236.51	1,214.05	5.71	4.47	171.65	60.52	-191.04	469.53	463.30	6.23	75.324		
1,449.74	1,410.47	1,267.69	1,243.14	6.12	4.69	171.05	60.44	-202.24	503.69	497.22	6.48	77.771		
1,500.00	1,456.03	1,300.00	1,273.17	6.56	4.92	170.61	60.35	-214.17	538.91	532.14	6.77	79.593		
1,600.00	1,546.66	1,364.33	1,332.65	7.42	5.42	169.83	60.16	-238.65	609.79	602.42	7.37	82.709		
1,700.00	1,637.30	1,434.49	1,397.50	8.30	5.96	169.14	59.96	-265.45	680.84	672.83	8.00	85.074		
1,800.00	1,727.93	1,504.65	1,462.34	9.18	6.51	168.59	59.76	-292.24	751.93	743.29	8.64	87.029		
1,900.00	1,818.57	1,574.81	1,527.18	10.06	7.06	168.13	59.56	-319.03	823.04	813.76	9.28	88.663		
2,000.00	1,909.20	1,644.97	1,592.03	10.94	7.61	167.74	59.35	-345.82	894.18	884.25	9.93	90.051		
2,100.00	1,999.84	1,715.13	1,656.87	11.83	8.17	167.41	59.15	-372.61	965.34	954.76	10.58	91.244		
2,200.00	2,090.47	1,785.29	1,721.71	12.72	8.73	167.13	58.95	-399.40	1,036.51	1,025.28	11.23	92.278		
2,300.00	2,181.11	1,855.45	1,786.56	13.61	9.29	166.88	58.74	-426.19	1,107.69	1,095.80	11.89	93.184		
2,400.00	2,271.74	1,925.61	1,851.40	14.50	9.84	166.66	58.54	-452.99	1,178.88	1,166.34	12.54	93.985		
2,500.00	2,362.38	1,995.77	1,916.25	15.39	10.41	166.47	58.34	-479.78	1,250.08	1,236.88	13.20	94.699		
2,600.00	2,453.01	2,065.93	1,981.09	16.28	10.97	166.29	58.13	-506.57	1,321.28	1,307.43	13.86	95.339		
2,700.00	2,543.65	2,136.09	2,045.93	17.18	11.53	166.14	57.93	-533.36	1,392.49	1,377.98	14.52	95.918		
2,800.00	2,634.28	2,206.25	2,110.78	18.07	12.09	166.00	57.73	-560.15	1,463.71	1,448.53	15.18	96.443		
2,900.00	2,724.91	2,276.41	2,175.62	18.96	12.66	165.87	57.53	-586.94	1,534.93	1,519.09	15.84	96.924		
3,000.00	2,815.55	2,346.57	2,240.46	19.86	13.22	165.75	57.32	-613.73	1,606.15	1,589.65	16.50	97.366		
3,100.00	2,906.18	2,416.73	2,305.31	20.75	13.78	165.65	57.12	-640.53	1,677.37	1,660.22	17.16	97.774		
3,200.00	2,996.82	2,486.90	2,370.15	21.65	14.35	165.55	56.92	-667.32	1,748.60	1,730.78	17.82	98.152		
3,300.00	3,087.45	2,557.06	2,434.99	22.54	14.91	165.46	56.71	-694.11	1,819.83	1,801.35	18.47	98.505		
3,400.00	3,178.09	2,627.22	2,499.84	23.44	15.48	165.38	56.51	-720.90	1,891.06	1,871.93	19.13	98.834		
3,500.00	3,268.72	2,697.38	2,564.68	24.33	16.04	165.30	56.31	-747.69	1,962.29	1,942.50	19.79	99.142		
3,600.00	3,359.36	2,767.54	2,629.52	25.23	16.61	165.23	56.10	-774.48	2,033.53	2,013.08	20.45	99.434		
3,700.00	3,449.99	2,837.70	2,694.37	26.13	17.17	165.16	55.90	-801.28	2,104.77	2,083.66	21.11	99.709		
3,800.00	3,540.63	2,907.86	2,759.21	27.02	17.74	165.10	55.70	-828.07	2,176.00	2,154.24	21.77	99.969		
3,900.00	3,631.26	2,978.02	2,824.05	27.92	18.31	165.04	55.50	-854.86	2,247.24	2,224.82	22.42	100.216		
4,000.00	3,721.90	3,048.18	2,888.90	28.82	18.87	164.99	55.29	-881.65	2,318.48	2,295.40	23.08	100.452		
4,100.00	3,812.53	3,118.34	2,953.74	29.71	19.44	164.93	55.09	-908.44	2,389.72	2,365.99	23.74	100.677		
4,200.00	3,903.17	3,188.50	3,018.59	30.61	20.00	164.89	54.89	-935.23	2,460.96	2,436.57	24.39	100.892		
4,300.00	3,993.80	3,258.66	3,083.43	31.51	20.57	164.84	54.68	-962.02	2,532.21	2,507.16	25.05	101.098		
4,400.00	4,084.43	3,328.82	3,148.27	32.40	21.14	164.80	54.48	-988.82	2,603.45	2,577.75	25.70	101.297		
4,500.00	4,175.07	3,398.98	3,213.12	33.30	21.70	164.76	54.28	-1,015.61	2,674.69	2,648.34	26.36	101.487		
4,600.00	4,265.70	3,469.14	3,277.96	34.20	22.27	164.72	54.08	-1,042.40	2,745.94	2,718.93	27.01	101.672		
4,700.00	4,356.34	3,539.30	3,342.80	35.09	22.84	164.68	53.87	-1,069.19	2,817.19	2,789.52	27.66	101.850		
4,800.00	4,446.97	3,609.46	3,407.65	35.99	23.40	164.64	53.67	-1,095.98	2,888.43	2,860.12	28.31	102.022		
4,900.00	4,537.61	3,679.63	3,472.49	36.89	23.97	164.61	53.47	-1,122.77	2,959.68	2,930.71	28.96	102.189		
5,000.00	4,628.24	3,749.79	3,537.33	37.79	24.54	164.58	53.26	-1,149.56	3,030.92	3,001.31	29.61	102.351		

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 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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
WELD_BERNHARDT 8 PAD 4N67W1 - P_BERNHARDT 31-1 - P_BERNHARDT 31-1 - PLAN #1 11-04												Offset Well Error:	0.00 ft
Survey Program: 0-MWD													
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.00	4,718.88	3,819.95	3,602.18	38.68	25.11	164.55	53.06	-1,176.36	3,102.17	3,071.91	30.26	102.509	
5,200.00	4,809.51	3,890.11	3,667.02	39.58	25.67	164.52	52.86	-1,203.15	3,173.42	3,142.51	30.91	102.662	
5,300.00	4,900.15	3,960.27	3,731.86	40.48	26.24	164.49	52.65	-1,229.94	3,244.67	3,213.11	31.56	102.812	
5,400.00	4,990.78	4,030.43	3,796.71	41.38	26.81	164.47	52.45	-1,256.73	3,315.92	3,283.71	32.21	102.958	
5,500.00	5,081.42	4,100.59	3,861.55	42.27	27.37	164.44	52.25	-1,283.52	3,387.17	3,354.31	32.85	103.100	
5,600.00	5,172.05	4,170.75	3,926.39	43.17	27.94	164.42	52.05	-1,310.31	3,458.41	3,424.92	33.50	103.240	
5,700.00	5,262.69	4,240.91	3,991.24	44.07	28.51	164.39	51.84	-1,337.11	3,529.66	3,495.52	34.14	103.376	
5,762.71	5,319.53	4,284.91	4,031.90	44.63	28.86	164.38	51.72	-1,353.91	3,574.35	3,539.80	34.55	103.460	
5,800.00	5,353.42	4,311.24	4,056.23	44.93	29.08	164.57	51.64	-1,363.96	3,600.75	3,565.88	34.86	103.278	
5,900.00	5,445.30	4,383.44	4,122.96	45.58	29.66	165.03	51.43	-1,391.53	3,669.90	3,634.24	35.66	102.901	
6,000.00	5,538.49	4,457.90	4,191.79	46.19	30.26	165.43	51.22	-1,419.97	3,736.59	3,700.15	36.44	102.553	
6,100.00	5,632.90	4,534.54	4,262.61	46.74	30.88	165.77	50.99	-1,449.23	3,800.72	3,763.51	37.20	102.159	
6,200.00	5,728.40	4,613.25	4,335.36	47.23	31.52	166.07	50.77	-1,479.29	3,862.22	3,824.21	38.01	101.609	
6,300.00	5,824.87	4,693.95	4,409.94	47.67	32.17	166.32	50.53	-1,510.10	3,921.02	3,882.24	38.78	101.110	
6,400.00	5,922.20	4,776.52	4,486.26	48.06	32.84	166.52	50.29	-1,541.63	3,977.06	3,937.55	39.51	100.664	
6,500.00	6,020.28	4,860.88	4,564.23	48.39	33.52	166.69	50.05	-1,573.85	4,030.26	3,990.07	40.19	100.273	
6,600.00	6,118.97	4,946.93	4,643.75	48.67	34.22	166.83	49.80	-1,606.70	4,080.57	4,039.74	40.83	99.938	
6,700.00	6,218.17	5,034.08	4,723.26	48.90	34.93	166.94	49.56	-1,640.15	4,130.88	4,089.99	41.47	99.599	
6,800.00	6,317.74	5,121.23	4,801.77	49.07	35.64	167.02	49.33	-1,673.19	4,181.19	4,140.30	42.10	99.262	
6,900.00	6,417.58	5,208.38	4,880.06	49.20	36.35	167.07	49.11	-1,705.81	4,231.50	4,190.61	42.72	98.925	
7,000.00	6,517.55	5,295.53	4,957.75	49.28	40.42	166.28	47.44	-1,917.71	4,126.61	4,081.02	45.60	90.503	
7,012.45	6,530.00	5,308.00	4,970.20	49.28	40.43	-71.63	47.44	-1,917.71	4,126.64	4,081.02	45.62	90.462	
7,100.00	6,617.55	5,385.55	5,047.75	49.33	40.50	-71.63	47.44	-1,917.71	4,126.64	4,080.81	45.83	90.049	
7,200.00	6,717.55	5,485.55	5,147.75	49.39	40.58	-71.63	47.44	-1,917.71	4,126.64	4,080.58	46.06	89.590	
7,300.00	6,817.55	5,585.55	5,247.75	49.45	40.66	-71.63	47.44	-1,917.71	4,126.64	4,080.34	46.30	89.129	
7,400.00	6,917.55	5,685.55	5,347.75	49.51	40.74	-71.63	47.44	-1,917.71	4,126.64	4,080.10	46.54	88.667	
7,500.00	7,017.55	5,785.55	5,447.75	49.58	40.82	-71.63	47.44	-1,917.71	4,126.64	4,079.86	46.79	88.204	
7,600.00	7,117.55	5,885.55	5,547.75	49.64	40.90	-71.63	47.44	-1,917.71	4,126.64	4,079.61	47.03	87.740	
7,700.00	7,217.55	5,985.55	5,647.75	49.70	40.98	-71.63	47.44	-1,917.71	4,126.64	4,079.36	47.28	87.276	
7,800.00	7,317.55	6,085.55	5,747.75	49.77	41.07	-71.63	47.44	-1,917.71	4,126.64	4,079.10	47.54	86.811	
7,900.00	7,417.55	6,185.55	5,847.75	49.83	41.15	-71.63	47.44	-1,917.71	4,126.64	4,078.85	47.79	86.346	
8,000.00	7,517.55	6,285.55	5,947.75	49.90	41.24	-71.63	47.44	-1,917.71	4,126.64	4,078.59	48.05	85.880	
8,100.00	7,617.55	6,385.55	6,047.75	49.97	41.33	-71.63	47.44	-1,917.71	4,126.64	4,078.33	48.31	85.415	
8,200.00	7,717.55	6,485.55	6,147.75	50.04	41.42	-71.63	47.44	-1,917.71	4,126.64	4,078.06	48.58	84.950	
8,300.00	7,817.55	6,585.55	6,247.75	50.11	41.51	-71.63	47.44	-1,917.71	4,126.64	4,077.80	48.84	84.485	
8,369.45	7,887.00	6,655.00	6,317.20	50.16	41.57	-71.63	47.44	-1,917.71	4,126.64	4,077.61	49.03	84.163	
8,369.92	7,887.47	6,655.47	6,317.67	50.16	41.57	-71.63	47.44	-1,917.71	4,126.64	4,077.61	49.03	84.161	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 8 PAD 4N67W1 - P_BERNHARDT 4-1 - P_BERNHARDT 4- - PLAN #1 11-04-09												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	-4.17	76.50	-5.57	76.70				
100.00	100.00	100.00	100.00	0.10	0.10	-4.17	76.50	-5.57	76.70	76.51	0.19	401.486	
200.00	200.00	200.00	200.00	0.32	0.32	-4.17	76.50	-5.57	76.70	76.06	0.64	119.742 CC, ES	
300.00	299.98	299.98	299.98	0.53	0.55	-127.27	76.50	-5.57	77.75	76.68	1.07	72.464	
400.00	399.84	399.84	399.84	0.74	0.77	-130.17	76.50	-5.57	81.03	79.52	1.51	53.736	
500.00	499.45	499.45	499.45	0.99	0.99	-134.47	76.50	-5.57	86.91	84.95	1.96	44.312	
600.00	598.70	598.70	598.70	1.28	1.22	-139.54	76.50	-5.57	95.87	93.44	2.43	39.497	
700.00	697.47	697.47	697.47	1.62	1.44	-144.75	76.50	-5.57	108.29	105.39	2.90	37.356	
800.00	795.62	795.62	795.62	2.01	1.66	-149.64	76.50	-5.57	124.43	121.06	3.37	36.914 SF	
900.00	893.06	893.06	893.06	2.46	1.88	-153.96	76.50	-5.57	144.38	140.54	3.84	37.596	
1,000.00	989.64	987.67	987.67	2.98	2.09	-157.59	76.61	-5.80	168.36	164.06	4.30	39.154	
1,100.00	1,085.27	1,077.24	1,077.20	3.56	2.28	-160.78	77.77	-8.10	198.36	193.62	4.74	41.872	
1,200.00	1,179.82	1,163.64	1,163.44	4.20	2.47	-163.54	80.07	-12.69	234.74	229.57	5.17	45.429	
1,300.00	1,273.17	1,246.46	1,245.94	4.92	2.66	-165.84	83.36	-19.28	277.25	271.66	5.59	49.583	
1,400.00	1,365.21	1,325.39	1,324.31	5.71	2.86	-167.72	87.50	-27.53	325.59	319.58	6.01	54.159	
1,449.74	1,410.47	1,363.11	1,361.68	6.12	2.95	-168.52	89.82	-32.16	351.69	345.47	6.22	56.546	
1,500.00	1,456.03	1,400.00	1,398.15	6.56	3.05	-169.35	92.30	-37.11	379.04	372.59	6.46	58.712	
1,600.00	1,546.66	1,472.62	1,469.73	7.42	3.27	-170.76	97.79	-48.08	435.18	428.24	6.93	62.772	
1,700.00	1,637.30	1,542.37	1,538.16	8.30	3.49	-171.89	103.83	-60.14	493.47	486.06	7.41	66.603	
1,800.00	1,727.93	1,609.68	1,603.86	9.18	3.73	-172.83	110.36	-73.19	553.78	545.89	7.88	70.240	
1,900.00	1,818.57	1,674.59	1,666.89	10.06	3.98	-173.61	117.32	-87.07	615.98	607.62	8.36	73.675	
2,000.00	1,909.20	1,737.18	1,727.31	10.94	4.25	-174.28	124.63	-101.67	679.96	671.12	8.84	76.948	
2,100.00	1,999.84	1,800.00	1,787.58	11.83	4.54	-174.88	132.56	-117.50	745.61	736.30	9.31	80.062	
2,200.00	2,090.47	1,855.63	1,840.63	12.72	4.82	-175.35	140.07	-132.51	812.84	803.06	9.78	83.080	
2,300.00	2,181.11	1,911.65	1,893.69	13.61	5.12	-175.79	148.10	-148.54	881.56	871.30	10.25	85.977	
2,400.00	2,271.74	1,966.95	1,945.73	14.50	5.44	-176.18	156.48	-165.28	951.67	940.95	10.73	88.733	
2,500.00	2,362.38	2,037.45	2,011.88	15.39	5.87	-176.63	167.40	-187.07	1,022.38	1,011.15	11.23	91.035	
2,600.00	2,453.01	2,107.95	2,078.03	16.28	6.31	-177.02	178.32	-208.87	1,093.12	1,081.39	11.74	93.138	
2,700.00	2,543.65	2,178.45	2,144.18	17.18	6.77	-177.37	189.23	-230.67	1,163.88	1,151.63	12.25	95.026	
2,800.00	2,634.28	2,248.95	2,210.33	18.07	7.22	-177.67	200.15	-252.47	1,234.66	1,221.90	12.76	96.745	
2,900.00	2,724.91	2,319.45	2,276.48	18.96	7.69	-177.94	211.07	-274.26	1,305.46	1,292.18	13.28	98.320	
3,000.00	2,815.55	2,389.95	2,342.63	19.86	8.16	-178.18	221.98	-296.06	1,376.26	1,362.47	13.80	99.759	
3,100.00	2,906.18	2,460.45	2,408.78	20.75	8.63	-178.40	232.90	-317.86	1,447.08	1,432.77	14.32	101.075	
3,200.00	2,996.82	2,530.94	2,474.93	21.65	9.11	-178.60	243.82	-339.66	1,517.91	1,503.07	14.84	102.292	
3,300.00	3,087.45	2,601.44	2,541.08	22.54	9.59	-178.78	254.73	-361.45	1,588.75	1,573.39	15.36	103.418	
3,400.00	3,178.09	2,671.94	2,607.23	23.44	10.08	-178.95	265.65	-383.25	1,659.59	1,643.70	15.89	104.453	
3,500.00	3,268.72	2,742.44	2,673.38	24.33	10.57	-179.10	276.57	-405.05	1,730.44	1,714.03	16.42	105.417	
3,600.00	3,359.36	2,812.94	2,739.53	25.23	11.05	-179.24	287.48	-426.85	1,801.30	1,784.36	16.94	106.316	
3,700.00	3,449.99	2,883.44	2,805.68	26.13	11.54	-179.37	298.40	-448.65	1,872.16	1,854.69	17.47	107.152	
3,800.00	3,540.63	2,953.94	2,871.83	27.02	12.04	-179.49	309.32	-470.44	1,943.03	1,925.02	18.00	107.933	
3,900.00	3,631.26	3,024.44	2,937.98	27.92	12.53	-179.60	320.23	-492.24	2,013.90	1,995.36	18.53	108.665	
4,000.00	3,721.90	3,094.93	3,004.12	28.82	13.02	-179.71	331.15	-514.04	2,084.77	2,065.70	19.06	109.352	
4,100.00	3,812.53	3,165.43	3,070.27	29.71	13.52	-179.80	342.07	-535.84	2,155.65	2,136.05	19.60	109.995	
4,200.00	3,903.17	3,235.93	3,136.42	30.61	14.02	-179.90	352.98	-557.63	2,226.52	2,206.39	20.13	110.602	
4,300.00	3,993.80	3,306.43	3,202.57	31.51	14.51	-179.98	363.90	-579.43	2,297.41	2,276.74	20.66	111.175	
4,400.00	4,084.43	3,376.93	3,268.72	32.40	15.01	-179.94	374.82	-601.23	2,368.29	2,347.09	21.20	111.715	
4,500.00	4,175.07	3,447.43	3,334.87	33.30	15.51	-179.86	385.73	-623.03	2,439.18	2,417.44	21.73	112.225	
4,600.00	4,265.70	3,517.93	3,401.02	34.20	16.01	-179.79	396.65	-644.83	2,510.07	2,487.80	22.27	112.709	
4,700.00	4,356.34	3,588.43	3,467.17	35.09	16.51	-179.72	407.57	-666.62	2,580.96	2,558.15	22.81	113.167	
4,800.00	4,446.97	3,658.92	3,533.32	35.99	17.01	-179.66	418.48	-688.42	2,651.85	2,628.51	23.34	113.602	
4,900.00	4,537.61	3,729.42	3,599.47	36.89	17.51	-179.60	429.40	-710.22	2,722.74	2,698.86	23.88	114.015	
5,000.00	4,628.24	3,799.92	3,665.62	37.79	18.02	-179.54	440.32	-732.02	2,793.64	2,769.22	24.42	114.409	

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 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 8 PAD 4N67W1 - P_BERNHARDT 4-1 - P_BERNHARDT 4- - PLAN #1 11-04-09												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,100.00	4,718.88	3,870.42	3,731.77	38.68	18.52	179.49	451.23	-753.81	2,864.53	2,839.58	24.96	114.783	
5,200.00	4,809.51	3,940.92	3,797.92	39.58	19.02	179.43	462.15	-775.61	2,935.43	2,909.94	25.49	115.141	
5,300.00	4,900.15	4,011.42	3,864.07	40.48	19.52	179.38	473.07	-797.41	3,006.33	2,980.30	26.03	115.482	
5,400.00	4,990.78	4,081.92	3,930.22	41.38	20.03	179.34	483.98	-819.21	3,077.23	3,050.66	26.57	115.808	
5,500.00	5,081.42	4,152.42	3,996.37	42.27	20.53	179.29	494.90	-841.00	3,148.13	3,121.02	27.11	116.120	
5,600.00	5,172.05	4,222.91	4,062.52	43.17	21.03	179.25	505.82	-862.80	3,219.03	3,191.38	27.65	116.418	
5,700.00	5,262.69	4,293.41	4,128.67	44.07	21.54	179.21	516.73	-884.60	3,289.93	3,261.74	28.19	116.705	
5,762.71	5,319.53	4,337.63	4,170.15	44.63	21.85	179.18	523.58	-898.27	3,334.40	3,305.87	28.53	116.878	
5,800.00	5,353.42	4,364.08	4,194.98	44.93	22.04	179.18	527.68	-906.45	3,360.67	3,331.84	28.83	116.585	
5,900.00	5,445.30	4,436.70	4,263.12	45.58	22.56	179.17	538.92	-928.90	3,429.39	3,399.80	29.58	115.921	
6,000.00	5,538.49	4,511.68	4,333.46	46.19	23.10	179.15	550.53	-952.09	3,495.53	3,465.22	30.31	115.336	
6,100.00	5,632.90	4,588.91	4,405.93	46.74	23.65	179.14	562.49	-975.97	3,559.02	3,528.02	31.00	114.825	
6,200.00	5,728.40	4,668.31	4,480.43	47.23	24.22	179.13	574.78	-1,000.52	3,619.77	3,588.13	31.65	114.385	
6,300.00	5,824.87	4,749.78	4,556.88	47.67	24.81	179.11	587.40	-1,025.71	3,677.72	3,645.46	32.26	114.012	
6,400.00	5,922.20	4,833.22	4,635.17	48.06	25.40	179.09	600.32	-1,051.50	3,732.79	3,699.96	32.83	113.705	
6,500.00	6,020.28	4,918.53	4,715.22	48.39	26.02	179.07	613.53	-1,077.88	3,784.91	3,751.55	33.36	113.461	
6,600.00	6,118.97	5,005.60	4,796.92	48.67	26.64	179.05	627.01	-1,104.80	3,834.03	3,800.18	33.85	113.279	
6,700.00	6,218.17	5,092.70	4,878.81	48.90	27.26	178.81	639.56	-1,132.54	3,882.08	3,844.95	34.34	112.885	
6,800.00	6,317.74	5,180.26	4,960.74	49.07	27.87	178.82	649.56	-1,159.54	3,927.13	3,889.78	34.83	112.491	
6,900.00	6,417.58	5,267.82	5,042.67	49.20	28.48	178.82	659.56	-1,186.54	3,970.18	3,933.19	35.32	112.097	
7,000.00	6,517.55	5,355.39	5,124.60	49.28	29.09	178.82	669.56	-1,213.54	4,011.23	3,974.24	35.81	111.703	
7,012.45	6,530.00	5,367.84	5,137.05	49.28	31.95	-59.09	739.56	-1,329.54	3,879.10	3,841.18	37.92	102.294	
7,100.00	6,617.55	5,454.39	5,219.60	49.33	32.04	-59.09	739.56	-1,329.54	3,879.10	3,840.91	38.18	101.593	
7,200.00	6,717.55	5,554.39	5,319.60	49.39	32.14	-59.09	739.56	-1,329.54	3,879.10	3,840.62	38.48	100.811	
7,300.00	6,817.55	5,654.39	5,419.60	49.45	32.24	-59.09	739.56	-1,329.54	3,879.10	3,840.32	38.78	100.035	
7,400.00	6,917.55	5,754.39	5,519.60	49.51	32.34	-59.09	739.56	-1,329.54	3,879.10	3,840.02	39.08	99.263	
7,500.00	7,017.55	5,854.39	5,619.60	49.58	32.45	-59.09	739.56	-1,329.54	3,879.10	3,839.71	39.38	98.496	
7,600.00	7,117.55	5,954.39	5,719.60	49.64	32.55	-59.09	739.56	-1,329.54	3,879.10	3,839.41	39.69	97.734	
7,700.00	7,217.55	6,054.39	5,819.60	49.70	32.66	-59.09	739.56	-1,329.54	3,879.10	3,839.10	40.00	96.977	
7,800.00	7,317.55	6,154.39	5,919.60	49.77	32.76	-59.09	739.56	-1,329.54	3,879.10	3,838.79	40.31	96.226	
7,900.00	7,417.55	6,254.39	6,019.60	49.83	32.87	-59.09	739.56	-1,329.54	3,879.10	3,838.47	40.63	95.481	
8,000.00	7,517.55	6,354.39	6,119.60	49.90	32.98	-59.09	739.56	-1,329.54	3,879.10	3,838.15	40.94	94.742	
8,100.00	7,617.55	6,454.39	6,219.60	49.97	33.09	-59.09	739.56	-1,329.54	3,879.10	3,837.83	41.26	94.009	
8,200.00	7,717.55	6,554.39	6,319.60	50.04	33.21	-59.09	739.56	-1,329.54	3,879.10	3,837.51	41.59	93.281	
8,300.00	7,817.55	6,654.39	6,419.60	50.11	33.32	-59.09	739.56	-1,329.54	3,879.10	3,837.19	41.91	92.560	
8,369.45	7,887.00	6,723.84	6,489.05	50.16	33.40	-59.09	739.56	-1,329.54	3,879.10	3,836.96	42.14	92.063	
8,369.92	7,887.47	6,724.31	6,489.52	50.16	33.40	-59.09	739.56	-1,329.54	3,879.10	3,836.96	42.14	92.060	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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						
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	-3.37	94.72	-5.57	94.88				
100.00	100.00	100.00	100.00	0.10	0.10	-3.37	94.72	-5.57	94.88	94.69	0.19	496.621	
200.00	200.00	200.00	200.00	0.32	0.32	-3.37	94.72	-5.57	94.88	94.24	0.64	148.115 CC, ES	
300.00	299.98	297.76	297.74	0.53	0.54	-125.52	95.92	-4.42	97.05	95.98	1.07	91.078	
400.00	399.84	395.25	395.09	0.74	0.76	-125.68	99.50	-0.96	103.55	102.05	1.50	69.107	
500.00	499.45	492.19	491.68	0.99	1.00	-125.89	105.43	4.76	114.35	112.38	1.97	58.123	
600.00	598.70	588.32	587.14	1.28	1.27	-126.11	113.62	12.68	129.42	126.94	2.48	52.173	
700.00	697.47	683.40	681.11	1.62	1.58	-126.28	123.99	22.68	148.69	145.65	3.05	48.799	
800.00	795.62	777.19	773.30	2.01	1.92	-126.39	136.41	34.67	172.11	168.44	3.67	46.840	
900.00	893.06	869.47	863.40	2.46	2.31	-126.41	150.74	48.51	199.58	195.21	4.37	45.693	
1,000.00	989.64	960.05	951.16	2.98	2.74	-126.36	166.83	64.04	230.99	225.86	5.13	45.030	
1,100.00	1,085.27	1,048.74	1,036.38	3.56	3.20	-126.23	184.52	81.10	266.25	260.29	5.96	44.663	
1,200.00	1,179.82	1,135.39	1,118.86	4.20	3.70	-126.02	203.62	99.54	305.23	298.37	6.86	44.482	
1,300.00	1,273.17	1,219.88	1,198.47	4.92	4.24	-125.74	223.96	119.18	347.80	339.97	7.83	44.420	
1,400.00	1,365.21	1,302.08	1,275.10	5.71	4.79	-125.39	245.37	139.84	393.82	384.96	8.86	44.437	
1,449.74	1,410.47	1,342.09	1,312.08	6.12	5.08	-125.19	256.35	150.45	417.96	408.56	9.40	44.454	
1,500.00	1,456.03	1,385.57	1,352.14	6.56	5.41	-125.44	268.52	162.19	442.78	432.79	9.99	44.322	
1,600.00	1,546.66	1,472.46	1,432.19	7.42	6.06	-125.88	292.83	185.66	492.19	481.01	11.17	44.048	
1,700.00	1,637.30	1,559.35	1,512.24	8.30	6.71	-126.23	317.14	209.12	541.61	529.24	12.37	43.789	
1,800.00	1,727.93	1,646.24	1,592.29	9.18	7.37	-126.53	341.45	232.59	591.04	577.47	13.57	43.550	
1,900.00	1,818.57	1,733.13	1,672.34	10.06	8.03	-126.78	365.77	256.06	640.49	625.71	14.78	43.332	
2,000.00	1,909.20	1,820.02	1,752.39	10.94	8.70	-126.99	390.08	279.52	689.94	673.95	16.00	43.135	
2,100.00	1,999.84	1,906.91	1,832.44	11.83	9.36	-127.17	414.39	302.99	739.40	722.19	17.21	42.955	
2,200.00	2,090.47	1,993.80	1,912.49	12.72	10.03	-127.34	438.70	326.46	788.87	770.43	18.43	42.793	
2,300.00	2,181.11	2,080.69	1,992.54	13.61	10.70	-127.48	463.01	349.92	838.33	818.68	19.66	42.645	
2,400.00	2,271.74	2,167.58	2,072.59	14.50	11.37	-127.61	487.32	373.39	887.81	866.92	20.88	42.510	
2,500.00	2,362.38	2,254.46	2,152.64	15.39	12.04	-127.72	511.63	396.86	937.28	915.17	22.11	42.388	
2,600.00	2,453.01	2,341.35	2,232.69	16.28	12.71	-127.82	535.94	420.32	986.76	963.42	23.34	42.276	
2,700.00	2,543.65	2,428.24	2,312.74	17.18	13.38	-127.92	560.26	443.79	1,036.24	1,011.67	24.57	42.173	
2,800.00	2,634.28	2,515.13	2,392.79	18.07	14.05	-128.00	584.57	467.26	1,085.72	1,059.92	25.80	42.078	
2,900.00	2,724.91	2,602.02	2,472.84	18.96	14.73	-128.08	608.88	490.72	1,135.20	1,108.17	27.03	41.991	
3,000.00	2,815.55	2,688.91	2,552.89	19.86	15.40	-128.15	633.19	514.19	1,184.69	1,156.42	28.27	41.910	
3,100.00	2,906.18	2,775.80	2,632.94	20.75	16.07	-128.21	657.50	537.66	1,234.17	1,204.67	29.50	41.834	
3,200.00	2,996.82	2,862.69	2,712.99	21.65	16.75	-128.27	681.81	561.12	1,283.66	1,252.92	30.74	41.765	
3,300.00	3,087.45	2,949.58	2,793.04	22.54	17.42	-128.33	706.12	584.59	1,333.15	1,301.18	31.97	41.699	
3,400.00	3,178.09	3,036.47	2,873.09	23.44	18.09	-128.38	730.43	608.06	1,382.64	1,349.43	33.21	41.639	
3,500.00	3,268.72	3,123.36	2,953.14	24.33	18.77	-128.43	754.74	631.52	1,432.13	1,397.69	34.44	41.582	
3,600.00	3,359.36	3,210.25	3,033.19	25.23	19.44	-128.47	779.06	654.99	1,481.62	1,445.94	35.68	41.528	
3,700.00	3,449.99	3,297.14	3,113.24	26.13	20.12	-128.51	803.37	678.46	1,531.11	1,494.19	36.91	41.478	
3,800.00	3,540.63	3,384.03	3,193.29	27.02	20.79	-128.55	827.68	701.92	1,580.60	1,542.45	38.15	41.431	
3,900.00	3,631.26	3,470.91	3,273.34	27.92	21.47	-128.59	851.99	725.39	1,630.09	1,590.70	39.39	41.386	
4,000.00	3,721.90	3,557.80	3,353.39	28.82	22.14	-128.62	876.30	748.86	1,679.58	1,638.96	40.62	41.344	
4,100.00	3,812.53	3,644.69	3,433.44	29.71	22.82	-128.65	900.61	772.32	1,729.08	1,687.21	41.86	41.304	
4,200.00	3,903.17	3,731.58	3,513.49	30.61	23.49	-128.69	924.92	795.79	1,778.57	1,735.47	43.10	41.266	
4,300.00	3,993.80	3,818.47	3,593.54	31.51	24.17	-128.71	949.23	819.26	1,828.06	1,783.73	44.34	41.231	
4,400.00	4,084.43	3,905.36	3,673.59	32.40	24.85	-128.74	973.55	842.72	1,877.56	1,831.98	45.58	41.197	
4,500.00	4,175.07	3,992.25	3,753.64	33.30	25.52	-128.77	997.86	866.19	1,927.05	1,880.24	46.81	41.164	
4,600.00	4,265.70	4,079.14	3,833.69	34.20	26.20	-128.79	1,022.17	889.65	1,976.55	1,928.49	48.05	41.133	
4,700.00	4,356.34	4,166.03	3,913.74	35.09	26.87	-128.82	1,046.48	913.12	2,026.04	1,976.75	49.29	41.104	
4,800.00	4,446.97	4,252.92	3,993.79	35.99	27.55	-128.84	1,070.79	936.59	2,075.54	2,025.01	50.53	41.076	
4,900.00	4,537.61	4,339.81	4,073.84	36.89	28.22	-128.86	1,095.10	960.05	2,125.03	2,073.26	51.77	41.049	
5,000.00	4,628.24	4,426.70	4,153.89	37.79	28.90	-128.88	1,119.41	983.52	2,174.53	2,121.52	53.01	41.024	

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 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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	
5,100.00	4,718.88	4,513.59	4,233.94	38.68	29.58	-128.90	1,143.72	1,006.99	2,224.02	2,169.78	54.25	40.999	
5,200.00	4,809.51	4,600.48	4,313.99	39.58	30.25	-128.92	1,168.04	1,030.45	2,273.52	2,218.03	55.48	40.976	
5,300.00	4,900.15	4,687.36	4,394.04	40.48	30.93	-128.94	1,192.35	1,053.92	2,323.01	2,266.29	56.72	40.953	
5,400.00	4,990.78	4,774.25	4,474.09	41.38	31.60	-128.95	1,216.66	1,077.39	2,372.51	2,314.55	57.96	40.932	
5,500.00	5,081.42	4,861.14	4,554.14	42.27	32.28	-128.97	1,240.97	1,100.85	2,422.01	2,362.81	59.20	40.911	
5,600.00	5,172.05	4,948.03	4,634.19	43.17	32.96	-128.99	1,265.28	1,124.32	2,471.50	2,411.06	60.44	40.891	
5,700.00	5,262.69	5,034.92	4,714.24	44.07	33.63	-129.00	1,289.59	1,147.79	2,521.00	2,459.32	61.68	40.872	
5,762.71	5,319.53	5,089.41	4,764.45	44.63	34.06	-129.01	1,304.84	1,162.50	2,552.04	2,489.58	62.46	40.860	
5,800.00	5,353.42	5,121.89	4,794.36	44.93	34.31	-129.34	1,313.92	1,171.27	2,570.36	2,507.40	62.97	40.821	
5,900.00	5,445.30	5,209.70	4,875.26	45.58	34.99	-130.13	1,338.49	1,194.99	2,618.17	2,553.93	64.24	40.754	
6,000.00	5,538.49	5,394.31	5,047.52	46.19	36.11	-130.78	1,386.20	1,241.04	2,662.41	2,596.57	65.84	40.439	
6,100.00	5,632.90	5,588.26	5,232.69	46.74	37.04	-131.42	1,427.62	1,281.02	2,701.20	2,633.96	67.24	40.173	
6,200.00	5,728.40	5,789.56	5,428.54	47.23	37.82	-132.09	1,460.97	1,313.21	2,734.22	2,665.76	68.47	39.935	
6,300.00	5,824.87	5,996.63	5,632.89	47.67	38.42	-132.78	1,484.86	1,336.27	2,761.23	2,691.74	69.48	39.739	
6,400.00	5,922.20	6,207.56	5,842.95	48.06	38.81	-133.51	1,498.22	1,349.17	2,782.01	2,711.75	70.26	39.597	
6,500.00	6,020.28	6,384.95	6,020.28	48.39	38.98	-134.18	1,500.94	1,351.79	2,796.65	2,725.88	70.77	39.515	
6,600.00	6,118.97	6,483.65	6,118.97	48.67	39.05	-134.58	1,500.94	1,351.79	2,807.97	2,736.80	71.17	39.455	
6,700.00	6,218.17	6,582.84	6,218.17	48.90	39.12	-134.89	1,500.94	1,351.79	2,816.89	2,745.38	71.50	39.395	
6,800.00	6,317.74	6,682.42	6,317.74	49.07	39.20	-135.11	1,500.94	1,351.79	2,823.37	2,751.59	71.78	39.333	
6,900.00	6,417.58	6,782.25	6,417.58	49.20	39.27	-135.25	1,500.94	1,351.79	2,827.39	2,755.39	72.00	39.270	
7,000.00	6,517.55	6,882.22	6,517.55	49.28	39.35	-135.30	1,500.94	1,351.79	2,828.94	2,756.78	72.16	39.202	
7,012.45	6,530.00	6,894.67	6,530.00	49.28	39.36	-13.22	1,500.94	1,351.79	2,828.96	2,756.78	72.18	39.193	
7,100.00	6,617.55	6,982.22	6,617.55	49.33	39.42	-13.22	1,500.94	1,351.79	2,828.96	2,756.64	72.32	39.116	
7,200.00	6,717.55	7,082.22	6,717.55	49.39	39.50	-13.22	1,500.94	1,351.79	2,828.96	2,756.47	72.49	39.026	
7,300.00	6,817.55	7,182.22	6,817.55	49.45	39.58	-13.22	1,500.94	1,351.79	2,828.96	2,756.30	72.66	38.935	
7,400.00	6,917.55	7,282.22	6,917.55	49.51	39.66	-13.22	1,500.94	1,351.79	2,828.96	2,756.13	72.83	38.844	
7,500.00	7,017.55	7,382.22	7,017.55	49.58	39.74	-13.22	1,500.94	1,351.79	2,828.96	2,755.96	73.00	38.751	
7,600.00	7,117.55	7,482.22	7,117.55	49.64	39.82	-13.22	1,500.94	1,351.79	2,828.96	2,755.78	73.18	38.658	
7,700.00	7,217.55	7,582.22	7,217.55	49.70	39.91	-13.22	1,500.94	1,351.79	2,828.96	2,755.60	73.36	38.564	
7,800.00	7,317.55	7,682.22	7,317.55	49.77	39.99	-13.22	1,500.94	1,351.79	2,828.96	2,755.42	73.54	38.469	
7,900.00	7,417.55	7,782.22	7,417.55	49.83	40.08	-13.22	1,500.94	1,351.79	2,828.96	2,755.24	73.72	38.373	
8,000.00	7,517.55	7,882.22	7,517.55	49.90	40.16	-13.22	1,500.94	1,351.79	2,828.96	2,755.05	73.91	38.277	
8,100.00	7,617.55	7,982.22	7,617.55	49.97	40.25	-13.22	1,500.94	1,351.79	2,828.96	2,754.87	74.10	38.180	
8,200.00	7,717.55	8,082.22	7,717.55	50.04	40.34	-13.22	1,500.94	1,351.79	2,828.96	2,754.68	74.29	38.082	
8,300.00	7,817.55	8,182.22	7,817.55	50.11	40.43	-13.22	1,500.94	1,351.79	2,828.96	2,754.48	74.48	37.984	
8,369.45	7,887.00	8,251.67	7,887.00	50.16	40.49	-13.22	1,500.94	1,351.79	2,828.96	2,754.35	74.61	37.916	
8,369.92	7,887.47	8,252.14	7,887.47	50.16	40.49	-13.22	1,500.94	1,351.79	2,828.96	2,754.35	74.61	37.915 SF	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 @ 4840.00ft (Original Well Elev) Coordinates are relative to: P\_BERNHARDT 24-1  
Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone  
Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.43°



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_BERNHARDT 24-1
<b>Project:</b>	COLORADO NOTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Reference Site:</b>	WELD_BERNHARDT 8 PAD 4N67W1	<b>MD Reference:</b>	WELL @ 4840.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_BERNHARDT 24-1	<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 24-1	<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 @ 4840.00ft (Original Well Elev) Coordinates are relative to: P\_BERNHARDT 24-1  
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