



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_Riverbend 25-12 PAD

P_Riverbend 23-12

P_Riverbend 23-12

Plan: PLAN #1 6-22-10 RHS

Standard Planning Report

22 June, 2010

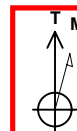




Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_Riverbend 25-12 PAD
 Well: P_Riverbend 23-12
 Wellbore: P_Riverbend 23-12
 Section: PLAN #1 6-22-10 RHS
 SHL: 2419 FSL 2123 FEL
 Design: PLAN #1 6-22-10 RHS
 Latitude: 40° 3' 53.881 N
 Longitude: 104° 50' 14.626 W
 GL: 4913.00
 KB: WELL @ 4928.00ft (Original Well Elev)



Weatherford®



Azimuths to True North
 Magnetic North: 9.00°
 Magnetic Field
 Strength: 53049.5nT
 Dip Angle: 66.80°
 Date: 6/22/2010
 Model: IGRF2010

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3279.00	3347.33	PARKMAN
4609.00	4729.11	SUSSEX
7141.00	7300.36	NIO
7488.00	7647.36	CODELL
7573.00	7732.36	GREENHORN
7923.00	8082.36	JSAND

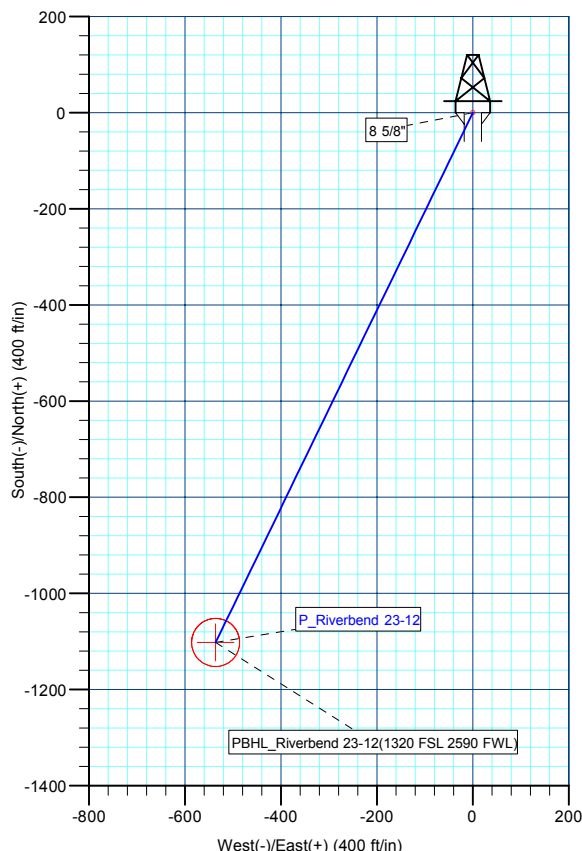
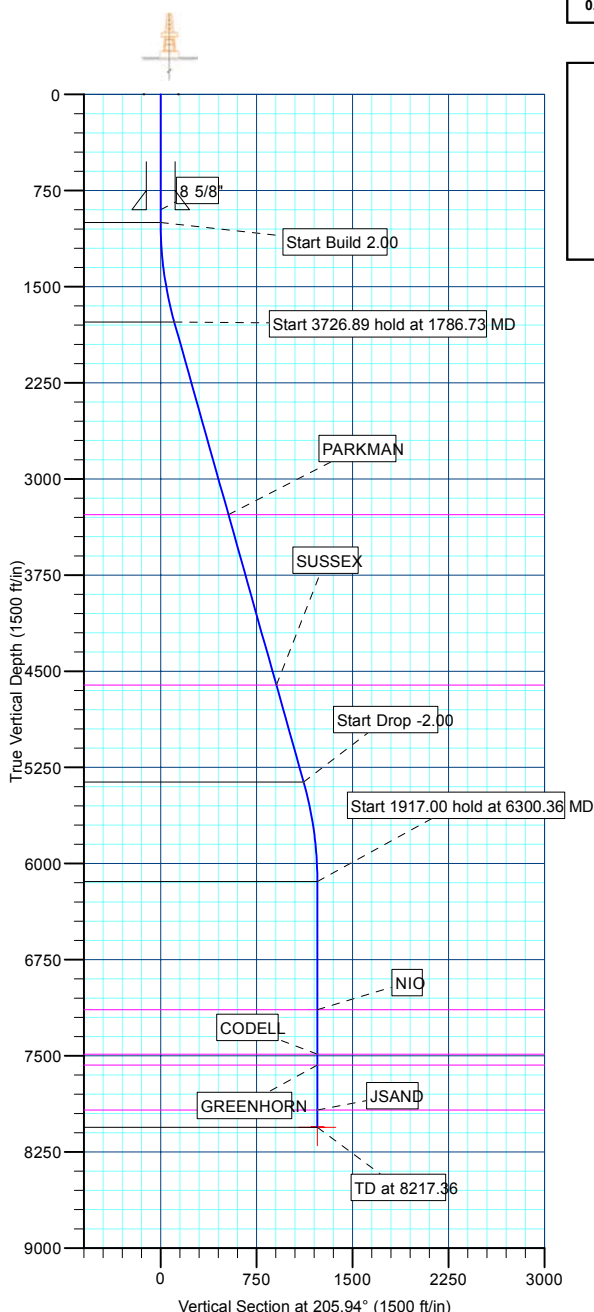
CASING DETAILS			
TVD	MD	Name	Size
900.00	900.00	8 5/8"	8.62

SECTION DETAILS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Annotation
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	Start Build 2.00
1786.73	15.73	205.94	1776.88	-96.54	-46.96	2.00	205.94	107.35	Start 3726.89 hold at 1786.73 MD
5513.62	15.73	205.94	5364.12	-1005.38	-489.05	0.00	0.00	1118.02	Start Drop -2.00
6300.36	0.00	0.00	6141.00	-1101.92	-536.01	2.00	180.00	1225.37	Start 1917.00 hold at 6300.36 MD
8217.36	0.00	0.00	8058.00	-1101.92	-536.01	0.00	0.00	1225.37	TD at 8217.36

WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)						
Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL	8058.00	-1101.92	-536.01	40° 3' 42.991 N	104° 50' 21.520 W	Circle (Radius: 50.00)

WELL DETAILS: P_Riverbend 23-12					
+N/-S	+E/-W	Northing	Ground Level: Easting	4913.00 Latitude	Slot
0.00	0.00	1267205.56	3185452.33	40° 3' 53.881 N	104° 50' 14.626 W

LEGEND	
—	JAMES N. MATHISEN UNIT B #2 EXISTING, JAMES N. MATHISEN UNIT B #2 EXISTING, JAMES N. MATHISEN UNIT B #2 EXISTING V0
—	P_Riverbend 10-12, P_Riverbend 10-12, PLAN #1 6-22-10 RHS V0
—	P_Riverbend 22-12, P_Riverbend 22-12, PLAN #1 6-22-10 RHS V0
—	P_Riverbend 25-12, P_Riverbend 25-12, PLAN #1 6-22-10 RHS V0
—	P_Riverbend 39-12, P_Riverbend 39-12, PLAN #1 6-22-10 RHS V0
—	P_Riverbend 9-12, P_Riverbend 9-12, PLAN #1 6-22-10 RHS V0
—	PLAN #1 6-22-10 RHS



Plan: PLAN #1 6-22-10 RHS (P_Riverbend 23-12/P_Riverbend 23-12)	
Created By: Robert H. Scott	Date: 9:51, June 22 2010

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site:	WELD_Riverbend 25-12 PAD	North Reference:	True
Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_Riverbend 23-12		
Design:	PLAN #1 6-22-10 RHS		

Project	COLORADO NORTHERN 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_Riverbend 25-12 PAD, PLAN #1 6-22-10 RHS			
Site Position:		Northing:	1,267,205.81 ft	Latitude: 40° 3' 53.881 N
From:	Lat/Long	Easting:	3,185,484.23 ft	Longitude: 104° 50' 14.215 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence: 0.43 °

Well	P_Riverbend 23-12			
Well Position	+N/-S	-0.01 ft	Northing:	1,267,205.56 ft
	+E/-W	-31.91 ft	Easting:	3,185,452.33 ft
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft
			Ground Level:	4,913.00 ft

Wellbore	P_Riverbend 23-12				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/22/2010	9.00	66.80	53,050

Design	PLAN #1 6-22-10 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	205.94

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	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,786.73	15.73	205.94	1,776.88	-96.54	-46.96	2.00	2.00	0.00	205.94	
5,513.62	15.73	205.94	5,364.12	-1,005.38	-489.05	0.00	0.00	0.00	0.00	
6,300.36	0.00	0.00	6,141.00	-1,101.92	-536.01	2.00	-2.00	0.00	180.00	
8,217.36	0.00	0.00	8,058.00	-1,101.92	-536.01	0.00	0.00	0.00	0.00	PBHL_Riverbend 2

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site:	WELD_Riverbend 25-12 PAD	North Reference:	True
Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_Riverbend 23-12		
Design:	PLAN #1 6-22-10 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									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
1,100.00	2.00	205.94	1,099.98	-1.57	-0.76	1.75	2.00	2.00	0.00
1,200.00	4.00	205.94	1,199.84	-6.28	-3.05	6.98	2.00	2.00	0.00
1,300.00	6.00	205.94	1,299.45	-14.11	-6.86	15.69	2.00	2.00	0.00
1,400.00	8.00	205.94	1,398.70	-25.07	-12.20	27.88	2.00	2.00	0.00
1,500.00	10.00	205.94	1,497.47	-39.14	-19.04	43.52	2.00	2.00	0.00
1,600.00	12.00	205.94	1,595.62	-56.30	-27.38	62.60	2.00	2.00	0.00
1,700.00	14.00	205.94	1,693.06	-76.52	-37.22	85.10	2.00	2.00	0.00
Start 3726.89 hold at 1786.73 MD									
1,786.73	15.73	205.94	1,776.88	-96.54	-46.96	107.35	2.00	2.00	0.00
1,800.00	15.73	205.94	1,789.65	-99.77	-48.53	110.95	0.00	0.00	0.00
1,900.00	15.73	205.94	1,885.90	-124.16	-60.39	138.07	0.00	0.00	0.00
2,000.00	15.73	205.94	1,982.16	-148.54	-72.26	165.18	0.00	0.00	0.00
2,100.00	15.73	205.94	2,078.41	-172.93	-84.12	192.30	0.00	0.00	0.00
2,200.00	15.73	205.94	2,174.66	-197.32	-95.98	219.42	0.00	0.00	0.00
2,300.00	15.73	205.94	2,270.92	-221.70	-107.84	246.54	0.00	0.00	0.00
2,400.00	15.73	205.94	2,367.17	-246.09	-119.70	273.66	0.00	0.00	0.00
2,500.00	15.73	205.94	2,463.42	-270.47	-131.57	300.78	0.00	0.00	0.00
2,600.00	15.73	205.94	2,559.67	-294.86	-143.43	327.89	0.00	0.00	0.00
2,700.00	15.73	205.94	2,655.93	-319.25	-155.29	355.01	0.00	0.00	0.00
2,800.00	15.73	205.94	2,752.18	-343.63	-167.15	382.13	0.00	0.00	0.00
2,900.00	15.73	205.94	2,848.43	-368.02	-179.02	409.25	0.00	0.00	0.00
3,000.00	15.73	205.94	2,944.68	-392.41	-190.88	436.37	0.00	0.00	0.00
3,100.00	15.73	205.94	3,040.94	-416.79	-202.74	463.49	0.00	0.00	0.00
3,200.00	15.73	205.94	3,137.19	-441.18	-214.60	490.60	0.00	0.00	0.00
3,300.00	15.73	205.94	3,233.44	-465.56	-226.46	517.72	0.00	0.00	0.00
PARKMAN									
3,347.33	15.73	205.94	3,279.00	-477.11	-232.08	530.56	0.00	0.00	0.00
3,400.00	15.73	205.94	3,329.70	-489.95	-238.33	544.84	0.00	0.00	0.00
3,500.00	15.73	205.94	3,425.95	-514.34	-250.19	571.96	0.00	0.00	0.00
3,600.00	15.73	205.94	3,522.20	-538.72	-262.05	599.08	0.00	0.00	0.00
3,700.00	15.73	205.94	3,618.45	-563.11	-273.91	626.20	0.00	0.00	0.00
3,800.00	15.73	205.94	3,714.71	-587.50	-285.78	653.31	0.00	0.00	0.00
3,900.00	15.73	205.94	3,810.96	-611.88	-297.64	680.43	0.00	0.00	0.00
4,000.00	15.73	205.94	3,907.21	-636.27	-309.50	707.55	0.00	0.00	0.00
4,100.00	15.73	205.94	4,003.47	-660.65	-321.36	734.67	0.00	0.00	0.00
4,200.00	15.73	205.94	4,099.72	-685.04	-333.23	761.79	0.00	0.00	0.00
4,300.00	15.73	205.94	4,195.97	-709.43	-345.09	788.91	0.00	0.00	0.00
4,400.00	15.73	205.94	4,292.22	-733.81	-356.95	816.02	0.00	0.00	0.00
4,500.00	15.73	205.94	4,388.48	-758.20	-368.81	843.14	0.00	0.00	0.00
4,600.00	15.73	205.94	4,484.73	-782.59	-380.67	870.26	0.00	0.00	0.00
4,700.00	15.73	205.94	4,580.98	-806.97	-392.54	897.38	0.00	0.00	0.00
SUSSEX									
4,729.11	15.73	205.94	4,609.00	-814.07	-395.99	905.27	0.00	0.00	0.00
4,800.00	15.73	205.94	4,677.23	-831.36	-404.40	924.50	0.00	0.00	0.00
4,900.00	15.73	205.94	4,773.49	-855.74	-416.26	951.62	0.00	0.00	0.00
5,000.00	15.73	205.94	4,869.74	-880.13	-428.12	978.73	0.00	0.00	0.00
5,100.00	15.73	205.94	4,965.99	-904.52	-439.99	1,005.85	0.00	0.00	0.00
5,200.00	15.73	205.94	5,062.25	-928.90	-451.85	1,032.97	0.00	0.00	0.00
5,300.00	15.73	205.94	5,158.50	-953.29	-463.71	1,060.09	0.00	0.00	0.00
5,400.00	15.73	205.94	5,254.75	-977.68	-475.57	1,087.21	0.00	0.00	0.00
5,500.00	15.73	205.94	5,351.00	-1,002.06	-487.43	1,114.33	0.00	0.00	0.00
Start Drop -2.00									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site:	WELD_Riverbend 25-12 PAD	North Reference:	True
Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_Riverbend 23-12		
Design:	PLAN #1 6-22-10 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)
5,513.62	15.73	205.94	5,364.12	-1,005.38	-489.05	1,118.02	0.00	0.00	0.00
5,600.00	14.01	205.94	5,447.60	-1,025.32	-498.75	1,140.19	2.00	-2.00	0.00
5,700.00	12.01	205.94	5,545.03	-1,045.56	-508.59	1,162.69	2.00	-2.00	0.00
5,800.00	10.01	205.94	5,643.18	-1,062.73	-516.94	1,181.79	2.00	-2.00	0.00
5,900.00	8.01	205.94	5,741.94	-1,076.80	-523.79	1,197.44	2.00	-2.00	0.00
6,000.00	6.01	205.94	5,841.19	-1,087.77	-529.13	1,209.64	2.00	-2.00	0.00
6,100.00	4.01	205.94	5,940.81	-1,095.62	-532.94	1,218.37	2.00	-2.00	0.00
6,200.00	2.01	205.94	6,040.66	-1,100.34	-535.24	1,223.61	2.00	-2.00	0.00
6,300.00	0.01	205.94	6,140.64	-1,101.92	-536.01	1,225.37	2.00	-2.00	0.00
Start 1917.00 hold at 6300.36 MD									
6,300.36	0.00	0.00	6,141.00	-1,101.92	-536.01	1,225.37	2.00	-2.00	43,001.29
6,400.00	0.00	0.00	6,240.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
6,500.00	0.00	0.00	6,340.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
6,600.00	0.00	0.00	6,440.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
6,700.00	0.00	0.00	6,540.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
6,800.00	0.00	0.00	6,640.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
6,900.00	0.00	0.00	6,740.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
7,000.00	0.00	0.00	6,840.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
7,100.00	0.00	0.00	6,940.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
7,200.00	0.00	0.00	7,040.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
7,300.00	0.00	0.00	7,140.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
NIO									
7,300.36	0.00	0.00	7,141.00	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
7,400.00	0.00	0.00	7,240.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
7,500.00	0.00	0.00	7,340.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
7,600.00	0.00	0.00	7,440.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
CODELL									
7,647.36	0.00	0.00	7,488.00	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
7,700.00	0.00	0.00	7,540.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
GREENHORN									
7,732.36	0.00	0.00	7,573.00	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
7,800.00	0.00	0.00	7,640.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
7,900.00	0.00	0.00	7,740.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
8,000.00	0.00	0.00	7,840.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
JSAND									
8,082.36	0.00	0.00	7,923.00	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
8,100.00	0.00	0.00	7,940.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
8,200.00	0.00	0.00	8,040.64	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00
PBHL_Riverbend 23-12(1320 FSL 2590 FWL)									
8,217.36	0.00	0.00	8,058.00	-1,101.92	-536.01	1,225.37	0.00	0.00	0.00

Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- hit/miss target									
- Shape									
PBHL_Riverbend 23- - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,058.00	-1,101.92	-536.01	1,266,099.67	3,184,924.57	40° 3' 42.991 N	104° 50' 21.520 W

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site:	WELD_Riverbend 25-12 PAD	North Reference:	True
Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_Riverbend 23-12		
Design:	PLAN #1 6-22-10 RHS		

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)	
900.00	900.00	8 5/8"	8.62	11.00	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
3,347.33	3,279.00	PARKMAN				
4,729.11	4,609.00	SUSSEX				
7,300.36	7,141.00	NIO				
7,647.36	7,488.00	CODELL				
7,732.36	7,573.00	GREENHORN				
8,082.36	7,923.00	JSAND				

Plan Annotations					
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates			
		+N/-S (ft)	+E/-W (ft)	Comment	
1,000.00	1,000.00	0.00	0.00	Start Build 2.00	
1,786.73	1,776.88	-96.54	-46.96	Start 3726.89 hold at 1786.73 MD	
5,513.62	5,364.12	-1,005.38	-489.05	Start Drop -2.00	
6,300.36	6,141.00	-1,101.92	-536.01	Start 1917.00 hold at 6300.36 MD	
8,217.36	8,058.00	-1,101.92	-536.01	TD at 8217.36	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
WELD_Riverbend 25-12 PAD
P_Riverbend 23-12**

**P_Riverbend 23-12
PLAN #1 6-22-10 RHS**

Anticollision Report

22 June, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 6-22-10 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 6/22/2010			
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,217.36	PLAN #1 6-22-10 RHS (P_Riverbend 23-1	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_Riverbend 25-12 PAD						
JAMES N. MATHISEN UNIT B #2 EXISTING - JAMES N	2,585.74	2,544.78	1,337.18	1,228.79	12.336	CC
JAMES N. MATHISEN UNIT B #2 EXISTING - JAMES N	3,200.00	3,130.42	1,349.95	1,214.80	9.988	ES
JAMES N. MATHISEN UNIT B #2 EXISTING - JAMES N	8,217.36	8,025.18	1,692.17	1,347.46	4.909	SF
P_Riverbend 10-12 - P_Riverbend 10-12 - PLAN #1 6-22	1,000.00	1,000.00	31.91	-7.91	0.801	Level 1, CC, ES, SF
P_Riverbend 22-12 - P_Riverbend 22-12 - PLAN #1 6-22	1,000.00	1,000.00	15.96	11.72	3.766	CC, ES
P_Riverbend 22-12 - P_Riverbend 22-12 - PLAN #1 6-22	1,100.00	1,099.41	16.97	12.33	3.655	SF
P_Riverbend 25-12 - P_Riverbend 25-12 - PLAN #1 6-22	1,144.74	1,145.28	15.08	10.26	3.126	CC, ES, SF
P_Riverbend 39-12 - P_Riverbend 39-12 - PLAN #1 6-22	300.00	300.00	47.86	46.77	43.904	CC, ES
P_Riverbend 39-12 - P_Riverbend 39-12 - PLAN #1 6-22	700.00	691.74	73.16	70.30	25.623	SF
P_Riverbend 9-12 - P_Riverbend 9-12 - PLAN #1 6-22-1	300.00	300.00	64.09	63.00	58.796	CC, ES
P_Riverbend 9-12 - P_Riverbend 9-12 - PLAN #1 6-22-1	700.00	688.98	90.98	88.14	31.954	SF

Offset Design										WELD_Riverbend 25-12 PAD - JAMES N. MATHISEN UNIT B #2 EXISTING - JAMES N. MATHISEN U				Offset Site Error:		0.00 ft	
Survey Program: 0-UNKNOWN														Offset Well Error:		0.00 ft	
Reference		Offset		Semi Major Axis			Distance										
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	Offset Wellbore Centre +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	129.68	-902.29	1,087.68	1,413.37								
100.00	100.00	93.76	93.75	0.10	1.88	129.65	-901.52	1,087.68	1,412.80	1,410.83	1.97	716.241					
200.00	200.00	210.42	210.37	0.32	6.43	129.56	-898.44	1,087.68	1,411.11	1,404.36	6.75	209.082					
300.00	300.00	310.36	310.25	0.55	10.44	129.45	-894.95	1,087.68	1,408.89	1,397.90	10.99	128.243					
400.00	400.00	410.30	410.13	0.77	14.46	129.34	-891.46	1,087.68	1,406.67	1,391.45	15.22	92.401					
500.00	500.00	510.24	510.01	0.99	18.47	129.23	-887.97	1,087.68	1,404.46	1,385.00	19.46	72.167					
600.00	600.00	610.18	609.89	1.22	22.48	129.12	-884.49	1,087.68	1,402.25	1,378.56	23.70	59.169					
700.00	700.00	710.12	709.77	1.44	26.50	129.01	-881.00	1,087.68	1,400.05	1,372.12	27.94	50.114					
800.00	800.00	810.06	809.64	1.67	30.51	128.90	-877.51	1,087.68	1,397.86	1,365.68	32.18	43.445					
900.00	900.00	909.99	909.52	1.89	34.53	128.78	-874.02	1,087.68	1,395.67	1,359.26	36.41	38.329					
1,000.00	1,000.00	1,009.93	1,009.40	2.12	38.54	128.67	-870.53	1,087.68	1,393.49	1,352.83	40.65	34.279					
1,100.00	1,099.98	1,109.80	1,109.20	2.32	42.55	-77.50	-867.05	1,087.68	1,390.93	1,346.14	44.79	31.055					
1,200.00	1,199.84	1,209.43	1,208.78	2.50	46.55	-77.89	-863.57	1,087.68	1,387.64	1,338.69	48.95	28.347					
1,300.00	1,299.45	1,308.71	1,307.99	2.69	50.54	-78.43	-860.11	1,087.68	1,383.69	1,330.58	53.12	26.050					
1,400.00	1,398.70	1,407.52	1,406.74	2.91	54.51	-79.12	-856.66	1,087.68	1,379.17	1,321.89	57.28	24.076					
1,500.00	1,497.47	1,505.73	1,504.89	3.16	58.46	-79.96	-853.23	1,087.68	1,374.18	1,312.72	61.47	22.357					

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

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Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
1,600.00	1,595.62	1,603.23	1,602.33	3.46	62.37	-80.94	-849.83	1,087.68	1,368.88	1,303.21	65.67	20.845	
1,700.00	1,693.06	1,699.90	1,698.94	3.80	66.25	-82.07	-846.45	1,087.68	1,363.43	1,293.52	69.90	19.505	
1,786.73	1,776.88	1,782.97	1,781.97	4.15	69.59	-83.15	-843.56	1,087.68	1,358.72	1,285.13	73.60	18.462	
1,800.00	1,789.65	1,795.62	1,794.61	4.21	70.10	-83.31	-843.11	1,087.68	1,358.02	1,283.85	74.16	18.311	
1,900.00	1,885.90	1,890.97	1,889.89	4.66	73.93	-84.51	-839.79	1,087.68	1,353.08	1,274.61	78.47	17.243	
2,000.00	1,982.16	1,986.31	1,985.18	5.13	77.76	-85.72	-836.46	1,087.68	1,348.80	1,265.99	82.81	16.289	
2,100.00	2,078.41	2,081.65	2,080.46	5.62	81.59	-86.94	-833.13	1,087.68	1,345.18	1,258.03	87.16	15.434	
2,200.00	2,174.66	2,176.99	2,175.75	6.12	85.42	-88.16	-829.80	1,087.68	1,342.23	1,250.71	91.52	14.666	
2,300.00	2,270.92	2,272.34	2,271.03	6.63	89.25	-89.38	-826.48	1,087.68	1,339.95	1,244.07	95.89	13.974	
2,400.00	2,367.17	2,367.68	2,366.32	7.15	93.08	-90.61	-823.15	1,087.68	1,338.35	1,238.09	100.26	13.349	
2,500.00	2,463.42	2,463.02	2,461.60	7.68	96.91	-91.84	-819.82	1,087.68	1,337.43	1,232.79	104.64	12.781	
2,585.74	2,545.95	2,544.78	2,543.31	8.13	100.19	-92.90	-816.97	1,087.68	1,337.18	1,228.79	108.39	12.336 CC	
2,600.00	2,559.67	2,558.37	2,556.89	8.21	100.74	-93.08	-816.49	1,087.68	1,337.19	1,228.17	109.01	12.266	
2,700.00	2,655.93	2,653.71	2,652.17	8.75	104.57	-94.31	-813.17	1,087.68	1,337.62	1,224.24	113.39	11.797	
2,800.00	2,752.18	2,749.05	2,747.46	9.28	108.40	-95.54	-809.84	1,087.68	1,338.74	1,220.98	117.76	11.369	
2,900.00	2,848.43	2,844.40	2,842.74	9.83	112.22	-96.77	-806.51	1,087.68	1,340.53	1,218.42	122.12	10.977	
3,000.00	2,944.68	2,939.74	2,938.03	10.37	116.05	-97.99	-803.18	1,087.68	1,343.00	1,216.53	126.47	10.619	
3,100.00	3,040.94	3,035.08	3,033.31	10.92	119.88	-99.21	-799.86	1,087.68	1,346.15	1,215.32	130.82	10.290	
3,200.00	3,137.19	3,130.42	3,128.60	11.47	123.71	-100.43	-796.53	1,087.68	1,349.95	1,214.80	135.16	9.988 ES	
3,300.00	3,233.44	3,225.77	3,223.88	12.02	127.54	-101.63	-793.20	1,087.68	1,354.42	1,214.94	139.48	9.710	
3,400.00	3,329.70	3,321.11	3,319.17	12.57	131.37	-102.83	-789.87	1,087.68	1,359.55	1,215.75	143.80	9.455	
3,500.00	3,425.95	3,416.45	3,414.45	13.13	135.20	-104.02	-786.55	1,087.68	1,365.32	1,217.22	148.10	9.219	
3,600.00	3,522.20	3,511.80	3,509.74	13.68	139.03	-105.21	-783.22	1,087.68	1,371.73	1,219.34	152.38	9.002	
3,700.00	3,618.45	3,607.14	3,605.02	14.24	142.86	-106.38	-779.89	1,087.68	1,378.77	1,222.11	156.66	8.801	
3,800.00	3,714.71	3,702.48	3,700.31	14.79	146.69	-107.54	-776.57	1,087.68	1,386.43	1,225.51	160.92	8.616	
3,900.00	3,810.96	3,797.83	3,795.59	15.35	150.52	-108.68	-773.24	1,087.68	1,394.70	1,229.54	165.16	8.445	
4,000.00	3,907.21	3,893.17	3,890.88	15.91	154.35	-109.82	-769.91	1,087.68	1,403.57	1,234.18	169.39	8.286	
4,100.00	4,003.47	3,988.51	3,986.16	16.46	158.18	-110.94	-766.58	1,087.68	1,413.03	1,239.42	173.60	8.140	
4,200.00	4,099.72	4,083.86	4,081.45	17.02	162.01	-112.05	-763.26	1,087.68	1,423.06	1,245.26	177.80	8.004	
4,300.00	4,195.97	4,179.20	4,176.73	17.58	165.84	-113.14	-759.93	1,087.68	1,433.66	1,251.68	181.98	7.878	
4,400.00	4,292.22	4,274.54	4,272.02	18.14	169.67	-114.22	-756.60	1,087.68	1,444.81	1,258.66	186.15	7.762	
4,500.00	4,388.48	4,369.88	4,367.30	18.70	173.50	-115.28	-753.27	1,087.68	1,456.50	1,266.20	190.30	7.654	
4,600.00	4,484.73	4,465.23	4,462.59	19.26	177.33	-116.32	-749.95	1,087.68	1,468.72	1,274.28	194.43	7.554	
4,700.00	4,580.98	4,560.57	4,557.87	19.82	181.16	-117.35	-746.62	1,087.68	1,481.45	1,282.89	198.55	7.461	
4,800.00	4,677.23	4,655.91	4,653.16	20.38	184.99	-118.36	-743.29	1,087.68	1,494.68	1,292.02	202.66	7.375	
4,900.00	4,773.49	4,751.26	4,748.44	20.94	188.82	-119.36	-739.96	1,087.68	1,508.40	1,301.65	206.75	7.296	
5,000.00	4,869.74	4,846.60	4,843.73	21.51	192.65	-120.34	-736.64	1,087.68	1,522.59	1,311.76	210.83	7.222	
5,100.00	4,965.99	4,941.94	4,939.01	22.07	196.48	-121.30	-733.31	1,087.68	1,537.24	1,322.35	214.89	7.154	
5,200.00	5,062.25	5,037.29	5,034.30	22.63	200.31	-122.25	-729.98	1,087.68	1,552.34	1,333.40	218.94	7.090	
5,300.00	5,158.50	5,132.63	5,129.58	23.19	204.14	-123.17	-726.65	1,087.68	1,567.88	1,344.90	222.98	7.031	
5,400.00	5,254.75	5,227.97	5,224.87	23.75	207.97	-124.08	-723.33	1,087.68	1,583.84	1,356.83	227.01	6.977	
5,500.00	5,351.00	5,323.32	5,320.15	24.32	211.79	-124.98	-720.00	1,087.68	1,600.20	1,369.18	231.02	6.927	
5,513.62	5,364.12	5,336.31	5,333.14	24.39	212.32	-125.10	-719.55	1,087.68	1,602.46	1,370.90	231.57	6.920	
5,600.00	5,447.60	5,419.04	5,415.82	24.80	215.64	-126.05	-716.66	1,087.68	1,616.21	1,380.80	235.41	6.865	
5,700.00	5,545.03	5,515.70	5,512.42	25.14	219.52	-127.02	-713.28	1,087.68	1,630.53	1,390.70	239.83	6.799	
5,800.00	5,643.18	5,613.20	5,609.86	25.46	223.44	-127.86	-709.88	1,087.68	1,643.01	1,398.76	244.25	6.727	
5,900.00	5,741.94	5,711.41	5,708.01	25.73	227.38	-128.56	-706.45	1,087.68	1,653.53	1,404.89	248.64	6.650	
6,000.00	5,841.19	5,810.21	5,806.76	25.96	231.35	-129.13	-703.01	1,087.68	1,662.02	1,409.02	252.99	6.569	
6,100.00	5,940.81	5,909.49	5,905.97	26.16	235.34	-129.58	-699.54	1,087.68	1,668.38	1,411.01	257.37	6.482	
6,200.00	6,040.66	6,009.12	6,005.54	26.31	239.34	-129.90	-696.06	1,087.68	1,672.58	1,410.92	261.65	6.392	
6,300.36	6,141.00	6,109.35	6,105.71	26.43	243.37	75.85	-692.57	1,087.68	1,674.56	1,408.71	265.85	6.299	
6,400.00	6,240.64	6,208.93	6,205.23	26.53	247.37	75.73	-689.09	1,087.68	1,675.41	1,405.47	269.94	6.207	

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

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Offset Design WELD_Riverbend 25-12 PAD - JAMES N. MATHISEN UNIT B #2 EXISTING - JAMES N. MATHISEN U												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	
6,500.00	6,340.64	6,308.87	6,305.10	26.62	251.38	75.62	-685.60	1,087.68	1,676.27	1,402.23	274.04	6.117	
6,600.00	6,440.64	6,408.80	6,404.98	26.72	255.40	75.50	-682.12	1,087.68	1,677.15	1,399.00	278.14	6.030	
6,700.00	6,540.64	6,508.74	6,504.86	26.81	259.41	75.39	-678.63	1,087.68	1,678.02	1,395.78	282.24	5.945	
6,800.00	6,640.64	6,608.68	6,604.74	26.91	263.42	75.27	-675.14	1,087.68	1,678.91	1,392.56	286.35	5.863	
6,900.00	6,740.64	6,708.62	6,704.62	27.01	267.44	75.16	-671.65	1,087.68	1,679.80	1,389.34	290.45	5.783	
7,000.00	6,840.64	6,808.56	6,804.49	27.11	271.45	75.04	-668.16	1,087.68	1,680.70	1,386.13	294.56	5.706	
7,100.00	6,940.64	6,908.50	6,904.37	27.21	275.47	74.93	-664.68	1,087.68	1,681.60	1,382.93	298.67	5.630	
7,200.00	7,040.64	7,008.44	7,004.25	27.31	279.48	74.81	-661.19	1,087.68	1,682.51	1,379.73	302.78	5.557	
7,300.00	7,140.64	7,108.38	7,104.13	27.42	283.49	74.70	-657.70	1,087.68	1,683.43	1,376.53	306.90	5.485	
7,400.00	7,240.64	7,208.32	7,204.01	27.52	287.51	74.58	-654.21	1,087.68	1,684.36	1,373.34	311.01	5.416	
7,500.00	7,340.64	7,308.26	7,303.89	27.63	291.52	74.47	-650.73	1,087.68	1,685.29	1,370.16	315.13	5.348	
7,600.00	7,440.64	7,408.20	7,403.76	27.74	295.54	74.36	-647.24	1,087.68	1,686.23	1,366.98	319.25	5.282	
7,700.00	7,540.64	7,508.13	7,503.64	27.85	299.55	74.24	-643.75	1,087.68	1,687.17	1,363.80	323.37	5.218	
7,800.00	7,640.64	7,608.07	7,603.52	27.96	303.57	74.13	-640.26	1,087.68	1,688.12	1,360.63	327.49	5.155	
7,900.00	7,740.64	7,708.01	7,703.40	28.08	307.58	74.01	-636.77	1,087.68	1,689.08	1,357.47	331.61	5.094	
8,000.00	7,840.64	7,807.95	7,803.28	28.19	311.59	73.90	-633.29	1,087.68	1,690.05	1,354.31	335.73	5.034	
8,100.00	7,940.64	7,907.89	7,903.15	28.31	315.61	73.79	-629.80	1,087.68	1,691.02	1,351.16	339.86	4.976	
8,200.00	8,040.64	8,007.83	8,003.03	28.42	319.62	73.67	-626.31	1,087.68	1,691.99	1,348.01	343.99	4.919	
8,217.36	8,058.00	8,025.18	8,020.37	28.44	320.32	73.65	-625.71	1,087.68	1,692.17	1,347.46	344.70	4.909 SF	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_Riverbend 25-12 PAD - P_Riverbend 10-12 - P_Riverbend 10-12 - PLAN #1 6-22-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance		Warning							
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	89.98	0.01	31.91	31.91				
100.00	100.00	100.00	100.00	0.10	1.70	89.98	0.01	31.91	31.91	30.11	1.80	17.770	
200.00	200.00	200.00	200.00	0.32	5.70	89.98	0.01	31.91	31.91	25.89	6.02	5.300	
300.00	300.00	300.00	300.00	0.55	9.70	89.98	0.01	31.91	31.91	21.66	10.25	3.114	
400.00	400.00	400.00	400.00	0.77	13.70	89.98	0.01	31.91	31.91	17.44	14.47	2.205	
500.00	500.00	500.00	500.00	0.99	17.70	89.98	0.01	31.91	31.91	13.21	18.69	1.707	
600.00	600.00	600.00	600.00	1.22	21.70	89.98	0.01	31.91	31.91	8.99	22.92	1.392 Level 3	
700.00	700.00	700.00	700.00	1.44	25.70	89.98	0.01	31.91	31.91	4.76	27.14	1.175 Level 2	
800.00	800.00	800.00	800.00	1.67	29.70	89.98	0.01	31.91	31.91	0.54	31.37	1.017 Level 2	
900.00	900.00	900.00	900.00	1.89	33.70	89.98	0.01	31.91	31.91	-3.69	35.59	0.896 Level 1	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	37.70	89.98	0.01	31.91	31.91	-7.91	39.82	0.801 Level 1, CC, ES, SF	
1,100.00	1,099.98	1,099.71	1,099.69	2.32	37.77	-115.74	-1.67	32.34	33.11	-6.97	40.08	0.826 Level 1	
1,200.00	1,199.84	1,199.33	1,199.17	2.50	33.96	-115.16	-6.70	33.65	36.71	0.27	36.44	1.007 Level 2	
1,300.00	1,299.45	1,298.78	1,298.23	2.69	30.22	-114.40	-15.05	35.82	42.71	9.83	32.88	1.299 Level 3	
1,400.00	1,398.70	1,397.97	1,396.69	2.91	26.62	-113.61	-26.70	38.84	51.10	21.63	29.47	1.734	
1,500.00	1,497.47	1,497.40	1,495.14	3.16	23.24	-114.29	-40.18	42.34	61.43	35.14	26.28	2.337	
1,600.00	1,595.62	1,596.62	1,593.39	3.46	20.19	-117.18	-53.63	45.83	73.29	49.87	23.43	3.129	
1,700.00	1,693.06	1,695.49	1,691.28	3.80	17.65	-121.18	-67.03	49.31	87.07	66.01	21.06	4.134	
1,786.73	1,776.88	1,780.86	1,775.81	4.15	16.08	-125.00	-78.61	52.31	100.88	81.26	19.62	5.143	
1,800.00	1,789.65	1,793.89	1,788.71	4.21	15.85	-125.62	-80.37	52.77	103.14	83.74	19.41	5.314	
1,900.00	1,885.90	1,892.08	1,885.93	4.66	15.03	-129.51	-93.69	56.22	120.53	101.72	18.81	6.408	
2,000.00	1,982.16	1,990.27	1,983.16	5.13	15.35	-132.41	-107.00	59.68	138.32	118.95	19.37	7.140	
2,100.00	2,078.41	2,088.47	2,080.38	5.62	16.74	-134.65	-120.31	63.13	156.38	135.35	21.04	7.434	
2,200.00	2,174.66	2,186.66	2,177.61	6.12	18.96	-136.43	-133.63	66.59	174.62	151.07	23.55	7.414	
2,300.00	2,270.92	2,284.85	2,274.83	6.63	21.77	-137.86	-146.94	70.04	193.00	166.33	26.67	7.236	
2,400.00	2,367.17	2,383.05	2,372.06	7.15	24.96	-139.05	-160.25	73.50	211.47	181.30	30.17	7.009	
2,500.00	2,463.42	2,481.24	2,469.28	7.68	28.41	-140.05	-173.56	76.95	230.01	196.08	33.93	6.779	
2,600.00	2,559.67	2,579.43	2,566.51	8.21	32.04	-140.90	-186.88	80.41	248.62	210.76	37.86	6.567	
2,700.00	2,655.93	2,677.62	2,663.73	8.75	35.79	-141.63	-200.19	83.86	267.26	225.36	41.90	6.378	
2,800.00	2,752.18	2,775.82	2,760.95	9.28	39.63	-142.27	-213.50	87.32	285.95	239.92	46.03	6.212	
2,900.00	2,848.43	2,874.01	2,858.18	9.83	43.53	-142.82	-226.81	90.77	304.66	254.44	50.22	6.066	
3,000.00	2,944.68	2,972.20	2,955.40	10.37	47.48	-143.32	-240.13	94.23	323.40	268.94	54.46	5.938	
3,100.00	3,040.94	3,070.39	3,052.63	10.92	51.46	-143.76	-253.44	97.68	342.16	283.43	58.73	5.826	
3,200.00	3,137.19	3,168.59	3,149.85	11.47	55.48	-144.15	-266.75	101.14	360.94	297.91	63.03	5.727	
3,300.00	3,233.44	3,266.78	3,247.08	12.02	59.52	-144.50	-280.07	104.59	379.73	312.38	67.35	5.638	
3,400.00	3,329.70	3,364.97	3,344.30	12.57	63.58	-144.82	-293.38	108.05	398.53	326.85	71.69	5.559	
3,500.00	3,425.95	3,463.17	3,441.53	13.13	67.65	-145.12	-306.69	111.50	417.35	341.31	76.04	5.488	
3,600.00	3,522.20	3,561.36	3,538.75	13.68	71.73	-145.38	-320.00	114.96	436.17	355.77	80.41	5.425	
3,700.00	3,618.45	3,659.55	3,635.98	14.24	75.83	-145.63	-333.32	118.41	455.01	370.23	84.78	5.367	
3,800.00	3,714.71	3,757.74	3,733.20	14.79	79.94	-145.85	-346.63	121.87	473.85	384.68	89.17	5.314	
3,900.00	3,810.96	3,855.94	3,830.43	15.35	84.05	-146.06	-359.94	125.32	492.69	399.14	93.56	5.266	
4,000.00	3,907.21	3,954.13	3,927.65	15.91	88.17	-146.25	-373.25	128.78	511.55	413.59	97.95	5.222	
4,100.00	4,003.47	4,052.32	4,024.88	16.46	92.29	-146.43	-386.57	132.23	530.41	428.05	102.36	5.182	
4,200.00	4,099.72	4,150.51	4,122.10	17.02	96.42	-146.60	-399.88	135.69	549.27	442.50	106.76	5.145	
4,300.00	4,195.97	4,248.06	4,218.69	17.58	100.53	-146.76	-413.08	139.11	568.14	457.00	111.14	5.112	
4,400.00	4,292.22	4,340.57	4,310.53	18.14	104.33	-147.07	-423.85	141.91	587.60	472.40	115.19	5.101	
4,500.00	4,388.48	4,432.45	4,402.04	18.70	107.99	-147.63	-431.70	143.94	608.03	488.98	119.05	5.107	
4,600.00	4,484.73	4,523.51	4,492.95	19.26	111.50	-148.41	-436.66	145.23	629.53	506.82	122.71	5.130	
4,700.00	4,580.98	4,613.58	4,582.99	19.82	114.38	-149.38	-438.83	145.79	652.18	526.47	125.70	5.188	
4,800.00	4,677.23	4,707.82	4,677.23	20.38	112.10	-150.51	-438.94	145.82	675.82	552.29	123.53	5.471	
4,900.00	4,773.49	4,804.08	4,773.49	20.94	108.85	-151.59	-438.94	145.82	699.76	579.36	120.40	5.812	
5,000.00	4,869.74	4,900.33	4,869.74	21.51	105.65	-152.61	-438.94	145.82	723.92	606.62	117.31	6.171	

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_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_Riverbend 25-12 PAD - P_Riverbend 10-12 - P_Riverbend 10-12 - PLAN #1 6-22-10 RHS												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,100.00	4,965.99	4,996.58	4,965.99	22.07	102.49	-153.55	-438.94	145.82	748.29	634.03	114.25	6.549	
5,200.00	5,062.25	5,092.84	5,062.25	22.63	99.38	-154.44	-438.94	145.82	772.83	661.59	111.24	6.947	
5,300.00	5,158.50	5,189.09	5,158.50	23.19	96.33	-155.28	-438.94	145.82	797.55	689.27	108.27	7.366	
5,400.00	5,254.75	5,285.34	5,254.75	23.75	93.33	-156.06	-438.94	145.82	822.42	717.06	105.36	7.806	
5,500.00	5,351.00	5,381.59	5,351.00	24.32	90.40	-156.80	-438.94	145.82	847.42	744.92	102.50	8.268	
5,513.62	5,364.12	5,394.71	5,364.12	24.39	90.00	-156.90	-438.94	145.82	850.84	748.73	102.11	8.333	
5,600.00	5,447.60	5,478.19	5,447.60	24.80	87.53	-157.63	-438.94	145.82	871.38	771.45	99.93	8.720	
5,700.00	5,545.03	5,575.62	5,545.03	25.14	84.72	-158.34	-438.94	145.82	892.32	795.00	97.32	9.169	
5,800.00	5,643.18	5,673.77	5,643.18	25.46	81.97	-158.91	-438.94	145.82	910.15	815.34	94.80	9.600	
5,900.00	5,741.94	5,772.53	5,741.94	25.73	79.31	-159.36	-438.94	145.82	924.80	832.51	92.29	10.021	
6,000.00	5,841.19	5,871.78	5,841.19	25.96	76.75	-159.71	-438.94	145.82	936.24	846.44	89.79	10.427	
6,100.00	5,940.81	5,971.39	5,940.81	26.16	74.30	-159.95	-438.94	145.82	944.43	857.08	87.36	10.811	
6,200.00	6,040.66	6,071.25	6,040.66	26.31	71.98	-160.09	-438.94	145.82	949.36	864.35	85.01	11.167	
6,300.36	6,141.00	6,171.59	6,141.00	26.43	69.80	45.80	-438.94	145.82	951.02	868.22	82.80	11.485	
6,400.00	6,240.64	6,271.23	6,240.64	26.53	67.81	45.80	-438.94	145.82	951.02	870.16	80.86	11.761	
6,500.00	6,340.64	6,371.23	6,340.64	26.62	65.99	45.80	-438.94	145.82	951.02	871.93	79.09	12.025	
6,600.00	6,440.64	6,471.23	6,440.64	26.72	64.37	45.80	-438.94	145.82	951.02	873.49	77.52	12.267	
6,700.00	6,540.64	6,571.23	6,540.64	26.81	62.96	45.80	-438.94	145.82	951.02	874.83	76.19	12.483	
6,800.00	6,640.64	6,671.23	6,640.64	26.91	61.78	45.80	-438.94	145.82	951.02	875.93	75.09	12.665	
6,900.00	6,740.64	6,771.23	6,740.64	27.01	60.83	45.80	-438.94	145.82	951.02	876.77	74.25	12.808	
7,000.00	6,840.64	6,871.23	6,840.64	27.11	60.14	45.80	-438.94	145.82	951.02	877.33	73.69	12.906	
7,100.00	6,940.64	6,971.23	6,940.64	27.21	59.71	45.80	-438.94	145.82	951.02	877.61	73.40	12.956	
7,200.00	7,040.64	7,071.23	7,040.64	27.31	59.55	45.80	-438.94	145.82	951.02	877.61	73.41	12.955	
7,300.00	7,140.64	7,171.23	7,140.64	27.42	59.65	45.80	-438.94	145.82	951.02	877.31	73.71	12.902	
7,400.00	7,240.64	7,271.23	7,240.64	27.52	60.02	45.80	-438.94	145.82	951.02	876.72	74.30	12.800	
7,500.00	7,340.64	7,371.23	7,340.64	27.63	60.66	45.80	-438.94	145.82	951.02	875.85	75.17	12.652	
7,600.00	7,440.64	7,471.23	7,440.64	27.74	61.54	45.80	-438.94	145.82	951.02	874.71	76.31	12.462	
7,700.00	7,540.64	7,571.23	7,540.64	27.85	62.67	45.80	-438.94	145.82	951.02	873.30	77.71	12.238	
7,800.00	7,640.64	7,671.23	7,640.64	27.96	64.03	45.80	-438.94	145.82	951.02	871.66	79.36	11.984	
7,900.00	7,740.64	7,771.23	7,740.64	28.08	65.61	45.80	-438.94	145.82	951.02	869.79	81.23	11.708	
8,000.00	7,840.64	7,871.23	7,840.64	28.19	67.38	45.80	-438.94	145.82	951.02	867.71	83.30	11.416	
8,100.00	7,940.64	7,971.23	7,940.64	28.31	69.35	45.80	-438.94	145.82	951.02	865.45	85.57	11.114	
8,200.00	8,040.64	8,071.23	8,040.64	28.42	71.47	45.80	-438.94	145.82	951.02	863.01	88.00	10.807	
8,217.36	8,058.00	8,088.59	8,058.00	28.44	71.85	45.80	-438.94	145.82	951.02	862.58	88.43	10.754	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_Riverbend 25-12 PAD - P_Riverbend 22-12 - P_Riverbend 22-12 - PLAN #1 6-22-10 RHS												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	-91.31	-0.36	-15.95	15.96				
100.00	100.00	100.00	100.00	0.10	0.10	-91.31	-0.36	-15.95	15.96	15.77	0.19	83.526	
200.00	200.00	200.00	200.00	0.32	0.32	-91.31	-0.36	-15.95	15.96	15.32	0.64	24.911	
300.00	300.00	300.00	300.00	0.55	0.55	-91.31	-0.36	-15.95	15.96	14.87	1.09	14.639	
400.00	400.00	400.00	400.00	0.77	0.77	-91.31	-0.36	-15.95	15.96	14.42	1.54	10.365	
500.00	500.00	500.00	500.00	0.99	0.99	-91.31	-0.36	-15.95	15.96	13.97	1.99	8.022	
600.00	600.00	600.00	600.00	1.22	1.22	-91.31	-0.36	-15.95	15.96	13.52	2.44	6.544	
700.00	700.00	700.00	700.00	1.44	1.44	-91.31	-0.36	-15.95	15.96	13.07	2.89	5.525	
800.00	800.00	800.00	800.00	1.67	1.67	-91.31	-0.36	-15.95	15.96	12.62	3.34	4.781	
900.00	900.00	900.00	900.00	1.89	1.89	-91.31	-0.36	-15.95	15.96	12.17	3.79	4.213	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-91.31	-0.36	-15.95	15.96	11.72	4.24	3.766 CC, ES	
1,100.00	1,099.98	1,099.41	1,099.39	2.32	2.33	68.62	-0.21	-17.67	16.97	12.33	4.64	3.655 SF	
1,200.00	1,199.84	1,198.59	1,198.43	2.50	2.54	82.15	0.27	-22.80	20.86	15.83	5.02	4.151	
1,300.00	1,299.45	1,297.31	1,296.77	2.69	2.76	95.30	1.06	-31.30	28.89	23.46	5.43	5.322	
1,400.00	1,398.70	1,395.34	1,394.08	2.91	2.99	104.45	2.15	-43.07	41.42	35.56	5.86	7.064	
1,500.00	1,497.47	1,492.47	1,490.05	3.16	3.26	110.16	3.53	-58.00	58.25	51.91	6.34	9.187	
1,600.00	1,595.62	1,588.50	1,584.37	3.46	3.56	113.70	5.19	-75.93	79.14	72.27	6.87	11.518	
1,700.00	1,693.06	1,683.24	1,676.78	3.80	3.90	115.93	7.11	-96.70	103.91	96.44	7.46	13.921	
1,786.73	1,776.88	1,764.24	1,755.20	4.15	4.23	117.20	8.98	-116.86	128.41	120.37	8.04	15.975	
1,800.00	1,789.65	1,776.52	1,767.05	4.21	4.28	117.41	9.28	-120.11	132.39	124.25	8.13	16.280	
1,900.00	1,885.90	1,868.55	1,855.30	4.66	4.72	118.22	11.68	-146.05	163.48	154.60	8.88	18.400	
2,000.00	1,982.16	1,959.36	1,941.53	5.13	5.20	118.06	14.31	-174.42	196.49	186.79	9.70	20.263	
2,100.00	2,078.41	2,048.82	2,025.54	5.62	5.73	117.36	17.14	-205.00	231.37	220.81	10.56	21.910	
2,200.00	2,174.66	2,136.77	2,107.17	6.12	6.31	116.37	20.16	-237.60	268.16	256.69	11.47	23.387	
2,300.00	2,270.92	2,223.09	2,186.27	6.63	6.94	115.22	23.35	-272.01	306.86	294.46	12.40	24.741	
2,400.00	2,367.17	2,313.18	2,268.06	7.15	7.64	114.03	26.83	-309.62	346.95	333.55	13.40	25.894	
2,500.00	2,463.42	2,404.56	2,351.00	7.68	8.38	113.07	30.37	-347.81	387.18	372.76	14.41	26.860	
2,600.00	2,559.67	2,495.93	2,433.93	8.21	9.12	112.28	33.90	-386.01	427.48	412.04	15.44	27.683	
2,700.00	2,655.93	2,587.31	2,516.86	8.75	9.88	111.64	37.44	-424.20	467.85	451.37	16.48	28.393	
2,800.00	2,752.18	2,678.68	2,599.80	9.28	10.65	111.09	40.98	-462.40	508.25	490.73	17.52	29.010	
2,900.00	2,848.43	2,770.06	2,682.73	9.83	11.43	110.62	44.52	-500.60	548.69	530.12	18.57	29.550	
3,000.00	2,944.68	2,861.43	2,765.66	10.37	12.21	110.22	48.05	-538.79	589.15	569.53	19.62	30.027	
3,100.00	3,040.94	2,952.81	2,848.60	10.92	12.99	109.87	51.59	-576.99	629.63	608.96	20.68	30.451	
3,200.00	3,137.19	3,044.18	2,931.53	11.47	13.78	109.56	55.13	-615.18	670.13	648.40	21.74	30.830	
3,300.00	3,233.44	3,135.56	3,014.46	12.02	14.57	109.29	58.66	-653.38	710.65	687.85	22.80	31.171	
3,400.00	3,329.70	3,226.93	3,097.40	12.57	15.36	109.05	62.20	-691.58	751.18	727.32	23.86	31.480	
3,500.00	3,425.95	3,318.31	3,180.33	13.13	16.16	108.83	65.74	-729.77	791.72	766.79	24.93	31.760	
3,600.00	3,522.20	3,409.68	3,263.26	13.68	16.96	108.63	69.28	-767.97	832.26	806.27	26.00	32.015	
3,700.00	3,618.45	3,501.06	3,346.20	14.24	17.76	108.45	72.81	-806.16	872.82	845.75	27.06	32.249	
3,800.00	3,714.71	3,592.43	3,429.13	14.79	18.56	108.29	76.35	-844.36	913.38	885.24	28.13	32.465	
3,900.00	3,810.96	3,683.81	3,512.07	15.35	19.36	108.14	79.89	-882.56	953.94	924.74	29.21	32.664	
4,000.00	3,907.21	3,775.18	3,595.00	15.91	20.16	108.00	83.42	-920.75	994.52	964.24	30.28	32.848	
4,100.00	4,003.47	3,866.56	3,677.93	16.46	20.97	107.88	86.96	-958.95	1,035.09	1,003.74	31.35	33.019	
4,200.00	4,099.72	3,957.93	3,760.87	17.02	21.77	107.76	90.50	-997.14	1,075.67	1,043.25	32.42	33.179	
4,300.00	4,195.97	4,049.31	3,843.80	17.58	22.58	107.65	94.04	-1,035.34	1,116.25	1,082.76	33.49	33.329	
4,400.00	4,292.22	4,140.68	3,926.73	18.14	23.39	107.55	97.57	-1,073.54	1,156.84	1,122.28	34.56	33.469	
4,500.00	4,388.48	4,232.06	4,009.67	18.70	24.19	107.46	101.11	-1,111.73	1,197.43	1,161.79	35.64	33.601	
4,600.00	4,484.73	4,323.43	4,092.60	19.26	25.00	107.37	104.65	-1,149.93	1,238.02	1,201.31	36.71	33.725	
4,700.00	4,580.98	4,414.81	4,175.53	19.82	25.81	107.29	108.18	-1,188.12	1,278.61	1,240.83	37.78	33.842	
4,800.00	4,677.23	4,506.18	4,258.47	20.38	26.62	107.21	111.72	-1,226.32	1,319.21	1,280.36	38.85	33.953	
4,900.00	4,773.49	4,597.56	4,341.40	20.94	27.43	107.14	115.26	-1,264.52	1,359.81	1,319.88	39.93	34.058	
5,000.00	4,869.74	4,688.94	4,424.33	21.51	28.24	107.07	118.79	-1,302.71	1,400.41	1,359.41	41.00	34.158	

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_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_Riverbend 25-12 PAD - P_Riverbend 22-12 - P_Riverbend 22-12 - PLAN #1 6-22-10 RHS												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
5,100.00	4,965.99	4,780.31	4,507.27	22.07	29.05	107.00	122.33	-1,340.91	1,441.01	1,398.94	42.07	34.253	
5,200.00	5,062.25	4,871.69	4,590.20	22.63	29.86	106.94	125.87	-1,379.10	1,481.61	1,438.47	43.14	34.344	
5,300.00	5,158.50	4,963.06	4,673.14	23.19	30.67	106.88	129.41	-1,417.30	1,522.22	1,478.00	44.21	34.431	
5,400.00	5,254.75	5,054.44	4,756.07	23.75	31.48	106.83	132.94	-1,455.50	1,562.82	1,517.54	45.28	34.514	
5,500.00	5,351.00	5,145.81	4,839.00	24.32	32.29	106.78	136.48	-1,493.69	1,603.43	1,557.08	46.35	34.593	
5,513.62	5,364.12	5,158.26	4,850.30	24.39	32.40	106.77	136.96	-1,498.89	1,608.96	1,562.46	46.50	34.604	
5,600.00	5,447.60	5,237.31	4,922.05	24.80	33.10	107.41	140.02	-1,531.94	1,643.69	1,596.09	47.60	34.532	
5,700.00	5,545.03	5,366.69	5,039.98	25.14	34.10	107.93	144.93	-1,584.91	1,682.49	1,633.64	48.85	34.444	
5,800.00	5,643.18	5,538.47	5,199.87	25.46	35.16	108.26	150.71	-1,647.38	1,716.64	1,666.57	50.07	34.282	
5,900.00	5,741.94	5,716.73	5,369.44	25.73	36.10	108.51	155.77	-1,702.01	1,745.34	1,694.18	51.16	34.118	
6,000.00	5,841.19	5,900.64	5,547.62	25.96	36.89	108.69	159.96	-1,747.25	1,768.29	1,716.22	52.07	33.959	
6,100.00	5,940.81	6,089.13	5,732.87	26.16	37.50	108.80	163.15	-1,781.71	1,785.26	1,732.45	52.81	33.808	
6,200.00	6,040.66	6,280.94	5,923.31	26.31	37.93	108.85	165.24	-1,804.24	1,796.06	1,742.70	53.36	33.659	
6,300.36	6,141.00	6,475.37	6,117.45	26.43	38.19	-45.23	166.15	-1,814.09	1,800.57	1,746.82	53.75	33.499	
6,400.00	6,240.64	6,598.57	6,240.64	26.53	38.28	-45.23	166.19	-1,814.50	1,800.73	1,746.76	53.97	33.366	
6,500.00	6,340.64	6,698.57	6,340.64	26.62	38.36	-45.23	166.19	-1,814.50	1,800.73	1,746.57	54.17	33.245	
6,600.00	6,440.64	6,798.57	6,440.64	26.72	38.44	-45.23	166.19	-1,814.50	1,800.73	1,746.37	54.37	33.122	
6,700.00	6,540.64	6,898.57	6,540.64	26.81	38.52	-45.23	166.19	-1,814.50	1,800.73	1,746.16	54.57	32.999	
6,800.00	6,640.64	6,998.57	6,640.64	26.91	38.60	-45.23	166.19	-1,814.50	1,800.73	1,745.96	54.78	32.875	
6,900.00	6,740.64	7,098.57	6,740.64	27.01	38.69	-45.23	166.19	-1,814.50	1,800.73	1,745.75	54.98	32.750	
7,000.00	6,840.64	7,198.57	6,840.64	27.11	38.77	-45.23	166.19	-1,814.50	1,800.73	1,745.53	55.20	32.624	
7,100.00	6,940.64	7,298.57	6,940.64	27.21	38.86	-45.23	166.19	-1,814.50	1,800.73	1,745.32	55.41	32.498	
7,200.00	7,040.64	7,398.57	7,040.64	27.31	38.94	-45.23	166.19	-1,814.50	1,800.73	1,745.10	55.63	32.371	
7,300.00	7,140.64	7,498.57	7,140.64	27.42	39.03	-45.23	166.19	-1,814.50	1,800.73	1,744.88	55.85	32.243	
7,400.00	7,240.64	7,598.57	7,240.64	27.52	39.12	-45.23	166.19	-1,814.50	1,800.73	1,744.66	56.07	32.114	
7,500.00	7,340.64	7,698.57	7,340.64	27.63	39.21	-45.23	166.19	-1,814.50	1,800.73	1,744.43	56.30	31.986	
7,600.00	7,440.64	7,798.57	7,440.64	27.74	39.30	-45.23	166.19	-1,814.50	1,800.73	1,744.20	56.53	31.856	
7,700.00	7,540.64	7,898.57	7,540.64	27.85	39.39	-45.23	166.19	-1,814.50	1,800.73	1,743.97	56.76	31.726	
7,800.00	7,640.64	7,998.57	7,640.64	27.96	39.48	-45.23	166.19	-1,814.50	1,800.73	1,743.74	56.99	31.596	
7,900.00	7,740.64	8,098.57	7,740.64	28.08	39.58	-45.23	166.19	-1,814.50	1,800.73	1,743.50	57.23	31.466	
8,000.00	7,840.64	8,198.57	7,840.64	28.19	39.67	-45.23	166.19	-1,814.50	1,800.73	1,743.26	57.47	31.335	
8,100.00	7,940.64	8,298.57	7,940.64	28.31	39.77	-45.23	166.19	-1,814.50	1,800.73	1,743.02	57.71	31.203	
8,200.00	8,040.64	8,398.57	8,040.64	28.42	39.86	-45.23	166.19	-1,814.50	1,800.73	1,742.78	57.95	31.072	
8,217.36	8,058.00	8,415.93	8,058.00	28.44	39.88	-45.23	166.19	-1,814.50	1,800.73	1,742.74	58.00	31.049	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_Riverbend 25-12 PAD - P_Riverbend 25-12 - P_Riverbend 25-12 - PLAN #1 6-22-10 RHS												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	90.00	0.00	15.95	15.95				
100.00	100.00	100.00	100.00	0.10	0.10	90.00	0.00	15.95	15.95	15.76	0.19	83.504	
200.00	200.00	200.00	200.00	0.32	0.32	90.00	0.00	15.95	15.95	15.31	0.64	24.905	
300.00	300.00	300.00	300.00	0.55	0.55	90.00	0.00	15.95	15.95	14.86	1.09	14.635	
400.00	400.00	400.00	400.00	0.77	0.77	90.00	0.00	15.95	15.95	14.41	1.54	10.362	
500.00	500.00	500.00	500.00	0.99	0.99	90.00	0.00	15.95	15.95	13.96	1.99	8.020	
600.00	600.00	600.00	600.00	1.22	1.22	90.00	0.00	15.95	15.95	13.51	2.44	6.542	
700.00	700.00	700.00	700.00	1.44	1.44	90.00	0.00	15.95	15.95	13.07	2.89	5.524	
800.00	800.00	800.00	800.00	1.67	1.67	90.00	0.00	15.95	15.95	12.62	3.34	4.780	
900.00	900.00	900.00	900.00	1.89	1.89	90.00	0.00	15.95	15.95	12.17	3.79	4.212	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	90.00	0.00	15.95	15.95	11.72	4.24	3.765	
1,100.00	1,099.98	1,100.44	1,100.42	2.32	2.34	-124.78	0.78	14.37	15.32	10.67	4.65	3.295	
1,144.74	1,144.67	1,145.28	1,145.21	2.40	2.43	-135.00	1.63	12.65	15.08	10.26	4.82	3.126 CC, ES, SF	
1,200.00	1,199.84	1,200.51	1,200.35	2.50	2.55	-152.34	3.10	9.66	15.80	10.77	5.04	3.138	
1,300.00	1,299.45	1,299.85	1,299.30	2.69	2.78	176.63	6.93	1.89	22.79	17.35	5.43	4.194	
1,400.00	1,398.70	1,398.46	1,397.30	2.91	3.02	160.36	11.77	-7.95	37.11	31.26	5.85	6.342	
1,500.00	1,497.47	1,496.59	1,494.81	3.16	3.27	154.78	16.63	-17.81	55.84	49.56	6.28	8.886	
1,600.00	1,595.62	1,594.12	1,591.73	3.46	3.53	153.12	21.45	-27.61	77.84	71.12	6.73	11.568	
1,700.00	1,693.06	1,690.93	1,687.93	3.80	3.79	152.99	26.24	-37.34	102.89	95.71	7.19	14.317	
1,786.73	1,776.88	1,774.21	1,770.69	4.15	4.02	153.42	30.36	-45.71	127.06	119.46	7.59	16.736	
1,800.00	1,789.65	1,786.90	1,783.30	4.21	4.05	153.54	30.99	-46.98	130.92	123.26	7.66	17.091	
1,900.00	1,885.90	1,882.53	1,878.33	4.66	4.32	154.25	35.72	-56.59	160.10	151.91	8.19	19.548	
2,000.00	1,982.16	1,978.16	1,973.36	5.13	4.59	154.75	40.46	-66.20	189.30	180.57	8.73	21.677	
2,100.00	2,078.41	2,073.80	2,068.39	5.62	4.86	155.11	45.19	-75.81	218.50	209.22	9.29	23.530	
2,200.00	2,174.66	2,169.43	2,163.42	6.12	5.13	155.39	49.92	-85.42	247.72	237.87	9.85	25.154	
2,300.00	2,270.92	2,265.06	2,258.45	6.63	5.41	155.61	54.65	-95.03	276.93	266.51	10.42	26.584	
2,400.00	2,367.17	2,360.69	2,353.48	7.15	5.69	155.79	59.38	-104.64	306.15	295.16	10.99	27.851	
2,500.00	2,463.42	2,456.33	2,448.51	7.68	5.97	155.93	64.12	-114.25	335.37	323.80	11.57	28.979	
2,600.00	2,559.67	2,551.96	2,543.54	8.21	6.25	156.06	68.85	-123.86	364.59	352.44	12.16	29.989	
2,700.00	2,655.93	2,647.59	2,638.57	8.75	6.53	156.16	73.58	-133.47	393.82	381.07	12.75	30.897	
2,800.00	2,752.18	2,743.22	2,733.60	9.28	6.82	156.25	78.31	-143.08	423.04	409.70	13.34	31.718	
2,900.00	2,848.43	2,838.86	2,828.63	9.83	7.10	156.33	83.05	-152.69	452.27	438.33	13.93	32.462	
3,000.00	2,944.68	2,934.49	2,923.66	10.37	7.39	156.40	87.78	-162.30	481.49	466.96	14.53	33.140	
3,100.00	3,040.94	3,030.12	3,018.69	10.92	7.67	156.46	92.51	-171.91	510.72	495.59	15.13	33.760	
3,200.00	3,137.19	3,125.75	3,113.72	11.47	7.96	156.52	97.24	-181.52	539.95	524.22	15.73	34.328	
3,300.00	3,233.44	3,221.38	3,208.75	12.02	8.24	156.56	101.98	-191.14	569.17	552.84	16.33	34.851	
3,400.00	3,329.70	3,317.02	3,303.78	12.57	8.53	156.61	106.71	-200.75	598.40	581.47	16.94	35.334	
3,500.00	3,425.95	3,412.65	3,398.81	13.13	8.82	156.65	111.44	-210.36	627.63	610.09	17.54	35.781	
3,600.00	3,522.20	3,508.28	3,493.85	13.68	9.11	156.69	116.17	-219.97	656.86	638.71	18.15	36.196	
3,700.00	3,618.45	3,603.91	3,588.88	14.24	9.39	156.72	120.90	-229.58	686.09	667.33	18.76	36.581	
3,800.00	3,714.71	3,699.55	3,683.91	14.79	9.68	156.75	125.64	-239.19	715.32	695.95	19.36	36.941	
3,900.00	3,810.96	3,795.18	3,778.94	15.35	9.97	156.78	130.37	-248.80	744.55	724.57	19.97	37.277	
4,000.00	3,907.21	3,890.81	3,873.97	15.91	10.26	156.80	135.10	-258.41	773.77	753.19	20.58	37.592	
4,100.00	4,003.47	3,986.44	3,969.00	16.46	10.55	156.83	139.83	-268.02	803.00	781.81	21.19	37.887	
4,200.00	4,099.72	4,082.08	4,064.03	17.02	10.84	156.85	144.57	-277.63	832.23	810.43	21.81	38.165	
4,300.00	4,195.97	4,177.71	4,159.06	17.58	11.13	156.87	149.30	-287.24	861.46	839.04	22.42	38.426	
4,400.00	4,292.22	4,273.34	4,254.09	18.14	11.42	156.89	154.03	-296.85	890.69	867.66	23.03	38.672	
4,500.00	4,388.48	4,368.97	4,349.12	18.70	11.71	156.91	158.76	-306.46	919.92	896.28	23.65	38.905	
4,600.00	4,484.73	4,464.61	4,444.15	19.26	12.00	156.93	163.50	-316.07	949.15	924.89	24.26	39.126	
4,700.00	4,580.98	4,560.24	4,539.18	19.82	12.29	156.94	168.23	-325.68	978.38	953.51	24.87	39.335	
4,800.00	4,677.23	4,655.87	4,634.21	20.38	12.58	156.96	172.96	-335.29	1,007.61	982.12	25.49	39.533	
4,900.00	4,773.49	4,751.50	4,729.24	20.94	12.87	156.97	177.69	-344.90	1,036.84	1,010.74	26.10	39.721	

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_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
5,000.00	4,869.74	4,847.13	4,824.27	21.51	13.16	156.99	182.42	-354.51	1,066.07	1,039.35	26.72	39.900	
5,100.00	4,965.99	4,942.77	4,919.30	22.07	13.46	157.00	187.16	-364.12	1,095.30	1,067.97	27.33	40.070	
5,200.00	5,062.25	5,038.40	5,014.33	22.63	13.75	157.01	191.89	-373.73	1,124.53	1,096.58	27.95	40.233	
5,300.00	5,158.50	5,134.03	5,109.36	23.19	14.04	157.02	196.62	-383.34	1,153.76	1,125.20	28.57	40.388	
5,400.00	5,254.75	5,229.66	5,204.39	23.75	14.33	157.03	201.35	-392.95	1,182.99	1,153.81	29.18	40.536	
5,500.00	5,351.00	5,325.30	5,299.42	24.32	14.62	157.04	206.09	-402.56	1,212.22	1,182.42	29.80	40.678	
5,513.62	5,364.12	5,338.32	5,312.37	24.39	14.66	157.05	206.73	-403.87	1,216.21	1,186.32	29.88	40.696	
5,600.00	5,447.60	5,421.27	5,394.79	24.80	14.91	157.22	210.83	-412.20	1,240.30	1,209.82	30.48	40.690	
5,700.00	5,545.03	5,518.07	5,490.99	25.14	15.21	157.35	215.63	-421.93	1,265.31	1,234.19	31.12	40.660	
5,800.00	5,643.18	5,615.60	5,587.90	25.46	15.51	157.38	220.45	-431.73	1,287.19	1,255.46	31.73	40.569	
5,900.00	5,741.94	5,713.73	5,685.41	25.73	15.81	157.34	225.31	-441.59	1,305.93	1,273.62	32.31	40.423	
6,000.00	5,841.19	5,812.35	5,783.41	25.96	16.11	157.22	230.19	-451.50	1,321.51	1,288.66	32.85	40.228	
6,100.00	5,940.81	5,929.82	5,900.32	26.16	16.40	157.03	235.22	-461.73	1,333.36	1,300.01	33.35	39.983	
6,200.00	6,040.66	6,052.07	6,022.38	26.31	16.63	156.92	238.23	-467.84	1,340.39	1,306.67	33.72	39.747	
6,300.36	6,141.00	6,170.72	6,141.00	26.43	16.81	2.85	238.98	-469.37	1,342.56	1,308.54	34.01	39.471	
6,400.00	6,240.64	6,270.36	6,240.64	26.53	16.98	2.85	238.98	-469.37	1,342.56	1,308.22	34.34	39.100	
6,500.00	6,340.64	6,370.36	6,340.64	26.62	17.16	2.85	238.98	-469.37	1,342.56	1,307.90	34.66	38.736	
6,600.00	6,440.64	6,470.36	6,440.64	26.72	17.34	2.85	238.98	-469.37	1,342.56	1,307.57	34.99	38.375	
6,700.00	6,540.64	6,570.36	6,540.64	26.81	17.51	2.85	238.98	-469.37	1,342.56	1,307.24	35.31	38.018	
6,800.00	6,640.64	6,670.36	6,640.64	26.91	17.69	2.85	238.98	-469.37	1,342.56	1,306.91	35.65	37.664	
6,900.00	6,740.64	6,770.36	6,740.64	27.01	17.87	2.85	238.98	-469.37	1,342.56	1,306.58	35.98	37.315	
7,000.00	6,840.64	6,870.36	6,840.64	27.11	18.05	2.85	238.98	-469.37	1,342.56	1,306.24	36.32	36.970	
7,100.00	6,940.64	6,970.36	6,940.64	27.21	18.24	2.85	238.98	-469.37	1,342.56	1,305.90	36.65	36.628	
7,200.00	7,040.64	7,070.36	7,040.64	27.31	18.42	2.85	238.98	-469.37	1,342.56	1,305.56	36.99	36.291	
7,300.00	7,140.64	7,170.36	7,140.64	27.42	18.60	2.85	238.98	-469.37	1,342.56	1,305.22	37.34	35.957	
7,400.00	7,240.64	7,270.36	7,240.64	27.52	18.79	2.85	238.98	-469.37	1,342.56	1,304.87	37.68	35.627	
7,500.00	7,340.64	7,370.36	7,340.64	27.63	18.97	2.85	238.98	-469.37	1,342.56	1,304.53	38.03	35.302	
7,600.00	7,440.64	7,470.36	7,440.64	27.74	19.16	2.85	238.98	-469.37	1,342.56	1,304.18	38.38	34.980	
7,700.00	7,540.64	7,570.36	7,540.64	27.85	19.35	2.85	238.98	-469.37	1,342.56	1,303.83	38.73	34.663	
7,800.00	7,640.64	7,670.36	7,640.64	27.96	19.54	2.85	238.98	-469.37	1,342.56	1,303.47	39.09	34.349	
7,900.00	7,740.64	7,770.36	7,740.64	28.08	19.72	2.85	238.98	-469.37	1,342.56	1,303.12	39.44	34.040	
8,000.00	7,840.64	7,870.36	7,840.64	28.19	19.91	2.85	238.98	-469.37	1,342.56	1,302.76	39.80	33.734	
8,100.00	7,940.64	7,970.36	7,940.64	28.31	20.10	2.85	238.98	-469.37	1,342.56	1,302.40	40.16	33.432	
8,165.76	8,006.40	8,036.12	8,006.40	28.38	20.23	2.85	238.98	-469.37	1,342.56	1,302.16	40.40	33.236	
8,200.00	8,040.64	8,067.72	8,038.00	28.42	20.29	2.85	238.98	-469.37	1,342.56	1,302.05	40.51	33.138	
8,217.36	8,058.00	8,067.72	8,038.00	28.44	20.29	2.85	238.98	-469.37	1,342.71	1,302.16	40.54	33.118	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design WELD_Riverbend 25-12 PAD - P_Riverbend 39-12 - P_Riverbend 39-12 - PLAN #1 6-22-10 RHS													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)	Semi Major Axis 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	89.99	0.00	47.86	47.86				
100.00	100.00	100.00	100.00	0.10	0.10	89.99	0.00	47.86	47.86	47.67	0.19	250.512	
200.00	200.00	200.00	200.00	0.32	0.32	89.99	0.00	47.86	47.86	47.22	0.64	74.714	
300.00	300.00	300.00	300.00	0.55	0.55	89.99	0.00	47.86	47.86	46.77	1.09	43.904 CC, ES	
400.00	400.00	398.51	398.49	0.77	0.75	90.92	-0.80	49.35	49.38	47.86	1.52	32.524	
500.00	500.00	496.79	496.63	0.99	0.96	93.39	-3.19	53.82	54.02	52.07	1.95	27.769	
600.00	600.00	594.60	594.08	1.22	1.19	96.66	-7.14	61.20	61.90	59.51	2.39	25.889	
700.00	700.00	691.74	690.52	1.44	1.46	100.02	-12.62	71.43	73.16	70.30	2.86	25.623 SF	
800.00	800.00	787.97	785.61	1.67	1.76	103.06	-19.57	84.41	87.83	84.50	3.34	26.326	
900.00	900.00	883.10	879.09	1.89	2.12	105.60	-27.92	99.99	105.90	102.07	3.83	27.624	
1,000.00	1,000.00	976.95	970.67	2.12	2.52	107.67	-37.59	118.04	127.30	122.95	4.35	29.286	
1,100.00	1,099.98	1,069.34	1,060.13	2.32	2.96	-96.76	-48.49	138.37	152.15	147.54	4.61	32.996	
1,200.00	1,199.84	1,160.06	1,147.20	2.50	3.46	-96.40	-60.51	160.81	180.45	175.42	5.03	35.853	
1,300.00	1,299.45	1,248.86	1,231.61	2.69	3.99	-96.69	-73.53	185.11	212.10	206.63	5.48	38.713	
1,400.00	1,398.70	1,335.57	1,313.16	2.91	4.57	-97.32	-87.43	211.06	247.08	241.12	5.96	41.483	
1,500.00	1,497.47	1,420.00	1,391.68	3.16	5.18	-98.08	-102.07	238.40	285.35	278.87	6.48	44.064	
1,600.00	1,595.62	1,500.00	1,465.21	3.46	5.80	-98.83	-116.96	266.18	326.90	319.86	7.04	46.423	
1,700.00	1,693.06	1,585.40	1,542.80	3.80	6.52	-99.71	-133.81	297.64	371.48	363.78	7.70	48.259	
1,786.73	1,776.88	1,661.74	1,611.99	4.15	7.18	-100.57	-149.05	326.08	411.23	402.89	8.33	49.338	
1,800.00	1,789.65	1,673.37	1,622.53	4.21	7.28	-100.84	-151.37	330.42	417.37	408.92	8.44	49.437	
1,900.00	1,885.90	1,761.06	1,701.99	4.66	8.04	-102.63	-168.87	363.08	463.84	454.57	9.28	49.989	
2,000.00	1,982.16	1,848.74	1,781.46	5.13	8.80	-104.10	-186.37	395.74	510.62	500.47	10.15	50.307	
2,100.00	2,078.41	1,936.42	1,860.93	5.62	9.57	-105.33	-203.87	428.41	557.62	546.57	11.05	50.478	
2,200.00	2,174.66	2,024.10	1,940.40	6.12	10.34	-106.37	-221.37	461.07	604.79	592.82	11.96	50.556	
2,300.00	2,270.92	2,111.79	2,019.86	6.63	11.11	-107.25	-238.87	493.74	652.09	639.19	12.89	50.575	
2,400.00	2,367.17	2,199.47	2,099.33	7.15	11.89	-108.02	-256.37	526.40	699.50	685.66	13.84	50.558	
2,500.00	2,463.42	2,287.15	2,178.80	7.68	12.67	-108.70	-273.86	559.06	746.99	732.20	14.79	50.517	
2,600.00	2,559.67	2,374.83	2,258.27	8.21	13.44	-109.29	-291.36	591.73	794.55	778.81	15.74	50.464	
2,700.00	2,655.93	2,462.52	2,337.73	8.75	14.22	-109.81	-308.86	624.39	842.18	825.47	16.71	50.404	
2,800.00	2,752.18	2,550.20	2,417.20	9.28	15.00	-110.28	-326.36	657.06	889.85	872.17	17.68	50.341	
2,900.00	2,848.43	2,637.88	2,496.67	9.83	15.78	-110.71	-343.86	689.72	937.56	918.92	18.65	50.277	
3,000.00	2,944.68	2,725.56	2,576.14	10.37	16.57	-111.09	-361.36	722.38	985.31	965.69	19.62	50.214	
3,100.00	3,040.94	2,813.25	2,655.60	10.92	17.35	-111.43	-378.86	755.05	1,033.09	1,012.49	20.60	50.153	
3,200.00	3,137.19	2,900.93	2,735.07	11.47	18.13	-111.75	-396.36	787.71	1,080.90	1,059.32	21.58	50.094	
3,300.00	3,233.44	2,988.61	2,814.54	12.02	18.91	-112.04	-413.86	820.38	1,128.73	1,106.17	22.56	50.038	
3,400.00	3,329.70	3,076.29	2,894.00	12.57	19.70	-112.30	-431.36	853.04	1,176.58	1,153.04	23.54	49.986	
3,500.00	3,425.95	3,163.98	2,973.47	13.13	20.48	-112.55	-448.86	885.71	1,224.45	1,199.93	24.52	49.936	
3,600.00	3,522.20	3,251.66	3,052.94	13.68	21.27	-112.78	-466.36	918.37	1,272.34	1,246.83	25.50	49.890	
3,700.00	3,618.45	3,339.34	3,132.41	14.24	22.05	-112.99	-483.85	951.03	1,320.23	1,293.75	26.49	49.847	
3,800.00	3,714.71	3,427.02	3,211.87	14.79	22.83	-113.18	-501.35	983.70	1,368.15	1,340.68	27.47	49.806	
3,900.00	3,810.96	3,514.71	3,291.34	15.35	23.62	-113.36	-518.85	1,016.36	1,416.07	1,387.62	28.45	49.769	
4,000.00	3,907.21	3,602.39	3,370.81	15.91	24.40	-113.53	-536.35	1,049.03	1,464.00	1,434.57	29.44	49.734	
4,100.00	4,003.47	3,690.07	3,450.28	16.46	25.19	-113.69	-553.85	1,081.69	1,511.95	1,481.53	30.42	49.702	
4,200.00	4,099.72	3,777.75	3,529.74	17.02	25.97	-113.84	-571.35	1,114.35	1,559.90	1,528.49	31.40	49.673	
4,300.00	4,195.97	3,865.44	3,609.21	17.58	26.76	-113.98	-588.85	1,147.02	1,607.86	1,575.47	32.39	49.645	
4,400.00	4,292.22	3,953.12	3,688.68	18.14	27.55	-114.12	-606.35	1,179.68	1,655.82	1,622.45	33.37	49.620	
4,500.00	4,388.48	4,040.80	3,768.15	18.70	28.33	-114.24	-623.85	1,212.35	1,703.80	1,669.44	34.35	49.597	
4,600.00	4,484.73	4,128.48	3,847.61	19.26	29.12	-114.36	-641.35	1,245.01	1,751.77	1,716.44	35.33	49.576	
4,700.00	4,580.98	4,216.17	3,927.08	19.82	29.90	-114.47	-658.85	1,277.67	1,799.76	1,763.44	36.32	49.557	
4,800.00	4,677.23	4,303.85	4,006.55	20.38	30.69	-114.58	-676.35	1,310.34	1,847.75	1,810.45	37.30	49.539	
4,900.00	4,773.49	4,391.53	4,086.02	20.94	31.47	-114.68	-693.85	1,343.00	1,895.74	1,857.46	38.28	49.524	
5,000.00	4,869.74	4,479.21	4,165.48	21.51	32.26	-114.78	-711.34	1,375.67	1,943.74	1,904.48	39.26	49.510	

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_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
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	4,965.99	4,566.90	4,244.95	22.07	33.05	-114.87	-728.84	1,408.33	1,991.74	1,951.50	40.24	49.497	
5,200.00	5,062.25	4,654.58	4,324.42	22.63	33.83	-114.95	-746.34	1,440.99	2,039.75	1,998.53	41.22	49.486	
5,300.00	5,158.50	4,742.26	4,403.88	23.19	34.62	-115.04	-763.84	1,473.66	2,087.76	2,045.56	42.20	49.475	
5,400.00	5,254.75	4,829.95	4,483.35	23.75	35.41	-115.12	-781.34	1,506.32	2,135.77	2,092.59	43.18	49.467	
5,500.00	5,351.00	4,917.63	4,562.82	24.32	36.19	-115.19	-798.84	1,538.99	2,183.78	2,139.63	44.15	49.459	
5,513.62	5,364.12	4,929.57	4,573.65	24.39	36.30	-115.20	-801.22	1,543.44	2,190.33	2,146.04	44.29	49.458	
5,600.00	5,447.60	5,005.60	4,642.55	24.80	36.98	-116.07	-816.40	1,571.76	2,231.31	2,185.88	45.42	49.121	
5,700.00	5,545.03	5,094.27	4,722.91	25.14	37.78	-116.95	-834.09	1,604.79	2,277.49	2,230.88	46.62	48.856	
5,800.00	5,643.18	5,183.54	4,803.82	25.46	38.58	-117.70	-851.91	1,638.05	2,322.27	2,274.53	47.75	48.639	
5,900.00	5,741.94	5,273.31	4,885.18	25.73	39.38	-118.34	-869.83	1,671.49	2,365.62	2,316.81	48.81	48.470	
6,000.00	5,841.19	5,363.46	4,966.88	25.96	40.19	-118.86	-887.82	1,705.07	2,407.50	2,357.70	49.79	48.350	
6,100.00	5,940.81	5,453.89	5,048.84	26.16	41.00	-119.29	-905.86	1,738.76	2,447.91	2,397.20	50.70	48.280	
6,200.00	6,040.66	5,544.48	5,130.94	26.31	41.82	-119.61	-923.94	1,772.50	2,486.84	2,435.31	51.53	48.259	
6,300.36	6,141.00	5,635.44	5,213.38	26.43	42.63	86.10	-942.10	1,806.39	2,524.45	2,472.16	52.29	48.278	
6,400.00	6,240.64	5,725.75	5,295.22	26.53	43.44	86.58	-960.12	1,840.03	2,561.15	2,508.42	52.73	48.572	
6,500.00	6,340.64	6,123.54	5,665.70	26.62	45.93	88.31	-1,028.13	1,966.97	2,593.43	2,539.72	53.72	48.281	
6,600.00	6,440.64	6,606.41	6,136.68	26.72	47.70	89.45	-1,077.18	2,058.53	2,612.40	2,557.91	54.50	47.936	
6,700.00	6,540.64	7,011.49	6,540.64	26.81	48.26	89.72	-1,089.09	2,080.77	2,616.81	2,561.83	54.98	47.592	
6,800.00	6,640.64	7,111.49	6,640.64	26.91	48.32	89.72	-1,089.09	2,080.77	2,616.81	2,561.64	55.17	47.428	
6,900.00	6,740.64	7,211.49	6,740.64	27.01	48.38	89.72	-1,089.09	2,080.77	2,616.81	2,561.44	55.37	47.262	
7,000.00	6,840.64	7,311.49	6,840.64	27.11	48.45	89.72	-1,089.09	2,080.77	2,616.81	2,561.25	55.56	47.095	
7,100.00	6,940.64	7,411.49	6,940.64	27.21	48.51	89.72	-1,089.09	2,080.77	2,616.81	2,561.05	55.76	46.927	
7,200.00	7,040.64	7,511.49	7,040.64	27.31	48.57	89.72	-1,089.09	2,080.77	2,616.81	2,560.85	55.97	46.758	
7,300.00	7,140.64	7,611.49	7,140.64	27.42	48.64	89.72	-1,089.09	2,080.77	2,616.81	2,560.64	56.17	46.587	
7,400.00	7,240.64	7,711.49	7,240.64	27.52	48.71	89.72	-1,089.09	2,080.77	2,616.81	2,560.43	56.38	46.416	
7,500.00	7,340.64	7,811.49	7,340.64	27.63	48.77	89.72	-1,089.09	2,080.77	2,616.81	2,560.22	56.59	46.243	
7,600.00	7,440.64	7,911.49	7,440.64	27.74	48.84	89.72	-1,089.09	2,080.77	2,616.81	2,560.01	56.80	46.069	
7,700.00	7,540.64	8,011.49	7,540.64	27.85	48.91	89.72	-1,089.09	2,080.77	2,616.81	2,559.79	57.02	45.895	
7,800.00	7,640.64	8,111.49	7,640.64	27.96	48.98	89.72	-1,089.09	2,080.77	2,616.81	2,559.57	57.24	45.719	
7,900.00	7,740.64	8,211.49	7,740.64	28.08	49.05	89.72	-1,089.09	2,080.77	2,616.81	2,559.35	57.46	45.543	
8,000.00	7,840.64	8,311.49	7,840.64	28.19	49.12	89.72	-1,089.09	2,080.77	2,616.81	2,559.13	57.68	45.366	
8,100.00	7,940.64	8,411.49	7,940.64	28.31	49.20	89.72	-1,089.09	2,080.77	2,616.81	2,558.90	57.91	45.188	
8,165.76	8,006.40	8,477.26	8,006.40	28.38	49.25	89.72	-1,089.09	2,080.77	2,616.81	2,558.75	58.06	45.071	
8,200.00	8,040.64	8,508.85	8,038.00	28.42	49.27	89.72	-1,089.09	2,080.77	2,616.81	2,558.68	58.14	45.012	
8,217.36	8,058.00	8,508.85	8,038.00	28.44	49.27	89.72	-1,089.09	2,080.77	2,616.89	2,558.73	58.16	44.997	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	64.09	64.09				
100.00	100.00	100.00	100.00	0.10	0.10	90.00	0.00	64.09	64.09	63.90	0.19	335.481	
200.00	200.00	200.00	200.00	0.32	0.32	90.00	0.00	64.09	64.09	63.45	0.64	100.056	
300.00	300.00	300.00	300.00	0.55	0.55	90.00	0.00	64.09	64.09	63.00	1.09	58.796 CC, ES	
400.00	400.00	397.81	397.79	0.77	0.75	90.26	-0.30	65.74	65.77	64.25	1.52	43.257	
500.00	500.00	495.39	495.24	0.99	0.96	90.96	-1.19	70.65	70.82	68.87	1.95	36.332	
600.00	600.00	592.52	592.01	1.22	1.20	91.94	-2.67	78.78	79.22	76.83	2.39	33.129	
700.00	700.00	688.98	687.78	1.44	1.46	92.99	-4.71	90.04	90.98	88.14	2.85	31.954 SF	
800.00	800.00	784.56	782.25	1.67	1.76	94.00	-7.30	104.32	106.07	102.75	3.32	31.972	
900.00	900.00	879.06	875.12	1.89	2.11	94.90	-10.42	121.48	124.44	120.63	3.80	32.723	
1,000.00	1,000.00	972.30	966.15	2.12	2.50	95.67	-14.03	141.36	146.03	141.73	4.30	33.935	
1,100.00	1,099.98	1,063.98	1,054.96	2.32	2.94	-109.68	-18.09	163.73	171.34	166.75	4.59	37.294	
1,200.00	1,199.84	1,153.69	1,141.11	2.50	3.42	-109.88	-22.55	188.32	200.84	195.84	5.00	40.131	
1,300.00	1,299.45	1,241.13	1,224.29	2.69	3.94	-110.51	-27.37	214.83	234.47	229.04	5.43	43.171	
1,400.00	1,398.70	1,326.04	1,304.24	2.91	4.49	-111.31	-32.47	242.95	272.17	266.29	5.88	46.294	
1,500.00	1,497.47	1,408.20	1,380.76	3.16	5.08	-112.15	-37.81	272.37	313.91	307.56	6.36	49.396	
1,600.00	1,595.62	1,487.42	1,453.71	3.46	5.69	-112.92	-43.33	302.78	359.60	352.73	6.86	52.382	
1,700.00	1,693.06	1,565.47	1,524.73	3.80	6.34	-113.62	-49.12	334.62	409.08	401.67	7.42	55.147	
1,786.73	1,776.88	1,638.91	1,591.29	4.15	6.96	-114.35	-54.66	365.16	453.91	445.95	7.96	57.014	
1,800.00	1,789.65	1,650.07	1,601.41	4.21	7.06	-114.60	-55.50	369.80	460.86	452.81	8.06	57.214	
1,900.00	1,885.90	1,734.21	1,677.67	4.66	7.79	-116.30	-61.86	404.79	513.45	504.67	8.78	58.478	
2,000.00	1,982.16	1,818.36	1,753.93	5.13	8.52	-117.69	-68.21	439.77	566.32	556.78	9.53	59.395	
2,100.00	2,078.41	1,902.50	1,830.19	5.62	9.26	-118.85	-74.56	474.76	619.39	609.07	10.31	60.069	
2,200.00	2,174.66	1,986.64	1,906.45	6.12	9.99	-119.82	-80.91	509.75	672.61	661.50	11.10	60.571	
2,300.00	2,270.92	2,070.79	1,982.70	6.63	10.74	-120.66	-87.27	544.74	725.95	714.04	11.91	60.950	
2,400.00	2,367.17	2,154.93	2,058.96	7.15	11.48	-121.37	-93.62	579.73	779.39	766.66	12.73	61.240	
2,500.00	2,463.42	2,239.07	2,135.22	7.68	12.22	-122.00	-99.97	614.72	832.90	819.35	13.55	61.465	
2,600.00	2,559.67	2,323.22	2,211.48	8.21	12.97	-122.56	-106.32	649.70	886.48	872.10	14.38	61.642	
2,700.00	2,655.93	2,407.36	2,287.74	8.75	13.72	-123.05	-112.68	684.69	940.11	924.89	15.22	61.782	
2,800.00	2,752.18	2,491.50	2,364.00	9.28	14.47	-123.48	-119.03	719.68	993.78	977.73	16.06	61.895	
2,900.00	2,848.43	2,575.65	2,440.26	9.83	15.22	-123.88	-125.38	754.67	1,047.49	1,030.60	16.90	61.986	
3,000.00	2,944.68	2,659.79	2,516.52	10.37	15.97	-124.23	-131.73	789.66	1,101.24	1,083.49	17.74	62.062	
3,100.00	3,040.94	2,743.93	2,592.78	10.92	16.72	-124.55	-138.09	824.65	1,155.01	1,136.42	18.59	62.125	
3,200.00	3,137.19	2,828.07	2,669.04	11.47	17.47	-124.85	-144.44	859.63	1,208.80	1,189.36	19.44	62.178	
3,300.00	3,233.44	2,912.22	2,745.30	12.02	18.22	-125.11	-150.79	894.62	1,262.62	1,242.33	20.29	62.224	
3,400.00	3,329.70	2,996.36	2,821.56	12.57	18.97	-125.36	-157.14	929.61	1,316.45	1,295.31	21.14	62.264	
3,500.00	3,425.95	3,080.50	2,897.82	13.13	19.72	-125.59	-163.50	964.60	1,370.30	1,348.30	22.00	62.299	
3,600.00	3,522.20	3,164.65	2,974.08	13.68	20.48	-125.80	-169.85	999.59	1,424.16	1,401.31	22.85	62.330	
3,700.00	3,618.45	3,248.79	3,050.34	14.24	21.23	-125.99	-176.20	1,034.58	1,478.04	1,454.34	23.70	62.359	
3,800.00	3,714.71	3,332.93	3,126.60	14.79	21.98	-126.17	-182.55	1,069.57	1,531.93	1,507.37	24.56	62.385	
3,900.00	3,810.96	3,417.08	3,202.86	15.35	22.74	-126.34	-188.91	1,104.55	1,585.82	1,560.41	25.41	62.409	
4,000.00	3,907.21	3,501.22	3,279.12	15.91	23.49	-126.50	-195.26	1,139.54	1,639.73	1,613.47	26.26	62.432	
4,100.00	4,003.47	3,585.36	3,355.38	16.46	24.24	-126.65	-201.61	1,174.53	1,693.65	1,666.53	27.12	62.455	
4,200.00	4,099.72	3,669.51	3,431.64	17.02	25.00	-126.79	-207.96	1,209.52	1,747.57	1,719.60	27.97	62.476	
4,300.00	4,195.97	3,753.65	3,507.90	17.58	25.75	-126.92	-214.32	1,244.51	1,801.50	1,772.67	28.83	62.497	
4,400.00	4,292.22	3,837.79	3,584.16	18.14	26.51	-127.04	-220.67	1,279.50	1,855.43	1,825.75	29.68	62.517	
4,500.00	4,388.48	3,921.94	3,660.42	18.70	27.26	-127.16	-227.02	1,314.48	1,909.37	1,878.84	30.53	62.537	
4,600.00	4,484.73	4,006.08	3,736.68	19.26	28.02	-127.27	-233.37	1,349.47	1,963.32	1,931.94	31.38	62.557	
4,700.00	4,580.98	4,231.08	3,944.04	19.82	29.58	-127.65	-248.95	1,435.25	2,014.42	1,981.74	32.68	61.639	
4,800.00	4,677.23	4,478.82	4,179.48	20.38	30.90	-128.30	-262.67	1,510.86	2,058.98	2,025.03	33.94	60.657	
4,900.00	4,773.49	4,743.10	4,436.94	20.94	31.92	-129.21	-273.26	1,569.14	2,096.28	2,061.13	35.15	59.630	
5,000.00	4,869.74	5,020.75	4,712.08	21.51	32.61	-130.41	-279.76	1,604.96	2,125.73	2,089.46	36.28	58.597	

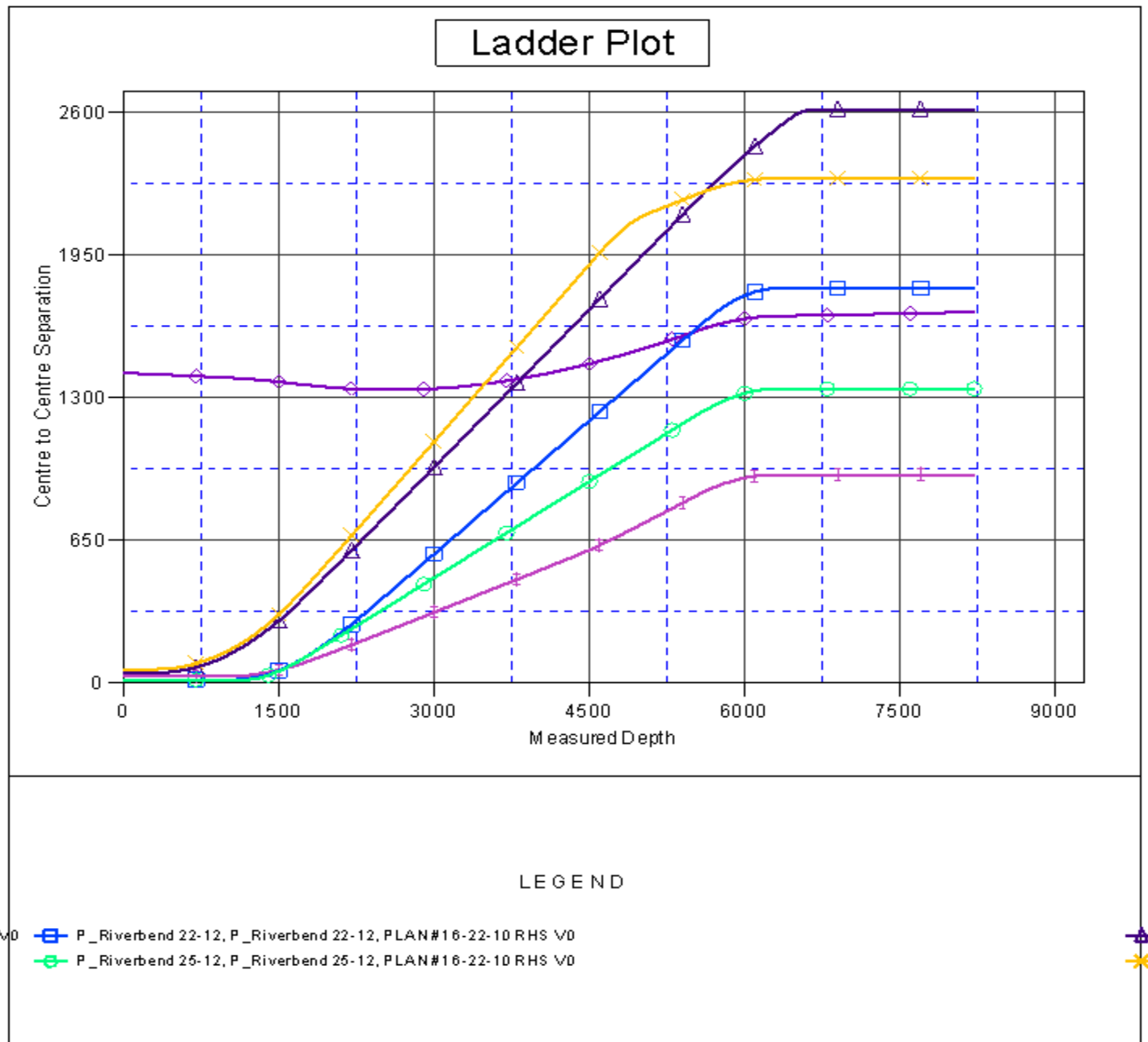
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
5,100.00	4,965.99	5,274.94	4,965.99	22.07	32.90	-131.72	-281.53	1,614.69	2,147.04	2,109.81	37.24	57.661	
5,200.00	5,062.25	5,371.19	5,062.25	22.63	32.96	-132.24	-281.53	1,614.69	2,165.56	2,127.69	37.88	57.174	
5,300.00	5,158.50	5,467.44	5,158.50	23.19	33.03	-132.76	-281.53	1,614.69	2,184.26	2,145.75	38.51	56.717	
5,400.00	5,254.75	5,563.70	5,254.75	23.75	33.10	-133.27	-281.53	1,614.69	2,203.14	2,164.00	39.14	56.287	
5,500.00	5,351.00	5,659.95	5,351.00	24.32	33.17	-133.77	-281.53	1,614.69	2,222.18	2,182.42	39.76	55.885	
5,513.62	5,364.12	5,673.06	5,364.12	24.39	33.18	-133.83	-281.53	1,614.69	2,224.79	2,184.94	39.85	55.832	
5,600.00	5,447.60	5,756.54	5,447.60	24.80	33.25	-134.46	-281.53	1,614.69	2,240.50	2,199.91	40.58	55.206	
5,700.00	5,545.03	5,853.97	5,545.03	25.14	33.32	-135.10	-281.53	1,614.69	2,256.56	2,215.24	41.31	54.619	
5,800.00	5,643.18	5,952.13	5,643.18	25.46	33.40	-135.63	-281.53	1,614.69	2,270.27	2,228.29	41.98	54.084	
5,900.00	5,741.94	6,050.89	5,741.94	25.73	33.48	-136.06	-281.53	1,614.69	2,281.57	2,239.00	42.57	53.599	
6,000.00	5,841.19	6,150.14	5,841.19	25.96	33.56	-136.39	-281.53	1,614.69	2,290.41	2,247.32	43.09	53.159	
6,100.00	5,940.81	6,249.75	5,940.81	26.16	33.64	-136.63	-281.53	1,614.69	2,296.75	2,253.22	43.53	52.759	
6,200.00	6,040.66	6,349.61	6,040.66	26.31	33.72	-136.77	-281.53	1,614.69	2,300.57	2,256.67	43.91	52.395	
6,300.36	6,141.00	6,449.94	6,141.00	26.43	33.81	69.12	-281.53	1,614.69	2,301.86	2,257.63	44.23	52.048	
6,400.00	6,240.64	6,549.59	6,240.64	26.53	33.89	69.12	-281.53	1,614.69	2,301.86	2,257.39	44.47	51.765	
6,500.00	6,340.64	6,649.59	6,340.64	26.62	33.98	69.12	-281.53	1,614.69	2,301.86	2,257.15	44.70	51.494	
6,600.00	6,440.64	6,749.59	6,440.64	26.72	34.07	69.12	-281.53	1,614.69	2,301.86	2,256.92	44.94	51.222	
6,700.00	6,540.64	6,849.59	6,540.64	26.81	34.16	69.12	-281.53	1,614.69	2,301.86	2,256.68	45.18	50.950	
6,800.00	6,640.64	6,949.59	6,640.64	26.91	34.25	69.12	-281.53	1,614.69	2,301.86	2,256.43	45.42	50.676	
6,900.00	6,740.64	7,049.59	6,740.64	27.01	34.34	69.12	-281.53	1,614.69	2,301.86	2,256.19	45.67	50.402	
7,000.00	6,840.64	7,149.59	6,840.64	27.11	34.44	69.12	-281.53	1,614.69	2,301.86	2,255.94	45.92	50.128	
7,100.00	6,940.64	7,249.59	6,940.64	27.21	34.53	69.12	-281.53	1,614.69	2,301.86	2,255.68	46.17	49.853	
7,200.00	7,040.64	7,349.59	7,040.64	27.31	34.63	69.12	-281.53	1,614.69	2,301.86	2,255.43	46.43	49.579	
7,300.00	7,140.64	7,449.59	7,140.64	27.42	34.72	69.12	-281.53	1,614.69	2,301.86	2,255.17	46.69	49.304	
7,400.00	7,240.64	7,549.59	7,240.64	27.52	34.82	69.12	-281.53	1,614.69	2,301.86	2,254.91	46.95	49.029	
7,500.00	7,340.64	7,649.59	7,340.64	27.63	34.92	69.12	-281.53	1,614.69	2,301.86	2,254.64	47.21	48.754	
7,600.00	7,440.64	7,749.59	7,440.64	27.74	35.02	69.12	-281.53	1,614.69	2,301.86	2,254.37	47.48	48.479	
7,700.00	7,540.64	7,849.59	7,540.64	27.85	35.12	69.12	-281.53	1,614.69	2,301.86	2,254.10	47.75	48.205	
7,800.00	7,640.64	7,949.59	7,640.64	27.96	35.23	69.12	-281.53	1,614.69	2,301.86	2,253.83	48.02	47.931	
7,900.00	7,740.64	8,049.59	7,740.64	28.08	35.33	69.12	-281.53	1,614.69	2,301.86	2,253.56	48.30	47.657	
8,000.00	7,840.64	8,149.59	7,840.64	28.19	35.43	69.12	-281.53	1,614.69	2,301.86	2,253.28	48.58	47.384	
8,100.00	7,940.64	8,249.59	7,940.64	28.31	35.54	69.12	-281.53	1,614.69	2,301.86	2,253.00	48.86	47.112	
8,163.91	8,004.55	8,313.49	8,004.55	28.38	35.61	69.12	-281.53	1,614.69	2,301.86	2,252.82	49.04	46.938	
8,200.00	8,040.64	8,341.94	8,033.00	28.42	35.64	69.12	-281.53	1,614.69	2,301.87	2,252.74	49.13	46.851	
8,217.36	8,058.00	8,341.94	8,033.00	28.44	35.64	69.12	-281.53	1,614.69	2,301.99	2,252.84	49.16	46.831	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

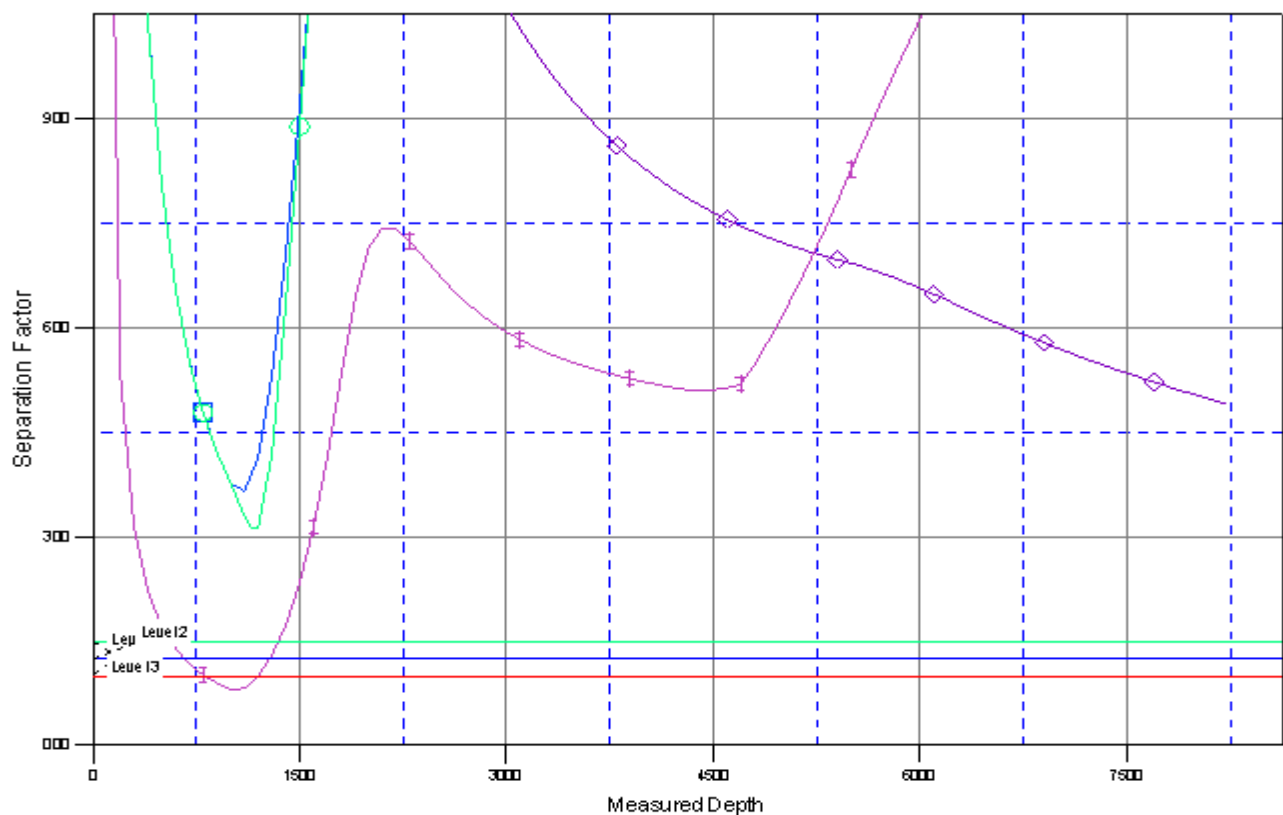
Reference Depths are relative to WELL @ 4928.00ft (Original Well Elev) Coordinates are relative to: P_Riverbend 23-12
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.43°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 23-12
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4928.00ft (Original Well Elev)
Reference Site:	WELD_Riverbend 25-12 PAD	MD Reference:	WELL @ 4928.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 23-12	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 23-12	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-22-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4928.00ft (Original Well Elev) Coordinates are relative to: P_Riverbend 23-12
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°

Separation Factor Plot



LEGEND

- P_Riverbend 22-12, P_Riverbend 22-12, PLAN#16-22-10 RHS V0
- P_Riverbend 25-12, P_Riverbend 25-12, PLAN#16-22-10 RHS V0

