



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_BERNHARDT STATE 3 PAD
P_ BERNHARDT STATE 18-36**

P_ BERNHARDT STATE 18-36

Plan: PLAN #1 11-04-09 RHS

Standard Planning Report

04 November, 2009





P_ BERNHARDT STATE 18-36
 COLORADO NORTHERN ZONE - 83
 SECTION 36 T5N R67W
 683 FNL 1981 FWL
 LAT: 40° 21' 41.004 N
 LONG: 104° 50' 37.896 W

T/M

Azimuths to True North
 Magnetic North: 0.00°

Magnetic Field
 Strength: 0.0snT
 Dip Angle: 0.00°
 Date: 11/4/2009
 Model: USER DEFINED

WELL DETAILS: P_ BERNHARDT STATE 18-36							
+N/-S	+E/-W	Northing	Easting	Ground Level:	4886.00	Latitude	Longitude
0.00	0.00	1375171.42	3182844.19			40° 21' 41.004 N	104° 50' 37.896 W

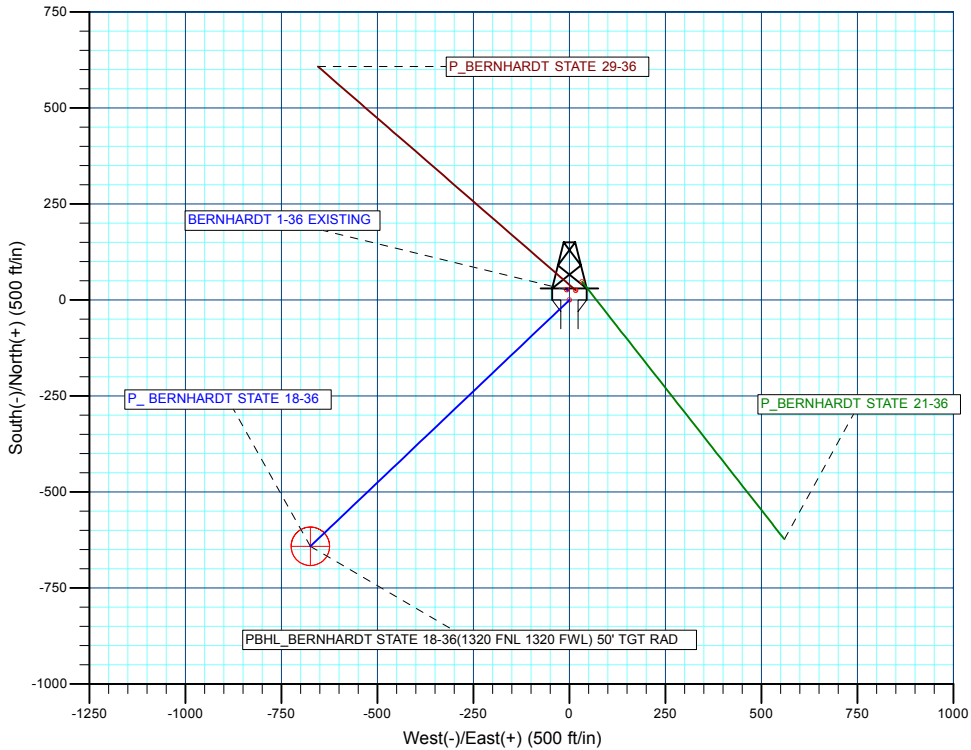
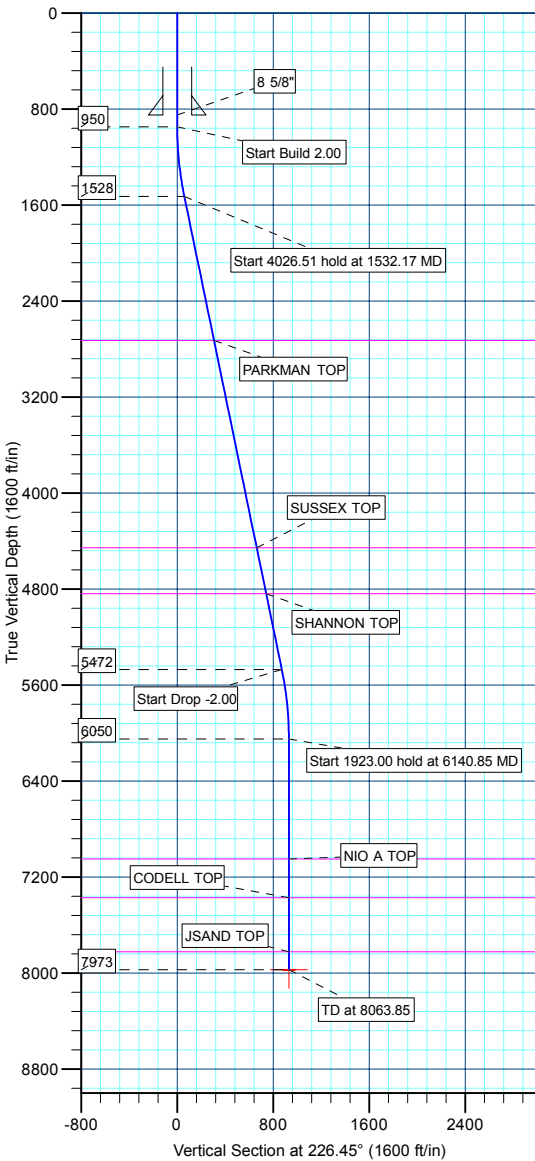
FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
2728.00	2757.21	PARKMAN TOP
4456.00	4521.51	SUSSEX TOP
4839.00	4912.56	SHANNON TOP
7050.00	7140.85	NIO A TOP
7373.00	7463.85	CODELL TOP
7823.00	7913.85	JSAND TOP

SECTION DETAILS										
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00		
1532.17	11.64	226.45	1528.17	-40.62	-42.72	2.00	226.45	58.95		
5558.68	11.64	226.45	5471.83	-600.53	-631.67	0.00	0.00	871.58		
6140.85	0.00	0.00	6050.00	-641.15	-674.40	2.00	180.00	930.53		
8063.85	0.00	0.00	7973.00	-641.15	-674.40	0.00	0.00	930.53		PBHL_BERNHARDT STATE 18-36(1320 FNL 1320 FWL)

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



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



WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)									
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape	
PBHL	7973.00	-641.15	-674.40	1374525.30	3182174.5640	21° 34.668 N	104° 50' 46.608 W	Circle (Radius: 50.00)	

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site:	WELD_BERNHARDT STATE 3 PAD	North Reference:	True
Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_ BERNHARDT STATE 18-36		
Design:	PLAN #1 11-04-09 RHS		

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

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

Well	P_ BERNHARDT STATE 18-36					
Well Position	+N/-S	0.00 ft	Northing:	1,375,171.42 ft	Latitude:	40° 21' 41.004 N
	+E/-W	0.00 ft	Easting:	3,182,844.19 ft	Longitude:	104° 50' 37.896 W
Position Uncertainty	0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,886.00 ft	

Wellbore	P_ BERNHARDT STATE 18-36				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	User Defined	11/4/2009	0.00	0.00	0

Design	PLAN #1 11-04-09 RHS			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	226.45

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,532.17	11.64	226.45	1,528.17	-40.62	-42.72	2.00	2.00	0.00	226.45	
5,558.68	11.64	226.45	5,471.83	-600.53	-631.67	0.00	0.00	0.00	0.00	
6,140.85	0.00	0.00	6,050.00	-641.15	-674.40	2.00	-2.00	0.00	180.00	
8,063.85	0.00	0.00	7,973.00	-641.15	-674.40	0.00	0.00	0.00	0.00	PBHL_BERNHARD

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site:	WELD_BERNHARDT STATE 3 PAD	North Reference:	True
Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_ BERNHARDT STATE 18-36		
Design:	PLAN #1 11-04-09 RHS		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Start Build 2.00									
950.00	0.00	0.00	950.00	0.00	0.00	0.00	0.00	0.00	0.00
1,000.00	1.00	226.45	1,000.00	-0.30	-0.32	0.44	2.00	2.00	0.00
1,100.00	3.00	226.45	1,099.93	-2.71	-2.85	3.93	2.00	2.00	0.00
1,200.00	5.00	226.45	1,199.68	-7.51	-7.90	10.90	2.00	2.00	0.00
1,300.00	7.00	226.45	1,299.13	-14.71	-15.48	21.35	2.00	2.00	0.00
1,400.00	9.00	226.45	1,398.15	-24.30	-25.56	35.27	2.00	2.00	0.00
1,500.00	11.00	226.45	1,496.63	-36.27	-38.15	52.63	2.00	2.00	0.00
Start 4026.51 hold at 1532.17 MD									
1,532.17	11.64	226.45	1,528.17	-40.62	-42.72	58.95	2.00	2.00	0.00
1,600.00	11.64	226.45	1,594.61	-50.05	-52.64	72.64	0.00	0.00	0.00
1,700.00	11.64	226.45	1,692.55	-63.96	-67.27	92.82	0.00	0.00	0.00
1,800.00	11.64	226.45	1,790.49	-77.86	-81.90	113.00	0.00	0.00	0.00
1,900.00	11.64	226.45	1,888.43	-91.77	-96.53	133.19	0.00	0.00	0.00
2,000.00	11.64	226.45	1,986.37	-105.67	-111.15	153.37	0.00	0.00	0.00
2,100.00	11.64	226.45	2,084.32	-119.58	-125.78	173.55	0.00	0.00	0.00
2,200.00	11.64	226.45	2,182.26	-133.48	-140.41	193.73	0.00	0.00	0.00
2,300.00	11.64	226.45	2,280.20	-147.39	-155.03	213.91	0.00	0.00	0.00
2,400.00	11.64	226.45	2,378.14	-161.30	-169.66	234.09	0.00	0.00	0.00
2,500.00	11.64	226.45	2,476.09	-175.20	-184.29	254.28	0.00	0.00	0.00
2,600.00	11.64	226.45	2,574.03	-189.11	-198.91	274.46	0.00	0.00	0.00
2,700.00	11.64	226.45	2,671.97	-203.01	-213.54	294.64	0.00	0.00	0.00
PARKMAN TOP									
2,757.21	11.64	226.45	2,728.00	-210.97	-221.91	306.19	0.00	0.00	0.00
2,800.00	11.64	226.45	2,769.91	-216.92	-228.17	314.82	0.00	0.00	0.00
2,900.00	11.64	226.45	2,867.86	-230.82	-242.79	335.00	0.00	0.00	0.00
3,000.00	11.64	226.45	2,965.80	-244.73	-257.42	355.19	0.00	0.00	0.00
3,100.00	11.64	226.45	3,063.74	-258.63	-272.05	375.37	0.00	0.00	0.00
3,200.00	11.64	226.45	3,161.68	-272.54	-286.67	395.55	0.00	0.00	0.00
3,300.00	11.64	226.45	3,259.62	-286.45	-301.30	415.73	0.00	0.00	0.00
3,400.00	11.64	226.45	3,357.57	-300.35	-315.93	435.91	0.00	0.00	0.00
3,500.00	11.64	226.45	3,455.51	-314.26	-330.55	456.10	0.00	0.00	0.00
3,600.00	11.64	226.45	3,553.45	-328.16	-345.18	476.28	0.00	0.00	0.00
3,700.00	11.64	226.45	3,651.39	-342.07	-359.81	496.46	0.00	0.00	0.00
3,800.00	11.64	226.45	3,749.34	-355.97	-374.43	516.64	0.00	0.00	0.00
3,900.00	11.64	226.45	3,847.28	-369.88	-389.06	536.82	0.00	0.00	0.00
4,000.00	11.64	226.45	3,945.22	-383.79	-403.69	557.01	0.00	0.00	0.00
4,100.00	11.64	226.45	4,043.16	-397.69	-418.32	577.19	0.00	0.00	0.00
4,200.00	11.64	226.45	4,141.10	-411.60	-432.94	597.37	0.00	0.00	0.00
4,300.00	11.64	226.45	4,239.05	-425.50	-447.57	617.55	0.00	0.00	0.00
4,400.00	11.64	226.45	4,336.99	-439.41	-462.20	637.73	0.00	0.00	0.00
4,500.00	11.64	226.45	4,434.93	-453.31	-476.82	657.92	0.00	0.00	0.00
SUSSEX TOP									
4,521.51	11.64	226.45	4,456.00	-456.31	-479.97	662.26	0.00	0.00	0.00
4,600.00	11.64	226.45	4,532.87	-467.22	-491.45	678.10	0.00	0.00	0.00
4,700.00	11.64	226.45	4,630.82	-481.13	-506.08	698.28	0.00	0.00	0.00
4,800.00	11.64	226.45	4,728.76	-495.03	-520.70	718.46	0.00	0.00	0.00
4,900.00	11.64	226.45	4,826.70	-508.94	-535.33	738.64	0.00	0.00	0.00
SHANNON TOP									
4,912.56	11.64	226.45	4,839.00	-510.68	-537.17	741.18	0.00	0.00	0.00
5,000.00	11.64	226.45	4,924.64	-522.84	-549.96	758.83	0.00	0.00	0.00
5,100.00	11.64	226.45	5,022.58	-536.75	-564.58	779.01	0.00	0.00	0.00
5,200.00	11.64	226.45	5,120.53	-550.65	-579.21	799.19	0.00	0.00	0.00
5,300.00	11.64	226.45	5,218.47	-564.56	-593.84	819.37	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site:	WELD_BERNHARDT STATE 3 PAD	North Reference:	True
Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_ BERNHARDT STATE 18-36		
Design:	PLAN #1 11-04-09 RHS		

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
5,400.00	11.64	226.45	5,316.41	-578.47	-608.46	839.55	0.00	0.00	0.00
5,500.00	11.64	226.45	5,414.35	-592.37	-623.09	859.74	0.00	0.00	0.00
Start Drop -2.00									
5,558.68	11.64	226.45	5,471.83	-600.53	-631.67	871.58	0.00	0.00	0.00
5,600.00	10.82	226.45	5,512.36	-606.08	-637.51	879.63	2.00	-2.00	0.00
5,700.00	8.82	226.45	5,610.89	-617.82	-649.86	896.68	2.00	-2.00	0.00
5,800.00	6.82	226.45	5,709.95	-627.19	-659.72	910.28	2.00	-2.00	0.00
5,900.00	4.82	226.45	5,809.43	-634.18	-667.06	920.41	2.00	-2.00	0.00
6,000.00	2.82	226.45	5,909.20	-638.76	-671.89	927.07	2.00	-2.00	0.00
6,100.00	0.82	226.45	6,009.15	-640.95	-674.19	930.24	2.00	-2.00	0.00
Start 1923.00 hold at 6140.85 MD									
6,140.85	0.00	0.00	6,050.00	-641.15	-674.40	930.53	2.00	-2.00	326.92
6,200.00	0.00	0.00	6,109.15	-641.15	-674.40	930.53	0.00	0.00	0.00
6,300.00	0.00	0.00	6,209.15	-641.15	-674.40	930.53	0.00	0.00	0.00
6,400.00	0.00	0.00	6,309.15	-641.15	-674.40	930.53	0.00	0.00	0.00
6,500.00	0.00	0.00	6,409.15	-641.15	-674.40	930.53	0.00	0.00	0.00
6,600.00	0.00	0.00	6,509.15	-641.15	-674.40	930.53	0.00	0.00	0.00
6,700.00	0.00	0.00	6,609.15	-641.15	-674.40	930.53	0.00	0.00	0.00
6,800.00	0.00	0.00	6,709.15	-641.15	-674.40	930.53	0.00	0.00	0.00
6,900.00	0.00	0.00	6,809.15	-641.15	-674.40	930.53	0.00	0.00	0.00
7,000.00	0.00	0.00	6,909.15	-641.15	-674.40	930.53	0.00	0.00	0.00
7,100.00	0.00	0.00	7,009.15	-641.15	-674.40	930.53	0.00	0.00	0.00
NIO A TOP									
7,140.85	0.00	0.00	7,050.00	-641.15	-674.40	930.53	0.00	0.00	0.00
7,200.00	0.00	0.00	7,109.15	-641.15	-674.40	930.53	0.00	0.00	0.00
7,300.00	0.00	0.00	7,209.15	-641.15	-674.40	930.53	0.00	0.00	0.00
7,400.00	0.00	0.00	7,309.15	-641.15	-674.40	930.53	0.00	0.00	0.00
CODELL TOP									
7,463.85	0.00	0.00	7,373.00	-641.15	-674.40	930.53	0.00	0.00	0.00
7,500.00	0.00	0.00	7,409.15	-641.15	-674.40	930.53	0.00	0.00	0.00
7,600.00	0.00	0.00	7,509.15	-641.15	-674.40	930.53	0.00	0.00	0.00
7,700.00	0.00	0.00	7,609.15	-641.15	-674.40	930.53	0.00	0.00	0.00
7,800.00	0.00	0.00	7,709.15	-641.15	-674.40	930.53	0.00	0.00	0.00
7,900.00	0.00	0.00	7,809.15	-641.15	-674.40	930.53	0.00	0.00	0.00
JSAND TOP									
7,913.85	0.00	0.00	7,823.00	-641.15	-674.40	930.53	0.00	0.00	0.00
8,000.00	0.00	0.00	7,909.15	-641.15	-674.40	930.53	0.00	0.00	0.00
PBHL_BERNHARDT STATE 18-36(1320 FNL 1320 FWL)									
8,063.85	0.00	0.00	7,973.00	-641.15	-674.40	930.53	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
PBHL_BERNHARDT - hit/miss target - Shape - Circle (radius 50.00)	0.00	0.00	7,973.00	-641.15	-674.40	1,374,525.30	3,182,174.56	40° 21' 34.668 N	104° 50' 46.608 W

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Project:	COLORADO NOTHERN ZONE - 83	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site:	WELD_BERNHARDT STATE 3 PAD	North Reference:	True
Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_ BERNHARDT STATE 18-36		
Design:	PLAN #1 11-04-09 RHS		

Casing Points

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

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,757.21	2,728.00	PARKMAN TOP			
4,521.51	4,456.00	SUSSEX TOP			
4,912.56	4,839.00	SHANNON TOP			
7,140.85	7,050.00	NIO A TOP			
7,463.85	7,373.00	CODELL TOP			
7,913.85	7,823.00	JSAND TOP			

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
950.00	950.00	0.00	0.00	Start Build 2.00
1,532.17	1,528.17	-40.62	-42.72	Start 4026.51 hold at 1532.17 MD
5,558.68	5,471.83	-600.53	-631.67	Start Drop -2.00
6,140.85	6,050.00	-641.15	-674.40	Start 1923.00 hold at 6140.85 MD
8,063.85	7,973.00	-641.15	-674.40	TD at 8063.85



US ROCKIES REGION PLANNING

**COLORADO NOTHERN ZONE - 83
WELD_BERNHARDT STATE 3 PAD
P_ BERNHARDT STATE 18-36**

**P_ BERNHARDT STATE 18-36
PLAN #1 11-04-09 RHS**

Anticollision Report

04 November, 2009



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Reference Site:	WELD_BERNHARDT STATE 3 PAD	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ BERNHARDT STATE 18-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-04-09 RHS	Offset TVD Reference:	Offset Datum

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

Survey Tool Program	Date	11/4/2009		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,063.85	PLAN #1 11-04-09 RHS (P_ BERNHARDT	MWD	MWD - Standard

Site Name	Reference Measured Depth (ft)	Offset Measured Depth (ft)	Distance		Separation Factor	Warning
			Between Centres (ft)	Between Ellipses (ft)		
Offset Well - Wellbore - Design						
WELD_BERNHARDT STATE 3 PAD						
BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXIS	950.00	950.00	27.76	-9.95	0.736	Level 1, CC
BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXIS	1,100.00	1,099.93	29.89	-14.08	0.680	Level 1, ES, SF
P_ BERNHARDT STATE 21-36 - P_ BERNHARDT STATI	950.00	950.00	57.97	53.96	14.449	CC, ES
P_ BERNHARDT STATE 21-36 - P_ BERNHARDT STATI	1,100.00	1,100.68	60.86	56.29	13.319	SF
P_ BERNHARDT STATE 29-36 - P_ BERNHARDT STATI	950.00	950.00	30.48	26.46	7.596	CC, ES
P_ BERNHARDT STATE 29-36 - P_ BERNHARDT STATI	1,000.00	999.92	30.96	26.74	7.334	SF

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN													Offset Well Error:	0.00 ft
Measured Depth (ft)	Vertical Depth (ft)	Offset		Semi Major Axis			Offset Wellbore Centre		Distance		Minimum Separation (ft)	Separation Factor	Warning	
		Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	+N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)				
0.00	0.00	0.00	0.00	0.00	0.00	-13.94	26.94	-6.69	27.76					
100.00	100.00	100.00	100.00	0.10	1.70	-13.94	26.94	-6.69	27.76	25.96	1.80	15.460		
200.00	200.00	200.00	200.00	0.32	5.70	-13.94	26.94	-6.69	27.76	21.74	6.02	4.611		
300.00	300.00	300.00	300.00	0.55	9.70	-13.94	26.94	-6.69	27.76	17.51	10.25	2.710		
400.00	400.00	400.00	400.00	0.77	13.70	-13.94	26.94	-6.69	27.76	13.29	14.47	1.918		
500.00	500.00	500.00	500.00	0.99	17.70	-13.94	26.94	-6.69	27.76	9.06	18.69	1.485	Level 3	
600.00	600.00	600.00	600.00	1.22	21.70	-13.94	26.94	-6.69	27.76	4.84	22.92	1.211	Level 2	
700.00	700.00	700.00	700.00	1.44	25.70	-13.94	26.94	-6.69	27.76	0.62	27.14	1.023	Level 2	
800.00	800.00	800.00	800.00	1.67	29.70	-13.94	26.94	-6.69	27.76	-3.61	31.37	0.885	Level 1	
900.00	900.00	900.00	900.00	1.89	33.70	-13.94	26.94	-6.69	27.76	-7.83	35.59	0.780	Level 1	
950.00	950.00	950.00	950.00	2.01	35.70	-13.94	26.94	-6.69	27.76	-9.95	37.71	0.736	Level 1, CC	
1,000.00	1,000.00	1,000.00	1,000.00	2.11	37.70	120.38	26.94	-6.69	27.98	-11.83	39.81	0.703	Level 1	
1,100.00	1,099.93	1,099.93	1,099.93	2.29	41.70	126.13	26.94	-6.69	29.89	-14.08	43.97	0.680	Level 1, ES, SF	
1,200.00	1,199.68	1,199.68	1,199.68	2.50	45.69	135.46	26.94	-6.69	34.47	-13.62	48.10	0.717	Level 1	
1,300.00	1,299.13	1,299.13	1,299.13	2.76	49.67	145.26	26.94	-6.69	42.57	-9.56	52.13	0.817	Level 1	
1,400.00	1,398.15	1,398.15	1,398.15	3.08	53.63	153.49	26.94	-6.69	54.61	-1.42	56.02	0.975	Level 1	
1,500.00	1,496.63	1,496.63	1,496.63	3.49	57.57	159.67	26.94	-6.69	70.60	10.83	59.78	1.181	Level 2	
1,532.17	1,528.17	1,528.17	1,528.17	3.64	58.83	161.27	26.94	-6.69	76.57	15.62	60.95	1.256	Level 3	
1,600.00	1,594.61	1,594.61	1,594.61	3.99	61.48	164.07	26.94	-6.69	89.66	25.99	63.68	1.408	Level 3	
1,700.00	1,692.55	1,692.55	1,692.55	4.54	65.40	166.98	26.94	-6.69	109.24	41.53	67.71	1.613		
1,800.00	1,790.49	1,790.49	1,790.49	5.11	69.32	169.00	26.94	-6.69	129.00	57.24	71.76	1.798		

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Reference Site:	WELD_BERNHARDT STATE 3 PAD	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ BERNHARDT STATE 18-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-04-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_BERNHARDT STATE 3 PAD - BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXISTING -	Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN														Offset Well Error:	0.00 ft
Reference				Offset			Semi Major Axis			Distance				Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
1,900.00	1,888.43	1,888.43	1,888.43	5.71	73.24	170.48	26.94	-6.69	148.87	73.05	75.82	1.963			
2,000.00	1,986.37	1,986.37	1,986.37	6.32	77.15	171.61	26.94	-6.69	168.82	88.93	79.89	2.113			
2,100.00	2,084.32	2,084.32	2,084.32	6.94	81.07	172.50	26.94	-6.69	188.81	104.86	83.96	2.249			
2,200.00	2,182.26	2,182.26	2,182.26	7.57	84.99	173.23	26.94	-6.69	208.85	120.81	88.03	2.372			
2,300.00	2,280.20	2,280.20	2,280.20	8.21	88.91	173.82	26.94	-6.69	228.90	136.79	92.11	2.485			
2,400.00	2,378.14	2,378.14	2,378.14	8.85	92.83	174.32	26.94	-6.69	248.98	152.79	96.19	2.588			
2,500.00	2,476.09	2,476.09	2,476.09	9.50	96.74	174.75	26.94	-6.69	269.08	168.80	100.27	2.683			
2,600.00	2,574.03	2,574.03	2,574.03	10.15	100.66	175.11	26.94	-6.69	289.18	184.82	104.36	2.771			
2,700.00	2,671.97	2,671.97	2,671.97	10.80	104.58	175.43	26.94	-6.69	309.30	200.85	108.45	2.852			
2,800.00	2,769.91	2,769.91	2,769.91	11.45	108.50	175.71	26.94	-6.69	329.42	216.89	112.54	2.927			
2,900.00	2,867.86	2,867.86	2,867.86	12.11	112.41	175.96	26.94	-6.69	349.55	232.93	116.63	2.997			
3,000.00	2,965.80	2,965.80	2,965.80	12.76	116.33	176.18	26.94	-6.69	369.69	248.97	120.72	3.062			
3,100.00	3,063.74	3,063.74	3,063.74	13.42	120.25	176.38	26.94	-6.69	389.83	265.02	124.81	3.123			
3,200.00	3,161.68	3,161.68	3,161.68	14.08	124.17	176.55	26.94	-6.69	409.98	281.08	128.90	3.181			
3,300.00	3,259.62	3,259.62	3,259.62	14.74	128.08	176.72	26.94	-6.69	430.13	297.13	133.00	3.234			
3,400.00	3,357.57	3,357.57	3,357.57	15.40	132.00	176.86	26.94	-6.69	450.28	313.19	137.09	3.285			
3,500.00	3,455.51	3,455.51	3,455.51	16.06	135.92	177.00	26.94	-6.69	470.43	329.25	141.18	3.332			
3,600.00	3,553.45	3,553.45	3,553.45	16.73	139.84	177.12	26.94	-6.69	490.59	345.31	145.28	3.377			
3,700.00	3,651.39	3,651.39	3,651.39	17.39	143.76	177.23	26.94	-6.69	510.75	361.37	149.38	3.419			
3,800.00	3,749.34	3,749.34	3,749.34	18.05	147.67	177.34	26.94	-6.69	530.91	377.43	153.47	3.459			
3,900.00	3,847.28	3,847.28	3,847.28	18.72	151.59	177.44	26.94	-6.69	551.07	393.50	157.57	3.497			
4,000.00	3,945.22	3,945.22	3,945.22	19.38	155.51	177.53	26.94	-6.69	571.23	409.57	161.67	3.533			
4,100.00	4,043.16	4,043.16	4,043.16	20.05	159.43	177.61	26.94	-6.69	591.40	425.63	165.76	3.568			
4,200.00	4,141.10	4,141.10	4,141.10	20.71	163.34	177.69	26.94	-6.69	611.56	441.70	169.86	3.600			
4,300.00	4,239.05	4,239.05	4,239.05	21.38	167.26	177.76	26.94	-6.69	631.73	457.77	173.96	3.631			
4,400.00	4,336.99	4,336.99	4,336.99	22.04	171.18	177.83	26.94	-6.69	651.90	473.84	178.06	3.661			
4,500.00	4,434.93	4,434.93	4,434.93	22.71	175.10	177.90	26.94	-6.69	672.07	489.91	182.16	3.689			
4,600.00	4,532.87	4,532.87	4,532.87	23.38	179.01	177.96	26.94	-6.69	692.24	505.98	186.26	3.717			
4,700.00	4,630.82	4,630.82	4,630.82	24.04	182.93	178.02	26.94	-6.69	712.41	522.05	190.36	3.742			
4,800.00	4,728.76	4,728.76	4,728.76	24.71	186.85	178.07	26.94	-6.69	732.58	538.12	194.46	3.767			
4,900.00	4,826.70	4,826.70	4,826.70	25.38	190.77	178.12	26.94	-6.69	752.75	554.19	198.56	3.791			
5,000.00	4,924.64	4,924.64	4,924.64	26.04	194.69	178.17	26.94	-6.69	772.92	570.26	202.66	3.814			
5,100.00	5,022.58	5,022.58	5,022.58	26.71	198.60	178.22	26.94	-6.69	793.09	586.34	206.76	3.836			
5,200.00	5,120.53	5,120.53	5,120.53	27.38	202.52	178.26	26.94	-6.69	813.26	602.41	210.86	3.857			
5,300.00	5,218.47	5,218.47	5,218.47	28.04	206.44	178.31	26.94	-6.69	833.44	618.48	214.96	3.877			
5,400.00	5,316.41	5,316.41	5,316.41	28.71	210.36	178.35	26.94	-6.69	853.61	634.55	219.06	3.897			
5,500.00	5,414.35	5,414.35	5,414.35	29.38	214.27	178.38	26.94	-6.69	873.79	650.63	223.16	3.916			
5,558.68	5,471.83	5,471.83	5,471.83	29.77	216.57	178.41	26.94	-6.69	885.62	660.06	225.56	3.926			
5,600.00	5,512.36	5,512.36	5,512.36	29.97	218.19	178.42	26.94	-6.69	893.67	665.82	227.85	3.922			
5,700.00	5,610.89	5,610.89	5,610.89	30.23	222.14	178.46	26.94	-6.69	910.71	677.45	233.26	3.904			
5,800.00	5,709.95	5,709.95	5,709.95	30.46	226.10	178.49	26.94	-6.69	924.31	685.87	238.44	3.877			
5,900.00	5,809.43	5,809.43	5,809.43	30.64	230.08	178.51	26.94	-6.69	934.44	691.07	243.36	3.840			
6,000.00	5,909.20	5,909.20	5,909.20	30.79	234.07	178.53	26.94	-6.69	941.09	693.07	248.02	3.794			
6,100.00	6,009.15	6,009.15	6,009.15	30.90	238.07	178.54	26.94	-6.69	944.26	691.87	252.39	3.741			
6,140.85	6,050.00	6,050.00	6,050.00	30.94	239.70	44.98	26.94	-6.69	944.55	690.47	254.09	3.717			
6,200.00	6,109.15	6,109.15	6,109.15	30.99	242.07	44.98	26.94	-6.69	944.55	687.99	256.56	3.682			
6,300.00	6,209.15	6,209.15	6,209.15	31.07	246.07	44.98	26.94	-6.69	944.55	683.82	260.73	3.623			
6,400.00	6,309.15	6,309.15	6,309.15	31.15	250.07	44.98	26.94	-6.69	944.55	679.65	264.91	3.566			
6,500.00	6,409.15	6,409.15	6,409.15	31.24	254.07	44.98	26.94	-6.69	944.55	675.47	269.08	3.510			
6,600.00	6,509.15	6,509.15	6,509.15	31.33	258.07	44.98	26.94	-6.69	944.55	671.29	273.26	3.457			
6,700.00	6,609.15	6,609.15	6,609.15	31.41	262.07	44.98	26.94	-6.69	944.55	667.11	277.44	3.405			
6,800.00	6,709.15	6,709.15	6,709.15	31.50	266.07	44.98	26.94	-6.69	944.55	662.93	281.62	3.354			

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Reference Site:	WELD_BERNHARDT STATE 3 PAD	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ BERNHARDT STATE 18-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-04-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_BERNHARDT STATE 3 PAD - BERNHARDT 1-36 EXISTING - BERNHARDT 1-36 EXISTING -	Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
6,900.00	6,809.15	6,809.15	6,809.15	31.59	270.07	44.98	26.94	-6.69	944.55	658.75	285.80	3.305			
7,000.00	6,909.15	6,909.15	6,909.15	31.69	274.07	44.98	26.94	-6.69	944.55	654.57	289.98	3.257			
7,100.00	7,009.15	7,009.15	7,009.15	31.78	278.07	44.98	26.94	-6.69	944.55	650.39	294.17	3.211			
7,200.00	7,109.15	7,109.15	7,109.15	31.88	282.07	44.98	26.94	-6.69	944.55	646.20	298.35	3.166			
7,300.00	7,209.15	7,209.15	7,209.15	31.97	286.07	44.98	26.94	-6.69	944.55	642.02	302.54	3.122			
7,400.00	7,309.15	7,309.15	7,309.15	32.07	290.07	44.98	26.94	-6.69	944.55	637.83	306.72	3.080			
7,500.00	7,409.15	7,409.15	7,409.15	32.17	294.07	44.98	26.94	-6.69	944.55	633.64	310.91	3.038			
7,600.00	7,509.15	7,509.15	7,509.15	32.27	298.07	44.98	26.94	-6.69	944.55	629.46	315.10	2.998			
7,700.00	7,609.15	7,522.00	7,522.00	32.37	298.58	44.98	26.94	-6.69	948.57	632.76	315.80	3.004			
7,800.00	7,709.15	7,522.00	7,522.00	32.47	298.58	44.98	26.94	-6.69	962.92	646.92	315.99	3.047			
7,900.00	7,809.15	7,522.00	7,522.00	32.58	298.58	44.98	26.94	-6.69	987.24	671.05	316.18	3.122			
8,000.00	7,909.15	7,522.00	7,522.00	32.68	298.58	44.98	26.94	-6.69	1,020.82	704.44	316.37	3.227			
8,063.85	7,973.00	7,522.00	7,522.00	32.75	298.58	44.98	26.94	-6.69	1,046.70	730.20	316.50	3.307			

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Reference Site:	WELD_BERNHARDT STATE 3 PAD	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ BERNHARDT STATE 18-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-04-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_BERNHARDT STATE 3 PAD - P_ BERNHARDT STATE 21-36 - P_ BERNHARDT STATE 21-36	Offset Site Error:	0.00 ft
Survey Program: 0-MWD														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Tooface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0.00	0.00	0.00	0.00	0.00	0.00	35.23	47.35	33.44	57.97						
100.00	100.00	100.00	100.00	0.10	0.10	35.23	47.35	33.44	57.97	57.78	0.19	303.433			
200.00	200.00	200.00	200.00	0.32	0.32	35.23	47.35	33.44	57.97	57.33	0.64	90.498			
300.00	300.00	300.00	300.00	0.55	0.55	35.23	47.35	33.44	57.97	56.88	1.09	53.179			
400.00	400.00	400.00	400.00	0.77	0.77	35.23	47.35	33.44	57.97	56.43	1.54	37.652			
500.00	500.00	500.00	500.00	0.99	0.99	35.23	47.35	33.44	57.97	55.98	1.99	29.143			
600.00	600.00	600.00	600.00	1.22	1.22	35.23	47.35	33.44	57.97	55.53	2.44	23.771			
700.00	700.00	700.00	700.00	1.44	1.44	35.23	47.35	33.44	57.97	55.08	2.89	20.071			
800.00	800.00	800.00	800.00	1.67	1.67	35.23	47.35	33.44	57.97	54.63	3.34	17.368			
900.00	900.00	900.00	900.00	1.89	1.89	35.23	47.35	33.44	57.97	54.18	3.79	15.307			
950.00	950.00	950.00	950.00	2.01	2.01	35.23	47.35	33.44	57.97	53.96	4.01	14.449	CC, ES		
1,000.00	1,000.00	1,000.28	1,000.28	2.11	2.11	169.28	47.01	33.71	58.28	54.06	4.21	13.836			
1,100.00	1,099.93	1,100.68	1,100.61	2.29	2.29	173.07	44.24	35.89	60.86	56.29	4.57	13.319	SF		
1,200.00	1,199.68	1,200.58	1,200.27	2.50	2.48	179.68	38.74	40.21	66.74	61.80	4.94	13.508			
1,300.00	1,299.13	1,299.66	1,298.79	2.76	2.69	-172.51	30.60	46.61	76.86	71.53	5.33	14.416			
1,400.00	1,398.15	1,397.61	1,395.79	3.08	2.93	-164.97	19.91	55.00	91.93	86.17	5.76	15.959			
1,500.00	1,496.63	1,494.29	1,491.03	3.49	3.21	-158.52	6.85	65.27	112.18	105.93	6.25	17.943			
1,532.17	1,528.17	1,525.41	1,521.62	3.64	3.30	-156.85	2.36	68.79	119.69	113.26	6.43	18.621			
1,600.00	1,594.61	1,590.95	1,586.04	3.99	3.51	-154.10	-7.10	76.23	136.11	129.27	6.84	19.906			
1,700.00	1,692.55	1,687.57	1,681.03	4.54	3.83	-151.07	-21.04	87.18	160.72	153.23	7.49	21.466			
1,800.00	1,790.49	1,784.20	1,776.02	5.11	4.17	-148.85	-34.99	98.14	185.64	177.46	8.18	22.697			
1,900.00	1,888.43	1,880.83	1,871.00	5.71	4.52	-147.15	-48.93	109.10	210.76	201.86	8.90	23.672			
2,000.00	1,986.37	1,977.45	1,965.99	6.32	4.88	-145.82	-62.88	120.06	236.02	226.37	9.65	24.451			
2,100.00	2,084.32	2,074.08	2,060.97	6.94	5.25	-144.74	-76.82	131.01	261.37	250.95	10.42	25.080			
2,200.00	2,182.26	2,170.71	2,155.96	7.57	5.62	-143.85	-90.77	141.97	286.80	275.59	11.21	25.594			
2,300.00	2,280.20	2,267.33	2,250.94	8.21	5.99	-143.11	-104.71	152.93	312.28	300.28	12.00	26.020			
2,400.00	2,378.14	2,363.96	2,345.93	8.85	6.38	-142.48	-118.66	163.89	337.80	324.99	12.81	26.377			
2,500.00	2,476.09	2,460.59	2,440.91	9.50	6.76	-141.94	-132.60	174.84	363.35	349.73	13.62	26.679			
2,600.00	2,574.03	2,557.21	2,535.90	10.15	7.15	-141.47	-146.54	185.80	388.94	374.50	14.44	26.937			
2,700.00	2,671.97	2,653.84	2,630.88	10.80	7.53	-141.05	-160.49	196.76	414.54	399.27	15.26	27.159			
2,800.00	2,769.91	2,750.47	2,725.87	11.45	7.93	-140.69	-174.43	207.72	440.16	424.07	16.09	27.353			
2,900.00	2,867.86	2,847.09	2,820.85	12.11	8.32	-140.36	-188.38	218.67	465.79	448.87	16.92	27.523			
3,000.00	2,965.80	2,943.72	2,915.84	12.76	8.71	-140.07	-202.32	229.63	491.44	473.68	17.76	27.674			
3,100.00	3,063.74	3,040.35	3,010.82	13.42	9.11	-139.81	-216.27	240.59	517.10	498.50	18.60	27.808			
3,200.00	3,161.68	3,136.97	3,105.81	14.08	9.50	-139.57	-230.21	251.55	542.77	523.33	19.43	27.928			
3,300.00	3,259.62	3,233.60	3,200.79	14.74	9.90	-139.36	-244.16	262.50	568.44	548.17	20.28	28.036			
3,400.00	3,357.57	3,330.23	3,295.78	15.40	10.30	-139.16	-258.10	273.46	594.12	573.01	21.12	28.134			
3,500.00	3,455.51	3,426.85	3,390.76	16.06	10.70	-138.98	-272.05	284.42	619.81	597.85	21.96	28.224			
3,600.00	3,553.45	3,523.48	3,485.75	16.73	11.10	-138.81	-285.99	295.38	645.50	622.70	22.80	28.306			
3,700.00	3,651.39	3,620.11	3,580.73	17.39	11.50	-138.66	-299.94	306.33	671.20	647.55	23.65	28.381			
3,800.00	3,749.34	3,716.73	3,675.72	18.05	11.90	-138.52	-313.88	317.29	696.90	672.41	24.50	28.451			
3,900.00	3,847.28	3,813.36	3,770.70	18.72	12.30	-138.39	-327.83	328.25	722.61	697.27	25.34	28.515			
4,000.00	3,945.22	3,909.99	3,865.69	19.38	12.70	-138.26	-341.77	339.21	748.32	722.13	26.19	28.576			
4,100.00	4,043.16	4,006.61	3,960.67	20.05	13.10	-138.15	-355.72	350.16	774.03	747.00	27.03	28.632			
4,200.00	4,141.10	4,103.24	4,055.66	20.71	13.51	-138.04	-369.66	361.12	799.75	771.87	27.88	28.684			
4,300.00	4,239.05	4,199.87	4,150.64	21.38	13.91	-137.94	-383.61	372.08	825.47	796.74	28.73	28.734			
4,400.00	4,336.99	4,296.49	4,245.63	22.04	14.31	-137.85	-397.55	383.04	851.18	821.61	29.57	28.781			
4,500.00	4,434.93	4,393.12	4,340.61	22.71	14.72	-137.76	-411.50	393.99	876.91	846.48	30.42	28.825			
4,600.00	4,532.87	4,489.75	4,435.60	23.38	15.12	-137.67	-425.44	404.95	902.63	871.36	31.27	28.867			
4,700.00	4,630.82	4,586.37	4,530.58	24.04	15.52	-137.59	-439.39	415.91	928.36	896.24	32.12	28.907			
4,800.00	4,728.76	4,683.00	4,625.57	24.71	15.93	-137.52	-453.33	426.87	954.08	921.12	32.96	28.945			
4,900.00	4,826.70	4,779.63	4,720.55	25.38	16.33	-137.45	-467.28	437.82	979.81	946.00	33.81	28.981			

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

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Reference Site:	WELD_BERNHARDT STATE 3 PAD	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ BERNHARDT STATE 18-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-04-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design												WELD_BERNHARDT STATE 3 PAD - P_ BERNHARDT STATE 21-36 - P_ BERNHARDT STATE 21-36	Offset Site Error:	0.00 ft
Survey Program: 0-MWD													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance					Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)		Separation Factor	
5,000.00	4,924.64	4,876.25	4,815.54	26.04	16.74	-137.38	-481.22	448.78	1,005.54	970.89	34.66	29.016		
5,100.00	5,022.58	4,972.88	4,910.52	26.71	17.14	-137.31	-495.17	459.74	1,031.27	995.77	35.50	29.049		
5,200.00	5,120.53	5,069.50	5,005.51	27.38	17.55	-137.25	-509.11	470.70	1,057.00	1,020.66	36.35	29.081		
5,300.00	5,218.47	5,166.13	5,100.49	28.04	17.95	-137.19	-523.06	481.65	1,082.74	1,045.55	37.19	29.112		
5,400.00	5,316.41	5,262.76	5,195.48	28.71	18.36	-137.14	-537.00	492.61	1,108.47	1,070.43	38.04	29.141		
5,500.00	5,414.35	5,359.38	5,290.46	29.38	18.76	-137.09	-550.94	503.57	1,134.21	1,095.32	38.88	29.170		
5,558.68	5,471.83	5,416.09	5,346.20	29.77	19.00	-137.06	-559.13	510.00	1,149.31	1,109.93	39.38	29.186		
5,600.00	5,512.36	5,456.06	5,385.50	29.97	19.17	-137.17	-564.90	514.53	1,159.73	1,120.03	39.70	29.214		
5,700.00	5,610.89	5,553.21	5,481.00	30.23	19.58	-137.34	-578.92	525.55	1,183.21	1,142.87	40.34	29.334		
5,800.00	5,709.95	5,670.36	5,596.34	30.46	19.97	-137.35	-595.02	538.20	1,203.72	1,162.77	40.95	29.392		
5,900.00	5,809.43	5,802.84	5,727.61	30.64	20.31	-137.31	-608.98	549.17	1,219.25	1,177.75	41.50	29.383		
6,000.00	5,909.20	5,936.94	5,861.18	30.79	20.58	-137.30	-618.25	556.45	1,229.45	1,187.51	41.94	29.317		
6,100.00	6,009.15	6,072.01	5,996.12	30.90	20.79	-137.29	-622.60	559.87	1,234.26	1,191.98	42.28	29.191		
6,140.85	6,050.00	6,125.89	6,050.00	30.94	20.86	89.15	-622.94	560.14	1,234.67	1,192.27	42.40	29.117		
6,200.00	6,109.15	6,185.04	6,109.15	30.99	20.94	89.15	-622.94	560.14	1,234.67	1,192.12	42.55	29.015		
6,300.00	6,209.15	6,285.04	6,209.15	31.07	21.06	89.15	-622.94	560.14	1,234.67	1,191.89	42.78	28.858		
6,400.00	6,309.15	6,385.04	6,309.15	31.15	21.18	89.15	-622.94	560.14	1,234.67	1,191.65	43.02	28.701		
6,500.00	6,409.15	6,485.04	6,409.15	31.24	21.30	89.15	-622.94	560.14	1,234.67	1,191.42	43.26	28.544		
6,600.00	6,509.15	6,585.04	6,509.15	31.33	21.43	89.15	-622.94	560.14	1,234.67	1,191.18	43.50	28.386		
6,700.00	6,609.15	6,685.04	6,609.15	31.41	21.55	89.15	-622.94	560.14	1,234.67	1,190.93	43.74	28.228		
6,800.00	6,709.15	6,785.04	6,709.15	31.50	21.68	89.15	-622.94	560.14	1,234.67	1,190.68	43.99	28.069		
6,900.00	6,809.15	6,885.04	6,809.15	31.59	21.81	89.15	-622.94	560.14	1,234.67	1,190.43	44.24	27.910		
7,000.00	6,909.15	6,985.04	6,909.15	31.69	21.94	89.15	-622.94	560.14	1,234.67	1,190.18	44.49	27.752		
7,100.00	7,009.15	7,085.04	7,009.15	31.78	22.08	89.15	-622.94	560.14	1,234.67	1,189.92	44.75	27.593		
7,200.00	7,109.15	7,185.04	7,109.15	31.88	22.21	89.15	-622.94	560.14	1,234.67	1,189.67	45.01	27.434		
7,300.00	7,209.15	7,285.04	7,209.15	31.97	22.34	89.15	-622.94	560.14	1,234.67	1,189.40	45.27	27.275		
7,400.00	7,309.15	7,385.04	7,309.15	32.07	22.48	89.15	-622.94	560.14	1,234.67	1,189.14	45.53	27.116		
7,500.00	7,409.15	7,485.04	7,409.15	32.17	22.62	89.15	-622.94	560.14	1,234.67	1,188.87	45.80	26.957		
7,600.00	7,509.15	7,585.04	7,509.15	32.27	22.76	89.15	-622.94	560.14	1,234.67	1,188.60	46.07	26.799		
7,700.00	7,609.15	7,685.04	7,609.15	32.37	22.90	89.15	-622.94	560.14	1,234.67	1,188.33	46.35	26.641		
7,800.00	7,709.15	7,785.04	7,709.15	32.47	23.04	89.15	-622.94	560.14	1,234.67	1,188.05	46.62	26.483		
7,900.00	7,809.15	7,885.04	7,809.15	32.58	23.19	89.15	-622.94	560.14	1,234.67	1,187.77	46.90	26.325		
8,000.00	7,909.15	7,985.04	7,909.15	32.68	23.33	89.15	-622.94	560.14	1,234.67	1,187.49	47.18	26.168		
8,041.15	7,950.29	8,026.18	7,950.29	32.72	23.39	89.15	-622.94	560.14	1,234.67	1,187.37	47.30	26.104		
8,063.85	7,973.00	8,044.89	7,969.00	32.75	23.42	89.15	-622.94	560.14	1,234.68	1,187.32	47.36	26.072		

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Reference Site:	WELD_BERNHARDT STATE 3 PAD	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ BERNHARDT STATE 18-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-04-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_BERNHARDT STATE 3 PAD - P_ BERNHARDT STATE 29-36 - P_ BERNHARDT STATE 29-36	Offset Site Error:	0.00 ft
Survey Program: 0-MWD														Offset Well Error:	0.00 ft
Reference				Offset			Semi Major Axis			Distance			Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
0.00	0.00	0.00	0.00	0.00	0.00	33.27	25.48	16.72	30.48						
100.00	100.00	100.00	100.00	0.10	0.10	33.27	25.48	16.72	30.48	30.29	0.19	159.519			
200.00	200.00	200.00	200.00	0.32	0.32	33.27	25.48	16.72	30.48	29.84	0.64	47.576			
300.00	300.00	300.00	300.00	0.55	0.55	33.27	25.48	16.72	30.48	29.39	1.09	27.957			
400.00	400.00	400.00	400.00	0.77	0.77	33.27	25.48	16.72	30.48	28.94	1.54	19.794			
500.00	500.00	500.00	500.00	0.99	0.99	33.27	25.48	16.72	30.48	28.49	1.99	15.321			
600.00	600.00	600.00	600.00	1.22	1.22	33.27	25.48	16.72	30.48	28.04	2.44	12.497			
700.00	700.00	700.00	700.00	1.44	1.44	33.27	25.48	16.72	30.48	27.59	2.89	10.552			
800.00	800.00	800.00	800.00	1.67	1.67	33.27	25.48	16.72	30.48	27.14	3.34	9.131			
900.00	900.00	900.00	900.00	1.89	1.89	33.27	25.48	16.72	30.48	26.69	3.79	8.047			
950.00	950.00	950.00	950.00	2.01	2.01	33.27	25.48	16.72	30.48	26.46	4.01	7.596	CC, ES		
1,000.00	1,000.00	999.92	999.92	2.11	2.12	166.21	25.77	16.39	30.96	26.74	4.22	7.334	SF		
1,100.00	1,099.93	1,099.60	1,099.53	2.29	2.33	161.91	28.04	13.77	34.95	30.33	4.62	7.570			
1,200.00	1,199.68	1,198.79	1,198.48	2.50	2.56	155.76	32.56	8.57	43.34	38.31	5.03	8.621			
1,300.00	1,299.13	1,297.17	1,296.32	2.76	2.79	150.03	39.25	0.85	56.45	50.99	5.46	10.331			
1,400.00	1,398.15	1,394.44	1,392.66	3.08	3.05	145.54	48.03	-9.26	74.35	68.41	5.95	12.505			
1,500.00	1,496.63	1,490.31	1,487.11	3.49	3.33	142.22	58.78	-21.65	96.94	90.44	6.49	14.933			
1,532.17	1,528.17	1,521.14	1,517.37	3.64	3.42	141.37	62.64	-26.10	105.15	98.46	6.68	15.733			
1,600.00	1,594.61	1,586.59	1,581.60	3.99	3.64	140.20	70.89	-35.60	122.82	115.70	7.12	17.240			
1,700.00	1,692.55	1,683.07	1,676.29	4.54	3.97	138.98	83.05	-49.60	148.95	141.14	7.81	19.070			
1,800.00	1,790.49	1,779.56	1,770.98	5.11	4.32	138.12	95.20	-63.61	175.12	166.59	8.53	20.531			
1,900.00	1,888.43	1,876.05	1,865.66	5.71	4.67	137.49	107.36	-77.61	201.31	192.04	9.27	21.709			
2,000.00	1,986.37	1,972.54	1,960.35	6.32	5.04	137.00	119.52	-91.62	227.53	217.49	10.04	22.670			
2,100.00	2,084.32	2,069.02	2,055.04	6.94	5.41	136.61	131.67	-105.63	253.75	242.94	10.81	23.463			
2,200.00	2,182.26	2,165.51	2,149.73	7.57	5.78	136.30	143.83	-119.63	279.99	268.38	11.60	24.126			
2,300.00	2,280.20	2,262.00	2,244.42	8.21	6.17	136.04	155.99	-133.64	306.23	293.82	12.40	24.686			
2,400.00	2,378.14	2,358.48	2,339.10	8.85	6.55	135.82	168.14	-147.65	332.47	319.26	13.21	25.164			
2,500.00	2,476.09	2,454.97	2,433.79	9.50	6.94	135.63	180.30	-161.65	358.72	344.70	14.03	25.575			
2,600.00	2,574.03	2,551.46	2,528.48	10.15	7.33	135.47	192.46	-175.66	384.97	370.13	14.85	25.931			
2,700.00	2,671.97	2,647.95	2,623.17	10.80	7.72	135.33	204.61	-189.66	411.23	395.56	15.67	26.243			
2,800.00	2,769.91	2,744.43	2,717.86	11.45	8.12	135.20	216.77	-203.67	437.49	420.99	16.50	26.518			
2,900.00	2,867.86	2,840.92	2,812.54	12.11	8.52	135.09	228.93	-217.68	463.75	446.42	17.33	26.762			
3,000.00	2,965.80	2,937.41	2,907.23	12.76	8.91	134.99	241.08	-231.68	490.01	471.84	18.16	26.979			
3,100.00	3,063.74	3,033.89	3,001.92	13.42	9.31	134.91	253.24	-245.69	516.27	497.27	19.00	27.173			
3,200.00	3,161.68	3,130.38	3,096.61	14.08	9.71	134.83	265.40	-259.69	542.53	522.69	19.84	27.349			
3,300.00	3,259.62	3,226.87	3,191.30	14.74	10.11	134.75	277.55	-273.70	568.79	548.12	20.68	27.507			
3,400.00	3,357.57	3,323.36	3,285.98	15.40	10.52	134.69	289.71	-287.71	595.06	573.54	21.52	27.651			
3,500.00	3,455.51	3,419.84	3,380.67	16.06	10.92	134.63	301.87	-301.71	621.32	598.96	22.36	27.783			
3,600.00	3,553.45	3,516.33	3,475.36	16.73	11.32	134.57	314.02	-315.72	647.59	624.38	23.21	27.903			
3,700.00	3,651.39	3,612.82	3,570.05	17.39	11.73	134.52	326.18	-329.73	673.85	649.80	24.05	28.014			
3,800.00	3,749.34	3,709.30	3,664.74	18.05	12.13	134.47	338.34	-343.73	700.12	675.22	24.90	28.116			
3,900.00	3,847.28	3,805.79	3,759.42	18.72	12.54	134.43	350.49	-357.74	726.39	700.64	25.75	28.210			
4,000.00	3,945.22	3,902.28	3,854.11	19.38	12.94	134.39	362.65	-371.74	752.66	726.06	26.60	28.297			
4,100.00	4,043.16	3,998.77	3,948.80	20.05	13.35	134.35	374.81	-385.75	778.92	751.47	27.45	28.378			
4,200.00	4,141.10	4,095.25	4,043.49	20.71	13.75	134.32	386.96	-399.76	805.19	776.89	28.30	28.453			
4,300.00	4,239.05	4,191.74	4,138.18	21.38	14.16	134.28	399.12	-413.76	831.46	802.31	29.15	28.524			
4,400.00	4,336.99	4,288.23	4,232.86	22.04	14.57	134.25	411.28	-427.77	857.73	827.73	30.00	28.590			
4,500.00	4,434.93	4,384.71	4,327.55	22.71	14.97	134.22	423.43	-441.77	884.00	853.14	30.85	28.652			
4,600.00	4,532.87	4,481.20	4,422.24	23.38	15.38	134.19	435.59	-455.78	910.26	878.56	31.71	28.710			
4,700.00	4,630.82	4,577.69	4,516.93	24.04	15.79	134.17	447.75	-469.79	936.53	903.97	32.56	28.764			
4,800.00	4,728.76	4,674.18	4,611.62	24.71	16.20	134.14	459.91	-483.79	962.80	929.39	33.41	28.816			
4,900.00	4,826.70	4,770.66	4,706.30	25.38	16.61	134.12	472.06	-497.80	989.07	954.81	34.27	28.864			

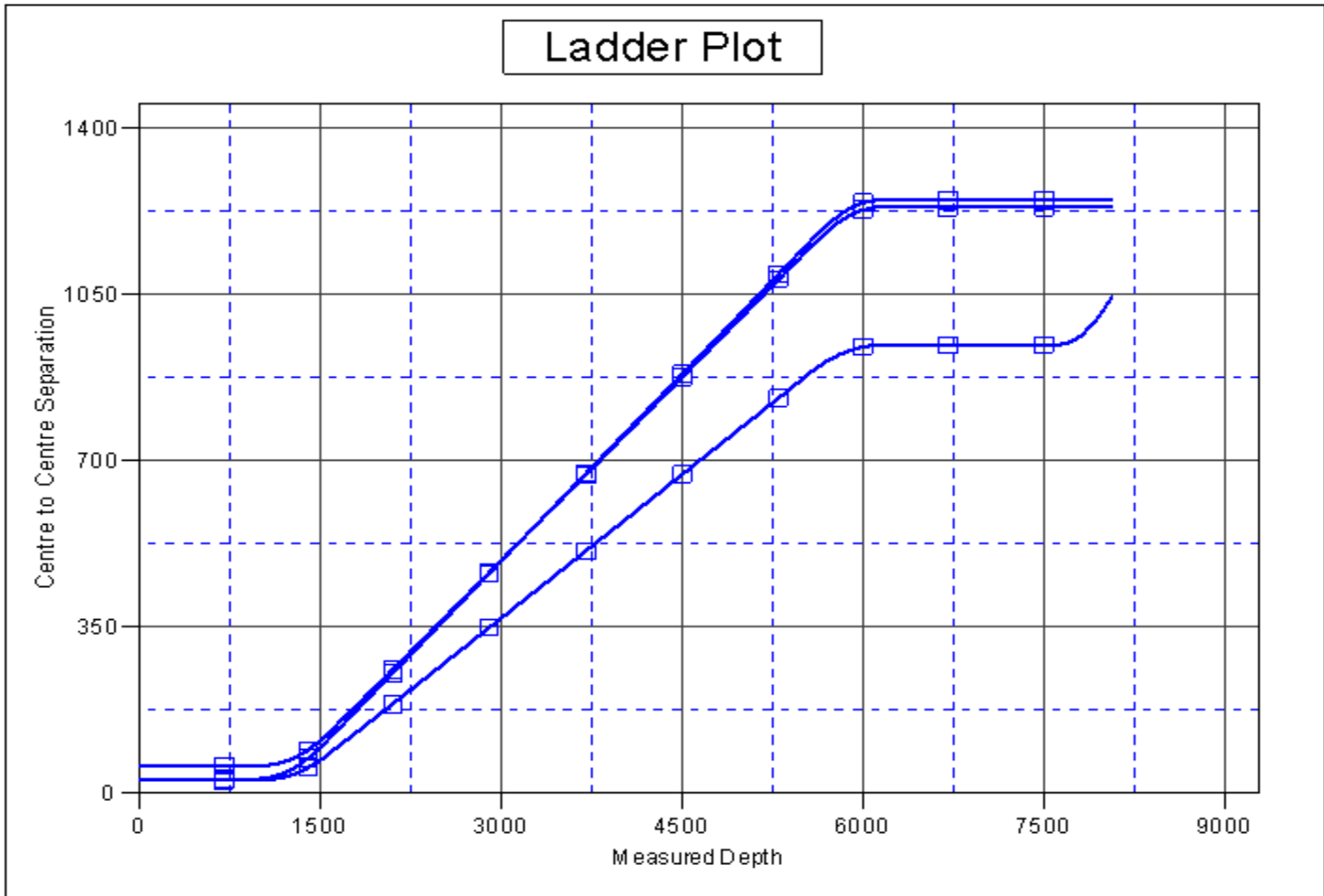
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Reference Site:	WELD_BERNHARDT STATE 3 PAD	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ BERNHARDT STATE 18-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-04-09 RHS	Offset TVD Reference:	Offset Datum

Offset Design													WELD_BERNHARDT STATE 3 PAD - P_ BERNHARDT STATE 29-36 - P_ BERNHARDT STATE 29-36	Offset Site Error:	0.00 ft
Survey Program: 0-MWD														Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning		
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor			
5,000.00	4,924.64	4,867.15	4,800.99	26.04	17.01	134.10	484.22	-511.81	1,015.34	980.22	35.12	28.910			
5,100.00	5,022.58	4,963.64	4,895.68	26.71	17.42	134.08	496.38	-525.81	1,041.61	1,005.64	35.98	28.954			
5,200.00	5,120.53	5,060.12	4,990.37	27.38	17.83	134.06	508.53	-539.82	1,067.88	1,031.05	36.83	28.995			
5,300.00	5,218.47	5,156.61	5,085.06	28.04	18.24	134.04	520.69	-553.82	1,094.15	1,056.47	37.69	29.034			
5,400.00	5,316.41	5,253.10	5,179.74	28.71	18.65	134.02	532.85	-567.83	1,120.42	1,081.88	38.54	29.071			
5,500.00	5,414.35	5,349.59	5,274.43	29.38	19.06	134.00	545.00	-581.84	1,146.69	1,107.29	39.40	29.106			
5,558.68	5,471.83	5,406.21	5,330.00	29.77	19.30	133.99	552.14	-590.06	1,162.11	1,122.21	39.90	29.126			
5,600.00	5,512.36	5,446.13	5,369.17	29.97	19.47	134.13	557.17	-595.85	1,172.76	1,132.54	40.22	29.160			
5,700.00	5,610.89	5,543.13	5,464.37	30.23	19.88	134.36	569.39	-609.93	1,196.88	1,156.02	40.86	29.289			
5,800.00	5,709.95	5,665.23	5,584.45	30.46	20.30	134.41	583.85	-626.59	1,217.98	1,176.47	41.51	29.344			
5,900.00	5,809.43	5,801.17	5,719.08	30.64	20.67	134.42	596.11	-640.72	1,233.89	1,191.82	42.07	29.331			
6,000.00	5,909.20	5,938.86	5,856.20	30.79	20.96	134.44	604.26	-650.10	1,244.34	1,201.81	42.53	29.260			
6,100.00	6,009.15	6,077.57	5,994.77	30.90	21.18	134.45	608.08	-654.51	1,249.27	1,206.38	42.89	29.126			
6,140.85	6,050.00	6,132.80	6,050.00	30.94	21.25	0.90	608.38	-654.86	1,249.68	1,206.67	43.01	29.053			
6,200.00	6,109.15	6,191.95	6,109.15	30.99	21.32	0.90	608.38	-654.86	1,249.68	1,206.52	43.16	28.955			
6,300.00	6,209.15	6,291.95	6,209.15	31.07	21.46	0.90	608.38	-654.86	1,249.68	1,206.26	43.43	28.777			
6,400.00	6,309.15	6,391.95	6,309.15	31.15	21.60	0.90	608.38	-654.86	1,249.68	1,205.99	43.70	28.599			
6,500.00	6,409.15	6,491.95	6,409.15	31.24	21.74	0.90	608.38	-654.86	1,249.68	1,205.71	43.97	28.422			
6,600.00	6,509.15	6,591.95	6,509.15	31.33	21.88	0.90	608.38	-654.86	1,249.68	1,205.44	44.25	28.244			
6,700.00	6,609.15	6,691.95	6,609.15	31.41	22.02	0.90	608.38	-654.86	1,249.68	1,205.16	44.52	28.067			
6,800.00	6,709.15	6,791.95	6,709.15	31.50	22.17	0.90	608.38	-654.86	1,249.68	1,204.88	44.81	27.891			
6,900.00	6,809.15	6,891.95	6,809.15	31.59	22.32	0.90	608.38	-654.86	1,249.68	1,204.59	45.09	27.715			
7,000.00	6,909.15	6,991.95	6,909.15	31.69	22.46	0.90	608.38	-654.86	1,249.68	1,204.31	45.38	27.540			
7,100.00	7,009.15	7,091.95	7,009.15	31.78	22.61	0.90	608.38	-654.86	1,249.68	1,204.02	45.67	27.365			
7,200.00	7,109.15	7,191.95	7,109.15	31.88	22.76	0.90	608.38	-654.86	1,249.68	1,203.72	45.96	27.192			
7,300.00	7,209.15	7,291.95	7,209.15	31.97	22.91	0.90	608.38	-654.86	1,249.68	1,203.43	46.25	27.019			
7,400.00	7,309.15	7,391.95	7,309.15	32.07	23.07	0.90	608.38	-654.86	1,249.68	1,203.13	46.55	26.846			
7,500.00	7,409.15	7,491.95	7,409.15	32.17	23.22	0.90	608.38	-654.86	1,249.68	1,202.83	46.85	26.675			
7,600.00	7,509.15	7,591.95	7,509.15	32.27	23.38	0.90	608.38	-654.86	1,249.68	1,202.53	47.15	26.504			
7,700.00	7,609.15	7,691.95	7,609.15	32.37	23.53	0.90	608.38	-654.86	1,249.68	1,202.23	47.45	26.335			
7,800.00	7,709.15	7,791.95	7,709.15	32.47	23.69	0.90	608.38	-654.86	1,249.68	1,201.92	47.76	26.166			
7,900.00	7,809.15	7,891.95	7,809.15	32.58	23.85	0.90	608.38	-654.86	1,249.68	1,201.62	48.07	25.998			
8,000.00	7,909.15	7,991.95	7,909.15	32.68	24.01	0.90	608.38	-654.86	1,249.68	1,201.30	48.38	25.831			
8,041.15	7,950.29	8,033.09	7,950.29	32.72	24.07	0.90	608.38	-654.86	1,249.68	1,201.18	48.51	25.763			
8,063.85	7,973.00	8,051.80	7,969.00	32.75	24.10	0.90	608.38	-654.86	1,249.69	1,201.12	48.57	25.729			

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Reference Site:	WELD_BERNHARDT STATE 3 PAD	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ BERNHARDT STATE 18-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-04-09 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4901.00ft (Original Well Elev) Coordinates are relative to: P_ BERNHARDT STATE 18-36
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
 Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.42°



LEGEND

WELL #1-36 EXISTING WD P_ BERNHARDT STATE 21-36, P_ BERNHARDT STATE 21-36, PLAN #1 11-04-09 RHS WD P_ BERNHARDT STATE 18-36

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_ BERNHARDT STATE 18-36
Project:	COLORADO NOTHERN ZONE - 83	TVD Reference:	WELL @ 4901.00ft (Original Well Elev)
Reference Site:	WELD_BERNHARDT STATE 3 PAD	MD Reference:	WELL @ 4901.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_ BERNHARDT STATE 18-36	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_ BERNHARDT STATE 18-36	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 11-04-09 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4901.00ft (Original Well Elev) Coordinates are relative to: P_ BERNHARDT STATE 18-36
 Offset Depths are relative to Offset Datum Coordinate System is US State Plane 1983, Colorado Northern Zone
 Central Meridian is 105° 30' 0.000 W ° Grid Convergence at Surface is: 0.42°

