



US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

Riverbend 7-13 PAD

P_Riverbend 7-13

P_Riverbend 7-13

Plan: PLAN #1 6-21-10 RHS

Standard Planning Report

21 June, 2010

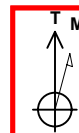




Project: COLORADO NORTHERN ZONE - 83
 Site: Riverbend 7-13 PAD
 Well: P_Riverbend 7-13
 Wellbore: P_Riverbend 7-13
 Section: SECTION 13 T1N R67W
 SHL: 2045 FNL 1787 FWL
 Design: PLAN #1 6-21-10 RHS
 Latitude: 40° 3' 9.774 N
 Longitude: 104° 50' 9.989 W
 GL: 4917.00
 KB: WELL @ 4932.00ft (Original Well Elev)



Weatherford®



Azimuths to True North
 Magnetic North: 9.00°
 Magnetic Field
 Strength: 53043.4snT
 Dip Angle: 66.79°
 Date: 6/21/2010
 Model: IGRF2010

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3278.00	3283.47	PARKMAN
4608.00	4616.87	SUSSEX
7140.00	7152.44	NIO
7487.00	7499.44	CODELL
7572.00	7584.44	GREENHORN
7922.00	7934.44	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
1204.60	4.09	255.85	1204.43	-1.79	-7.08	2.00	255.85	7.30	Start 4743.24 hold at 1204.60 MD
5947.84	4.09	255.85	5935.57	-84.53	-335.28	0.00	0.00	345.78	Start Drop -2.00
6152.44	0.00	0.00	6140.00	-86.32	-342.36	2.00	180.00	353.08	Start 1917.00 hold at 6152.44 MD
8069.44	0.00	0.00	8057.00	-86.32	-342.36	0.00	0.00	353.08	TD at 8069.44

LEGEND

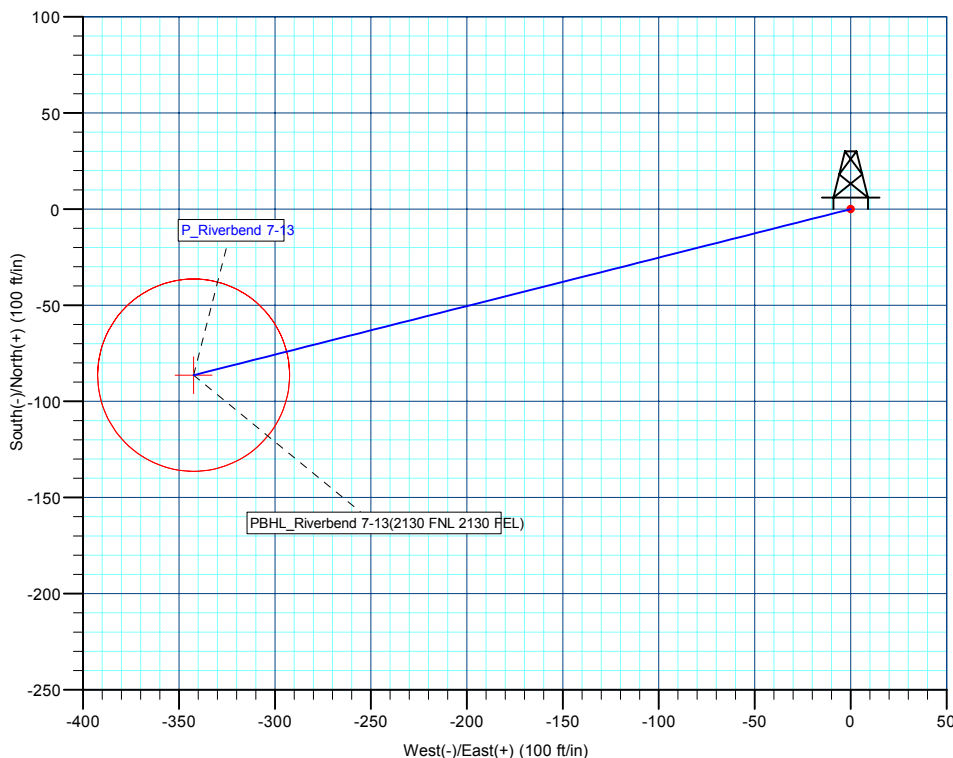
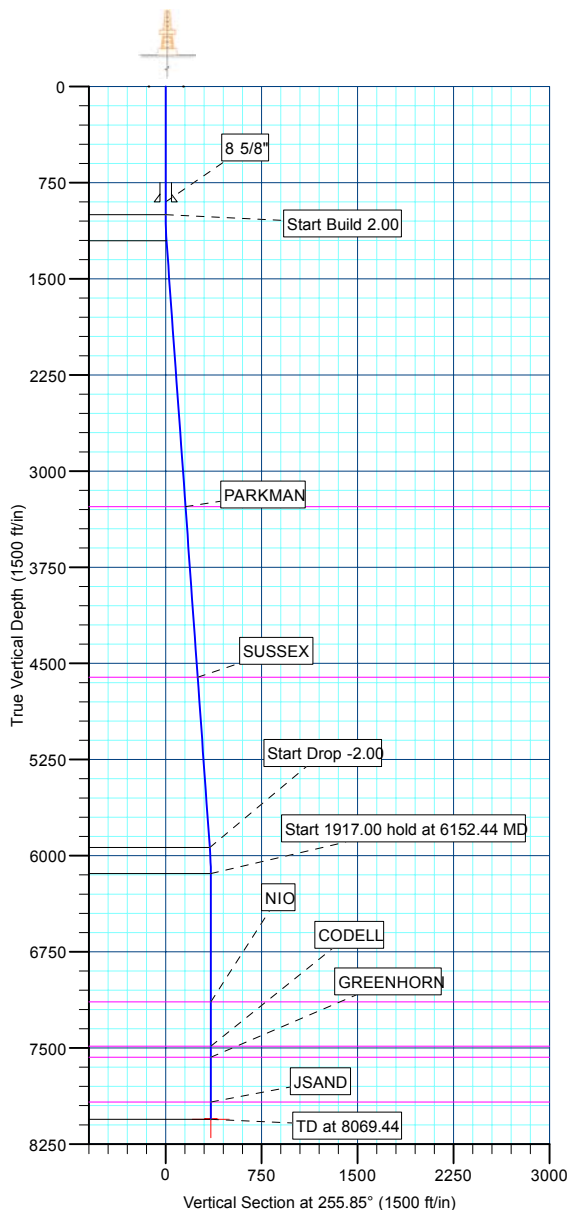
CHIKUMA UNIT #2 EXISTING, CHIKUMA UNIT #2 EXISTING, CHIKUMA UNIT #2 EXISTING V0
 HARRY S CHIKUMA #5 EXISTING, HARRY S CHIKUMA #5 EXISTING, HARRY S CHIKUMA #5 EXISTING V0
 HARRY S. CHIKUMA G.U. B #1 EXISTING, HARRY S. CHIKUMA G.U. B #1 EXISTING, HARRY S. CHIKUMA G.U. B #1 EXISTING V0
 P_Riverbend 21-13, P_Riverbend 21-13, PLAN #1 6-21-10 RHS V0
 P_Riverbend 24-13, P_Riverbend 24-13, PLAN #1 6-21-10 RHS V0
 P_Riverbend 25-13, P_Riverbend 25-13, PLAN #1 6-21-10 RHS V0
 P_Riverbend 5-18, P_Riverbend 5-18, PLAN #1 6-21-10 RHS V0
 P_Riverbend 6-13, P_Riverbend 6-13, PLAN #1 6-21-10 RHS V0
 P_Riverbend 8-13, P_Riverbend 8-13, PLAN #1 6-21-10 RHS V0
 PLAN #1 6-21-10 RHS

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

Name	TVD	+N/-S	+E/-W	Latitude	Longitude	Shape
PBHL	8057.00	-86.32	-342.36	40° 3' 8.921 N	104° 50' 14.392 W	Circle (Radius: 50.00)

WELL DETAILS: P_Riverbend 7-13

+N/-S	+E/-W	Northing	Ground Level:	4917.00	Latitude	Longitude	Slot
0.00	0.00	1262745.27	Easting	3185846.22	40° 3' 9.774 N	104° 50' 9.989 W	



Plan: PLAN #1 6-21-10 RHS (P_Riverbend 7-13/P_Riverbend 7-13)

Created By: Robert H. Scott Date: 15:59, June 21 2010

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site:	Riverbend 7-13 PAD	North Reference:	True
Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_Riverbend 7-13		
Design:	PLAN #1 6-21-10 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 Riverbend 7-13 PAD, SECTION 13 T1N R67W					
Site Position:		Northing:	1,262,745.52 ft	Latitude:	40° 3' 9.774 N
From:	Lat/Long	Easting:	3,185,878.14 ft	Longitude:	104° 50' 9.578 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	0.43 °

Well	P_Riverbend 7-13					
Well Position	+N/-S	-0.01 ft	Northing:	1,262,745.27 ft	Latitude:	40° 3' 9.774 N
	+E/-W	-31.91 ft	Easting:	3,185,846.22 ft	Longitude:	104° 50' 9.989 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,917.00 ft

Wellbore	P_Riverbend 7-13				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/21/2010	9.00	66.79	53,043

Design	PLAN #1 6-21-10 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	255.85

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	
1,204.60	4.09	255.85	1,204.43	-1.79	-7.08	2.00	2.00	0.00	255.85	
5,947.84	4.09	255.85	5,935.57	-84.53	-335.28	0.00	0.00	0.00	0.00	
6,152.44	0.00	0.00	6,140.00	-86.32	-342.36	2.00	-2.00	0.00	180.00	
8,069.44	0.00	0.00	8,057.00	-86.32	-342.36	0.00	0.00	0.00	0.00	PBHL_Riverbend 7

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site:	Riverbend 7-13 PAD	North Reference:	True
Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_Riverbend 7-13		
Design:	PLAN #1 6-21-10 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	255.85	1,099.98	-0.43	-1.69	1.75	2.00	2.00	0.00
1,200.00	4.00	255.85	1,199.84	-1.71	-6.77	6.98	2.00	2.00	0.00
Start 4743.24 hold at 1204.60 MD									
1,204.60	4.09	255.85	1,204.43	-1.79	-7.08	7.30	2.00	2.00	0.00
1,300.00	4.09	255.85	1,299.58	-3.45	-13.68	14.11	0.00	0.00	0.00
1,400.00	4.09	255.85	1,399.33	-5.19	-20.60	21.25	0.00	0.00	0.00
1,500.00	4.09	255.85	1,499.07	-6.94	-27.52	28.38	0.00	0.00	0.00
1,600.00	4.09	255.85	1,598.82	-8.68	-34.44	35.52	0.00	0.00	0.00
1,700.00	4.09	255.85	1,698.56	-10.43	-41.36	42.65	0.00	0.00	0.00
1,800.00	4.09	255.85	1,798.31	-12.17	-48.28	49.79	0.00	0.00	0.00
1,900.00	4.09	255.85	1,898.05	-13.92	-55.20	56.93	0.00	0.00	0.00
2,000.00	4.09	255.85	1,997.80	-15.66	-62.12	64.06	0.00	0.00	0.00
2,100.00	4.09	255.85	2,097.54	-17.41	-69.04	71.20	0.00	0.00	0.00
2,200.00	4.09	255.85	2,197.29	-19.15	-75.96	78.33	0.00	0.00	0.00
2,300.00	4.09	255.85	2,297.03	-20.90	-82.88	85.47	0.00	0.00	0.00
2,400.00	4.09	255.85	2,396.78	-22.64	-89.80	92.61	0.00	0.00	0.00
2,500.00	4.09	255.85	2,496.52	-24.38	-96.71	99.74	0.00	0.00	0.00
2,600.00	4.09	255.85	2,596.27	-26.13	-103.63	106.88	0.00	0.00	0.00
2,700.00	4.09	255.85	2,696.01	-27.87	-110.55	114.01	0.00	0.00	0.00
2,800.00	4.09	255.85	2,795.76	-29.62	-117.47	121.15	0.00	0.00	0.00
2,900.00	4.09	255.85	2,895.50	-31.36	-124.39	128.29	0.00	0.00	0.00
3,000.00	4.09	255.85	2,995.25	-33.11	-131.31	135.42	0.00	0.00	0.00
3,100.00	4.09	255.85	3,094.99	-34.85	-138.23	142.56	0.00	0.00	0.00
3,200.00	4.09	255.85	3,194.74	-36.60	-145.15	149.69	0.00	0.00	0.00
PARKMAN									
3,283.47	4.09	255.85	3,278.00	-38.05	-150.93	155.65	0.00	0.00	0.00
3,300.00	4.09	255.85	3,294.48	-38.34	-152.07	156.83	0.00	0.00	0.00
3,400.00	4.09	255.85	3,394.23	-40.09	-158.99	163.96	0.00	0.00	0.00
3,500.00	4.09	255.85	3,493.97	-41.83	-165.91	171.10	0.00	0.00	0.00
3,600.00	4.09	255.85	3,593.72	-43.57	-172.83	178.24	0.00	0.00	0.00
3,700.00	4.09	255.85	3,693.46	-45.32	-179.75	185.37	0.00	0.00	0.00
3,800.00	4.09	255.85	3,793.21	-47.06	-186.67	192.51	0.00	0.00	0.00
3,900.00	4.09	255.85	3,892.95	-48.81	-193.59	199.64	0.00	0.00	0.00
4,000.00	4.09	255.85	3,992.70	-50.55	-200.51	206.78	0.00	0.00	0.00
4,100.00	4.09	255.85	4,092.44	-52.30	-207.42	213.92	0.00	0.00	0.00
4,200.00	4.09	255.85	4,192.19	-54.04	-214.34	221.05	0.00	0.00	0.00
4,300.00	4.09	255.85	4,291.94	-55.79	-221.26	228.19	0.00	0.00	0.00
4,400.00	4.09	255.85	4,391.68	-57.53	-228.18	235.32	0.00	0.00	0.00
4,500.00	4.09	255.85	4,491.43	-59.28	-235.10	242.46	0.00	0.00	0.00
4,600.00	4.09	255.85	4,591.17	-61.02	-242.02	249.60	0.00	0.00	0.00
SUSSEX									
4,616.87	4.09	255.85	4,608.00	-61.31	-243.19	250.80	0.00	0.00	0.00
4,700.00	4.09	255.85	4,690.92	-62.76	-248.94	256.73	0.00	0.00	0.00
4,800.00	4.09	255.85	4,790.66	-64.51	-255.86	263.87	0.00	0.00	0.00
4,900.00	4.09	255.85	4,890.41	-66.25	-262.78	271.00	0.00	0.00	0.00
5,000.00	4.09	255.85	4,990.15	-68.00	-269.70	278.14	0.00	0.00	0.00
5,100.00	4.09	255.85	5,089.90	-69.74	-276.62	285.27	0.00	0.00	0.00
5,200.00	4.09	255.85	5,189.64	-71.49	-283.54	292.41	0.00	0.00	0.00
5,300.00	4.09	255.85	5,289.39	-73.23	-290.46	299.55	0.00	0.00	0.00
5,400.00	4.09	255.85	5,389.13	-74.98	-297.38	306.68	0.00	0.00	0.00
5,500.00	4.09	255.85	5,488.88	-76.72	-304.30	313.82	0.00	0.00	0.00
5,600.00	4.09	255.85	5,588.62	-78.46	-311.22	320.95	0.00	0.00	0.00

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site:	Riverbend 7-13 PAD	North Reference:	True
Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_Riverbend 7-13		
Design:	PLAN #1 6-21-10 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)
5,700.00	4.09	255.85	5,688.37	-80.21	-318.13	328.09	0.00	0.00	0.00
5,800.00	4.09	255.85	5,788.11	-81.95	-325.05	335.23	0.00	0.00	0.00
5,900.00	4.09	255.85	5,887.86	-83.70	-331.97	342.36	0.00	0.00	0.00
Start Drop -2.00									
5,947.84	4.09	255.85	5,935.57	-84.53	-335.28	345.78	0.00	0.00	0.00
6,000.00	3.05	255.85	5,987.63	-85.33	-338.43	349.02	2.00	-2.00	0.00
6,100.00	1.05	255.85	6,087.56	-86.20	-341.90	352.60	2.00	-2.00	0.00
Start 1917.00 hold at 6152.44 MD									
6,152.44	0.00	0.00	6,140.00	-86.32	-342.36	353.08	2.00	-2.00	0.00
6,200.00	0.00	0.00	6,187.56	-86.32	-342.36	353.08	0.00	0.00	0.00
6,300.00	0.00	0.00	6,287.56	-86.32	-342.36	353.08	0.00	0.00	0.00
6,400.00	0.00	0.00	6,387.56	-86.32	-342.36	353.08	0.00	0.00	0.00
6,500.00	0.00	0.00	6,487.56	-86.32	-342.36	353.08	0.00	0.00	0.00
6,600.00	0.00	0.00	6,587.56	-86.32	-342.36	353.08	0.00	0.00	0.00
6,700.00	0.00	0.00	6,687.56	-86.32	-342.36	353.08	0.00	0.00	0.00
6,800.00	0.00	0.00	6,787.56	-86.32	-342.36	353.08	0.00	0.00	0.00
6,900.00	0.00	0.00	6,887.56	-86.32	-342.36	353.08	0.00	0.00	0.00
7,000.00	0.00	0.00	6,987.56	-86.32	-342.36	353.08	0.00	0.00	0.00
7,100.00	0.00	0.00	7,087.56	-86.32	-342.36	353.08	0.00	0.00	0.00
NIO									
7,152.44	0.00	0.00	7,140.00	-86.32	-342.36	353.08	0.00	0.00	0.00
7,200.00	0.00	0.00	7,187.56	-86.32	-342.36	353.08	0.00	0.00	0.00
7,300.00	0.00	0.00	7,287.56	-86.32	-342.36	353.08	0.00	0.00	0.00
7,400.00	0.00	0.00	7,387.56	-86.32	-342.36	353.08	0.00	0.00	0.00
CODELL									
7,499.44	0.00	0.00	7,487.00	-86.32	-342.36	353.08	0.00	0.00	0.00
7,500.00	0.00	0.00	7,487.56	-86.32	-342.36	353.08	0.00	0.00	0.00
GREENHORN									
7,584.44	0.00	0.00	7,572.00	-86.32	-342.36	353.08	0.00	0.00	0.00
7,600.00	0.00	0.00	7,587.56	-86.32	-342.36	353.08	0.00	0.00	0.00
7,700.00	0.00	0.00	7,687.56	-86.32	-342.36	353.08	0.00	0.00	0.00
7,800.00	0.00	0.00	7,787.56	-86.32	-342.36	353.08	0.00	0.00	0.00
7,900.00	0.00	0.00	7,887.56	-86.32	-342.36	353.08	0.00	0.00	0.00
JSAND									
7,934.44	0.00	0.00	7,922.00	-86.32	-342.36	353.08	0.00	0.00	0.00
8,000.00	0.00	0.00	7,987.56	-86.32	-342.36	353.08	0.00	0.00	0.00
PBHL_Riverbend 7-13(2130 FNL 2130 FEL)									
8,069.44	0.00	0.00	8,057.00	-86.32	-342.36	353.08	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 7-13	0.00	0.00	8,057.00	-86.32	-342.36	1,262,656.39	3,185,504.52	40° 3' 8.921 N	104° 50' 14.392 W
- plan hits target center									
- Circle (radius 50.00)									

Database:	EDM 2003.21 Single User Db	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Company:	US ROCKIES REGION PLANNING	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site:	Riverbend 7-13 PAD	North Reference:	True
Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	P_Riverbend 7-13		
Design:	PLAN #1 6-21-10 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 (°)	
3,283.47	3,278.00	PARKMAN				
4,616.87	4,608.00	SUSSEX				
7,152.44	7,140.00	NIO				
7,499.44	7,487.00	CODELL				
7,584.44	7,572.00	GREENHORN				
7,934.44	7,922.00	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	
1,204.60	1,204.43	-1.79	-7.08	Start 4743.24 hold at 1204.60 MD	
5,947.84	5,935.57	-84.53	-335.28	Start Drop -2.00	
6,152.44	6,140.00	-86.32	-342.36	Start 1917.00 hold at 6152.44 MD	
8,069.44	8,057.00	-86.32	-342.36	TD at 8069.44	



US ROCKIES REGION PLANNING

**COLORADO NORTHERN ZONE - 83
Riverbend 7-13 PAD
P_Riverbend 7-13**

**P_Riverbend 7-13
PLAN #1 6-21-10 RHS**

Anticollision Report

21 June, 2010



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Reference	PLAN #1 6-21-10 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	6/21/2010		
From (ft)	To (ft)	Survey (Wellbore)	Tool Name	Description
0.00	8,069.44	PLAN #1 6-21-10 RHS (P_Riverbend 7-13	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						
Riverbend 7-13 PAD						
CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT #2 EXI	1,899.69	1,877.59	151.40	74.08	1.958	CC
CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT #2 EXI	2,900.00	2,874.13	174.48	54.97	1.460	Level 3, ES
CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT #2 EXI	3,600.00	3,571.50	211.32	62.35	1.419	Level 3, SF
HARRY S CHIKUMA #5 EXISTING - HARRY S CHIKUM	4,995.66	4,892.00	1,249.03	1,043.85	6.088	CC
HARRY S CHIKUMA #5 EXISTING - HARRY S CHIKUM	5,000.00	4,892.00	1,249.03	1,043.85	6.087	ES, SF
HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S.	0.00	0.00	559.79			
HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S.	1,000.00	963.25	587.98	549.25	15.180	ES
HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S.	8,069.44	8,012.94	1,039.06	702.37	3.086	SF
P_Riverbend 21-13 - P_Riverbend 21-13 - PLAN #1 6-21	1,000.00	1,000.00	31.91	27.68	7.532	CC
P_Riverbend 21-13 - P_Riverbend 21-13 - PLAN #1 6-21	1,100.00	1,100.82	32.31	27.65	6.930	ES
P_Riverbend 21-13 - P_Riverbend 21-13 - PLAN #1 6-21	1,400.00	1,401.81	39.12	33.16	6.564	SF
P_Riverbend 24-13 - P_Riverbend 24-13 - PLAN #1 6-21	1,000.00	1,000.00	48.15	43.91	11.364	CC, ES
P_Riverbend 24-13 - P_Riverbend 24-13 - PLAN #1 6-21	1,100.00	1,098.90	50.91	46.27	10.976	SF
P_Riverbend 25-13 - P_Riverbend 25-13 - PLAN #1 6-21	1,000.00	1,000.00	15.96	11.72	3.766	CC
P_Riverbend 25-13 - P_Riverbend 25-13 - PLAN #1 6-21	1,400.00	1,401.37	16.90	11.02	2.873	ES, SF
P_Riverbend 5-18 - P_Riverbend 5-18 - PLAN #1 6-21-1	300.00	300.00	80.06	78.97	73.444	CC, ES
P_Riverbend 5-18 - P_Riverbend 5-18 - PLAN #1 6-21-1	900.00	875.81	140.55	136.57	35.280	SF
P_Riverbend 6-13 - P_Riverbend 6-13 - PLAN #1 6-21-1	300.00	300.00	15.96	14.87	14.641	CC, ES
P_Riverbend 6-13 - P_Riverbend 6-13 - PLAN #1 6-21-1	400.00	399.41	17.69	16.16	11.578	SF
P_Riverbend 8-13 - P_Riverbend 8-13 - PLAN #1 6-21-1	1,000.00	1,000.00	64.11	59.87	15.131	CC, ES
P_Riverbend 8-13 - P_Riverbend 8-13 - PLAN #1 6-21-1	1,100.00	1,097.70	67.51	62.86	14.524	SF

Offset Design		Riverbend 7-13 PAD - CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT										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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor			
(ft)	(ft)	(ft)	(ft)	(ft)	(ft)	(°)	+N/-S (ft)	+E/-W (ft)	(ft)	(ft)	(ft)				
0.00	0.00	0.00	0.00	0.00	0.00	-72.99	44.80	-146.41	154.05						
100.00	100.00	82.35	82.35	0.10	1.65	-72.77	45.39	-146.41	153.28	151.54	1.74	87.950			
200.00	200.00	181.52	181.49	0.32	5.27	-71.96	47.68	-146.41	153.98	148.40	5.58	27.582			
300.00	300.00	281.30	281.21	0.55	9.28	-70.75	51.13	-146.41	155.09	145.29	9.80	15.822			
400.00	400.00	381.24	381.09	0.77	13.29	-69.54	54.62	-146.41	156.27	142.25	14.03	11.140			
500.00	500.00	481.18	480.97	0.99	17.30	-68.35	58.11	-146.41	157.53	139.27	18.26	8.629			
600.00	600.00	581.12	580.85	1.22	21.32	-67.18	61.59	-146.41	158.85	136.37	22.48	7.065			

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 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 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	
700.00	700.00	681.06	680.73	1.44	25.33	-66.03	65.08	-146.41	160.24	133.52	26.71	5.999	
800.00	800.00	781.00	780.61	1.67	29.35	-64.90	68.57	-146.41	161.69	130.74	30.94	5.226	
900.00	900.00	880.94	880.48	1.89	33.36	-63.80	72.06	-146.41	163.20	128.03	35.17	4.640	
1,000.00	1,000.00	980.88	980.36	2.12	37.37	-62.71	75.54	-146.41	164.77	125.37	39.40	4.182	
1,100.00	1,099.98	1,080.78	1,080.20	2.33	41.39	-62.91	79.03	-146.41	165.12	121.44	43.67	3.781	
1,204.60	1,204.43	1,185.12	1,184.48	2.54	45.58	-62.71	82.67	-146.41	162.95	114.92	48.03	3.392	
1,300.00	1,299.58	1,280.16	1,279.46	2.74	49.39	-62.71	85.99	-146.41	160.08	108.04	52.04	3.076	
1,400.00	1,399.33	1,379.78	1,379.02	2.96	53.40	-62.71	89.47	-146.41	157.48	101.23	56.25	2.800	
1,500.00	1,499.07	1,479.41	1,478.59	3.18	57.40	-62.71	92.94	-146.41	155.31	94.86	60.46	2.569	
1,600.00	1,598.82	1,579.03	1,578.15	3.42	61.40	-62.71	96.42	-146.41	153.61	88.94	64.67	2.375	
1,700.00	1,698.56	1,678.65	1,677.71	3.65	65.40	-62.71	99.90	-146.41	152.39	83.49	68.89	2.212	
1,800.00	1,798.31	1,778.28	1,777.27	3.89	69.40	-62.71	103.37	-146.41	151.65	78.53	73.11	2.074	
1,899.69	1,897.74	1,877.59	1,876.53	4.13	73.39	-62.71	106.84	-146.41	151.40	74.08	77.32	1.958 CC	
1,900.00	1,898.05	1,877.90	1,876.84	4.13	73.40	-62.71	106.85	-146.41	151.40	74.07	77.33	1.958	
2,000.00	1,997.80	1,977.52	1,976.40	4.38	77.41	-62.71	110.33	-146.41	151.65	70.09	81.56	1.859	
2,100.00	2,097.54	2,077.15	2,075.96	4.63	81.41	-62.71	113.80	-146.41	152.39	66.61	85.78	1.777	
2,200.00	2,197.29	2,176.77	2,175.52	4.88	85.41	-62.71	117.28	-146.41	153.62	63.62	90.00	1.707	
2,300.00	2,297.03	2,276.39	2,275.09	5.13	89.41	-62.71	120.76	-146.41	155.33	61.11	94.22	1.649	
2,400.00	2,396.78	2,376.02	2,374.65	5.38	93.41	-62.71	124.23	-146.41	157.49	59.05	98.44	1.600	
2,500.00	2,496.52	2,475.64	2,474.21	5.63	97.41	-62.71	127.71	-146.41	160.10	57.44	102.66	1.560	
2,600.00	2,596.27	2,575.26	2,573.78	5.88	101.41	-62.71	131.19	-146.41	163.12	56.25	106.87	1.526	
2,700.00	2,696.01	2,674.89	2,673.34	6.14	105.42	-62.71	134.66	-146.41	166.54	55.46	111.09	1.499 Level 3	
2,800.00	2,795.76	2,774.51	2,772.90	6.39	109.42	-62.71	138.14	-146.41	170.34	55.04	115.30	1.477 Level 3	
2,900.00	2,895.50	2,874.13	2,872.46	6.65	113.42	-62.71	141.62	-146.41	174.48	54.97	119.51	1.460 Level 3, ES	
3,000.00	2,995.25	2,973.76	2,972.03	6.91	117.42	-62.71	145.10	-146.41	178.95	55.23	123.72	1.446 Level 3	
3,100.00	3,094.99	3,073.38	3,071.59	7.16	121.42	-62.71	148.57	-146.41	183.72	55.79	127.93	1.436 Level 3	
3,200.00	3,194.74	3,173.00	3,171.15	7.42	125.42	-62.71	152.05	-146.41	188.76	56.63	132.14	1.429 Level 3	
3,300.00	3,294.48	3,272.63	3,270.71	7.68	129.43	-62.71	155.53	-146.41	194.07	57.72	136.35	1.423 Level 3	
3,400.00	3,394.23	3,372.25	3,370.28	7.94	133.43	-62.71	159.00	-146.41	199.61	59.05	140.55	1.420 Level 3	
3,500.00	3,493.97	3,471.87	3,469.84	8.20	137.43	-62.71	162.48	-146.41	205.36	60.60	144.76	1.419 Level 3	
3,600.00	3,593.72	3,571.50	3,569.40	8.46	141.43	-62.71	165.96	-146.41	211.32	62.35	148.97	1.419 Level 3, SF	
3,700.00	3,693.46	3,671.12	3,668.97	8.72	145.43	-62.71	169.43	-146.41	217.45	64.28	153.17	1.420 Level 3	
3,800.00	3,793.21	3,770.74	3,768.53	8.98	149.43	-62.71	172.91	-146.41	223.76	66.38	157.38	1.422 Level 3	
3,900.00	3,892.95	3,870.37	3,868.09	9.24	153.43	-62.71	176.39	-146.41	230.22	68.63	161.59	1.425 Level 3	
4,000.00	3,992.70	3,969.99	3,967.65	9.50	157.44	-62.71	179.86	-146.41	236.82	71.03	165.79	1.428 Level 3	
4,100.00	4,092.44	4,069.61	4,067.22	9.76	161.44	-62.71	183.34	-146.41	243.55	73.55	170.00	1.433 Level 3	
4,200.00	4,192.19	4,169.24	4,166.78	10.02	165.44	-62.71	186.82	-146.41	250.40	76.19	174.20	1.437 Level 3	
4,300.00	4,291.94	4,268.86	4,266.34	10.28	169.44	-62.71	190.29	-146.41	257.36	78.95	178.41	1.442 Level 3	
4,400.00	4,391.68	4,368.48	4,365.90	10.54	173.44	-62.71	193.77	-146.41	264.42	81.80	182.62	1.448 Level 3	
4,500.00	4,491.43	4,468.11	4,465.47	10.80	177.44	-62.71	197.25	-146.41	271.57	84.75	186.82	1.454 Level 3	
4,600.00	4,591.17	4,567.73	4,565.03	11.06	181.45	-62.71	200.72	-146.41	278.81	87.78	191.03	1.459 Level 3	
4,700.00	4,690.92	4,667.35	4,664.59	11.32	185.45	-62.71	204.20	-146.41	286.13	90.89	195.24	1.466 Level 3	
4,800.00	4,790.66	4,765.00	4,762.18	11.58	189.37	-62.71	207.61	-146.41	293.53	94.16	199.37	1.472 Level 3	
4,900.00	4,890.41	4,765.00	4,762.18	11.84	189.37	-62.71	207.61	-146.41	317.67	118.05	199.62	1.591	
5,000.00	4,990.15	4,765.00	4,762.18	12.11	189.37	-62.71	207.61	-146.41	368.33	168.47	199.87	1.843	
5,100.00	5,089.90	4,765.00	4,762.18	12.37	189.37	-62.71	207.61	-146.41	436.38	236.26	200.11	2.181	
5,200.00	5,189.64	4,765.00	4,762.18	12.63	189.37	-62.71	207.61	-146.41	514.95	314.59	200.36	2.570	
5,300.00	5,289.39	4,765.00	4,762.18	12.89	189.37	-62.71	207.61	-146.41	599.94	399.33	200.61	2.991	
5,400.00	5,389.13	4,765.00	4,762.18	13.15	189.37	-62.71	207.61	-146.41	688.98	488.11	200.86	3.430	
5,500.00	5,488.88	4,765.00	4,762.18	13.41	189.37	-62.71	207.61	-146.41	780.67	579.56	201.11	3.882	
5,600.00	5,588.62	4,765.00	4,762.18	13.68	189.37	-62.71	207.61	-146.41	874.18	672.82	201.36	4.341	
5,700.00	5,688.37	4,765.00	4,762.18	13.94	189.37	-62.71	207.61	-146.41	969.00	767.39	201.61	4.806	

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 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 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	
5,800.00	5,788.11	4,765.00	4,762.18	14.20	189.37	125.86	207.61	-146.41	1,064.76	862.90	201.86	5.275	
5,900.00	5,887.86	4,765.00	4,762.18	14.46	189.37	125.86	207.61	-146.41	1,161.23	959.12	202.11	5.746	
5,947.84	5,935.57	4,765.00	4,762.18	14.59	189.37	125.86	207.61	-146.41	1,207.59	1,005.36	202.23	5.971	
6,000.00	5,987.63	4,765.00	4,762.18	14.71	189.37	129.17	207.61	-146.41	1,258.19	1,055.78	202.41	6.216	
6,100.00	6,087.56	4,765.00	4,762.18	14.88	189.37	135.04	207.61	-146.41	1,355.14	1,152.41	202.73	6.684	
6,152.44	6,140.00	4,765.00	4,762.18	14.97	189.37	33.69	207.61	-146.41	1,405.93	1,203.05	202.88	6.930	
6,200.00	6,187.56	4,765.00	4,762.18	15.06	189.37	33.69	207.61	-146.41	1,452.01	1,249.04	202.97	7.154	
6,300.00	6,287.56	4,765.00	4,762.18	15.24	189.37	33.69	207.61	-146.41	1,549.20	1,346.04	203.16	7.626	
6,400.00	6,387.56	4,765.00	4,762.18	15.42	189.37	33.69	207.61	-146.41	1,646.72	1,443.37	203.35	8.098	
6,500.00	6,487.56	4,765.00	4,762.18	15.60	189.37	33.69	207.61	-146.41	1,744.52	1,540.98	203.54	8.571	
6,600.00	6,587.56	4,765.00	4,762.18	15.79	189.37	33.69	207.61	-146.41	1,842.56	1,638.83	203.74	9.044	
6,700.00	6,687.56	4,765.00	4,762.18	15.97	189.37	33.69	207.61	-146.41	1,940.80	1,736.87	203.93	9.517	
6,800.00	6,787.56	4,765.00	4,762.18	16.16	189.37	33.69	207.61	-146.41	2,039.21	1,835.09	204.13	9.990	
6,900.00	6,887.56	4,765.00	4,762.18	16.35	189.37	33.69	207.61	-146.41	2,137.77	1,933.45	204.32	10.463	
7,000.00	6,987.56	4,765.00	4,762.18	16.54	189.37	33.69	207.61	-146.41	2,236.46	2,031.94	204.52	10.935	
7,100.00	7,087.56	4,765.00	4,762.18	16.72	189.37	33.69	207.61	-146.41	2,335.26	2,130.54	204.72	11.407	
7,200.00	7,187.56	4,765.00	4,762.18	16.91	189.37	33.69	207.61	-146.41	2,434.15	2,229.24	204.92	11.879	
7,300.00	7,287.56	4,765.00	4,762.18	17.11	189.37	33.69	207.61	-146.41	2,533.13	2,328.02	205.12	12.350	
7,400.00	7,387.56	4,765.00	4,762.18	17.30	189.37	33.69	207.61	-146.41	2,632.19	2,426.88	205.32	12.820	
7,500.00	7,487.56	4,765.00	4,762.18	17.49	189.37	33.69	207.61	-146.41	2,731.32	2,525.81	205.52	13.290	
7,600.00	7,587.56	4,765.00	4,762.18	17.68	189.37	33.69	207.61	-146.41	2,830.51	2,624.80	205.72	13.759	
7,700.00	7,687.56	4,765.00	4,762.18	17.88	189.37	33.69	207.61	-146.41	2,929.76	2,723.84	205.92	14.228	
7,800.00	7,787.56	4,765.00	4,762.18	18.07	189.37	33.69	207.61	-146.41	3,029.05	2,822.93	206.12	14.696	
7,900.00	7,887.56	4,765.00	4,762.18	18.27	189.37	33.69	207.61	-146.41	3,128.39	2,922.07	206.32	15.163	
8,000.00	7,987.56	4,765.00	4,762.18	18.46	189.37	33.69	207.61	-146.41	3,227.77	3,021.24	206.53	15.629	
8,069.44	8,057.00	4,765.00	4,762.18	18.60	189.37	33.69	207.61	-146.41	3,296.80	3,090.13	206.67	15.952	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 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		
0.00	0.00	0.00	0.00	0.00	0.00	-95.60	-148.21	-1,512.51	1,519.80					
100.00	100.00	90.33	90.33	0.10	1.81	-95.57	-147.50	-1,512.51	1,519.69	1,517.79	1.90	799.035		
200.00	200.00	192.92	192.88	0.32	5.73	-95.47	-144.97	-1,512.51	1,519.45	1,513.42	6.04	251.747		
300.00	300.00	293.04	292.94	0.55	9.75	-95.34	-141.48	-1,512.51	1,519.12	1,508.86	10.26	148.017		
400.00	400.00	392.98	392.82	0.77	13.76	-95.21	-137.99	-1,512.51	1,518.80	1,504.32	14.48	104.864		
500.00	500.00	492.92	492.70	0.99	17.77	-95.08	-134.50	-1,512.51	1,518.49	1,499.78	18.70	81.185		
600.00	600.00	592.86	592.58	1.22	21.79	-94.95	-131.01	-1,512.51	1,518.18	1,495.26	22.92	66.226		
700.00	700.00	692.79	692.45	1.44	25.80	-94.82	-127.53	-1,512.51	1,517.88	1,490.74	27.14	55.918		
800.00	800.00	792.73	792.33	1.67	29.82	-94.69	-124.04	-1,512.51	1,517.60	1,486.23	31.37	48.385		
900.00	900.00	892.67	892.21	1.89	33.83	-94.56	-120.55	-1,512.51	1,517.31	1,481.73	35.59	42.638		
1,000.00	1,000.00	992.61	992.09	2.12	37.85	-94.43	-117.06	-1,512.51	1,517.04	1,477.23	39.81	38.111		
1,100.00	1,099.98	1,092.52	1,091.93	2.33	41.86	9.87	-113.58	-1,512.51	1,515.06	1,470.90	44.15	34.314		
1,204.60	1,204.43	1,196.85	1,196.21	2.54	46.05	10.07	-109.93	-1,512.51	1,509.31	1,460.86	48.45	31.152		
1,300.00	1,299.58	1,291.89	1,291.19	2.74	49.87	10.24	-106.62	-1,512.51	1,502.38	1,449.93	52.45	28.645		
1,400.00	1,399.33	1,391.51	1,390.75	2.96	53.87	10.42	-103.14	-1,512.51	1,495.13	1,438.48	56.64	26.395		
1,500.00	1,499.07	1,491.14	1,490.31	3.18	57.87	10.61	-99.66	-1,512.51	1,487.89	1,427.04	60.85	24.454		
1,600.00	1,598.82	1,590.76	1,589.87	3.42	61.87	10.79	-96.19	-1,512.51	1,480.66	1,415.61	65.05	22.762		
1,700.00	1,698.56	1,690.39	1,689.44	3.65	65.87	10.98	-92.71	-1,512.51	1,473.45	1,404.20	69.26	21.276		
1,800.00	1,798.31	1,790.01	1,789.00	3.89	69.87	11.17	-89.23	-1,512.51	1,466.26	1,392.80	73.46	19.959		
1,900.00	1,898.05	1,889.63	1,888.56	4.13	73.88	11.36	-85.76	-1,512.51	1,459.08	1,381.41	77.67	18.785		
2,000.00	1,997.80	1,989.26	1,988.12	4.38	77.88	11.55	-82.28	-1,512.51	1,451.92	1,370.04	81.89	17.731		
2,100.00	2,097.54	2,088.88	2,087.69	4.63	81.88	11.75	-78.80	-1,512.51	1,444.78	1,358.68	86.10	16.780		
2,200.00	2,197.29	2,188.50	2,187.25	4.88	85.88	11.94	-75.33	-1,512.51	1,437.65	1,347.34	90.32	15.918		
2,300.00	2,297.03	2,288.13	2,286.81	5.13	89.88	12.14	-71.85	-1,512.51	1,430.54	1,336.01	94.53	15.133		
2,400.00	2,396.78	2,387.75	2,386.38	5.38	93.88	12.34	-68.37	-1,512.51	1,423.45	1,324.70	98.75	14.415		
2,500.00	2,496.52	2,487.37	2,485.94	5.63	97.88	12.54	-64.90	-1,512.51	1,416.38	1,313.41	102.97	13.755		
2,600.00	2,596.27	2,587.00	2,585.50	5.88	101.89	12.75	-61.42	-1,512.51	1,409.32	1,302.13	107.19	13.148		
2,700.00	2,696.01	2,686.62	2,685.06	6.14	105.89	12.95	-57.94	-1,512.51	1,402.28	1,290.87	111.41	12.587		
2,800.00	2,795.76	2,786.24	2,784.63	6.39	109.89	13.16	-54.47	-1,512.51	1,395.26	1,279.63	115.63	12.067		
2,900.00	2,895.50	2,885.87	2,884.19	6.65	113.89	13.37	-50.99	-1,512.51	1,388.26	1,268.41	119.85	11.583		
3,000.00	2,995.25	2,985.49	2,983.75	6.91	117.89	13.59	-47.51	-1,512.51	1,381.28	1,257.20	124.07	11.133		
3,100.00	3,094.99	3,085.11	3,083.31	7.16	121.89	13.80	-44.04	-1,512.51	1,374.31	1,246.02	128.30	10.712		
3,200.00	3,194.74	3,184.74	3,182.88	7.42	125.90	14.02	-40.56	-1,512.51	1,367.37	1,234.85	132.52	10.318		
3,300.00	3,294.48	3,284.36	3,282.44	7.68	129.90	14.24	-37.08	-1,512.51	1,360.44	1,223.70	136.74	9.949		
3,400.00	3,394.23	3,383.98	3,382.00	7.94	133.90	14.46	-33.60	-1,512.51	1,353.54	1,212.57	140.97	9.602		
3,500.00	3,493.97	3,483.61	3,481.57	8.20	137.90	14.68	-30.13	-1,512.51	1,346.65	1,201.46	145.19	9.275		
3,600.00	3,593.72	3,583.23	3,581.13	8.46	141.90	14.91	-26.65	-1,512.51	1,339.79	1,190.37	149.42	8.967		
3,700.00	3,693.46	3,682.85	3,680.69	8.72	145.90	15.14	-23.17	-1,512.51	1,332.95	1,179.30	153.65	8.675		
3,800.00	3,793.21	3,782.48	3,780.25	8.98	149.90	15.37	-19.70	-1,512.51	1,326.13	1,168.25	157.87	8.400		
3,900.00	3,892.95	3,882.10	3,879.82	9.24	153.91	15.60	-16.22	-1,512.51	1,319.33	1,157.23	162.10	8.139		
4,000.00	3,992.70	3,981.72	3,979.38	9.50	157.91	15.84	-12.74	-1,512.51	1,312.55	1,146.22	166.33	7.891		
4,100.00	4,092.44	4,081.35	4,078.94	9.76	161.91	16.08	-9.27	-1,512.51	1,305.80	1,135.24	170.56	7.656		
4,200.00	4,192.19	4,180.97	4,178.50	10.02	165.91	16.32	-5.79	-1,512.51	1,299.07	1,124.28	174.79	7.432		
4,300.00	4,291.94	4,280.59	4,278.07	10.28	169.91	16.56	-2.31	-1,512.51	1,292.36	1,113.34	179.01	7.219		
4,400.00	4,391.68	4,380.22	4,377.63	10.54	173.91	16.81	1.16	-1,512.51	1,285.67	1,102.43	183.24	7.016		
4,500.00	4,491.43	4,479.84	4,477.19	10.80	177.92	17.05	4.64	-1,512.51	1,279.01	1,091.53	187.47	6.822		
4,600.00	4,591.17	4,579.46	4,576.76	11.06	181.92	17.30	8.12	-1,512.51	1,272.37	1,080.67	191.71	6.637		
4,700.00	4,690.92	4,679.09	4,676.32	11.32	185.92	17.56	11.59	-1,512.51	1,265.76	1,069.82	195.94	6.460		
4,800.00	4,790.66	4,778.71	4,775.88	11.58	189.92	17.81	15.07	-1,512.51	1,259.17	1,059.00	200.17	6.291		
4,900.00	4,890.41	4,878.33	4,875.44	11.84	193.92	18.07	18.55	-1,512.51	1,252.61	1,048.21	204.40	6.128		
4,995.66	4,985.82	4,982.00	4,989.10	12.09	194.47	18.11	19.02	-1,512.51	1,249.03	1,043.85	205.17	6.088 CC		
5,000.00	4,990.15	4,982.00	4,989.10	12.11	194.47	18.11	19.02	-1,512.51	1,249.03	1,043.85	205.18	6.087 ES, SF		

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 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 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						
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	5,089.90	4,892.00	4,889.10	12.37	194.47	18.11	19.02	-1,512.51	1,253.38	1,047.96	205.42	6.102	
5,200.00	5,189.64	4,892.00	4,889.10	12.63	194.47	18.11	19.02	-1,512.51	1,265.63	1,059.98	205.65	6.154	
5,300.00	5,289.39	4,892.00	4,889.10	12.89	194.47	18.11	19.02	-1,512.51	1,285.57	1,079.69	205.88	6.244	
5,400.00	5,389.13	4,892.00	4,889.10	13.15	194.47	18.11	19.02	-1,512.51	1,312.85	1,106.73	206.12	6.369	
5,500.00	5,488.88	4,892.00	4,889.10	13.41	194.47	18.11	19.02	-1,512.51	1,347.01	1,140.66	206.35	6.528	
5,600.00	5,588.62	4,892.00	4,889.10	13.68	194.47	18.11	19.02	-1,512.51	1,387.55	1,180.97	206.58	6.717	
5,700.00	5,688.37	4,892.00	4,889.10	13.94	194.47	18.11	19.02	-1,512.51	1,433.94	1,227.12	206.82	6.933	
5,800.00	5,788.11	4,892.00	4,889.10	14.20	194.47	18.11	19.02	-1,512.51	1,485.61	1,278.56	207.05	7.175	
5,900.00	5,887.86	4,892.00	4,889.10	14.46	194.47	18.11	19.02	-1,512.51	1,542.05	1,334.76	207.29	7.439	
5,947.84	5,935.57	4,892.00	4,889.10	14.59	194.47	18.11	19.02	-1,512.51	1,570.58	1,363.18	207.40	7.573	
6,000.00	5,987.63	4,892.00	4,889.10	14.71	194.47	18.37	19.02	-1,512.51	1,603.09	1,395.36	207.73	7.717	
6,100.00	6,087.56	4,892.00	4,889.10	14.88	194.47	18.95	19.02	-1,512.51	1,670.06	1,461.79	208.27	8.019	
6,152.44	6,140.00	4,892.00	4,889.10	14.97	194.47	-84.86	19.02	-1,512.51	1,707.40	1,498.93	208.47	8.190	
6,200.00	6,187.56	4,892.00	4,889.10	15.06	194.47	-84.86	19.02	-1,512.51	1,742.22	1,533.66	208.56	8.354	
6,300.00	6,287.56	4,892.00	4,889.10	15.24	194.47	-84.86	19.02	-1,512.51	1,817.31	1,608.56	208.75	8.706	
6,400.00	6,387.56	4,892.00	4,889.10	15.42	194.47	-84.86	19.02	-1,512.51	1,894.70	1,685.76	208.95	9.068	
6,500.00	6,487.56	4,892.00	4,889.10	15.60	194.47	-84.86	19.02	-1,512.51	1,974.13	1,764.99	209.14	9.439	
6,600.00	6,587.56	4,892.00	4,889.10	15.79	194.47	-84.86	19.02	-1,512.51	2,055.36	1,846.02	209.34	9.818	
6,700.00	6,687.56	4,892.00	4,889.10	15.97	194.47	-84.86	19.02	-1,512.51	2,138.17	1,928.64	209.54	10.204	
6,800.00	6,787.56	4,892.00	4,889.10	16.16	194.47	-84.86	19.02	-1,512.51	2,222.40	2,012.67	209.73	10.596	
6,900.00	6,887.56	4,892.00	4,889.10	16.35	194.47	-84.86	19.02	-1,512.51	2,307.89	2,097.96	209.93	10.994	
7,000.00	6,987.56	4,892.00	4,889.10	16.54	194.47	-84.86	19.02	-1,512.51	2,394.50	2,184.37	210.13	11.395	
7,100.00	7,087.56	4,892.00	4,889.10	16.72	194.47	-84.86	19.02	-1,512.51	2,482.13	2,271.80	210.33	11.801	
7,200.00	7,187.56	4,892.00	4,889.10	16.91	194.47	-84.86	19.02	-1,512.51	2,570.65	2,360.12	210.53	12.210	
7,300.00	7,287.56	4,892.00	4,889.10	17.11	194.47	-84.86	19.02	-1,512.51	2,659.99	2,449.26	210.73	12.623	
7,400.00	7,387.56	4,892.00	4,889.10	17.30	194.47	-84.86	19.02	-1,512.51	2,750.06	2,539.12	210.93	13.038	
7,500.00	7,487.56	4,892.00	4,889.10	17.49	194.47	-84.86	19.02	-1,512.51	2,840.79	2,629.66	211.14	13.455	
7,600.00	7,587.56	4,892.00	4,889.10	17.68	194.47	-84.86	19.02	-1,512.51	2,932.13	2,720.79	211.34	13.874	
7,700.00	7,687.56	4,892.00	4,889.10	17.88	194.47	-84.86	19.02	-1,512.51	3,024.02	2,812.48	211.54	14.295	
7,800.00	7,787.56	4,892.00	4,889.10	18.07	194.47	-84.86	19.02	-1,512.51	3,116.41	2,904.66	211.75	14.718	
7,900.00	7,887.56	4,892.00	4,889.10	18.27	194.47	-84.86	19.02	-1,512.51	3,209.25	2,997.30	211.95	15.142	
8,000.00	7,987.56	4,892.00	4,889.10	18.46	194.47	-84.86	19.02	-1,512.51	3,302.51	3,090.35	212.16	15.566	
8,069.44	8,057.00	4,892.00	4,889.10	18.60	194.47	-84.86	19.02	-1,512.51	3,367.50	3,155.20	212.30	15.862	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design		Riverbend 7-13 PAD - HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S. CHIKUMA G.U. B #1 EX										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	21.30	521.28	203.23	559.79				
100.00	100.00	75.16	75.16	0.10	1.50	21.28	521.77	203.23	560.00	558.40	1.60	350.067	
200.00	200.00	166.78	166.75	0.32	4.68	21.21	523.71	203.23	561.97	556.97	5.00	112.477	
300.00	300.00	263.68	263.60	0.55	8.57	21.09	526.99	203.23	565.12	556.02	9.11	62.067	
400.00	400.00	363.62	363.48	0.77	12.58	20.96	530.48	203.23	568.38	555.04	13.34	42.616	
500.00	500.00	463.55	463.35	0.99	16.60	20.84	533.97	203.23	571.64	554.07	17.57	32.535	
600.00	600.00	563.49	563.23	1.22	20.61	20.71	537.46	203.23	574.90	553.10	21.80	26.369	
700.00	700.00	663.43	663.11	1.44	24.62	20.59	540.94	203.23	578.17	552.13	26.04	22.207	
800.00	800.00	763.37	762.99	1.67	28.64	20.47	544.43	203.23	581.44	551.17	30.27	19.209	
900.00	900.00	863.31	862.87	1.89	32.65	20.35	547.92	203.23	584.71	550.21	34.50	16.947	
1,000.00	1,000.00	963.25	962.74	2.12	36.67	20.23	551.41	203.23	587.98	549.25	38.73	15.180 ES	
1,100.00	1,099.98	1,063.15	1,062.59	2.33	40.68	124.34	554.89	203.23	592.24	549.42	42.82	13.831	
1,204.60	1,204.43	1,167.49	1,166.86	2.54	44.87	124.55	558.54	203.23	598.81	551.67	47.14	12.702	
1,300.00	1,299.58	1,262.53	1,261.84	2.74	48.69	124.96	561.85	203.23	605.81	554.68	51.13	11.848	
1,400.00	1,399.33	1,362.15	1,361.40	2.96	52.69	125.39	565.33	203.23	613.18	557.86	55.32	11.084	
1,500.00	1,499.07	1,461.78	1,460.97	3.18	56.69	125.81	568.81	203.23	620.59	561.08	59.51	10.428	
1,600.00	1,598.82	1,561.40	1,560.53	3.42	60.69	126.22	572.28	203.23	628.03	564.32	63.71	9.857	
1,700.00	1,698.56	1,661.02	1,660.09	3.65	64.69	126.62	575.76	203.23	635.50	567.58	67.92	9.357	
1,800.00	1,798.31	1,760.65	1,759.66	3.89	68.69	127.01	579.24	203.23	643.00	570.88	72.12	8.915	
1,900.00	1,898.05	1,860.27	1,859.22	4.13	72.70	127.40	582.71	203.23	650.53	574.20	76.33	8.523	
2,000.00	1,997.80	1,959.89	1,958.78	4.38	76.70	127.77	586.19	203.23	658.09	577.55	80.54	8.171	
2,100.00	2,097.54	2,059.52	2,058.34	4.63	80.70	128.13	589.67	203.23	665.67	580.92	84.75	7.855	
2,200.00	2,197.29	2,159.14	2,157.91	4.88	84.70	128.49	593.14	203.23	673.28	584.32	88.96	7.568	
2,300.00	2,297.03	2,258.76	2,257.47	5.13	88.70	128.84	596.62	203.23	680.92	587.74	93.17	7.308	
2,400.00	2,396.78	2,358.39	2,357.03	5.38	92.70	129.18	600.10	203.23	688.58	591.19	97.39	7.071	
2,500.00	2,496.52	2,458.01	2,456.59	5.63	96.71	129.51	603.57	203.23	696.26	594.66	101.60	6.853	
2,600.00	2,596.27	2,557.63	2,556.16	5.88	100.71	129.84	607.05	203.23	703.97	598.15	105.82	6.653	
2,700.00	2,696.01	2,657.26	2,655.72	6.14	104.71	130.16	610.53	203.23	711.70	601.67	110.03	6.468	
2,800.00	2,795.76	2,756.88	2,755.28	6.39	108.71	130.47	614.00	203.23	719.45	605.20	114.25	6.297	
2,900.00	2,895.50	2,856.50	2,854.85	6.65	112.71	130.77	617.48	203.23	727.22	608.76	118.46	6.139	
3,000.00	2,995.25	2,956.13	2,954.41	6.91	116.71	131.07	620.96	203.23	735.01	612.33	122.68	5.991	
3,100.00	3,094.99	3,055.75	3,053.97	7.16	120.71	131.36	624.44	203.23	742.82	615.93	126.89	5.854	
3,200.00	3,194.74	3,155.38	3,153.53	7.42	124.72	131.65	627.91	203.23	750.65	619.54	131.11	5.725	
3,300.00	3,294.48	3,255.00	3,253.10	7.68	128.72	131.93	631.39	203.23	758.50	623.17	135.33	5.605	
3,400.00	3,394.23	3,354.62	3,352.66	7.94	132.72	132.21	634.87	203.23	766.37	626.82	139.54	5.492	
3,500.00	3,493.97	3,454.25	3,452.22	8.20	136.72	132.47	638.34	203.23	774.25	630.49	143.76	5.386	
3,600.00	3,593.72	3,553.87	3,551.79	8.46	140.72	132.74	641.82	203.23	782.15	634.17	147.98	5.286	
3,700.00	3,693.46	3,653.49	3,651.35	8.72	144.72	133.00	645.30	203.23	790.06	637.87	152.19	5.191	
3,800.00	3,793.21	3,753.12	3,750.91	8.98	148.73	133.25	648.77	203.23	798.00	641.59	156.41	5.102	
3,900.00	3,892.95	3,852.74	3,850.47	9.24	152.73	133.50	652.25	203.23	805.94	645.32	160.63	5.018	
4,000.00	3,992.70	3,952.36	3,950.04	9.50	156.73	133.74	655.73	203.23	813.90	649.06	164.84	4.937	
4,100.00	4,092.44	4,051.99	4,049.60	9.76	160.73	133.98	659.20	203.23	821.88	652.82	169.06	4.862	
4,200.00	4,192.19	4,151.61	4,149.16	10.02	164.73	134.21	662.68	203.23	829.87	656.59	173.28	4.789	
4,300.00	4,291.94	4,251.23	4,248.72	10.28	168.73	134.44	666.16	203.23	837.87	660.38	177.49	4.721	
4,400.00	4,391.68	4,350.86	4,348.29	10.54	172.73	134.67	669.63	203.23	845.89	664.18	181.71	4.655	
4,500.00	4,491.43	4,450.48	4,447.85	10.80	176.74	134.89	673.11	203.23	853.92	667.99	185.93	4.593	
4,600.00	4,591.17	4,550.10	4,547.41	11.06	180.74	135.11	676.59	203.23	861.96	671.82	190.14	4.533	
4,700.00	4,690.92	4,649.73	4,646.98	11.32	184.74	135.32	680.06	203.23	870.01	675.66	194.36	4.476	
4,800.00	4,790.66	4,749.35	4,746.54	11.58	188.74	135.53	683.54	203.23	878.08	679.51	198.57	4.422	
4,900.00	4,890.41	4,848.97	4,846.10	11.84	192.74	135.74	687.02	203.23	886.16	683.37	202.79	4.370	
5,000.00	4,990.15	4,948.60	4,945.66	12.11	196.74	135.94	690.49	203.23	894.25	687.24	207.01	4.320	
5,100.00	5,089.90	5,048.22	5,045.23	12.37	200.75	136.14	693.97	203.23	902.34	691.12	211.22	4.272	

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 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design		Riverbend 7-13 PAD - HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S. CHIKUMA G.U. B #1 EX										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	
5,200.00	5,189.64	5,147.84	5,144.79	12.63	204.75	136.33	697.45	203.23	910.45	695.01	215.44	4.226	
5,300.00	5,289.39	5,247.47	5,244.35	12.89	208.75	136.52	700.93	203.23	918.57	698.92	219.66	4.182	
5,400.00	5,389.13	5,347.09	5,343.91	13.15	212.75	136.71	704.40	203.23	926.70	702.83	223.87	4.139	
5,500.00	5,488.88	5,446.71	5,443.48	13.41	216.75	136.89	707.88	203.23	934.84	706.75	228.09	4.099	
5,600.00	5,588.62	5,546.34	5,543.04	13.68	220.75	137.07	711.36	203.23	942.99	710.68	232.31	4.059	
5,700.00	5,688.37	5,645.96	5,642.60	13.94	224.75	137.25	714.83	203.23	951.15	714.63	236.52	4.021	
5,800.00	5,788.11	5,745.58	5,742.17	14.20	228.76	137.43	718.31	203.23	959.32	718.58	240.74	3.985	
5,900.00	5,887.86	5,845.21	5,841.73	14.46	232.76	137.60	721.79	203.23	967.49	722.54	244.95	3.950	
5,947.84	5,935.57	5,892.86	5,889.36	14.59	234.67	137.68	723.45	203.23	971.41	724.43	246.97	3.933	
6,000.00	5,987.63	5,944.87	5,941.33	14.71	236.76	137.80	725.26	203.23	975.32	725.93	249.40	3.911	
6,100.00	6,087.56	6,044.71	6,041.10	14.88	240.77	137.90	728.75	203.23	980.88	726.97	253.90	3.863	
6,152.44	6,140.00	6,097.11	6,093.47	14.97	242.88	33.74	730.58	203.23	982.75	726.55	256.21	3.836	
6,200.00	6,187.56	6,144.64	6,140.98	15.06	244.78	33.68	732.24	203.23	984.14	725.94	258.20	3.812	
6,300.00	6,287.56	6,244.58	6,240.85	15.24	248.80	33.57	735.72	203.23	987.04	724.65	262.39	3.762	
6,400.00	6,387.56	6,344.52	6,340.73	15.42	252.81	33.46	739.21	203.23	989.95	723.37	266.59	3.713	
6,500.00	6,487.56	6,444.45	6,440.61	15.60	256.83	33.35	742.70	203.23	992.87	722.09	270.78	3.667	
6,600.00	6,587.56	6,544.39	6,540.49	15.79	260.84	33.24	746.19	203.23	995.78	720.81	274.98	3.621	
6,700.00	6,687.56	6,644.33	6,640.37	15.97	264.86	33.13	749.68	203.23	998.71	719.53	279.17	3.577	
6,800.00	6,787.56	6,744.27	6,740.24	16.16	268.87	33.02	753.16	203.23	1,001.63	718.26	283.37	3.535	
6,900.00	6,887.56	6,844.21	6,840.12	16.35	272.88	32.91	756.65	203.23	1,004.56	716.99	287.57	3.493	
7,000.00	6,987.56	6,944.15	6,940.00	16.54	276.90	32.80	760.14	203.23	1,007.49	715.73	291.76	3.453	
7,100.00	7,087.56	7,044.09	7,039.88	16.72	280.91	32.70	763.63	203.23	1,010.43	714.46	295.96	3.414	
7,200.00	7,187.56	7,144.03	7,139.76	16.91	284.93	32.59	767.11	203.23	1,013.37	713.20	300.16	3.376	
7,300.00	7,287.56	7,243.97	7,239.64	17.11	288.94	32.48	770.60	203.23	1,016.31	711.95	304.36	3.339	
7,400.00	7,387.56	7,343.91	7,339.51	17.30	292.95	32.38	774.09	203.23	1,019.25	710.69	308.56	3.303	
7,500.00	7,487.56	7,443.85	7,439.39	17.49	296.97	32.27	777.58	203.23	1,022.20	709.44	312.76	3.268	
7,600.00	7,587.56	7,543.78	7,539.27	17.68	300.98	32.17	781.07	203.23	1,025.16	708.19	316.96	3.234	
7,700.00	7,687.56	7,643.72	7,639.15	17.88	305.00	32.07	784.55	203.23	1,028.11	706.95	321.16	3.201	
7,800.00	7,787.56	7,743.66	7,739.03	18.07	309.01	31.96	788.04	203.23	1,031.07	705.71	325.37	3.169	
7,900.00	7,887.56	7,843.60	7,838.91	18.27	313.03	31.86	791.53	203.23	1,034.04	704.47	329.57	3.138	
8,000.00	7,987.56	7,943.54	7,938.78	18.46	317.04	31.76	795.02	203.23	1,037.00	703.23	333.77	3.107	
8,069.44	8,057.00	8,012.94	8,008.14	18.60	319.83	31.69	797.44	203.23	1,039.06	702.37	336.69	3.086 SF	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 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	89.98	0.01	31.91	31.91				
100.00	100.00	100.00	100.00	0.10	0.10	89.98	0.01	31.91	31.91	31.72	0.19	167.038	
200.00	200.00	200.00	200.00	0.32	0.32	89.98	0.01	31.91	31.91	31.27	0.64	49.818	
300.00	300.00	300.00	300.00	0.55	0.55	89.98	0.01	31.91	31.91	30.82	1.09	29.275	
400.00	400.00	400.00	400.00	0.77	0.77	89.98	0.01	31.91	31.91	30.37	1.54	20.727	
500.00	500.00	500.00	500.00	0.99	0.99	89.98	0.01	31.91	31.91	29.92	1.99	16.043	
600.00	600.00	600.00	600.00	1.22	1.22	89.98	0.01	31.91	31.91	29.47	2.44	13.086	
700.00	700.00	700.00	700.00	1.44	1.44	89.98	0.01	31.91	31.91	29.02	2.89	11.049	
800.00	800.00	800.00	800.00	1.67	1.67	89.98	0.01	31.91	31.91	28.58	3.34	9.561	
900.00	900.00	900.00	900.00	1.89	1.89	89.98	0.01	31.91	31.91	28.13	3.79	8.426	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	89.98	0.01	31.91	31.91	27.68	4.24	7.532 CC	
1,100.00	1,099.98	1,100.82	1,100.80	2.33	2.34	-168.69	1.17	30.57	32.31	27.65	4.66	6.930 ES	
1,204.60	1,204.43	1,206.12	1,205.94	2.54	2.57	-177.10	4.85	26.30	34.07	28.98	5.09	6.697	
1,300.00	1,299.58	1,301.87	1,301.32	2.74	2.79	171.75	10.39	19.88	36.34	30.84	5.50	6.611	
1,400.00	1,399.33	1,401.81	1,400.49	2.96	3.04	157.08	18.38	10.60	39.12	33.16	5.96	6.564 SF	
1,500.00	1,499.07	1,501.05	1,498.50	3.18	3.32	140.62	28.54	-1.20	44.19	37.71	6.47	6.828	
1,600.00	1,598.82	1,599.38	1,595.02	3.42	3.62	124.88	40.80	-15.41	53.15	46.13	7.01	7.579	
1,700.00	1,698.56	1,696.58	1,689.74	3.65	3.97	111.80	55.03	-31.92	66.72	59.16	7.56	8.829	
1,800.00	1,798.31	1,794.28	1,784.52	3.89	4.36	102.35	70.49	-49.87	83.82	75.73	8.09	10.366	
1,900.00	1,898.05	1,892.04	1,879.36	4.13	4.77	96.17	85.97	-67.83	102.40	93.80	8.61	11.900	
2,000.00	1,997.80	1,989.80	1,974.20	4.38	5.19	91.91	101.45	-85.79	121.78	112.66	9.12	13.351	
2,100.00	2,097.54	2,087.56	2,069.05	4.63	5.63	88.82	116.92	-103.75	141.64	132.00	9.64	14.694	
2,200.00	2,197.29	2,185.32	2,163.89	4.88	6.08	86.50	132.40	-121.72	161.80	151.64	10.16	15.928	
2,300.00	2,297.03	2,283.09	2,258.73	5.13	6.54	84.69	147.88	-139.68	182.15	171.47	10.68	17.052	
2,400.00	2,396.78	2,380.85	2,353.58	5.38	7.00	83.24	163.36	-157.64	202.64	191.43	11.21	18.074	
2,500.00	2,496.52	2,478.61	2,448.42	5.63	7.47	82.06	178.84	-175.60	223.24	211.50	11.74	19.009	
2,600.00	2,596.27	2,576.37	2,543.26	5.88	7.94	81.08	194.32	-193.56	243.91	231.63	12.28	19.866	
2,700.00	2,696.01	2,674.13	2,638.11	6.14	8.41	80.25	209.79	-211.52	264.64	251.82	12.81	20.652	
2,800.00	2,795.76	2,771.90	2,732.95	6.39	8.89	79.54	225.27	-229.48	285.41	272.06	13.35	21.376	
2,900.00	2,895.50	2,869.66	2,827.79	6.65	9.37	78.93	240.75	-247.44	306.22	292.33	13.89	22.043	
3,000.00	2,995.25	2,967.42	2,922.64	6.91	9.86	78.40	256.23	-265.41	327.06	312.63	14.43	22.661	
3,100.00	3,094.99	3,065.18	3,017.48	7.16	10.34	77.93	271.71	-283.37	347.92	332.95	14.98	23.234	
3,200.00	3,194.74	3,162.95	3,112.32	7.42	10.83	77.51	287.19	-301.33	368.81	353.29	15.52	23.766	
3,300.00	3,294.48	3,260.71	3,207.17	7.68	11.32	77.14	302.66	-319.29	389.71	373.64	16.06	24.261	
3,400.00	3,394.23	3,358.47	3,302.01	7.94	11.81	76.81	318.14	-337.25	410.62	394.01	16.61	24.724	
3,500.00	3,493.97	3,456.23	3,396.85	8.20	12.30	76.51	333.62	-355.21	431.54	414.39	17.15	25.156	
3,600.00	3,593.72	3,553.99	3,491.70	8.46	12.79	76.23	349.10	-373.17	452.48	434.78	17.70	25.562	
3,700.00	3,693.46	3,651.76	3,586.54	8.72	13.28	75.98	364.58	-391.13	473.43	455.18	18.25	25.942	
3,800.00	3,793.21	3,749.52	3,681.38	8.98	13.77	75.75	380.05	-409.10	494.38	475.58	18.80	26.300	
3,900.00	3,892.95	3,847.28	3,776.22	9.24	14.27	75.54	395.53	-427.06	515.34	495.99	19.35	26.638	
4,000.00	3,992.70	3,945.04	3,871.07	9.50	14.76	75.35	411.01	-445.02	536.30	516.41	19.90	26.956	
4,100.00	4,092.44	4,042.80	3,965.91	9.76	15.25	75.17	426.49	-462.98	557.27	536.83	20.45	27.256	
4,200.00	4,192.19	4,140.57	4,060.75	10.02	15.75	75.01	441.97	-480.94	578.25	557.25	21.00	27.541	
4,300.00	4,291.94	4,238.33	4,155.60	10.28	16.24	74.85	457.45	-498.90	599.23	577.68	21.55	27.811	
4,400.00	4,391.68	4,336.09	4,250.44	10.54	16.74	74.71	472.92	-516.86	620.22	598.12	22.10	28.067	
4,500.00	4,491.43	4,433.85	4,345.28	10.80	17.24	74.57	488.40	-534.82	641.20	618.55	22.65	28.310	
4,600.00	4,591.17	4,531.61	4,440.13	11.06	17.73	74.45	503.88	-552.79	662.19	638.99	23.20	28.541	
4,700.00	4,690.92	4,629.38	4,534.97	11.32	18.23	74.33	519.36	-570.75	683.19	659.43	23.75	28.761	
4,800.00	4,790.66	4,727.14	4,629.81	11.58	18.73	74.22	534.84	-588.71	704.18	679.88	24.31	28.971	
4,900.00	4,890.41	4,824.90	4,724.66	11.84	19.22	74.11	550.32	-606.67	725.18	700.32	24.86	29.172	
5,000.00	4,990.15	4,922.66	4,819.50	12.11	19.72	74.01	565.79	-624.63	746.18	720.77	25.41	29.364	
5,100.00	5,089.90	5,020.42	4,914.34	12.37	20.22	73.92	581.27	-642.59	767.19	741.22	25.97	29.547	

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 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design Riverbend 7-13 PAD - P_Riverbend 21-13 - P_Riverbend 21-13 - PLAN #1 6-21-10 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	
5,200.00	5,189.64	5,118.19	5,009.19	12.63	20.72	73.83	596.75	-660.55	788.19	761.67	26.52	29.722	
5,300.00	5,289.39	5,215.95	5,104.03	12.89	21.22	73.75	612.23	-678.51	809.20	782.12	27.07	29.890	
5,400.00	5,389.13	5,313.71	5,198.87	13.15	21.72	73.67	627.71	-696.48	830.21	802.58	27.63	30.051	
5,500.00	5,488.88	5,411.47	5,293.72	13.41	22.21	73.59	643.19	-714.44	851.21	823.03	28.18	30.206	
5,600.00	5,588.62	5,509.24	5,388.56	13.68	22.71	73.52	658.66	-732.40	872.23	843.49	28.73	30.355	
5,700.00	5,688.37	5,629.93	5,505.89	13.94	23.25	73.46	677.10	-753.79	892.53	863.21	29.32	30.441	
5,800.00	5,788.11	5,770.38	5,643.72	14.20	23.72	73.52	694.71	-774.23	908.75	878.85	29.90	30.391	
5,900.00	5,887.86	5,912.62	5,784.47	14.46	24.11	73.71	708.04	-789.69	920.35	889.87	30.48	30.197	
5,947.84	5,935.57	5,981.10	5,852.56	14.59	24.26	73.86	712.82	-795.24	924.24	893.49	30.75	30.056	
6,000.00	5,987.63	6,055.99	5,927.19	14.71	24.41	74.07	716.83	-799.90	927.39	896.38	31.01	29.903	
6,100.00	6,087.56	6,199.98	6,071.03	14.88	24.63	74.31	720.96	-804.69	930.57	899.15	31.42	29.613	
6,152.44	6,140.00	6,268.95	6,140.00	14.97	24.71	-29.81	721.29	-805.08	930.77	899.17	31.61	29.449	
6,200.00	6,187.56	6,316.52	6,187.56	15.06	24.76	-29.81	721.29	-805.08	930.77	899.00	31.77	29.298	
6,300.00	6,287.56	6,416.52	6,287.56	15.24	24.88	-29.81	721.29	-805.08	930.77	898.65	32.12	28.974	
6,400.00	6,387.56	6,516.52	6,387.56	15.42	25.00	-29.81	721.29	-805.08	930.77	898.29	32.48	28.655	
6,500.00	6,487.56	6,616.52	6,487.56	15.60	25.13	-29.81	721.29	-805.08	930.77	897.93	32.84	28.341	
6,600.00	6,587.56	6,716.52	6,587.56	15.79	25.25	-29.81	721.29	-805.08	930.77	897.57	33.20	28.032	
6,700.00	6,687.56	6,816.52	6,687.56	15.97	25.38	-29.81	721.29	-805.08	930.77	897.21	33.57	27.728	
6,800.00	6,787.56	6,916.52	6,787.56	16.16	25.51	-29.81	721.29	-805.08	930.77	896.84	33.93	27.429	
6,900.00	6,887.56	7,016.52	6,887.56	16.35	25.63	-29.81	721.29	-805.08	930.77	896.47	34.30	27.135	
7,000.00	6,987.56	7,116.52	6,987.56	16.54	25.76	-29.81	721.29	-805.08	930.77	896.10	34.67	26.845	
7,100.00	7,087.56	7,216.52	7,087.56	16.72	25.90	-29.81	721.29	-805.08	930.77	895.73	35.04	26.560	
7,200.00	7,187.56	7,316.52	7,187.56	16.91	26.03	-29.81	721.29	-805.08	930.77	895.36	35.42	26.280	
7,300.00	7,287.56	7,416.52	7,287.56	17.11	26.16	-29.81	721.29	-805.08	930.77	894.98	35.79	26.004	
7,400.00	7,387.56	7,516.52	7,387.56	17.30	26.30	-29.81	721.29	-805.08	930.77	894.60	36.17	25.733	
7,500.00	7,487.56	7,616.52	7,487.56	17.49	26.43	-29.81	721.29	-805.08	930.77	894.23	36.55	25.467	
7,600.00	7,587.56	7,716.52	7,587.56	17.68	26.57	-29.81	721.29	-805.08	930.77	893.85	36.93	25.205	
7,700.00	7,687.56	7,816.52	7,687.56	17.88	26.71	-29.81	721.29	-805.08	930.77	893.46	37.31	24.947	
7,800.00	7,787.56	7,916.52	7,787.56	18.07	26.85	-29.81	721.29	-805.08	930.77	893.08	37.69	24.693	
7,900.00	7,887.56	8,016.52	7,887.56	18.27	26.99	-29.81	721.29	-805.08	930.77	892.70	38.08	24.443	
8,000.00	7,987.56	8,116.52	7,987.56	18.46	27.13	-29.81	721.29	-805.08	930.77	892.31	38.46	24.198	
8,039.92	8,027.48	8,156.43	8,027.48	18.54	27.19	-29.81	721.29	-805.08	930.77	892.15	38.62	24.101	
8,069.44	8,057.00	8,170.95	8,042.00	18.60	27.21	-29.81	721.29	-805.08	930.90	892.19	38.71	24.051	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 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
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	48.15	48.15				
100.00	100.00	100.00	100.00	0.10	0.10	90.00	0.00	48.15	48.15	47.96	0.19	252.023	
200.00	200.00	200.00	200.00	0.32	0.32	90.00	0.00	48.15	48.15	47.51	0.64	75.165	
300.00	300.00	300.00	300.00	0.55	0.55	90.00	0.00	48.15	48.15	47.06	1.09	44.169	
400.00	400.00	400.00	400.00	0.77	0.77	90.00	0.00	48.15	48.15	46.61	1.54	31.273	
500.00	500.00	500.00	500.00	0.99	0.99	90.00	0.00	48.15	48.15	46.16	1.99	24.206	
600.00	600.00	600.00	600.00	1.22	1.22	90.00	0.00	48.15	48.15	45.71	2.44	19.744	
700.00	700.00	700.00	700.00	1.44	1.44	90.00	0.00	48.15	48.15	45.26	2.89	16.671	
800.00	800.00	800.00	800.00	1.67	1.67	90.00	0.00	48.15	48.15	44.81	3.34	14.426	
900.00	900.00	900.00	900.00	1.89	1.89	90.00	0.00	48.15	48.15	44.36	3.79	12.713	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	90.00	0.00	48.15	48.15	43.91	4.24	11.364 CC, ES	
1,100.00	1,099.98	1,098.90	1,098.88	2.33	2.32	-164.79	-1.35	49.20	50.91	46.27	4.64	10.976 SF	
1,204.60	1,204.43	1,201.80	1,201.64	2.54	2.51	-162.07	-5.61	52.51	59.78	54.76	5.02	11.910	
1,300.00	1,299.58	1,294.90	1,294.38	2.74	2.69	-158.86	-11.98	57.45	71.83	66.44	5.39	13.330	
1,400.00	1,399.33	1,391.63	1,390.41	2.96	2.91	-155.03	-21.11	64.55	87.08	81.29	5.79	15.033	
1,500.00	1,499.07	1,489.36	1,487.13	3.18	3.15	-151.48	-32.19	73.15	104.48	98.26	6.22	16.809	
1,600.00	1,598.82	1,587.64	1,584.38	3.42	3.42	-148.91	-43.42	81.87	122.25	115.59	6.65	18.375	
1,700.00	1,698.56	1,685.93	1,681.63	3.65	3.70	-146.99	-54.64	90.60	140.19	133.09	7.10	19.746	
1,800.00	1,798.31	1,784.21	1,778.87	3.89	3.99	-145.50	-65.87	99.32	158.26	150.70	7.55	20.949	
1,900.00	1,898.05	1,882.49	1,876.12	4.13	4.29	-144.32	-77.10	108.04	176.40	168.39	8.02	22.007	
2,000.00	1,997.80	1,980.77	1,973.37	4.38	4.60	-143.36	-88.32	116.76	194.61	186.13	8.48	22.943	
2,100.00	2,097.54	2,079.05	2,070.62	4.63	4.91	-142.57	-99.55	125.48	212.86	203.90	8.95	23.774	
2,200.00	2,197.29	2,177.33	2,167.87	4.88	5.23	-141.90	-110.78	134.20	231.14	221.71	9.43	24.516	
2,300.00	2,297.03	2,275.61	2,265.11	5.13	5.56	-141.33	-122.00	142.92	249.45	239.54	9.91	25.181	
2,400.00	2,396.78	2,373.90	2,362.36	5.38	5.88	-140.83	-133.23	151.64	267.78	257.39	10.39	25.779	
2,500.00	2,496.52	2,472.18	2,459.61	5.63	6.22	-140.40	-144.45	160.36	286.12	275.25	10.87	26.320	
2,600.00	2,596.27	2,570.46	2,556.86	5.88	6.55	-140.02	-155.68	169.08	304.48	293.13	11.36	26.812	
2,700.00	2,696.01	2,668.74	2,654.11	6.14	6.88	-139.69	-166.91	177.80	322.85	311.01	11.84	27.260	
2,800.00	2,795.76	2,767.02	2,751.35	6.39	7.22	-139.39	-178.13	186.52	341.23	328.90	12.33	27.669	
2,900.00	2,895.50	2,865.30	2,848.60	6.65	7.56	-139.12	-189.36	195.24	359.62	346.80	12.82	28.045	
3,000.00	2,995.25	2,963.59	2,945.85	6.91	7.90	-138.88	-200.59	203.96	378.02	364.70	13.31	28.391	
3,100.00	3,094.99	3,061.87	3,043.10	7.16	8.24	-138.66	-211.81	212.68	396.42	382.61	13.81	28.710	
3,200.00	3,194.74	3,160.15	3,140.35	7.42	8.58	-138.46	-223.04	221.40	414.82	400.52	14.30	29.006	
3,300.00	3,294.48	3,258.43	3,237.60	7.68	8.92	-138.27	-234.27	230.12	433.24	418.44	14.80	29.280	
3,400.00	3,394.23	3,356.71	3,334.84	7.94	9.27	-138.11	-245.49	238.84	451.65	436.36	15.29	29.535	
3,500.00	3,493.97	3,454.99	3,432.09	8.20	9.61	-137.95	-256.72	247.56	470.07	454.28	15.79	29.773	
3,600.00	3,593.72	3,553.27	3,529.34	8.46	9.96	-137.81	-267.94	256.28	488.49	472.20	16.29	29.996	
3,700.00	3,693.46	3,651.56	3,626.59	8.72	10.30	-137.67	-279.17	265.00	506.91	490.13	16.78	30.204	
3,800.00	3,793.21	3,749.84	3,723.84	8.98	10.65	-137.55	-290.40	273.72	525.34	508.06	17.28	30.399	
3,900.00	3,892.95	3,848.12	3,821.08	9.24	11.00	-137.43	-301.62	282.44	543.77	525.99	17.78	30.583	
4,000.00	3,992.70	3,946.40	3,918.33	9.50	11.34	-137.33	-312.85	291.16	562.20	543.92	18.28	30.756	
4,100.00	4,092.44	4,044.68	4,015.58	9.76	11.69	-137.23	-324.08	299.88	580.63	561.85	18.78	30.919	
4,200.00	4,192.19	4,142.96	4,112.83	10.02	12.04	-137.13	-335.30	308.60	599.07	579.79	19.28	31.073	
4,300.00	4,291.94	4,241.24	4,210.08	10.28	12.39	-137.04	-346.53	317.32	617.50	597.72	19.78	31.219	
4,400.00	4,391.68	4,339.53	4,307.32	10.54	12.73	-136.96	-357.76	326.04	635.94	615.66	20.28	31.357	
4,500.00	4,491.43	4,437.81	4,404.57	10.80	13.08	-136.88	-368.98	334.76	654.38	633.60	20.78	31.488	
4,600.00	4,591.17	4,536.09	4,501.82	11.06	13.43	-136.80	-380.21	343.49	672.82	651.53	21.28	31.612	
4,700.00	4,690.92	4,634.37	4,599.07	11.32	13.78	-136.73	-391.43	352.21	691.26	669.47	21.79	31.731	
4,800.00	4,790.66	4,732.65	4,696.32	11.58	14.13	-136.67	-402.66	360.93	709.70	687.41	22.29	31.844	
4,900.00	4,890.41	4,830.93	4,793.56	11.84	14.48	-136.60	-413.89	369.65	728.14	705.35	22.79	31.951	
5,000.00	4,990.15	4,929.22	4,890.81	12.11	14.83	-136.54	-425.11	378.37	746.58	723.29	23.29	32.053	
5,100.00	5,089.90	5,027.50	4,988.06	12.37	15.18	-136.48	-436.34	387.09	765.03	741.23	23.79	32.151	

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 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design Riverbend 7-13 PAD - P_Riverbend 24-13 - P_Riverbend 24-13 - PLAN #1 6-21-10 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
5,200.00	5,189.64	5,125.78	5,085.31	12.63	15.53	-136.43	-447.57	395.81	783.47	759.18	24.30	32.245	
5,300.00	5,289.39	5,224.06	5,182.56	12.89	15.88	-136.38	-458.79	404.53	801.92	777.12	24.80	32.335	
5,400.00	5,389.13	5,322.34	5,279.80	13.15	16.23	-136.33	-470.02	413.25	820.36	795.06	25.30	32.421	
5,500.00	5,488.88	5,420.62	5,377.05	13.41	16.58	-136.28	-481.25	421.97	838.81	813.00	25.81	32.503	
5,600.00	5,588.62	5,518.90	5,474.30	13.68	16.94	-136.23	-492.47	430.69	857.26	830.95	26.31	32.582	
5,700.00	5,688.37	5,617.19	5,571.55	13.94	17.29	-136.19	-503.70	439.41	875.71	848.89	26.81	32.658	
5,800.00	5,788.11	5,715.47	5,668.80	14.20	17.64	-136.15	-514.93	448.13	894.15	866.84	27.32	32.731	
5,900.00	5,887.86	5,841.24	5,793.45	14.46	18.00	-136.13	-528.10	458.36	911.61	883.75	27.85	32.729	
5,947.84	5,935.57	5,908.35	5,860.22	14.59	18.15	-136.18	-533.43	462.50	918.50	890.40	28.10	32.681	
6,000.00	5,987.63	5,982.02	5,933.67	14.71	18.30	-136.32	-537.86	465.94	924.51	896.12	28.39	32.567	
6,100.00	6,087.56	6,124.30	6,075.84	14.88	18.53	-136.49	-542.18	469.30	930.64	901.78	28.86	32.245	
6,152.44	6,140.00	6,188.47	6,140.00	14.97	18.63	119.33	-542.39	469.46	931.17	902.08	29.09	32.014	
6,200.00	6,187.56	6,236.03	6,187.56	15.06	18.69	119.33	-542.39	469.46	931.17	901.91	29.26	31.829	
6,300.00	6,287.56	6,336.03	6,287.56	15.24	18.83	119.33	-542.39	469.46	931.17	901.56	29.61	31.448	
6,400.00	6,387.56	6,436.03	6,387.56	15.42	18.97	119.33	-542.39	469.46	931.17	901.20	29.97	31.074	
6,500.00	6,487.56	6,536.03	6,487.56	15.60	19.11	119.33	-542.39	469.46	931.17	900.84	30.32	30.707	
6,600.00	6,587.56	6,636.03	6,587.56	15.79	19.25	119.33	-542.39	469.46	931.17	900.48	30.69	30.345	
6,700.00	6,687.56	6,736.03	6,687.56	15.97	19.39	119.33	-542.39	469.46	931.17	900.12	31.05	29.990	
6,800.00	6,787.56	6,836.03	6,787.56	16.16	19.53	119.33	-542.39	469.46	931.17	899.75	31.41	29.641	
6,900.00	6,887.56	6,936.03	6,887.56	16.35	19.68	119.33	-542.39	469.46	931.17	899.38	31.78	29.298	
7,000.00	6,987.56	7,036.03	6,987.56	16.54	19.82	119.33	-542.39	469.46	931.17	899.01	32.15	28.961	
7,100.00	7,087.56	7,136.03	7,087.56	16.72	19.97	119.33	-542.39	469.46	931.17	898.64	32.52	28.630	
7,200.00	7,187.56	7,236.03	7,187.56	16.91	20.12	119.33	-542.39	469.46	931.17	898.27	32.90	28.304	
7,300.00	7,287.56	7,336.03	7,287.56	17.11	20.27	119.33	-542.39	469.46	931.17	897.89	33.27	27.985	
7,400.00	7,387.56	7,436.03	7,387.56	17.30	20.42	119.33	-542.39	469.46	931.17	897.51	33.65	27.671	
7,500.00	7,487.56	7,536.03	7,487.56	17.49	20.58	119.33	-542.39	469.46	931.17	897.13	34.03	27.362	
7,600.00	7,587.56	7,636.03	7,587.56	17.68	20.73	119.33	-542.39	469.46	931.17	896.75	34.41	27.059	
7,700.00	7,687.56	7,736.03	7,687.56	17.88	20.89	119.33	-542.39	469.46	931.17	896.37	34.79	26.762	
7,800.00	7,787.56	7,836.03	7,787.56	18.07	21.05	119.33	-542.39	469.46	931.17	895.99	35.18	26.470	
7,900.00	7,887.56	7,936.03	7,887.56	18.27	21.21	119.33	-542.39	469.46	931.17	895.60	35.56	26.183	
8,000.00	7,987.56	8,036.03	7,987.56	18.46	21.37	119.33	-542.39	469.46	931.17	895.21	35.95	25.901	
8,033.27	8,020.83	8,069.30	8,020.83	18.53	21.42	119.33	-542.39	469.46	931.17	895.09	36.08	25.808	
8,069.44	8,057.00	8,080.47	8,032.00	18.60	21.44	119.33	-542.39	469.46	931.50	895.33	36.17	25.751	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design Riverbend 7-13 PAD - P_Riverbend 25-13 - P_Riverbend 25-13 - PLAN #1 6-21-10 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	90.00	0.00	15.96	15.96				
100.00	100.00	100.00	100.00	0.10	0.10	90.00	0.00	15.96	15.96	15.77	0.19	83.519	
200.00	200.00	200.00	200.00	0.32	0.32	90.00	0.00	15.96	15.96	15.32	0.64	24.909	
300.00	300.00	300.00	300.00	0.55	0.55	90.00	0.00	15.96	15.96	14.87	1.09	14.637	
400.00	400.00	400.00	400.00	0.77	0.77	90.00	0.00	15.96	15.96	14.42	1.54	10.364	
500.00	500.00	500.00	500.00	0.99	0.99	90.00	0.00	15.96	15.96	13.97	1.99	8.022	
600.00	600.00	600.00	600.00	1.22	1.22	90.00	0.00	15.96	15.96	13.52	2.44	6.543	
700.00	700.00	700.00	700.00	1.44	1.44	90.00	0.00	15.96	15.96	13.07	2.89	5.525	
800.00	800.00	800.00	800.00	1.67	1.67	90.00	0.00	15.96	15.96	12.62	3.34	4.781	
900.00	900.00	900.00	900.00	1.89	1.89	90.00	0.00	15.96	15.96	12.17	3.79	4.213	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	90.00	0.00	15.96	15.96	11.72	4.24	3.766 CC	
1,100.00	1,099.98	1,100.46	1,100.44	2.33	2.32	-163.89	-0.98	14.49	16.20	11.56	4.64	3.488	
1,204.60	1,204.43	1,205.52	1,205.34	2.54	2.52	-158.06	-4.11	9.84	17.10	12.07	5.04	3.395	
1,300.00	1,299.58	1,301.27	1,300.71	2.74	2.72	-147.88	-8.83	2.82	17.39	11.97	5.43	3.205	
1,398.18	1,397.51	1,399.55	1,398.26	2.95	2.95	-128.12	-15.51	-7.13	16.90	11.03	5.87	2.877	
1,400.00	1,399.33	1,401.37	1,400.06	2.96	2.95	-127.65	-15.65	-7.34	16.90	11.02	5.88	2.873 ES, SF	
1,500.00	1,499.07	1,500.96	1,498.41	3.18	3.22	-98.17	-24.36	-20.31	18.87	12.47	6.40	2.950	
1,600.00	1,598.82	1,600.00	1,595.62	3.42	3.52	-72.00	-34.91	-36.01	26.47	19.61	6.86	3.857	
1,700.00	1,698.56	1,698.62	1,692.00	3.65	3.86	-56.92	-46.59	-53.40	38.67	31.39	7.29	5.307	
1,800.00	1,798.31	1,797.52	1,788.62	3.89	4.23	-49.27	-58.32	-70.86	52.28	44.56	7.72	6.769	
1,900.00	1,898.05	1,896.41	1,885.25	4.13	4.62	-44.81	-70.05	-88.32	66.42	58.25	8.17	8.129	
2,000.00	1,997.80	1,995.30	1,981.88	4.38	5.02	-41.93	-81.78	-105.78	80.82	72.20	8.63	9.368	
2,100.00	2,097.54	2,094.19	2,078.51	4.63	5.43	-39.92	-93.51	-123.25	95.36	86.27	9.09	10.490	
2,200.00	2,197.29	2,193.08	2,175.13	4.88	5.85	-38.45	-105.25	-140.71	109.98	100.42	9.56	11.506	
2,300.00	2,297.03	2,291.97	2,271.76	5.13	6.27	-37.32	-116.98	-158.17	124.66	114.63	10.03	12.426	
2,400.00	2,396.78	2,390.86	2,368.39	5.38	6.70	-36.43	-128.71	-175.64	139.37	128.86	10.51	13.263	
2,500.00	2,496.52	2,489.75	2,465.02	5.63	7.14	-35.71	-140.44	-193.10	154.11	143.13	10.99	14.025	
2,600.00	2,596.27	2,588.64	2,561.64	5.88	7.58	-35.12	-152.17	-210.56	168.87	157.40	11.47	14.722	
2,700.00	2,696.01	2,687.53	2,658.27	6.14	8.02	-34.62	-163.90	-228.02	183.65	171.69	11.96	15.361	
2,800.00	2,795.76	2,786.42	2,754.90	6.39	8.46	-34.19	-175.63	-245.49	198.44	186.00	12.44	15.949	
2,900.00	2,895.50	2,885.31	2,851.52	6.65	8.91	-33.83	-187.36	-262.95	213.23	200.30	12.93	16.491	
3,000.00	2,995.25	2,984.20	2,948.15	6.91	9.36	-33.51	-199.09	-280.41	228.04	214.62	13.42	16.992	
3,100.00	3,094.99	3,083.10	3,044.78	7.16	9.81	-33.23	-210.83	-297.87	242.85	228.94	13.91	17.457	
3,200.00	3,194.74	3,181.99	3,141.41	7.42	10.26	-32.98	-222.56	-315.34	257.66	243.26	14.40	17.889	
3,300.00	3,294.48	3,280.88	3,238.03	7.68	10.72	-32.76	-234.29	-332.80	272.48	257.58	14.90	18.291	
3,400.00	3,394.23	3,379.77	3,334.66	7.94	11.17	-32.56	-246.02	-350.26	287.30	271.91	15.39	18.667	
3,500.00	3,493.97	3,478.66	3,431.29	8.20	11.63	-32.38	-257.75	-367.72	302.13	286.24	15.89	19.018	
3,600.00	3,593.72	3,577.55	3,527.91	8.46	12.08	-32.22	-269.48	-385.19	316.96	300.57	16.38	19.348	
3,700.00	3,693.46	3,676.44	3,624.54	8.72	12.54	-32.08	-281.21	-402.65	331.79	314.91	16.88	19.657	
3,800.00	3,793.21	3,775.33	3,721.17	8.98	13.00	-31.94	-292.94	-420.11	346.62	329.24	17.38	19.948	
3,900.00	3,892.95	3,874.22	3,817.80	9.24	13.45	-31.82	-304.67	-437.58	361.45	343.58	17.87	20.222	
4,000.00	3,992.70	3,973.11	3,914.42	9.50	13.91	-31.70	-316.41	-455.04	376.29	357.92	18.37	20.481	
4,100.00	4,092.44	4,072.00	4,011.05	9.76	14.37	-31.60	-328.14	-472.50	391.12	372.25	18.87	20.726	
4,200.00	4,192.19	4,170.89	4,107.68	10.02	14.83	-31.50	-339.87	-489.96	405.96	386.59	19.37	20.958	
4,300.00	4,291.94	4,269.78	4,204.31	10.28	15.29	-31.41	-351.60	-507.43	420.80	400.93	19.87	21.177	
4,400.00	4,391.68	4,368.68	4,300.93	10.54	15.75	-31.33	-363.33	-524.89	435.64	415.27	20.37	21.386	
4,500.00	4,491.43	4,467.57	4,397.56	10.80	16.21	-31.25	-375.06	-542.35	450.48	429.61	20.87	21.584	
4,600.00	4,591.17	4,566.46	4,494.19	11.06	16.67	-31.17	-386.79	-559.81	465.32	443.95	21.37	21.773	
4,700.00	4,690.92	4,665.35	4,590.81	11.32	17.13	-31.10	-398.52	-577.28	480.17	458.29	21.87	21.952	
4,800.00	4,790.66	4,764.24	4,687.44	11.58	17.60	-31.04	-410.25	-594.74	495.01	472.63	22.37	22.124	
4,900.00	4,890.41	4,863.13	4,784.07	11.84	18.06	-30.98	-421.99	-612.20	509.85	486.98	22.88	22.287	
5,000.00	4,990.15	4,962.02	4,880.70	12.11	18.52	-30.92	-433.72	-629.67	524.70	501.32	23.38	22.444	

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 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design Riverbend 7-13 PAD - P_Riverbend 25-13 - P_Riverbend 25-13 - PLAN #1 6-21-10 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	5,089.90	5,060.91	4,977.32	12.37	18.98	-30.86	-445.45	-647.13	539.54	515.66	23.88	22.594	
5,200.00	5,189.64	5,159.80	5,073.95	12.63	19.44	-30.81	-457.18	-664.59	554.39	530.00	24.38	22.737	
5,300.00	5,289.39	5,258.69	5,170.58	12.89	19.91	-30.76	-468.91	-682.05	569.23	544.35	24.89	22.874	
5,400.00	5,389.13	5,357.58	5,267.20	13.15	20.37	-30.72	-480.64	-699.52	584.08	558.69	25.39	23.006	
5,500.00	5,488.88	5,456.47	5,363.83	13.41	20.83	-30.67	-492.37	-716.98	598.92	573.03	25.89	23.132	
5,600.00	5,588.62	5,555.36	5,460.46	13.68	21.30	-30.63	-504.10	-734.44	613.77	587.38	26.39	23.254	
5,700.00	5,688.37	5,663.11	5,565.80	13.94	21.77	-30.59	-516.72	-753.23	628.39	601.48	26.91	23.350	
5,800.00	5,788.11	5,790.06	5,690.73	14.20	22.17	-30.62	-529.25	-771.87	639.69	612.24	27.44	23.310	
5,900.00	5,887.86	5,918.01	5,817.54	14.46	22.49	-30.75	-538.74	-785.99	646.64	618.68	27.96	23.130	
5,947.84	5,935.57	5,979.43	5,878.65	14.59	22.62	-30.84	-542.17	-791.10	648.41	620.21	28.20	22.994	
6,000.00	5,987.63	6,046.47	5,945.49	14.71	22.75	-30.95	-545.08	-795.43	649.61	621.19	28.42	22.858	
6,100.00	6,087.56	6,175.09	6,073.97	14.88	22.94	-31.08	-548.21	-800.10	650.84	622.06	28.77	22.621	
6,152.44	6,140.00	6,241.12	6,140.00	14.97	23.03	-135.25	-548.57	-800.64	650.92	621.98	28.94	22.493	
6,200.00	6,187.56	6,288.68	6,187.56	15.06	23.08	-135.25	-548.57	-800.64	650.92	621.81	29.11	22.358	
6,300.00	6,287.56	6,388.68	6,287.56	15.24	23.20	-135.25	-548.57	-800.64	650.92	621.44	29.48	22.080	
6,400.00	6,387.56	6,488.68	6,387.56	15.42	23.31	-135.25	-548.57	-800.64	650.92	621.07	29.85	21.808	
6,500.00	6,487.56	6,588.68	6,487.56	15.60	23.43	-135.25	-548.57	-800.64	650.92	620.70	30.22	21.541	
6,600.00	6,587.56	6,688.68	6,587.56	15.79	23.55	-135.25	-548.57	-800.64	650.92	620.33	30.59	21.279	
6,700.00	6,687.56	6,788.68	6,687.56	15.97	23.67	-135.25	-548.57	-800.64	650.92	619.96	30.96	21.022	
6,800.00	6,787.56	6,888.68	6,787.56	16.16	23.80	-135.25	-548.57	-800.64	650.92	619.58	31.34	20.769	
6,900.00	6,887.56	6,988.68	6,887.56	16.35	23.92	-135.25	-548.57	-800.64	650.92	619.20	31.72	20.522	
7,000.00	6,987.56	7,088.68	6,987.56	16.54	24.05	-135.25	-548.57	-800.64	650.92	618.82	32.10	20.279	
7,100.00	7,087.56	7,188.68	7,087.56	16.72	24.17	-135.25	-548.57	-800.64	650.92	618.44	32.48	20.041	
7,200.00	7,187.56	7,288.68	7,187.56	16.91	24.30	-135.25	-548.57	-800.64	650.92	618.06	32.86	19.807	
7,300.00	7,287.56	7,388.68	7,287.56	17.11	24.43	-135.25	-548.57	-800.64	650.92	617.67	33.25	19.578	
7,400.00	7,387.56	7,488.68	7,387.56	17.30	24.56	-135.25	-548.57	-800.64	650.92	617.28	33.63	19.353	
7,500.00	7,487.56	7,588.68	7,487.56	17.49	24.69	-135.25	-548.57	-800.64	650.92	616.90	34.02	19.132	
7,600.00	7,587.56	7,688.68	7,587.56	17.68	24.83	-135.25	-548.57	-800.64	650.92	616.51	34.41	18.915	
7,700.00	7,687.56	7,788.68	7,687.56	17.88	24.96	-135.25	-548.57	-800.64	650.92	616.12	34.80	18.703	
7,800.00	7,787.56	7,888.68	7,787.56	18.07	25.10	-135.25	-548.57	-800.64	650.92	615.72	35.20	18.494	
7,900.00	7,887.56	7,988.68	7,887.56	18.27	25.24	-135.25	-548.57	-800.64	650.92	615.33	35.59	18.290	
8,000.00	7,987.56	8,088.68	7,987.56	18.46	25.38	-135.25	-548.57	-800.64	650.92	614.94	35.98	18.089	
8,044.50	8,032.06	8,133.18	8,032.06	18.55	25.44	-135.25	-548.57	-800.64	650.92	614.76	36.16	18.001	
8,069.44	8,057.00	8,153.12	8,052.00	18.60	25.47	-135.25	-548.57	-800.64	650.94	614.69	36.25	17.957	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design Riverbend 7-13 PAD - P_Riverbend 5-18 - P_Riverbend 5-18 - PLAN #1 6-21-10 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	89.74	0.36	80.06	80.06				
100.00	100.00	100.00	100.00	0.10	0.10	89.74	0.36	80.06	80.06	79.87	0.19	419.065	
200.00	200.00	200.00	200.00	0.32	0.32	89.74	0.36	80.06	80.06	79.42	0.64	124.984	
300.00	300.00	300.00	300.00	0.55	0.55	89.74	0.36	80.06	80.06	78.97	1.09	73.444 CC, ES	
400.00	400.00	397.25	397.23	0.77	0.75	89.71	0.42	81.71	81.76	80.24	1.52	53.681	
500.00	500.00	494.27	494.12	0.99	0.96	89.61	0.59	86.64	86.84	84.88	1.96	44.327	
600.00	600.00	590.84	590.34	1.22	1.20	89.48	0.86	94.80	95.30	92.88	2.42	39.434	
700.00	700.00	686.76	685.59	1.44	1.46	89.33	1.24	106.12	107.10	104.19	2.90	36.897	
800.00	800.00	781.82	779.55	1.67	1.76	89.18	1.72	120.46	122.20	118.77	3.42	35.695	
900.00	900.00	875.81	871.94	1.89	2.10	89.04	2.30	137.70	140.55	136.57	3.98	35.280 SF	
1,000.00	1,000.00	968.57	962.52	2.12	2.49	88.92	2.97	157.68	162.10	157.51	4.59	35.340	
1,100.00	1,099.98	1,059.48	1,050.62	2.33	2.92	-167.03	3.73	180.09	188.41	183.82	4.59	41.046	
1,204.60	1,204.43	1,151.71	1,139.22	2.54	3.40	-167.26	4.58	205.67	222.61	217.60	5.01	44.410	
1,300.00	1,299.58	1,233.39	1,216.97	2.74	3.88	-167.60	5.43	230.69	258.12	252.70	5.42	47.635	
1,400.00	1,399.33	1,316.98	1,295.75	2.96	4.42	-167.87	6.36	258.58	298.00	292.15	5.85	50.944	
1,500.00	1,499.07	1,400.00	1,373.17	3.18	5.00	-168.08	7.37	288.55	340.52	334.23	6.29	54.145	
1,600.00	1,598.82	1,477.65	1,444.76	3.42	5.60	-168.22	8.38	318.59	385.56	378.83	6.72	57.342	
1,700.00	1,698.56	1,555.38	1,515.59	3.65	6.22	-168.34	9.45	350.59	433.01	425.85	7.17	60.432	
1,800.00	1,798.31	1,642.83	1,594.84	3.89	6.97	-168.44	10.70	387.53	481.51	473.86	7.64	62.996	
1,900.00	1,898.05	1,730.28	1,674.10	4.13	7.72	-168.53	11.94	424.47	530.00	521.87	8.13	65.219	
2,000.00	1,997.80	1,817.73	1,753.36	4.38	8.47	-168.60	13.18	461.40	578.50	569.88	8.61	67.159	
2,100.00	2,097.54	1,905.19	1,832.62	4.63	9.23	-168.66	14.42	498.34	626.99	617.89	9.11	68.862	
2,200.00	2,197.29	1,992.64	1,911.88	4.88	9.99	-168.71	15.66	535.28	675.49	665.89	9.60	70.366	
2,300.00	2,297.03	2,080.09	1,991.14	5.13	10.76	-168.75	16.90	572.22	723.98	713.89	10.10	71.703	
2,400.00	2,396.78	2,167.54	2,070.40	5.38	11.53	-168.79	18.14	609.16	772.48	761.88	10.60	72.899	
2,500.00	2,496.52	2,255.00	2,149.66	5.63	12.30	-168.82	19.38	646.10	820.98	809.88	11.10	73.974	
2,600.00	2,596.27	2,342.45	2,228.91	5.88	13.07	-168.85	20.62	683.03	869.47	857.87	11.60	74.945	
2,700.00	2,696.01	2,429.90	2,308.17	6.14	13.84	-168.88	21.87	719.97	917.97	905.86	12.11	75.826	
2,800.00	2,795.76	2,517.35	2,387.43	6.39	14.61	-168.91	23.11	756.91	966.47	953.85	12.61	76.628	
2,900.00	2,895.50	2,604.81	2,466.69	6.65	15.39	-168.93	24.35	793.85	1,014.96	1,001.84	13.12	77.362	
3,000.00	2,995.25	2,692.26	2,545.95	6.91	16.16	-168.95	25.59	830.79	1,063.46	1,049.83	13.63	78.034	
3,100.00	3,094.99	2,779.71	2,625.21	7.16	16.94	-168.97	26.83	867.72	1,111.96	1,097.82	14.14	78.653	
3,200.00	3,194.74	2,867.16	2,704.47	7.42	17.71	-168.98	28.07	904.66	1,160.45	1,145.81	14.65	79.225	
3,300.00	3,294.48	2,954.62	2,783.73	7.68	18.49	-169.00	29.31	941.60	1,208.95	1,193.79	15.16	79.754	
3,400.00	3,394.23	3,042.07	2,862.98	7.94	19.27	-169.01	30.55	978.54	1,257.45	1,241.78	15.67	80.245	
3,500.00	3,493.97	3,129.52	2,942.24	8.20	20.04	-169.03	31.80	1,015.48	1,305.95	1,289.77	16.18	80.702	
3,600.00	3,593.72	3,216.97	3,021.50	8.46	20.82	-169.04	33.04	1,052.41	1,354.45	1,337.75	16.70	81.129	
3,700.00	3,693.46	3,304.42	3,100.76	8.72	21.60	-169.05	34.28	1,089.35	1,402.94	1,385.73	17.21	81.527	
3,800.00	3,793.21	3,391.88	3,180.02	8.98	22.38	-169.06	35.52	1,126.29	1,451.44	1,433.72	17.72	81.901	
3,900.00	3,892.95	3,479.33	3,259.28	9.24	23.15	-169.07	36.76	1,163.23	1,499.94	1,481.70	18.24	82.251	
4,000.00	3,992.70	3,566.78	3,338.54	9.50	23.93	-169.08	38.00	1,200.17	1,548.44	1,529.69	18.75	82.581	
4,100.00	4,092.44	3,654.23	3,417.80	9.76	24.71	-169.09	39.24	1,237.11	1,596.93	1,577.67	19.27	82.891	
4,200.00	4,192.19	3,741.69	3,497.05	10.02	25.49	-169.10	40.48	1,274.04	1,645.43	1,625.65	19.78	83.184	
4,300.00	4,291.94	3,829.14	3,576.31	10.28	26.27	-169.10	41.72	1,310.98	1,693.93	1,673.63	20.30	83.461	
4,400.00	4,391.68	3,916.59	3,655.57	10.54	27.05	-169.11	42.97	1,347.92	1,742.43	1,721.62	20.81	83.723	
4,500.00	4,491.43	4,004.04	3,734.83	10.80	27.83	-169.12	44.21	1,384.86	1,790.93	1,769.60	21.33	83.971	
4,600.00	4,591.17	4,091.50	3,814.09	11.06	28.60	-169.12	45.45	1,421.80	1,839.42	1,817.58	21.84	84.206	
4,700.00	4,690.92	4,178.95	3,893.35	11.32	29.38	-169.13	46.69	1,458.73	1,887.92	1,865.56	22.36	84.430	
4,800.00	4,790.66	4,266.40	3,972.61	11.58	30.16	-169.14	47.93	1,495.67	1,936.42	1,913.54	22.88	84.643	
4,900.00	4,890.41	4,353.85	4,051.87	11.84	30.94	-169.14	49.17	1,532.61	1,984.92	1,961.52	23.39	84.846	
5,000.00	4,990.15	4,441.31	4,131.12	12.11	31.72	-169.15	50.41	1,569.55	2,033.42	2,009.50	23.91	85.039	
5,100.00	5,089.90	4,528.76	4,210.38	12.37	32.50	-169.15	51.65	1,606.49	2,081.91	2,057.48	24.43	85.224	

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 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design Riverbend 7-13 PAD - P_Riverbend 5-18 - P_Riverbend 5-18 - PLAN #1 6-21-10 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	
5,200.00	5,189.64	4,616.21	4,289.64	12.63	33.28	-169.16	52.89	1,643.42	2,130.41	2,105.47	24.95	85.401	
5,300.00	5,289.39	4,703.66	4,368.90	12.89	34.06	-169.16	54.14	1,680.36	2,178.91	2,153.45	25.46	85.569	
5,400.00	5,389.13	4,791.12	4,448.16	13.15	34.84	-169.17	55.38	1,717.30	2,227.41	2,201.43	25.98	85.731	
5,500.00	5,488.88	4,878.57	4,527.42	13.41	35.62	-169.17	56.62	1,754.24	2,275.91	2,249.41	26.50	85.886	
5,600.00	5,588.62	4,966.02	4,606.68	13.68	36.40	-169.17	57.86	1,791.18	2,324.40	2,297.39	27.02	86.034	
5,700.00	5,688.37	5,053.47	4,685.94	13.94	37.18	-169.18	59.10	1,828.12	2,372.90	2,345.37	27.54	86.177	
5,800.00	5,788.11	5,140.92	4,765.19	14.20	37.96	-169.18	60.34	1,865.05	2,421.40	2,393.35	28.05	86.314	
5,900.00	5,887.86	5,228.38	4,844.45	14.46	38.74	-169.19	61.58	1,901.99	2,469.90	2,441.33	28.57	86.445	
5,947.84	5,935.57	5,270.21	4,882.37	14.59	39.12	-169.19	62.18	1,919.66	2,493.10	2,464.28	28.82	86.507	
6,000.00	5,987.63	5,316.05	4,923.92	14.71	39.52	-169.29	62.83	1,939.02	2,517.99	2,488.77	29.22	86.181	
6,100.00	6,087.56	5,405.14	5,004.66	14.88	40.32	-169.47	64.09	1,976.65	2,563.39	2,533.45	29.94	85.623	
6,152.44	6,140.00	5,452.47	5,047.55	14.97	40.74	86.30	64.76	1,996.64	2,585.97	2,555.66	30.31	85.309	
6,200.00	6,187.56	5,495.57	5,086.62	15.06	41.13	86.32	65.37	2,014.85	2,606.06	2,575.51	30.55	85.299	
6,300.00	6,287.56	5,586.21	5,168.76	15.24	41.93	86.35	66.66	2,053.13	2,648.31	2,617.25	31.05	85.279	
6,400.00	6,387.56	5,676.84	5,250.90	15.42	42.74	86.37	67.95	2,091.41	2,690.55	2,658.99	31.56	85.258	
6,500.00	6,487.56	5,767.47	5,333.04	15.60	43.55	86.40	69.23	2,129.69	2,732.80	2,700.74	32.06	85.235	
6,600.00	6,587.56	5,858.10	5,415.17	15.79	44.36	86.42	70.52	2,167.97	2,775.05	2,742.48	32.57	85.211	
6,700.00	6,687.56	5,949.21	5,497.23	15.97	45.17	86.44	71.80	2,206.25	2,817.33	2,783.76	33.07	85.187	
6,800.00	6,787.56	6,040.32	5,579.34	16.16	45.98	86.46	73.08	2,246.53	2,862.61	2,830.04	33.57	85.163	
6,900.00	6,887.56	6,131.43	5,661.46	16.35	46.79	86.48	74.36	2,286.81	2,907.89	2,876.36	34.07	85.139	
7,000.00	6,987.56	6,222.54	5,743.57	16.54	47.60	86.50	75.64	2,327.09	2,953.17	2,921.64	34.57	85.115	
7,100.00	7,087.56	6,313.65	5,825.68	16.72	48.41	86.52	76.92	2,367.37	2,998.45	2,966.92	35.07	85.091	
7,200.00	7,187.56	6,404.76	5,907.79	16.91	49.22	86.54	78.20	2,407.65	3,043.73	3,012.20	35.57	85.067	
7,300.00	7,287.56	6,495.87	5,989.90	17.11	50.03	86.56	79.48	2,447.93	3,089.01	3,057.48	36.07	85.043	
7,400.00	7,387.56	6,586.98	6,072.01	17.30	50.84	86.58	80.76	2,488.21	3,134.29	3,102.76	36.57	85.019	
7,500.00	7,487.56	6,678.09	6,154.12	17.49	51.65	86.60	82.04	2,528.49	3,179.57	3,147.04	37.07	84.995	
7,600.00	7,587.56	6,769.20	6,236.23	17.68	52.46	86.62	83.32	2,568.77	3,224.85	3,192.32	37.57	84.971	
7,700.00	7,687.56	6,860.31	6,318.34	17.88	53.27	86.64	84.60	2,609.05	3,270.13	3,237.60	38.07	84.947	
7,800.00	7,787.56	6,951.42	6,400.45	18.07	54.08	86.66	85.88	2,649.33	3,315.41	3,282.88	38.57	84.923	
7,900.00	7,887.56	7,042.53	6,482.56	18.27	54.89	86.68	87.16	2,689.61	3,360.69	3,328.16	39.07	84.899	
8,000.00	7,987.56	7,133.64	6,564.67	18.46	55.70	86.70	88.44	2,729.89	3,405.97	3,373.44	39.57	84.875	
8,028.69	8,016.25	8,500.89	8,016.25	18.52	50.27	86.59	79.90	2,447.21	2,794.52	2,754.27	40.25	69.430	
8,069.44	8,057.00	8,511.65	8,027.00	18.60	50.27	86.59	79.90	2,447.21	2,794.68	2,754.33	40.35	69.261	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 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	-91.31	-0.36	-15.96	15.96				
100.00	100.00	100.00	100.00	0.10	0.10	-91.31	-0.36	-15.96	15.96	15.77	0.19	83.541	
200.00	200.00	200.00	200.00	0.32	0.32	-91.31	-0.36	-15.96	15.96	15.32	0.64	24.916	
300.00	300.00	300.00	300.00	0.55	0.55	-91.31	-0.36	-15.96	15.96	14.87	1.09	14.641 CC, ES	
400.00	400.00	399.41	399.39	0.77	0.76	-90.95	-0.29	-17.68	17.69	16.16	1.53	11.578 SF	
500.00	500.00	498.58	498.42	0.99	0.97	-90.21	-0.08	-22.83	22.89	20.91	1.97	11.611	
600.00	600.00	597.27	596.74	1.22	1.22	-89.51	0.27	-31.35	31.52	29.08	2.44	12.923	
700.00	700.00	695.26	694.01	1.44	1.49	-89.00	0.75	-43.16	43.58	40.64	2.94	14.813	
800.00	800.00	792.33	789.91	1.67	1.80	-88.66	1.36	-58.12	59.01	55.52	3.49	16.924	
900.00	900.00	888.27	884.15	1.89	2.16	-88.42	2.10	-76.09	77.76	73.68	4.08	19.060	
1,000.00	1,000.00	982.89	976.45	2.12	2.56	-88.25	2.95	-96.90	99.76	95.04	4.72	21.114	
1,100.00	1,099.98	1,076.43	1,066.96	2.33	3.02	16.10	3.92	-120.44	123.33	118.68	4.65	26.517	
1,204.60	1,204.43	1,175.96	1,162.50	2.54	3.55	16.62	5.06	-148.31	147.48	142.36	5.12	28.796	
1,300.00	1,299.58	1,269.04	1,251.74	2.74	4.07	17.24	6.14	-174.75	168.30	162.73	5.57	30.223	
1,400.00	1,399.33	1,366.61	1,345.28	2.96	4.63	17.75	7.28	-202.47	190.14	184.09	6.05	31.447	
1,500.00	1,499.07	1,464.19	1,438.83	3.18	5.20	18.15	8.42	-230.19	211.99	205.46	6.53	32.455	
1,600.00	1,598.82	1,561.76	1,532.38	3.42	5.77	18.48	9.55	-257.91	233.85	226.83	7.02	33.296	
1,700.00	1,698.56	1,659.33	1,625.92	3.65	6.34	18.75	10.69	-285.63	255.72	248.20	7.52	34.006	
1,800.00	1,798.31	1,756.91	1,719.47	3.89	6.91	18.97	11.83	-313.35	277.59	269.57	8.02	34.610	
1,900.00	1,898.05	1,854.48	1,813.02	4.13	7.49	19.17	12.96	-341.07	299.46	290.94	8.52	35.129	
2,000.00	1,997.80	1,952.05	1,906.56	4.38	8.07	19.34	14.10	-368.79	321.34	312.31	9.03	35.580	
2,100.00	2,097.54	2,049.63	2,000.11	4.63	8.65	19.48	15.23	-396.51	343.22	333.68	9.54	35.974	
2,200.00	2,197.29	2,147.20	2,093.66	4.88	9.23	19.61	16.37	-424.23	365.10	355.05	10.05	36.320	
2,300.00	2,297.03	2,244.78	2,187.20	5.13	9.82	19.73	17.51	-451.95	386.98	376.42	10.57	36.627	
2,400.00	2,396.78	2,342.35	2,280.75	5.38	10.40	19.83	18.64	-479.67	408.86	397.78	11.08	36.901	
2,500.00	2,496.52	2,439.92	2,374.29	5.63	10.98	19.92	19.78	-507.39	430.75	419.15	11.60	37.146	
2,600.00	2,596.27	2,537.50	2,467.84	5.88	11.57	20.01	20.92	-535.11	452.64	440.52	12.11	37.366	
2,700.00	2,696.01	2,635.07	2,561.39	6.14	12.15	20.08	22.05	-562.83	474.52	461.89	12.63	37.566	
2,800.00	2,795.76	2,732.64	2,654.93	6.39	12.74	20.15	23.19	-590.55	496.41	483.26	13.15	37.747	
2,900.00	2,895.50	2,830.22	2,748.48	6.65	13.32	20.21	24.32	-618.27	518.30	504.63	13.67	37.912	
3,000.00	2,995.25	2,927.79	2,842.03	6.91	13.91	20.27	25.46	-645.99	540.19	526.00	14.19	38.064	
3,100.00	3,094.99	3,025.36	2,935.57	7.16	14.49	20.32	26.60	-673.71	562.08	547.36	14.71	38.203	
3,200.00	3,194.74	3,122.94	3,029.12	7.42	15.08	20.37	27.73	-701.43	583.97	568.73	15.24	38.331	
3,300.00	3,294.48	3,220.51	3,122.66	7.68	15.67	20.42	28.87	-729.15	605.86	590.10	15.76	38.449	
3,400.00	3,394.23	3,318.08	3,216.21	7.94	16.25	20.46	30.00	-756.87	627.75	611.47	16.28	38.558	
3,500.00	3,493.97	3,415.66	3,309.76	8.20	16.84	20.50	31.14	-784.59	649.64	632.83	16.80	38.660	
3,600.00	3,593.72	3,513.23	3,403.30	8.46	17.43	20.54	32.28	-812.31	671.53	654.20	17.33	38.755	
3,700.00	3,693.46	3,610.81	3,496.85	8.72	18.01	20.57	33.41	-840.03	693.42	675.57	17.85	38.843	
3,800.00	3,793.21	3,708.38	3,590.40	8.98	18.60	20.61	34.55	-867.75	715.31	696.94	18.38	38.926	
3,900.00	3,892.95	3,805.95	3,683.94	9.24	19.19	20.64	35.69	-895.47	737.20	718.30	18.90	39.003	
4,000.00	3,992.70	3,903.53	3,777.49	9.50	19.77	20.67	36.82	-923.19	759.10	739.67	19.43	39.076	
4,100.00	4,092.44	4,001.10	3,871.04	9.76	20.36	20.69	37.96	-950.91	780.99	761.04	19.95	39.144	
4,200.00	4,192.19	4,098.67	3,964.58	10.02	20.95	20.72	39.09	-978.63	802.88	782.40	20.48	39.209	
4,300.00	4,291.94	4,196.25	4,058.13	10.28	21.54	20.74	40.23	-1,006.35	824.77	803.77	21.00	39.270	
4,400.00	4,391.68	4,293.82	4,151.67	10.54	22.12	20.77	41.37	-1,034.07	846.66	825.14	21.53	39.327	
4,500.00	4,491.43	4,391.39	4,245.22	10.80	22.71	20.79	42.50	-1,061.79	868.56	846.50	22.05	39.382	
4,600.00	4,591.17	4,488.97	4,338.77	11.06	23.30	20.81	43.64	-1,089.51	890.45	867.87	22.58	39.433	
4,700.00	4,690.92	4,586.54	4,432.31	11.32	23.89	20.83	44.78	-1,117.23	912.34	889.23	23.11	39.482	
4,800.00	4,790.66	4,684.12	4,525.86	11.58	24.47	20.85	45.91	-1,144.95	934.24	910.60	23.63	39.529	
4,900.00	4,890.41	4,781.69	4,619.41	11.84	25.06	20.87	47.05	-1,172.67	956.13	931.97	24.16	39.573	
5,000.00	4,990.15	4,879.26	4,712.95	12.11	25.65	20.88	48.18	-1,200.39	978.02	953.33	24.69	39.615	
5,100.00	5,089.90	4,976.84	4,806.50	12.37	26.24	20.90	49.32	-1,228.11	999.91	974.70	25.22	39.655	

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 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design Riverbend 7-13 PAD - P_Riverbend 6-13 - P_Riverbend 6-13 - PLAN #1 6-21-10 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
5,200.00	5,189.64	5,074.41	4,900.05	12.63	26.82	20.92	50.46	-1,255.83	1,021.81	996.07	25.74	39.694	
5,300.00	5,289.39	5,171.98	4,993.59	12.89	27.41	20.93	51.59	-1,283.55	1,043.70	1,017.43	26.27	39.730	
5,400.00	5,389.13	5,269.56	5,087.14	13.15	28.00	20.95	52.73	-1,311.27	1,065.59	1,038.80	26.80	39.766	
5,500.00	5,488.88	5,367.13	5,180.68	13.41	28.59	20.96	53.87	-1,338.99	1,087.49	1,060.16	27.32	39.799	
5,600.00	5,588.62	5,464.70	5,274.23	13.68	29.18	20.97	55.00	-1,366.71	1,109.38	1,081.53	27.85	39.831	
5,700.00	5,688.37	5,607.79	5,412.05	13.94	29.84	21.00	56.58	-1,405.11	1,129.86	1,101.40	28.46	39.702	
5,800.00	5,788.11	5,771.38	5,571.70	14.20	30.44	21.07	58.03	-1,440.68	1,145.01	1,115.94	29.07	39.383	
5,900.00	5,887.86	5,937.30	5,735.42	14.46	30.91	21.17	59.13	-1,467.39	1,154.47	1,124.81	29.66	38.923	
5,947.84	5,935.57	6,017.18	5,814.74	14.59	31.10	21.24	59.52	-1,476.86	1,156.95	1,127.03	29.93	38.656	
6,000.00	5,987.63	6,104.46	5,901.66	14.71	31.26	21.31	59.84	-1,484.68	1,158.59	1,128.45	30.14	38.437	
6,100.00	6,087.56	6,272.01	6,069.01	14.88	31.48	21.40	60.15	-1,492.25	1,159.78	1,129.32	30.46	38.076	
6,152.44	6,140.00	6,343.00	6,140.00	14.97	31.55	-82.74	60.16	-1,492.62	1,159.55	1,128.96	30.58	37.914	
6,200.00	6,187.56	6,390.56	6,187.56	15.06	31.59	-82.74	60.16	-1,492.62	1,159.55	1,128.80	30.75	37.710	
6,300.00	6,287.56	6,490.56	6,287.56	15.24	31.68	-82.74	60.16	-1,492.62	1,159.55	1,128.45	31.10	37.287	
6,400.00	6,387.56	6,590.56	6,387.56	15.42	31.77	-82.74	60.16	-1,492.62	1,159.55	1,128.10	31.45	36.869	
6,500.00	6,487.56	6,690.56	6,487.56	15.60	31.87	-82.74	60.16	-1,492.62	1,159.55	1,127.74	31.80	36.459	
6,600.00	6,587.56	6,790.56	6,587.56	15.79	31.96	-82.74	60.16	-1,492.62	1,159.55	1,127.39	32.16	36.055	
6,700.00	6,687.56	6,890.56	6,687.56	15.97	32.06	-82.74	60.16	-1,492.62	1,159.55	1,127.03	32.52	35.657	
6,800.00	6,787.56	6,990.56	6,787.56	16.16	32.16	-82.74	60.16	-1,492.62	1,159.55	1,126.67	32.88	35.265	
6,900.00	6,887.56	7,090.56	6,887.56	16.35	32.26	-82.74	60.16	-1,492.62	1,159.55	1,126.30	33.24	34.880	
7,000.00	6,987.56	7,190.56	6,987.56	16.54	32.36	-82.74	60.16	-1,492.62	1,159.55	1,125.94	33.61	34.502	
7,100.00	7,087.56	7,290.56	7,087.56	16.72	32.46	-82.74	60.16	-1,492.62	1,159.55	1,125.57	33.98	34.129	
7,200.00	7,187.56	7,390.56	7,187.56	16.91	32.57	-82.74	60.16	-1,492.62	1,159.55	1,125.20	34.34	33.762	
7,300.00	7,287.56	7,490.56	7,287.56	17.11	32.67	-82.74	60.16	-1,492.62	1,159.55	1,124.83	34.71	33.402	
7,400.00	7,387.56	7,590.56	7,387.56	17.30	32.78	-82.74	60.16	-1,492.62	1,159.55	1,124.46	35.09	33.047	
7,500.00	7,487.56	7,690.56	7,487.56	17.49	32.89	-82.74	60.16	-1,492.62	1,159.55	1,124.09	35.46	32.699	
7,600.00	7,587.56	7,790.56	7,587.56	17.68	33.00	-82.74	60.16	-1,492.62	1,159.55	1,123.71	35.84	32.356	
7,700.00	7,687.56	7,890.56	7,687.56	17.88	33.11	-82.74	60.16	-1,492.62	1,159.55	1,123.33	36.21	32.019	
7,800.00	7,787.56	7,990.56	7,787.56	18.07	33.22	-82.74	60.16	-1,492.62	1,159.55	1,122.95	36.59	31.687	
7,900.00	7,887.56	8,090.56	7,887.56	18.27	33.33	-82.74	60.16	-1,492.62	1,159.55	1,122.57	36.97	31.361	
8,000.00	7,987.56	8,190.56	7,987.56	18.46	33.44	-82.74	60.16	-1,492.62	1,159.55	1,122.19	37.36	31.040	
8,033.27	8,020.83	8,223.83	8,020.83	18.53	33.48	-82.74	60.16	-1,492.62	1,159.55	1,122.06	37.48	30.934	
8,069.44	8,057.00	8,235.00	8,032.00	18.60	33.49	-82.74	60.16	-1,492.62	1,159.82	1,122.24	37.58	30.864	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design Riverbend 7-13 PAD - P_Riverbend 8-13 - P_Riverbend 8-13 - PLAN #1 6-21-10 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	89.67	0.36	64.11	64.11				
100.00	100.00	100.00	100.00	0.10	0.10	89.67	0.36	64.11	64.11	63.92	0.19	335.547	
200.00	200.00	200.00	200.00	0.32	0.32	89.67	0.36	64.11	64.11	63.47	0.64	100.076	
300.00	300.00	300.00	300.00	0.55	0.55	89.67	0.36	64.11	64.11	63.02	1.09	58.807	
400.00	400.00	400.00	400.00	0.77	0.77	89.67	0.36	64.11	64.11	62.57	1.54	41.637	
500.00	500.00	500.00	500.00	0.99	0.99	89.67	0.36	64.11	64.11	62.12	1.99	32.228	
600.00	600.00	600.00	600.00	1.22	1.22	89.67	0.36	64.11	64.11	61.67	2.44	26.287	
700.00	700.00	700.00	700.00	1.44	1.44	89.67	0.36	64.11	64.11	61.22	2.89	22.196	
800.00	800.00	800.00	800.00	1.67	1.67	89.67	0.36	64.11	64.11	60.77	3.34	19.206	
900.00	900.00	900.00	900.00	1.89	1.89	89.67	0.36	64.11	64.11	60.32	3.79	16.927	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	89.67	0.36	64.11	64.11	59.87	4.24	15.131 CC, ES	
1,100.00	1,099.98	1,097.70	1,097.68	2.33	2.33	-166.59	0.47	65.77	67.51	62.86	4.65	14.524 SF	
1,204.60	1,204.43	1,200.00	1,199.84	2.54	2.54	-167.68	0.83	71.07	78.33	73.28	5.05	15.517	
1,300.00	1,299.58	1,290.65	1,290.16	2.74	2.74	-168.71	1.34	78.81	93.09	87.67	5.42	17.164	
1,400.00	1,399.33	1,385.49	1,384.33	2.96	2.97	-169.49	2.08	89.95	111.80	105.97	5.82	19.194	
1,500.00	1,499.07	1,479.04	1,476.81	3.18	3.22	-170.03	3.02	103.98	133.74	127.51	6.23	21.466	
1,600.00	1,598.82	1,571.14	1,567.36	3.42	3.50	-170.41	4.13	120.73	158.84	152.20	6.64	23.921	
1,700.00	1,698.56	1,661.63	1,655.76	3.65	3.81	-170.66	5.41	140.00	187.02	179.96	7.05	26.514	
1,800.00	1,798.31	1,750.38	1,741.83	3.89	4.16	-170.83	6.85	161.60	218.18	210.71	7.47	29.209	
1,900.00	1,898.05	1,837.27	1,825.40	4.13	4.55	-170.94	8.43	185.32	252.24	244.36	7.89	31.977	
2,000.00	1,997.80	1,922.21	1,906.36	4.38	4.97	-171.01	10.13	210.94	289.11	280.80	8.31	34.795	
2,100.00	2,097.54	2,000.00	1,979.82	4.63	5.40	-171.05	11.83	236.49	328.73	320.01	8.72	37.706	
2,200.00	2,197.29	2,085.92	2,060.10	4.88	5.93	-171.07	13.86	267.02	370.87	361.71	9.15	40.510	
2,300.00	2,297.03	2,164.59	2,132.78	5.13	6.47	-171.08	15.86	297.06	415.55	405.97	9.58	43.379	
2,400.00	2,396.78	2,243.82	2,205.13	5.38	7.05	-171.08	18.00	329.26	462.59	452.58	10.01	46.210	
2,500.00	2,496.52	2,331.68	2,285.10	5.63	7.73	-171.07	20.41	365.60	510.33	499.86	10.47	48.737	
2,600.00	2,596.27	2,419.55	2,365.06	5.88	8.42	-171.07	22.83	401.93	558.08	547.14	10.94	51.027	
2,700.00	2,696.01	2,507.41	2,445.02	6.14	9.13	-171.07	25.25	438.27	605.82	594.42	11.41	53.108	
2,800.00	2,795.76	2,595.28	2,524.99	6.39	9.84	-171.06	27.66	474.60	653.57	641.69	11.88	55.002	
2,900.00	2,895.50	2,683.14	2,604.95	6.65	10.57	-171.06	30.08	510.94	701.31	688.95	12.36	56.733	
3,000.00	2,995.25	2,771.01	2,684.92	6.91	11.29	-171.06	32.50	547.27	749.06	736.21	12.84	58.319	
3,100.00	3,094.99	2,858.88	2,764.88	7.16	12.03	-171.06	34.91	583.61	796.80	783.47	13.33	59.778	
3,200.00	3,194.74	2,946.74	2,844.85	7.42	12.76	-171.06	37.33	619.95	844.55	830.73	13.82	61.123	
3,300.00	3,294.48	3,034.61	2,924.81	7.68	13.50	-171.06	39.75	656.28	892.29	877.99	14.31	62.365	
3,400.00	3,394.23	3,122.47	3,004.77	7.94	14.25	-171.05	42.16	692.62	940.04	925.24	14.80	63.517	
3,500.00	3,493.97	3,210.34	3,084.74	8.20	14.99	-171.05	44.58	728.95	987.78	972.49	15.29	64.586	
3,600.00	3,593.72	3,298.20	3,164.70	8.46	15.74	-171.05	46.99	765.29	1,035.53	1,019.74	15.79	65.581	
3,700.00	3,693.46	3,386.07	3,244.67	8.72	16.49	-171.05	49.41	801.62	1,083.27	1,066.99	16.29	66.509	
3,800.00	3,793.21	3,473.94	3,324.63	8.98	17.24	-171.05	51.83	837.96	1,131.02	1,114.23	16.79	67.376	
3,900.00	3,892.95	3,568.64	3,410.84	9.24	18.04	-171.05	54.43	877.08	1,178.74	1,161.43	17.31	68.114	
4,000.00	3,992.70	3,722.53	3,552.88	9.50	19.05	-171.06	58.35	936.11	1,223.60	1,205.64	17.96	68.111	
4,100.00	4,092.44	3,884.56	3,705.64	9.76	19.98	-171.07	61.94	989.95	1,263.48	1,244.85	18.63	67.825	
4,200.00	4,192.19	4,054.29	3,868.66	10.02	20.80	-171.10	65.06	1,037.01	1,297.98	1,278.69	19.29	67.289	
4,300.00	4,291.94	4,231.00	4,041.04	10.28	21.50	-171.14	67.64	1,075.69	1,326.75	1,306.81	19.94	66.543	
4,400.00	4,391.68	4,413.72	4,221.43	10.54	22.06	-171.19	69.55	1,104.45	1,349.46	1,328.90	20.56	65.625	
4,500.00	4,491.43	4,601.19	4,408.05	10.80	22.46	-171.26	70.71	1,121.97	1,365.83	1,344.68	21.15	64.568	
4,600.00	4,591.17	4,784.42	4,591.17	11.06	22.68	-171.34	71.07	1,127.31	1,375.68	1,353.99	21.69	63.425	
4,700.00	4,690.92	4,884.17	4,690.92	11.32	22.77	-171.38	71.07	1,127.31	1,382.74	1,360.65	22.09	62.602	
4,800.00	4,790.66	4,983.91	4,790.66	11.58	22.87	-171.43	71.07	1,127.31	1,389.79	1,367.31	22.49	61.801	
4,900.00	4,890.41	5,083.66	4,890.41	11.84	22.97	-171.47	71.07	1,127.31	1,396.85	1,373.96	22.89	61.023	
5,000.00	4,990.15	5,183.40	4,990.15	12.11	23.07	-171.51	71.07	1,127.31	1,403.91	1,380.62	23.29	60.268	
5,100.00	5,089.90	5,283.15	5,089.90	12.37	23.17	-171.56	71.07	1,127.31	1,410.97	1,387.27	23.70	59.535	

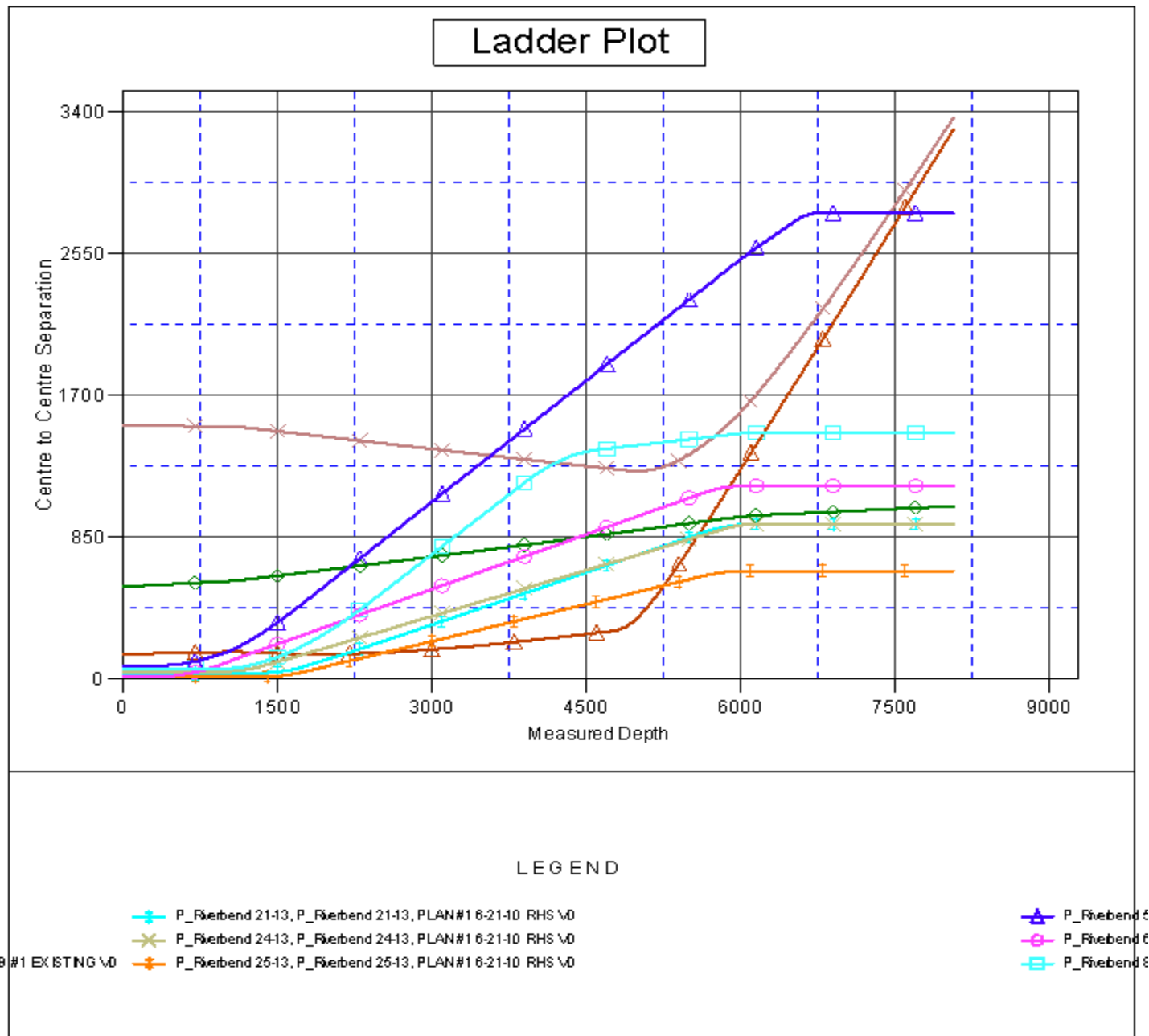
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Offset Design Riverbend 7-13 PAD - P_Riverbend 8-13 - P_Riverbend 8-13 - PLAN #1 6-21-10 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	
5,200.00	5,189.64	5,382.89	5,189.64	12.63	23.28	-171.60	71.07	1,127.31	1,418.03	1,393.92	24.11	58.822	
5,300.00	5,289.39	5,482.64	5,289.39	12.89	23.38	-171.64	71.07	1,127.31	1,425.09	1,400.57	24.52	58.129	
5,400.00	5,389.13	5,582.38	5,389.13	13.15	23.49	-171.68	71.07	1,127.31	1,432.15	1,407.22	24.93	57.456	
5,500.00	5,488.88	5,682.13	5,488.88	13.41	23.60	-171.72	71.07	1,127.31	1,439.21	1,413.87	25.34	56.802	
5,600.00	5,588.62	5,781.87	5,588.62	13.68	23.71	-171.76	71.07	1,127.31	1,446.27	1,420.52	25.75	56.165	
5,700.00	5,688.37	5,881.62	5,688.37	13.94	23.82	-171.80	71.07	1,127.31	1,453.33	1,427.17	26.16	55.546	
5,800.00	5,788.11	5,981.36	5,788.11	14.20	23.93	-171.84	71.07	1,127.31	1,460.40	1,433.82	26.58	54.944	
5,900.00	5,887.86	6,081.11	5,887.86	14.46	24.05	-171.88	71.07	1,127.31	1,467.46	1,440.47	27.00	54.358	
5,947.84	5,935.57	6,128.82	5,935.57	14.59	24.10	-171.90	71.07	1,127.31	1,470.84	1,443.65	27.20	54.083	
6,000.00	5,987.63	6,180.88	5,987.63	14.71	24.16	-171.93	71.07	1,127.31	1,474.06	1,446.59	27.47	53.657	
6,100.00	6,087.56	6,280.81	6,087.56	14.88	24.28	-171.96	71.07	1,127.31	1,477.60	1,449.65	27.95	52.864	
6,152.44	6,140.00	6,333.25	6,140.00	14.97	24.34	83.89	71.07	1,127.31	1,478.07	1,449.88	28.19	52.424	
6,200.00	6,187.56	6,380.81	6,187.56	15.06	24.40	83.89	71.07	1,127.31	1,478.07	1,449.70	28.38	52.085	
6,300.00	6,287.56	6,480.81	6,287.56	15.24	24.52	83.89	71.07	1,127.31	1,478.07	1,449.31	28.76	51.388	
6,400.00	6,387.56	6,580.81	6,387.56	15.42	24.64	83.89	71.07	1,127.31	1,478.07	1,448.92	29.15	50.705	
6,500.00	6,487.56	6,680.81	6,487.56	15.60	24.77	83.89	71.07	1,127.31	1,478.07	1,448.53	29.54	50.037	
6,600.00	6,587.56	6,780.81	6,587.56	15.79	24.89	83.89	71.07	1,127.31	1,478.07	1,448.14	29.93	49.384	
6,700.00	6,687.56	6,880.81	6,687.56	15.97	25.02	83.89	71.07	1,127.31	1,478.07	1,447.75	30.32	48.745	
6,800.00	6,787.56	6,980.81	6,787.56	16.16	25.15	83.89	71.07	1,127.31	1,478.07	1,447.36	30.72	48.120	
6,900.00	6,887.56	7,080.81	6,887.56	16.35	25.28	83.89	71.07	1,127.31	1,478.07	1,446.96	31.11	47.509	
7,000.00	6,987.56	7,180.81	6,987.56	16.54	25.41	83.89	71.07	1,127.31	1,478.07	1,446.57	31.51	46.910	
7,100.00	7,087.56	7,280.81	7,087.56	16.72	25.54	83.89	71.07	1,127.31	1,478.07	1,446.17	31.91	46.325	
7,200.00	7,187.56	7,380.81	7,187.56	16.91	25.68	83.89	71.07	1,127.31	1,478.07	1,445.77	32.31	45.752	
7,300.00	7,287.56	7,480.81	7,287.56	17.11	25.81	83.89	71.07	1,127.31	1,478.07	1,445.37	32.71	45.191	
7,400.00	7,387.56	7,580.81	7,387.56	17.30	25.95	83.89	71.07	1,127.31	1,478.07	1,444.96	33.11	44.642	
7,500.00	7,487.56	7,680.81	7,487.56	17.49	26.08	83.89	71.07	1,127.31	1,478.07	1,444.56	33.51	44.105	
7,600.00	7,587.56	7,780.81	7,587.56	17.68	26.22	83.89	71.07	1,127.31	1,478.07	1,444.16	33.92	43.579	
7,700.00	7,687.56	7,880.81	7,687.56	17.88	26.36	83.89	71.07	1,127.31	1,478.07	1,443.75	34.32	43.064	
7,800.00	7,787.56	7,980.81	7,787.56	18.07	26.50	83.89	71.07	1,127.31	1,478.07	1,443.34	34.73	42.560	
7,900.00	7,887.56	8,080.81	7,887.56	18.27	26.65	83.89	71.07	1,127.31	1,478.07	1,442.94	35.14	42.066	
8,000.00	7,987.56	8,180.81	7,987.56	18.46	26.79	83.89	71.07	1,127.31	1,478.07	1,442.53	35.55	41.582	
8,033.27	8,020.83	8,214.08	8,020.83	18.53	26.84	83.89	71.07	1,127.31	1,478.07	1,442.39	35.68	41.423	
8,069.44	8,057.00	8,225.25	8,032.00	18.60	26.85	83.89	71.07	1,127.31	1,478.29	1,442.51	35.78	41.317	

Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

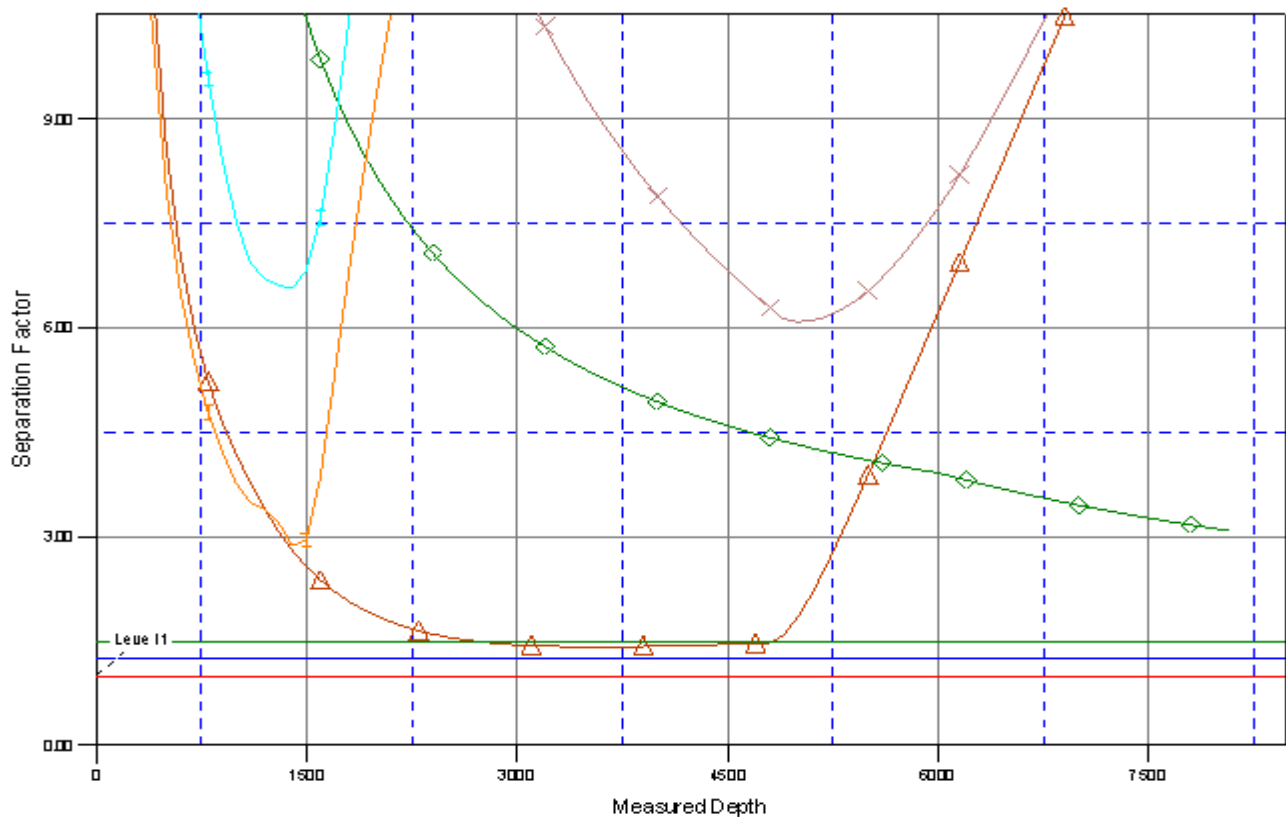
Reference Depths are relative to WELL @ 4932.00ft (Original Well Elev) Coordinates are relative to: P_Riverbend 7-13
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W °
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 0.43°



Company:	US ROCKIES REGION PLANNING	Local Co-ordinate Reference:	Well P_Riverbend 7-13
Project:	COLORADO NORTHERN ZONE - 83	TVD Reference:	WELL @ 4932.00ft (Original Well Elev)
Reference Site:	Riverbend 7-13 PAD	MD Reference:	WELL @ 4932.00ft (Original Well Elev)
Site Error:	0.00ft	North Reference:	True
Reference Well:	P_Riverbend 7-13	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00ft	Output errors are at	2.00 sigma
Reference Wellbore	P_Riverbend 7-13	Database:	EDM 2003.21 Single User Db
Reference Design:	PLAN #1 6-21-10 RHS	Offset TVD Reference:	Offset Datum

Reference Depths are relative to WELL @ 4932.00ft (Original Well Elev) Coordinates are relative to: P_Riverbend 7-13
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 21-13, P_Riverbend 21-13, PLAN#1 6-21-10 RHS \0
- P_Riverbend 24-13, P_Riverbend 24-13, PLAN#1 6-21-10 RHS \0
- P_Riverbend 25-13, P_Riverbend 25-13, PLAN#1 6-21-10 RHS \0
- P_Riverbend 7-13
- P_Riverbend 7-13
- P_Riverbend 7-13