

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	RGU 531-1-298	Wellbore No.	
Well Name	FEDERAL RGU 531-1-298	Common Name	RGU 531-1-298
Project	RG 01-02S-098W	Site	RGU 41-1-298 PAD
Vertical Section Azimuth	258.76 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	9/22/2011	UWI	RGU 531-1-298
Active Datum	KB @6,594.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	Cathedral
Date Started	9/23/2011	Ended	
Tool Name	MWD	Engineer	Chris McCain

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 (°)
9/23/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/23/2011	NORMAL	155.0	1.30	279.10	154.99	0.28	-1.74	1.65	0.84	0.84	0.00	279.10
	NORMAL	248.0	2.00	273.30	247.95	0.54	-4.40	4.21	0.77	0.75	-6.24	343.67
	NORMAL	340.0	3.30	265.30	339.85	0.41	-8.64	8.39	1.47	1.41	-8.70	340.10
	NORMAL	432.0	5.70	277.20	431.56	0.77	-15.81	15.36	2.79	2.61	12.93	27.26
	NORMAL	524.0	6.60	271.90	523.03	1.52	-25.63	24.84	1.16	0.98	-5.76	325.10
	NORMAL	616.0	7.80	265.30	614.30	1.18	-37.14	36.19	1.58	1.30	-7.17	322.12
	NORMAL	709.0	8.90	257.10	706.32	-0.94	-50.44	49.66	1.74	1.18	-8.82	308.62
	NORMAL	801.0	10.50	256.60	797.00	-4.47	-65.53	65.15	1.74	1.74	-0.54	356.74
	NORMAL	893.0	11.90	257.00	887.25	-8.55	-82.93	83.01	1.52	1.52	0.43	3.37
	NORMAL	988.0	12.00	256.40	980.19	-13.08	-102.07	102.66	0.17	0.11	-0.63	308.54
	NORMAL	1,082.0	13.20	253.10	1,071.92	-18.49	-121.84	123.11	1.49	1.28	-3.51	327.42
	NORMAL	1,176.0	13.10	258.20	1,163.46	-23.79	-142.54	144.44	1.24	-0.11	5.43	97.41
	NORMAL	1,271.0	12.80	256.10	1,256.05	-28.52	-163.29	165.72	0.59	-0.32	-2.21	236.46
	NORMAL	1,365.0	12.60	256.20	1,347.75	-33.47	-183.36	186.36	0.21	-0.21	0.11	173.78
	NORMAL	1,460.0	12.40	257.50	1,440.50	-38.15	-203.38	206.91	0.36	-0.21	1.37	126.04
	NORMAL	1,555.0	12.80	261.20	1,533.21	-41.97	-223.74	227.62	0.95	0.42	3.89	65.45
	NORMAL	1,649.0	12.90	261.80	1,624.85	-45.06	-244.41	248.51	0.18	0.11	0.64	53.44
	NORMAL	1,744.0	13.20	262.00	1,717.40	-48.08	-265.65	269.92	0.32	0.32	0.21	8.66
	NORMAL	1,838.0	13.50	261.40	1,808.86	-51.21	-287.13	291.60	0.35	0.32	-0.64	334.92

2.1.2 Survey Stations (Continued)

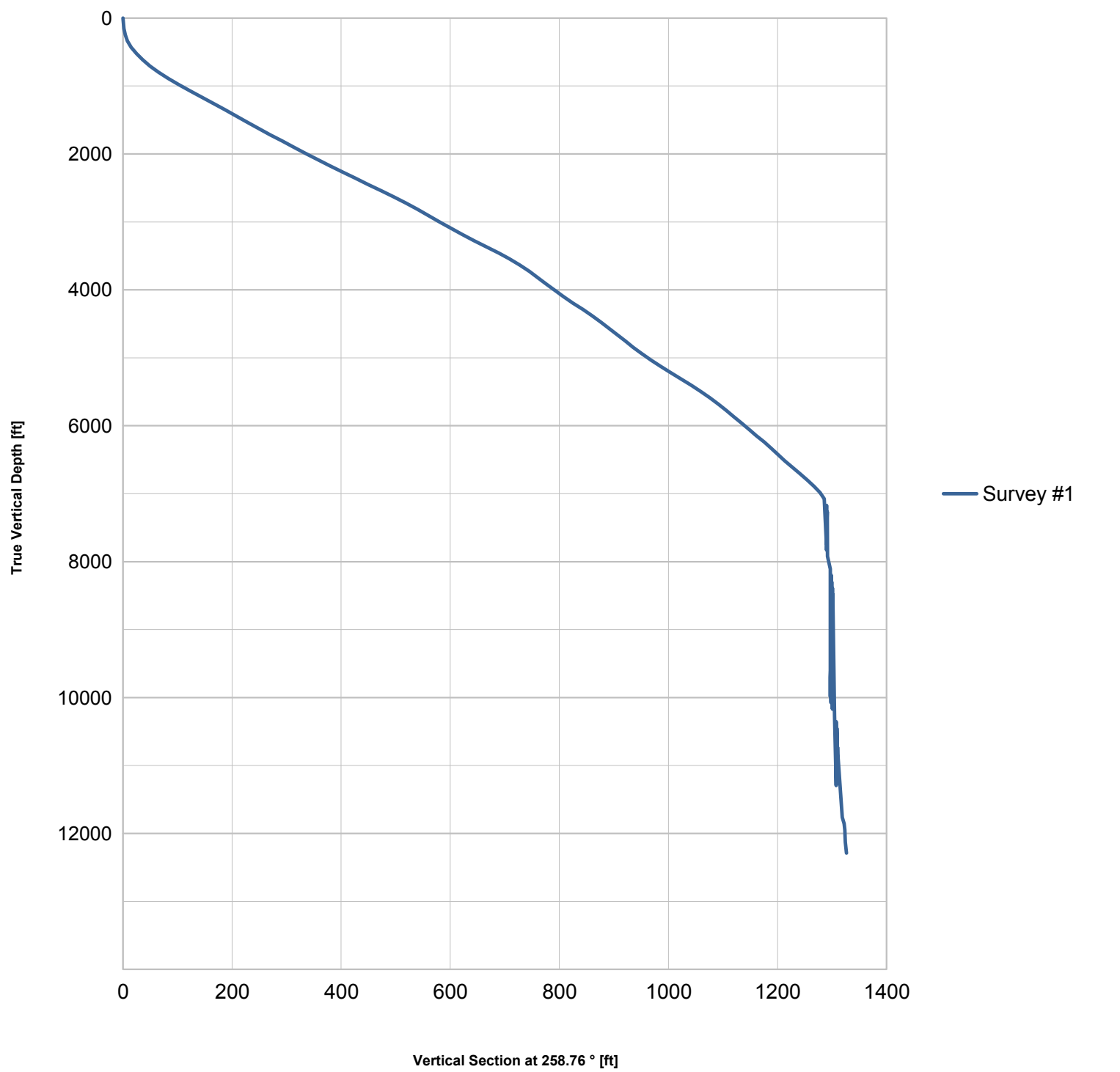
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
9/23/2011	NORMAL	1,932.0	13.20	257.60	1,900.32	-55.16	-308.46	313.29	0.99	-0.32	-4.04	249.28
	NORMAL	2,026.0	13.30	258.30	1,991.82	-59.66	-329.53	334.83	0.20	0.11	0.74	58.41
	NORMAL	2,121.0	13.80	260.10	2,084.18	-63.82	-351.39	357.09	0.69	0.53	1.89	41.02
	NORMAL	2,215.0	14.20	257.10	2,175.38	-68.32	-373.67	379.82	0.88	0.43	-3.19	297.40
	NORMAL	2,310.0	14.20	256.10	2,267.48	-73.72	-396.34	403.11	0.26	0.00	-1.05	269.52
	NORMAL	2,404.0	14.50	257.80	2,358.55	-78.98	-419.03	426.39	0.55	0.32	1.81	55.37
	NORMAL	2,498.0	14.40	257.10	2,449.58	-84.07	-441.93	449.84	0.21	-0.11	-0.74	239.87
	NORMAL	2,593.0	14.20	257.80	2,541.63	-89.17	-464.83	473.30	0.28	-0.21	0.74	139.50
	NORMAL	2,688.0	14.30	256.50	2,633.71	-94.37	-487.63	496.67	0.35	0.11	-1.37	286.72
	NORMAL	2,780.0	13.30	256.80	2,723.05	-99.44	-508.98	518.60	1.09	-1.09	0.33	176.05
	NORMAL	2,875.0	12.80	256.00	2,815.60	-104.49	-529.83	540.04	0.56	-0.53	-0.84	199.47
	NORMAL	2,969.0	12.20	255.00	2,907.37	-109.57	-549.53	560.35	0.68	-0.64	-1.06	199.35
	NORMAL	3,064.0	12.40	258.60	3,000.19	-114.19	-569.22	580.56	0.83	0.21	3.79	77.15
	NORMAL	3,158.0	12.40	256.70	3,092.00	-118.51	-588.94	600.74	0.43	0.00	-2.02	269.07
9/24/2011	NORMAL	3,253.0	13.20	257.90	3,184.64	-123.13	-609.47	621.78	0.89	0.84	1.26	18.97
	NORMAL	3,347.0	13.80	260.20	3,276.04	-127.28	-631.01	643.72	0.86	0.64	2.45	42.95
	NORMAL	3,441.0	13.90	259.20	3,367.31	-131.31	-653.15	666.22	0.28	0.11	-1.06	292.19
	NORMAL	3,536.0	13.90	259.40	3,459.53	-135.55	-675.58	689.04	0.05	0.00	0.21	90.10
	NORMAL	3,622.0	12.00	258.80	3,543.33	-139.18	-694.50	708.31	2.21	-2.21	-0.70	183.76
9/25/2011	NORMAL	3,716.0	11.30	258.10	3,635.40	-142.98	-713.10	727.29	0.76	-0.74	-0.74	191.07
	NORMAL	3,811.0	10.00	263.80	3,728.76	-145.79	-730.41	744.82	1.76	-1.37	6.00	143.76
	NORMAL	3,906.0	9.40	257.50	3,822.41	-148.36	-746.18	760.79	1.28	-0.63	-6.63	237.44
9/26/2011	NORMAL	4,001.0	9.70	262.20	3,916.09	-151.12	-761.69	776.53	0.88	0.32	4.95	71.29
	NORMAL	4,096.0	9.50	261.00	4,009.76	-153.44	-777.36	792.36	0.30	-0.21	-1.26	224.43
	NORMAL	4,191.0	9.80	262.00	4,103.42	-155.79	-793.11	808.26	0.36	0.32	1.05	29.69
	NORMAL	4,285.0	10.90	261.60	4,195.89	-158.20	-809.82	825.13	1.17	1.17	-0.43	356.07
	NORMAL	4,380.0	11.10	257.70	4,289.14	-161.46	-827.64	843.24	0.81	0.21	-4.11	283.12
	NORMAL	4,474.0	9.70	254.90	4,381.60	-165.45	-844.13	860.19	1.58	-1.49	-2.98	198.48
	NORMAL	4,569.0	9.60	258.20	4,475.25	-169.16	-859.61	876.10	0.59	-0.11	3.47	101.87
	NORMAL	4,663.0	8.70	257.90	4,568.05	-172.25	-874.24	891.04	0.96	-0.96	-0.32	182.89
	NORMAL	4,758.0	9.80	263.00	4,661.82	-174.74	-889.29	906.29	1.44	1.16	5.37	39.23
	NORMAL	4,852.0	8.30	259.90	4,754.65	-176.91	-903.91	921.05	1.68	-1.60	-3.30	196.48
	NORMAL	4,946.0	9.10	260.20	4,847.56	-179.36	-917.91	935.27	0.85	0.85	0.32	3.39
	NORMAL	5,040.0	10.30	257.80	4,940.22	-182.40	-933.45	951.10	1.35	1.28	-2.55	340.19
	NORMAL	5,135.0	10.50	256.90	5,033.66	-186.16	-950.18	968.25	0.27	0.21	-0.95	320.47
	NORMAL	5,229.0	10.90	261.20	5,126.03	-189.46	-967.31	985.69	0.95	0.43	4.57	65.51
	NORMAL	5,323.0	11.60	260.40	5,218.22	-192.40	-985.41	1,004.01	0.76	0.74	-0.85	347.04
	NORMAL	5,417.0	11.50	259.80	5,310.32	-195.63	-1,003.95	1,022.83	0.17	-0.11	-0.64	229.93
	NORMAL	5,512.0	11.30	257.50	5,403.44	-199.32	-1,022.36	1,041.60	0.52	-0.21	-2.42	245.13
	NORMAL	5,606.0	10.50	258.90	5,495.75	-202.97	-1,039.76	1,059.37	0.90	-0.85	1.49	162.38
	NORMAL	5,701.0	9.70	259.30	5,589.27	-206.12	-1,056.11	1,076.03	0.85	-0.84	0.42	175.19
	NORMAL	5,795.0	9.20	256.70	5,682.00	-209.32	-1,071.21	1,091.46	0.70	-0.53	-2.77	219.21
	NORMAL	5,889.0	8.80	260.20	5,774.84	-212.27	-1,085.61	1,106.16	0.72	-0.43	3.72	127.87
	NORMAL	5,982.0	8.30	264.40	5,866.81	-214.14	-1,099.30	1,119.95	0.86	-0.54	4.52	130.75
	NORMAL	6,077.0	8.90	260.70	5,960.74	-215.99	-1,113.37	1,134.12	0.86	0.63	-3.89	315.48
	NORMAL	6,171.0	7.70	255.60	6,053.75	-218.73	-1,126.65	1,147.68	1.50	-1.28	-5.43	209.02
	NORMAL	6,266.0	8.80	255.30	6,147.77	-222.16	-1,139.84	1,161.28	1.16	1.16	-0.32	357.61
	NORMAL	6,360.0	8.80	253.80	6,240.66	-225.99	-1,153.70	1,175.63	0.24	0.00	-1.60	269.26
	NORMAL	6,455.0	7.70	250.50	6,334.68	-230.14	-1,166.68	1,189.16	1.26	-1.16	-3.47	201.66
	NORMAL	6,548.0	6.90	256.00	6,426.93	-233.57	-1,177.98	1,200.91	1.14	-0.86	5.91	141.57
	NORMAL	6,641.0	8.90	265.30	6,519.04	-235.52	-1,190.57	1,213.64	2.55	2.15	10.00	37.25
9/27/2011	NORMAL	6,735.0	8.00	261.20	6,612.02	-237.11	-1,204.28	1,227.40	1.15	-0.96	-4.36	211.78
	NORMAL	6,829.0	8.60	265.10	6,705.04	-238.71	-1,217.75	1,240.92	0.87	0.64	4.15	45.12
	NORMAL	6,924.0	8.00	259.60	6,799.04	-240.51	-1,231.33	1,254.59	1.05	-0.63	-5.79	230.22
	NORMAL	7,016.0	7.30	260.70	6,890.22	-242.61	-1,243.39	1,266.83	0.78	-0.76	1.20	168.73
	NORMAL	7,110.0	6.00	260.00	6,983.59	-244.43	-1,254.12	1,277.71	1.39	-1.38	-0.74	183.22
	NORMAL	7,204.0	3.50	268.70	7,077.26	-245.35	-1,261.83	1,285.45	2.76	-2.66	9.26	168.23

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 (°)
9/27/2011	NORMAL	7,298.0	1.80	254.80	7,171.16	-245.80	-1,266.12	1,289.75	1.92	-1.81	-14.79	193.86
	NORMAL	7,392.0	0.20	158.90	7,265.14	-246.34	-1,267.49	1,291.20	1.95	-1.70	-102.02	186.24
	NORMAL	7,486.0	1.00	148.00	7,359.14	-247.19	-1,267.00	1,290.88	0.86	0.85	-11.60	346.41
	NORMAL	7,580.0	0.90	134.30	7,453.12	-248.40	-1,266.03	1,290.17	0.26	-0.11	-14.57	239.49
	NORMAL	7,673.0	0.50	127.90	7,546.12	-249.16	-1,265.19	1,289.49	0.44	-0.43	-6.88	187.87
	NORMAL	7,767.0	0.90	167.00	7,640.11	-250.13	-1,264.70	1,289.20	0.64	0.43	41.60	70.73
	NORMAL	7,861.0	1.30	176.20	7,734.09	-251.92	-1,264.46	1,289.31	0.46	0.43	9.79	28.47
	NORMAL	7,955.0	1.50	198.10	7,828.06	-254.15	-1,264.78	1,290.05	0.60	0.21	23.30	80.68
	NORMAL	8,049.0	2.20	208.70	7,922.02	-256.90	-1,266.02	1,291.82	0.83	0.74	11.28	31.41
	NORMAL	8,142.0	2.00	222.20	8,014.95	-259.67	-1,267.97	1,294.27	0.57	-0.22	14.52	118.67
	NORMAL	8,235.0	1.50	231.90	8,107.91	-261.62	-1,270.02	1,296.66	0.62	-0.54	10.43	154.14
	NORMAL	8,329.0	0.90	217.10	8,201.89	-262.97	-1,271.43	1,298.30	0.71	-0.64	-15.74	200.05
9/28/2011	NORMAL	8,423.0	0.70	265.30	8,295.88	-263.61	-1,272.45	1,299.43	0.72	-0.21	51.28	129.71
	NORMAL	8,516.0	0.70	280.50	8,388.87	-263.55	-1,273.58	1,300.52	0.20	0.00	16.34	97.60
	NORMAL	8,609.0	0.40	255.20	8,481.87	-263.53	-1,274.45	1,301.37	0.41	-0.32	-27.20	206.80
	NORMAL	8,703.0	0.20	31.90	8,575.87	-263.47	-1,274.68	1,301.59	0.60	-0.21	145.43	165.89
	NORMAL	8,796.0	0.20	115.80	8,668.87	-263.41	-1,274.45	1,301.34	0.29	0.00	90.22	131.95
	NORMAL	8,889.0	0.50	4.00	8,761.87	-263.07	-1,274.27	1,301.11	0.65	0.32	-120.22	230.28
	NORMAL	8,983.0	0.60	346.40	8,855.86	-262.19	-1,274.36	1,301.02	0.21	0.11	-18.72	291.62
	NORMAL	9,077.0	0.20	40.10	8,949.86	-261.58	-1,274.37	1,300.91	0.54	-0.43	57.13	161.49
	NORMAL	9,171.0	0.30	134.40	9,043.86	-261.63	-1,274.09	1,300.65	0.40	0.11	100.32	126.64
	NORMAL	9,265.0	0.70	334.90	9,137.86	-261.28	-1,274.16	1,300.64	1.05	0.43	-169.68	194.39
	NORMAL	9,359.0	1.30	3.10	9,231.84	-259.70	-1,274.34	1,300.52	0.81	0.64	30.00	54.04
	NORMAL	9,453.0	1.70	20.10	9,325.81	-257.32	-1,273.80	1,299.53	0.63	0.43	18.09	56.76
9/29/2011	NORMAL	9,546.0	0.80	4.10	9,418.79	-255.38	-1,273.28	1,298.64	1.03	-0.97	-17.20	193.33
	NORMAL	9,640.0	0.70	27.00	9,512.78	-254.21	-1,272.98	1,298.11	0.33	-0.11	24.36	119.67
	NORMAL	9,735.0	0.80	27.50	9,607.77	-253.11	-1,272.41	1,297.34	0.11	0.11	0.53	3.99
	NORMAL	9,828.0	0.20	148.20	9,700.77	-252.67	-1,272.02	1,296.87	0.99	-0.65	129.78	169.21
	NORMAL	9,922.0	0.20	334.20	9,794.77	-252.66	-1,272.01	1,296.86	0.42	0.00	-185.11	183.00
	NORMAL	10,016.0	0.40	356.00	9,888.77	-252.19	-1,272.10	1,296.86	0.24	0.21	23.19	40.92
	NORMAL	10,110.0	0.10	151.90	9,982.77	-251.93	-1,272.08	1,296.79	0.52	-0.32	165.85	175.25
	NORMAL	10,204.0	1.40	252.50	10,076.76	-252.35	-1,273.14	1,297.91	1.51	1.38	107.02	104.56
	NORMAL	10,298.0	2.20	247.20	10,170.71	-253.39	-1,275.90	1,300.82	0.87	0.85	-5.64	345.59
	NORMAL	10,389.0	2.50	236.00	10,261.64	-255.18	-1,279.16	1,304.36	0.60	0.33	-12.31	297.48
	NORMAL	10,483.0	1.60	239.20	10,355.58	-257.00	-1,281.98	1,307.49	0.96	-0.96	3.40	174.35
	NORMAL	10,577.0	0.40	222.30	10,449.56	-257.91	-1,283.33	1,308.99	1.30	-1.28	-17.98	185.46
9/30/2011	NORMAL	10,671.0	0.30	141.80	10,543.56	-258.35	-1,283.40	1,309.14	0.49	-0.11	-85.64	220.17
	NORMAL	10,764.0	1.50	334.60	10,636.55	-257.44	-1,283.77	1,309.33	1.93	1.29	-179.78	190.68
	NORMAL	10,859.0	1.00	314.80	10,731.53	-255.73	-1,284.89	1,310.09	0.69	-0.53	-20.84	211.21
	NORMAL	10,953.0	2.10	355.40	10,825.49	-253.44	-1,285.61	1,310.35	1.59	1.17	43.19	66.48
	NORMAL	11,047.0	1.30	16.10	10,919.45	-250.70	-1,285.45	1,309.66	1.06	-0.85	22.02	152.53
	NORMAL	11,141.0	0.40	327.50	11,013.44	-249.40	-1,285.34	1,309.29	1.15	-0.96	-51.70	196.16
	NORMAL	11,235.0	1.90	20.50	11,107.42	-247.66	-1,284.97	1,308.59	1.80	1.60	56.38	63.89
	NORMAL	11,422.0	0.90	333.70	11,294.37	-243.44	-1,284.53	1,307.34	0.77	-0.53	-25.03	207.07
	NORMAL	11,890.0	2.60	256.40	11,762.18	-242.64	-1,296.48	1,318.91	0.55	0.36	-16.52	262.64
	NORMAL	11,984.0	1.50	271.80	11,856.12	-243.10	-1,299.78	1,322.24	1.30	-1.17	16.38	160.95
	NORMAL	12,077.0	0.10	199.40	11,949.10	-243.14	-1,301.02	1,323.46	1.58	-1.51	-77.85	183.71
	NORMAL	12,171.0	0.50	200.50	12,043.10	-243.60	-1,301.20	1,323.72	0.43	0.43	1.17	1.37
10/2/2011	NORMAL	12,256.0	0.90	218.10	12,128.10	-244.47	-1,301.74	1,324.42	0.53	0.47	20.71	37.25
	NORMAL	12,417.0	0.90	218.10	12,289.08	-246.46	-1,303.30	1,326.34	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

