

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_RIVERBEND 19-19 PAD**

**RIVERBEND 35-19**

**RIVERBEND 35-19**

**Plan: RIVERBEND 35-19 (wp02)**

## **Standard Planning Report**

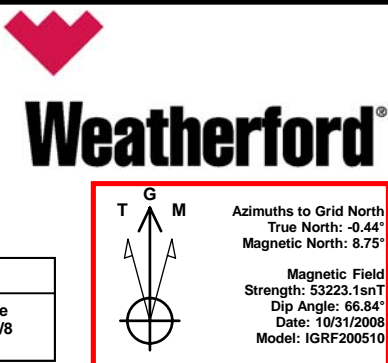
**08 June, 2011**



**Weatherford®**

Project: COLORADO NORTHERN ZONE - 83  
 Site: WELD\_RIVERBEND 19-19 PAD  
 Well: RIVERBEND 35-19  
 Wellbore: RIVERBEND 35-19  
 Section:  
 SHL: P\_RIVERBEND 35-19  
 Design: RIVERBEND 35-19 (wp02)  
 Latitude: 40.032070  
 Longitude: -104.825951  
 GL: 4929.00  
 KB: 15' RKB + 4929' GL @ 4944.00ft

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4044.00	4203.36	PK Depth
4680.00	4839.36	SX Depth
7212.00	7371.36	NIO Depth
7559.00	7718.36	CD Depth
7644.00	7803.36	GH Depth
7994.00	8153.36	J Depth



**Weatherford®**

**Compass Diagram:**  
 T: True North  
 G: Grid North  
 M: Magnetic North

**Azimuths to Grid North**  
 True North: -0.44°  
 Magnetic North: 8.75°

**Magnetic Field**  
 Strength: 53223.1snT  
 Dip Angle: 66.84°  
 Date: 10/31/2008  
 Model: IGRF200510

#### WELL DETAILS: RIVERBEND 35-19

+N/-S	+E/-W	Northing	Ground Level: Easting	4929.00 Latitude	Longitude	Slot
0.00	0.00	1255246.46	3188746.63	40.032070	-104.825951	

#### CASING DETAILS

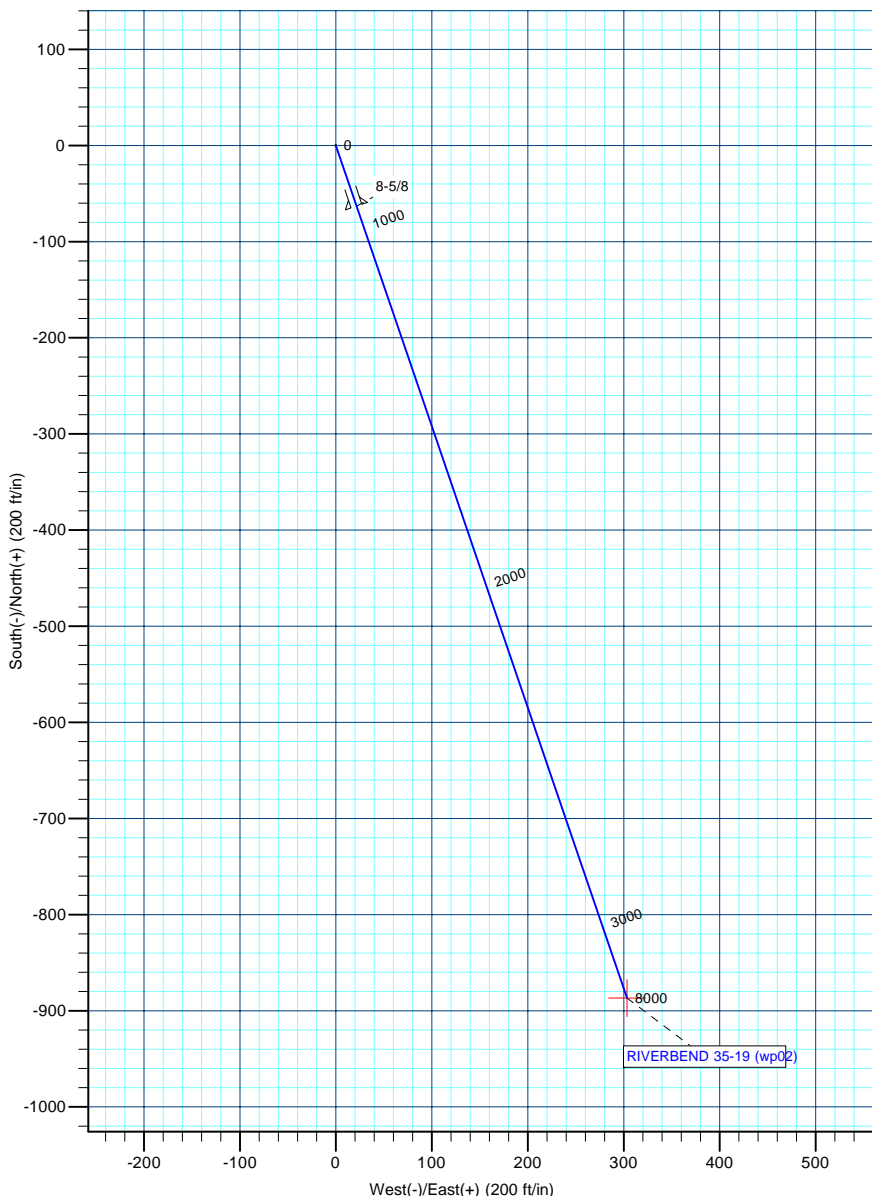
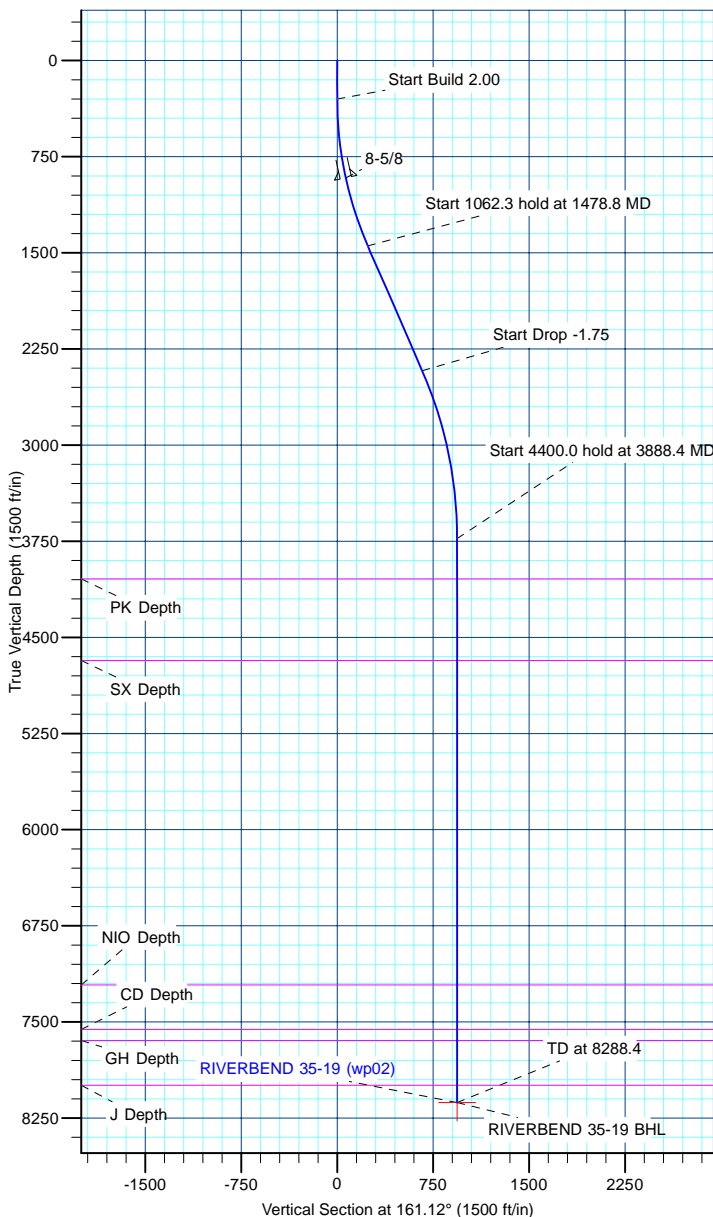
TVD	MD	Name	Size
915.00	919.82	8-5/8	8-5/8

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
RIVERBEND 35-19 BHL	8129.00	-886.90	303.30	1254359.57	3189049.93	40.029629	-104.824892	

#### SECTION DETAILS

MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect
0.00	0.00	0.00	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
1478.84	23.58	161.12	1445.85	-226.27	77.38	2.00	161.12	239.14
2541.12	23.58	161.12	2419.46	-628.30	214.87	0.00	0.00	664.03
3888.36	0.00	0.00	3729.00	-886.90	303.30	1.75	180.00	937.33
8288.36	0.00	0.00	8129.00	-886.90	303.30	0.00	0.00	937.33



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well RIVERBEND 35-19
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 4929' GL @ 4944.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 4929' GL @ 4944.00ft
<b>Site:</b>	WELD_RIVERBEND 19-19 PAD	<b>North Reference:</b>	Grid
<b>Well:</b>	RIVERBEND 35-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	RIVERBEND 35-19		
<b>Design:</b>	RIVERBEND 35-19 (wp02)		

<b>Project</b>	COLORADO NORTHERN ZONE - 83		
<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 19-19 PAD											
Site Position:						Northing:			1,255,293.55 ft			Latitude:			40.032199		
From:			Lat/Long			Easting:			3,188,756.35 ft			Longitude:			-104.825915		
Position Uncertainty:			0.00 ft			Slot Radius:			0 "			Grid Convergence:			0.44		

Well	RIVERBEND 35-19					
Well Position	+N-S	-47.08 ft	Northing:	1,255,246.46 ft	Latitude:	40.032070
	+E-W	-9.72 ft	Easting:	3,188,746.63 ft	Longitude:	-104.825951
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,929.00 ft

<b>Wellbore</b>	RIVERBEND 35-19				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF200510	10/31/2008	9.18	66.84	53,223

<b>Design</b>	RIVERBEND 35-19 (wp02)			
<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	161.12

<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	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,478.84	23.58	161.12	1,445.85	-226.27	77.38	2.00	2.00	0.00	161.12	
2,541.12	23.58	161.12	2,419.46	-628.30	214.87	0.00	0.00	0.00	0.00	
3,888.36	0.00	0.00	3,729.00	-886.90	303.30	1.75	-1.75	0.00	180.00	
8,288.36	0.00	0.00	8,129.00	-886.90	303.30	0.00	0.00	0.00	0.00	RIVERBEND 35-19

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well RIVERBEND 35-19
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 4929' GL @ 4944.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 4929' GL @ 4944.00ft
<b>Site:</b>	WELD_RIVERBEND 19-19 PAD	<b>North Reference:</b>	Grid
<b>Well:</b>	RIVERBEND 35-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	RIVERBEND 35-19		
<b>Design:</b>	RIVERBEND 35-19 (wp02)		

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
<b>Start Build 2.00</b>									
400.00	2.00	161.12	399.98	-1.65	0.56	1.75	2.00	2.00	0.00
500.00	4.00	161.12	499.84	-6.60	2.26	6.98	2.00	2.00	0.00
600.00	6.00	161.12	599.45	-14.85	5.08	15.69	2.00	2.00	0.00
700.00	8.00	161.12	698.70	-26.38	9.02	27.88	2.00	2.00	0.00
800.00	10.00	161.12	797.47	-41.18	14.08	43.52	2.00	2.00	0.00
900.00	12.00	161.12	895.62	-59.23	20.26	62.60	2.00	2.00	0.00
919.82	12.40	161.12	915.00	-63.20	21.61	66.79	2.00	2.00	0.00
<b>8-5/8</b>									
1,000.00	14.00	161.12	993.06	-80.52	27.54	85.10	2.00	2.00	0.00
1,100.00	16.00	161.12	1,089.64	-105.01	35.91	110.98	2.00	2.00	0.00
1,200.00	18.00	161.12	1,185.27	-132.67	45.37	140.21	2.00	2.00	0.00
1,300.00	20.00	161.12	1,279.82	-163.47	55.91	172.77	2.00	2.00	0.00
1,400.00	22.00	161.12	1,373.17	-197.38	67.50	208.60	2.00	2.00	0.00
1,478.84	23.58	161.12	1,445.85	-226.27	77.38	239.14	2.00	2.00	0.00
<b>Start 1062.3 hold at 1478.8 MD</b>									
1,500.00	23.58	161.12	1,465.25	-234.28	80.12	247.60	0.00	0.00	0.00
1,600.00	23.58	161.12	1,556.90	-272.13	93.06	287.60	0.00	0.00	0.00
1,700.00	23.58	161.12	1,648.55	-309.97	106.01	327.60	0.00	0.00	0.00
1,800.00	23.58	161.12	1,740.20	-347.82	118.95	367.60	0.00	0.00	0.00
1,900.00	23.58	161.12	1,831.86	-385.66	131.89	407.59	0.00	0.00	0.00
2,000.00	23.58	161.12	1,923.51	-423.51	144.83	447.59	0.00	0.00	0.00
2,100.00	23.58	161.12	2,015.16	-461.36	157.78	487.59	0.00	0.00	0.00
2,200.00	23.58	161.12	2,106.81	-499.20	170.72	527.59	0.00	0.00	0.00
2,300.00	23.58	161.12	2,198.47	-537.05	183.66	567.58	0.00	0.00	0.00
2,400.00	23.58	161.12	2,290.12	-574.89	196.60	607.58	0.00	0.00	0.00
2,500.00	23.58	161.12	2,381.77	-612.74	209.55	647.58	0.00	0.00	0.00
2,541.12	23.58	161.12	2,419.46	-628.30	214.87	664.03	0.00	0.00	0.00
<b>Start Drop -1.75</b>									
2,600.00	22.55	161.12	2,473.63	-650.12	222.33	687.09	1.75	-1.75	0.00
2,700.00	20.80	161.12	2,566.56	-685.06	234.28	724.02	1.75	-1.75	0.00
2,800.00	19.05	161.12	2,660.57	-717.30	245.31	758.09	1.75	-1.75	0.00
2,900.00	17.30	161.12	2,755.58	-746.81	255.40	789.27	1.75	-1.75	0.00
3,000.00	15.55	161.12	2,851.50	-773.56	264.54	817.54	1.75	-1.75	0.00
3,100.00	13.80	161.12	2,948.24	-797.52	272.74	842.87	1.75	-1.75	0.00
3,200.00	12.05	161.12	3,045.70	-818.68	279.97	865.23	1.75	-1.75	0.00
3,300.00	10.30	161.12	3,143.80	-837.01	286.24	884.60	1.75	-1.75	0.00
3,400.00	8.55	161.12	3,242.45	-852.50	291.54	900.97	1.75	-1.75	0.00
3,500.00	6.80	161.12	3,341.55	-865.13	295.86	914.32	1.75	-1.75	0.00
3,600.00	5.05	161.12	3,441.01	-874.89	299.20	924.64	1.75	-1.75	0.00
3,700.00	3.30	161.12	3,540.74	-881.77	301.55	931.91	1.75	-1.75	0.00
3,800.00	1.55	161.12	3,640.65	-885.77	302.92	936.13	1.75	-1.75	0.00
3,888.36	0.00	0.00	3,729.00	-886.90	303.30	937.33	1.75	-1.75	0.00
<b>Start 4400.0 hold at 3888.4 MD</b>									
3,900.00	0.00	0.00	3,740.64	-886.90	303.30	937.33	0.00	0.00	0.00
4,000.00	0.00	0.00	3,840.64	-886.90	303.30	937.33	0.00	0.00	0.00
4,100.00	0.00	0.00	3,940.64	-886.90	303.30	937.33	0.00	0.00	0.00
4,200.00	0.00	0.00	4,040.64	-886.90	303.30	937.33	0.00	0.00	0.00
4,203.36	0.00	0.00	4,044.00	-886.90	303.30	937.33	0.00	0.00	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well RIVERBEND 35-19
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 4929' GL @ 4944.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 4929' GL @ 4944.00ft
<b>Site:</b>	WELD_RIVERBEND 19-19 PAD	<b>North Reference:</b>	Grid
<b>Well:</b>	RIVERBEND 35-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	RIVERBEND 35-19		
<b>Design:</b>	RIVERBEND 35-19 (wp02)		

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>PK Depth</b>									
4,300.00	0.00	0.00	4,140.64	-886.90	303.30	937.33	0.00	0.00	0.00
4,400.00	0.00	0.00	4,240.64	-886.90	303.30	937.33	0.00	0.00	0.00
4,500.00	0.00	0.00	4,340.64	-886.90	303.30	937.33	0.00	0.00	0.00
4,600.00	0.00	0.00	4,440.64	-886.90	303.30	937.33	0.00	0.00	0.00
4,700.00	0.00	0.00	4,540.64	-886.90	303.30	937.33	0.00	0.00	0.00
4,800.00	0.00	0.00	4,640.64	-886.90	303.30	937.33	0.00	0.00	0.00
4,839.36	0.00	0.00	4,680.00	-886.90	303.30	937.33	0.00	0.00	0.00
<b>SX Depth</b>									
4,900.00	0.00	0.00	4,740.64	-886.90	303.30	937.33	0.00	0.00	0.00
5,000.00	0.00	0.00	4,840.64	-886.90	303.30	937.33	0.00	0.00	0.00
5,100.00	0.00	0.00	4,940.64	-886.90	303.30	937.33	0.00	0.00	0.00
5,200.00	0.00	0.00	5,040.64	-886.90	303.30	937.33	0.00	0.00	0.00
5,300.00	0.00	0.00	5,140.64	-886.90	303.30	937.33	0.00	0.00	0.00
5,400.00	0.00	0.00	5,240.64	-886.90	303.30	937.33	0.00	0.00	0.00
5,500.00	0.00	0.00	5,340.64	-886.90	303.30	937.33	0.00	0.00	0.00
5,600.00	0.00	0.00	5,440.64	-886.90	303.30	937.33	0.00	0.00	0.00
5,700.00	0.00	0.00	5,540.64	-886.90	303.30	937.33	0.00	0.00	0.00
5,800.00	0.00	0.00	5,640.64	-886.90	303.30	937.33	0.00	0.00	0.00
5,900.00	0.00	0.00	5,740.64	-886.90	303.30	937.33	0.00	0.00	0.00
6,000.00	0.00	0.00	5,840.64	-886.90	303.30	937.33	0.00	0.00	0.00
6,100.00	0.00	0.00	5,940.64	-886.90	303.30	937.33	0.00	0.00	0.00
6,200.00	0.00	0.00	6,040.64	-886.90	303.30	937.33	0.00	0.00	0.00
6,300.00	0.00	0.00	6,140.64	-886.90	303.30	937.33	0.00	0.00	0.00
6,400.00	0.00	0.00	6,240.64	-886.90	303.30	937.33	0.00	0.00	0.00
6,500.00	0.00	0.00	6,340.64	-886.90	303.30	937.33	0.00	0.00	0.00
6,600.00	0.00	0.00	6,440.64	-886.90	303.30	937.33	0.00	0.00	0.00
6,700.00	0.00	0.00	6,540.64	-886.90	303.30	937.33	0.00	0.00	0.00
6,800.00	0.00	0.00	6,640.64	-886.90	303.30	937.33	0.00	0.00	0.00
6,900.00	0.00	0.00	6,740.64	-886.90	303.30	937.33	0.00	0.00	0.00
7,000.00	0.00	0.00	6,840.64	-886.90	303.30	937.33	0.00	0.00	0.00
7,100.00	0.00	0.00	6,940.64	-886.90	303.30	937.33	0.00	0.00	0.00
7,200.00	0.00	0.00	7,040.64	-886.90	303.30	937.33	0.00	0.00	0.00
7,300.00	0.00	0.00	7,140.64	-886.90	303.30	937.33	0.00	0.00	0.00
7,371.36	0.00	0.00	7,212.00	-886.90	303.30	937.33	0.00	0.00	0.00
<b>NIO Depth</b>									
7,400.00	0.00	0.00	7,240.64	-886.90	303.30	937.33	0.00	0.00	0.00
7,500.00	0.00	0.00	7,340.64	-886.90	303.30	937.33	0.00	0.00	0.00
7,600.00	0.00	0.00	7,440.64	-886.90	303.30	937.33	0.00	0.00	0.00
7,700.00	0.00	0.00	7,540.64	-886.90	303.30	937.33	0.00	0.00	0.00
7,718.36	0.00	0.00	7,559.00	-886.90	303.30	937.33	0.00	0.00	0.00
<b>CD Depth</b>									
7,800.00	0.00	0.00	7,640.64	-886.90	303.30	937.33	0.00	0.00	0.00
7,803.36	0.00	0.00	7,644.00	-886.90	303.30	937.33	0.00	0.00	0.00
<b>GH Depth</b>									
7,894.36	0.00	0.00	7,735.00	-886.90	303.30	937.33	0.00	0.00	0.00
<b>PBHL_RIVERBEND 35-19</b>									
7,900.00	0.00	0.00	7,740.64	-886.90	303.30	937.33	0.00	0.00	0.00
8,000.00	0.00	0.00	7,840.64	-886.90	303.30	937.33	0.00	0.00	0.00
8,100.00	0.00	0.00	7,940.64	-886.90	303.30	937.33	0.00	0.00	0.00
8,153.36	0.00	0.00	7,994.00	-886.90	303.30	937.33	0.00	0.00	0.00
<b>J Depth</b>									
8,200.00	0.00	0.00	8,040.64	-886.90	303.30	937.33	0.00	0.00	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well RIVERBEND 35-19
<b>Company:</b>	US ROCKIES REGION PLANNING	<b>TVD Reference:</b>	15' RKB + 4929' GL @ 4944.00ft
<b>Project:</b>	COLORADO NORTHERN ZONE - 83	<b>MD Reference:</b>	15' RKB + 4929' GL @ 4944.00ft
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<b>Well:</b>	RIVERBEND 35-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	RIVERBEND 35-19		
<b>Design:</b>	RIVERBEND 35-19 (wp02)		

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)
8,288.36	0.00	0.00	8,129.00	-886.90	303.30	937.33	0.00	0.00	0.00
TD at 8288.4 - RIVERBEND 35-19 BHL									

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									
RIVERBEND 35-19 B	0.00	0.00	8,129.00	-886.90	303.30	1,254,359.57	3,189,049.93	40.029629	-104.824892
- plan hits target center									
- Point									

Casing Points					
Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (")	Hole Diameter (")	
919.82	915.00	8-5/8	8-5/8	11	

Formations						
Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)	
4,203.36	4,044.00	PK Depth				
4,839.36	4,680.00	SX Depth				
7,371.36	7,212.00	NIO Depth				
7,718.36	7,559.00	CD Depth				
7,803.36	7,644.00	GH Depth				
8,153.36	7,994.00	J Depth				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Comment
300.00	300.00	0.00	0.00	Start Build 2.00
1,478.84	1,445.85	-226.27	77.38	Start 1062.3 hold at 1478.8 MD
2,541.12	2,419.46	-628.30	214.87	Start Drop -1.75
3,888.36	3,729.00	-886.90	303.30	Start 4400.0 hold at 3888.4 MD
8,288.36	8,129.00	-886.90	303.30	TD at 8288.4