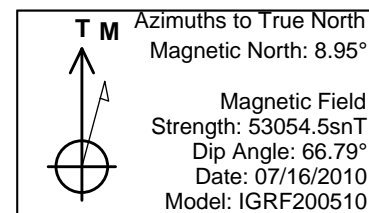
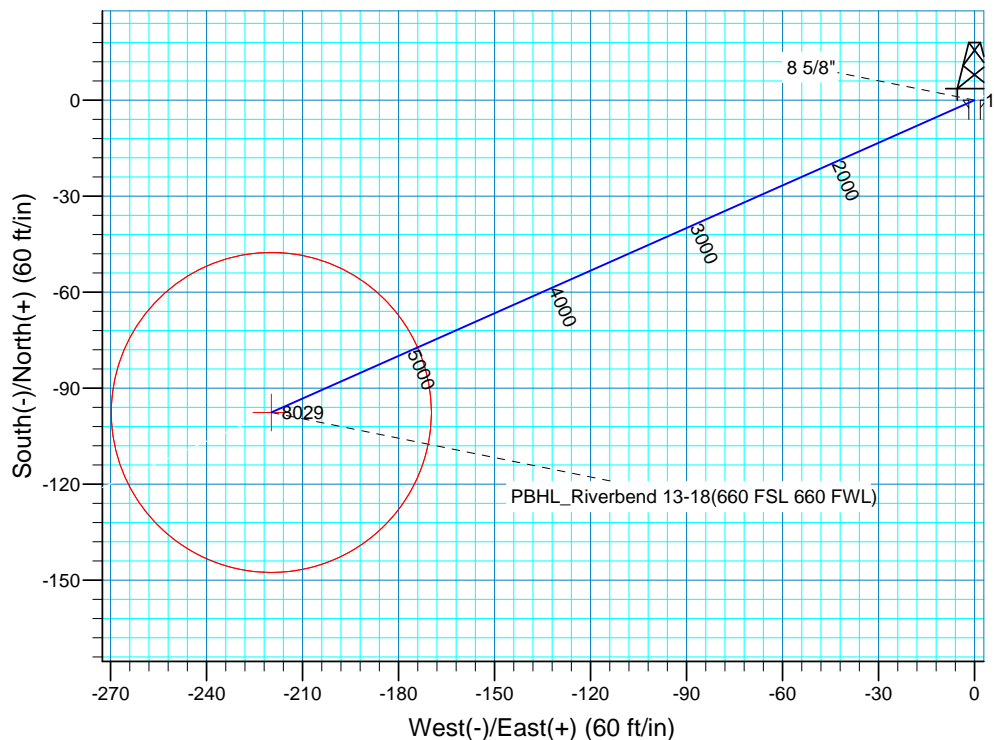
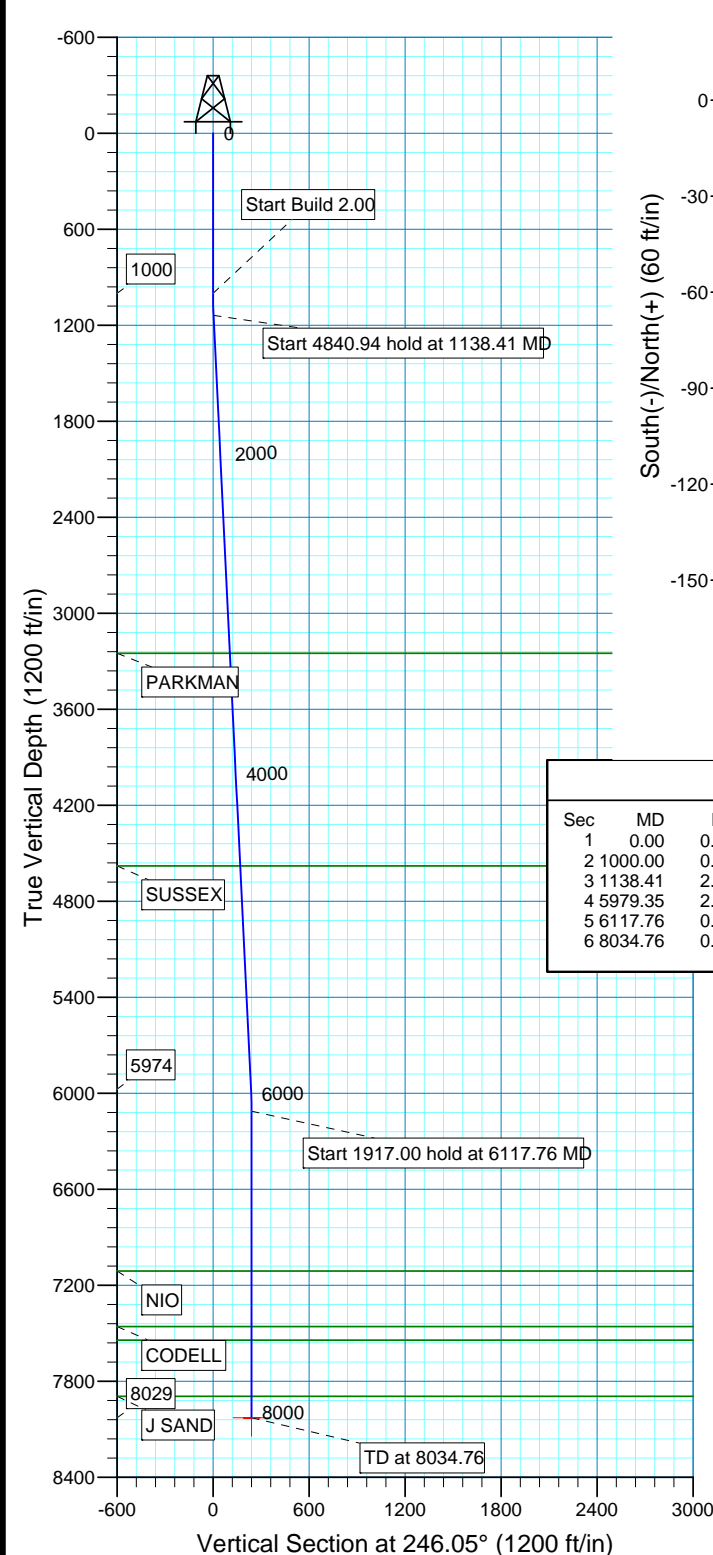


WELL DETAILS: P_Riverbend 13-18					
		GL 4919 & RKB 15' @ 4934.00ft (ASSUMED) 4919.00			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.00	0.00	1260291.37	3188540.86	40° 2' 45.323 N	104° 49' 35.576 W



WELLBORE TARGET DETAILS (MAP CO-ORDINATES AND LAT/LONG)								
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
PBHL	8029.00	-97.62	-219.77	1260192.08	3188321.83	40° 2' 44.358 N	104° 49' 38.402 W	Circle (Radius: 50.00)



SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	1000.00	0.00	0.00	1000.00	0.00	0.00	0.00	0.00	0.00	
3	1138.41	2.77	246.05	1138.36	-1.36	-3.06	2.00	246.05	3.34	
4	5979.35	2.77	246.05	5973.64	-96.26	-216.72	0.00	0.00	237.14	
5	6117.76	0.00	0.00	6112.00	-97.62	-219.77	2.00	180.00	240.48	
6	8034.76	0.00	0.00	8029.00	-97.62	-219.77	0.00	0.00	240.48	PBHL_Riverbend 13-18(660 FSL 660 F)

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
3250.00	3252.52	PARKMAN
4580.00	4584.07	SUSSEX
7112.00	7117.76	NIO
7459.00	7464.76	CODELL
7544.00	7549.76	GREENHORN
7894.00	7899.76	J SAND

PROJECT DETAILS: COLORADO NORTHERN ZONE - 83

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
Location: SECTION 18 T1N R66W  
System Datum: Mean Sea Level  
Local North: No north reference data is available

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_RIVERBEND 13-8 pad**

**P\_Riverbend 13-18**

**P\_Riverbend 13-18**

**Plan: Plan #1 7-16-10 RHS**

## **Standard Planning Report**

**19 July, 2010**

<b>Database:</b>	EDM 2003.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 13-18
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4919 & RKB 15' @ 4934.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4919 & RKB 15' @ 4934.00ft (ASSUMED)
<b>Site:</b>	WELD_RIVERBEND 13-8 pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Riverbend 13-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Riverbend 13-18		
<b>Design:</b>	Plan #1 7-16-10 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		WELD_RIVERBEND 13-8 pad, SECTION 18 T1N R66W			
Site Position:		Northing:	1,260,381.34 ft	Latitude:	40° 2' 46.212 N
From:	Lat/Long	Easting:	3,188,539.61 ft	Longitude:	104° 49' 35.584 W
Position Uncertainty:	0.00 ft	Slot Radius:	in	Grid Convergence:	0.44 °

Well	P_Riverbend 13-18, 756 FSL 880 FWL					
Well Position	+N-S	0.00 ft	Northing:	1,260,291.37 ft	Latitude:	40° 2' 45.323 N
	+E-W	0.00 ft	Easting:	3,188,540.86 ft	Longitude:	104° 49' 35.576 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	ft	Ground Level:	4,919.00 ft

<b>Wellbore</b>	P_Riverbend 13-18				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	07/16/10	8.95	66.79	53,055

<b>Design</b>	Plan #1 7-16-10 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	246.05

<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	
1,138.41	2.77	246.05	1,138.36	-1.36	-3.06	2.00	2.00	0.00	246.05	
5,979.35	2.77	246.05	5,973.64	-96.26	-216.72	0.00	0.00	0.00	0.00	
6,117.76	0.00	0.00	6,112.00	-97.62	-219.77	2.00	-2.00	0.00	180.00	
8,034.76	0.00	0.00	8,029.00	-97.62	-219.77	0.00	0.00	0.00	0.00	PBHL_Riverbend 1

<b>Database:</b>	EDM 2003.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 13-18
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4919 & RKB 15' @ 4934.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4919 & RKB 15' @ 4934.00ft (ASSUMED)
<b>Site:</b>	WELD_RIVERBEND 13-8 pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Riverbend 13-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Riverbend 13-18		
<b>Design:</b>	Plan #1 7-16-10 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)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	0.00	0.00	800.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	0.00	0.00	900.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>8 5/8"</b>									
1,000.00	0.00	0.00	1,000.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Start Build 2.00</b>									
1,100.00	2.00	246.05	1,099.98	-0.71	-1.59	1.75	2.00	2.00	0.00
1,138.41	2.77	246.05	1,138.36	-1.36	-3.06	3.34	2.00	2.00	0.00
<b>Start 4840.94 hold at 1138.41 MD</b>									
1,200.00	2.77	246.05	1,199.87	-2.56	-5.77	6.32	0.00	0.00	0.00
1,300.00	2.77	246.05	1,299.76	-4.53	-10.19	11.15	0.00	0.00	0.00
1,400.00	2.77	246.05	1,399.64	-6.49	-14.60	15.98	0.00	0.00	0.00
1,500.00	2.77	246.05	1,499.52	-8.45	-19.01	20.81	0.00	0.00	0.00
1,600.00	2.77	246.05	1,599.41	-10.41	-23.43	25.64	0.00	0.00	0.00
1,700.00	2.77	246.05	1,699.29	-12.37	-27.84	30.46	0.00	0.00	0.00
1,800.00	2.77	246.05	1,799.17	-14.33	-32.26	35.29	0.00	0.00	0.00
1,900.00	2.77	246.05	1,899.06	-16.29	-36.67	40.12	0.00	0.00	0.00
2,000.00	2.77	246.05	1,998.94	-18.25	-41.08	44.95	0.00	0.00	0.00
2,100.00	2.77	246.05	2,098.82	-20.21	-45.50	49.78	0.00	0.00	0.00
2,200.00	2.77	246.05	2,198.71	-22.17	-49.91	54.61	0.00	0.00	0.00
2,300.00	2.77	246.05	2,298.59	-24.13	-54.32	59.44	0.00	0.00	0.00
2,400.00	2.77	246.05	2,398.47	-26.09	-58.74	64.27	0.00	0.00	0.00
2,500.00	2.77	246.05	2,498.36	-28.05	-63.15	69.10	0.00	0.00	0.00
2,600.00	2.77	246.05	2,598.24	-30.01	-67.57	73.93	0.00	0.00	0.00
2,700.00	2.77	246.05	2,698.12	-31.97	-71.98	78.76	0.00	0.00	0.00
2,800.00	2.77	246.05	2,798.01	-33.93	-76.39	83.59	0.00	0.00	0.00
2,900.00	2.77	246.05	2,897.89	-35.89	-80.81	88.42	0.00	0.00	0.00
3,000.00	2.77	246.05	2,997.77	-37.85	-85.22	93.25	0.00	0.00	0.00
3,100.00	2.77	246.05	3,097.66	-39.81	-89.63	98.08	0.00	0.00	0.00
3,200.00	2.77	246.05	3,197.54	-41.77	-94.05	102.91	0.00	0.00	0.00
3,252.52	2.77	246.05	3,250.00	-42.80	-96.37	105.44	0.00	0.00	0.00
<b>PARKMAN</b>									
3,300.00	2.77	246.05	3,297.42	-43.74	-98.46	107.74	0.00	0.00	0.00
3,400.00	2.77	246.05	3,397.31	-45.70	-102.87	112.57	0.00	0.00	0.00
3,500.00	2.77	246.05	3,497.19	-47.66	-107.29	117.40	0.00	0.00	0.00
3,600.00	2.77	246.05	3,597.07	-49.62	-111.70	122.23	0.00	0.00	0.00
3,700.00	2.77	246.05	3,696.96	-51.58	-116.12	127.06	0.00	0.00	0.00
3,800.00	2.77	246.05	3,796.84	-53.54	-120.53	131.88	0.00	0.00	0.00
3,900.00	2.77	246.05	3,896.72	-55.50	-124.94	136.71	0.00	0.00	0.00
4,000.00	2.77	246.05	3,996.61	-57.46	-129.36	141.54	0.00	0.00	0.00
4,100.00	2.77	246.05	4,096.49	-59.42	-133.77	146.37	0.00	0.00	0.00
4,200.00	2.77	246.05	4,196.37	-61.38	-138.18	151.20	0.00	0.00	0.00
4,300.00	2.77	246.05	4,296.26	-63.34	-142.60	156.03	0.00	0.00	0.00
4,400.00	2.77	246.05	4,396.14	-65.30	-147.01	160.86	0.00	0.00	0.00
4,500.00	2.77	246.05	4,496.02	-67.26	-151.43	165.69	0.00	0.00	0.00
4,584.07	2.77	246.05	4,580.00	-68.91	-155.14	169.75	0.00	0.00	0.00

<b>Database:</b>	EDM 2003.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 13-18
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4919 & RKB 15' @ 4934.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4919 & RKB 15' @ 4934.00ft (ASSUMED)
<b>Site:</b>	WELD_RIVERBEND 13-8 pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Riverbend 13-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Riverbend 13-18		
<b>Design:</b>	Plan #1 7-16-10 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>SUSSEX</b>									
4,600.00	2.77	246.05	4,595.91	-69.22	-155.84	170.52	0.00	0.00	0.00
4,700.00	2.77	246.05	4,695.79	-71.18	-160.25	175.35	0.00	0.00	0.00
4,800.00	2.77	246.05	4,795.67	-73.14	-164.67	180.18	0.00	0.00	0.00
4,900.00	2.77	246.05	4,895.56	-75.10	-169.08	185.01	0.00	0.00	0.00
5,000.00	2.77	246.05	4,995.44	-77.06	-173.49	189.84	0.00	0.00	0.00
5,100.00	2.77	246.05	5,095.32	-79.02	-177.91	194.67	0.00	0.00	0.00
5,200.00	2.77	246.05	5,195.21	-80.98	-182.32	199.50	0.00	0.00	0.00
5,300.00	2.77	246.05	5,295.09	-82.95	-186.73	204.33	0.00	0.00	0.00
5,400.00	2.77	246.05	5,394.97	-84.91	-191.15	209.16	0.00	0.00	0.00
5,500.00	2.77	246.05	5,494.86	-86.87	-195.56	213.99	0.00	0.00	0.00
5,600.00	2.77	246.05	5,594.74	-88.83	-199.98	218.82	0.00	0.00	0.00
5,700.00	2.77	246.05	5,694.62	-90.79	-204.39	223.65	0.00	0.00	0.00
5,800.00	2.77	246.05	5,794.51	-92.75	-208.80	228.47	0.00	0.00	0.00
5,900.00	2.77	246.05	5,894.39	-94.71	-213.22	233.30	0.00	0.00	0.00
5,979.35	2.77	246.05	5,973.64	-96.26	-216.72	237.14	0.00	0.00	0.00
<b>Start Drop -2.00</b>									
6,000.00	2.36	246.05	5,994.28	-96.64	-217.56	238.06	2.00	-2.00	0.00
6,100.00	0.36	246.05	6,094.24	-97.60	-219.72	240.42	2.00	-2.00	0.00
6,117.76	0.00	0.00	6,112.00	-97.62	-219.77	240.48	2.00	-2.00	0.00
<b>Start 1917.00 hold at 6117.76 MD</b>									
6,200.00	0.00	0.00	6,194.24	-97.62	-219.77	240.48	0.00	0.00	0.00
6,300.00	0.00	0.00	6,294.24	-97.62	-219.77	240.48	0.00	0.00	0.00
6,400.00	0.00	0.00	6,394.24	-97.62	-219.77	240.48	0.00	0.00	0.00
6,500.00	0.00	0.00	6,494.24	-97.62	-219.77	240.48	0.00	0.00	0.00
6,600.00	0.00	0.00	6,594.24	-97.62	-219.77	240.48	0.00	0.00	0.00
6,700.00	0.00	0.00	6,694.24	-97.62	-219.77	240.48	0.00	0.00	0.00
6,800.00	0.00	0.00	6,794.24	-97.62	-219.77	240.48	0.00	0.00	0.00
6,900.00	0.00	0.00	6,894.24	-97.62	-219.77	240.48	0.00	0.00	0.00
7,000.00	0.00	0.00	6,994.24	-97.62	-219.77	240.48	0.00	0.00	0.00
7,100.00	0.00	0.00	7,094.24	-97.62	-219.77	240.48	0.00	0.00	0.00
7,117.76	0.00	0.00	7,112.00	-97.62	-219.77	240.48	0.00	0.00	0.00
<b>NIO</b>									
7,200.00	0.00	0.00	7,194.24	-97.62	-219.77	240.48	0.00	0.00	0.00
7,300.00	0.00	0.00	7,294.24	-97.62	-219.77	240.48	0.00	0.00	0.00
7,400.00	0.00	0.00	7,394.24	-97.62	-219.77	240.48	0.00	0.00	0.00
7,464.76	0.00	0.00	7,459.00	-97.62	-219.77	240.48	0.00	0.00	0.00
<b>CODELL</b>									
7,500.00	0.00	0.00	7,494.24	-97.62	-219.77	240.48	0.00	0.00	0.00
7,549.76	0.00	0.00	7,544.00	-97.62	-219.77	240.48	0.00	0.00	0.00
<b>GREENHORN</b>									
7,600.00	0.00	0.00	7,594.24	-97.62	-219.77	240.48	0.00	0.00	0.00
7,700.00	0.00	0.00	7,694.24	-97.62	-219.77	240.48	0.00	0.00	0.00
7,800.00	0.00	0.00	7,794.24	-97.62	-219.77	240.48	0.00	0.00	0.00
7,899.76	0.00	0.00	7,894.00	-97.62	-219.77	240.48	0.00	0.00	0.00
<b>J SAND</b>									
7,900.00	0.00	0.00	7,894.24	-97.62	-219.77	240.48	0.00	0.00	0.00
8,000.00	0.00	0.00	7,994.24	-97.62	-219.77	240.48	0.00	0.00	0.00
8,034.76	0.00	0.00	8,029.00	-97.62	-219.77	240.48	0.00	0.00	0.00
<b>PBHL_Riverbend 13-18(660 FSL 660 FWL)</b>									

<b>Database:</b>	EDM 2003.16 Single User Db	<b>Local Co-ordinate Reference:</b>	Well P_Riverbend 13-18
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	GL 4919 & RKB 15' @ 4934.00ft (ASSUMED)
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	GL 4919 & RKB 15' @ 4934.00ft (ASSUMED)
<b>Site:</b>	WELD_RIVERBEND 13-8 pad	<b>North Reference:</b>	True
<b>Well:</b>	P_Riverbend 13-18	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	P_Riverbend 13-18		
<b>Design:</b>	Plan #1 7-16-10 RHS		

#### Targets

##### Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
PBHL_Riverbend 13- - plan hits target center - Circle (radius 50.00)	0.00	0.00	8,029.00	-97.62	-219.77	1,260,192.08	3,188,321.83	40° 2' 44.358 N	104° 49' 38.402 W

#### 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 (°)
7,464.76	7,459.00	CODELL		0.00	
3,252.52	3,250.00	PARKMAN		0.00	
7,899.76	7,894.00	J SAND		0.00	
4,584.07	4,580.00	SUSSEX		0.00	
7,549.76	7,544.00	GREENHORN		0.00	
7,117.76	7,112.00	NIO		0.00	

#### Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,000.00	1,000.00	0.00	0.00	Start Build 2.00
1,138.41	1,138.36	-1.36	-3.06	Start 4840.94 hold at 1138.41 MD
5,979.35	5,973.64	-96.26	-216.72	Start Drop -2.00
6,117.76	6,112.00	-97.62	-219.77	Start 1917.00 hold at 6117.76 MD
8,034.76	8,029.00	-97.62	-219.77	TD at 8034.76