

# **US ROCKIES REGION PLANNING**

**COLORADO NORTHERN ZONE - 83**

**WELD\_RIVERBEND 19-19 PAD**

**RIVERBEND 25-19**

**RIVERBEND 25-19**

**Plan: RIVERBEND 25-19 (wp02)**

## **Standard Planning Report**

**08 June, 2011**



**Weatherford®**

Project: COLORADO NORTHERN ZONE - 83  
 Site: WELD\_RIVERBEND 19-19 PAD  
 Well: RIVERBEND 25-19  
 Wellbore: RIVERBEND 25-19  
 Section:  
 SHL: P\_RIVERBEND 25-19  
 Design: RIVERBEND 25-19 (wp02)  
 Latitude: 40.032199  
 Longitude: -104.825915  
 GL: 4929.00  
 KB: 15' RKB + 4929' GL @ 4944.00ft

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
4044.00	4344.03	PK Depth
4630.00	4990.34	SX Depth
7162.00	7621.31	NIO Depth
7509.00	7968.31	CD Depth
7594.00	8053.31	GH Depth
7944.00	8403.31	J Depth



Azimuths to Grid North  
 True North: -0.44°  
 Magnetic North: 8.75°  
 Magnetic Field  
 Strength: 53223.2snT  
 Dip Angle: 66.84°  
 Date: 10/31/2008  
 Model: IGRF200510

#### WELL DETAILS: RIVERBEND 25-19

+N/-S	+E/-W	Northing	Ground Level: Easting	4929.00 Latitude	Longitude	Slot
0.00	0.00	1255293.53	3188756.35	40.032199	-104.825915	

#### CASING DETAILS

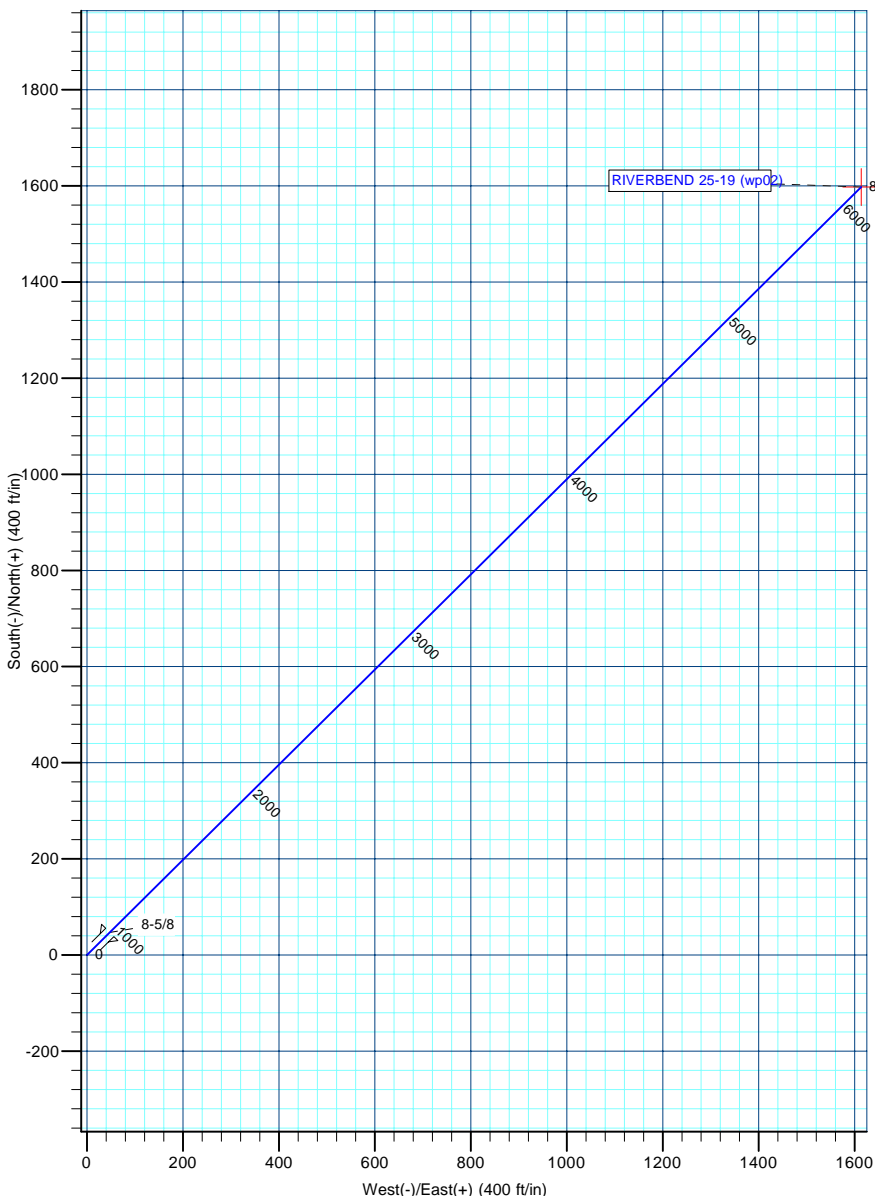
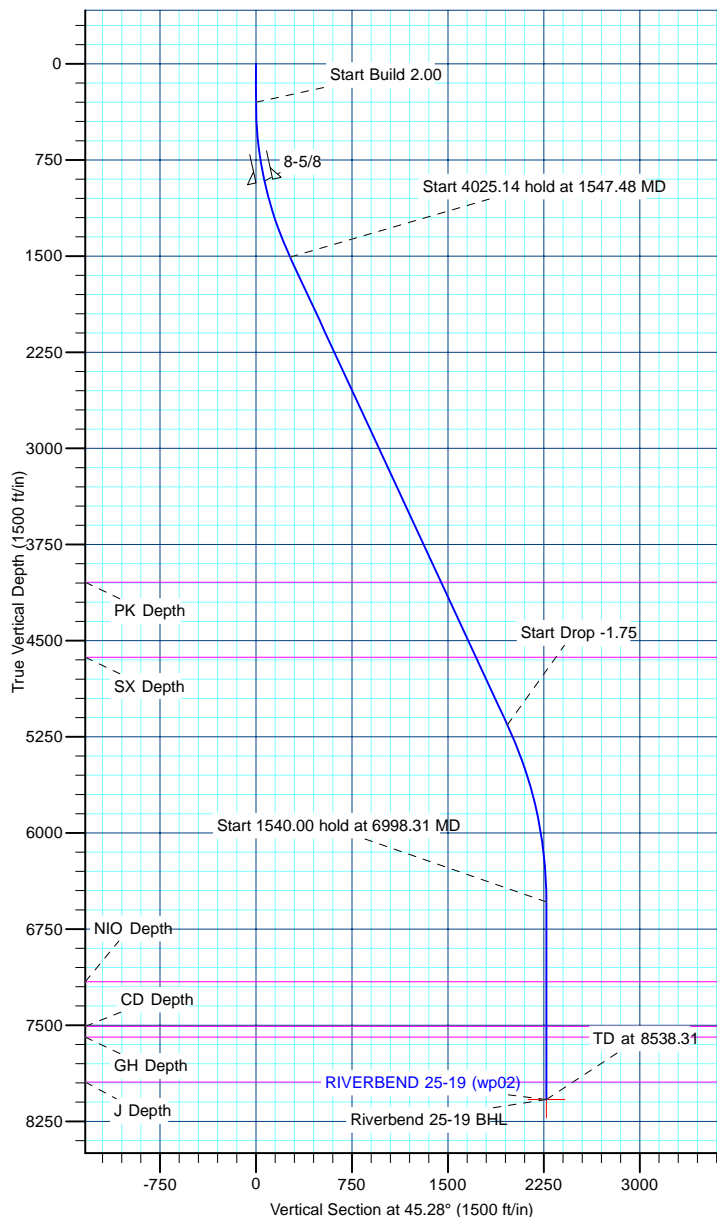
TVD	MD	Name	Size
915.00	919.82	8-5/8	8-5/8

#### DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
Riverbend 25-19 BHL	8079.00	1597.71	1613.60	1256891.24	3190369.95	40.036551	-104.820109	Circle (Radius: 0.00)

#### 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
1547.48	24.95	45.28	1508.43	188.10	189.97	2.00	45.28	267.34
5572.62	24.95	45.28	5157.94	1382.74	1396.49	0.00	0.00	1965.23
6998.31	0.00	0.00	6539.00	1597.71	1613.60	1.75	180.00	2270.77
8538.31	0.00	0.00	8079.00	1597.71	1613.60	0.00	0.00	2270.77



<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well RIVERBEND 25-19
<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 25-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	RIVERBEND 25-19		
<b>Design:</b>	RIVERBEND 25-19 (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 25-19					
Well Position	+N-S	-0.02 ft	Northing:	1,255,293.53 ft	Latitude:	40.032199
	+E-W	0.00 ft	Easting:	3,188,756.35 ft	Longitude:	-104.825915
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,929.00 ft

<b>Wellbore</b>	RIVERBEND 25-19				
<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 25-19 (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	45.28

<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	
1,547.48	24.95	45.28	1,508.43	188.10	189.97	2.00	2.00	0.00	45.28	
5,572.62	24.95	45.28	5,157.94	1,382.74	1,396.49	0.00	0.00	0.00	0.00	
6,998.31	0.00	0.00	6,539.00	1,597.71	1,613.60	1.75	-1.75	0.00	180.00	
8,538.31	0.00	0.00	8,079.00	1,597.71	1,613.60	0.00	0.00	0.00	0.00	Riverbend 25-19 Bt

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well RIVERBEND 25-19
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<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 25-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	RIVERBEND 25-19		
<b>Design:</b>	RIVERBEND 25-19 (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	45.28	399.98	1.23	1.24	1.75	2.00	2.00	0.00
500.00	4.00	45.28	499.84	4.91	4.96	6.98	2.00	2.00	0.00
600.00	6.00	45.28	599.45	11.04	11.15	15.69	2.00	2.00	0.00
700.00	8.00	45.28	698.70	19.62	19.81	27.88	2.00	2.00	0.00
800.00	10.00	45.28	797.47	30.62	30.93	43.52	2.00	2.00	0.00
900.00	12.00	45.28	895.62	44.05	44.49	62.60	2.00	2.00	0.00
919.82	12.40	45.28	915.00	46.99	47.46	66.79	2.00	2.00	0.00
<b>8-5/8</b>									
1,000.00	14.00	45.28	993.06	59.87	60.47	85.10	2.00	2.00	0.00
1,100.00	16.00	45.28	1,089.64	78.08	78.86	110.98	2.00	2.00	0.00
1,200.00	18.00	45.28	1,185.27	98.65	99.63	140.21	2.00	2.00	0.00
1,300.00	20.00	45.28	1,279.82	121.56	122.77	172.77	2.00	2.00	0.00
1,400.00	22.00	45.28	1,373.17	146.77	148.23	208.60	2.00	2.00	0.00
1,500.00	24.00	45.28	1,465.21	174.26	176.00	247.67	2.00	2.00	0.00
1,547.48	24.95	45.28	1,508.43	188.10	189.97	267.34	2.00	2.00	0.00
<b>Start 4025.14 hold at 1547.48 MD</b>									
1,600.00	24.95	45.28	1,556.05	203.69	205.72	289.50	0.00	0.00	0.00
1,700.00	24.95	45.28	1,646.71	233.37	235.69	331.68	0.00	0.00	0.00
1,800.00	24.95	45.28	1,737.38	263.05	265.67	373.86	0.00	0.00	0.00
1,900.00	24.95	45.28	1,828.05	292.73	295.64	416.04	0.00	0.00	0.00
2,000.00	24.95	45.28	1,918.72	322.41	325.61	458.23	0.00	0.00	0.00
2,100.00	24.95	45.28	2,009.39	352.09	355.59	500.41	0.00	0.00	0.00
2,200.00	24.95	45.28	2,100.05	381.77	385.56	542.59	0.00	0.00	0.00
2,300.00	24.95	45.28	2,190.72	411.45	415.54	584.77	0.00	0.00	0.00
2,400.00	24.95	45.28	2,281.39	441.13	445.51	626.96	0.00	0.00	0.00
2,500.00	24.95	45.28	2,372.06	470.80	475.49	669.14	0.00	0.00	0.00
2,600.00	24.95	45.28	2,462.73	500.48	505.46	711.32	0.00	0.00	0.00
2,700.00	24.95	45.28	2,553.39	530.16	535.44	753.50	0.00	0.00	0.00
2,800.00	24.95	45.28	2,644.06	559.84	565.41	795.68	0.00	0.00	0.00
2,900.00	24.95	45.28	2,734.73	589.52	595.38	837.87	0.00	0.00	0.00
3,000.00	24.95	45.28	2,825.40	619.20	625.36	880.05	0.00	0.00	0.00
3,100.00	24.95	45.28	2,916.07	648.88	655.33	922.23	0.00	0.00	0.00
3,200.00	24.95	45.28	3,006.73	678.56	685.31	964.41	0.00	0.00	0.00
3,300.00	24.95	45.28	3,097.40	708.24	715.28	1,006.59	0.00	0.00	0.00
3,400.00	24.95	45.28	3,188.07	737.92	745.26	1,048.78	0.00	0.00	0.00
3,500.00	24.95	45.28	3,278.74	767.60	775.23	1,090.96	0.00	0.00	0.00
3,600.00	24.95	45.28	3,369.41	797.28	805.21	1,133.14	0.00	0.00	0.00
3,700.00	24.95	45.28	3,460.07	826.96	835.18	1,175.32	0.00	0.00	0.00
3,800.00	24.95	45.28	3,550.74	856.64	865.15	1,217.50	0.00	0.00	0.00
3,900.00	24.95	45.28	3,641.41	886.31	895.13	1,259.69	0.00	0.00	0.00
4,000.00	24.95	45.28	3,732.08	915.99	925.10	1,301.87	0.00	0.00	0.00
4,100.00	24.95	45.28	3,822.74	945.67	955.08	1,344.05	0.00	0.00	0.00
4,200.00	24.95	45.28	3,913.41	975.35	985.05	1,386.23	0.00	0.00	0.00
4,300.00	24.95	45.28	4,004.08	1,005.03	1,015.03	1,428.41	0.00	0.00	0.00
4,344.03	24.95	45.28	4,044.00	1,018.10	1,028.22	1,446.99	0.00	0.00	0.00
<b>PK Depth</b>									
4,400.00	24.95	45.28	4,094.75	1,034.71	1,045.00	1,470.60	0.00	0.00	0.00
4,500.00	24.95	45.28	4,185.42	1,064.39	1,074.98	1,512.78	0.00	0.00	0.00
4,600.00	24.95	45.28	4,276.08	1,094.07	1,104.95	1,554.96	0.00	0.00	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well RIVERBEND 25-19
<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 25-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	RIVERBEND 25-19		
<b>Design:</b>	RIVERBEND 25-19 (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)
4,700.00	24.95	45.28	4,366.75	1,123.75	1,134.92	1,597.14	0.00	0.00	0.00
4,800.00	24.95	45.28	4,457.42	1,153.43	1,164.90	1,639.33	0.00	0.00	0.00
4,900.00	24.95	45.28	4,548.09	1,183.11	1,194.87	1,681.51	0.00	0.00	0.00
4,990.34	24.95	45.28	4,630.00	1,209.92	1,221.95	1,719.62	0.00	0.00	0.00
<b>SX Depth</b>									
5,000.00	24.95	45.28	4,638.76	1,212.79	1,224.85	1,723.69	0.00	0.00	0.00
5,100.00	24.95	45.28	4,729.42	1,242.47	1,254.82	1,765.87	0.00	0.00	0.00
5,200.00	24.95	45.28	4,820.09	1,272.15	1,284.80	1,808.05	0.00	0.00	0.00
5,300.00	24.95	45.28	4,910.76	1,301.82	1,314.77	1,850.24	0.00	0.00	0.00
5,400.00	24.95	45.28	5,001.43	1,331.50	1,344.75	1,892.42	0.00	0.00	0.00
5,500.00	24.95	45.28	5,092.10	1,361.18	1,374.72	1,934.60	0.00	0.00	0.00
5,572.62	24.95	45.28	5,157.94	1,382.74	1,396.49	1,965.23	0.00	0.00	0.00
<b>Start Drop -1.75</b>									
5,600.00	24.47	45.28	5,182.81	1,390.79	1,404.62	1,976.68	1.75	-1.75	0.00
5,700.00	22.72	45.28	5,274.45	1,418.95	1,433.06	2,016.70	1.75	-1.75	0.00
5,800.00	20.97	45.28	5,367.26	1,445.13	1,459.50	2,053.91	1.75	-1.75	0.00
5,900.00	19.22	45.28	5,461.17	1,469.31	1,483.92	2,088.27	1.75	-1.75	0.00
6,000.00	17.47	45.28	5,556.09	1,491.45	1,506.28	2,119.74	1.75	-1.75	0.00
6,100.00	15.72	45.28	5,651.92	1,511.55	1,526.58	2,148.30	1.75	-1.75	0.00
6,200.00	13.97	45.28	5,748.57	1,529.57	1,544.78	2,173.92	1.75	-1.75	0.00
6,300.00	12.22	45.28	5,845.97	1,545.51	1,560.88	2,196.58	1.75	-1.75	0.00
6,400.00	10.47	45.28	5,944.01	1,559.35	1,574.86	2,216.25	1.75	-1.75	0.00
6,500.00	8.72	45.28	6,042.61	1,571.08	1,586.71	2,232.92	1.75	-1.75	0.00
6,600.00	6.97	45.28	6,141.67	1,580.69	1,596.41	2,246.57	1.75	-1.75	0.00
6,700.00	5.22	45.28	6,241.10	1,588.16	1,603.95	2,257.19	1.75	-1.75	0.00
6,800.00	3.47	45.28	6,340.81	1,593.49	1,609.33	2,264.77	1.75	-1.75	0.00
6,900.00	1.72	45.28	6,440.70	1,596.67	1,612.55	2,269.29	1.75	-1.75	0.00
6,998.31	0.00	0.00	6,539.00	1,597.71	1,613.60	2,270.77	1.75	-1.75	0.00
<b>Start 1540.00 hold at 6998.31 MD</b>									
7,000.00	0.00	0.00	6,540.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
7,100.00	0.00	0.00	6,640.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
7,200.00	0.00	0.00	6,740.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
7,300.00	0.00	0.00	6,840.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
7,400.00	0.00	0.00	6,940.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
7,500.00	0.00	0.00	7,040.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
7,600.00	0.00	0.00	7,140.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
7,621.31	0.00	0.00	7,162.00	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
<b>NIO Depth</b>									
7,700.00	0.00	0.00	7,240.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
7,800.00	0.00	0.00	7,340.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
7,900.00	0.00	0.00	7,440.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
7,968.31	0.00	0.00	7,509.00	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
<b>CD Depth</b>									
8,000.00	0.00	0.00	7,540.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
8,053.31	0.00	0.00	7,594.00	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
<b>GH Depth</b>									
8,100.00	0.00	0.00	7,640.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
8,139.31	0.00	0.00	7,680.00	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
<b>PBHL_RIVERBEND 25-19</b>									
8,200.00	0.00	0.00	7,740.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
8,300.00	0.00	0.00	7,840.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
8,400.00	0.00	0.00	7,940.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
8,403.31	0.00	0.00	7,944.00	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00

<b>Database:</b>	edm5000p	<b>Local Co-ordinate Reference:</b>	Well RIVERBEND 25-19
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<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 25-19	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	RIVERBEND 25-19		
<b>Design:</b>	RIVERBEND 25-19 (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>J Depth</b>									
8,500.00	0.00	0.00	8,040.69	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
8,538.31	0.00	0.00	8,079.00	1,597.71	1,613.60	2,270.77	0.00	0.00	0.00
<b>TD at 8538.31 - Riverbend 25-19 BHL</b>									

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 25-19 BHL	0.00	0.00	8,079.00	1,597.71	1,613.60	1,256,891.24	3,190,369.96	40.036551	-104.820109
- plan hits target center									
- Circle (radius 0.00)									

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 (°)	
4,344.03	4,044.00	PK Depth				
4,990.34	4,630.00	SX Depth				
7,621.31	7,162.00	NIO Depth		0.00		
7,968.31	7,509.00	CD Depth				
8,053.31	7,594.00	GH Depth				
8,403.31	7,944.00	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
1,547.48	1,508.43	188.10	189.97	Start 4025.14 hold at 1547.48 MD
5,572.62	5,157.94	1,382.74	1,396.49	Start Drop -1.75
6,998.31	6,539.00	1,597.71	1,613.60	Start 1540.00 hold at 6998.31 MD
8,538.31	8,079.00	1,597.71	1,613.60	TD at 8538.31