

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_RIVERBEND 4-13 PAD

Riverbend 8-14

Riverbend 8-14

Plan: Riverbend 8-14 (wp01)

Standard Planning Report

11 July, 2011



Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_RIVERBEND 4-13 PAD
 Well: Riverbend 8-14
 Wellbore: Riverbend 8-14
 Section:
 SHL:
 Design: Riverbend 8-14 (wp01)
 Latitude: 40.055879
 Longitude: -104.847381
 GL: 4952.00
 KB: 15' RKB + 4952' GL @ 4967.00ft

FORMATION TOP DETAILS		
TVDPATH	MDPATH	Formation
4052.00	4235.44	PK Depth
4608.00	4823.28	SX Depth
7140.00	7369.10	NIO Depth
7487.00	7716.10	CD Depth
7572.00	7801.10	GH Depth
7922.00	8151.10	J Depth



Azimuths to True North
 Magnetic North: 8.87°

Magnetic Field
 Strength: 52932.6snT
 Dip Angle: 66.76°
 Date: 7/11/2011
 Model: IGRF2010

WELL DETAILS: Riverbend 8-14

+N/-S	+E/-W	Northing	Ground Level: Easting	4952.00 Latitude	Longitude	Slot
0.00	0.00	1263874.38	3182682.10	40.055879	-104.847381	

CASING DETAILS

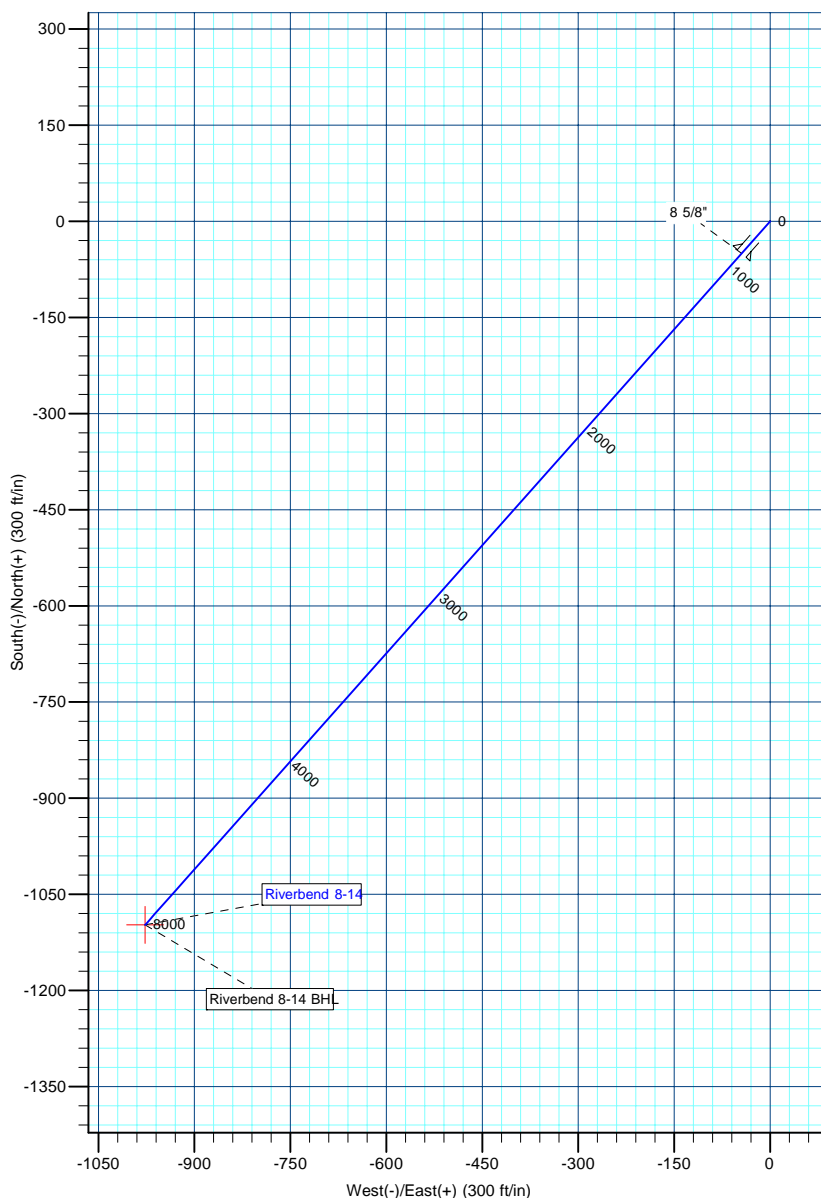
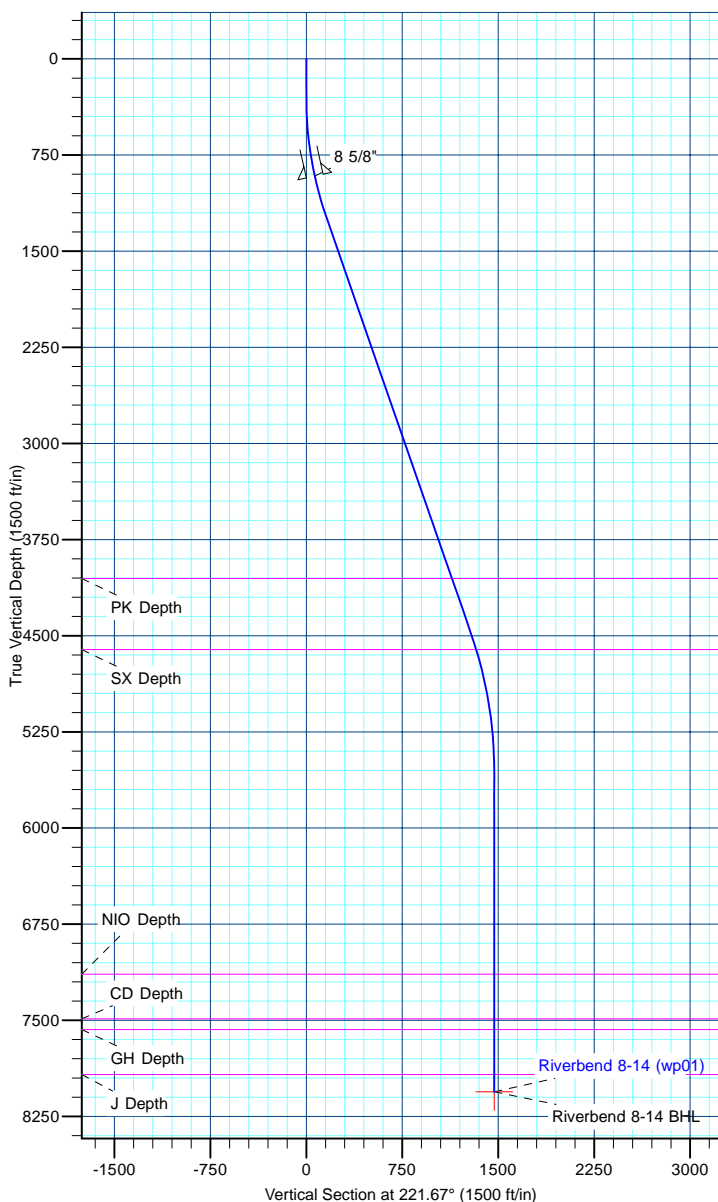
TVD	MD	Name	Size
915.00	919.82	8 5/8"	8-5/8

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Riverbend 8-14 BHL	8057.00	-1097.53	-976.98	1262769.69	3181713.22	40.052866	-104.850871	

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
1260.21	19.20	221.67	1242.33	-119.08	-106.00	2.00	221.67	159.42
4688.72	19.20	221.67	4480.05	-961.44	-855.84	0.00	0.00	1287.18
5786.10	0.00	0.00	5557.00	-1097.53	-976.98	1.75	180.00	1469.37
8286.10	0.00	0.00	8057.00	-1097.53	-976.98	0.00	0.00	1469.37



Database:	edm5000p	Local Co-ordinate Reference:	Well Riverbend 8-14
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 8-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 8-14		
Design:	Riverbend 8-14 (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 8-14					
Well Position	+N-S	-89.99 ft	Northing:	1,263,874.38 ft	Latitude:	40.055879
	+E-W	0.28 ft	Easting:	3,182,682.10 ft	Longitude:	-104.847381
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,952.00 ft

Wellbore	Riverbend 8-14				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/11/2011	8.87	66.76	52,933

Design	Riverbend 8-14 (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	221.67	

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	
1,260.21	19.20	221.67	1,242.33	-119.08	-106.00	2.00	2.00	0.00	221.67	
4,688.72	19.20	221.67	4,480.05	-961.44	-855.84	0.00	0.00	0.00	0.00	
5,786.10	0.00	0.00	5,557.00	-1,097.53	-976.98	1.75	-1.75	0.00	180.00	
8,286.10	0.00	0.00	8,057.00	-1,097.53	-976.98	0.00	0.00	0.00	0.00	Riverbend 8-14 BHI

Database:	edm5000p	Local Co-ordinate Reference:	Well Riverbend 8-14
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 8-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 8-14		
Design:	Riverbend 8-14 (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
400.00	2.00	221.67	399.98	-1.30	-1.16	1.75	2.00	2.00	0.00
500.00	4.00	221.67	499.84	-5.21	-4.64	6.98	2.00	2.00	0.00
600.00	6.00	221.67	599.45	-11.72	-10.43	15.69	2.00	2.00	0.00
700.00	8.00	221.67	698.70	-20.82	-18.54	27.88	2.00	2.00	0.00
800.00	10.00	221.67	797.47	-32.51	-28.94	43.52	2.00	2.00	0.00
900.00	12.00	221.67	895.62	-46.76	-41.62	62.60	2.00	2.00	0.00
919.82	12.40	221.67	915.00	-49.89	-44.41	66.79	2.00	2.00	0.00
8 5/8"									
1,000.00	14.00	221.67	993.06	-63.56	-56.58	85.10	2.00	2.00	0.00
1,100.00	16.00	221.67	1,089.64	-82.89	-73.79	110.98	2.00	2.00	0.00
1,200.00	18.00	221.67	1,185.27	-104.73	-93.23	140.21	2.00	2.00	0.00
1,260.21	19.20	221.67	1,242.33	-119.08	-106.00	159.42	2.00	2.00	0.00
1,300.00	19.20	221.67	1,279.91	-128.85	-114.70	172.51	0.00	0.00	0.00
1,400.00	19.20	221.67	1,374.34	-153.42	-136.57	205.40	0.00	0.00	0.00
1,500.00	19.20	221.67	1,468.78	-177.99	-158.44	238.29	0.00	0.00	0.00
1,600.00	19.20	221.67	1,563.21	-202.56	-180.31	271.19	0.00	0.00	0.00
1,700.00	19.20	221.67	1,657.65	-227.13	-202.18	304.08	0.00	0.00	0.00
1,800.00	19.20	221.67	1,752.08	-251.70	-224.05	336.98	0.00	0.00	0.00
1,900.00	19.20	221.67	1,846.52	-276.27	-245.92	369.87	0.00	0.00	0.00
2,000.00	19.20	221.67	1,940.95	-300.84	-267.79	402.76	0.00	0.00	0.00
2,100.00	19.20	221.67	2,035.39	-325.41	-289.67	435.66	0.00	0.00	0.00
2,200.00	19.20	221.67	2,129.82	-349.98	-311.54	468.55	0.00	0.00	0.00
2,300.00	19.20	221.67	2,224.26	-374.55	-333.41	501.44	0.00	0.00	0.00
2,400.00	19.20	221.67	2,318.70	-399.12	-355.28	534.34	0.00	0.00	0.00
2,500.00	19.20	221.67	2,413.13	-423.69	-377.15	567.23	0.00	0.00	0.00
2,600.00	19.20	221.67	2,507.57	-448.25	-399.02	600.12	0.00	0.00	0.00
2,700.00	19.20	221.67	2,602.00	-472.82	-420.89	633.02	0.00	0.00	0.00
2,800.00	19.20	221.67	2,696.44	-497.39	-442.76	665.91	0.00	0.00	0.00
2,900.00	19.20	221.67	2,790.87	-521.96	-464.63	698.81	0.00	0.00	0.00
3,000.00	19.20	221.67	2,885.31	-546.53	-486.50	731.70	0.00	0.00	0.00
3,100.00	19.20	221.67	2,979.74	-571.10	-508.37	764.59	0.00	0.00	0.00
3,200.00	19.20	221.67	3,074.18	-595.67	-530.24	797.49	0.00	0.00	0.00
3,300.00	19.20	221.67	3,168.61	-620.24	-552.12	830.38	0.00	0.00	0.00
3,400.00	19.20	221.67	3,263.05	-644.81	-573.99	863.27	0.00	0.00	0.00
3,500.00	19.20	221.67	3,357.48	-669.38	-595.86	896.17	0.00	0.00	0.00
3,600.00	19.20	221.67	3,451.92	-693.95	-617.73	929.06	0.00	0.00	0.00
3,700.00	19.20	221.67	3,546.35	-718.52	-639.60	961.95	0.00	0.00	0.00
3,800.00	19.20	221.67	3,640.79	-743.09	-661.47	994.85	0.00	0.00	0.00
3,900.00	19.20	221.67	3,735.22	-767.66	-683.34	1,027.74	0.00	0.00	0.00
4,000.00	19.20	221.67	3,829.66	-792.23	-705.21	1,060.63	0.00	0.00	0.00
4,100.00	19.20	221.67	3,924.09	-816.80	-727.08	1,093.53	0.00	0.00	0.00
4,200.00	19.20	221.67	4,018.53	-841.37	-748.95	1,126.42	0.00	0.00	0.00
4,235.44	19.20	221.67	4,052.00	-850.07	-756.70	1,138.08	0.00	0.00	0.00
PK Depth									
4,300.00	19.20	221.67	4,112.96	-865.94	-770.82	1,159.32	0.00	0.00	0.00
4,400.00	19.20	221.67	4,207.40	-890.50	-792.69	1,192.21	0.00	0.00	0.00
4,500.00	19.20	221.67	4,301.83	-915.07	-814.56	1,225.10	0.00	0.00	0.00
4,600.00	19.20	221.67	4,396.27	-939.64	-836.44	1,258.00	0.00	0.00	0.00
4,688.72	19.20	221.67	4,480.05	-961.44	-855.84	1,287.18	0.00	0.00	0.00
4,700.00	19.01	221.67	4,490.71	-964.20	-858.29	1,290.87	1.75	-1.75	0.00

Database:	edm5000p	Local Co-ordinate Reference:	Well Riverbend 8-14
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 8-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 8-14		
Design:	Riverbend 8-14 (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)
4,800.00	17.26	221.67	4,585.74	-987.44	-878.99	1,321.99	1.75	-1.75	0.00
4,823.28	16.85	221.67	4,608.00	-992.54	-883.52	1,328.82	1.75	-1.75	0.00
SX Depth									
4,900.00	15.51	221.67	4,681.68	-1,008.51	-897.74	1,350.19	1.75	-1.75	0.00
5,000.00	13.76	221.67	4,778.43	-1,027.38	-914.53	1,375.45	1.75	-1.75	0.00
5,100.00	12.01	221.67	4,875.91	-1,044.03	-929.35	1,397.75	1.75	-1.75	0.00
5,200.00	10.26	221.67	4,974.03	-1,058.45	-942.19	1,417.05	1.75	-1.75	0.00
5,300.00	8.51	221.67	5,072.68	-1,070.62	-953.03	1,433.35	1.75	-1.75	0.00
5,400.00	6.76	221.67	5,171.80	-1,080.54	-961.86	1,446.63	1.75	-1.75	0.00
5,500.00	5.01	221.67	5,271.26	-1,088.20	-968.67	1,456.88	1.75	-1.75	0.00
5,600.00	3.26	221.67	5,371.00	-1,093.58	-973.46	1,464.08	1.75	-1.75	0.00
5,700.00	1.51	221.67	5,470.91	-1,096.68	-976.23	1,468.24	1.75	-1.75	0.00
5,786.10	0.00	0.00	5,557.00	-1,097.53	-976.98	1,469.37	1.75	-1.75	0.00
5,800.00	0.00	0.00	5,570.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
5,900.00	0.00	0.00	5,670.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
6,000.00	0.00	0.00	5,770.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
6,100.00	0.00	0.00	5,870.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
6,200.00	0.00	0.00	5,970.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
6,300.00	0.00	0.00	6,070.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
6,400.00	0.00	0.00	6,170.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
6,500.00	0.00	0.00	6,270.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
6,600.00	0.00	0.00	6,370.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
6,700.00	0.00	0.00	6,470.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
6,800.00	0.00	0.00	6,570.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
6,900.00	0.00	0.00	6,670.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
7,000.00	0.00	0.00	6,770.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
7,100.00	0.00	0.00	6,870.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
7,200.00	0.00	0.00	6,970.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
7,300.00	0.00	0.00	7,070.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
7,369.10	0.00	0.00	7,140.00	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
NIO Depth									
7,400.00	0.00	0.00	7,170.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
7,500.00	0.00	0.00	7,270.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
7,600.00	0.00	0.00	7,370.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
7,700.00	0.00	0.00	7,470.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
7,716.10	0.00	0.00	7,487.00	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
CD Depth									
7,800.00	0.00	0.00	7,570.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
7,801.10	0.00	0.00	7,572.00	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
GH Depth									
7,900.00	0.00	0.00	7,670.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
8,000.00	0.00	0.00	7,770.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
8,100.00	0.00	0.00	7,870.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
8,151.10	0.00	0.00	7,922.00	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
J Depth									
8,200.00	0.00	0.00	7,970.90	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
8,286.10	0.00	0.00	8,057.00	-1,097.53	-976.98	1,469.37	0.00	0.00	0.00
Riverbend 8-14 BHL									

Database:	edm5000p	Local Co-ordinate Reference:	Well Riverbend 8-14
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 8-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 8-14		
Design:	Riverbend 8-14 (wp01)		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(ft)	(ft)	(ft)	(ft)	(ft)		
Riverbend 8-14 BHL	0.00	0.00	8,057.00	-1,097.53	-976.98	1,262,769.69	3,181,713.23	40.052866	-104.850871
- plan hits target center									
- Point									

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

Formations						
Measured Depth	Vertical Depth				Dip	Dip Direction
(ft)	(ft)		Name	Lithology	(°)	(°)
4,235.44	4,052.00	PK Depth				
4,823.28	4,608.00	SX Depth				
7,369.10	7,140.00	NIO Depth				
7,716.10	7,487.00	CD Depth				
7,801.10	7,572.00	GH Depth				
8,151.10	7,922.00	J Depth				