

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_RIVERBEND 4-13 PAD

Riverbend 32-13

Riverbend 32-13

Plan: Riverbend 32-13 (wp01)

Standard Planning Report

11 July, 2011



Weatherford®

Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_RIVERBEND 4-13 PAD
 Well: Riverbend 32-13
 Wellbore: Riverbend 32-13
 Section:
 SHL:
 Design: Riverbend 32-13 (wp01)
 Latitude: 40.055769
 Longitude: -104.847380
 GL: 4952.00
 KB: 15' RKB + 4952' GL @ 4967.00ft

FORMATION TOP DETAILS		
TVDPATH	MDPATH	FORMATION
4053.00	4222.14	PK Depth
4614.00	4813.35	SX Depth
7146.00	7401.87	NIO Depth
7493.00	7748.87	CD Depth
7578.00	7833.87	GH Depth
7928.00	8183.87	J Depth



Azimuths to True North
 Magnetic North: 8.87°

Magnetic Field
 Strength: 52932.5nT
 Dip Angle: 66.76°
 Date: 7/11/2011
 Model: IGRF2010

WELL DETAILS: Riverbend 32-13

+N/-S	+E/-W	Northing	Ground Level: Easting	4952.00 Latitude	Longitude	Slot
0.00	0.00	1263834.31	3182682.67	40.055769	-104.847380	

CASING DETAILS

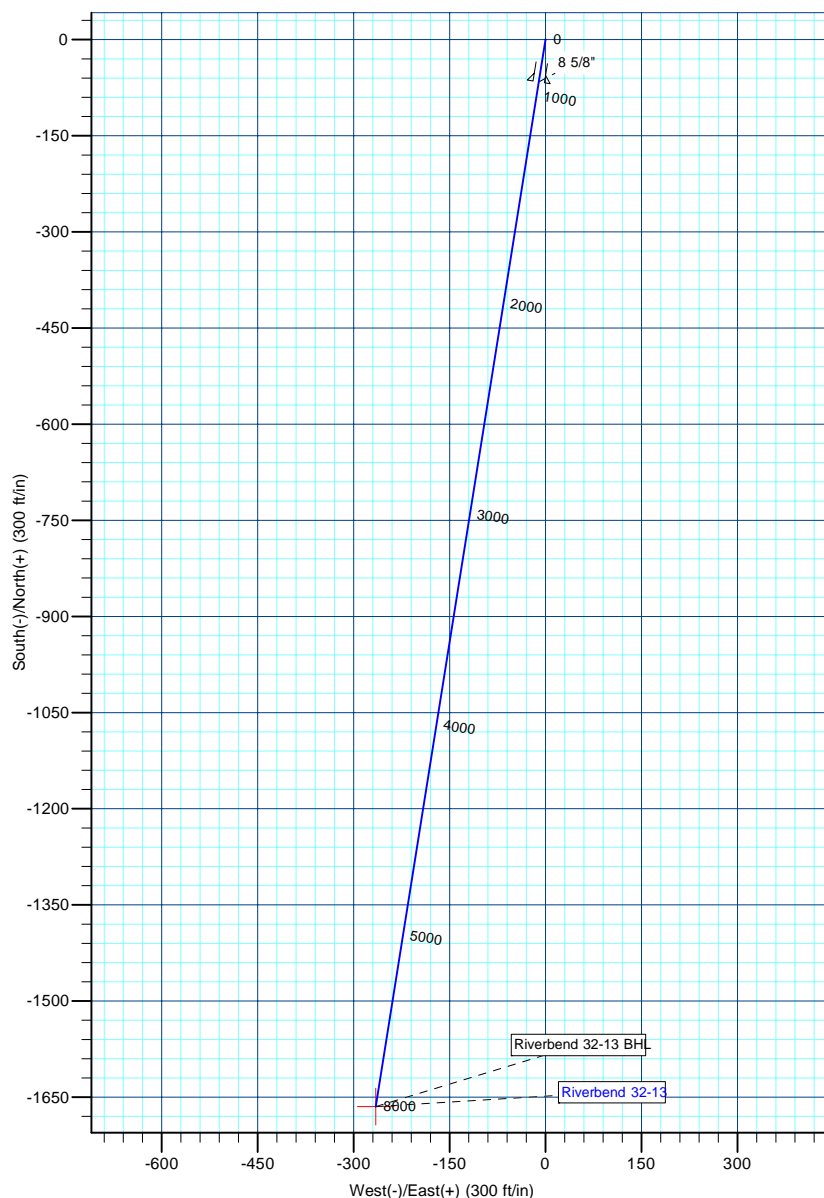
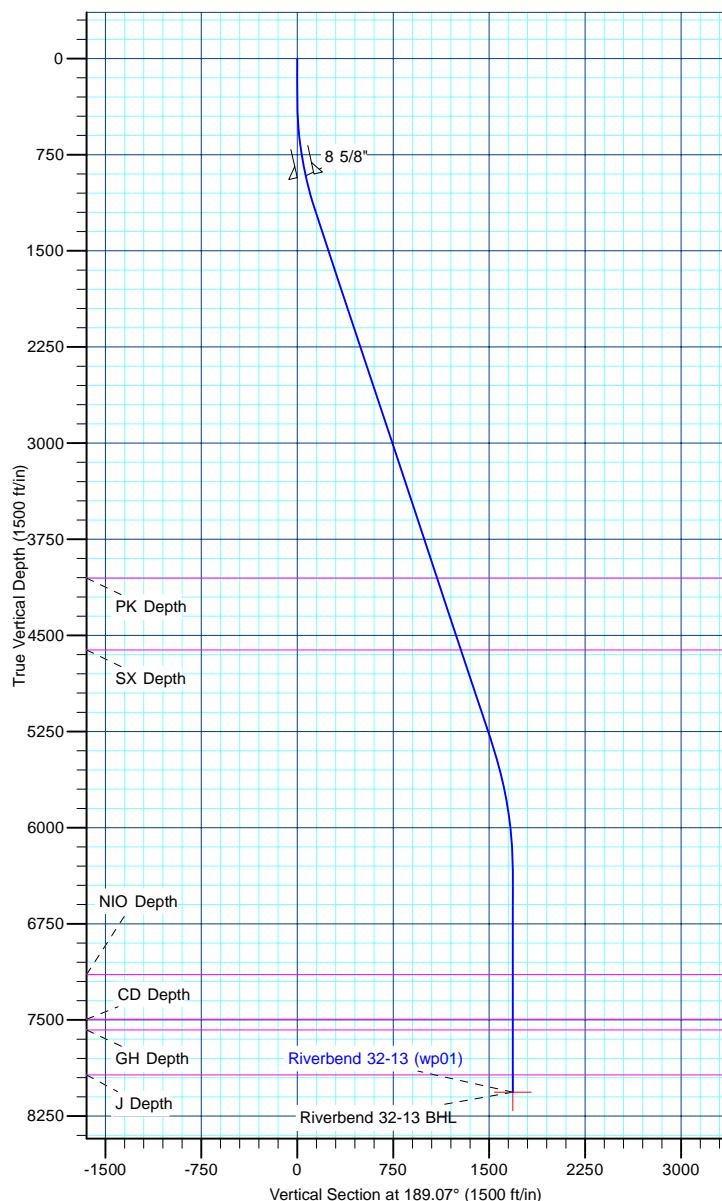
TVD	MD	Name	Size
915.00	919.82	8 5/8"	8-5/8

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Riverbend 32-13 BHL	8063.00	-1664.73	-265.67	1262167.68	3182429.27	40.051199	-104.848329	

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
1219.78	18.40	189.07	1204.06	-144.56	-23.07	2.00	189.07	146.39
5567.69	18.40	189.07	5329.79	-1499.51	-239.30	0.00	0.00	1518.49
6618.87	0.00	0.00	6363.00	-1664.73	-265.67	1.75	180.00	1685.79
8318.87	0.00	0.00	8063.00	-1664.73	-265.67	0.00	0.00	1685.79



Database:	edm5000p	Local Co-ordinate Reference:	Well Riverbend 32-13
Company:	US ROCKIES REGION PLANNING	TVD Reference:	15' RKB + 4952' GL @ 4967.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	15' RKB + 4952' GL @ 4967.00ft
Site:	WELD_RIVERBEND 4-13 PAD	North Reference:	True
Well:	Riverbend 32-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 32-13		
Design:	Riverbend 32-13 (wp01)		

Project	COLORADO NORTHERN ZONE - 83		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site						WELD_RIVERBEND 4-13 PAD											
Site Position:			Northing:			1,263,964.36 ft			Latitude:			40.056126					
From:			Lat/Long			Easting:			3,182,681.16 ft			Longitude:			-104.847382		
Position Uncertainty:			0.00 ft			Slot Radius:			0 "			Grid Convergence:			0.42		

Well	Riverbend 32-13					
Well Position	+N-S	-130.06 ft	Northing:	1,263,834.31 ft	Latitude:	40.055769
	+E-W	0.56 ft	Easting:	3,182,682.67 ft	Longitude:	-104.847380
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,952.00 ft

Wellbore	Riverbend 32-13				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/11/2011	8.87	66.76	52,933

Design	Riverbend 32-13 (wp01)			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.00	0.00	0.00	189.07

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,219.78	18.40	189.07	1,204.06	-144.56	-23.07	2.00	2.00	0.00	189.07	
5,567.69	18.40	189.07	5,329.79	-1,499.51	-239.30	0.00	0.00	0.00	0.00	
6,618.87	0.00	0.00	6,363.00	-1,664.73	-265.67	1.75	-1.75	0.00	180.00	
8,318.87	0.00	0.00	8,063.00	-1,664.73	-265.67	0.00	0.00	0.00	0.00	Riverbend 32-13 Bt

Database:	edm5000p	Local Co-ordinate Reference:	Well Riverbend 32-13
Company:	US ROCKIES REGION PLANNING	TVD Reference:	15' RKB + 4952' GL @ 4967.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	15' RKB + 4952' GL @ 4967.00ft
Site:	WELD_RIVERBEND 4-13 PAD	North Reference:	True
Well:	Riverbend 32-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 32-13		
Design:	Riverbend 32-13 (wp01)		

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
Start Build 2.00									
400.00	2.00	189.07	399.98	-1.72	-0.28	1.75	2.00	2.00	0.00
500.00	4.00	189.07	499.84	-6.89	-1.10	6.98	2.00	2.00	0.00
600.00	6.00	189.07	599.45	-15.50	-2.47	15.69	2.00	2.00	0.00
700.00	8.00	189.07	698.70	-27.53	-4.39	27.88	2.00	2.00	0.00
800.00	10.00	189.07	797.47	-42.98	-6.86	43.52	2.00	2.00	0.00
900.00	12.00	189.07	895.62	-61.82	-9.87	62.60	2.00	2.00	0.00
919.82	12.40	189.07	915.00	-65.96	-10.53	66.79	2.00	2.00	0.00
8 5/8"									
1,000.00	14.00	189.07	993.06	-84.03	-13.41	85.10	2.00	2.00	0.00
1,100.00	16.00	189.07	1,089.64	-109.59	-17.49	110.98	2.00	2.00	0.00
1,200.00	18.00	189.07	1,185.27	-138.46	-22.10	140.21	2.00	2.00	0.00
1,219.78	18.40	189.07	1,204.06	-144.56	-23.07	146.39	2.00	2.00	0.00
Start 4347.90 hold at 1219.78 MD									
1,300.00	18.40	189.07	1,280.18	-169.56	-27.06	171.71	0.00	0.00	0.00
1,400.00	18.40	189.07	1,375.07	-200.72	-32.03	203.26	0.00	0.00	0.00
1,500.00	18.40	189.07	1,469.96	-231.89	-37.01	234.82	0.00	0.00	0.00
1,600.00	18.40	189.07	1,564.85	-263.05	-41.98	266.38	0.00	0.00	0.00
1,700.00	18.40	189.07	1,659.74	-294.21	-46.95	297.94	0.00	0.00	0.00
1,800.00	18.40	189.07	1,754.63	-325.38	-51.93	329.49	0.00	0.00	0.00
1,900.00	18.40	189.07	1,849.52	-356.54	-56.90	361.05	0.00	0.00	0.00
2,000.00	18.40	189.07	1,944.41	-387.70	-61.87	392.61	0.00	0.00	0.00
2,100.00	18.40	189.07	2,039.30	-418.87	-66.85	424.17	0.00	0.00	0.00
2,200.00	18.40	189.07	2,134.19	-450.03	-71.82	455.72	0.00	0.00	0.00
2,300.00	18.40	189.07	2,229.08	-481.19	-76.79	487.28	0.00	0.00	0.00
2,400.00	18.40	189.07	2,323.97	-512.36	-81.76	518.84	0.00	0.00	0.00
2,500.00	18.40	189.07	2,418.86	-543.52	-86.74	550.40	0.00	0.00	0.00
2,600.00	18.40	189.07	2,513.75	-574.68	-91.71	581.96	0.00	0.00	0.00
2,700.00	18.40	189.07	2,608.64	-605.85	-96.68	613.51	0.00	0.00	0.00
2,800.00	18.40	189.07	2,703.53	-637.01	-101.66	645.07	0.00	0.00	0.00
2,900.00	18.40	189.07	2,798.42	-668.17	-106.63	676.63	0.00	0.00	0.00
3,000.00	18.40	189.07	2,893.31	-699.34	-111.60	708.19	0.00	0.00	0.00
3,100.00	18.40	189.07	2,988.20	-730.50	-116.58	739.74	0.00	0.00	0.00
3,200.00	18.40	189.07	3,083.09	-761.66	-121.55	771.30	0.00	0.00	0.00
3,300.00	18.40	189.07	3,177.98	-792.83	-126.52	802.86	0.00	0.00	0.00
3,400.00	18.40	189.07	3,272.87	-823.99	-131.50	834.42	0.00	0.00	0.00
3,500.00	18.40	189.07	3,367.76	-855.15	-136.47	865.97	0.00	0.00	0.00
3,600.00	18.40	189.07	3,462.65	-886.32	-141.44	897.53	0.00	0.00	0.00
3,700.00	18.40	189.07	3,557.54	-917.48	-146.42	929.09	0.00	0.00	0.00
3,800.00	18.40	189.07	3,652.43	-948.64	-151.39	960.65	0.00	0.00	0.00
3,900.00	18.40	189.07	3,747.32	-979.81	-156.36	992.21	0.00	0.00	0.00
4,000.00	18.40	189.07	3,842.21	-1,010.97	-161.34	1,023.76	0.00	0.00	0.00
4,100.00	18.40	189.07	3,937.10	-1,042.13	-166.31	1,055.32	0.00	0.00	0.00
4,200.00	18.40	189.07	4,031.99	-1,073.30	-171.28	1,086.88	0.00	0.00	0.00
4,222.14	18.40	189.07	4,053.00	-1,080.20	-172.38	1,093.87	0.00	0.00	0.00
PK Depth									
4,300.00	18.40	189.07	4,126.88	-1,104.46	-176.26	1,118.44	0.00	0.00	0.00
4,400.00	18.40	189.07	4,221.77	-1,135.62	-181.23	1,149.99	0.00	0.00	0.00
4,500.00	18.40	189.07	4,316.66	-1,166.79	-186.20	1,181.55	0.00	0.00	0.00
4,600.00	18.40	189.07	4,411.55	-1,197.95	-191.18	1,213.11	0.00	0.00	0.00

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	15' RKB + 4952' GL @ 4967.00ft
Site:	WELD_RIVERBEND 4-13 PAD	North Reference:	True
Well:	Riverbend 32-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 32-13		
Design:	Riverbend 32-13 (wp01)		

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	18.40	189.07	4,506.44	-1,229.11	-196.15	1,244.67	0.00	0.00	0.00
4,800.00	18.40	189.07	4,601.33	-1,260.28	-201.12	1,276.22	0.00	0.00	0.00
4,813.35	18.40	189.07	4,614.00	-1,264.44	-201.79	1,280.44	0.00	0.00	0.00
SX Depth									
4,900.00	18.40	189.07	4,696.22	-1,291.44	-206.10	1,307.78	0.00	0.00	0.00
5,000.00	18.40	189.07	4,791.11	-1,322.60	-211.07	1,339.34	0.00	0.00	0.00
5,100.00	18.40	189.07	4,886.00	-1,353.77	-216.04	1,370.90	0.00	0.00	0.00
5,200.00	18.40	189.07	4,980.89	-1,384.93	-221.01	1,402.46	0.00	0.00	0.00
5,300.00	18.40	189.07	5,075.78	-1,416.09	-225.99	1,434.01	0.00	0.00	0.00
5,400.00	18.40	189.07	5,170.67	-1,447.26	-230.96	1,465.57	0.00	0.00	0.00
5,500.00	18.40	189.07	5,265.56	-1,478.42	-235.93	1,497.13	0.00	0.00	0.00
5,567.69	18.40	189.07	5,329.79	-1,499.51	-239.30	1,518.49	0.00	0.00	0.00
Start Drop -1.75									
5,600.00	17.83	189.07	5,360.50	-1,509.43	-240.88	1,528.53	1.75	-1.75	0.00
5,700.00	16.08	189.07	5,456.15	-1,538.23	-245.48	1,557.70	1.75	-1.75	0.00
5,800.00	14.33	189.07	5,552.65	-1,564.13	-249.61	1,583.92	1.75	-1.75	0.00
5,900.00	12.58	189.07	5,649.90	-1,587.11	-253.28	1,607.19	1.75	-1.75	0.00
6,000.00	10.83	189.07	5,747.81	-1,607.14	-256.48	1,627.48	1.75	-1.75	0.00
6,100.00	9.08	189.07	5,846.30	-1,624.21	-259.20	1,644.76	1.75	-1.75	0.00
6,200.00	7.33	189.07	5,945.28	-1,638.30	-261.45	1,659.03	1.75	-1.75	0.00
6,300.00	5.58	189.07	6,044.64	-1,649.41	-263.22	1,670.28	1.75	-1.75	0.00
6,400.00	3.83	189.07	6,144.30	-1,657.51	-264.51	1,678.48	1.75	-1.75	0.00
6,500.00	2.08	189.07	6,244.16	-1,662.60	-265.33	1,683.63	1.75	-1.75	0.00
6,600.00	0.33	189.07	6,344.13	-1,664.67	-265.66	1,685.74	1.75	-1.75	0.00
6,618.87	0.00	0.00	6,363.00	-1,664.73	-265.67	1,685.79	1.75	-1.75	906.06
Start 1700.00 hold at 6618.87 MD									
6,700.00	0.00	0.00	6,444.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
6,800.00	0.00	0.00	6,544.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
6,900.00	0.00	0.00	6,644.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
7,000.00	0.00	0.00	6,744.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
7,100.00	0.00	0.00	6,844.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
7,200.00	0.00	0.00	6,944.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
7,300.00	0.00	0.00	7,044.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
7,400.00	0.00	0.00	7,144.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
7,401.87	0.00	0.00	7,146.00	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
NIO Depth									
7,500.00	0.00	0.00	7,244.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
7,600.00	0.00	0.00	7,344.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
7,700.00	0.00	0.00	7,444.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
7,748.87	0.00	0.00	7,493.00	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
CD Depth									
7,800.00	0.00	0.00	7,544.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
7,833.87	0.00	0.00	7,578.00	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
GH Depth									
7,900.00	0.00	0.00	7,644.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
8,000.00	0.00	0.00	7,744.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
8,100.00	0.00	0.00	7,844.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
8,183.87	0.00	0.00	7,928.00	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
J Depth									
8,200.00	0.00	0.00	7,944.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
8,300.00	0.00	0.00	8,044.13	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
8,318.87	0.00	0.00	8,063.00	-1,664.73	-265.67	1,685.79	0.00	0.00	0.00
TD at 8318.87 - Riverbend 32-13 BHL									

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Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	15' RKB + 4952' GL @ 4967.00ft
Site:	WELD_RIVERBEND 4-13 PAD	North Reference:	True
Well:	Riverbend 32-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 32-13		
Design:	Riverbend 32-13 (wp01)		

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)

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Riverbend 32-13 BHL - hit/miss target - Shape - Point	0.00	0.00	8,063.00	-1,664.73	-265.67	1,262,167.67	3,182,429.27	40.051199	-104.848329

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 (°)	
4,222.14	4,053.00	PK Depth				
4,813.35	4,614.00	SX Depth				
7,401.87	7,146.00	NIO Depth				
7,748.87	7,493.00	CD Depth				
7,833.87	7,578.00	GH Depth				
8,183.87	7,928.00	J Depth				

Plan Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
300.00	300.00	0.00	0.00	Start Build 2.00
1,219.78	1,204.06	-144.56	-23.07	Start 4347.90 hold at 1219.78 MD
5,567.69	5,329.79	-1,499.51	-239.30	Start Drop -1.75
6,618.87	6,363.00	-1,664.73	-265.67	Start 1700.00 hold at 6618.87 MD
8,318.87	8,063.00	-1,664.73	-265.67	TD at 8318.87