

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_RIVERBEND 19-19 PAD

RIVERBEND 14-19

RIVERBEND 14-19

Plan: RIVERBEND 14-19 (wp02)


Standard Planning Report

07 June, 2011



Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_RIVERBEND 19-19 PAD
 Well: RIVERBEND 14-19
 Wellbore: RIVERBEND 14-19
 Section:
 SHL: P_RIVERBEND 14-19
 Design: RIVERBEND 14-19 (wp02)
 Latitude: 40.032113
 Longitude: -104.825939
 GL: 4929.00
 KB: 15' RKB + 4929' GL @ 4944.00ft

FORMATION TOP DETAILS		
TVDPath	MDPath	Formation
4044.00	4209.52	PK Depth
4680.00	4845.52	SX Depth
7212.00	7377.52	NIO Depth
7559.00	7724.52	CD Depth
7644.00	7809.52	GH Depth
7994.00	8159.52	J Depth



Weatherford®

T G M
 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 14-19

+N/-S	+E/-W	Northing	Ground Level: Easting	4929.00 Latitude	40.032113 Longitude	Slot
0.00	0.00	1255262.15	3188749.87	40.032113	-104.825939	

CASING DETAILS

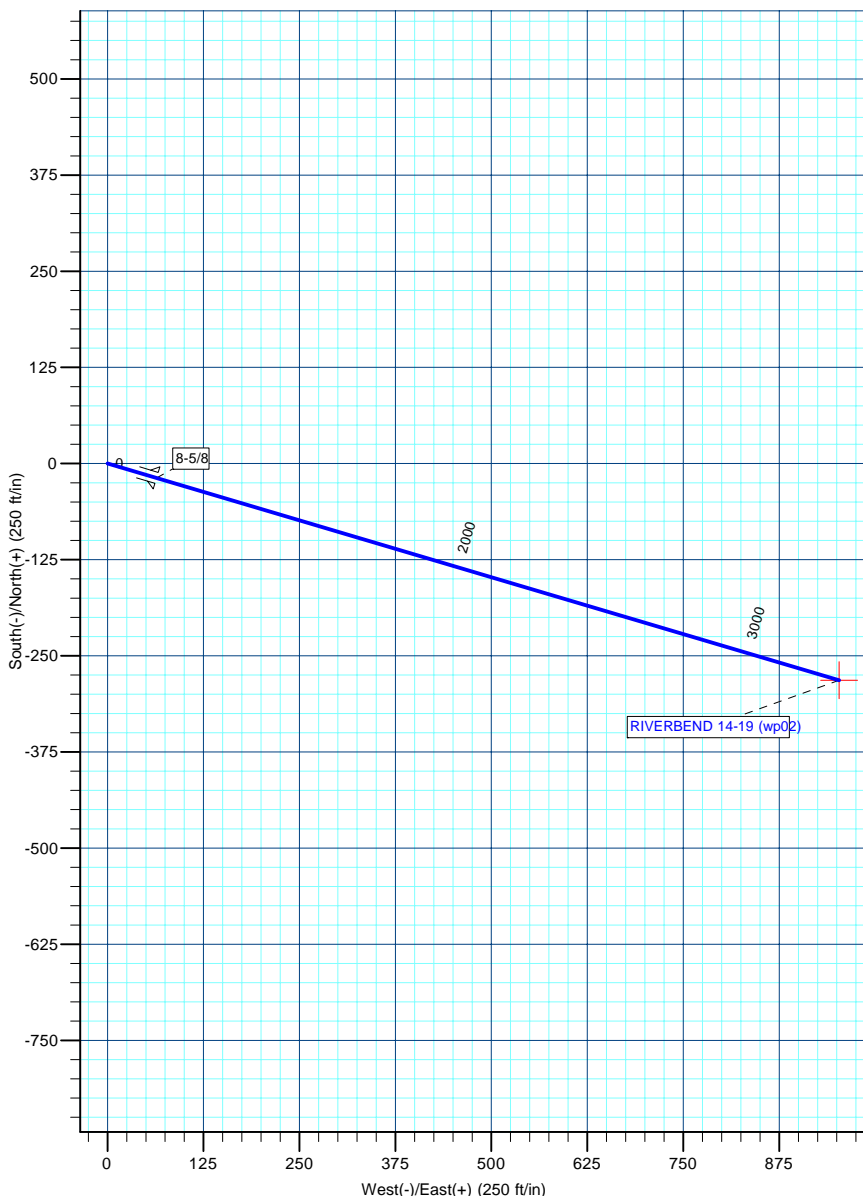
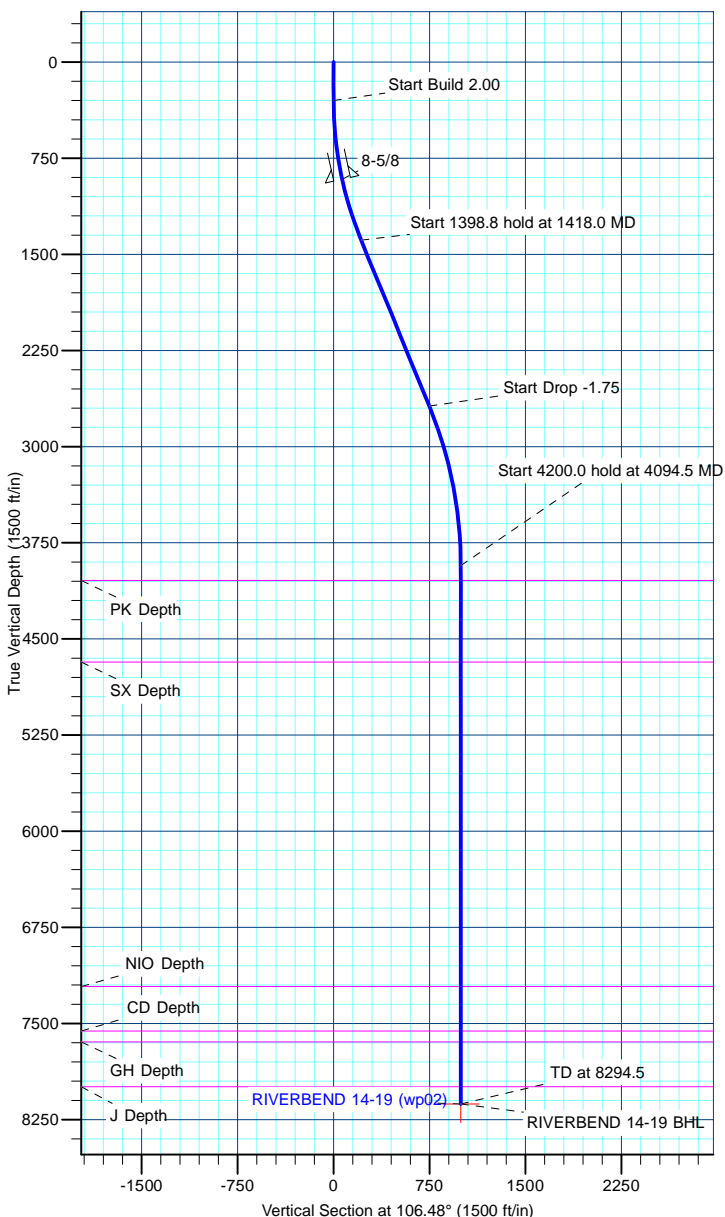
TVD	MD	Name	Size
915.00	919.82	8-5/8	8-5/8

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
RIVERBEND 14-19 BHL	8129.00	-281.96	952.86	1254980.19	3189702.73	40.031319	-104.822544	

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
1417.98	22.36	106.48	1389.82	-61.12	206.54	2.00	106.48	215.39
2816.83	22.36	106.48	2683.49	-212.12	716.81	0.00	0.00	747.54
4094.52	0.00	0.00	3929.00	-281.96	952.86	1.75	180.00	993.70
8294.52	0.00	0.00	8129.00	-281.96	952.86	0.00	0.00	993.70



Database:	edm5000p	Local Co-ordinate Reference:	Well RIVERBEND 14-19
Company:	US ROCKIES REGION PLANNING	TVD Reference:	15' RKB + 4929' GL @ 4944.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	15' RKB + 4929' GL @ 4944.00ft
Site:	WELD_RIVERBEND 19-19 PAD	North Reference:	Grid
Well:	RIVERBEND 14-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	RIVERBEND 14-19		
Design:	RIVERBEND 14-19 (wp02)		

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 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 14-19					
Well Position	+N-S	-31.39 ft	Northing:	1,255,262.15 ft	Latitude:	40.032113
	+E-W	-6.48 ft	Easting:	3,188,749.87 ft	Longitude:	-104.825939
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,929.00 ft

Wellbore	RIVERBEND 14-19				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF200510	10/31/2008	9.18	66.84	53,223

Design	RIVERBEND 14-19 (wp02)			
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	106.48

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	0.01	300.00	0.00	0.00	0.00	0.00	0.00	0.01	
1,417.98	22.36	106.48	1,389.82	-61.12	206.54	2.00	2.00	0.00	106.48	
2,816.83	22.36	106.48	2,683.49	-212.12	716.81	0.00	0.00	0.00	0.00	
4,094.52	0.00	0.01	3,929.00	-281.96	952.86	1.75	-1.75	0.00	180.00	
8,294.52	0.00	0.01	8,129.00	-281.96	952.86	0.00	0.00	0.00	0.00	RIVERBEND 14-19

Database:	edm5000p	Local Co-ordinate Reference:	Well RIVERBEND 14-19
Company:	US ROCKIES REGION PLANNING	TVD Reference:	15' RKB + 4929' GL @ 4944.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	15' RKB + 4929' GL @ 4944.00ft
Site:	WELD_RIVERBEND 19-19 PAD	North Reference:	Grid
Well:	RIVERBEND 14-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	RIVERBEND 14-19		
Design:	RIVERBEND 14-19 (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	0.01	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.01	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.01	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Start Build 2.00									
400.00	2.00	106.48	399.98	-0.50	1.67	1.75	2.00	2.00	0.00
500.00	4.00	106.48	499.84	-1.98	6.69	6.98	2.00	2.00	0.00
600.00	6.00	106.48	599.45	-4.45	15.05	15.69	2.00	2.00	0.00
700.00	8.00	106.48	698.70	-7.91	26.73	27.88	2.00	2.00	0.00
800.00	10.00	106.48	797.47	-12.35	41.73	43.52	2.00	2.00	0.00
900.00	12.00	106.48	895.62	-17.76	60.03	62.60	2.00	2.00	0.00
919.82	12.40	106.48	915.00	-18.95	64.05	66.79	2.00	2.00	0.00
8-5/8									
1,000.00	14.00	106.48	993.06	-24.15	81.60	85.10	2.00	2.00	0.00
1,100.00	16.00	106.48	1,089.64	-31.49	106.42	110.98	2.00	2.00	0.00
1,200.00	18.00	106.48	1,185.27	-39.79	134.45	140.21	2.00	2.00	0.00
1,300.00	20.00	106.48	1,279.82	-49.02	165.67	172.77	2.00	2.00	0.00
1,400.00	22.00	106.48	1,373.17	-59.19	200.03	208.60	2.00	2.00	0.00
1,417.98	22.36	106.48	1,389.82	-61.12	206.54	215.39	2.00	2.00	0.00
Start 1398.8 hold at 1418.0 MD									
1,500.00	22.36	106.48	1,465.67	-69.97	236.46	246.59	0.00	0.00	0.00
1,600.00	22.36	106.48	1,558.15	-80.77	272.94	284.63	0.00	0.00	0.00
1,700.00	22.36	106.48	1,650.63	-91.56	309.41	322.68	0.00	0.00	0.00
1,800.00	22.36	106.48	1,743.12	-102.35	345.89	360.72	0.00	0.00	0.00
1,900.00	22.36	106.48	1,835.60	-113.15	382.37	398.76	0.00	0.00	0.00
2,000.00	22.36	106.48	1,928.08	-123.94	418.85	436.80	0.00	0.00	0.00
2,100.00	22.36	106.48	2,020.56	-134.74	455.33	474.84	0.00	0.00	0.00
2,200.00	22.36	106.48	2,113.04	-145.53	491.80	512.89	0.00	0.00	0.00
2,300.00	22.36	106.48	2,205.52	-156.33	528.28	550.93	0.00	0.00	0.00
2,400.00	22.36	106.48	2,298.00	-167.12	564.76	588.97	0.00	0.00	0.00
2,500.00	22.36	106.48	2,390.49	-177.92	601.24	627.01	0.00	0.00	0.00
2,600.00	22.36	106.48	2,482.97	-188.71	637.72	665.05	0.00	0.00	0.00
2,700.00	22.36	106.48	2,575.45	-199.50	674.20	703.09	0.00	0.00	0.00
2,800.00	22.36	106.48	2,667.93	-210.30	710.67	741.14	0.00	0.00	0.00
2,816.83	22.36	106.48	2,683.49	-212.12	716.81	747.54	0.00	0.00	0.00
Start Drop -1.75									
2,900.00	20.90	106.48	2,760.81	-220.82	746.21	778.20	1.75	-1.75	0.00
3,000.00	19.15	106.48	2,854.75	-230.53	779.05	812.45	1.75	-1.75	0.00
3,100.00	17.40	106.48	2,949.70	-239.43	809.13	843.81	1.75	-1.75	0.00
3,200.00	15.65	106.48	3,045.57	-247.51	836.41	872.26	1.75	-1.75	0.00
3,300.00	13.90	106.48	3,142.26	-254.74	860.87	897.77	1.75	-1.75	0.00
3,400.00	12.15	106.48	3,239.68	-261.14	882.48	920.31	1.75	-1.75	0.00
3,500.00	10.40	106.48	3,337.74	-266.69	901.24	939.87	1.75	-1.75	0.00
3,600.00	8.65	106.48	3,436.36	-271.39	917.11	956.42	1.75	-1.75	0.00
3,700.00	6.90	106.48	3,535.43	-275.23	930.09	969.96	1.75	-1.75	0.00
3,800.00	5.15	106.48	3,634.88	-278.21	940.16	980.46	1.75	-1.75	0.00
3,900.00	3.40	106.48	3,734.59	-280.33	947.32	987.92	1.75	-1.75	0.00
4,000.00	1.65	106.48	3,834.49	-281.58	951.55	992.33	1.75	-1.75	0.00
4,094.52	0.00	0.01	3,929.00	-281.96	952.86	993.70	1.75	-1.75	0.00
Start 4200.0 hold at 4094.5 MD									
4,100.00	0.00	0.01	3,934.48	-281.96	952.86	993.70	0.00	0.00	0.00
4,200.00	0.00	0.01	4,034.48	-281.96	952.86	993.70	0.00	0.00	0.00
4,209.52	0.00	0.01	4,044.00	-281.96	952.86	993.70	0.00	0.00	0.00

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	15' RKB + 4929' GL @ 4944.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	15' RKB + 4929' GL @ 4944.00ft
Site:	WELD_RIVERBEND 19-19 PAD	North Reference:	Grid
Well:	RIVERBEND 14-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	RIVERBEND 14-19		
Design:	RIVERBEND 14-19 (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)
PK Depth									
4,300.00	0.00	0.01	4,134.48	-281.96	952.86	993.70	0.00	0.00	0.00
4,400.00	0.00	0.01	4,234.48	-281.96	952.86	993.70	0.00	0.00	0.00
4,500.00	0.00	0.01	4,334.48	-281.96	952.86	993.70	0.00	0.00	0.00
4,600.00	0.00	0.01	4,434.48	-281.96	952.86	993.70	0.00	0.00	0.00
4,700.00	0.00	0.01	4,534.48	-281.96	952.86	993.70	0.00	0.00	0.00
4,800.00	0.00	0.01	4,634.48	-281.96	952.86	993.70	0.00	0.00	0.00
4,845.52	0.00	0.01	4,680.00	-281.96	952.86	993.70	0.00	0.00	0.00
SX Depth									
4,900.00	0.00	0.01	4,734.48	-281.96	952.86	993.70	0.00	0.00	0.00
5,000.00	0.00	0.01	4,834.48	-281.96	952.86	993.70	0.00	0.00	0.00
5,100.00	0.00	0.01	4,934.48	-281.96	952.86	993.70	0.00	0.00	0.00
5,200.00	0.00	0.01	5,034.48	-281.96	952.86	993.70	0.00	0.00	0.00
5,300.00	0.00	0.01	5,134.48	-281.96	952.86	993.70	0.00	0.00	0.00
5,400.00	0.00	0.01	5,234.48	-281.96	952.86	993.70	0.00	0.00	0.00
5,500.00	0.00	0.01	5,334.48	-281.96	952.86	993.70	0.00	0.00	0.00
5,600.00	0.00	0.01	5,434.48	-281.96	952.86	993.70	0.00	0.00	0.00
5,700.00	0.00	0.01	5,534.48	-281.96	952.86	993.70	0.00	0.00	0.00
5,800.00	0.00	0.01	5,634.48	-281.96	952.86	993.70	0.00	0.00	0.00
5,900.00	0.00	0.01	5,734.48	-281.96	952.86	993.70	0.00	0.00	0.00
6,000.00	0.00	0.01	5,834.48	-281.96	952.86	993.70	0.00	0.00	0.00
6,100.00	0.00	0.01	5,934.48	-281.96	952.86	993.70	0.00	0.00	0.00
6,200.00	0.00	0.01	6,034.48	-281.96	952.86	993.70	0.00	0.00	0.00
6,300.00	0.00	0.01	6,134.48	-281.96	952.86	993.70	0.00	0.00	0.00
6,400.00	0.00	0.01	6,234.48	-281.96	952.86	993.70	0.00	0.00	0.00
6,500.00	0.00	0.01	6,334.48	-281.96	952.86	993.70	0.00	0.00	0.00
6,600.00	0.00	0.01	6,434.48	-281.96	952.86	993.70	0.00	0.00	0.00
6,700.00	0.00	0.01	6,534.48	-281.96	952.86	993.70	0.00	0.00	0.00
6,800.00	0.00	0.01	6,634.48	-281.96	952.86	993.70	0.00	0.00	0.00
6,900.00	0.00	0.01	6,734.48	-281.96	952.86	993.70	0.00	0.00	0.00
7,000.00	0.00	0.01	6,834.48	-281.96	952.86	993.70	0.00	0.00	0.00
7,100.00	0.00	0.01	6,934.48	-281.96	952.86	993.70	0.00	0.00	0.00
7,200.00	0.00	0.01	7,034.48	-281.96	952.86	993.70	0.00	0.00	0.00
7,300.00	0.00	0.01	7,134.48	-281.96	952.86	993.70	0.00	0.00	0.00
7,377.52	0.00	0.01	7,212.00	-281.96	952.86	993.70	0.00	0.00	0.00
NIO Depth									
7,400.00	0.00	0.01	7,234.48	-281.96	952.86	993.70	0.00	0.00	0.00
7,500.00	0.00	0.01	7,334.48	-281.96	952.86	993.70	0.00	0.00	0.00
7,600.00	0.00	0.01	7,434.48	-281.96	952.86	993.70	0.00	0.00	0.00
7,700.00	0.00	0.01	7,534.48	-281.96	952.86	993.70	0.00	0.00	0.00
7,724.52	0.00	0.01	7,559.00	-281.96	952.86	993.70	0.00	0.00	0.00
CD Depth									
7,800.00	0.00	0.01	7,634.48	-281.96	952.86	993.70	0.00	0.00	0.00
7,809.52	0.00	0.01	7,644.00	-281.96	952.86	993.70	0.00	0.00	0.00
GH Depth									
7,900.00	0.00	0.01	7,734.48	-281.96	952.86	993.70	0.00	0.00	0.00
8,000.00	0.00	0.01	7,834.48	-281.96	952.86	993.70	0.00	0.00	0.00
8,100.00	0.00	0.01	7,934.48	-281.96	952.86	993.70	0.00	0.00	0.00
8,159.52	0.00	0.01	7,994.00	-281.96	952.86	993.70	0.00	0.00	0.00
J Depth									
8,200.00	0.00	0.01	8,034.48	-281.96	952.86	993.70	0.00	0.00	0.00
8,294.52	0.00	0.01	8,129.00	-281.96	952.86	993.70	0.00	0.00	0.00
TD at 8294.5 - PBHL_RIVERBEND 14-19 - RIVERBEND 14-19 BHL									

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Company:	US ROCKIES REGION PLANNING	TVD Reference:	15' RKB + 4929' GL @ 4944.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	15' RKB + 4929' GL @ 4944.00ft
Site:	WELD_RIVERBEND 19-19 PAD	North Reference:	Grid
Well:	RIVERBEND 14-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	RIVERBEND 14-19		
Design:	RIVERBEND 14-19 (wp02)		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
- Shape									
RIVERBEND 14-19 B	0.00	0.00	8,129.00	-281.96	952.86	1,254,980.19	3,189,702.73	40.031319	-104.822544
- plan hits target center									
- Point									

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

Formations						
Measured Depth	Vertical Depth	Name		Lithology	Dip	Dip Direction
(ft)	(ft)				(°)	(°)
4,209.52	4,044.00	PK Depth				
4,845.52	4,680.00	SX Depth				
7,377.52	7,212.00	NIO Depth				
7,724.52	7,559.00	CD Depth				
7,809.52	7,644.00	GH Depth				
8,159.52	7,994.00	J Depth				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates		Comment	
(ft)	(ft)	+N/-S (ft)	+E/-W (ft)		
300.00	300.00	0.00	0.00	Start Build 2.00	
1,417.98	1,389.82	-61.12	206.54	Start 1398.8 hold at 1418.0 MD	
2,816.83	2,683.49	-212.12	716.81	Start Drop -1.75	
4,094.52	3,929.00	-281.96	952.86	Start 4200.0 hold at 4094.5 MD	
8,294.52	8,129.00	-281.96	952.86	TD at 8294.5	