

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 513-14-298	Wellbore No.	OH
Well Name	FEDERAL RG 513-14-298	Common Name	RG 513-14-298
Project	RG 14-02S-098W	Site	RG 23-14-298 Pad
Vertical Section Azimuth	282.28 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	4/3/2011	UWI	RG 513-14-298
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	4/3/2011	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 (°)
4/3/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/3/2011	NORMAL	118.0	1.00	285.00	117.99	0.27	-0.99	1.03	0.85	0.85	0.00	285.00
	NORMAL	214.0	2.25	288.00	213.95	1.07	-3.60	3.74	1.30	1.30	3.13	5.39
	NORMAL	309.0	4.00	284.00	308.81	2.44	-8.59	8.91	1.86	1.84	-4.21	350.90
	NORMAL	336.0	4.40	281.50	335.74	2.88	-10.51	10.89	1.63	1.48	-9.26	334.15
4/4/2011	NORMAL	430.0	6.10	278.00	429.34	4.29	-18.99	19.47	1.84	1.81	-3.72	347.58
	NORMAL	522.0	7.30	281.10	520.71	6.10	-29.57	30.19	1.36	1.30	3.37	18.32
	NORMAL	615.0	8.90	280.60	612.78	8.56	-42.44	43.29	1.72	1.72	-0.54	357.23
	NORMAL	708.0	10.30	281.00	704.47	11.47	-57.67	58.79	1.51	1.51	0.43	2.93
	NORMAL	802.0	10.30	283.50	796.96	15.03	-74.09	75.60	0.48	0.00	2.66	91.23
	NORMAL	896.0	10.70	286.10	889.39	19.42	-90.65	92.71	0.66	0.43	2.77	51.11
	NORMAL	990.0	10.70	285.30	981.75	24.14	-107.45	110.13	0.16	0.00	-0.85	269.61
	NORMAL	1,084.0	11.60	283.40	1,073.98	28.63	-125.06	128.29	1.03	0.96	-2.02	336.86
	NORMAL	1,177.0	11.90	282.10	1,165.03	32.81	-143.53	147.23	0.43	0.32	-1.40	317.94
	NORMAL	1,269.0	12.50	279.60	1,254.95	36.46	-162.63	166.66	0.87	0.65	-2.72	317.41
	NORMAL	1,360.0	13.00	280.60	1,343.71	39.98	-182.40	186.73	0.60	0.55	1.10	24.30
	NORMAL	1,453.0	13.30	279.60	1,434.27	43.69	-203.23	207.87	0.40	0.32	-1.08	322.34
	NORMAL	1,546.0	13.70	280.60	1,524.70	47.50	-224.60	229.56	0.50	0.43	1.08	30.76
	NORMAL	1,639.0	13.10	283.70	1,615.17	52.02	-245.66	251.11	1.01	-0.65	3.33	131.37
	NORMAL	1,733.0	13.40	284.60	1,706.66	57.29	-266.55	272.64	0.39	0.32	0.96	34.95

2.1.2 Survey Stations (Continued)

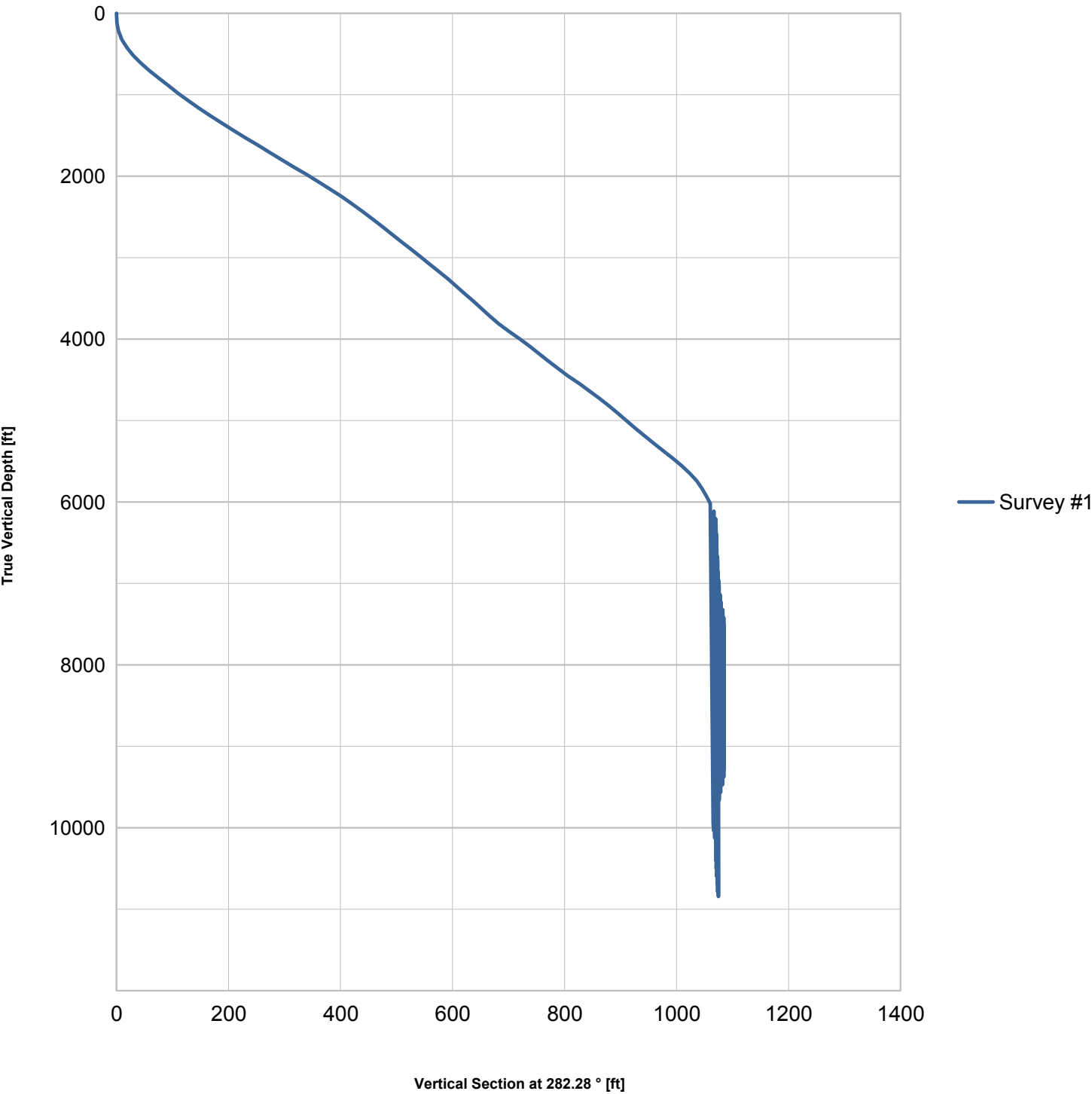
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
4/5/2011	NORMAL	1,826.0	13.90	284.60	1,797.04	62.82	-287.79	294.57	0.54	0.54	0.00	0.00
	NORMAL	1,919.0	13.60	281.20	1,887.37	67.76	-309.33	316.66	0.93	-0.32	-3.66	247.99
	NORMAL	2,012.0	14.00	282.80	1,977.69	72.38	-331.02	338.84	0.59	0.43	1.72	44.43
	NORMAL	2,104.0	13.10	281.60	2,067.13	76.94	-352.09	360.40	1.02	-0.98	-1.30	196.77
	NORMAL	2,198.0	12.90	280.80	2,158.72	81.05	-372.83	381.54	0.29	-0.21	-0.85	221.59
	NORMAL	2,291.0	12.00	282.30	2,249.53	85.05	-392.47	401.58	1.03	-0.97	1.61	160.97
	NORMAL	2,384.0	11.70	279.20	2,340.55	88.62	-411.23	420.67	0.76	-0.32	-3.33	243.26
	NORMAL	2,477.0	11.20	280.20	2,431.70	91.73	-429.43	439.11	0.58	-0.54	1.08	158.84
	NORMAL	2,570.0	10.50	285.00	2,523.04	95.52	-446.50	456.60	1.23	-0.75	5.16	130.11
	NORMAL	2,664.0	10.50	284.40	2,615.46	99.87	-463.07	473.72	0.12	0.00	-0.64	269.71
	NORMAL	2,757.0	10.50	283.10	2,706.91	103.90	-479.53	490.66	0.25	0.00	-1.40	269.36
	NORMAL	2,850.0	10.40	281.80	2,798.36	107.53	-496.00	507.52	0.28	-0.11	-1.40	246.38
	NORMAL	2,943.0	10.40	284.50	2,889.84	111.35	-512.35	524.31	0.52	0.00	2.90	91.33
	NORMAL	3,036.0	10.20	284.70	2,981.34	115.54	-528.44	540.92	0.22	-0.22	0.22	169.96
	NORMAL	3,128.0	10.60	280.60	3,071.83	119.17	-544.63	557.52	0.91	0.43	-4.46	296.36
4/20/2011	NORMAL	3,195.0	10.81	281.65	3,137.66	121.57	-556.85	569.96	0.43	0.31	1.57	43.40
	NORMAL	3,321.0	9.50	277.20	3,261.69	125.26	-578.73	592.13	1.21	-1.04	-3.53	208.74
	NORMAL	3,414.0	9.40	269.00	3,353.43	126.09	-593.94	607.17	1.45	-0.11	-8.82	261.71
	NORMAL	3,508.0	9.60	273.40	3,446.14	126.42	-609.44	622.39	0.80	0.21	4.68	76.78
	NORMAL	3,601.0	9.30	277.50	3,537.88	127.86	-624.63	637.54	0.79	-0.32	4.41	116.03
	NORMAL	3,694.0	9.10	288.00	3,629.69	131.11	-639.08	652.34	1.82	-0.22	11.29	101.96
	NORMAL	3,787.0	8.80	289.90	3,721.56	135.81	-652.76	666.71	0.45	-0.32	2.04	136.36
	NORMAL	3,880.0	10.90	285.80	3,813.18	140.62	-667.92	682.54	2.38	2.26	-4.41	339.50
	NORMAL	3,973.0	11.70	280.60	3,904.38	144.75	-685.65	700.75	1.39	0.86	-5.59	305.57
	NORMAL	4,066.0	11.30	285.80	3,995.52	148.97	-703.68	719.27	1.19	-0.43	5.59	113.63
	NORMAL	4,159.0	11.00	282.60	4,086.76	153.38	-721.11	737.23	0.74	-0.32	-3.44	242.57
	NORMAL	4,252.0	9.60	280.20	4,178.26	156.69	-737.40	753.86	1.57	-1.51	-2.58	195.86
	NORMAL	4,345.0	11.40	284.20	4,269.70	160.32	-753.94	770.79	2.09	1.94	4.30	24.02
	NORMAL	4,439.0	10.50	280.40	4,361.99	164.15	-771.38	788.64	1.23	-0.96	-4.04	216.88
	NORMAL	4,532.0	11.90	285.60	4,453.22	168.25	-788.95	806.68	1.85	1.51	5.59	38.38
4/21/2011	NORMAL	4,625.0	11.60	285.20	4,544.27	173.28	-807.21	825.59	0.33	-0.32	-0.43	195.00
	NORMAL	4,718.0	10.90	280.00	4,635.49	177.26	-824.89	843.72	1.32	-0.75	-5.59	232.86
	NORMAL	4,811.0	11.40	286.80	4,726.73	181.45	-842.35	861.67	1.51	0.54	7.31	72.54
	NORMAL	4,905.0	10.40	280.60	4,819.04	185.69	-859.58	879.41	1.64	-1.06	-6.60	226.52
	NORMAL	4,999.0	9.10	279.50	4,911.68	188.48	-875.25	895.32	1.40	-1.38	-1.17	187.61
	NORMAL	5,092.0	9.90	284.50	5,003.41	191.70	-890.25	910.65	1.24	0.86	5.38	48.37
	NORMAL	5,185.0	9.60	279.80	5,095.06	195.02	-905.63	926.39	0.91	-0.32	-5.05	247.04
	NORMAL	5,277.0	10.50	285.50	5,185.65	198.56	-921.27	942.42	1.46	0.98	6.20	50.69
	NORMAL	5,371.0	9.80	282.50	5,278.18	202.58	-937.33	958.97	0.93	-0.74	-3.19	215.59
	NORMAL	5,464.0	10.90	289.10	5,369.67	207.18	-953.37	975.62	1.74	1.18	7.10	50.43
	NORMAL	5,558.0	10.80	288.00	5,461.99	212.80	-970.14	993.21	0.24	-0.11	-1.17	243.68
	NORMAL	5,651.0	9.00	290.30	5,553.60	218.02	-985.25	1,009.08	1.98	-1.94	2.47	168.74
	NORMAL	5,744.0	8.40	283.90	5,645.53	222.18	-998.67	1,023.07	1.22	-0.65	-6.88	235.07
	NORMAL	5,838.0	7.10	286.00	5,738.67	225.43	-1,010.92	1,035.74	1.42	-1.38	2.23	168.75
	NORMAL	5,931.0	4.80	289.90	5,831.17	228.34	-1,020.10	1,045.33	2.51	-2.47	4.19	171.97
4/22/2011	NORMAL	6,025.0	4.30	282.50	5,924.87	230.44	-1,027.24	1,052.75	0.82	-0.53	-7.87	225.93
	NORMAL	6,118.0	5.00	276.20	6,017.57	231.63	-1,034.68	1,060.27	0.93	0.75	-6.77	320.72
	NORMAL	6,212.0	3.10	294.70	6,111.33	233.14	-1,041.06	1,066.82	2.43	-2.02	19.68	154.48
	NORMAL	6,305.0	1.10	334.80	6,204.27	234.99	-1,043.72	1,069.82	2.55	-2.15	43.12	162.58
	NORMAL	6,400.0	0.40	226.30	6,299.26	235.59	-1,044.35	1,070.56	1.35	-0.74	-114.21	197.18
	NORMAL	6,493.0	0.70	197.70	6,392.26	234.82	-1,044.76	1,070.80	0.43	0.32	-30.75	302.64
	NORMAL	6,493.0	0.70	197.70	6,392.26	234.82	-1,044.76	1,070.80	0.43	0.32	-30.75	302.64
	NORMAL	6,587.0	1.20	205.80	6,486.24	233.39	-1,045.36	1,071.08	0.55	0.53	8.62	19.11
	NORMAL	6,587.0	1.20	205.80	6,486.24	233.39	-1,045.36	1,071.08	0.55	0.53	8.62	19.11
	NORMAL	6,680.0	1.10	238.90	6,579.23	232.05	-1,046.55	1,071.96	0.71	-0.11	35.59	114.87
	NORMAL	6,680.0	1.10	238.90	6,579.23	232.05	-1,046.55	1,071.96	0.71	-0.11	35.59	114.87
	NORMAL	6,774.0	0.90	344.20	6,673.22	232.30	-1,047.52	1,072.96	1.70	-0.21	112.02	147.01

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 (°)
4/22/2011	NORMAL	6,774.0	0.90	344.20	6,673.22	232.30	-1,047.52	1,072.96	1.70	-0.21	112.02	147.01
	NORMAL	6,867.0	0.50	353.60	6,766.21	233.40	-1,047.77	1,073.44	0.45	-0.43	10.11	168.65
	NORMAL	6,867.0	0.50	353.60	6,766.21	233.40	-1,047.77	1,073.44	0.45	-0.43	10.11	168.65
	NORMAL	6,960.0	0.90	222.00	6,859.21	233.26	-1,048.30	1,073.93	1.38	0.43	-141.51	211.52
	NORMAL	6,960.0	0.90	222.00	6,859.21	233.26	-1,048.30	1,073.93	1.38	0.43	-141.51	211.52
	NORMAL	7,054.0	1.10	237.60	6,953.19	232.23	-1,049.56	1,074.94	0.36	0.21	16.60	61.67
	NORMAL	7,054.0	1.10	237.60	6,953.19	232.23	-1,049.56	1,074.94	0.36	0.21	16.60	61.67
	NORMAL	7,146.0	1.00	252.40	7,045.18	231.52	-1,051.07	1,076.26	0.31	-0.11	16.09	117.54
	NORMAL	7,146.0	1.00	252.40	7,045.18	231.52	-1,051.07	1,076.26	0.31	-0.11	16.09	117.54
	NORMAL	7,240.0	0.80	303.00	7,139.17	231.63	-1,052.40	1,077.59	0.84	-0.21	53.83	128.53
	NORMAL	7,240.0	0.80	303.00	7,139.17	231.63	-1,052.40	1,077.59	0.84	-0.21	53.83	128.53
	NORMAL	7,332.0	1.70	265.60	7,231.15	231.87	-1,054.30	1,079.49	1.27	0.98	-40.65	298.07
	NORMAL	7,332.0	1.70	265.60	7,231.15	231.87	-1,054.30	1,079.49	1.27	0.98	-40.65	298.07
	NORMAL	7,426.0	2.20	263.50	7,325.09	231.56	-1,057.48	1,082.54	0.54	0.53	-2.23	350.82
	NORMAL	7,426.0	2.20	263.50	7,325.09	231.56	-1,057.48	1,082.54	0.54	0.53	-2.23	350.82
	NORMAL	7,519.0	0.60	219.00	7,418.06	230.98	-1,059.56	1,084.45	1.96	-1.72	-47.85	193.35
	NORMAL	7,519.0	0.60	219.00	7,418.06	230.98	-1,059.56	1,084.45	1.96	-1.72	-47.85	193.35
	NORMAL	7,613.0	0.70	93.00	7,512.06	230.57	-1,059.30	1,084.10	1.23	0.11	-134.04	209.25
	NORMAL	7,613.0	0.70	93.00	7,512.06	230.57	-1,059.30	1,084.10	1.23	0.11	-134.04	209.25
	NORMAL	7,707.0	2.10	23.90	7,606.03	232.11	-1,058.03	1,083.19	2.09	1.49	-73.51	271.44
	NORMAL	7,707.0	2.10	23.90	7,606.03	232.11	-1,058.03	1,083.19	2.09	1.49	-73.51	271.44
4/23/2011	NORMAL	7,801.0	1.50	14.60	7,699.99	234.88	-1,057.02	1,082.79	0.71	-0.64	-9.89	201.36
	NORMAL	7,894.0	0.80	44.60	7,792.97	236.52	-1,056.26	1,082.39	0.97	-0.75	32.26	153.64
	NORMAL	7,984.0	0.40	24.10	7,882.96	237.25	-1,055.69	1,081.99	0.50	-0.44	-22.78	198.23
	NORMAL	8,080.0	0.80	280.60	7,978.96	237.68	-1,056.21	1,082.60	1.01	0.42	-107.81	232.97
	NORMAL	8,174.0	1.80	0.13	8,072.94	239.28	-1,056.85	1,083.56	1.95	1.06	84.61	104.95
	NORMAL	8,267.0	1.80	1.30	8,165.89	242.20	-1,056.82	1,084.15	0.04	0.00	1.26	90.58
	NORMAL	8,361.0	1.50	53.90	8,259.86	244.40	-1,055.79	1,083.61	1.58	-0.32	55.96	126.71
	NORMAL	8,455.0	1.70	68.10	8,353.82	245.64	-1,053.50	1,081.64	0.47	0.21	15.11	70.45
	NORMAL	8,547.0	0.80	134.90	8,445.80	245.70	-1,051.78	1,079.97	1.70	-0.98	72.61	152.03
	NORMAL	8,641.0	0.80	109.30	8,539.80	245.02	-1,050.69	1,078.77	0.38	0.00	-27.23	257.20
	NORMAL	8,734.0	1.10	173.10	8,632.78	243.92	-1,049.97	1,077.83	1.11	0.32	68.60	107.66
	NORMAL	8,827.0	1.50	228.30	8,725.76	242.22	-1,050.78	1,078.25	1.35	0.43	59.35	101.19
	NORMAL	8,920.0	1.90	207.20	8,818.72	240.04	-1,052.39	1,079.37	0.79	0.43	-22.69	291.74
4/24/2011	NORMAL	9,014.0	2.30	213.40	8,912.66	237.08	-1,054.14	1,080.45	0.49	0.43	6.60	32.72
	NORMAL	9,108.0	1.50	272.50	9,006.62	235.56	-1,056.41	1,082.34	2.13	-0.85	62.87	139.91
	NORMAL	9,201.0	1.10	263.40	9,099.59	235.51	-1,058.51	1,084.38	0.48	-0.43	-9.78	202.80
	NORMAL	9,291.0	0.60	27.20	9,189.59	235.83	-1,059.15	1,085.08	1.69	-0.56	137.56	160.82
4/25/2011	NORMAL	9,385.0	1.30	32.60	9,283.57	237.17	-1,058.35	1,084.58	0.75	0.74	5.74	9.99
	NORMAL	9,477.0	1.10	13.60	9,375.55	238.90	-1,057.58	1,084.20	0.48	-0.22	-20.65	234.03
	NORMAL	9,572.0	3.00	63.20	9,470.49	240.91	-1,055.15	1,082.25	2.56	2.00	52.21	69.70
	NORMAL	9,665.0	2.50	68.30	9,563.39	242.76	-1,051.09	1,078.68	0.60	-0.54	5.48	156.46
	NORMAL	9,758.0	1.20	58.90	9,656.34	244.01	-1,048.38	1,076.29	1.43	-1.40	-10.11	188.47
	NORMAL	9,855.0	4.20	105.30	9,753.23	243.60	-1,044.08	1,072.00	3.59	3.09	47.84	60.83
	NORMAL	9,946.0	2.30	119.00	9,844.08	241.83	-1,039.27	1,066.92	2.24	-2.09	15.05	164.51
	NORMAL	10,040.0	0.90	212.40	9,938.05	240.30	-1,038.01	1,065.37	2.68	-1.49	99.36	159.10
	NORMAL	10,134.0	1.10	238.30	10,032.03	239.20	-1,039.17	1,066.27	0.52	0.21	27.55	79.44
	NORMAL	10,228.0	2.10	244.30	10,126.00	237.98	-1,041.49	1,068.28	1.08	1.06	6.38	12.52
	NORMAL	10,322.0	1.80	243.70	10,219.94	236.58	-1,044.37	1,070.79	0.32	-0.32	-0.64	183.59
	NORMAL	10,415.0	0.50	132.50	10,312.93	235.65	-1,045.38	1,071.58	2.19	-1.40	-119.57	193.25
	NORMAL	10,508.0	0.50	167.70	10,405.92	234.98	-1,044.99	1,071.06	0.33	0.00	37.85	107.60
	NORMAL	10,602.0	1.00	209.30	10,499.92	233.87	-1,045.31	1,071.13	0.75	0.53	44.26	69.53
	NORMAL	10,695.0	1.20	217.80	10,592.90	232.39	-1,046.30	1,071.79	0.28	0.22	9.14	43.51
	NORMAL	10,788.0	1.80	206.20	10,685.87	230.31	-1,047.54	1,072.56	0.72	0.65	-12.47	327.28
4/26/2011	NORMAL	10,881.0	2.40	210.50	10,778.80	227.32	-1,049.18	1,073.52	0.67	0.65	4.62	16.87
	NORMAL	10,890.0	2.50	221.70	10,787.79	227.01	-1,049.40	1,073.68	5.43	1.11	124.44	83.83
	NORMAL	10,945.0	2.50	221.70	10,842.74	225.22	-1,051.00	1,074.86	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

