

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_RIVERBEND 4-13 PAD

Riverbend 5-13

Riverbend 5-13

Plan: Riverbend 5-13 (wp01)

Standard Planning Report

11 July, 2011



Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_RIVERBEND 4-13 PAD
 Well: Riverbend 5-13
 Wellbore: Riverbend 5-13
 Section:
 SHL:
 Design: Riverbend 5-13 (wp01)
 Latitude: 40.055797
 Longitude: -104.847381
 GL: 4952.00
 KB: 15' RKB + 4952' GL @ 4967.00ft

FORMATION TOP DETAILS		
TVDPATH	MDPATH	FORMATION
4053.00	4182.37	PK Depth
4619.00	4763.31	SX Depth
7151.00	7296.73	NIO Depth
7498.00	7643.73	CD Depth
7583.00	7728.73	GH Depth
7933.00	8078.73	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 5-13

+N/-S	+E/-W	Northing	Ground Level: Easting	4952.00 Latitude	Longitude	Slot
0.00	0.00	1263844.51	3182682.32	40.055797	-104.847381	

CASING DETAILS

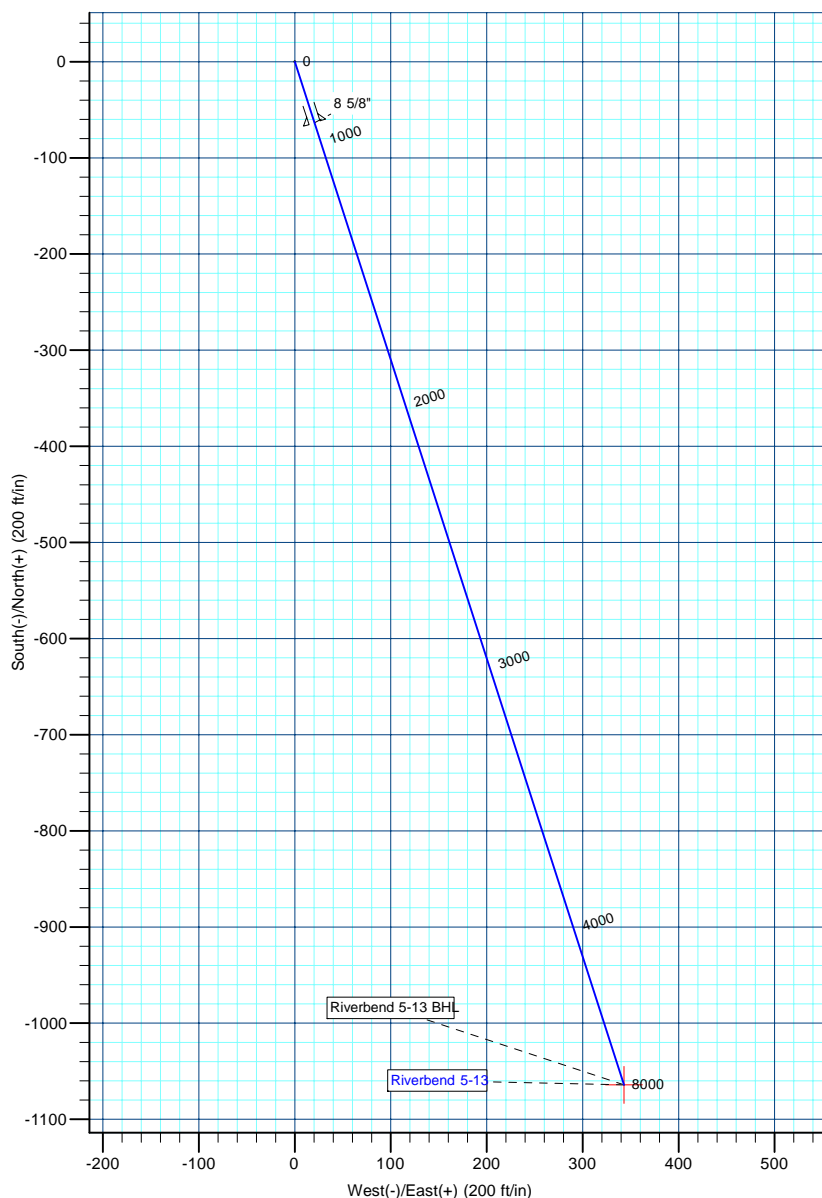
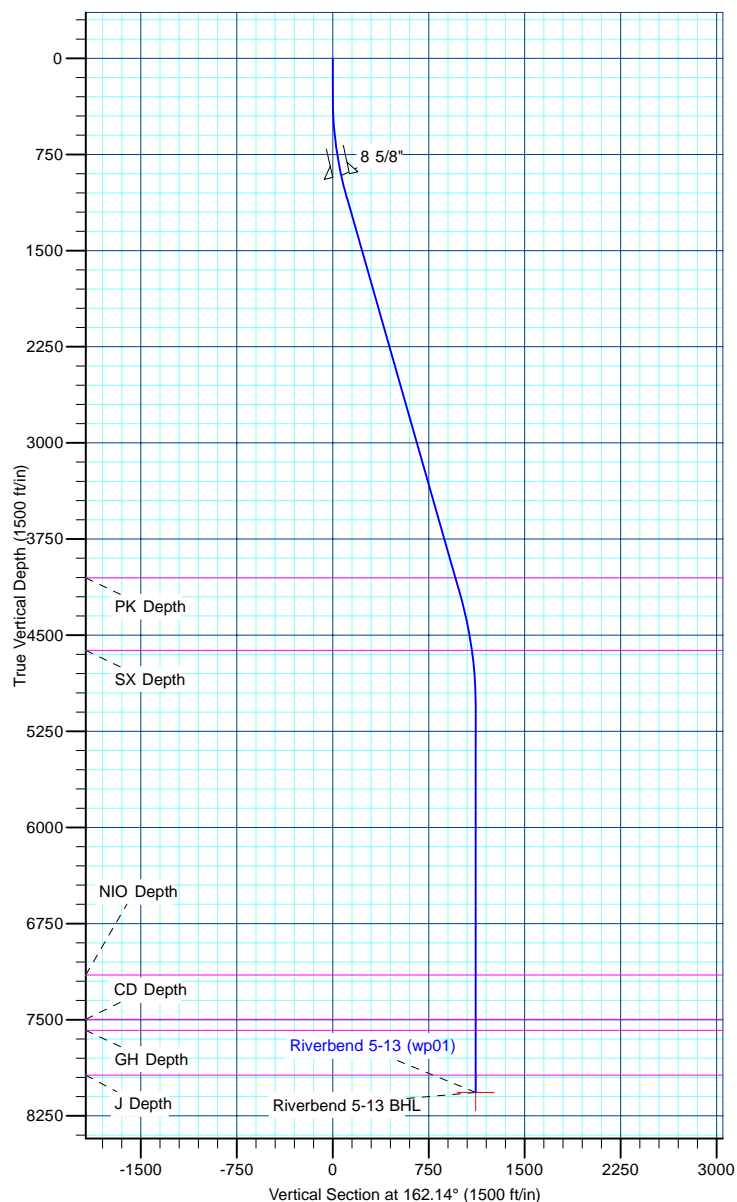
TVD	MD	Name	Size
915.00	919.82	8 5/8"	8-5/8

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Riverbend 5-13 BHL	8068.00	-1064.40	342.92	1262782.66	3183033.07	40.052875	-104.846156	

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
1098.68	15.97	162.14	1088.37	-105.28	33.92	2.00	162.14	110.61
4300.95	15.97	162.14	4167.00	-944.07	304.16	0.00	0.00	991.86
5213.73	0.00	0.00	5068.00	-1064.40	342.92	1.75	180.00	1118.28
8213.73	0.00	0.00	8068.00	-1064.40	342.92	0.00	0.00	1118.28



Database:	edm5000p	Local Co-ordinate Reference:	Well Riverbend 5-13
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 5-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 5-13		
Design:	Riverbend 5-13 (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 5-13					
Well Position	+N-S	-119.86 ft	Northing:	1,263,844.51 ft	Latitude:	40.055797
	+E-W	0.28 ft	Easting:	3,182,682.32 ft	Longitude:	-104.847381
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,952.00 ft

Wellbore	Riverbend 5-13				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/11/2011	8.87	66.76	52,933

Design	Riverbend 5-13 (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	162.14

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	
1,098.68	15.97	162.14	1,088.37	-105.28	33.92	2.00	2.00	0.00	162.14	
4,300.95	15.97	162.14	4,167.00	-944.07	304.16	0.00	0.00	0.00	0.00	
5,213.73	0.00	0.00	5,068.00	-1,064.40	342.92	1.75	-1.75	0.00	180.00	
8,213.73	0.00	0.00	8,068.00	-1,064.40	342.92	0.00	0.00	0.00	0.00	Riverbend 5-13 BHI

Database:	edm5000p	Local Co-ordinate Reference:	Well Riverbend 5-13
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 5-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 5-13		
Design:	Riverbend 5-13 (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	162.14	399.98	-1.66	0.54	1.75	2.00	2.00	0.00
500.00	4.00	162.14	499.84	-6.64	2.14	6.98	2.00	2.00	0.00
600.00	6.00	162.14	599.45	-14.94	4.81	15.69	2.00	2.00	0.00
700.00	8.00	162.14	698.70	-26.54	8.55	27.88	2.00	2.00	0.00
800.00	10.00	162.14	797.47	-41.43	13.35	43.52	2.00	2.00	0.00
900.00	12.00	162.14	895.62	-59.59	19.20	62.60	2.00	2.00	0.00
919.82	12.40	162.14	915.00	-63.57	20.48	66.79	2.00	2.00	0.00
8 5/8"									
1,000.00	14.00	162.14	993.06	-81.00	26.10	85.10	2.00	2.00	0.00
1,098.68	15.97	162.14	1,088.37	-105.28	33.92	110.61	2.00	2.00	0.00
Start 3202.27 hold at 1098.68 MD									
1,100.00	15.97	162.14	1,089.64	-105.63	34.03	110.98	0.00	0.00	0.00
1,200.00	15.97	162.14	1,185.78	-131.82	42.47	138.50	0.00	0.00	0.00
1,300.00	15.97	162.14	1,281.92	-158.02	50.91	166.02	0.00	0.00	0.00
1,400.00	15.97	162.14	1,378.06	-184.21	59.35	193.54	0.00	0.00	0.00
1,500.00	15.97	162.14	1,474.20	-210.40	67.79	221.05	0.00	0.00	0.00
1,600.00	15.97	162.14	1,570.34	-236.60	76.23	248.57	0.00	0.00	0.00
1,700.00	15.97	162.14	1,666.48	-262.79	84.66	276.09	0.00	0.00	0.00
1,800.00	15.97	162.14	1,762.62	-288.99	93.10	303.61	0.00	0.00	0.00
1,900.00	15.97	162.14	1,858.75	-315.18	101.54	331.13	0.00	0.00	0.00
2,000.00	15.97	162.14	1,954.89	-341.37	109.98	358.65	0.00	0.00	0.00
2,100.00	15.97	162.14	2,051.03	-367.57	118.42	386.17	0.00	0.00	0.00
2,200.00	15.97	162.14	2,147.17	-393.76	126.86	413.69	0.00	0.00	0.00
2,300.00	15.97	162.14	2,243.31	-419.95	135.30	441.21	0.00	0.00	0.00
2,400.00	15.97	162.14	2,339.45	-446.15	143.74	468.73	0.00	0.00	0.00
2,500.00	15.97	162.14	2,435.59	-472.34	152.18	496.25	0.00	0.00	0.00
2,600.00	15.97	162.14	2,531.73	-498.53	160.61	523.77	0.00	0.00	0.00
2,700.00	15.97	162.14	2,627.86	-524.73	169.05	551.29	0.00	0.00	0.00
2,800.00	15.97	162.14	2,724.00	-550.92	177.49	578.81	0.00	0.00	0.00
2,900.00	15.97	162.14	2,820.14	-577.11	185.93	606.33	0.00	0.00	0.00
3,000.00	15.97	162.14	2,916.28	-603.31	194.37	633.85	0.00	0.00	0.00
3,100.00	15.97	162.14	3,012.42	-629.50	202.81	661.37	0.00	0.00	0.00
3,200.00	15.97	162.14	3,108.56	-655.70	211.25	688.89	0.00	0.00	0.00
3,300.00	15.97	162.14	3,204.70	-681.89	219.69	716.40	0.00	0.00	0.00
3,400.00	15.97	162.14	3,300.84	-708.08	228.13	743.92	0.00	0.00	0.00
3,500.00	15.97	162.14	3,396.98	-734.28	236.56	771.44	0.00	0.00	0.00
3,600.00	15.97	162.14	3,493.11	-760.47	245.00	798.96	0.00	0.00	0.00
3,700.00	15.97	162.14	3,589.25	-786.66	253.44	826.48	0.00	0.00	0.00
3,800.00	15.97	162.14	3,685.39	-812.86	261.88	854.00	0.00	0.00	0.00
3,900.00	15.97	162.14	3,781.53	-839.05	270.32	881.52	0.00	0.00	0.00
4,000.00	15.97	162.14	3,877.67	-865.24	278.76	909.04	0.00	0.00	0.00
4,100.00	15.97	162.14	3,973.81	-891.44	287.20	936.56	0.00	0.00	0.00
4,182.37	15.97	162.14	4,053.00	-913.01	294.15	959.23	0.00	0.00	0.00
PK Depth									
4,200.00	15.97	162.14	4,069.95	-917.63	295.64	964.08	0.00	0.00	0.00
4,300.00	15.97	162.14	4,166.09	-943.83	304.08	991.60	0.00	0.00	0.00
4,300.95	15.97	162.14	4,167.00	-944.07	304.16	991.86	0.00	0.00	0.00
Start Drop -1.75									
4,400.00	14.24	162.14	4,262.62	-968.64	312.07	1,017.67	1.75	-1.75	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 5-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 5-13		
Design:	Riverbend 5-13 (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)
4,500.00	12.49	162.14	4,359.91	-990.65	319.16	1,040.79	1.75	-1.75	0.00
4,600.00	10.74	162.14	4,457.86	-1,009.81	325.33	1,060.92	1.75	-1.75	0.00
4,700.00	8.99	162.14	4,556.38	-1,026.12	330.59	1,078.05	1.75	-1.75	0.00
4,763.31	7.88	162.14	4,619.00	-1,034.96	333.44	1,087.34	1.75	-1.75	0.00
SX Depth									
4,800.00	7.24	162.14	4,655.37	-1,039.55	334.92	1,092.17	1.75	-1.75	0.00
4,900.00	5.49	162.14	4,754.75	-1,050.10	338.32	1,103.26	1.75	-1.75	0.00
5,000.00	3.74	162.14	4,854.42	-1,057.76	340.78	1,111.30	1.75	-1.75	0.00
5,100.00	1.99	162.14	4,954.29	-1,062.52	342.32	1,116.30	1.75	-1.75	0.00
5,200.00	0.24	162.14	5,054.27	-1,064.37	342.91	1,118.25	1.75	-1.75	0.00
5,213.73	0.00	0.00	5,068.00	-1,064.40	342.92	1,118.28	1.75	-1.75	-1,181.04
Start 3000.00 hold at 5213.73 MD									
5,300.00	0.00	0.00	5,154.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
5,400.00	0.00	0.00	5,254.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
5,500.00	0.00	0.00	5,354.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
5,600.00	0.00	0.00	5,454.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
5,700.00	0.00	0.00	5,554.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
5,800.00	0.00	0.00	5,654.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
5,900.00	0.00	0.00	5,754.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
6,000.00	0.00	0.00	5,854.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
6,100.00	0.00	0.00	5,954.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
6,200.00	0.00	0.00	6,054.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
6,300.00	0.00	0.00	6,154.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
6,400.00	0.00	0.00	6,254.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
6,500.00	0.00	0.00	6,354.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
6,600.00	0.00	0.00	6,454.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
6,700.00	0.00	0.00	6,554.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
6,800.00	0.00	0.00	6,654.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
6,900.00	0.00	0.00	6,754.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
7,000.00	0.00	0.00	6,854.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
7,100.00	0.00	0.00	6,954.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
7,200.00	0.00	0.00	7,054.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
7,296.73	0.00	0.00	7,151.00	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
NIO Depth									
7,300.00	0.00	0.00	7,154.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
7,400.00	0.00	0.00	7,254.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
7,500.00	0.00	0.00	7,354.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
7,600.00	0.00	0.00	7,454.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
7,643.73	0.00	0.00	7,498.00	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
CD Depth									
7,700.00	0.00	0.00	7,554.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
7,728.73	0.00	0.00	7,583.00	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
GH Depth									
7,800.00	0.00	0.00	7,654.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
7,900.00	0.00	0.00	7,754.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
8,000.00	0.00	0.00	7,854.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
8,078.73	0.00	0.00	7,933.00	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
J Depth									
8,100.00	0.00	0.00	7,954.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
8,200.00	0.00	0.00	8,054.27	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
8,213.73	0.00	0.00	8,068.00	-1,064.40	342.92	1,118.28	0.00	0.00	0.00
TD at 8213.73 - Riverbend 5-13 BHL									

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Site:	WELD_RIVERBEND 4-13 PAD	North Reference:	True
Well:	Riverbend 5-13	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 5-13		
Design:	Riverbend 5-13 (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 5-13 BHL	0.00	0.00	8,068.00	-1,064.40	342.92	1,262,782.66	3,183,033.07	40.052875	-104.846156
- 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	(°)	(°)
4,182.37	4,053.00	PK Depth				
4,763.31	4,619.00	SX Depth				
7,296.73	7,151.00	NIO Depth				
7,643.73	7,498.00	CD Depth				
7,728.73	7,583.00	GH Depth				
8,078.73	7,933.00	J Depth				

Plan Annotations					
Measured Depth	Vertical Depth	Local Coordinates			
(ft)	(ft)	+N/-S	+E/-W	Comment	
(ft)	(ft)	(ft)	(ft)		
300.00	300.00	0.00	0.00	Start Build 2.00	
1,098.68	1,088.37	-105.28	33.92	Start 3202.27 hold at 1098.68 MD	
4,300.95	4,167.00	-944.07	304.16	Start Drop -1.75	
5,213.73	5,068.00	-1,064.40	342.92	Start 3000.00 hold at 5213.73 MD	
8,213.73	8,068.00	-1,064.40	342.92	TD at 8213.73	