

1 General

1.1 Customer Information

Company	PICEANCE HL
Representative	Eric Kolstad
Address	1515 Arapahoe St., Suite 1000 Denver, CO 80202

1.2 Well Information

Well	RG 314-14-298	Wellbore No.	OH
Well Name	FEDERAL RG 314-14-298	Common Name	RG 314-14-298
Project	RG 14-02S-098W	Site	RG 23-14-298 Pad
Vertical Section Azimuth	258.06 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	4/7/2011	UWI	RG 314-14-298
Active Datum	KB @6,620.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	CATHEDRAL
Date Started	4/7/2011	Ended	
Tool Name	MWD	Engineer	

2.1.1 Tie On Point

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)
0.0	0.00	0.00	0.00	0.00	0.00

2.1.2 Survey Stations

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
4/7/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/7/2011	NORMAL	337.0	4.30	256.00	336.68	-3.06	-12.26	12.63	1.28	1.28	0.00	256.00
	NORMAL	430.0	5.70	256.00	429.33	-5.02	-20.13	20.73	1.51	1.51	0.00	0.00
	NORMAL	522.0	6.90	262.00	520.77	-6.89	-30.03	30.81	1.49	1.30	6.52	31.76
	NORMAL	615.0	8.00	259.30	612.99	-8.87	-41.93	42.85	1.24	1.18	-2.90	341.00
	NORMAL	710.0	8.00	259.20	707.06	-11.34	-54.92	56.07	0.01	0.00	-0.11	269.95
	NORMAL	802.0	8.50	256.80	798.11	-14.09	-67.82	69.27	0.66	0.54	-2.61	324.25
	NORMAL	896.0	8.90	258.30	891.03	-17.15	-81.71	83.49	0.49	0.43	1.60	30.31
	NORMAL	990.0	8.50	263.20	983.95	-19.45	-95.73	97.68	0.90	-0.43	5.21	120.76
	NORMAL	1,084.0	8.20	261.30	1,076.95	-21.29	-109.25	111.29	0.43	-0.32	-2.02	221.67
	NORMAL	1,177.0	8.20	258.50	1,169.00	-23.61	-122.31	124.54	0.43	0.00	-3.01	268.61
	NORMAL	1,269.0	8.60	256.60	1,260.01	-26.51	-135.43	137.98	0.53	0.43	-2.07	324.30
	NORMAL	1,360.0	9.20	256.80	1,349.92	-29.75	-149.13	152.06	0.66	0.66	0.22	3.05
	NORMAL	1,453.0	9.50	255.60	1,441.68	-33.36	-163.80	167.16	0.38	0.32	-1.29	326.39
	NORMAL	1,546.0	9.80	254.70	1,533.36	-37.35	-178.87	182.73	0.36	0.32	-0.97	332.86
	NORMAL	1,639.0	9.40	256.60	1,625.06	-41.20	-193.89	198.22	0.55	-0.43	2.04	142.55
	NORMAL	1,733.0	9.60	256.10	1,717.77	-44.86	-208.97	213.73	0.23	0.21	-0.53	337.33
	NORMAL	1,826.0	9.30	258.50	1,809.51	-48.23	-223.86	228.99	0.53	-0.32	2.58	128.46
	NORMAL	1,919.0	9.50	259.50	1,901.26	-51.12	-238.77	244.18	0.28	0.22	1.08	39.73
	NORMAL	2,012.0	9.70	259.80	1,992.96	-53.91	-254.02	259.68	0.22	0.22	0.32	14.19

2.1.2 Survey Stations (Continued)

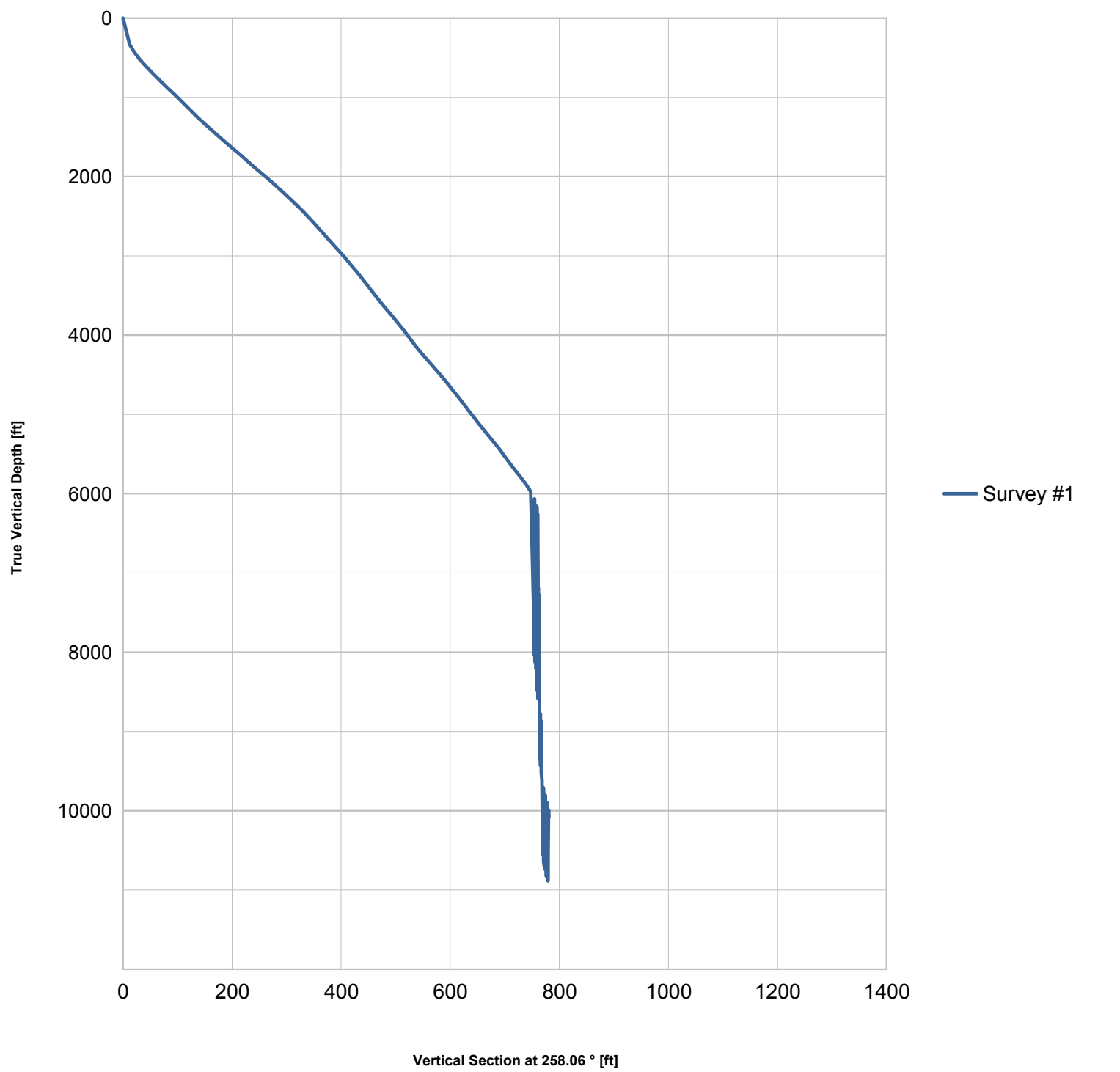
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
4/8/2011	NORMAL	2,104.0	9.80	259.30	2,083.63	-56.73	-269.35	275.26	0.14	0.11	-0.54	319.50
	NORMAL	2,198.0	8.90	254.00	2,176.38	-60.22	-284.20	290.51	1.32	-0.96	-5.64	221.14
	NORMAL	2,291.0	8.70	250.50	2,268.29	-64.56	-297.74	304.66	0.61	-0.22	-3.76	247.79
	NORMAL	2,384.0	8.50	258.10	2,360.25	-68.32	-311.10	318.50	1.24	-0.22	8.17	103.72
	NORMAL	2,477.0	8.10	260.30	2,452.27	-70.84	-324.28	331.92	0.55	-0.43	2.37	142.64
	NORMAL	2,570.0	7.60	262.30	2,544.40	-72.77	-336.84	344.60	0.61	-0.54	2.15	152.34
	NORMAL	2,664.0	7.40	260.60	2,637.60	-74.59	-348.97	356.85	0.32	-0.21	-1.81	227.13
	NORMAL	2,757.0	7.30	258.50	2,729.83	-76.75	-360.67	368.74	0.31	-0.11	-2.26	248.54
	NORMAL	2,850.0	7.50	257.70	2,822.06	-79.22	-372.39	380.72	0.24	0.22	-0.86	332.35
	NORMAL	2,943.0	7.50	261.10	2,914.26	-81.45	-384.31	392.85	0.48	0.00	3.66	91.69
	NORMAL	3,036.0	7.30	264.20	3,006.49	-82.99	-396.19	404.78	0.48	-0.22	3.33	118.14
	NORMAL	3,128.0	7.00	265.00	3,097.77	-84.07	-407.59	416.16	0.34	-0.33	0.87	162.03
	NORMAL	3,175.0	7.10	265.80	3,144.42	-84.53	-413.34	421.88	0.30	0.21	1.70	44.87
	NORMAL	3,235.0	7.10	265.80	3,203.96	-85.07	-420.73	429.23	0.00	0.00	0.00	0.00
4/10/2011	NORMAL	3,320.0	6.70	270.60	3,288.37	-85.10	-430.73	439.02	0.48	-0.28	3.31	127.11
	NORMAL	3,413.0	6.30	256.20	3,380.78	-86.26	-441.11	449.42	1.80	-0.43	-15.48	249.13
	NORMAL	3,506.0	6.50	249.80	3,473.20	-89.29	-451.01	459.72	0.80	0.22	-6.88	282.47
	NORMAL	3,599.0	6.60	250.00	3,565.59	-92.94	-460.97	470.23	0.11	0.11	0.22	12.95
4/11/2011	NORMAL	3,692.0	6.90	257.90	3,657.95	-95.94	-471.46	481.10	1.05	0.32	8.49	76.04
	NORMAL	3,785.0	7.10	254.80	3,750.26	-98.61	-482.46	492.43	0.46	0.22	-3.33	296.35
	NORMAL	3,879.0	6.90	259.60	3,843.56	-101.16	-493.62	503.87	0.66	-0.21	5.11	111.25
	NORMAL	3,972.0	6.30	252.60	3,935.94	-103.69	-503.99	514.54	1.08	-0.65	-7.53	229.84
	NORMAL	4,065.0	6.30	252.90	4,028.38	-106.72	-513.73	524.70	0.04	0.00	0.32	90.15
	NORMAL	4,158.0	6.30	253.20	4,120.82	-109.69	-523.50	534.86	0.04	0.00	0.32	90.15
	NORMAL	4,251.0	6.90	256.80	4,213.20	-112.44	-533.82	545.53	0.78	0.65	3.87	36.39
	NORMAL	4,344.0	7.60	266.50	4,305.46	-114.09	-545.40	557.20	1.51	0.75	10.43	65.11
	NORMAL	4,437.0	7.30	266.00	4,397.68	-114.88	-557.43	569.14	0.33	-0.32	-0.54	191.95
	NORMAL	4,530.0	7.00	263.50	4,489.95	-115.94	-568.96	580.63	0.46	-0.32	-2.69	224.81
	NORMAL	4,623.0	6.80	261.40	4,582.28	-117.40	-580.03	591.77	0.35	-0.22	-2.26	230.56
	NORMAL	4,716.0	6.60	256.70	4,674.64	-119.45	-590.68	602.61	0.63	-0.22	-5.05	247.64
	NORMAL	4,810.0	6.50	257.50	4,768.03	-121.85	-601.13	613.33	0.14	-0.11	0.85	138.01
	NORMAL	4,904.0	6.30	255.50	4,861.45	-124.29	-611.31	623.80	0.32	-0.21	-2.13	227.11
	NORMAL	4,997.0	6.20	253.40	4,953.89	-127.00	-621.07	633.91	0.27	-0.11	-2.26	245.33
	NORMAL	5,091.0	6.70	262.80	5,047.30	-129.14	-631.37	644.43	1.24	0.53	10.00	69.38
	NORMAL	5,184.0	6.40	258.60	5,139.69	-130.84	-641.84	655.02	0.61	-0.32	-4.52	235.87
	NORMAL	5,276.0	6.60	257.20	5,231.10	-133.03	-652.02	665.43	0.28	0.22	-1.52	320.91
	NORMAL	5,370.0	7.10	257.90	5,324.43	-135.44	-662.97	676.64	0.54	0.53	0.74	9.83
	NORMAL	5,463.0	6.70	253.80	5,416.76	-138.16	-673.80	687.80	0.68	-0.43	-4.41	228.90
	NORMAL	5,556.0	5.90	258.30	5,509.20	-140.64	-683.69	697.99	1.01	-0.86	4.84	150.54
4/12/2011	NORMAL	5,650.0	6.20	261.00	5,602.67	-142.42	-693.43	707.89	0.44	0.32	2.87	44.84
	NORMAL	5,743.0	6.40	259.40	5,695.11	-144.16	-703.49	718.09	0.29	0.22	-1.72	317.92
	NORMAL	5,837.0	6.60	257.70	5,788.51	-146.27	-713.91	728.73	0.30	0.21	-1.81	315.26
	NORMAL	5,929.0	6.00	259.10	5,879.95	-148.31	-723.80	738.82	0.67	-0.65	1.52	166.33
	NORMAL	6,024.0	4.80	264.80	5,974.53	-149.61	-732.64	747.74	1.38	-1.26	6.00	158.73
	NORMAL	6,117.0	3.60	267.50	6,067.28	-150.09	-739.43	754.48	1.31	-1.29	2.90	171.99
	NORMAL	6,210.0	1.80	229.60	6,160.18	-151.16	-743.46	758.65	2.63	-1.94	-40.75	206.91
4/13/2011	NORMAL	6,304.0	0.80	178.00	6,254.15	-152.77	-744.56	760.06	1.54	-1.06	-54.89	205.70
	NORMAL	6,398.0	0.80	139.00	6,348.14	-153.93	-744.11	759.85	0.57	0.00	-41.49	250.50
	NORMAL	6,492.0	1.50	143.40	6,442.12	-155.41	-742.94	759.02	0.75	0.74	4.68	9.39
	NORMAL	6,585.0	1.70	139.40	6,535.09	-157.43	-741.32	757.85	0.25	0.22	-4.30	328.81
	NORMAL	6,679.0	0.40	100.60	6,629.07	-158.55	-740.09	756.88	1.50	-1.38	-41.28	190.24
	NORMAL	6,772.0	0.80	115.40	6,722.07	-158.89	-739.18	756.06	0.46	0.43	15.91	28.69
	NORMAL	6,866.0	0.10	100.60	6,816.06	-159.19	-738.51	755.46	0.75	-0.74	-15.74	182.08
	NORMAL	6,959.0	1.00	300.10	6,909.06	-158.79	-739.13	755.99	1.18	0.97	-172.58	197.75
	NORMAL	7,052.0	0.80	267.00	7,002.05	-158.42	-740.48	757.24	0.59	-0.22	-35.59	232.95
	NORMAL	7,145.0	1.50	239.00	7,095.03	-159.08	-742.17	759.03	0.94	0.75	-30.11	306.68
	NORMAL	7,238.0	1.50	260.90	7,188.00	-159.90	-744.42	761.39	0.61	0.00	23.55	100.95

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
4/13/2011	NORMAL	7,331.0	1.00	321.90	7,280.98	-159.46	-746.12	762.97	1.44	-0.54	65.59	139.25
	NORMAL	7,424.0	2.70	42.80	7,373.94	-157.21	-745.13	761.54	2.93	1.83	86.99	102.11
	NORMAL	7,518.0	2.20	44.40	7,467.85	-154.30	-742.37	758.23	0.54	-0.53	1.70	173.01
	NORMAL	7,612.0	1.00	64.50	7,561.81	-152.65	-740.36	755.93	1.39	-1.28	21.38	164.75
	NORMAL	7,706.0	0.70	88.70	7,655.80	-152.29	-739.05	754.57	0.49	-0.32	25.74	141.56
	NORMAL	7,799.0	0.60	341.10	7,748.80	-151.81	-738.64	754.07	1.13	-0.11	-115.70	212.98
4/14/2011	NORMAL	7,893.0	0.60	327.00	7,842.80	-150.94	-739.07	754.30	0.16	0.00	-15.00	262.95
	NORMAL	7,986.0	0.30	126.00	7,935.79	-150.67	-739.14	754.32	0.95	-0.32	170.97	173.03
	NORMAL	8,079.0	0.40	188.80	8,028.79	-151.13	-738.99	754.27	0.40	0.11	67.53	108.23
	NORMAL	8,173.0	1.50	223.30	8,122.78	-152.35	-739.88	755.39	1.27	1.17	36.70	45.45
	NORMAL	8,266.0	1.30	267.40	8,215.75	-153.29	-741.77	757.44	1.15	-0.22	47.42	122.05
	NORMAL	8,359.0	0.30	280.60	8,308.74	-153.29	-743.06	758.70	1.09	-1.08	14.19	176.11
	NORMAL	8,453.0	0.70	323.80	8,402.74	-152.78	-743.64	759.16	0.56	0.43	45.96	66.31
	NORMAL	8,546.0	0.90	292.70	8,495.73	-152.04	-744.65	760.00	0.51	0.22	-33.44	278.64
	NORMAL	8,639.0	1.00	243.70	8,588.72	-152.12	-746.06	761.39	0.85	0.11	-52.69	252.09
	NORMAL	8,733.0	1.50	241.40	8,682.70	-153.07	-747.87	763.36	0.53	0.53	-2.45	353.12
4/15/2011	NORMAL	8,826.0	1.20	289.80	8,775.67	-153.32	-749.86	765.35	1.23	-0.32	52.04	128.08
	NORMAL	8,919.0	0.70	273.60	8,868.66	-152.96	-751.34	766.73	0.61	-0.54	-17.42	200.31
	NORMAL	9,012.0	0.80	52.50	8,961.66	-152.53	-751.39	766.69	1.51	0.11	149.35	158.02
	NORMAL	9,106.0	1.30	38.20	9,055.64	-151.29	-750.21	765.28	0.60	0.53	-15.21	325.07
	NORMAL	9,199.0	1.00	30.20	9,148.62	-149.76	-749.15	763.93	0.37	-0.32	-8.60	204.20
	NORMAL	9,292.0	0.70	210.40	9,241.62	-149.55	-749.03	763.76	1.83	-0.32	-193.33	180.08
	NORMAL	9,385.0	0.70	245.60	9,334.61	-150.27	-749.83	764.70	0.46	0.00	37.85	107.60
	NORMAL	9,479.0	1.30	202.80	9,428.60	-151.49	-750.77	765.87	0.98	0.64	-45.53	286.04
	NORMAL	9,572.0	0.70	225.40	9,521.59	-152.87	-751.58	766.95	0.76	-0.65	24.30	157.63
	NORMAL	9,665.0	1.20	242.30	9,614.57	-153.72	-752.85	768.36	0.61	0.54	18.17	37.89
4/17/2011	NORMAL	9,759.0	2.00	243.60	9,708.53	-154.90	-755.19	770.90	0.85	0.85	1.38	3.25
	NORMAL	9,853.0	2.40	227.30	9,802.47	-156.97	-758.11	774.18	0.79	0.43	-17.34	294.27
	NORMAL	9,946.0	2.20	238.30	9,895.39	-159.23	-761.06	777.53	0.52	-0.22	11.83	119.80
	NORMAL	10,040.0	1.40	214.00	9,989.35	-161.13	-763.23	780.06	1.16	-0.85	-25.85	211.94
	NORMAL	10,134.0	1.70	157.80	10,083.32	-163.37	-763.35	780.63	1.58	0.32	-59.79	252.18
	NORMAL	10,228.0	2.60	90.80	10,177.26	-164.69	-760.69	778.31	2.65	0.96	-71.28	254.07
	NORMAL	10,322.0	2.80	60.30	10,271.16	-163.58	-756.56	774.04	1.52	0.21	-32.45	262.51
	NORMAL	10,415.0	2.00	34.20	10,364.08	-161.11	-753.68	770.71	1.44	-0.86	-28.06	221.24
	NORMAL	10,508.0	1.00	3.40	10,457.05	-158.96	-752.72	769.32	1.34	-1.08	-33.12	204.17
	NORMAL	10,602.0	0.60	286.40	10,551.04	-158.00	-753.14	769.54	1.11	-0.43	-81.91	214.05
4/19/2011	NORMAL	10,695.0	1.40	261.40	10,644.03	-158.04	-754.73	771.10	0.96	0.86	-26.88	318.51
	NORMAL	10,788.0	1.40	246.30	10,737.00	-158.66	-756.90	773.35	0.40	0.00	-16.24	262.45
	NORMAL	10,880.0	2.60	239.00	10,828.94	-160.19	-759.71	776.42	1.33	1.30	-7.93	344.35
	NORMAL	10,935.0	2.60	239.00	10,883.89	-161.47	-761.85	778.78	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

