

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_RIVERBEND 4-13 PAD

Riverbend 26-14

Riverbend 26-14

Plan: Riverbend 26-14 (wp01)

Standard Planning Report

11 July, 2011



Project: COLORADO NORTHERN ZONE - 83
Site: WELD_RIVERBEND 4-13 PAD
Well: Riverbend 26-14
Wellbore: Riverbend 26-14
Section:
SHL:
Design: Riverbend 26-14 (wp01)
Latitude: 40.056099
Longitude: -104.847382
GL: 4952.00
KB: 15' RKB + 4952' GL @ 4967.00ft

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
4051.00	4173.51	PK Depth
4612.00	4734.51	SX Depth
7144.00	7266.51	NIO Depth
7491.00	7613.51	CD Depth
7576.00	7698.51	GH Depth
7926.00	8048.51	J Depth



Azimuths to True North
Magnetic North: 8.87°

Magnetic Field
Strength: 52932.7snT
Dip Angle: 66.76°
Date: 7/11/2011
Model: IGRF2010

WELL DETAILS: Riverbend 26-14

+N/-S	+E/-W	Northing	Ground Level: Easting	4952.00 Latitude	Longitude	Slot
0.00	0.00	1263954.52	3182681.23	40.056099	-104.847382	

CASING DETAILS

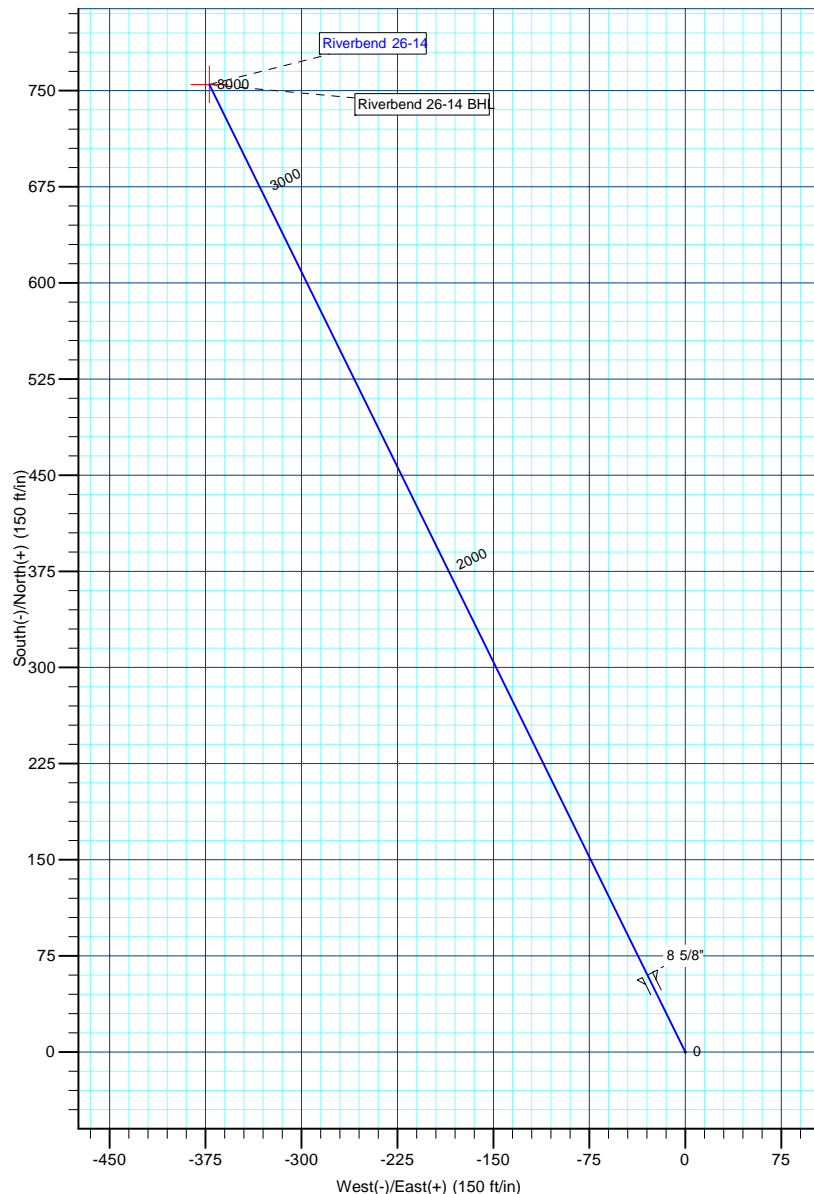
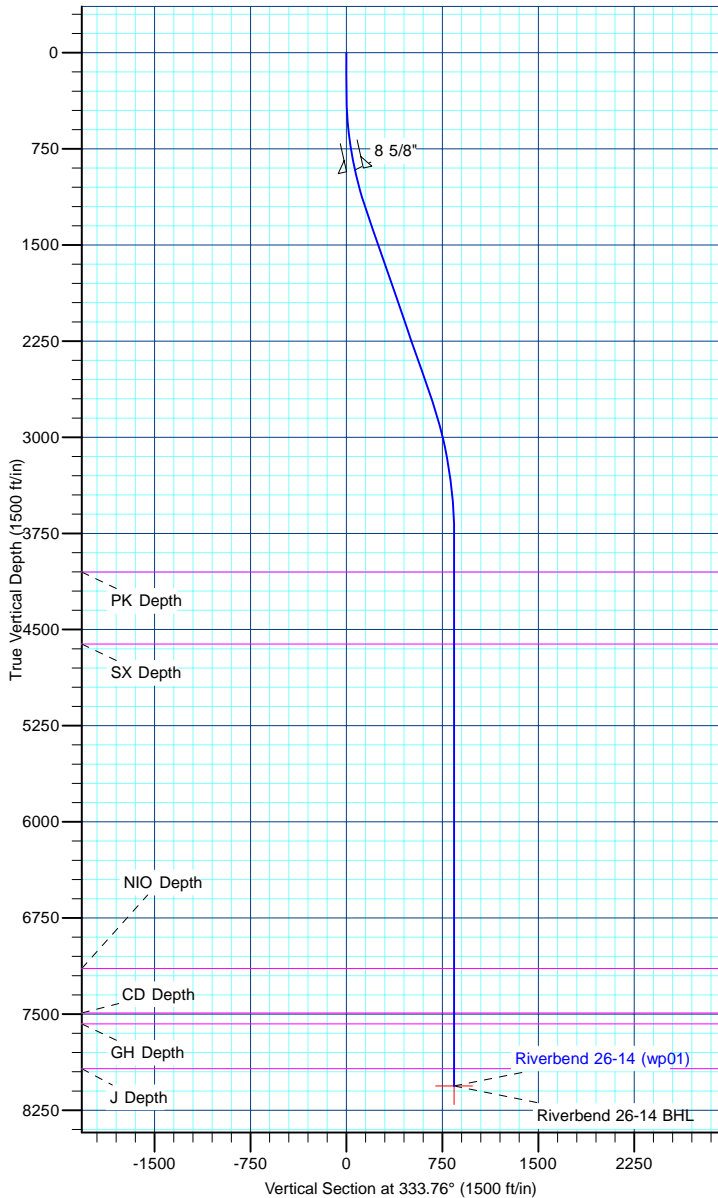
TVD	MD	Name	Size
915.00	919.82	8 5/8"	8-5/8

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Riverbend 26-14 BHL	8061.00	754.80	-372.01	1264706.55	3182303.68	40.058171	-104.848711	

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
1256.14	19.12	333.76	1238.49	141.80	-69.89	2.00	333.76	158.08
2790.78	19.12	333.76	2688.44	592.74	-292.14	0.00	0.00	660.82
3883.51	0.00	0.00	3761.00	754.80	-372.01	1.75	180.00	841.49
8183.51	0.00	0.00	8061.00	754.80	-372.01	0.00	0.00	841.49



Database:	edm5000p	Local Co-ordinate Reference:	Well Riverbend 26-14
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 26-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 26-14		
Design:	Riverbend 26-14 (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 26-14					
Well Position	+N-S	-9.85 ft	Northing:	1,263,954.52 ft	Latitude:	40.056099
	+E-W	0.00 ft	Easting:	3,182,681.23 ft	Longitude:	-104.847382
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,952.00 ft

Wellbore	Riverbend 26-14				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/11/2011	8.87	66.76	52,933

Design	Riverbend 26-14 (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	333.76

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	
1,256.14	19.12	333.76	1,238.49	141.80	-69.89	2.00	2.00	0.00	333.76	
2,790.78	19.12	333.76	2,688.44	592.74	-292.14	0.00	0.00	0.00	0.00	
3,883.51	0.00	0.00	3,761.00	754.80	-372.01	1.75	-1.75	0.00	180.00	
8,183.51	0.00	0.00	8,061.00	754.80	-372.01	0.00	0.00	0.00	0.00	Riverbend 26-14 Bt

Database:	edm5000p	Local Co-ordinate Reference:	Well Riverbend 26-14
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 26-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 26-14		
Design:	Riverbend 26-14 (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
Start Build 2.00									
400.00	2.00	333.76	399.98	1.57	-0.77	1.75	2.00	2.00	0.00
500.00	4.00	333.76	499.84	6.26	-3.09	6.98	2.00	2.00	0.00
600.00	6.00	333.76	599.45	14.08	-6.94	15.69	2.00	2.00	0.00
700.00	8.00	333.76	698.70	25.01	-12.33	27.88	2.00	2.00	0.00
800.00	10.00	333.76	797.47	39.04	-19.24	43.52	2.00	2.00	0.00
900.00	12.00	333.76	895.62	56.15	-27.68	62.60	2.00	2.00	0.00
919.82	12.40	333.76	915.00	59.91	-29.53	66.79	2.00	2.00	0.00
8 5/8"									
1,000.00	14.00	333.76	993.06	76.33	-37.62	85.10	2.00	2.00	0.00
1,100.00	16.00	333.76	1,089.64	99.54	-49.06	110.98	2.00	2.00	0.00
1,200.00	18.00	333.76	1,185.27	125.77	-61.99	140.21	2.00	2.00	0.00
1,256.14	19.12	333.76	1,238.49	141.80	-69.89	158.08	2.00	2.00	0.00
Start 1534.63 hold at 1256.14 MD									
1,300.00	19.12	333.76	1,279.93	154.68	-76.24	172.45	0.00	0.00	0.00
1,400.00	19.12	333.76	1,374.41	184.07	-90.72	205.21	0.00	0.00	0.00
1,500.00	19.12	333.76	1,468.89	213.45	-105.20	237.97	0.00	0.00	0.00
1,600.00	19.12	333.76	1,563.37	242.84	-119.68	270.73	0.00	0.00	0.00
1,700.00	19.12	333.76	1,657.85	272.22	-134.17	303.49	0.00	0.00	0.00
1,800.00	19.12	333.76	1,752.34	301.61	-148.65	336.25	0.00	0.00	0.00
1,900.00	19.12	333.76	1,846.82	330.99	-163.13	369.01	0.00	0.00	0.00
2,000.00	19.12	333.76	1,941.30	360.38	-177.61	401.77	0.00	0.00	0.00
2,100.00	19.12	333.76	2,035.78	389.76	-192.10	434.53	0.00	0.00	0.00
2,200.00	19.12	333.76	2,130.26	419.14	-206.58	467.29	0.00	0.00	0.00
2,300.00	19.12	333.76	2,224.75	448.53	-221.06	500.05	0.00	0.00	0.00
2,400.00	19.12	333.76	2,319.23	477.91	-235.54	532.81	0.00	0.00	0.00
2,500.00	19.12	333.76	2,413.71	507.30	-250.03	565.57	0.00	0.00	0.00
2,600.00	19.12	333.76	2,508.19	536.68	-264.51	598.32	0.00	0.00	0.00
2,700.00	19.12	333.76	2,602.67	566.07	-278.99	631.08	0.00	0.00	0.00
2,790.78	19.12	333.76	2,688.44	592.74	-292.14	660.82	0.00	0.00	0.00
Start Drop -1.75									
2,800.00	18.96	333.76	2,697.16	595.44	-293.47	663.83	1.75	-1.75	0.00
2,900.00	17.21	333.76	2,792.21	623.29	-307.19	694.88	1.75	-1.75	0.00
3,000.00	15.46	333.76	2,888.17	648.52	-319.63	723.00	1.75	-1.75	0.00
3,100.00	13.71	333.76	2,984.95	671.10	-330.76	748.19	1.75	-1.75	0.00
3,200.00	11.96	333.76	3,082.44	691.03	-340.58	770.40	1.75	-1.75	0.00
3,300.00	10.21	333.76	3,180.57	708.28	-349.08	789.63	1.75	-1.75	0.00
3,400.00	8.46	333.76	3,279.24	722.83	-356.25	805.85	1.75	-1.75	0.00
3,500.00	6.71	333.76	3,378.37	734.67	-362.09	819.05	1.75	-1.75	0.00
3,600.00	4.96	333.76	3,477.84	743.79	-366.58	829.22	1.75	-1.75	0.00
3,700.00	3.21	333.76	3,577.58	750.18	-369.73	836.35	1.75	-1.75	0.00
3,800.00	1.46	333.76	3,677.50	753.84	-371.54	840.42	1.75	-1.75	0.00
3,883.51	0.00	0.00	3,761.00	754.80	-372.01	841.49	1.75	-1.75	0.00
Start 4300.00 hold at 3883.51 MD									
3,900.00	0.00	0.00	3,777.49	754.80	-372.01	841.49	0.00	0.00	0.00
4,000.00	0.00	0.00	3,877.49	754.80	-372.01	841.49	0.00	0.00	0.00
4,100.00	0.00	0.00	3,977.49	754.80	-372.01	841.49	0.00	0.00	0.00
4,173.51	0.00	0.00	4,051.00	754.80	-372.01	841.49	0.00	0.00	0.00
PK Depth									

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Site:	WELD_RIVERBEND 4-13 PAD	North Reference:	True
Well:	Riverbend 26-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 26-14		
Design:	Riverbend 26-14 (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)
4,200.00	0.00	0.00	4,077.49	754.80	-372.01	841.49	0.00	0.00	0.00
4,300.00	0.00	0.00	4,177.49	754.80	-372.01	841.49	0.00	0.00	0.00
4,400.00	0.00	0.00	4,277.49	754.80	-372.01	841.49	0.00	0.00	0.00
4,500.00	0.00	0.00	4,377.49	754.80	-372.01	841.49	0.00	0.00	0.00
4,600.00	0.00	0.00	4,477.49	754.80	-372.01	841.49	0.00	0.00	0.00
4,700.00	0.00	0.00	4,577.49	754.80	-372.01	841.49	0.00	0.00	0.00
4,734.51	0.00	0.00	4,612.00	754.80	-372.01	841.49	0.00	0.00	0.00
SX Depth									
4,800.00	0.00	0.00	4,677.49	754.80	-372.01	841.49	0.00	0.00	0.00
4,900.00	0.00	0.00	4,777.49	754.80	-372.01	841.49	0.00	0.00	0.00
5,000.00	0.00	0.00	4,877.49	754.80	-372.01	841.49	0.00	0.00	0.00
5,100.00	0.00	0.00	4,977.49	754.80	-372.01	841.49	0.00	0.00	0.00
5,200.00	0.00	0.00	5,077.49	754.80	-372.01	841.49	0.00	0.00	0.00
5,300.00	0.00	0.00	5,177.49	754.80	-372.01	841.49	0.00	0.00	0.00
5,400.00	0.00	0.00	5,277.49	754.80	-372.01	841.49	0.00	0.00	0.00
5,500.00	0.00	0.00	5,377.49	754.80	-372.01	841.49	0.00	0.00	0.00
5,600.00	0.00	0.00	5,477.49	754.80	-372.01	841.49	0.00	0.00	0.00
5,700.00	0.00	0.00	5,577.49	754.80	-372.01	841.49	0.00	0.00	0.00
5,800.00	0.00	0.00	5,677.49	754.80	-372.01	841.49	0.00	0.00	0.00
5,900.00	0.00	0.00	5,777.49	754.80	-372.01	841.49	0.00	0.00	0.00
6,000.00	0.00	0.00	5,877.49	754.80	-372.01	841.49	0.00	0.00	0.00
6,100.00	0.00	0.00	5,977.49	754.80	-372.01	841.49	0.00	0.00	0.00
6,200.00	0.00	0.00	6,077.49	754.80	-372.01	841.49	0.00	0.00	0.00
6,300.00	0.00	0.00	6,177.49	754.80	-372.01	841.49	0.00	0.00	0.00
6,400.00	0.00	0.00	6,277.49	754.80	-372.01	841.49	0.00	0.00	0.00
6,500.00	0.00	0.00	6,377.49	754.80	-372.01	841.49	0.00	0.00	0.00
6,600.00	0.00	0.00	6,477.49	754.80	-372.01	841.49	0.00	0.00	0.00
6,700.00	0.00	0.00	6,577.49	754.80	-372.01	841.49	0.00	0.00	0.00
6,800.00	0.00	0.00	6,677.49	754.80	-372.01	841.49	0.00	0.00	0.00
6,900.00	0.00	0.00	6,777.49	754.80	-372.01	841.49	0.00	0.00	0.00
7,000.00	0.00	0.00	6,877.49	754.80	-372.01	841.49	0.00	0.00	0.00
7,100.00	0.00	0.00	6,977.49	754.80	-372.01	841.49	0.00	0.00	0.00
7,200.00	0.00	0.00	7,077.49	754.80	-372.01	841.49	0.00	0.00	0.00
7,266.51	0.00	0.00	7,144.00	754.80	-372.01	841.49	0.00	0.00	0.00
NIO Depth									
7,300.00	0.00	0.00	7,177.49	754.80	-372.01	841.49	0.00	0.00	0.00
7,400.00	0.00	0.00	7,277.49	754.80	-372.01	841.49	0.00	0.00	0.00
7,500.00	0.00	0.00	7,377.49	754.80	-372.01	841.49	0.00	0.00	0.00
7,600.00	0.00	0.00	7,477.49	754.80	-372.01	841.49	0.00	0.00	0.00
7,613.51	0.00	0.00	7,491.00	754.80	-372.01	841.49	0.00	0.00	0.00
CD Depth									
7,698.51	0.00	0.00	7,576.00	754.80	-372.01	841.49	0.00	0.00	0.00
GH Depth									
7,700.00	0.00	0.00	7,577.49	754.80	-372.01	841.49	0.00	0.00	0.00
7,800.00	0.00	0.00	7,677.49	754.80	-372.01	841.49	0.00	0.00	0.00
7,900.00	0.00	0.00	7,777.49	754.80	-372.01	841.49	0.00	0.00	0.00
8,000.00	0.00	0.00	7,877.49	754.80	-372.01	841.49	0.00	0.00	0.00
8,048.51	0.00	0.00	7,926.00	754.80	-372.01	841.49	0.00	0.00	0.00
J Depth									
8,100.00	0.00	0.00	7,977.49	754.80	-372.01	841.49	0.00	0.00	0.00
8,183.51	0.00	0.00	8,061.00	754.80	-372.01	841.49	0.00	0.00	0.00
TD at 8183.51 - Riverbend 26-14 BHL									

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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 26-14	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 26-14		
Design:	Riverbend 26-14 (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 26-14 BHL	0.00	0.00	8,061.00	754.80	-372.01	1,264,706.55	3,182,303.68	40.058171	-104.848711
- 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	(°)	(°)
4,173.51	4,051.00	PK Depth				
4,734.51	4,612.00	SX Depth				
7,266.51	7,144.00	NIO Depth				
7,613.51	7,491.00	CD Depth				
7,698.51	7,576.00	GH Depth				
8,048.51	7,926.00	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	
1,256.14	1,238.49	141.80	-69.89	Start 1534.63 hold at 1256.14 MD	
2,790.78	2,688.44	592.74	-292.14	Start Drop -1.75	
3,883.51	3,761.00	754.80	-372.01	Start 4300.00 hold at 3883.51 MD	
8,183.51	8,061.00	754.80	-372.01	TD at 8183.51	