



# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**Riverbend 7-13 PAD**

**P\_Riverbend 8-13**

**P\_Riverbend 8-13**

**Plan: PLAN #1 6-21-10 RHS**

## **Standard Planning Report**

**21 June, 2010**

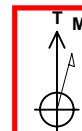




Project: COLORADO NORTHERN ZONE - 83  
 Site: Riverbend 7-13 PAD  
 Well: P\_Riverbend 8-13  
 Wellbore: P\_Riverbend 8-13  
 Section: SECTION 13 T1N R67W  
 SHL: 2045 FNL 1723 FWL  
 Design: PLAN #1 6-21-10 RHS  
 Latitude: 40° 3' 9.777 N  
 Longitude: 104° 50' 9.164 W  
 GL: 4917.00  
 KB: WELL @ 4932.00ft (Original Well Elev)



**Weatherford®**



Azimuths to True North  
 Magnetic North: 9.00°  
 Magnetic Field  
 Strength: 53043.5snT  
 Dip Angle: 66.79°  
 Date: 6/21/2010  
 Model: IGRF2010

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
3253.00	3395.23	PARKMAN
4583.00	4776.25	SUSSEX
7115.00	7308.25	NIO
7462.00	7655.25	CODELL
7547.00	7740.25	GREENHORN
7897.00	8090.25	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
2224.24	24.48	86.20	2187.31	17.09	257.06	2.00	86.20	257.62	Start 1327.78 hold at 2224.24 MD
3552.01	24.48	86.20	3395.69	53.61	806.14	0.00	0.00	807.92	Start Drop -2.00
4776.25	0.00	0.00	4583.00	70.71	1063.20	2.00	180.00	1065.55	Start 3449.00 hold at 4776.25 MD
8225.25	0.00	0.00	8032.00	70.71	1063.20	0.00	0.00	1065.55	TD at 8225.25

#### LEGEND

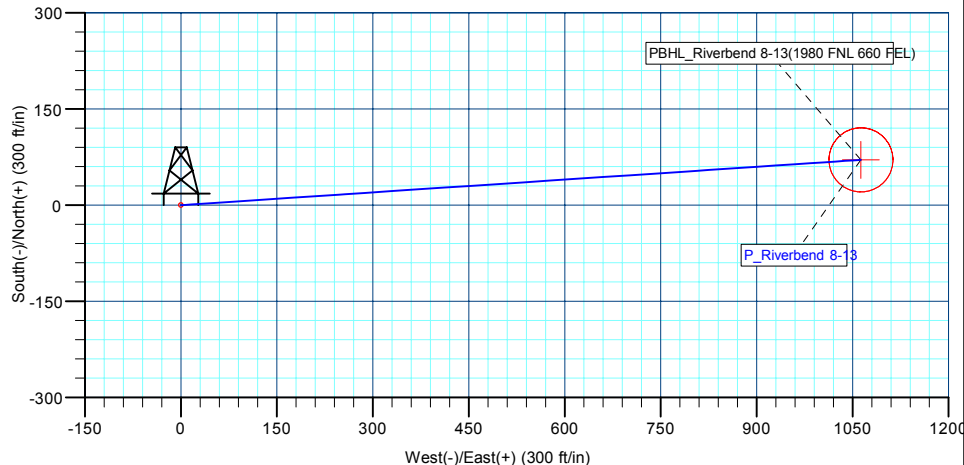
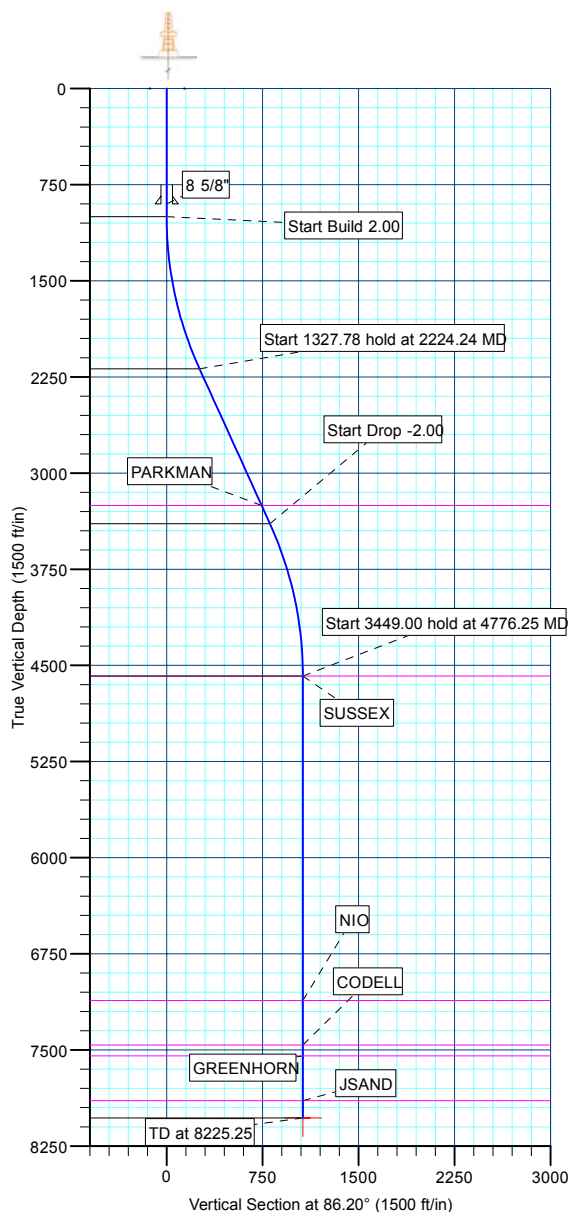
CHIKUMA UNIT #2 EXISTING, CHIKUMA UNIT #2 EXISTING, CHIKUMA UNIT #2 EXISTING V0  
 HARRY S CHIKUMA #5 EXISTING, HARRY S CHIKUMA #5 EXISTING, HARRY S CHIKUMA #5 EXISTING V0  
 HARRY S. CHIKUMA G.U. B #1 EXISTING, HARRY S. CHIKUMA G.U. B #1 EXISTING, HARRY S. CHIKUMA G.U. B #1 EXISTING V0  
 P\_Riverbend 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 7-13, P\_Riverbend 7-13, 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	8032.00	70.71	1063.20	40° 3' 10.476 N	104° 49' 55.492 W	Circle (Radius: 50.00)

#### WELL DETAILS: P\_Riverbend 8-13

+N/-S	+E/-W	Northing	Ground Level:	4917.00	Latitude	Longitude	Slot
0.00	0.00	1262746.11	Easting	3185910.33	40° 3' 9.777 N	104° 50' 9.164 W	



Plan: PLAN #1 6-21-10 RHS (P\_Riverbend 8-13/P\_Riverbend 8-13)

Created By: Robert H. Scott Date: 16:07, June 21 2010

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site:</b>	Riverbend 7-13 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Riverbend 8-13		
<b>Design:</b>	PLAN #1 6-21-10 RHS		

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

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 8-13					
Well Position	+N/-S	0.35 ft	Northing:	1,262,746.11 ft	Latitude:	40° 3' 9.777 N
	+E/-W	32.19 ft	Easting:	3,185,910.33 ft	Longitude:	104° 50' 9.164 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,917.00 ft

<b>Wellbore</b>	P_Riverbend 8-13				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	6/21/2010	9.00	66.79	53,043

<b>Design</b>	PLAN #1 6-21-10 RHS			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PLAN	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	86.20

<b>Plan Sections</b>										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00	
2,224.24	24.48	86.20	2,187.31	17.09	257.06	2.00	2.00	0.00	86.20	
3,552.01	24.48	86.20	3,395.69	53.61	806.14	0.00	0.00	0.00	0.00	
4,776.25	0.00	0.00	4,583.00	70.71	1,063.20	2.00	-2.00	0.00	180.00	
8,225.25	0.00	0.00	8,032.00	70.71	1,063.20	0.00	0.00	0.00	0.00	PBHL_Riverbend 8

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site:</b>	Riverbend 7-13 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Riverbend 8-13		
<b>Design:</b>	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)
<b>Start Build 2.00</b>									
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	86.20	1,099.98	0.12	1.74	1.75	2.00	2.00	0.00
1,200.00	4.00	86.20	1,199.84	0.46	6.96	6.98	2.00	2.00	0.00
1,300.00	6.00	86.20	1,299.45	1.04	15.66	15.69	2.00	2.00	0.00
1,400.00	8.00	86.20	1,398.70	1.85	27.82	27.88	2.00	2.00	0.00
1,500.00	10.00	86.20	1,497.47	2.89	43.43	43.52	2.00	2.00	0.00
1,600.00	12.00	86.20	1,595.62	4.15	62.46	62.60	2.00	2.00	0.00
1,700.00	14.00	86.20	1,693.06	5.65	84.91	85.10	2.00	2.00	0.00
1,800.00	16.00	86.20	1,789.64	7.36	110.73	110.98	2.00	2.00	0.00
1,900.00	18.00	86.20	1,885.27	9.30	139.90	140.21	2.00	2.00	0.00
2,000.00	20.00	86.20	1,979.82	11.46	172.39	172.77	2.00	2.00	0.00
2,100.00	22.00	86.20	2,073.17	13.84	208.14	208.60	2.00	2.00	0.00
2,200.00	24.00	86.20	2,165.21	16.43	247.13	247.67	2.00	2.00	0.00
<b>Start 1327.78 hold at 2224.24 MD</b>									
2,224.24	24.48	86.20	2,187.31	17.09	257.06	257.62	2.00	2.00	0.00
2,300.00	24.48	86.20	2,256.26	19.18	288.39	289.03	0.00	0.00	0.00
2,400.00	24.48	86.20	2,347.27	21.93	329.74	330.47	0.00	0.00	0.00
2,500.00	24.48	86.20	2,438.28	24.68	371.10	371.92	0.00	0.00	0.00
2,600.00	24.48	86.20	2,529.29	27.43	412.45	413.36	0.00	0.00	0.00
2,700.00	24.48	86.20	2,620.29	30.18	453.80	454.81	0.00	0.00	0.00
2,800.00	24.48	86.20	2,711.30	32.93	495.16	496.25	0.00	0.00	0.00
2,900.00	24.48	86.20	2,802.31	35.68	536.51	537.70	0.00	0.00	0.00
3,000.00	24.48	86.20	2,893.31	38.43	577.86	579.14	0.00	0.00	0.00
3,100.00	24.48	86.20	2,984.32	41.18	619.22	620.59	0.00	0.00	0.00
3,200.00	24.48	86.20	3,075.33	43.93	660.57	662.03	0.00	0.00	0.00
3,300.00	24.48	86.20	3,166.34	46.68	701.93	703.48	0.00	0.00	0.00
<b>PARKMAN</b>									
3,395.23	24.48	86.20	3,253.00	49.30	741.31	742.94	0.00	0.00	0.00
3,400.00	24.48	86.20	3,257.34	49.43	743.28	744.92	0.00	0.00	0.00
3,500.00	24.48	86.20	3,348.35	52.18	784.63	786.37	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
3,552.01	24.48	86.20	3,395.69	53.61	806.14	807.92	0.00	0.00	0.00
3,600.00	23.52	86.20	3,439.52	54.91	825.62	827.44	2.00	-2.00	0.00
3,700.00	21.52	86.20	3,531.89	57.45	863.84	865.75	2.00	-2.00	0.00
3,800.00	19.52	86.20	3,625.54	59.77	898.83	900.81	2.00	-2.00	0.00
3,900.00	17.52	86.20	3,720.35	61.88	930.53	932.58	2.00	-2.00	0.00
4,000.00	15.52	86.20	3,816.21	63.77	958.91	961.02	2.00	-2.00	0.00
4,100.00	13.52	86.20	3,913.01	65.43	983.93	986.10	2.00	-2.00	0.00
4,200.00	11.52	86.20	4,010.63	66.87	1,005.57	1,007.79	2.00	-2.00	0.00
4,300.00	9.52	86.20	4,108.94	68.08	1,023.79	1,026.05	2.00	-2.00	0.00
4,400.00	7.52	86.20	4,207.83	69.07	1,038.58	1,040.88	2.00	-2.00	0.00
4,500.00	5.52	86.20	4,307.18	69.82	1,049.92	1,052.24	2.00	-2.00	0.00
4,600.00	3.52	86.20	4,406.86	70.35	1,057.79	1,060.13	2.00	-2.00	0.00
4,700.00	1.52	86.20	4,506.76	70.64	1,062.19	1,064.53	2.00	-2.00	0.00
<b>Start 3449.00 hold at 4776.25 MD - SUSSEX</b>									
4,776.25	0.00	0.00	4,583.00	70.71	1,063.20	1,065.55	2.00	-2.00	0.00
4,800.00	0.00	0.00	4,606.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
4,900.00	0.00	0.00	4,706.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
5,000.00	0.00	0.00	4,806.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
5,100.00	0.00	0.00	4,906.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
5,200.00	0.00	0.00	5,006.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
5,300.00	0.00	0.00	5,106.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
5,400.00	0.00	0.00	5,206.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site:</b>	Riverbend 7-13 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Riverbend 8-13		
<b>Design:</b>	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)
5,500.00	0.00	0.00	5,306.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
5,600.00	0.00	0.00	5,406.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
5,700.00	0.00	0.00	5,506.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
5,800.00	0.00	0.00	5,606.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
5,900.00	0.00	0.00	5,706.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
6,000.00	0.00	0.00	5,806.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
6,100.00	0.00	0.00	5,906.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
6,200.00	0.00	0.00	6,006.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
6,300.00	0.00	0.00	6,106.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
6,400.00	0.00	0.00	6,206.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
6,500.00	0.00	0.00	6,306.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
6,600.00	0.00	0.00	6,406.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
6,700.00	0.00	0.00	6,506.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
6,800.00	0.00	0.00	6,606.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
6,900.00	0.00	0.00	6,706.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
7,000.00	0.00	0.00	6,806.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
7,100.00	0.00	0.00	6,906.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
7,200.00	0.00	0.00	7,006.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
7,300.00	0.00	0.00	7,106.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
<b>NIO</b>									
7,308.25	0.00	0.00	7,115.00	70.71	1,063.20	1,065.55	0.00	0.00	0.00
7,400.00	0.00	0.00	7,206.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
7,500.00	0.00	0.00	7,306.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
7,600.00	0.00	0.00	7,406.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
<b>CODELL</b>									
7,655.25	0.00	0.00	7,462.00	70.71	1,063.20	1,065.55	0.00	0.00	0.00
7,700.00	0.00	0.00	7,506.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
<b>GREENHORN</b>									
7,740.25	0.00	0.00	7,547.00	70.71	1,063.20	1,065.55	0.00	0.00	0.00
7,800.00	0.00	0.00	7,606.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
7,900.00	0.00	0.00	7,706.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
8,000.00	0.00	0.00	7,806.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
<b>JSAND</b>									
8,090.25	0.00	0.00	7,897.00	70.71	1,063.20	1,065.55	0.00	0.00	0.00
8,100.00	0.00	0.00	7,906.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
8,200.00	0.00	0.00	8,006.75	70.71	1,063.20	1,065.55	0.00	0.00	0.00
<b>TD at 8225.25 - PBHL_Riverbend 8-13(1980 FNL 660 FEL)</b>									
8,225.25	0.00	0.00	8,032.00	70.71	1,063.20	1,065.55	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 8-13 - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,032.00	70.71	1,063.20	1,262,824.78	3,186,972.96	40° 3' 10.476 N	104° 49' 55.492 W

<b>Database:</b>	EDM 2003.21 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site:</b>	Riverbend 7-13 PAD	<b>North Reference:</b>	True
<b>Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Riverbend 8-13		
<b>Design:</b>	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 (°)	
3,395.23	3,253.00	PARKMAN				
4,776.25	4,583.00	SUSSEX				
7,308.25	7,115.00	NIO				
7,655.25	7,462.00	CODELL				
7,740.25	7,547.00	GREENHORN				
8,090.25	7,897.00	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	
2,224.24	2,187.31	17.09	257.06	Start 1327.78 hold at 2224.24 MD	
3,552.01	3,395.69	53.61	806.14	Start Drop -2.00	
4,776.25	4,583.00	70.71	1,063.20	Start 3449.00 hold at 4776.25 MD	
8,225.25	8,032.00	70.71	1,063.20	TD at 8225.25	



# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83  
Riverbend 7-13 PAD  
P\_Riverbend 8-13**

**P\_Riverbend 8-13  
PLAN #1 6-21-10 RHS**

## **Anticollision Report**

**21 June, 2010**



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	PLAN #1 6-21-10 RHS		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	Stations	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	0.00 to 20,000.00ft	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 10,000.00ft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	2.00 Sigma		

<b>Survey Tool Program</b>	<b>Date</b>	6/21/2010		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	8,225.25	PLAN #1 6-21-10 RHS (P_Riverbend 8-13	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	100.00	82.36	215.28	213.53	123.539	CC
CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT #2 EXI	1,100.00	1,080.81	226.34	182.68	5.184	ES
CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT #2 EXI	1,500.00	1,478.15	269.32	209.66	4.515	SF
HARRY S CHIKUMA #5 EXISTING - HARRY S CHIKUM	1,007.42	1,000.04	1,580.98	1,540.70	39.253	CC
HARRY S CHIKUMA #5 EXISTING - HARRY S CHIKUM	1,100.00	1,092.55	1,582.48	1,538.31	35.827	ES
HARRY S CHIKUMA #5 EXISTING - HARRY S CHIKUM	5,200.00	4,892.00	2,642.44	2,435.42	12.764	SF
HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S.	0.00	0.00	539.48			
HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S.	2,100.00	2,036.26	579.13	493.75	6.783	ES
HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S.	8,225.25	7,993.45	1,175.24	834.31	3.447	SF
P_Riverbend 21-13 - P_Riverbend 21-13 - PLAN #1 6-21	1,000.00	1,000.00	32.19	27.96	7.599	CC, ES
P_Riverbend 21-13 - P_Riverbend 21-13 - PLAN #1 6-21	1,100.00	1,099.06	35.25	30.59	7.559	SF
P_Riverbend 24-13 - P_Riverbend 24-13 - PLAN #1 6-21	1,000.00	1,000.00	15.96	11.72	3.767	CC, ES
P_Riverbend 24-13 - P_Riverbend 24-13 - PLAN #1 6-21	1,100.00	1,100.31	16.73	12.08	3.601	SF
P_Riverbend 25-13 - P_Riverbend 25-13 - PLAN #1 6-21	1,000.00	1,000.00	48.15	43.91	11.365	CC, ES
P_Riverbend 25-13 - P_Riverbend 25-13 - PLAN #1 6-21	1,100.00	1,098.51	51.34	46.69	11.052	SF
P_Riverbend 5-18 - P_Riverbend 5-18 - PLAN #1 6-21-1	300.00	300.00	15.96	14.87	14.637	CC, ES
P_Riverbend 5-18 - P_Riverbend 5-18 - PLAN #1 6-21-1	400.00	399.41	17.69	16.16	11.577	SF
P_Riverbend 6-13 - P_Riverbend 6-13 - PLAN #1 6-21-1	300.00	300.00	80.07	78.98	73.447	CC, ES
P_Riverbend 6-13 - P_Riverbend 6-13 - PLAN #1 6-21-1	900.00	875.82	140.53	136.52	35.105	SF
P_Riverbend 7-13 - P_Riverbend 7-13 - PLAN #1 6-21-1	1,000.00	1,000.00	64.11	59.87	15.131	CC, ES
P_Riverbend 7-13 - P_Riverbend 7-13 - PLAN #1 6-21-1	1,100.00	1,097.76	67.51	62.86	14.524	SF

<b>Offset Design</b>	Riverbend 7-13 PAD - CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT #2 EXISTING - CHIKUMA UNIT										<b>Offset Site Error:</b>	0.00 ft
<b>Survey Program:</b>	0-UNKNOWN										<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis		Distance		Minimum Separation		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)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	-78.08	44.44	-210.51	215.82			
100.00	100.00	82.36	82.35	0.10	1.65	-77.93	45.03	-210.51	215.28	213.53	1.74	123.539 CC
200.00	200.00	181.53	181.50	0.32	5.27	-77.33	47.31	-210.51	215.77	210.19	5.58	38.662
300.00	300.00	281.32	281.23	0.55	9.28	-76.44	50.77	-210.51	216.55	206.76	9.80	22.106
400.00	400.00	381.26	381.11	0.77	13.29	-75.55	54.25	-210.51	217.40	203.38	14.02	15.508
500.00	500.00	481.20	480.98	0.99	17.30	-74.66	57.74	-210.51	218.30	200.06	18.24	11.968
600.00	600.00	581.13	580.86	1.22	21.32	-73.78	61.23	-210.51	219.25	196.78	22.46	9.760

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



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
700.00	700.00	681.07	680.74	1.44	25.33	-72.91	64.72	-210.51	220.25	193.56	26.69	8.253	
800.00	800.00	781.01	780.62	1.67	29.35	-72.05	68.21	-210.51	221.30	190.39	30.91	7.159	
900.00	900.00	880.95	880.50	1.89	33.36	-71.19	71.69	-210.51	222.40	187.27	35.13	6.330	
1,000.00	1,000.00	980.89	980.37	2.12	37.37	-70.35	75.18	-210.51	223.55	184.19	39.36	5.680	
1,100.00	1,099.98	1,080.81	1,080.24	2.33	41.39	-155.86	78.67	-210.51	226.34	182.68	43.66	5.184 ES	
1,200.00	1,199.84	1,180.62	1,179.98	2.54	45.40	-155.54	82.15	-210.51	232.33	184.54	47.78	4.862	
1,300.00	1,299.45	1,280.20	1,279.50	2.76	49.40	-155.54	85.63	-210.51	241.49	189.65	51.83	4.659	
1,400.00	1,398.70	1,379.41	1,378.66	3.00	53.38	-155.84	89.09	-210.51	253.81	198.02	55.80	4.549	
1,500.00	1,497.47	1,478.15	1,477.33	3.27	57.35	-156.38	92.54	-210.51	269.32	209.66	59.65	4.515 SF	
1,600.00	1,595.62	1,576.30	1,575.42	3.59	61.29	-157.10	95.96	-210.51	288.02	224.63	63.39	4.544	
1,700.00	1,693.06	1,673.72	1,672.78	3.95	65.20	-157.95	99.36	-210.51	309.95	242.97	66.98	4.628	
1,800.00	1,789.64	1,770.31	1,769.31	4.37	69.08	-158.85	102.73	-210.51	335.12	264.71	70.41	4.760	
1,900.00	1,885.27	1,865.94	1,864.89	4.85	72.92	-159.79	106.07	-210.51	363.55	289.88	73.66	4.935	
2,000.00	1,979.82	1,960.51	1,959.40	5.40	76.72	-160.71	109.37	-210.51	395.23	318.51	76.72	5.152	
2,100.00	2,073.17	2,053.89	2,052.72	6.02	80.47	-161.61	112.63	-210.51	430.17	350.60	79.57	5.406	
2,200.00	2,165.21	2,145.97	2,144.74	6.72	84.17	-162.45	115.84	-210.51	468.33	386.13	82.20	5.698	
2,224.24	2,187.31	2,168.08	2,166.84	6.90	85.06	-162.65	116.61	-210.51	478.06	395.26	82.80	5.774	
2,300.00	2,256.26	2,237.06	2,235.78	7.48	87.83	-163.41	119.02	-210.51	508.81	423.28	85.52	5.949	
2,400.00	2,347.27	2,328.11	2,326.77	8.27	91.49	-164.29	122.20	-210.51	549.49	460.35	89.14	6.164	
2,500.00	2,438.28	2,419.15	2,417.76	9.07	95.14	-165.04	125.38	-210.51	590.27	497.49	92.78	6.362	
2,600.00	2,529.29	2,510.20	2,508.75	9.88	98.80	-165.70	128.55	-210.51	631.13	534.70	96.43	6.545	
2,700.00	2,620.29	2,601.25	2,599.75	10.70	102.46	-166.28	131.73	-210.51	672.04	571.96	100.08	6.715	
2,800.00	2,711.30	2,692.30	2,690.74	11.53	106.12	-166.79	134.91	-210.51	713.01	609.26	103.74	6.873	
2,900.00	2,802.31	2,783.35	2,781.73	12.37	109.77	-167.25	138.09	-210.51	754.02	646.61	107.41	7.020	
3,000.00	2,893.31	2,874.39	2,872.72	13.21	113.43	-167.66	141.26	-210.51	795.06	683.99	111.08	7.158	
3,100.00	2,984.32	2,965.44	2,963.72	14.06	117.09	-168.03	144.44	-210.51	836.14	721.39	114.75	7.287	
3,200.00	3,075.33	3,056.49	3,054.71	14.91	120.74	-168.37	147.62	-210.51	877.24	758.82	118.43	7.408	
3,300.00	3,166.34	3,147.54	3,145.70	15.76	124.40	-168.67	150.80	-210.51	918.37	796.26	122.10	7.521	
3,400.00	3,257.34	3,238.58	3,236.69	16.61	128.06	-168.95	153.97	-210.51	959.51	833.73	125.78	7.628	
3,500.00	3,348.35	3,329.63	3,327.68	17.47	131.72	-169.21	157.15	-210.51	1,000.67	871.21	129.46	7.729	
3,552.01	3,395.69	3,376.99	3,375.01	17.91	133.62	-169.33	158.80	-210.51	1,022.09	890.71	131.38	7.780	
3,600.00	3,439.52	3,420.84	3,418.84	18.28	135.38	-169.52	160.33	-210.51	1,041.49	907.44	134.05	7.769	
3,700.00	3,531.89	3,513.24	3,511.18	18.92	139.09	-169.85	163.56	-210.51	1,079.59	939.99	139.60	7.733	
3,800.00	3,625.54	3,606.91	3,604.80	19.51	142.85	-170.11	166.83	-210.51	1,114.50	969.37	145.13	7.679	
3,900.00	3,720.35	3,701.74	3,699.57	20.06	146.66	-170.32	170.14	-210.51	1,146.17	995.56	150.61	7.610	
4,000.00	3,816.21	3,797.62	3,795.38	20.56	150.51	-170.49	173.48	-210.51	1,174.56	1,018.54	156.02	7.528	
4,100.00	3,913.01	3,894.41	3,892.12	21.00	154.40	-170.60	176.86	-210.51	1,199.63	1,038.30	161.34	7.436	
4,200.00	4,010.63	3,992.02	3,989.67	21.39	158.32	-170.68	180.27	-210.51	1,221.36	1,054.81	166.55	7.333	
4,300.00	4,108.94	4,090.31	4,087.90	21.74	162.27	-170.71	183.70	-210.51	1,239.71	1,068.08	171.64	7.223	
4,400.00	4,207.83	4,189.18	4,186.71	22.03	166.24	-170.71	187.15	-210.51	1,254.67	1,078.09	176.58	7.106	
4,500.00	4,307.18	4,288.49	4,285.96	22.26	170.23	-170.68	190.62	-210.51	1,266.21	1,084.87	181.35	6.982	
4,600.00	4,406.86	4,388.13	4,385.54	22.45	174.23	-170.60	194.09	-210.51	1,274.33	1,088.41	185.93	6.854	
4,700.00	4,506.76	4,487.98	4,485.33	22.60	178.24	-170.50	197.58	-210.51	1,279.02	1,088.72	190.31	6.721	
4,776.25	4,583.00	4,564.18	4,561.48	22.67	181.30	-84.19	200.24	-210.51	1,280.29	1,086.80	193.49	6.617	
4,800.00	4,606.75	4,587.91	4,585.20	22.69	182.26	-84.16	201.06	-210.51	1,280.37	1,085.89	194.49	6.583	
4,900.00	4,706.75	4,687.85	4,685.08	22.79	186.27	-84.00	204.55	-210.51	1,280.73	1,082.06	198.68	6.446	
5,000.00	4,806.75	4,765.00	4,762.18	22.89	189.37	-83.88	207.24	-210.51	1,281.31	1,079.36	201.95	6.345	
5,100.00	4,906.75	4,765.00	4,762.18	22.99	189.37	-83.88	207.24	-210.51	1,287.35	1,085.23	202.12	6.369	
5,200.00	5,006.75	4,765.00	4,762.18	23.09	189.37	-83.88	207.24	-210.51	1,301.07	1,098.78	202.29	6.432	
5,300.00	5,106.75	4,765.00	4,762.18	23.19	189.37	-83.88	207.24	-210.51	1,322.23	1,119.77	202.46	6.531	
5,400.00	5,206.75	4,765.00	4,762.18	23.29	189.37	-83.88	207.24	-210.51	1,350.48	1,147.86	202.63	6.665	
5,500.00	5,306.75	4,765.00	4,762.18	23.40	189.37	-83.88	207.24	-210.51	1,385.39	1,182.59	202.80	6.831	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
5,600.00	5,406.75	4,765.00	4,762.18	23.51	189.37	-83.88	207.24	-210.51	1,426.48	1,223.50	202.98	7.028		
5,700.00	5,506.75	4,765.00	4,762.18	23.62	189.37	-83.88	207.24	-210.51	1,473.21	1,270.06	203.15	7.252		
5,800.00	5,606.75	4,765.00	4,762.18	23.73	189.37	-83.88	207.24	-210.51	1,525.08	1,321.75	203.33	7.500		
5,900.00	5,706.75	4,765.00	4,762.18	23.84	189.37	-83.88	207.24	-210.51	1,581.57	1,378.06	203.51	7.772		
6,000.00	5,806.75	4,765.00	4,762.18	23.95	189.37	-83.88	207.24	-210.51	1,642.22	1,438.53	203.69	8.062		
6,100.00	5,906.75	4,765.00	4,762.18	24.07	189.37	-83.88	207.24	-210.51	1,706.58	1,502.71	203.87	8.371		
6,200.00	6,006.75	4,765.00	4,762.18	24.19	189.37	-83.88	207.24	-210.51	1,774.24	1,570.18	204.05	8.695		
6,300.00	6,106.75	4,765.00	4,762.18	24.30	189.37	-83.88	207.24	-210.51	1,844.84	1,640.60	204.24	9.033		
6,400.00	6,206.75	4,765.00	4,762.18	24.42	189.37	-83.88	207.24	-210.51	1,918.06	1,713.64	204.42	9.383		
6,500.00	6,306.75	4,765.00	4,762.18	24.55	189.37	-83.88	207.24	-210.51	1,993.61	1,789.00	204.61	9.743		
6,600.00	6,406.75	4,765.00	4,762.18	24.67	189.37	-83.88	207.24	-210.51	2,071.23	1,866.43	204.80	10.114		
6,700.00	6,506.75	4,765.00	4,762.18	24.79	189.37	-83.88	207.24	-210.51	2,150.70	1,945.71	204.98	10.492		
6,800.00	6,606.75	4,765.00	4,762.18	24.92	189.37	-83.88	207.24	-210.51	2,231.82	2,026.64	205.17	10.878		
6,900.00	6,706.75	4,765.00	4,762.18	25.05	189.37	-83.88	207.24	-210.51	2,314.42	2,109.05	205.36	11.270		
7,000.00	6,806.75	4,765.00	4,762.18	25.17	189.37	-83.88	207.24	-210.51	2,398.34	2,192.79	205.55	11.668		
7,100.00	6,906.75	4,765.00	4,762.18	25.30	189.37	-83.88	207.24	-210.51	2,483.45	2,277.71	205.75	12.070		
7,200.00	7,006.75	4,765.00	4,762.18	25.44	189.37	-83.88	207.24	-210.51	2,569.64	2,363.70	205.94	12.478		
7,300.00	7,106.75	4,765.00	4,762.18	25.57	189.37	-83.88	207.24	-210.51	2,656.80	2,450.67	206.13	12.889		
7,400.00	7,206.75	4,765.00	4,762.18	25.70	189.37	-83.88	207.24	-210.51	2,744.83	2,538.50	206.33	13.303		
7,500.00	7,306.75	4,765.00	4,762.18	25.84	189.37	-83.88	207.24	-210.51	2,833.66	2,627.13	206.52	13.721		
7,600.00	7,406.75	4,765.00	4,762.18	25.97	189.37	-83.88	207.24	-210.51	2,923.20	2,716.49	206.72	14.141		
7,700.00	7,506.75	4,765.00	4,762.18	26.11	189.37	-83.88	207.24	-210.51	3,013.41	2,806.50	206.91	14.564		
7,800.00	7,606.75	4,765.00	4,762.18	26.25	189.37	-83.88	207.24	-210.51	3,104.21	2,897.10	207.11	14.988		
7,900.00	7,706.75	4,765.00	4,762.18	26.39	189.37	-83.88	207.24	-210.51	3,195.57	2,988.26	207.31	15.415		
8,000.00	7,806.75	4,765.00	4,762.18	26.53	189.37	-83.88	207.24	-210.51	3,287.43	3,079.92	207.51	15.843		
8,100.00	7,906.75	4,765.00	4,762.18	26.67	189.37	-83.88	207.24	-210.51	3,379.75	3,172.04	207.70	16.272		
8,200.00	8,006.75	4,765.00	4,762.18	26.82	189.37	-83.88	207.24	-210.51	3,472.49	3,264.59	207.90	16.702		
8,225.25	8,032.00	4,765.00	4,762.18	26.85	189.37	-83.88	207.24	-210.51	3,495.97	3,288.02	207.95	16.811		

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 ft
Survey Program: 0-UNKNOWN													Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-95.38	-148.57	-1,576.62	1,583.65					
100.00	100.00	90.34	90.33	0.10	1.81	-95.36	-147.86	-1,576.62	1,583.54	1,581.64	1.90	832.575		
200.00	200.00	192.93	192.90	0.32	5.73	-95.27	-145.33	-1,576.62	1,583.31	1,577.27	6.04	262.317		
300.00	300.00	293.05	292.95	0.55	9.75	-95.14	-141.84	-1,576.62	1,582.99	1,572.73	10.26	154.243		
400.00	400.00	392.99	392.83	0.77	13.76	-95.01	-138.35	-1,576.62	1,582.68	1,568.20	14.48	109.280		
500.00	500.00	492.93	492.71	0.99	17.78	-94.89	-134.86	-1,576.62	1,582.38	1,563.68	18.70	84.607		
600.00	600.00	592.87	592.59	1.22	21.79	-94.76	-131.37	-1,576.62	1,582.09	1,559.17	22.92	69.018		
700.00	700.00	692.81	692.47	1.44	25.80	-94.64	-127.89	-1,576.62	1,581.80	1,554.66	27.14	58.278		
800.00	800.00	792.75	792.34	1.67	29.82	-94.51	-124.40	-1,576.62	1,581.52	1,550.16	31.36	50.427		
900.00	900.00	892.68	892.22	1.89	33.83	-94.39	-120.91	-1,576.62	1,581.25	1,545.67	35.58	44.439		
1,000.00	1,000.00	992.62	992.10	2.12	37.85	-94.26	-117.42	-1,576.62	1,580.99	1,541.19	39.80	39.721		
1,007.42	1,007.42	1,000.04	999.51	2.13	38.14	179.55	-117.16	-1,576.62	1,580.98	1,540.70	40.28	39.253 CC		
1,100.00	1,099.98	1,092.55	1,091.96	2.33	41.86	179.67	-113.94	-1,576.62	1,582.48	1,538.31	44.17	35.827 ES		
1,200.00	1,199.84	1,192.36	1,191.71	2.54	45.87	179.80	-110.45	-1,576.62	1,587.47	1,539.16	48.30	32.866		
1,300.00	1,299.45	1,291.93	1,291.22	2.76	49.87	179.92	-106.98	-1,576.62	1,595.94	1,543.59	52.35	30.486		
1,400.00	1,398.70	1,391.15	1,390.38	3.00	53.85	-179.95	-103.51	-1,576.62	1,607.90	1,551.60	56.30	28.560		
1,500.00	1,497.47	1,489.89	1,489.06	3.27	57.82	-179.83	-100.07	-1,576.62	1,623.32	1,563.19	60.13	26.997		
1,600.00	1,595.62	1,588.03	1,587.14	3.59	61.76	-179.71	-96.64	-1,576.62	1,642.18	1,578.36	63.82	25.730		
1,700.00	1,693.06	1,685.45	1,684.51	3.95	65.67	-179.59	-93.24	-1,576.62	1,664.47	1,597.10	67.37	24.708		
1,800.00	1,789.64	1,782.04	1,781.04	4.37	69.55	-179.47	-89.87	-1,576.62	1,690.15	1,619.41	70.74	23.893		
1,900.00	1,885.27	1,877.68	1,876.62	4.85	73.40	-179.36	-86.53	-1,576.62	1,719.20	1,645.27	73.93	23.255		
2,000.00	1,979.82	1,972.24	1,971.12	5.40	77.19	-179.25	-83.23	-1,576.62	1,751.57	1,674.65	76.92	22.772		
2,100.00	2,073.17	2,065.62	2,064.45	6.02	80.94	-179.14	-79.98	-1,576.62	1,787.23	1,707.53	79.69	22.426		
2,200.00	2,165.21	2,157.70	2,156.47	6.72	84.64	-179.04	-76.76	-1,576.62	1,826.13	1,743.88	82.24	22.204		
2,224.24	2,187.31	2,179.81	2,178.56	6.90	85.53	-179.01	-75.99	-1,576.62	1,836.04	1,753.21	82.83	22.167		
2,300.00	2,256.26	2,248.79	2,247.50	7.48	88.30	-178.95	-73.58	-1,576.62	1,867.31	1,781.73	85.58	22.819		
2,400.00	2,347.27	2,339.84	2,338.50	8.27	91.96	-178.87	-70.41	-1,576.62	1,908.60	1,819.37	89.22	21.391		
2,500.00	2,438.28	2,430.89	2,429.49	9.07	95.62	-178.79	-67.23	-1,576.62	1,949.88	1,857.01	92.87	20.995		
2,600.00	2,529.29	2,521.94	2,520.48	9.88	99.27	-178.71	-64.05	-1,576.62	1,991.17	1,894.65	96.53	20.629		
2,700.00	2,620.29	2,612.98	2,611.47	10.70	102.93	-178.64	-60.87	-1,576.62	2,032.46	1,932.28	100.18	20.287		
2,800.00	2,711.30	2,704.03	2,702.46	11.53	106.59	-178.57	-57.70	-1,576.62	2,073.76	1,969.91	103.85	19.970		
2,900.00	2,802.31	2,795.08	2,793.46	12.37	110.24	-178.51	-54.52	-1,576.62	2,115.06	2,007.54	107.51	19.673		
3,000.00	2,893.31	2,886.13	2,884.45	13.21	113.90	-178.44	-51.34	-1,576.62	2,156.35	2,045.17	111.18	19.395		
3,100.00	2,984.32	2,977.17	2,975.44	14.06	117.56	-178.38	-48.16	-1,576.62	2,197.66	2,082.80	114.85	19.135		
3,200.00	3,075.33	3,068.22	3,066.43	14.91	121.22	-178.32	-44.98	-1,576.62	2,238.96	2,120.43	118.52	18.890		
3,300.00	3,166.34	3,159.27	3,157.43	15.76	124.87	-178.26	-41.81	-1,576.62	2,280.26	2,158.07	122.20	18.660		
3,400.00	3,257.34	3,250.32	3,248.42	16.61	128.53	-178.21	-38.63	-1,576.62	2,321.57	2,195.70	125.87	18.444		
3,500.00	3,348.35	3,341.36	3,339.41	17.47	132.19	-178.16	-35.45	-1,576.62	2,362.88	2,233.33	129.55	18.239		
3,552.01	3,395.69	3,388.72	3,386.74	17.91	134.09	-178.13	-33.80	-1,576.62	2,384.37	2,252.90	131.47	18.137		
3,600.00	3,439.52	3,432.58	3,430.57	18.28	135.85	-178.12	-32.27	-1,576.62	2,403.82	2,269.68	134.14	17.920		
3,700.00	3,531.89	3,524.98	3,522.91	18.92	139.56	-178.09	-29.04	-1,576.62	2,442.00	2,302.31	139.69	17.482		
3,800.00	3,625.54	3,618.65	3,616.52	19.51	143.32	-178.06	-25.78	-1,576.62	2,476.92	2,331.68	145.25	17.053		
3,900.00	3,720.35	3,713.48	3,711.30	20.06	147.13	-178.03	-22.47	-1,576.62	2,508.56	2,357.81	150.76	16.640		
4,000.00	3,816.21	3,809.35	3,807.11	20.56	150.98	-178.00	-19.12	-1,576.62	2,536.88	2,380.69	156.19	16.242		
4,100.00	3,913.01	3,906.15	3,903.85	21.00	154.87	-177.95	-15.74	-1,576.62	2,561.83	2,400.31	161.53	15.860		
4,200.00	4,010.63	4,003.75	4,001.39	21.39	158.79	-177.91	-12.34	-1,576.62	2,583.40	2,416.65	166.75	15.493		
4,300.00	4,108.94	4,102.05	4,099.63	21.74	162.74	-177.86	-8.91	-1,576.62	2,601.55	2,429.71	171.84	15.140		
4,400.00	4,207.83	4,200.91	4,198.43	22.03	166.71	-177.81	-5.45	-1,576.62	2,616.26	2,439.49	176.77	14.800		
4,500.00	4,307.18	4,300.22	4,297.69	22.26	170.70	-177.75	-1.99	-1,576.62	2,627.52	2,445.99	181.53	14.475		
4,600.00	4,406.86	4,399.87	4,397.27	22.45	174.70	-177.69	1.49	-1,576.62	2,635.31	2,449.22	186.09	14.162		
4,700.00	4,506.76	4,499.71	4,497.05	22.60	178.71	-177.62	4.97	-1,576.62	2,639.62	2,449.19	190.44	13.861		
4,776.25	4,583.00	4,575.91	4,573.20	22.67	181.77	-91.37	7.63	-1,576.62	2,640.57	2,446.97	193.60	13.639		

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Riverbend 7-13 PAD - HARRY S CHIKUMA #5 EXISTING - HARRY S CHIKUMA #5 EXISTING - HARR													<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-UNKNOWN													<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis					Distance						Warning	
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor		
4,800.00	4,606.75	4,599.64	4,596.92	22.69	182.73	-91.35	8.46	-1,576.62	2,640.55	2,445.96	194.59	13.570		
4,900.00	4,706.75	4,699.58	4,696.80	22.79	186.74	-91.28	11.95	-1,576.62	2,640.47	2,441.70	198.77	13.284		
5,000.00	4,806.75	4,799.52	4,796.68	22.89	190.76	-91.20	15.44	-1,576.62	2,640.40	2,437.44	202.96	13.009		
5,075.70	4,882.45	4,875.18	4,872.29	22.96	193.79	-91.14	18.08	-1,576.62	2,640.34	2,434.21	206.13	12.809		
5,100.00	4,906.75	4,892.00	4,889.10	22.99	194.47	-91.13	18.66	-1,576.62	2,640.34	2,433.49	206.85	12.765		
5,200.00	5,006.75	4,892.00	4,889.10	23.09	194.47	-91.13	18.66	-1,576.62	2,642.44	2,435.42	207.02	12.764 SF		
5,300.00	5,106.75	4,892.00	4,889.10	23.19	194.47	-91.13	18.66	-1,576.62	2,648.33	2,441.13	207.20	12.782		
5,400.00	5,206.75	4,892.00	4,889.10	23.29	194.47	-91.13	18.66	-1,576.62	2,657.96	2,450.59	207.37	12.817		
5,500.00	5,306.75	4,892.00	4,889.10	23.40	194.47	-91.13	18.66	-1,576.62	2,671.31	2,463.76	207.55	12.871		
5,600.00	5,406.75	4,892.00	4,889.10	23.51	194.47	-91.13	18.66	-1,576.62	2,688.31	2,480.58	207.73	12.941		
5,700.00	5,506.75	4,892.00	4,889.10	23.62	194.47	-91.13	18.66	-1,576.62	2,708.90	2,500.99	207.91	13.029		
5,800.00	5,606.75	4,892.00	4,889.10	23.73	194.47	-91.13	18.66	-1,576.62	2,733.00	2,524.91	208.09	13.134		
5,900.00	5,706.75	4,892.00	4,889.10	23.84	194.47	-91.13	18.66	-1,576.62	2,760.51	2,552.23	208.28	13.254		
6,000.00	5,806.75	4,892.00	4,889.10	23.95	194.47	-91.13	18.66	-1,576.62	2,791.33	2,582.87	208.46	13.390		
6,100.00	5,906.75	4,892.00	4,889.10	24.07	194.47	-91.13	18.66	-1,576.62	2,825.36	2,616.72	208.65	13.541		
6,200.00	6,006.75	4,892.00	4,889.10	24.19	194.47	-91.13	18.66	-1,576.62	2,862.48	2,653.65	208.83	13.707		
6,300.00	6,106.75	4,892.00	4,889.10	24.30	194.47	-91.13	18.66	-1,576.62	2,902.57	2,693.55	209.02	13.886		
6,400.00	6,206.75	4,892.00	4,889.10	24.42	194.47	-91.13	18.66	-1,576.62	2,945.52	2,736.31	209.21	14.079		
6,500.00	6,306.75	4,892.00	4,889.10	24.55	194.47	-91.13	18.66	-1,576.62	2,991.19	2,781.79	209.40	14.285		
6,600.00	6,406.75	4,892.00	4,889.10	24.67	194.47	-91.13	18.66	-1,576.62	3,039.46	2,829.87	209.59	14.502		
6,700.00	6,506.75	4,892.00	4,889.10	24.79	194.47	-91.13	18.66	-1,576.62	3,090.22	2,880.44	209.78	14.731		
6,800.00	6,606.75	4,892.00	4,889.10	24.92	194.47	-91.13	18.66	-1,576.62	3,143.34	2,933.36	209.98	14.970		
6,900.00	6,706.75	4,892.00	4,889.10	25.05	194.47	-91.13	18.66	-1,576.62	3,198.71	2,988.54	210.17	15.220		
7,000.00	6,806.75	4,892.00	4,889.10	25.17	194.47	-91.13	18.66	-1,576.62	3,256.20	3,045.84	210.36	15.479		
7,100.00	6,906.75	4,892.00	4,889.10	25.30	194.47	-91.13	18.66	-1,576.62	3,315.72	3,105.16	210.56	15.747		
7,200.00	7,006.75	4,892.00	4,889.10	25.44	194.47	-91.13	18.66	-1,576.62	3,377.14	3,166.39	210.76	16.024		
7,300.00	7,106.75	4,892.00	4,889.10	25.57	194.47	-91.13	18.66	-1,576.62	3,440.38	3,229.43	210.95	16.309		
7,400.00	7,206.75	4,892.00	4,889.10	25.70	194.47	-91.13	18.66	-1,576.62	3,505.33	3,294.18	211.15	16.601		
7,500.00	7,306.75	4,892.00	4,889.10	25.84	194.47	-91.13	18.66	-1,576.62	3,571.90	3,360.56	211.35	16.901		
7,600.00	7,406.75	4,892.00	4,889.10	25.97	194.47	-91.13	18.66	-1,576.62	3,640.00	3,428.46	211.55	17.207		
7,700.00	7,506.75	4,892.00	4,889.10	26.11	194.47	-91.13	18.66	-1,576.62	3,709.55	3,497.80	211.75	17.519		
7,800.00	7,606.75	4,892.00	4,889.10	26.25	194.47	-91.13	18.66	-1,576.62	3,780.46	3,568.51	211.95	17.837		
7,900.00	7,706.75	4,892.00	4,889.10	26.39	194.47	-91.13	18.66	-1,576.62	3,852.66	3,640.52	212.15	18.160		
8,000.00	7,806.75	4,892.00	4,889.10	26.53	194.47	-91.13	18.66	-1,576.62	3,926.09	3,713.74	212.35	18.489		
8,100.00	7,906.75	4,892.00	4,889.10	26.67	194.47	-91.13	18.66	-1,576.62	4,000.66	3,788.11	212.55	18.822		
8,200.00	8,006.75	4,892.00	4,889.10	26.82	194.47	-91.13	18.66	-1,576.62	4,076.32	3,863.57	212.75	19.160		
8,225.25	8,032.00	4,892.00	4,889.10	26.85	194.47	-91.13	18.66	-1,576.62	4,095.59	3,882.79	212.80	19.246		

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>		Riverbend 7-13 PAD - HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S. CHIKUMA G.U. B #1 EX										<b>Offset Site Error:</b>	0.00 ft
<b>Survey Program:</b>		0-UNKNOWN										<b>Offset Well Error:</b>	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	14.95	520.92	139.13	539.48				
100.00	100.00	75.16	75.16	0.10	1.50	14.94	521.41	139.13	539.69	538.09	1.60	337.268	
200.00	200.00	166.78	166.76	0.32	4.68	14.89	523.34	139.13	541.73	536.74	5.00	108.372	
300.00	300.00	263.69	263.61	0.55	8.57	14.80	526.63	139.13	545.01	535.90	9.11	59.817	
400.00	400.00	363.63	363.49	0.77	12.58	14.71	530.12	139.13	548.38	535.03	13.35	41.085	
500.00	500.00	463.57	463.37	0.99	16.60	14.61	533.60	139.13	551.76	534.17	17.58	31.378	
600.00	600.00	563.51	563.24	1.22	20.61	14.52	537.09	139.13	555.14	533.31	21.82	25.440	
700.00	700.00	663.45	663.12	1.44	24.62	14.43	540.58	139.13	558.52	532.46	26.06	21.433	
800.00	800.00	763.38	763.00	1.67	28.64	14.34	544.07	139.13	561.90	531.60	30.30	18.547	
900.00	900.00	863.32	862.88	1.89	32.65	14.26	547.56	139.13	565.28	530.75	34.53	16.369	
1,000.00	1,000.00	963.26	962.76	2.12	36.67	14.17	551.04	139.13	568.66	529.89	38.77	14.668	
1,100.00	1,099.98	1,063.19	1,062.62	2.33	40.68	-72.22	554.53	139.13	571.51	528.65	42.86	13.335	
1,200.00	1,199.84	1,162.99	1,162.37	2.54	44.69	-72.77	558.01	139.13	573.33	526.27	47.06	12.182	
1,300.00	1,299.45	1,262.57	1,261.88	2.76	48.69	-73.66	561.49	139.13	574.22	522.95	51.27	11.200	
1,400.00	1,398.70	1,361.79	1,361.04	3.00	52.67	-74.89	564.95	139.13	574.33	518.86	55.48	10.353	
1,500.00	1,497.47	1,460.53	1,459.72	3.27	56.64	-76.45	568.40	139.13	573.89	514.19	59.70	9.614	
1,600.00	1,595.62	1,558.67	1,557.80	3.59	60.58	-78.34	571.82	139.13	573.17	509.24	63.93	8.966	
1,700.00	1,693.06	1,656.09	1,655.17	3.95	64.49	-80.55	575.22	139.13	572.50	504.31	68.19	8.396	
1,781.33	1,771.68	1,734.72	1,733.74	4.29	67.65	-82.57	577.97	139.13	572.27	500.60	71.67	7.984	
1,800.00	1,789.64	1,752.68	1,751.70	4.37	68.37	-83.06	578.59	139.13	572.28	499.81	72.47	7.897	
1,900.00	1,885.27	1,848.32	1,847.27	4.85	72.22	-85.84	581.93	139.13	572.98	496.20	76.77	7.463	
2,000.00	1,979.82	1,942.88	1,941.78	5.40	76.01	-88.86	585.23	139.13	575.08	493.99	81.09	7.092	
2,100.00	2,073.17	2,036.26	2,035.10	6.02	79.76	-92.08	588.49	139.13	579.13	493.75	85.38	6.783 ES	
2,200.00	2,165.21	2,128.34	2,127.13	6.72	83.46	-95.45	591.70	139.13	585.66	496.05	89.62	6.535	
2,224.24	2,187.31	2,150.45	2,149.22	6.90	84.35	-96.28	592.48	139.13	587.69	497.05	90.63	6.484	
2,300.00	2,256.26	2,219.43	2,218.16	7.48	87.12	-98.99	594.88	139.13	595.08	501.29	93.79	6.345	
2,400.00	2,347.27	2,310.48	2,309.15	8.27	90.78	-102.47	598.06	139.13	607.18	509.29	97.89	6.203	
2,500.00	2,438.28	2,401.53	2,400.14	9.07	94.44	-105.83	601.24	139.13	621.80	519.88	101.92	6.101	
2,600.00	2,529.29	2,492.57	2,491.14	9.88	98.09	-109.05	604.42	139.13	638.77	532.89	105.88	6.033	
2,700.00	2,620.29	2,583.62	2,582.13	10.70	101.75	-112.11	607.59	139.13	657.90	548.13	109.77	5.993	
2,800.00	2,711.30	2,674.67	2,673.12	11.53	105.41	-115.01	610.77	139.13	679.02	565.43	113.59	5.978	
2,900.00	2,802.31	2,765.72	2,764.11	12.37	109.06	-117.76	613.95	139.13	701.94	584.58	117.36	5.981	
3,000.00	2,893.31	2,856.76	2,855.11	13.21	112.72	-120.35	617.13	139.13	726.49	605.42	121.07	6.000	
3,100.00	2,984.32	2,947.81	2,946.10	14.06	116.38	-122.78	620.30	139.13	752.52	627.77	124.74	6.032	
3,200.00	3,075.33	3,038.86	3,037.09	14.91	120.04	-125.06	623.48	139.13	779.87	651.49	128.38	6.075	
3,300.00	3,166.34	3,129.91	3,128.08	15.76	123.69	-127.20	626.66	139.13	808.41	676.42	131.99	6.125	
3,400.00	3,257.34	3,220.96	3,219.07	16.61	127.35	-129.21	629.84	139.13	838.02	702.45	135.58	6.181	
3,500.00	3,348.35	3,312.00	3,310.07	17.47	131.01	-131.09	633.01	139.13	868.60	729.45	139.14	6.242	
3,552.01	3,395.69	3,359.36	3,357.40	17.91	132.91	-132.02	634.67	139.13	884.84	743.85	140.99	6.276	
3,600.00	3,439.52	3,403.21	3,401.22	18.28	134.67	-133.06	636.20	139.13	899.77	756.72	143.05	6.290	
3,700.00	3,531.89	3,495.61	3,493.57	18.92	138.38	-135.02	639.42	139.13	929.69	782.27	147.42	6.306	
3,800.00	3,625.54	3,589.29	3,587.18	19.51	142.14	-136.72	642.69	139.13	957.78	805.84	151.95	6.303	
3,900.00	3,720.35	3,684.11	3,681.95	20.06	145.95	-138.17	646.00	139.13	983.83	827.25	156.58	6.283	
4,000.00	3,816.21	3,779.99	3,777.77	20.56	149.80	-139.40	649.35	139.13	1,007.65	846.36	161.29	6.247	
4,100.00	3,913.01	3,876.78	3,874.50	21.00	153.69	-140.43	652.72	139.13	1,029.09	863.05	166.04	6.198	
4,200.00	4,010.63	3,974.39	3,972.05	21.39	157.61	-141.27	656.13	139.13	1,048.03	877.24	170.79	6.136	
4,300.00	4,108.94	4,072.69	4,070.29	21.74	161.56	-141.93	659.56	139.13	1,064.38	888.87	175.51	6.064	
4,400.00	4,207.83	4,171.55	4,169.09	22.03	165.53	-142.43	663.01	139.13	1,078.06	897.89	180.18	5.983	
4,500.00	4,307.18	4,270.86	4,268.34	22.26	169.52	-142.77	666.48	139.13	1,089.03	904.26	184.76	5.894	
4,600.00	4,406.86	4,370.50	4,367.92	22.45	173.52	-142.97	669.95	139.13	1,097.23	907.98	189.25	5.798	
4,700.00	4,506.76	4,470.35	4,467.71	22.60	177.53	-143.02	673.44	139.13	1,102.66	909.05	193.61	5.695	
4,776.25	4,583.00	4,546.55	4,543.86	22.67	180.59	-56.77	676.10	139.13	1,104.93	908.08	196.85	5.613	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b>		Riverbend 7-13 PAD - HARRY S. CHIKUMA G.U. B #1 EXISTING - HARRY S. CHIKUMA G.U. B #1 EX										<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-UNKNOWN												<b>Offset Well Error:</b>	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
4,800.00	4,606.75	4,570.28	4,567.58	22.69	181.55	-56.73	676.93	139.13	1,105.38	907.55	197.83	5.587	
4,900.00	4,706.75	4,670.22	4,667.46	22.79	185.56	-56.58	680.41	139.13	1,107.30	905.31	201.99	5.482	
5,000.00	4,806.75	4,770.16	4,767.34	22.89	189.58	-56.43	683.90	139.13	1,109.23	903.07	206.15	5.381	
5,100.00	4,906.75	4,870.10	4,867.22	22.99	193.59	-56.28	687.39	139.13	1,111.16	900.85	210.31	5.283	
5,200.00	5,006.75	4,970.04	4,967.09	23.09	197.60	-56.13	690.88	139.13	1,113.10	898.63	214.48	5.190	
5,300.00	5,106.75	5,069.98	5,066.97	23.19	201.62	-55.98	694.37	139.13	1,115.05	896.41	218.64	5.100	
5,400.00	5,206.75	5,169.92	5,166.85	23.29	205.63	-55.84	697.85	139.13	1,117.01	894.20	222.81	5.013	
5,500.00	5,306.75	5,269.86	5,266.73	23.40	209.65	-55.69	701.34	139.13	1,118.97	892.00	226.97	4.930	
5,600.00	5,406.75	5,369.80	5,366.61	23.51	213.66	-55.54	704.83	139.13	1,120.94	889.80	231.14	4.850	
5,700.00	5,506.75	5,469.74	5,466.48	23.62	217.68	-55.39	708.32	139.13	1,122.92	887.61	235.31	4.772	
5,800.00	5,606.75	5,569.67	5,566.36	23.73	221.69	-55.25	711.81	139.13	1,124.91	885.43	239.48	4.697	
5,900.00	5,706.75	5,669.61	5,666.24	23.84	225.70	-55.10	715.29	139.13	1,126.90	883.25	243.66	4.625	
6,000.00	5,806.75	5,769.55	5,766.12	23.95	229.72	-54.96	718.78	139.13	1,128.91	881.08	247.83	4.555	
6,100.00	5,906.75	5,869.49	5,866.00	24.07	233.73	-54.81	722.27	139.13	1,130.91	878.91	252.00	4.488	
6,200.00	6,006.75	5,969.43	5,965.88	24.19	237.75	-54.67	725.76	139.13	1,132.93	876.75	256.18	4.422	
6,300.00	6,106.75	6,069.37	6,065.75	24.30	241.76	-54.52	729.24	139.13	1,134.95	874.60	260.36	4.359	
6,400.00	6,206.75	6,169.31	6,165.63	24.42	245.78	-54.38	732.73	139.13	1,136.98	872.45	264.53	4.298	
6,500.00	6,306.75	6,269.25	6,265.51	24.55	249.79	-54.24	736.22	139.13	1,139.02	870.31	268.71	4.239	
6,600.00	6,406.75	6,369.19	6,365.39	24.67	253.80	-54.10	739.71	139.13	1,141.06	868.17	272.89	4.181	
6,700.00	6,506.75	6,469.13	6,465.27	24.79	257.82	-53.95	743.20	139.13	1,143.11	866.04	277.07	4.126	
6,800.00	6,606.75	6,569.07	6,565.14	24.92	261.83	-53.81	746.68	139.13	1,145.17	863.92	281.25	4.072	
6,900.00	6,706.75	6,669.00	6,665.02	25.05	265.85	-53.67	750.17	139.13	1,147.24	861.80	285.43	4.019	
7,000.00	6,806.75	6,768.94	6,764.90	25.17	269.86	-53.53	753.66	139.13	1,149.31	859.69	289.62	3.968	
7,100.00	6,906.75	6,868.88	6,864.78	25.30	273.87	-53.39	757.15	139.13	1,151.39	857.58	293.80	3.919	
7,200.00	7,006.75	6,968.82	6,964.66	25.44	277.89	-53.25	760.63	139.13	1,153.47	855.49	297.99	3.871	
7,300.00	7,106.75	7,068.76	7,064.54	25.57	281.90	-53.12	764.12	139.13	1,155.56	853.39	302.17	3.824	
7,400.00	7,206.75	7,168.70	7,164.41	25.70	285.92	-52.98	767.61	139.13	1,157.66	851.31	306.36	3.779	
7,500.00	7,306.75	7,268.64	7,264.29	25.84	289.93	-52.84	771.10	139.13	1,159.77	849.22	310.54	3.735	
7,600.00	7,406.75	7,368.58	7,364.17	25.97	293.95	-52.70	774.59	139.13	1,161.88	847.15	314.73	3.692	
7,700.00	7,506.75	7,468.52	7,464.05	26.11	297.96	-52.57	778.07	139.13	1,164.00	845.08	318.92	3.650	
7,800.00	7,606.75	7,568.46	7,563.93	26.25	301.97	-52.43	781.56	139.13	1,166.12	843.02	323.11	3.609	
7,900.00	7,706.75	7,668.39	7,663.80	26.39	305.99	-52.29	785.05	139.13	1,168.26	840.96	327.30	3.569	
8,000.00	7,806.75	7,768.33	7,763.68	26.53	310.00	-52.16	788.54	139.13	1,170.39	838.91	331.49	3.531	
8,100.00	7,906.75	7,868.27	7,863.56	26.67	314.02	-52.02	792.03	139.13	1,172.54	836.86	335.68	3.493	
8,200.00	8,006.75	7,968.21	7,963.44	26.82	318.03	-51.89	795.51	139.13	1,174.69	834.82	339.87	3.456	
8,225.25	8,032.00	7,993.45	7,988.66	26.85	319.04	-51.86	796.39	139.13	1,175.24	834.31	340.93	3.447 SF	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-90.63	-0.35	-32.19	32.19				
100.00	100.00	100.00	100.00	0.10	0.10	-90.63	-0.35	-32.19	32.19	32.00	0.19	168.514	
200.00	200.00	200.00	200.00	0.32	0.32	-90.63	-0.35	-32.19	32.19	31.55	0.64	50.258	
300.00	300.00	300.00	300.00	0.55	0.55	-90.63	-0.35	-32.19	32.19	31.10	1.09	29.533	
400.00	400.00	400.00	400.00	0.77	0.77	-90.63	-0.35	-32.19	32.19	30.66	1.54	20.910	
500.00	500.00	500.00	500.00	0.99	0.99	-90.63	-0.35	-32.19	32.19	30.21	1.99	16.185	
600.00	600.00	600.00	600.00	1.22	1.22	-90.63	-0.35	-32.19	32.19	29.76	2.44	13.202	
700.00	700.00	700.00	700.00	1.44	1.44	-90.63	-0.35	-32.19	32.19	29.31	2.89	11.147	
800.00	800.00	800.00	800.00	1.67	1.67	-90.63	-0.35	-32.19	32.19	28.86	3.34	9.646	
900.00	900.00	900.00	900.00	1.89	1.89	-90.63	-0.35	-32.19	32.19	28.41	3.79	8.501	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-90.63	-0.35	-32.19	32.19	27.96	4.24	7.599 CC, ES	
1,100.00	1,099.98	1,099.06	1,099.04	2.33	2.34	-175.13	0.77	-33.49	35.25	30.59	4.66	7.559 SF	
1,200.00	1,199.84	1,197.51	1,197.36	2.54	2.55	-171.46	4.09	-37.35	44.53	39.46	5.07	8.786	
1,300.00	1,299.45	1,294.76	1,294.24	2.76	2.78	-167.87	9.54	-43.67	60.16	54.69	5.47	10.996	
1,400.00	1,398.70	1,390.24	1,389.03	3.00	3.01	-165.12	16.97	-52.30	82.10	76.23	5.87	13.983	
1,500.00	1,497.47	1,483.42	1,481.13	3.27	3.27	-163.16	26.21	-63.02	110.19	103.92	6.27	17.570	
1,600.00	1,595.62	1,573.86	1,570.03	3.59	3.54	-161.75	37.04	-75.59	144.20	137.53	6.67	21.616	
1,700.00	1,693.06	1,661.14	1,655.29	3.95	3.84	-160.68	49.23	-89.73	183.91	176.84	7.07	26.001	
1,800.00	1,789.64	1,748.03	1,739.65	4.37	4.17	-159.87	62.80	-105.48	228.74	221.25	7.48	30.560	
1,900.00	1,885.27	1,835.75	1,824.75	4.85	4.53	-159.41	76.69	-121.60	276.74	268.83	7.91	34.989	
2,000.00	1,979.82	1,921.84	1,908.28	5.40	4.90	-159.19	90.32	-137.41	327.59	319.25	8.34	39.273	
2,100.00	2,073.17	2,006.22	1,990.13	6.02	5.27	-159.09	103.68	-152.91	381.22	372.44	8.78	43.415	
2,200.00	2,165.21	2,088.76	2,070.21	6.72	5.64	-159.07	116.75	-168.08	437.59	428.36	9.23	47.414	
2,224.24	2,187.31	2,108.48	2,089.34	6.90	5.73	-159.07	119.87	-171.70	451.66	442.32	9.34	48.363	
2,300.00	2,256.26	2,169.95	2,148.97	7.48	6.01	-159.43	129.60	-183.00	495.89	486.13	9.76	50.787	
2,400.00	2,347.27	2,251.08	2,227.68	8.27	6.39	-159.81	142.45	-197.90	554.29	543.95	10.34	53.625	
2,500.00	2,438.28	2,332.20	2,306.38	9.07	6.77	-160.12	155.29	-212.81	612.70	601.78	10.92	56.112	
2,600.00	2,529.29	2,413.33	2,385.09	9.88	7.15	-160.38	168.14	-227.71	671.12	659.61	11.51	58.303	
2,700.00	2,620.29	2,494.46	2,463.80	10.70	7.54	-160.60	180.98	-242.62	729.54	717.43	12.11	60.241	
2,800.00	2,711.30	2,575.59	2,542.50	11.53	7.94	-160.78	193.83	-257.52	787.98	775.26	12.72	61.964	
2,900.00	2,802.31	2,656.72	2,621.21	12.37	8.33	-160.94	206.67	-272.43	846.41	833.09	13.33	63.506	
3,000.00	2,893.31	2,737.84	2,699.91	13.21	8.73	-161.08	219.52	-287.33	904.85	890.91	13.94	64.891	
3,100.00	2,984.32	2,818.97	2,778.62	14.06	9.12	-161.20	232.36	-302.24	963.30	948.73	14.56	66.140	
3,200.00	3,075.33	2,900.10	2,857.32	14.91	9.52	-161.31	245.21	-317.14	1,021.75	1,006.56	15.19	67.273	
3,300.00	3,166.34	2,981.23	2,936.03	15.76	9.93	-161.40	258.05	-332.05	1,080.19	1,064.38	15.82	68.301	
3,400.00	3,257.34	3,062.35	3,014.73	16.61	10.33	-161.49	270.89	-346.95	1,138.64	1,122.20	16.45	69.239	
3,500.00	3,348.35	3,143.48	3,093.44	17.47	10.73	-161.57	283.74	-361.86	1,197.10	1,180.02	17.08	70.099	
3,552.01	3,395.69	3,185.68	3,134.38	17.91	10.94	-161.60	290.42	-369.61	1,227.50	1,210.09	17.41	70.518	
3,600.00	3,439.52	3,224.83	3,172.36	18.28	11.14	-161.84	296.62	-376.80	1,255.24	1,237.47	17.77	70.639	
3,700.00	3,531.89	3,307.82	3,252.87	18.92	11.55	-162.27	309.76	-392.05	1,311.02	1,292.52	18.50	70.872	
3,800.00	3,625.54	3,392.61	3,335.13	19.51	11.98	-162.60	323.18	-407.63	1,364.02	1,344.80	19.21	70.993	
3,900.00	3,720.35	3,479.11	3,419.04	20.06	12.41	-162.85	336.88	-423.52	1,414.16	1,394.25	19.91	71.022	
4,000.00	3,816.21	3,567.19	3,504.50	20.56	12.85	-163.03	350.82	-439.70	1,461.39	1,440.80	20.59	70.978	
4,100.00	3,913.01	3,656.77	3,591.40	21.00	13.30	-163.15	365.01	-456.16	1,505.67	1,484.42	21.24	70.875	
4,200.00	4,010.63	3,747.72	3,679.64	21.39	13.76	-163.21	379.41	-472.87	1,546.94	1,525.06	21.87	70.722	
4,300.00	4,108.94	3,839.94	3,769.11	21.74	14.23	-163.22	394.01	-489.81	1,585.15	1,562.68	22.48	70.529	
4,400.00	4,207.83	3,933.32	3,859.69	22.03	14.70	-163.18	408.79	-506.97	1,620.29	1,597.24	23.05	70.304	
4,500.00	4,307.18	4,027.74	3,951.29	22.26	15.18	-163.10	423.74	-524.32	1,652.31	1,628.72	23.59	70.051	
4,600.00	4,406.86	4,123.08	4,043.79	22.45	15.66	-162.96	438.84	-541.83	1,681.19	1,657.10	24.09	69.776	
4,700.00	4,506.76	4,219.23	4,137.07	22.60	16.15	-162.79	454.06	-559.50	1,706.91	1,682.35	24.57	69.482	
4,776.25	4,583.00	4,293.02	4,208.66	22.67	16.52	-76.43	465.74	-573.06	1,724.39	1,699.49	24.90	69.249	
4,800.00	4,606.75	4,316.06	4,231.01	22.69	16.64	-76.34	469.39	-577.29	1,729.55	1,704.53	25.02	69.138	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Riverbend 7-13 PAD - P_Riverbend 21-13 - P_Riverbend 21-13 - PLAN #1 6-21-10 RHS												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.00	4,706.75	4,413.08	4,325.13	22.79	17.13	-75.98	484.75	-595.11	1,751.30	1,725.80	25.50	68.674	
5,000.00	4,806.75	4,510.09	4,419.25	22.89	17.62	-75.63	500.11	-612.94	1,773.13	1,747.14	25.99	68.232	
5,100.00	4,906.75	4,607.11	4,513.37	22.99	18.12	-75.29	515.47	-630.76	1,795.01	1,768.54	26.47	67.810	
5,200.00	5,006.75	4,704.12	4,607.48	23.09	18.61	-74.95	530.83	-648.58	1,816.96	1,790.00	26.95	67.408	
5,300.00	5,106.75	4,801.14	4,701.60	23.19	19.10	-74.63	546.19	-666.41	1,838.96	1,811.52	27.44	67.023	
5,400.00	5,206.75	4,898.15	4,795.72	23.29	19.60	-74.31	561.55	-684.23	1,861.02	1,833.10	27.92	66.656	
5,500.00	5,306.75	4,995.16	4,889.84	23.40	20.09	-74.00	576.91	-702.06	1,883.13	1,854.73	28.40	66.305	
5,600.00	5,406.75	5,092.18	4,983.96	23.51	20.59	-73.70	592.27	-719.88	1,905.30	1,876.42	28.88	65.968	
5,700.00	5,506.75	5,189.19	5,078.07	23.62	21.08	-73.40	607.63	-737.70	1,927.51	1,898.15	29.36	65.646	
5,800.00	5,606.75	5,286.21	5,172.19	23.73	21.58	-73.11	622.99	-755.53	1,949.78	1,919.94	29.84	65.338	
5,900.00	5,706.75	5,383.22	5,266.31	23.84	22.07	-72.82	638.35	-773.35	1,972.09	1,941.77	30.32	65.041	
6,000.00	5,806.75	5,480.24	5,360.43	23.95	22.57	-72.55	653.71	-791.18	1,994.44	1,963.64	30.80	64.757	
6,100.00	5,906.75	5,577.26	5,457.45	24.06	23.07	-72.26	669.07	-809.18	2,016.55	1,985.16	31.28	64.473	
6,200.00	6,006.75	5,674.28	5,554.47	24.17	23.57	-71.97	684.43	-827.19	2,038.66	2,007.17	31.76	64.189	
6,300.00	6,106.75	5,771.30	5,651.49	24.28	24.07	-71.68	699.79	-845.20	2,060.77	2,029.28	32.24	63.905	
6,400.00	6,206.75	5,868.32	5,748.51	24.39	24.57	-71.39	715.15	-863.21	2,082.88	2,051.39	32.72	63.621	
6,500.00	6,306.75	5,965.34	5,845.53	24.50	25.07	-71.10	730.51	-881.22	2,104.99	2,073.50	33.20	63.337	
6,600.00	6,406.75	6,062.36	5,942.55	24.61	25.57	-70.81	745.87	-899.23	2,127.10	2,095.61	33.68	63.053	
6,700.00	6,506.75	6,159.38	6,039.57	24.72	26.07	-70.52	761.23	-917.24	2,149.21	2,117.72	34.16	62.769	
6,800.00	6,606.75	6,256.40	6,136.59	24.83	26.57	-70.23	776.59	-935.25	2,171.32	2,139.83	34.64	62.485	
6,900.00	6,706.75	6,353.42	6,233.61	24.94	27.07	-69.94	791.95	-953.26	2,193.43	2,161.94	35.12	62.201	
7,000.00	6,806.75	6,450.44	6,330.63	25.05	27.57	-69.65	807.31	-971.27	2,215.54	2,184.05	35.60	61.917	
7,100.00	6,906.75	6,547.46	6,427.65	25.16	28.07	-69.36	822.67	-989.28	2,237.65	2,206.16	36.08	61.633	
7,200.00	7,006.75	6,644.48	6,524.67	25.27	28.57	-69.07	838.03	-1007.29	2,259.76	2,228.27	36.56	61.349	
7,300.00	7,106.75	6,741.50	6,621.69	25.38	29.07	-68.78	853.39	-1025.30	2,281.87	2,250.38	37.04	61.065	
7,400.00	7,206.75	6,838.52	6,718.71	25.49	29.57	-68.49	868.75	-1043.31	2,303.98	2,272.49	37.52	60.781	
7,500.00	7,306.75	6,935.54	6,815.73	25.60	30.07	-68.20	884.11	-1061.32	2,326.09	2,294.60	38.00	60.497	
7,600.00	7,406.75	7,032.56	6,912.75	25.71	30.57	-67.91	899.47	-1079.33	2,348.20	2,316.71	38.48	60.213	
7,700.00	7,506.75	7,129.58	7,009.77	25.82	31.07	-67.62	914.83	-1097.34	2,370.31	2,338.82	38.96	59.929	
7,800.00	7,606.75	7,226.60	7,106.79	25.93	31.57	-67.33	930.19	-1115.35	2,392.42	2,360.93	39.44	59.645	
7,900.00	7,706.75	7,323.62	7,203.81	26.04	32.07	-67.04	945.55	-1133.36	2,414.53	2,383.04	39.92	59.361	
8,000.00	7,806.75	7,420.64	7,300.83	26.15	32.57	-66.75	960.91	-1151.37	2,436.64	2,405.15	40.40	59.077	
8,100.00	7,906.75	7,517.66	7,397.85	26.26	33.07	-66.46	976.27	-1169.38	2,458.75	2,427.26	40.88	58.793	
8,200.00	8,006.75	7,614.68	7,494.87	26.37	33.57	-66.17	991.63	-1187.39	2,480.86	2,449.37	41.36	58.509	
8,225.25	8,032.00	8,160.95	8,032.00	26.85	27.20	-71.40	720.93	-869.18	2,038.85	1,998.99	39.86	51.150	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-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	
400.00	400.00	400.00	400.00	0.77	0.77	-91.31	-0.36	-15.96	15.96	14.42	1.54	10.366	
500.00	500.00	500.00	500.00	0.99	0.99	-91.31	-0.36	-15.96	15.96	13.97	1.99	8.024	
600.00	600.00	600.00	600.00	1.22	1.22	-91.31	-0.36	-15.96	15.96	13.52	2.44	6.545	
700.00	700.00	700.00	700.00	1.44	1.44	-91.31	-0.36	-15.96	15.96	13.07	2.89	5.526	
800.00	800.00	800.00	800.00	1.67	1.67	-91.31	-0.36	-15.96	15.96	12.62	3.34	4.782	
900.00	900.00	900.00	900.00	1.89	1.89	-91.31	-0.36	-15.96	15.96	12.17	3.79	4.214	
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-91.31	-0.36	-15.96	15.96	11.72	4.24	3.767 CC, ES	
1,100.00	1,099.98	1,100.31	1,100.29	2.33	2.32	177.40	-1.75	-14.88	16.73	12.08	4.65	3.601 SF	
1,200.00	1,199.84	1,200.45	1,200.29	2.54	2.50	164.93	-5.90	-11.66	19.68	14.66	5.02	3.918	
1,300.00	1,299.45	1,300.27	1,299.72	2.76	2.70	151.53	-12.78	-6.31	25.96	20.53	5.43	4.784	
1,400.00	1,398.70	1,399.61	1,398.32	3.00	2.93	141.31	-22.34	1.11	36.03	30.16	5.87	6.138	
1,500.00	1,497.47	1,498.59	1,496.26	3.27	3.18	135.79	-33.61	9.87	49.60	43.24	6.36	7.799	
1,600.00	1,595.62	1,597.26	1,593.89	3.59	3.44	134.75	-44.88	18.62	65.80	58.92	6.88	9.563	
1,700.00	1,693.06	1,695.49	1,691.09	3.95	3.72	135.71	-56.10	27.34	84.45	77.02	7.43	11.366	
1,800.00	1,789.64	1,793.16	1,787.73	4.37	4.02	137.52	-67.26	36.00	105.62	97.62	8.00	13.201	
1,900.00	1,885.27	1,890.14	1,883.70	4.85	4.31	139.65	-78.34	44.61	129.48	120.88	8.60	15.062	
2,000.00	1,979.82	1,986.33	1,978.87	5.40	4.62	141.81	-89.32	53.14	156.13	146.92	9.21	16.953	
2,100.00	2,073.17	2,081.60	2,073.14	6.02	4.92	143.87	-100.21	61.60	185.69	175.86	9.83	18.882	
2,200.00	2,165.21	2,175.84	2,166.39	6.72	5.23	145.79	-110.97	69.96	218.23	207.76	10.47	20.848	
2,224.24	2,187.31	2,198.52	2,188.83	6.90	5.30	146.23	-113.56	71.97	226.56	215.94	10.62	21.330	
2,300.00	2,256.26	2,269.28	2,258.85	7.48	5.54	147.72	-121.64	78.25	252.97	241.82	11.15	22.687	
2,400.00	2,347.27	2,362.69	2,351.27	8.27	5.85	149.28	-132.31	86.54	288.02	276.16	11.86	24.292	
2,500.00	2,438.28	2,456.09	2,443.70	9.07	6.16	150.50	-142.98	94.83	323.21	310.64	12.57	25.712	
2,600.00	2,529.29	2,549.50	2,536.12	9.88	6.48	151.48	-153.65	103.11	358.51	345.22	13.29	26.976	
2,700.00	2,620.29	2,642.91	2,628.54	10.70	6.79	152.28	-164.32	111.40	393.88	379.86	14.01	28.104	
2,800.00	2,711.30	2,736.31	2,720.97	11.53	7.11	152.95	-174.99	119.69	429.30	414.56	14.74	29.117	
2,900.00	2,802.31	2,829.72	2,813.39	12.37	7.44	153.52	-185.66	127.98	464.77	449.30	15.48	30.030	
3,000.00	2,893.31	2,923.12	2,905.81	13.21	7.76	154.01	-196.33	136.26	500.28	484.07	16.21	30.858	
3,100.00	2,984.32	3,016.53	2,998.24	14.06	8.08	154.43	-207.00	144.55	535.81	518.86	16.95	31.611	
3,200.00	3,075.33	3,109.93	3,090.66	14.91	8.41	154.80	-217.67	152.84	571.37	553.68	17.69	32.299	
3,300.00	3,166.34	3,203.34	3,183.08	15.76	8.73	155.13	-228.34	161.13	606.94	588.51	18.43	32.930	
3,400.00	3,257.34	3,296.74	3,275.51	16.61	9.06	155.42	-239.01	169.41	642.53	623.36	19.17	33.510	
3,500.00	3,348.35	3,390.15	3,367.93	17.47	9.38	155.69	-249.68	177.70	678.13	658.22	19.92	34.046	
3,552.01	3,395.69	3,438.73	3,416.00	17.91	9.55	155.81	-255.23	182.01	696.66	676.35	20.31	34.309	
3,600.00	3,439.52	3,483.69	3,460.48	18.28	9.71	156.05	-260.36	186.00	713.40	692.73	20.68	34.505	
3,700.00	3,531.89	3,578.18	3,553.99	18.92	10.04	156.43	-271.15	194.39	746.08	724.68	21.40	34.857	
3,800.00	3,625.54	3,673.68	3,648.48	19.51	10.38	156.66	-282.06	202.86	775.72	753.60	22.13	35.056	
3,900.00	3,720.35	3,770.07	3,743.86	20.06	10.72	156.76	-293.07	211.41	802.29	779.45	22.84	35.120	
4,000.00	3,816.21	3,867.23	3,839.99	20.56	11.06	156.75	-304.17	220.03	825.76	802.21	23.55	35.065	
4,100.00	3,913.01	3,965.04	3,936.78	21.00	11.41	156.62	-315.34	228.71	846.11	821.86	24.25	34.886	
4,200.00	4,010.63	4,063.39	4,034.09	21.39	11.76	156.38	-326.58	237.44	863.35	838.41	24.94	34.611	
4,300.00	4,108.94	4,162.14	4,131.81	21.74	12.11	156.04	-337.86	246.20	877.47	851.86	25.62	34.253	
4,400.00	4,207.83	4,261.19	4,229.81	22.03	12.46	155.60	-349.17	254.99	888.50	862.23	26.27	33.821	
4,500.00	4,307.18	4,360.42	4,327.99	22.26	12.81	155.06	-360.51	263.79	896.44	869.54	26.90	33.319	
4,600.00	4,406.86	4,459.69	4,426.22	22.45	13.16	154.41	-371.85	272.60	901.35	873.83	27.52	32.754	
4,700.00	4,506.76	4,558.89	4,524.38	22.60	13.51	153.64	-383.18	281.40	903.26	875.15	28.11	32.129	
4,776.25	4,583.00	4,634.42	4,599.11	22.67	13.78	-120.83	-391.80	288.10	902.75	874.19	28.56	31.609	
4,800.00	4,606.75	4,657.92	4,622.36	22.69	13.87	-121.04	-394.49	290.19	902.33	873.61	28.72	31.418	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Riverbend 7-13 PAD - P_Riverbend 24-13 - P_Riverbend 24-13 - PLAN #1 6-21-10 RHS												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.00	4,706.75	4,756.86	4,720.27	22.79	14.22	-121.94	-405.79	298.97	900.71	871.31	29.40	30.634	
5,000.00	4,806.75	4,855.81	4,818.18	22.89	14.57	-122.85	-417.09	307.75	899.33	869.24	30.09	29.893	
5,100.00	4,906.75	4,954.76	4,916.09	22.99	14.92	-123.76	-428.40	316.53	898.17	867.40	30.77	29.192	
5,200.00	5,006.75	5,053.71	5,014.00	23.09	15.28	-124.67	-439.70	325.31	897.25	865.80	31.45	28.530	
5,300.00	5,106.75	5,152.66	5,111.90	23.19	15.63	-125.59	-451.00	334.09	896.55	864.43	32.13	27.905	
5,400.00	5,206.75	5,251.61	5,209.81	23.29	15.98	-126.50	-462.30	342.87	896.10	863.29	32.81	27.314	
5,500.00	5,306.75	5,350.55	5,307.72	23.40	16.33	-127.41	-473.61	351.65	895.87	862.39	33.48	26.755	
5,546.38	5,353.13	5,396.45	5,353.13	23.45	16.50	-127.84	-478.85	355.72	895.85	862.05	33.80	26.507	
5,600.00	5,406.75	5,449.50	5,405.63	23.51	16.69	-128.33	-484.91	360.42	895.88	861.72	34.16	26.228	
5,700.00	5,506.75	5,548.45	5,503.54	23.62	17.04	-129.24	-496.21	369.20	896.12	861.29	34.83	25.730	
5,800.00	5,606.75	5,647.40	5,601.44	23.73	17.39	-130.16	-507.51	377.98	896.60	861.10	35.50	25.260	
5,900.00	5,706.75	5,746.35	5,699.35	23.84	17.75	-131.07	-518.82	386.76	897.31	861.15	36.16	24.816	
6,000.00	5,806.75	5,847.55	5,799.72	23.95	18.02	-131.89	-529.01	394.68	898.12	861.40	36.72	24.458	
6,100.00	5,906.75	5,949.56	5,901.29	24.07	18.24	-132.49	-536.45	400.46	898.83	861.64	37.19	24.168	
6,200.00	6,006.75	6,052.13	6,003.69	24.19	18.42	-132.86	-541.05	404.03	899.31	861.72	37.59	23.927	
6,300.00	6,106.75	6,154.98	6,106.51	24.30	18.58	-133.00	-542.75	405.35	899.49	861.58	37.92	23.722	
6,400.00	6,206.75	6,255.22	6,206.75	24.42	18.72	-133.00	-542.76	405.36	899.49	861.29	38.21	23.544	
6,500.00	6,306.75	6,355.22	6,306.75	24.55	18.86	-133.00	-542.76	405.36	899.49	861.00	38.49	23.369	
6,600.00	6,406.75	6,455.22	6,406.75	24.67	18.99	-133.00	-542.76	405.36	899.49	860.71	38.78	23.194	
6,700.00	6,506.75	6,555.22	6,506.75	24.79	19.13	-133.00	-542.76	405.36	899.49	860.42	39.07	23.021	
6,800.00	6,606.75	6,655.22	6,606.75	24.92	19.27	-133.00	-542.76	405.36	899.49	860.13	39.37	22.848	
6,900.00	6,706.75	6,755.22	6,706.75	25.05	19.42	-133.00	-542.76	405.36	899.49	859.83	39.67	22.677	
7,000.00	6,806.75	6,855.22	6,806.75	25.17	19.56	-133.00	-542.76	405.36	899.49	859.53	39.97	22.506	
7,100.00	6,906.75	6,955.22	6,906.75	25.30	19.71	-133.00	-542.76	405.36	899.49	859.22	40.27	22.336	
7,200.00	7,006.75	7,055.22	7,006.75	25.44	19.85	-133.00	-542.76	405.36	899.49	858.92	40.58	22.167	
7,300.00	7,106.75	7,155.22	7,106.75	25.57	20.00	-133.00	-542.76	405.36	899.49	858.61	40.89	22.000	
7,400.00	7,206.75	7,255.22	7,206.75	25.70	20.15	-133.00	-542.76	405.36	899.49	858.30	41.20	21.833	
7,500.00	7,306.75	7,355.22	7,306.75	25.84	20.30	-133.00	-542.76	405.36	899.49	857.98	41.51	21.668	
7,600.00	7,406.75	7,455.22	7,406.75	25.97	20.45	-133.00	-542.76	405.36	899.49	857.66	41.83	21.504	
7,700.00	7,506.75	7,555.22	7,506.75	26.11	20.61	-133.00	-542.76	405.36	899.49	857.35	42.15	21.341	
7,800.00	7,606.75	7,655.22	7,606.75	26.25	20.76	-133.00	-542.76	405.36	899.49	857.02	42.47	21.180	
7,900.00	7,706.75	7,755.22	7,706.75	26.39	20.92	-133.00	-542.76	405.36	899.49	856.70	42.79	21.019	
8,000.00	7,806.75	7,855.22	7,806.75	26.53	21.08	-133.00	-542.76	405.36	899.49	856.37	43.12	20.860	
8,100.00	7,906.75	7,955.22	7,906.75	26.67	21.24	-133.00	-542.76	405.36	899.49	856.05	43.45	20.703	
8,200.00	8,006.75	8,055.22	8,006.75	26.82	21.40	-133.00	-542.76	405.36	899.49	855.72	43.78	20.546	
8,225.25	8,032.00	8,080.47	8,032.00	26.85	21.44	-133.00	-542.76	405.36	899.49	855.63	43.86	20.507	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	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	-90.43	-0.36	-48.15	48.15					
100.00	100.00	100.00	100.00	0.10	0.10	-90.43	-0.36	-48.15	48.15	47.96	0.19	252.030		
200.00	200.00	200.00	200.00	0.32	0.32	-90.43	-0.36	-48.15	48.15	47.51	0.64	75.167		
300.00	300.00	300.00	300.00	0.55	0.55	-90.43	-0.36	-48.15	48.15	47.06	1.09	44.170		
400.00	400.00	400.00	400.00	0.77	0.77	-90.43	-0.36	-48.15	48.15	46.61	1.54	31.274		
500.00	500.00	500.00	500.00	0.99	0.99	-90.43	-0.36	-48.15	48.15	46.16	1.99	24.206		
600.00	600.00	600.00	600.00	1.22	1.22	-90.43	-0.36	-48.15	48.15	45.71	2.44	19.744		
700.00	700.00	700.00	700.00	1.44	1.44	-90.43	-0.36	-48.15	48.15	45.26	2.89	16.671		
800.00	800.00	800.00	800.00	1.67	1.67	-90.43	-0.36	-48.15	48.15	44.81	3.34	14.426		
900.00	900.00	900.00	900.00	1.89	1.89	-90.43	-0.36	-48.15	48.15	44.36	3.79	12.714		
1,000.00	1,000.00	1,000.00	1,000.00	2.12	2.12	-90.43	-0.36	-48.15	48.15	43.91	4.24	11.365 CC, ES		
1,100.00	1,099.98	1,098.51	1,098.49	2.33	2.32	-177.78	-1.31	-49.55	51.34	46.69	4.64	11.052 SF		
1,200.00	1,199.84	1,196.36	1,196.20	2.54	2.51	179.49	-4.12	-53.73	60.98	55.96	5.02	12.147		
1,300.00	1,299.45	1,292.91	1,292.40	2.76	2.70	176.46	-8.71	-60.57	77.17	71.77	5.40	14.300		
1,400.00	1,398.70	1,387.57	1,386.39	3.00	2.92	173.88	-14.96	-69.88	99.89	94.12	5.77	17.301		
1,500.00	1,497.47	1,479.77	1,477.53	3.27	3.16	171.87	-22.71	-81.42	128.99	122.84	6.15	20.971		
1,600.00	1,595.62	1,569.03	1,565.30	3.59	3.42	170.36	-31.77	-94.91	164.24	157.72	6.53	25.162		
1,700.00	1,693.06	1,657.68	1,651.99	3.95	3.72	169.22	-42.10	-110.27	205.09	198.18	6.91	29.689		
1,800.00	1,789.64	1,747.29	1,739.55	4.37	4.04	168.49	-52.73	-126.10	249.42	242.12	7.30	34.180		
1,900.00	1,885.27	1,835.34	1,825.59	4.85	4.38	168.05	-63.17	-141.64	296.79	289.10	7.69	38.604		
2,000.00	1,979.82	1,921.73	1,910.00	5.40	4.72	167.78	-73.42	-156.90	347.15	339.06	8.08	42.958		
2,100.00	2,073.17	2,006.35	1,992.68	6.02	5.06	167.62	-83.46	-171.84	400.42	391.94	8.48	47.242		
2,200.00	2,165.21	2,089.10	2,073.54	6.72	5.41	167.52	-93.28	-186.45	456.55	447.67	8.87	51.451		
2,224.24	2,187.31	2,108.86	2,092.85	6.90	5.49	167.50	-95.62	-189.94	470.57	461.60	8.97	52.461		
2,300.00	2,256.26	2,170.46	2,153.03	7.48	5.75	167.67	-102.93	-200.82	514.68	505.32	9.36	54.984		
2,400.00	2,347.27	2,251.75	2,232.46	8.27	6.10	167.85	-112.57	-215.18	572.89	563.01	9.89	57.954		
2,500.00	2,438.28	2,333.05	2,311.90	9.07	6.45	168.00	-122.21	-229.53	631.11	620.69	10.42	60.571		
2,600.00	2,529.29	2,414.34	2,391.33	9.88	6.81	168.12	-131.86	-243.89	689.33	678.37	10.96	62.888		
2,700.00	2,620.29	2,495.64	2,470.77	10.70	7.16	168.22	-141.50	-258.24	747.56	736.05	11.51	64.950		
2,800.00	2,711.30	2,576.93	2,550.20	11.53	7.53	168.31	-151.15	-272.60	805.78	793.72	12.06	66.790		
2,900.00	2,802.31	2,658.23	2,629.64	12.37	7.89	168.39	-160.79	-286.95	864.01	851.38	12.62	68.443		
3,000.00	2,893.31	2,739.52	2,709.07	13.21	8.25	168.45	-170.43	-301.31	922.23	909.05	13.19	69.934		
3,100.00	2,984.32	2,820.82	2,788.51	14.06	8.62	168.51	-180.08	-315.67	980.46	966.71	13.75	71.284		
3,200.00	3,075.33	2,902.11	2,867.94	14.91	8.99	168.57	-189.72	-330.02	1,038.69	1,024.37	14.32	72.511		
3,300.00	3,166.34	2,983.41	2,947.37	15.76	9.36	168.61	-199.36	-344.38	1,096.92	1,082.02	14.90	73.629		
3,400.00	3,257.34	3,064.70	3,026.81	16.61	9.73	168.65	-209.01	-358.73	1,155.15	1,139.67	15.47	74.652		
3,500.00	3,348.35	3,146.00	3,106.24	17.47	10.10	168.69	-218.65	-373.09	1,213.38	1,197.33	16.05	75.591		
3,552.01	3,395.69	3,188.29	3,147.56	17.91	10.29	168.71	-223.67	-380.55	1,243.66	1,227.31	16.35	76.051		
3,600.00	3,439.52	3,227.52	3,185.90	18.28	10.47	168.85	-228.32	-387.48	1,271.28	1,254.59	16.69	76.156		
3,700.00	3,531.89	3,310.73	3,267.20	18.92	10.85	169.11	-238.19	-402.18	1,326.75	1,309.38	17.37	76.391		
3,800.00	3,625.54	3,395.78	3,350.30	19.51	11.24	169.30	-248.28	-417.19	1,379.33	1,361.31	18.03	76.511		
3,900.00	3,720.35	3,482.57	3,435.11	20.06	11.64	169.45	-258.58	-432.52	1,428.97	1,410.30	18.67	76.537		
4,000.00	3,816.21	3,571.01	3,521.52	20.56	12.05	169.56	-269.07	-448.14	1,475.60	1,456.31	19.29	76.486		
4,100.00	3,913.01	3,660.97	3,609.43	21.00	12.47	169.62	-279.74	-464.02	1,519.17	1,499.28	19.89	76.371		
4,200.00	4,010.63	3,752.36	3,698.73	21.39	12.89	169.65	-290.58	-480.16	1,559.63	1,539.16	20.47	76.205		
4,300.00	4,108.94	3,845.06	3,789.30	21.74	13.32	169.65	-301.58	-496.53	1,596.94	1,575.92	21.01	75.994		
4,400.00	4,207.83	3,938.96	3,881.05	22.03	13.75	169.62	-312.72	-513.11	1,631.04	1,609.51	21.53	75.747		
4,500.00	4,307.18	4,033.94	3,973.86	22.26	14.19	169.56	-323.99	-529.89	1,661.92	1,639.90	22.02	75.470		
4,600.00	4,406.86	4,129.89	4,067.61	22.45	14.64	169.46	-335.37	-546.83	1,689.53	1,667.05	22.48	75.165		
4,700.00	4,506.76	4,226.69	4,162.20	22.60	15.09	169.34	-346.85	-563.92	1,713.84	1,690.94	22.90	74.838		
4,776.25	4,583.00	4,301.00	4,234.81	22.67	15.44	-104.57	-355.67	-577.04	1,730.15	1,706.95	23.20	74.572		
4,800.00	4,606.75	4,324.21	4,257.48	22.69	15.54	-104.63	-358.42	-581.14	1,734.93	1,711.63	23.31	74.439		

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Riverbend 7-13 PAD - P_Riverbend 25-13 - P_Riverbend 25-13 - PLAN #1 6-21-10 RHS												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.00	4,706.75	4,421.92	4,352.96	22.79	16.00	-104.85	-370.01	-598.40	1,755.08	1,731.32	23.76	73.869	
5,000.00	4,806.75	4,519.63	4,448.43	22.89	16.45	-105.08	-381.60	-615.65	1,775.25	1,751.04	24.21	73.319	
5,100.00	4,906.75	4,617.34	4,543.91	22.99	16.91	-105.30	-393.19	-632.91	1,795.45	1,770.78	24.67	72.789	
5,200.00	5,006.75	4,715.05	4,639.38	23.09	17.37	-105.51	-404.78	-650.16	1,815.67	1,790.55	25.12	72.276	
5,300.00	5,106.75	4,812.76	4,734.86	23.19	17.82	-105.72	-416.38	-667.41	1,835.91	1,810.34	25.58	71.781	
5,400.00	5,206.75	4,910.47	4,830.33	23.29	18.28	-105.92	-427.97	-684.67	1,856.18	1,830.15	26.03	71.303	
5,500.00	5,306.75	5,008.19	4,925.80	23.40	18.74	-106.12	-439.56	-701.92	1,876.47	1,849.98	26.49	70.840	
5,600.00	5,406.75	5,105.90	5,021.28	23.51	19.19	-106.32	-451.15	-719.18	1,896.78	1,869.84	26.95	70.393	
5,700.00	5,506.75	5,203.61	5,116.75	23.62	19.65	-106.51	-462.74	-736.43	1,917.12	1,889.71	27.40	69.960	
5,800.00	5,606.75	5,301.32	5,212.23	23.73	20.11	-106.70	-474.33	-753.69	1,937.47	1,909.61	27.86	69.540	
5,900.00	5,706.75	5,399.03	5,307.70	23.84	20.56	-106.88	-485.92	-770.94	1,957.84	1,929.52	28.32	69.134	
6,000.00	5,806.75	5,496.74	5,403.18	23.95	21.02	-107.06	-497.51	-788.20	1,978.23	1,949.46	28.78	68.740	
6,100.00	5,906.75	5,594.45	5,498.65	24.07	21.48	-107.24	-509.10	-805.45	1,998.64	1,969.41	29.24	68.359	
6,200.00	6,006.75	5,692.16	5,593.00	24.19	22.30	-107.60	-533.60	-841.92	2,016.52	1,986.53	29.99	67.232	
6,300.00	6,106.75	5,789.87	5,688.97	24.30	22.91	-107.81	-548.18	-863.62	2,024.66	1,993.91	30.75	65.846	
6,400.00	6,206.75	5,887.58	5,787.58	24.42	23.10	-107.82	-548.94	-864.75	2,025.08	1,993.88	31.20	64.916	
6,500.00	6,306.75	5,985.29	5,885.29	24.55	23.22	-107.82	-548.94	-864.75	2,025.08	1,993.54	31.54	64.207	
6,600.00	6,406.75	6,082.99	5,982.99	24.67	23.34	-107.82	-548.94	-864.75	2,025.08	1,993.19	31.89	63.508	
6,700.00	6,506.75	6,180.70	6,080.70	24.79	23.45	-107.82	-548.94	-864.75	2,025.08	1,992.84	32.24	62.819	
6,800.00	6,606.75	6,278.40	6,180.70	24.92	23.57	-107.82	-548.94	-864.75	2,025.08	1,992.49	32.59	62.140	
6,900.00	6,706.75	6,376.11	6,280.41	25.05	23.70	-107.82	-548.94	-864.75	2,025.08	1,992.13	32.94	61.472	
7,000.00	6,806.75	6,473.82	6,380.12	25.17	23.82	-107.82	-548.94	-864.75	2,025.08	1,991.78	33.30	60.813	
7,100.00	6,906.75	6,571.52	6,480.12	25.30	23.94	-107.82	-548.94	-864.75	2,025.08	1,991.42	33.66	60.165	
7,200.00	7,006.75	6,669.23	6,580.12	25.44	24.07	-107.82	-548.94	-864.75	2,025.08	1,991.06	34.02	59.526	
7,300.00	7,106.75	6,766.93	6,680.12	25.57	24.20	-107.82	-548.94	-864.75	2,025.08	1,990.69	34.38	58.897	
7,400.00	7,206.75	6,864.64	6,780.12	25.70	24.33	-107.82	-548.94	-864.75	2,025.08	1,990.33	34.75	58.278	
7,500.00	7,306.75	6,962.34	6,880.12	25.84	24.46	-107.82	-548.94	-864.75	2,025.08	1,989.96	35.12	57.669	
7,600.00	7,406.75	7,060.05	6,980.12	25.97	24.59	-107.82	-548.94	-864.75	2,025.08	1,989.59	35.48	57.069	
7,700.00	7,506.75	7,157.75	7,080.12	26.11	24.72	-107.82	-548.94	-864.75	2,025.08	1,989.22	35.86	56.479	
7,800.00	7,606.75	7,255.46	7,180.12	26.25	24.85	-107.82	-548.94	-864.75	2,025.08	1,988.85	36.23	55.898	
7,900.00	7,706.75	7,353.16	7,280.12	26.39	24.99	-107.82	-548.94	-864.75	2,025.08	1,988.47	36.60	55.326	
8,000.00	7,806.75	7,450.87	7,380.12	26.53	25.13	-107.82	-548.94	-864.75	2,025.08	1,988.10	36.98	54.763	
8,100.00	7,906.75	7,548.57	7,480.12	26.67	25.26	-107.82	-548.94	-864.75	2,025.08	1,987.72	37.36	54.210	
8,200.00	8,006.75	7,646.28	7,580.12	26.82	25.40	-107.82	-548.94	-864.75	2,025.08	1,987.34	37.74	53.665	
8,225.25	8,032.00	7,671.52	7,605.37	26.85	25.44	-107.82	-548.94	-864.75	2,025.08	1,987.24	37.83	53.529	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	
0.00	0.00	0.00	0.00	0.00	0.00	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 CC, ES	
400.00	400.00	399.41	399.39	0.77	0.76	89.81	0.06	17.68	17.69	16.16	1.53	11.577 SF	
500.00	500.00	498.57	498.42	0.99	0.97	89.42	0.23	22.83	22.89	20.92	1.97	11.614	
600.00	600.00	597.27	596.73	1.22	1.21	89.05	0.52	31.36	31.53	29.09	2.44	12.924	
700.00	700.00	695.26	694.01	1.44	1.49	88.79	0.91	43.16	43.59	40.65	2.94	14.807	
800.00	800.00	792.33	789.91	1.67	1.80	88.60	1.42	58.13	59.02	55.53	3.49	16.904	
900.00	900.00	888.27	884.14	1.89	2.15	88.48	2.02	76.11	77.77	73.68	4.09	19.020	
1,000.00	1,000.00	982.89	976.44	2.12	2.55	88.39	2.72	96.92	99.78	95.04	4.74	21.051	
1,100.00	1,099.98	1,076.45	1,066.97	2.33	3.00	2.15	3.51	120.48	123.28	118.63	4.66	26.482	
1,200.00	1,199.84	1,169.32	1,156.04	2.54	3.50	2.15	4.40	146.77	146.56	141.45	5.11	28.699	
1,300.00	1,299.45	1,261.55	1,243.59	2.76	4.06	2.19	5.37	175.73	169.59	164.02	5.57	30.453	
1,400.00	1,398.70	1,353.14	1,329.58	3.00	4.67	2.24	6.43	207.25	192.34	186.30	6.04	31.836	
1,500.00	1,497.47	1,444.12	1,413.94	3.27	5.34	2.31	7.57	241.27	214.80	208.28	6.53	32.914	
1,600.00	1,595.62	1,534.51	1,496.65	3.59	6.05	2.39	8.80	277.71	236.95	229.93	7.02	33.742	
1,700.00	1,693.06	1,631.03	1,584.15	3.95	6.87	2.49	10.16	318.44	257.71	250.16	7.55	34.113	
1,800.00	1,789.64	1,729.50	1,673.39	4.37	7.71	2.61	11.56	360.03	275.10	267.00	8.10	33.946	
1,900.00	1,885.27	1,828.51	1,763.13	4.85	8.57	2.74	12.97	401.85	289.05	280.38	8.67	33.356	
2,000.00	1,979.82	1,927.95	1,853.25	5.40	9.43	2.90	14.38	443.85	299.53	290.30	9.24	32.424	
2,100.00	2,073.17	2,027.70	1,943.65	6.02	10.30	3.09	15.79	485.98	306.55	296.73	9.82	31.215	
2,200.00	2,165.21	2,127.62	2,034.22	6.72	11.18	3.31	17.21	528.19	310.09	299.68	10.41	29.782	
2,224.24	2,187.31	2,151.85	2,056.18	6.90	11.39	3.36	17.56	538.42	310.43	299.87	10.56	29.405	
2,300.00	2,256.26	2,227.61	2,124.83	7.48	12.06	3.55	18.63	570.42	311.15	300.09	11.07	28.117	
2,400.00	2,347.27	2,327.59	2,215.45	8.27	12.94	3.79	20.05	612.65	312.12	300.37	11.75	26.567	
2,500.00	2,438.28	2,427.58	2,306.07	9.07	13.82	4.04	21.47	654.89	313.09	300.65	12.44	25.168	
2,600.00	2,529.29	2,527.57	2,396.69	9.88	14.70	4.28	22.89	697.12	314.07	300.93	13.14	23.902	
2,700.00	2,620.29	2,627.55	2,487.31	10.70	15.59	4.52	24.31	739.35	315.05	301.20	13.85	22.752	
2,800.00	2,711.30	2,727.54	2,577.93	11.53	16.47	4.75	25.73	781.58	316.04	301.48	14.56	21.704	
2,900.00	2,802.31	2,827.53	2,668.54	12.37	17.36	4.99	27.14	823.81	317.03	301.75	15.28	20.746	
3,000.00	2,893.31	2,927.51	2,759.16	13.21	18.25	5.23	28.56	866.05	318.03	302.02	16.01	19.867	
3,100.00	2,984.32	3,027.50	2,849.78	14.06	19.14	5.46	29.98	908.28	319.03	302.30	16.74	19.059	
3,200.00	3,075.33	3,127.49	2,940.40	14.91	20.02	5.69	31.40	950.51	320.04	302.57	17.48	18.313	
3,300.00	3,166.34	3,227.47	3,031.02	15.76	20.91	5.92	32.82	992.74	321.06	302.84	18.22	17.623	
3,400.00	3,257.34	3,327.46	3,121.64	16.61	21.80	6.15	34.24	1,034.98	322.08	303.11	18.96	16.983	
3,500.00	3,348.35	3,427.45	3,212.26	17.47	22.69	6.38	35.66	1,077.21	323.10	303.39	19.72	16.388	
3,552.01	3,395.69	3,479.45	3,259.39	17.91	23.15	6.50	36.40	1,099.18	323.64	303.53	20.11	16.094	
3,600.00	3,439.52	3,527.43	3,302.87	18.28	23.58	6.60	37.08	1,119.44	324.53	304.04	20.49	15.839	
3,700.00	3,531.89	3,627.32	3,393.40	18.92	24.47	6.76	38.50	1,161.63	328.96	307.72	21.24	15.490	
3,800.00	3,625.54	3,727.00	3,483.75	19.51	25.36	6.86	39.91	1,203.74	336.85	314.91	21.94	15.354	
3,900.00	3,720.35	3,826.35	3,573.79	20.06	26.24	6.89	41.32	1,245.70	348.19	325.60	22.59	15.411	
4,000.00	3,816.21	3,925.25	3,663.42	20.56	27.12	6.87	42.72	1,287.47	362.97	339.77	23.20	15.647	
4,100.00	3,913.01	4,023.57	3,752.53	21.00	28.00	6.79	44.12	1,329.00	381.16	357.41	23.75	16.051	
4,200.00	4,010.63	4,121.20	3,841.01	21.39	28.87	6.67	45.50	1,370.24	402.75	378.51	24.24	16.614	
4,300.00	4,108.94	4,218.02	3,928.76	21.74	29.73	6.53	46.88	1,411.13	427.72	403.04	24.68	17.329	
4,400.00	4,207.83	4,313.90	4,015.66	22.03	30.59	6.36	48.24	1,451.63	456.04	430.97	25.07	18.194	
4,500.00	4,307.18	4,408.74	4,101.61	22.26	31.43	6.18	49.59	1,491.69	487.67	462.28	25.39	19.206	
4,600.00	4,406.86	4,502.42	4,186.51	22.45	32.27	5.99	50.92	1,531.26	522.59	496.93	25.66	20.364	
4,700.00	4,506.76	4,594.82	4,270.25	22.60	33.09	5.81	52.23	1,570.28	560.74	534.87	25.87	21.672	
4,776.25	4,583.00	4,664.34	4,333.26	22.67	33.71	91.87	53.21	1,599.65	591.99	565.99	26.00	22.770	
4,800.00	4,606.75	4,685.87	4,352.77	22.69	33.90	91.80	53.52	1,608.74	602.01	575.91	26.10	23.063	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Riverbend 7-13 PAD - P_Riverbend 5-18 - P_Riverbend 5-18 - PLAN #1 6-21-10 RHS												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.00	4,706.75	4,776.50	4,434.91	22.79	34.71	91.56	54.80	1,647.02	644.20	617.65	26.55	24.262	
5,000.00	4,806.75	4,867.13	4,517.05	22.89	35.52	91.35	56.09	1,685.30	686.40	659.40	27.01	25.415	
5,100.00	4,906.75	4,957.76	4,599.19	22.99	36.33	91.16	57.38	1,723.58	728.61	701.14	27.47	26.525	
5,200.00	5,006.75	5,048.39	4,681.33	23.09	37.14	90.99	58.66	1,761.86	770.83	742.89	27.93	27.594	
5,300.00	5,106.75	5,139.02	4,763.47	23.19	37.94	90.84	59.95	1,800.14	813.05	784.64	28.40	28.625	
5,400.00	5,206.75	5,229.65	4,845.61	23.29	38.75	90.70	61.24	1,838.42	855.27	826.39	28.88	29.618	
5,500.00	5,306.75	5,320.28	4,927.75	23.40	39.56	90.58	62.52	1,876.71	897.50	868.14	29.35	30.577	
5,600.00	5,406.75	5,410.91	5,009.89	23.51	40.37	90.46	63.81	1,914.99	939.73	909.90	29.83	31.503	
5,700.00	5,506.75	5,501.54	5,092.03	23.62	41.18	90.36	65.10	1,953.27	981.96	951.65	30.31	32.397	
5,800.00	5,606.75	5,592.18	5,174.17	23.73	41.99	90.27	66.38	1,991.55	1,024.19	993.40	30.79	33.260	
5,900.00	5,706.75	5,682.81	5,256.31	23.84	42.80	90.18	67.67	2,029.83	1,066.43	1,035.15	31.28	34.095	
6,000.00	5,806.75	5,773.44	5,338.45	23.95	43.61	90.10	68.95	2,068.11	1,108.67	1,076.91	31.76	34.902	
6,100.00	5,906.75	5,864.07	5,420.58	24.07	44.41	90.03	70.24	2,106.39	1,150.91	1,118.66	32.25	35.683	
6,200.00	6,006.75	6,004.99	5,549.35	24.19	45.44	89.92	72.16	2,163.59	1,191.67	1,158.79	32.87	36.249	
6,300.00	6,106.75	6,166.58	5,700.22	24.30	46.41	89.83	74.10	2,221.36	1,227.45	1,193.92	33.52	36.614	
6,400.00	6,206.75	6,334.82	5,860.50	24.42	47.28	89.76	75.82	2,272.39	1,257.80	1,223.64	34.16	36.820	
6,500.00	6,306.75	6,508.91	6,029.22	24.55	48.01	89.70	77.26	2,315.20	1,282.40	1,247.63	34.77	36.880	
6,600.00	6,406.75	6,687.83	6,204.98	24.67	48.58	89.66	78.37	2,348.43	1,301.00	1,265.65	35.34	36.809	
6,700.00	6,506.75	6,870.31	6,386.04	24.79	48.99	89.63	79.13	2,370.97	1,313.36	1,277.49	35.87	36.617	
6,800.00	6,606.75	7,054.97	6,570.33	24.92	49.24	89.62	79.50	2,382.01	1,319.34	1,283.01	36.34	36.310	
6,900.00	6,706.75	7,191.40	6,706.75	25.05	49.34	89.62	79.54	2,383.10	1,319.93	1,283.22	36.71	35.959	
7,000.00	6,806.75	7,291.40	6,806.75	25.17	49.40	89.62	79.54	2,383.10	1,319.93	1,282.90	37.03	35.643	
7,100.00	6,906.75	7,391.40	6,906.75	25.30	49.47	89.62	79.54	2,383.10	1,319.93	1,282.57	37.36	35.330	
7,200.00	7,006.75	7,491.40	7,006.75	25.44	49.54	89.62	79.54	2,383.10	1,319.93	1,282.24	37.69	35.020	
7,300.00	7,106.75	7,591.40	7,106.75	25.57	49.61	89.62	79.54	2,383.10	1,319.93	1,281.91	38.02	34.713	
7,400.00	7,206.75	7,691.40	7,206.75	25.70	49.67	89.62	79.54	2,383.10	1,319.93	1,281.57	38.36	34.410	
7,500.00	7,306.75	7,791.40	7,306.75	25.84	49.74	89.62	79.54	2,383.10	1,319.93	1,281.23	38.70	34.110	
7,600.00	7,406.75	7,891.40	7,406.75	25.97	49.81	89.62	79.54	2,383.10	1,319.93	1,280.90	39.04	33.814	
7,700.00	7,506.75	7,991.40	7,506.75	26.11	49.89	89.62	79.54	2,383.10	1,319.93	1,280.55	39.38	33.521	
7,800.00	7,606.75	8,091.40	7,606.75	26.25	49.96	89.62	79.54	2,383.10	1,319.93	1,280.21	39.72	33.231	
7,900.00	7,706.75	8,191.40	7,706.75	26.39	50.03	89.62	79.54	2,383.10	1,319.93	1,279.87	40.06	32.945	
8,000.00	7,806.75	8,291.40	7,806.75	26.53	50.11	89.62	79.54	2,383.10	1,319.93	1,279.52	40.41	32.662	
8,100.00	7,906.75	8,391.40	7,906.75	26.67	50.18	89.62	79.54	2,383.10	1,319.93	1,279.17	40.76	32.382	
8,200.00	8,006.75	8,491.40	8,006.75	26.82	50.26	89.62	79.54	2,383.10	1,319.93	1,278.82	41.11	32.106	
8,214.75	8,021.51	8,506.15	8,021.51	26.84	50.27	89.62	79.54	2,383.10	1,319.93	1,278.77	41.16	32.066	
8,225.25	8,032.00	8,511.65	8,027.00	26.85	50.27	89.62	79.54	2,383.10	1,319.94	1,278.75	41.19	32.043	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 ft
Survey Program: 0-MWD												Offset Well Error:	0.00 ft
Reference		Offset		Semi Major Axis			Distance						
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-90.52	-0.73	-80.06	80.07				
100.00	100.00	100.00	100.00	0.10	0.10	-90.52	-0.73	-80.06	80.07	79.87	0.19	419.078	
200.00	200.00	200.00	200.00	0.32	0.32	-90.52	-0.73	-80.06	80.07	79.42	0.64	124.988	
300.00	300.00	300.00	300.00	0.55	0.55	-90.52	-0.73	-80.06	80.07	78.98	1.09	73.447 CC, ES	
400.00	400.00	397.25	397.23	0.77	0.75	-90.46	-0.66	-81.71	81.76	80.24	1.52	53.676	
500.00	500.00	494.27	494.12	0.99	0.97	-90.30	-0.46	-86.64	86.84	84.88	1.96	44.305	
600.00	600.00	590.85	590.35	1.22	1.20	-90.08	-0.12	-94.80	95.29	92.87	2.42	39.386	
700.00	700.00	686.77	685.60	1.44	1.47	-89.82	0.34	-106.11	107.08	104.17	2.91	36.813	
800.00	800.00	781.83	779.56	1.67	1.77	-89.56	0.93	-120.45	122.18	118.74	3.44	35.568	
900.00	900.00	875.82	871.96	1.89	2.11	-89.32	1.63	-137.69	140.53	136.52	4.00	35.105 SF	
1,000.00	1,000.00	968.58	962.53	2.12	2.50	-89.11	2.45	-157.66	162.07	157.45	4.62	35.113	
1,100.00	1,099.98	1,059.49	1,050.62	2.33	2.93	-175.12	3.37	-180.06	188.41	183.82	4.59	41.006	
1,200.00	1,199.84	1,149.38	1,137.02	2.54	3.40	-175.02	4.39	-204.86	220.98	215.97	5.01	44.116	
1,300.00	1,299.45	1,242.42	1,226.22	2.76	3.92	-174.99	5.47	-231.29	257.62	252.19	5.43	47.442	
1,400.00	1,398.70	1,334.13	1,314.14	3.00	4.44	-175.00	6.54	-257.35	297.48	291.63	5.84	50.913	
1,500.00	1,497.47	1,424.40	1,400.68	3.27	4.96	-175.04	7.59	-282.99	340.50	334.25	6.25	54.513	
1,600.00	1,595.62	1,513.11	1,485.73	3.59	5.48	-175.10	8.62	-308.19	386.63	379.99	6.64	58.232	
1,700.00	1,693.06	1,600.16	1,569.19	3.95	5.99	-175.16	9.64	-332.93	435.83	428.80	7.02	62.061	
1,800.00	1,789.64	1,685.44	1,650.96	4.37	6.49	-175.22	10.63	-357.15	488.02	480.62	7.40	65.988	
1,900.00	1,885.27	1,768.86	1,730.93	4.85	6.98	-175.28	11.60	-380.85	543.15	535.39	7.76	70.004	
2,000.00	1,979.82	1,850.30	1,809.01	5.40	7.47	-175.33	12.55	-403.99	601.15	593.04	8.11	74.101	
2,100.00	2,073.17	1,929.67	1,885.10	6.02	7.94	-175.38	13.47	-426.54	661.96	653.50	8.46	78.269	
2,200.00	2,165.21	2,006.87	1,959.12	6.72	8.40	-175.42	14.37	-448.47	725.49	716.70	8.79	82.498	
2,224.24	2,187.31	2,025.24	1,976.73	6.90	8.51	-175.43	14.59	-453.69	741.29	732.42	8.87	83.531	
2,300.00	2,256.26	2,082.47	2,031.60	7.48	8.85	-175.55	15.25	-469.95	790.93	781.69	9.24	85.622	
2,400.00	2,347.27	2,158.01	2,104.02	8.27	9.30	-175.68	16.13	-491.41	856.44	846.72	9.72	88.077	
2,500.00	2,438.28	2,233.54	2,176.43	9.07	9.75	-175.80	17.01	-512.87	921.96	911.74	10.22	90.236	
2,600.00	2,529.29	2,309.08	2,248.85	9.88	10.20	-175.90	17.89	-534.32	987.48	976.76	10.72	92.145	
2,700.00	2,620.29	2,384.61	2,321.27	10.70	10.65	-175.99	18.77	-555.78	1,053.00	1,041.78	11.22	93.842	
2,800.00	2,711.30	2,460.15	2,393.68	11.53	11.10	-176.07	19.65	-577.24	1,118.52	1,106.79	11.73	95.359	
2,900.00	2,802.31	2,535.68	2,466.10	12.37	11.56	-176.14	20.53	-598.70	1,184.05	1,171.81	12.24	96.721	
3,000.00	2,893.31	2,611.22	2,538.52	13.21	12.01	-176.20	21.41	-620.16	1,249.57	1,236.82	12.76	97.950	
3,100.00	2,984.32	2,686.75	2,610.93	14.06	12.46	-176.26	22.29	-641.62	1,315.10	1,301.82	13.28	99.063	
3,200.00	3,075.33	2,762.29	2,683.35	14.91	12.91	-176.31	23.17	-663.08	1,380.63	1,366.83	13.80	100.074	
3,300.00	3,166.34	2,837.82	2,755.77	15.76	13.37	-176.36	24.05	-684.54	1,446.15	1,431.83	14.32	100.998	
3,400.00	3,257.34	2,913.35	2,828.19	16.61	13.82	-176.40	24.93	-706.00	1,511.68	1,496.84	14.84	101.844	
3,500.00	3,348.35	2,988.89	2,900.60	17.47	14.27	-176.44	25.81	-727.45	1,577.21	1,561.84	15.37	102.622	
3,552.01	3,395.69	3,028.18	2,938.27	17.91	14.51	-176.46	26.26	-738.62	1,611.29	1,595.65	15.64	103.001	
3,600.00	3,439.52	3,064.69	2,973.27	18.28	14.73	-176.52	26.69	-748.99	1,642.43	1,626.44	15.99	102.737	
3,700.00	3,531.89	3,142.41	3,047.79	18.92	15.20	-176.64	27.59	-771.07	1,705.34	1,688.66	16.68	102.255	
3,800.00	3,625.54	3,222.28	3,124.36	19.51	15.68	-176.74	28.53	-793.76	1,765.50	1,748.15	17.35	101.747	
3,900.00	3,720.35	3,304.20	3,202.90	20.06	16.17	-176.83	29.48	-817.03	1,822.85	1,804.84	18.01	101.223	
4,000.00	3,816.21	3,388.07	3,283.31	20.56	16.67	-176.90	30.46	-840.86	1,877.30	1,858.65	18.64	100.689	
4,100.00	3,913.01	3,473.78	3,365.48	21.00	17.19	-176.95	31.45	-865.21	1,928.80	1,909.54	19.26	100.149	
4,200.00	4,010.63	3,561.24	3,449.33	21.39	17.71	-177.00	32.47	-890.06	1,977.28	1,957.43	19.85	99.609	
4,300.00	4,108.94	3,650.33	3,534.74	21.74	18.25	-177.03	33.51	-915.37	2,022.68	2,002.26	20.42	99.070	
4,400.00	4,207.83	3,740.95	3,621.62	22.03	18.79	-177.05	34.56	-941.11	2,064.95	2,043.99	20.96	98.534	
4,500.00	4,307.18	3,832.98	3,709.86	22.26	19.35	-177.07	35.64	-967.26	2,104.03	2,082.57	21.47	98.003	
4,600.00	4,406.86	3,926.32	3,799.34	22.45	19.91	-177.08	36.72	-993.77	2,139.89	2,117.94	21.95	97.478	
4,700.00	4,506.76	4,020.85	3,889.97	22.60	20.48	-177.07	37.82	-1,020.63	2,172.47	2,150.06	22.41	96.959	
4,776.25	4,583.00	4,093.66	3,959.77	22.67	20.92	-90.87	38.67	-1,041.31	2,195.09	2,172.36	22.73	96.566	
4,800.00	4,606.75	4,116.43	3,981.60	22.69	21.05	-90.86	38.94	-1,047.78	2,201.83	2,179.00	22.84	96.420	

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

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Riverbend 7-13 PAD - P_Riverbend 6-13 - P_Riverbend 6-13 - PLAN #1 6-21-10 RHS												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.00	4,706.75	4,212.30	4,073.52	22.79	21.63	-90.82	40.05	-1,075.02	2,230.22	2,206.94	23.28	95.793	
5,000.00	4,806.75	4,308.17	4,165.43	22.89	22.21	-90.78	41.17	-1,102.25	2,258.62	2,234.89	23.73	95.183	
5,100.00	4,906.75	4,404.04	4,257.35	22.99	22.79	-90.74	42.29	-1,129.49	2,287.01	2,262.83	24.18	94.588	
5,200.00	5,006.75	4,499.92	4,349.26	23.09	23.36	-90.70	43.40	-1,156.73	2,315.41	2,290.78	24.63	94.009	
5,300.00	5,106.75	4,595.79	4,441.18	23.19	23.94	-90.67	44.52	-1,183.96	2,343.80	2,318.72	25.08	93.444	
5,400.00	5,206.75	4,691.66	4,533.09	23.29	24.52	-90.63	45.64	-1,211.20	2,372.20	2,346.67	25.54	92.894	
5,500.00	5,306.75	4,787.53	4,625.01	23.40	25.10	-90.60	46.75	-1,238.44	2,400.60	2,374.61	25.99	92.358	
5,600.00	5,406.75	4,883.41	4,716.93	23.51	25.67	-90.56	47.87	-1,265.68	2,429.00	2,402.55	26.45	91.836	
5,700.00	5,506.75	4,979.28	4,808.84	23.62	26.25	-90.53	48.98	-1,292.91	2,457.40	2,430.49	26.91	91.326	
5,800.00	5,606.75	5,075.15	4,900.76	23.73	26.83	-90.50	50.10	-1,320.15	2,485.80	2,458.43	27.37	90.830	
5,900.00	5,706.75	5,171.02	4,992.67	23.84	27.41	-90.46	51.22	-1,347.39	2,514.20	2,486.37	27.83	90.345	
6,000.00	5,806.75	5,266.90	5,084.59	23.95	27.98	-90.43	52.33	-1,374.62	2,542.60	2,514.31	28.29	89.873	
6,100.00	5,906.75	5,362.77	5,176.50	24.07	28.56	-90.40	53.45	-1,401.86	2,571.01	2,542.25	28.75	89.412	
6,200.00	6,006.75	5,458.64	5,268.42	24.19	29.14	-90.37	54.57	-1,429.10	2,599.41	2,570.19	29.22	88.963	
6,300.00	6,106.75	6,222.54	6,019.56	24.30	31.43	-90.24	59.73	-1,555.14	2,619.81	2,588.81	31.01	84.490	
6,400.00	6,206.75	6,409.75	6,206.75	24.42	31.60	-90.24	59.80	-1,556.73	2,619.95	2,588.47	31.48	83.221	
6,500.00	6,306.75	6,509.75	6,306.75	24.55	31.70	-90.24	59.80	-1,556.73	2,619.95	2,588.12	31.83	82.310	
6,600.00	6,406.75	6,609.75	6,406.75	24.67	31.79	-90.24	59.80	-1,556.73	2,619.95	2,587.77	32.18	81.412	
6,700.00	6,506.75	6,709.75	6,506.75	24.79	31.88	-90.24	59.80	-1,556.73	2,619.95	2,587.42	32.53	80.527	
6,800.00	6,606.75	6,809.75	6,606.75	24.92	31.98	-90.24	59.80	-1,556.73	2,619.95	2,587.06	32.89	79.657	
6,900.00	6,706.75	6,909.75	6,706.75	25.05	32.08	-90.24	59.80	-1,556.73	2,619.95	2,586.70	33.25	78.799	
7,000.00	6,806.75	7,009.75	6,806.75	25.17	32.18	-90.24	59.80	-1,556.73	2,619.95	2,586.34	33.61	77.955	
7,100.00	6,906.75	7,109.75	6,906.75	25.30	32.28	-90.24	59.80	-1,556.73	2,619.95	2,585.98	33.97	77.124	
7,200.00	7,006.75	7,209.75	7,006.75	25.44	32.38	-90.24	59.80	-1,556.73	2,619.95	2,585.62	34.33	76.306	
7,300.00	7,106.75	7,309.75	7,106.75	25.57	32.48	-90.24	59.80	-1,556.73	2,619.95	2,585.25	34.70	75.501	
7,400.00	7,206.75	7,409.75	7,206.75	25.70	32.59	-90.24	59.80	-1,556.73	2,619.95	2,584.88	35.07	74.708	
7,500.00	7,306.75	7,509.75	7,306.75	25.84	32.69	-90.24	59.80	-1,556.73	2,619.95	2,584.51	35.44	73.929	
7,600.00	7,406.75	7,609.75	7,406.75	25.97	32.80	-90.24	59.80	-1,556.73	2,619.95	2,584.14	35.81	73.161	
7,700.00	7,506.75	7,709.75	7,506.75	26.11	32.91	-90.24	59.80	-1,556.73	2,619.95	2,583.77	36.18	72.406	
7,800.00	7,606.75	7,809.75	7,606.75	26.25	33.02	-90.24	59.80	-1,556.73	2,619.95	2,583.39	36.56	71.664	
7,900.00	7,706.75	7,909.75	7,706.75	26.39	33.13	-90.24	59.80	-1,556.73	2,619.95	2,583.02	36.94	70.933	
8,000.00	7,806.75	8,009.75	7,806.75	26.53	33.24	-90.24	59.80	-1,556.73	2,619.95	2,582.64	37.31	70.214	
8,100.00	7,906.75	8,109.75	7,906.75	26.67	33.35	-90.24	59.80	-1,556.73	2,619.95	2,582.26	37.69	69.506	
8,200.00	8,006.75	8,209.75	8,006.75	26.82	33.47	-90.24	59.80	-1,556.73	2,619.95	2,581.88	38.08	68.810	
8,225.25	8,032.00	8,235.00	8,032.00	26.85	33.49	-90.24	59.80	-1,556.73	2,619.95	2,581.78	38.17	68.636	



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design		Riverbend 7-13 PAD - P_Riverbend 7-13 - P_Riverbend 7-13 - 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	-90.33	-0.36	-64.11	64.11					
100.00	100.00	100.00	100.00	0.10	0.10	-90.33	-0.36	-64.11	64.11	63.92	0.19	335.547		
200.00	200.00	200.00	200.00	0.32	0.32	-90.33	-0.36	-64.11	64.11	63.47	0.64	100.076		
300.00	300.00	300.00	300.00	0.55	0.55	-90.33	-0.36	-64.11	64.11	63.02	1.09	58.807		
400.00	400.00	400.00	400.00	0.77	0.77	-90.33	-0.36	-64.11	64.11	62.57	1.54	41.637		
500.00	500.00	500.00	500.00	0.99	0.99	-90.33	-0.36	-64.11	64.11	62.12	1.99	32.228		
600.00	600.00	600.00	600.00	1.22	1.22	-90.33	-0.36	-64.11	64.11	61.67	2.44	26.287		
700.00	700.00	700.00	700.00	1.44	1.44	-90.33	-0.36	-64.11	64.11	61.22	2.89	22.196		
800.00	800.00	800.00	800.00	1.67	1.67	-90.33	-0.36	-64.11	64.11	60.77	3.34	19.206		
900.00	900.00	900.00	900.00	1.89	1.89	-90.33	-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	-90.33	-0.36	-64.11	64.11	59.87	4.24	15.131	CC, ES	
1,100.00	1,099.98	1,097.76	1,097.74	2.33	2.32	-176.94	-0.77	-65.72	67.51	62.86	4.65	14.524	SF	
1,200.00	1,199.84	1,194.83	1,194.68	2.54	2.52	-177.99	-1.98	-70.53	77.70	72.67	5.03	15.450		
1,300.00	1,299.45	1,293.32	1,292.92	2.76	2.72	-179.10	-3.70	-77.33	93.33	87.92	5.41	17.238		
1,400.00	1,398.70	1,391.46	1,390.81	3.00	2.94	-179.90	-5.41	-84.12	112.45	106.65	5.80	19.387		
1,500.00	1,497.47	1,488.87	1,487.98	3.27	3.16	179.53	-7.11	-90.86	134.99	128.80	6.18	21.827		
1,600.00	1,595.62	1,585.44	1,584.30	3.59	3.38	179.15	-8.79	-97.54	160.93	154.36	6.57	24.506		
1,700.00	1,693.06	1,681.05	1,679.66	3.95	3.61	178.88	-10.46	-104.15	190.22	183.27	6.95	27.385		
1,800.00	1,789.64	1,775.57	1,773.94	4.37	3.83	178.70	-12.11	-110.69	222.84	215.51	7.32	30.430		
1,900.00	1,885.27	1,868.90	1,867.03	4.85	4.06	178.58	-13.74	-117.15	258.73	251.03	7.70	33.614		
2,000.00	1,979.82	1,960.92	1,958.82	5.40	4.28	178.50	-15.34	-123.52	297.86	289.79	8.07	36.916		
2,100.00	2,073.17	2,051.52	2,049.19	6.02	4.51	178.45	-16.92	-129.79	340.18	331.74	8.44	40.316		
2,200.00	2,165.21	2,140.59	2,138.03	6.72	4.73	178.41	-18.48	-135.95	385.63	376.82	8.80	43.800		
2,224.24	2,187.31	2,161.93	2,159.32	6.90	4.78	178.41	-18.85	-137.43	397.11	388.22	8.89	44.655		
2,300.00	2,256.26	2,228.50	2,225.72	7.48	4.95	178.41	-20.01	-142.03	433.28	424.02	9.26	46.802		
2,400.00	2,347.27	2,316.37	2,313.36	8.27	5.17	178.42	-21.54	-148.11	481.03	471.28	9.75	49.351		
2,500.00	2,438.28	2,404.24	2,401.00	9.07	5.39	178.42	-23.08	-154.19	528.77	518.53	10.24	51.620		
2,600.00	2,529.29	2,492.10	2,488.65	9.88	5.61	178.43	-24.61	-160.27	576.52	565.77	10.75	53.648		
2,700.00	2,620.29	2,579.97	2,576.29	10.70	5.83	178.43	-26.14	-166.35	624.26	613.01	11.25	55.469		
2,800.00	2,711.30	2,667.83	2,663.93	11.53	6.06	178.43	-27.68	-172.43	672.01	660.24	11.77	57.112		
2,900.00	2,802.31	2,755.70	2,751.57	12.37	6.28	178.43	-29.21	-178.51	719.75	707.47	12.28	58.599		
3,000.00	2,893.31	2,843.56	2,839.21	13.21	6.51	178.43	-30.74	-184.59	767.50	754.70	12.80	59.951		
3,100.00	2,984.32	2,931.43	2,926.85	14.06	6.73	178.44	-32.27	-190.67	815.24	801.92	13.32	61.184		
3,200.00	3,075.33	3,019.30	3,014.50	14.91	6.96	178.44	-33.81	-196.75	862.99	849.14	13.85	62.313		
3,300.00	3,166.34	3,107.16	3,102.14	15.76	7.18	178.44	-35.34	-202.83	910.73	896.36	14.38	63.350		
3,400.00	3,257.34	3,195.03	3,189.78	16.61	7.41	178.44	-36.87	-208.91	958.48	943.57	14.91	64.305		
3,500.00	3,348.35	3,282.89	3,277.42	17.47	7.64	178.44	-38.41	-214.99	1,006.22	990.79	15.44	65.187		
3,552.01	3,395.69	3,328.60	3,323.01	17.91	7.75	178.44	-39.20	-218.15	1,031.06	1,015.35	15.71	65.620		
3,600.00	3,439.52	3,370.95	3,365.25	18.28	7.86	178.45	-39.94	-221.08	1,053.61	1,037.59	16.03	65.730		
3,700.00	3,531.89	3,460.39	3,454.47	18.92	8.09	178.48	-41.50	-227.27	1,098.33	1,081.67	16.66	65.932		
3,800.00	3,625.54	3,551.34	3,545.18	19.51	8.33	178.49	-43.09	-233.57	1,139.89	1,122.62	17.27	66.019		
3,900.00	3,720.35	3,643.68	3,637.29	20.06	8.57	178.50	-44.70	-239.96	1,178.26	1,160.41	17.85	66.011		
4,000.00	3,816.21	3,737.30	3,730.67	20.56	8.81	178.50	-46.33	-246.43	1,213.38	1,194.97	18.41	65.919		
4,100.00	3,913.01	3,832.10	3,825.22	21.00	9.06	178.50	-47.99	-252.99	1,245.21	1,226.27	18.94	65.756		
4,200.00	4,010.63	3,927.94	3,920.82	21.39	9.31	178.49	-49.66	-259.62	1,273.72	1,254.28	19.44	65.529		
4,300.00	4,108.94	4,024.72	4,017.36	21.74	9.56	178.48	-51.35	-266.32	1,298.86	1,278.96	19.91	65.247		
4,400.00	4,207.83	4,122.32	4,114.70	22.03	9.81	178.46	-53.05	-273.07	1,320.62	1,300.27	20.34	64.914		
4,500.00	4,307.18	4,220.61	4,212.75	22.26	10.07	178.43	-54.77	-279.88	1,338.95	1,318.21	20.75	64.535		
4,600.00	4,406.86	4,319.49	4,311.37	22.45	10.33	178.41	-56.49	-286.72	1,353.85	1,332.73	21.12	64.112		
4,700.00	4,506.76	4,418.82	4,410.45	22.60	10.59	178.37	-58.22	-293.59	1,365.29	1,343.84	21.45	63.649		
4,776.25	4,583.00	4,494.80	4,486.24	22.67	10.79	-95.46	-59.55	-298.85	1,371.68	1,350.00	21.68	63.267		
4,800.00	4,606.75	4,518.49	4,509.87	22.69	10.85	-95.47	-59.96	-300.49	1,373.35	1,351.58	21.77	63.075		

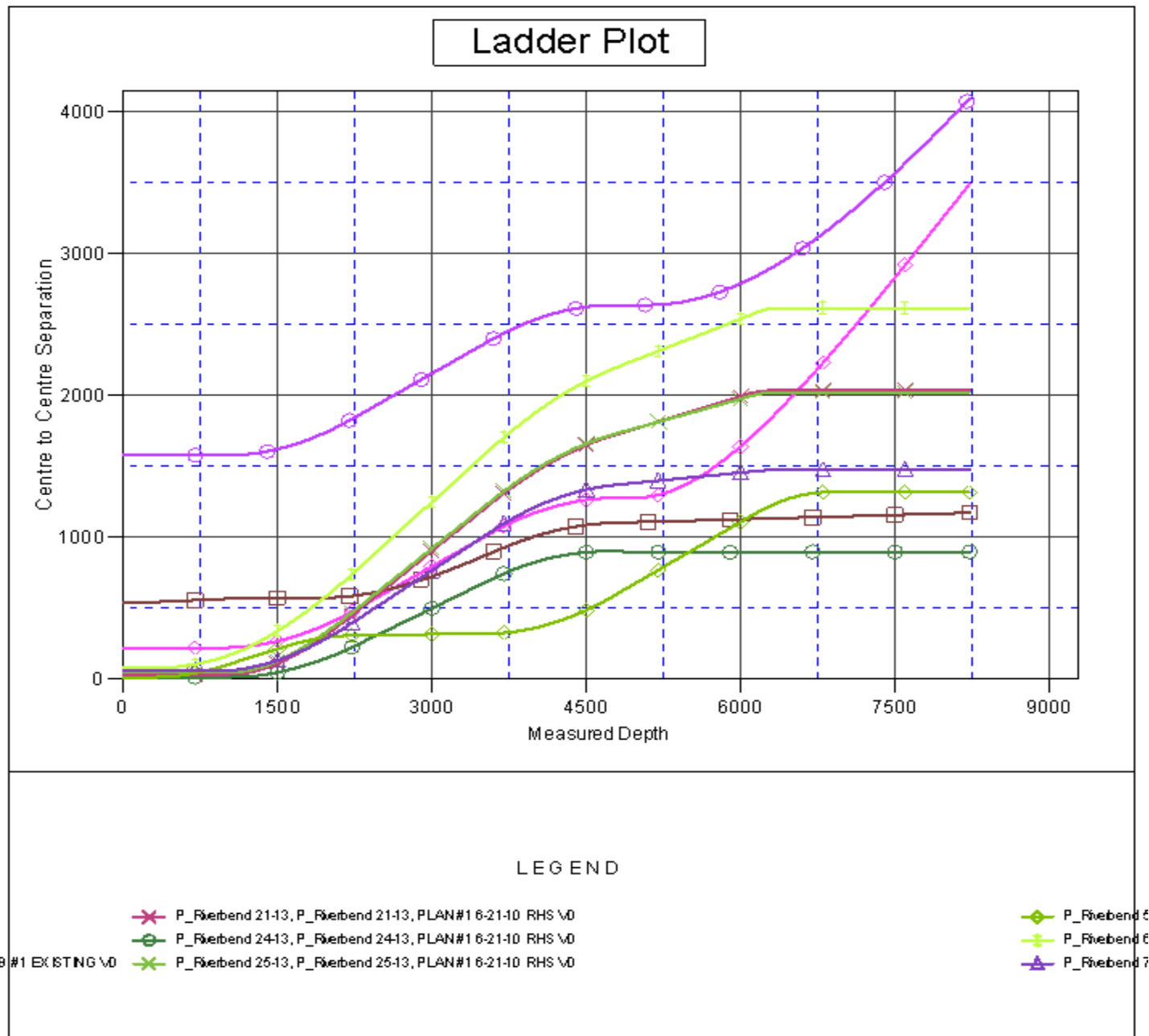
CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Riverbend 7-13 PAD - P_Riverbend 7-13 - P_Riverbend 7-13 - PLAN #1 6-21-10 RHS												<b>Offset Site Error:</b>	0.00 ft
Survey Program: 0-MWD												<b>Offset Well Error:</b>	0.00 ft
Reference	Offset	Semi Major Axis		Distance									
Measured Depth (ft)	Vertical Depth (ft)	Measured Depth (ft)	Vertical Depth (ft)	Reference (ft)	Offset (ft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (ft)	+E/-W (ft)	Between Centres (ft)	Between Ellipses (ft)	Minimum Separation (ft)	Separation Factor	Warning
4,900.00	4,706.75	4,618.23	4,609.36	22.79	11.11	-95.52	-61.70	-307.39	1,380.41	1,358.24	22.17	62.262	
5,000.00	4,806.75	4,717.98	4,708.85	22.89	11.37	-95.56	-63.44	-314.29	1,387.47	1,364.89	22.57	61.472	
5,100.00	4,906.75	4,817.72	4,808.34	22.99	11.63	-95.61	-65.18	-321.19	1,394.52	1,371.55	22.97	60.705	
5,200.00	5,006.75	4,917.47	4,907.83	23.09	11.89	-95.65	-66.92	-328.09	1,401.58	1,378.20	23.37	59.961	
5,300.00	5,106.75	5,017.21	5,007.32	23.19	12.15	-95.69	-68.66	-335.00	1,408.64	1,384.86	23.78	59.237	
5,400.00	5,206.75	5,116.96	5,106.81	23.29	12.41	-95.73	-70.40	-341.90	1,415.70	1,391.51	24.19	58.534	
5,500.00	5,306.75	5,216.70	5,206.30	23.40	12.67	-95.78	-72.14	-348.80	1,422.76	1,398.16	24.59	57.850	
5,600.00	5,406.75	5,316.45	5,305.79	23.51	12.93	-95.82	-73.88	-355.70	1,429.82	1,404.81	25.00	57.186	
5,700.00	5,506.75	5,416.19	5,405.28	23.62	13.20	-95.86	-75.62	-362.60	1,436.88	1,411.47	25.41	56.540	
5,800.00	5,606.75	5,515.94	5,504.77	23.73	13.46	-95.90	-77.36	-369.50	1,443.94	1,418.12	25.83	55.911	
5,900.00	5,706.75	5,615.68	5,604.26	23.84	13.72	-95.94	-79.10	-376.41	1,451.00	1,424.76	26.24	55.300	
6,000.00	5,806.75	5,715.43	5,703.75	23.95	13.98	-95.98	-80.84	-383.31	1,458.07	1,431.41	26.65	54.705	
6,100.00	5,906.75	5,815.17	5,803.25	24.07	14.24	-96.02	-82.58	-390.21	1,465.13	1,438.06	27.07	54.126	
6,200.00	6,006.75	5,914.92	5,902.74	24.19	14.50	-96.06	-84.32	-397.11	1,472.20	1,444.71	27.49	53.563	
6,300.00	6,106.75	6,014.67	6,002.04	24.30	14.86	-96.11	-86.06	-404.01	1,479.26	1,451.36	27.91	52.999	
6,400.00	6,206.75	6,114.42	6,101.79	24.42	15.09	-96.11	-86.68	-406.47	1,478.07	1,449.62	28.45	51.950	
6,500.00	6,306.75	6,214.17	6,201.54	24.55	15.27	-96.11	-86.68	-406.47	1,478.07	1,449.24	28.84	51.255	
6,600.00	6,406.75	6,313.92	6,301.29	24.67	15.46	-96.11	-86.68	-406.47	1,478.07	1,448.85	29.23	50.576	
6,700.00	6,506.75	6,413.67	6,401.04	24.79	15.64	-96.11	-86.68	-406.47	1,478.07	1,448.46	29.61	49.911	
6,800.00	6,606.75	6,513.42	6,500.79	24.92	15.82	-96.11	-86.68	-406.47	1,478.07	1,448.07	30.01	49.260	
6,900.00	6,706.75	6,613.17	6,600.54	25.05	16.01	-96.11	-86.68	-406.47	1,478.07	1,447.68	30.40	48.624	
7,000.00	6,806.75	6,712.92	6,700.29	25.17	16.20	-96.11	-86.68	-406.47	1,478.07	1,447.28	30.79	48.002	
7,100.00	6,906.75	6,812.67	6,800.04	25.30	16.38	-96.11	-86.68	-406.47	1,478.07	1,446.89	31.19	47.393	
7,200.00	7,006.75	6,912.42	6,900.19	25.44	16.57	-96.11	-86.68	-406.47	1,478.07	1,446.49	31.58	46.797	
7,300.00	7,106.75	7,012.17	7,000.34	25.57	16.76	-96.11	-86.68	-406.47	1,478.07	1,446.09	31.98	46.214	
7,400.00	7,206.75	7,111.92	7,100.09	25.70	16.95	-96.11	-86.68	-406.47	1,478.07	1,445.69	32.38	45.643	
7,500.00	7,306.75	7,211.67	7,200.24	25.84	17.14	-96.11	-86.68	-406.47	1,478.07	1,445.29	32.78	45.085	
7,600.00	7,406.75	7,311.42	7,300.39	25.97	17.33	-96.11	-86.68	-406.47	1,478.07	1,444.89	33.19	44.538	
7,700.00	7,506.75	7,411.17	7,400.54	26.11	17.53	-96.11	-86.68	-406.47	1,478.07	1,444.48	33.59	44.003	
7,800.00	7,606.75	7,510.92	7,500.69	26.25	17.72	-96.11	-86.68	-406.47	1,478.07	1,444.08	33.99	43.479	
7,900.00	7,706.75	7,610.67	7,600.84	26.39	17.91	-96.11	-86.68	-406.47	1,478.07	1,443.67	34.40	42.966	
8,000.00	7,806.75	7,710.42	7,700.99	26.53	18.11	-96.11	-86.68	-406.47	1,478.07	1,443.27	34.81	42.464	
8,100.00	7,906.75	7,810.17	7,801.14	26.67	18.30	-96.11	-86.68	-406.47	1,478.07	1,442.86	35.22	41.972	
8,200.00	8,006.75	7,909.92	7,901.29	26.82	18.50	-96.11	-86.68	-406.47	1,478.07	1,442.45	35.62	41.491	
8,225.25	8,032.00	8,044.44	8,032.00	26.85	18.55	-96.11	-86.68	-406.47	1,478.07	1,442.35	35.73	41.370	

<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

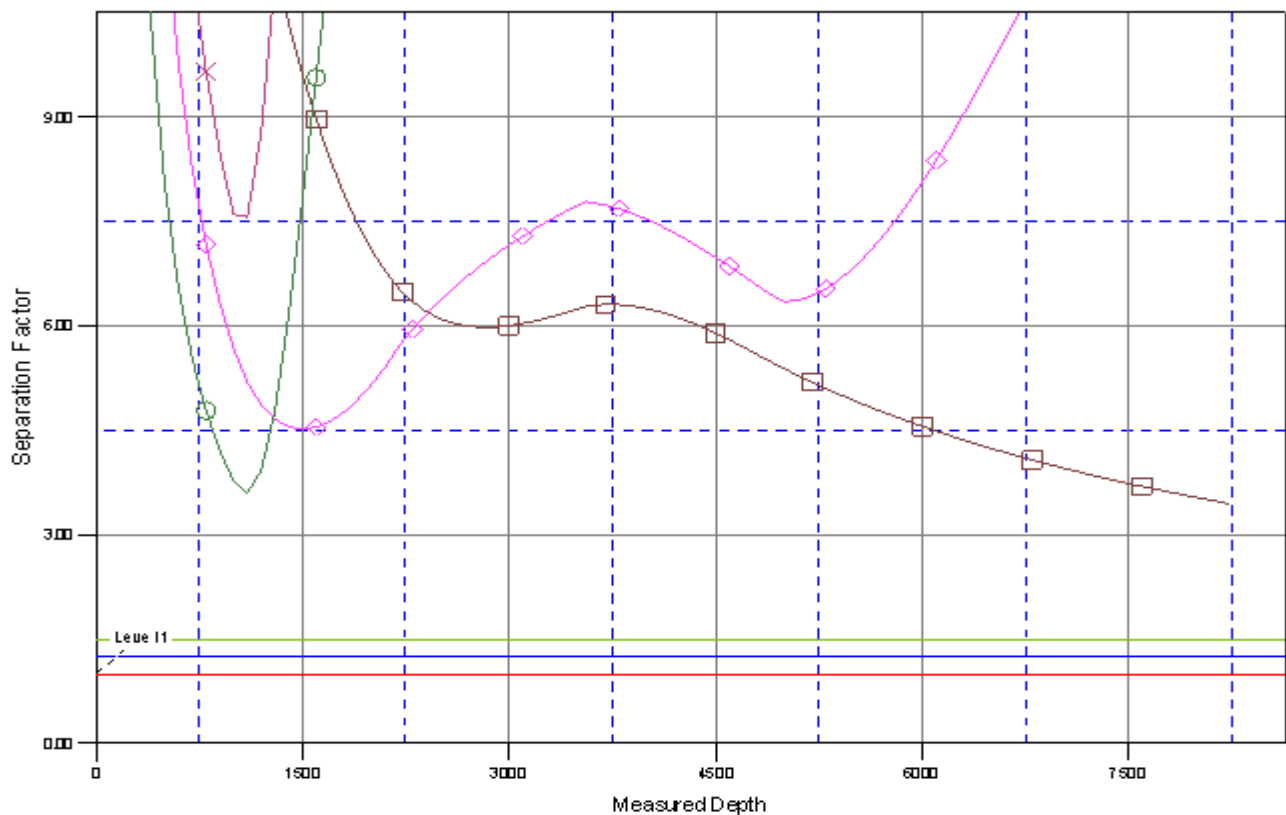
Reference Depths are relative to WELL @ 4932.00ft (Original Well Elev) Coordinates are relative to: P\_Riverbend 8-13  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W °  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 0.43°



<b>Company:</b>	US ROCKIES REGION PLANNING	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 8-13
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>TVD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Reference Site:</b>	Riverbend 7-13 PAD	<b>MD Reference:</b>	WELL @ 4932.00ft (Original Well Elev)
<b>Site Error:</b>	0.00ft	<b>North Reference:</b>	True
<b>Reference Well:</b>	P_Riverbend 8-13	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00ft	<b>Output errors are at</b>	2.00 sigma
<b>Reference Wellbore</b>	P_Riverbend 8-13	<b>Database:</b>	EDM 2003.21 Single User Db
<b>Reference Design:</b>	PLAN #1 6-21-10 RHS	<b>Offset TVD Reference:</b>	Offset Datum

Reference Depths are relative to WELL @ 4932.00ft (Original Well Elev) Coordinates are relative to: P\_Riverbend 8-13  
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 8-13
- ◇ P\_Riverbend 8-13
- △ P\_Riverbend 7-13