

US ROCKIES REGION PLANNING

COLORADO NORTHERN ZONE - 83

WELD_RIVERBEND 5-19 PAD

RIVERBEND 32-19

Riverbend 32-19

Plan: Riverbend 32-19 (wp01)

Standard Planning Report

15 July, 2011



Weatherford®

Project: COLORADO NORTHERN ZONE - 83
 Site: WELD_RIVERBEND 5-19 PAD
 Well: RIVERBEND 32-19
 Wellbore: Riverbend 32-19
 Section:
 SHL:
 Design: Riverbend 32-19 (wp01)
 Latitude: 40.038883
 Longitude: -104.826497
 GL: 4924.00
 KB: 15' RKB + 4924' GL @ 4939.00ft

FORMATION TOP DETAILS		
TVDPATH	MDPATH	FORMATION
4024.00	4198.01	PK Depth
4635.00	4811.78	SX Depth
7167.00	7343.78	NIO Depth
7514.00	7690.78	CD Depth
7599.00	7775.78	GH Depth
7949.00	8125.78	J Depth



Azimuths to True North
 Magnetic North: 8.85°

Magnetic Field
 Strength: 52924.9snT
 Dip Angle: 66.74°
 Date: 7/15/2011
 Model: IGRF2010

WELL DETAILS: RIVERBEND 32-19

+N/-S	+E/-W	Northing	Ground Level: Easting	4924.00 Latitude	Longitude	Slot
0.00	0.00	1257727.04	3188574.89	40.038883	-104.826497	

CASING DETAILS

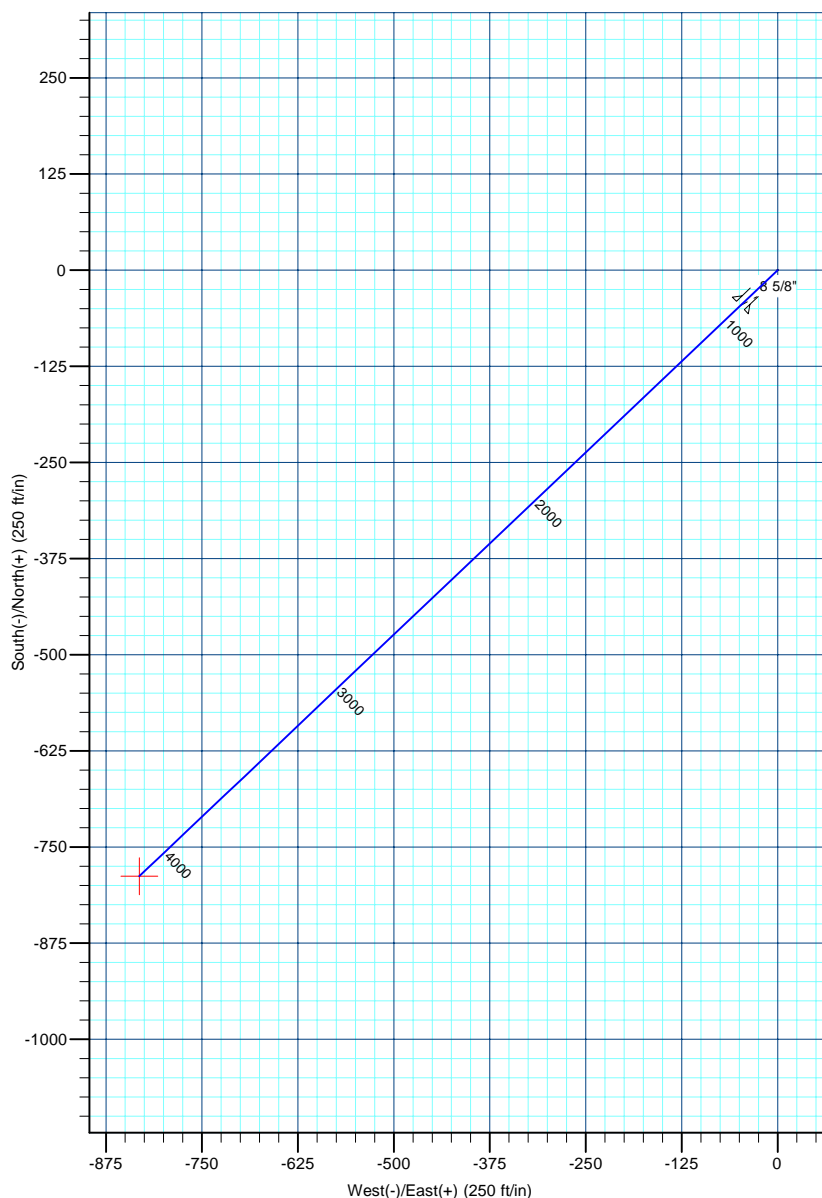
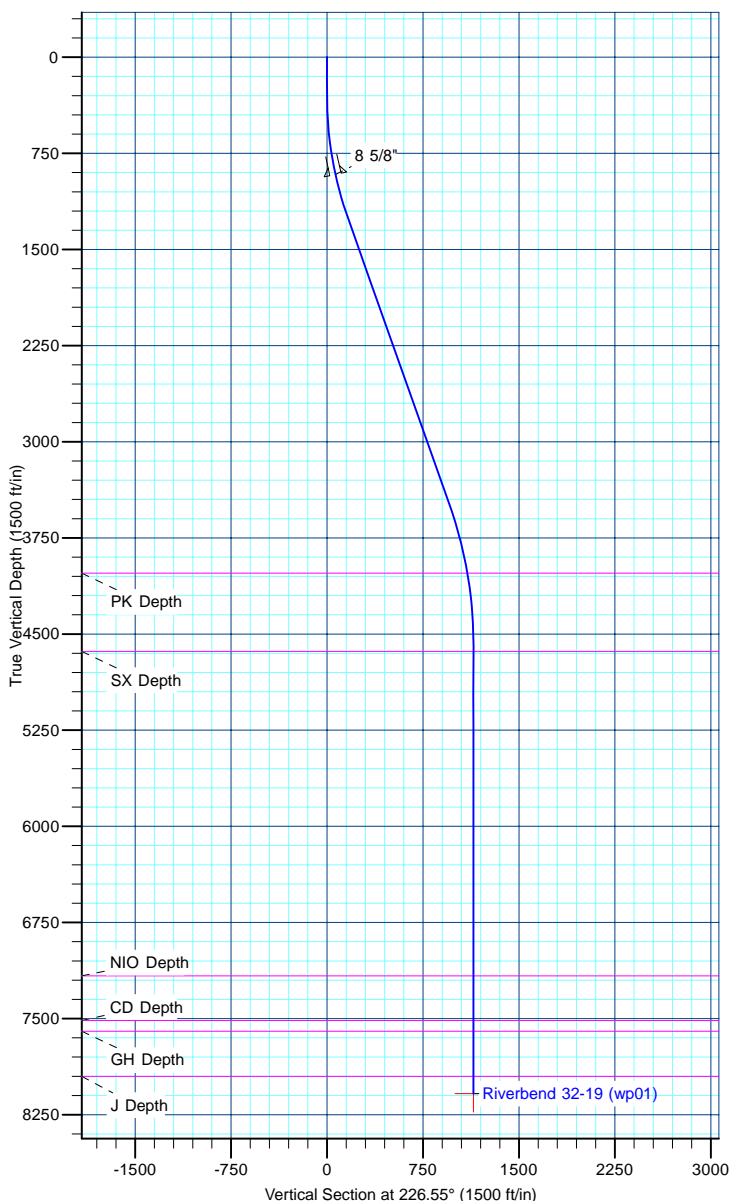
TVD	MD	Name	Size
915.00	919.82	8 5/8"	8-5/8

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape Point
Riverbend 32-19 BHL	8084.00	-787.90	-831.61	1256932.85	3187749.29	40.036720	-104.829467	

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
1277.37	19.55	226.55	1258.52	-113.56	-119.86	2.00	226.55	165.11
3643.79	19.55	226.55	3488.55	-658.12	-694.63	0.00	0.00	956.88
4760.78	0.00	0.00	4584.00	-787.90	-831.61	1.75	180.00	1145.58
8260.78	0.00	0.00	8084.00	-787.90	-831.61	0.00	0.00	1145.58



Database:	edm5000p	Local Co-ordinate Reference:	Well RIVERBEND 32-19
Company:	US ROCKIES REGION PLANNING	TVD Reference:	15' RKB + 4924' GL @ 4939.00ft
Project:	COLORADO NORTHERN ZONE - 83	MD Reference:	15' RKB + 4924' GL @ 4939.00ft
Site:	WELD_RIVERBEND 5-19 PAD	North Reference:	True
Well:	RIVERBEND 32-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 32-19		
Design:	Riverbend 32-19 (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 5-19 PAD			
Site Position:		Northing:	1,257,726.90 ft	Latitude:	40.038883
From:	Lat/Long	Easting:	3,188,555.01 ft	Longitude:	-104.826568
Position Uncertainty:	0.00 ft	Slot Radius:	0 "	Grid Convergence:	0.44

Well	RIVERBEND 32-19					
Well Position	+N-S	-0.01 ft	Northing:	1,257,727.04 ft	Latitude:	40.038883
	+E-W	19.88 ft	Easting:	3,188,574.89 ft	Longitude:	-104.826497
Position Uncertainty		0.00 ft	Wellhead Elevation:		Ground Level:	4,924.00 ft

Wellbore	Riverbend 32-19				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	7/15/2011	8.85	66.74	52,925

Design	Riverbend 32-19 (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	226.55

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	
1,277.37	19.55	226.55	1,258.52	-113.56	-119.86	2.00	2.00	0.00	226.55	
3,643.79	19.55	226.55	3,488.55	-658.12	-694.63	0.00	0.00	0.00	0.00	
4,760.78	0.00	0.00	4,584.00	-787.90	-831.61	1.75	-1.75	0.00	180.00	
8,260.78	0.00	0.00	8,084.00	-787.90	-831.61	0.00	0.00	0.00	0.00	Riverbend 32-19 Bt

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Site:	WELD_RIVERBEND 5-19 PAD	North Reference:	True
Well:	RIVERBEND 32-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 32-19		
Design:	Riverbend 32-19 (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	226.55	399.98	-1.20	-1.27	1.75	2.00	2.00	0.00
500.00	4.00	226.55	499.84	-4.80	-5.07	6.98	2.00	2.00	0.00
600.00	6.00	226.55	599.45	-10.79	-11.39	15.69	2.00	2.00	0.00
700.00	8.00	226.55	698.70	-19.18	-20.24	27.88	2.00	2.00	0.00
800.00	10.00	226.55	797.47	-29.93	-31.59	43.52	2.00	2.00	0.00
900.00	12.00	226.55	895.62	-43.06	-45.44	62.60	2.00	2.00	0.00
919.82	12.40	226.55	915.00	-45.94	-48.49	66.79	2.00	2.00	0.00
8 5/8"									
1,000.00	14.00	226.55	993.06	-58.53	-61.77	85.10	2.00	2.00	0.00
1,100.00	16.00	226.55	1,089.64	-76.33	-80.56	110.98	2.00	2.00	0.00
1,200.00	18.00	226.55	1,185.27	-96.43	-101.78	140.21	2.00	2.00	0.00
1,277.37	19.55	226.55	1,258.52	-113.56	-119.86	165.11	2.00	2.00	0.00
1,300.00	19.55	226.55	1,279.85	-118.77	-125.36	172.68	0.00	0.00	0.00
1,400.00	19.55	226.55	1,374.08	-141.78	-149.64	206.14	0.00	0.00	0.00
1,500.00	19.55	226.55	1,468.32	-164.79	-173.93	239.60	0.00	0.00	0.00
1,600.00	19.55	226.55	1,562.56	-187.80	-198.22	273.06	0.00	0.00	0.00
1,700.00	19.55	226.55	1,656.79	-210.82	-222.51	306.52	0.00	0.00	0.00
1,800.00	19.55	226.55	1,751.03	-233.83	-246.80	339.98	0.00	0.00	0.00
1,900.00	19.55	226.55	1,845.26	-256.84	-271.09	373.44	0.00	0.00	0.00
2,000.00	19.55	226.55	1,939.50	-279.85	-295.38	406.89	0.00	0.00	0.00
2,100.00	19.55	226.55	2,033.74	-302.86	-319.66	440.35	0.00	0.00	0.00
2,200.00	19.55	226.55	2,127.97	-325.87	-343.95	473.81	0.00	0.00	0.00
2,300.00	19.55	226.55	2,222.21	-348.89	-368.24	507.27	0.00	0.00	0.00
2,400.00	19.55	226.55	2,316.45	-371.90	-392.53	540.73	0.00	0.00	0.00
2,500.00	19.55	226.55	2,410.68	-394.91	-416.82	574.19	0.00	0.00	0.00
2,600.00	19.55	226.55	2,504.92	-417.92	-441.11	607.65	0.00	0.00	0.00
2,700.00	19.55	226.55	2,599.16	-440.93	-465.39	641.10	0.00	0.00	0.00
2,800.00	19.55	226.55	2,693.39	-463.95	-489.68	674.56	0.00	0.00	0.00
2,900.00	19.55	226.55	2,787.63	-486.96	-513.97	708.02	0.00	0.00	0.00
3,000.00	19.55	226.55	2,881.87	-509.97	-538.26	741.48	0.00	0.00	0.00
3,100.00	19.55	226.55	2,976.10	-532.98	-562.55	774.94	0.00	0.00	0.00
3,200.00	19.55	226.55	3,070.34	-555.99	-586.84	808.40	0.00	0.00	0.00
3,300.00	19.55	226.55	3,164.58	-579.01	-611.13	841.86	0.00	0.00	0.00
3,400.00	19.55	226.55	3,258.81	-602.02	-635.41	875.32	0.00	0.00	0.00
3,500.00	19.55	226.55	3,353.05	-625.03	-659.70	908.77	0.00	0.00	0.00
3,600.00	19.55	226.55	3,447.29	-648.04	-683.99	942.23	0.00	0.00	0.00
3,643.79	19.55	226.55	3,488.55	-658.12	-694.63	956.88	0.00	0.00	0.00
3,700.00	18.56	226.55	3,541.68	-670.74	-707.95	975.24	1.75	-1.75	0.00
3,800.00	16.81	226.55	3,636.95	-691.64	-730.00	1,005.62	1.75	-1.75	0.00
3,900.00	15.06	226.55	3,733.10	-710.52	-749.94	1,033.08	1.75	-1.75	0.00
4,000.00	13.31	226.55	3,830.05	-727.38	-767.73	1,057.59	1.75	-1.75	0.00
4,100.00	11.56	226.55	3,927.70	-742.20	-783.37	1,079.13	1.75	-1.75	0.00
4,198.01	9.85	226.55	4,024.00	-754.72	-796.58	1,097.34	1.75	-1.75	0.00
PK Depth									
4,200.00	9.81	226.55	4,025.96	-754.95	-796.83	1,097.67	1.75	-1.75	0.00
4,300.00	8.06	226.55	4,124.74	-765.64	-808.11	1,113.21	1.75	-1.75	0.00
4,400.00	6.31	226.55	4,223.95	-774.24	-817.19	1,125.72	1.75	-1.75	0.00
4,500.00	4.56	226.55	4,323.49	-780.76	-824.07	1,135.20	1.75	-1.75	0.00
4,600.00	2.81	226.55	4,423.28	-785.19	-828.74	1,141.64	1.75	-1.75	0.00
4,700.00	1.06	226.55	4,523.22	-787.51	-831.20	1,145.02	1.75	-1.75	0.00

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Site:	WELD_RIVERBEND 5-19 PAD	North Reference:	True
Well:	RIVERBEND 32-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 32-19		
Design:	Riverbend 32-19 (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)
4,760.78	0.00	0.00	4,584.00	-787.90	-831.61	1,145.58	1.75	-1.75	0.00
4,800.00	0.00	0.00	4,623.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
4,811.78	0.00	0.00	4,635.00	-787.90	-831.61	1,145.58	0.00	0.00	0.00
SX Depth									
4,900.00	0.00	0.00	4,723.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
5,000.00	0.00	0.00	4,823.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
5,100.00	0.00	0.00	4,923.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
5,200.00	0.00	0.00	5,023.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
5,300.00	0.00	0.00	5,123.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
5,400.00	0.00	0.00	5,223.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
5,500.00	0.00	0.00	5,323.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
5,600.00	0.00	0.00	5,423.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
5,700.00	0.00	0.00	5,523.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
5,800.00	0.00	0.00	5,623.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
5,900.00	0.00	0.00	5,723.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
6,000.00	0.00	0.00	5,823.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
6,100.00	0.00	0.00	5,923.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
6,200.00	0.00	0.00	6,023.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
6,300.00	0.00	0.00	6,123.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
6,400.00	0.00	0.00	6,223.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
6,500.00	0.00	0.00	6,323.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
6,600.00	0.00	0.00	6,423.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
6,700.00	0.00	0.00	6,523.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
6,800.00	0.00	0.00	6,623.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
6,900.00	0.00	0.00	6,723.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
7,000.00	0.00	0.00	6,823.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
7,100.00	0.00	0.00	6,923.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
7,200.00	0.00	0.00	7,023.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
7,300.00	0.00	0.00	7,123.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
7,343.78	0.00	0.00	7,167.00	-787.90	-831.61	1,145.58	0.00	0.00	0.00
NIO Depth									
7,400.00	0.00	0.00	7,223.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
7,500.00	0.00	0.00	7,323.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
7,600.00	0.00	0.00	7,423.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
7,690.78	0.00	0.00	7,514.00	-787.90	-831.61	1,145.58	0.00	0.00	0.00
CD Depth									
7,700.00	0.00	0.00	7,523.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
7,775.78	0.00	0.00	7,599.00	-787.90	-831.61	1,145.58	0.00	0.00	0.00
GH Depth									
7,800.00	0.00	0.00	7,623.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
7,900.00	0.00	0.00	7,723.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
8,000.00	0.00	0.00	7,823.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
8,100.00	0.00	0.00	7,923.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
8,125.78	0.00	0.00	7,949.00	-787.90	-831.61	1,145.58	0.00	0.00	0.00
J Depth									
8,200.00	0.00	0.00	8,023.22	-787.90	-831.61	1,145.58	0.00	0.00	0.00
8,260.78	0.00	0.00	8,084.00	-787.90	-831.61	1,145.58	0.00	0.00	0.00
Riverbend 32-19 BHL									

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Site:	WELD_RIVERBEND 5-19 PAD	North Reference:	True
Well:	RIVERBEND 32-19	Survey Calculation Method:	Minimum Curvature
Wellbore:	Riverbend 32-19		
Design:	Riverbend 32-19 (wp01)		

Design Targets

Target Name

- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
- Shape									
Riverbend 32-19 BHL	0.00	0.00	8,084.00	-787.90	-831.61	1,256,932.85	3,187,749.29	40.036720	-104.829467
- plan hits target center									
- Point									

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 (°)
4,198.01	4,024.00	PK Depth			
4,811.78	4,635.00	SX Depth			
7,343.78	7,167.00	NIO Depth			
7,690.78	7,514.00	CD Depth			
7,775.78	7,599.00	GH Depth			
8,125.78	7,949.00	J Depth			