

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 334-14-298	Wellbore No.	OH
Well Name	FEDERAL RG 334-14-298	Common Name	RG 334-14-298
Project	RG 14-02S-098W	Site	RG 23-14-298 Pad
Vertical Section Azimuth	100.23 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	3/29/2011	UWI	RG 334-14-298
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	3/28/2011	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 (°)
3/28/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3/29/2011	NORMAL	242.0	2.90	126.00	241.90	-3.60	4.95	5.51	1.20	1.20	0.00	126.00
	NORMAL	335.0	4.60	118.20	334.69	-6.74	10.14	11.18	1.90	1.83	-8.39	339.38
	NORMAL	428.0	4.90	112.20	427.38	-10.01	17.11	18.61	0.62	0.32	-6.45	298.11
	NORMAL	521.0	6.00	102.40	519.96	-12.55	25.53	27.36	1.55	1.18	-10.54	314.82
	NORMAL	613.0	7.30	102.90	611.34	-14.89	35.93	38.00	1.41	1.41	0.54	2.80
	NORMAL	706.0	8.10	95.00	703.50	-16.78	48.21	50.43	1.42	0.86	-8.49	303.12
	NORMAL	800.0	9.50	95.80	796.39	-18.14	62.53	64.76	1.50	1.49	0.85	5.39
	NORMAL	894.0	10.60	101.00	888.95	-20.57	78.73	81.14	1.52	1.17	5.53	42.10
	NORMAL	988.0	11.40	96.70	981.22	-23.31	96.45	99.05	1.22	0.85	-4.57	312.15
	NORMAL	1,082.0	12.50	92.30	1,073.18	-24.80	115.84	118.40	1.52	1.17	-4.68	318.20
	NORMAL	1,175.0	14.30	95.60	1,163.65	-26.33	137.33	139.82	2.10	1.94	3.55	24.63
	NORMAL	1,267.0	16.00	96.70	1,252.45	-28.91	161.23	163.80	1.87	1.85	1.20	10.13
	NORMAL	1,358.0	16.70	102.90	1,339.78	-33.30	186.43	189.38	2.07	0.77	6.81	71.14
	NORMAL	1,451.0	16.70	103.50	1,428.85	-39.40	212.45	216.07	0.19	0.00	0.65	90.29
	NORMAL	1,544.0	16.50	101.70	1,517.98	-45.20	238.38	242.62	0.59	-0.22	-1.94	247.89
	NORMAL	1,637.0	16.50	104.00	1,607.15	-51.07	264.13	269.00	0.70	0.00	2.47	91.10
	NORMAL	1,731.0	16.60	101.20	1,697.26	-56.91	290.25	295.74	0.86	0.11	-2.98	275.80
	NORMAL	1,824.0	16.90	100.90	1,786.31	-62.04	316.56	322.54	0.34	0.32	-0.32	343.78
	NORMAL	1,917.0	16.70	102.40	1,875.34	-67.47	342.88	349.41	0.51	-0.22	1.61	115.48

2.1.2 Survey Stations (Continued)

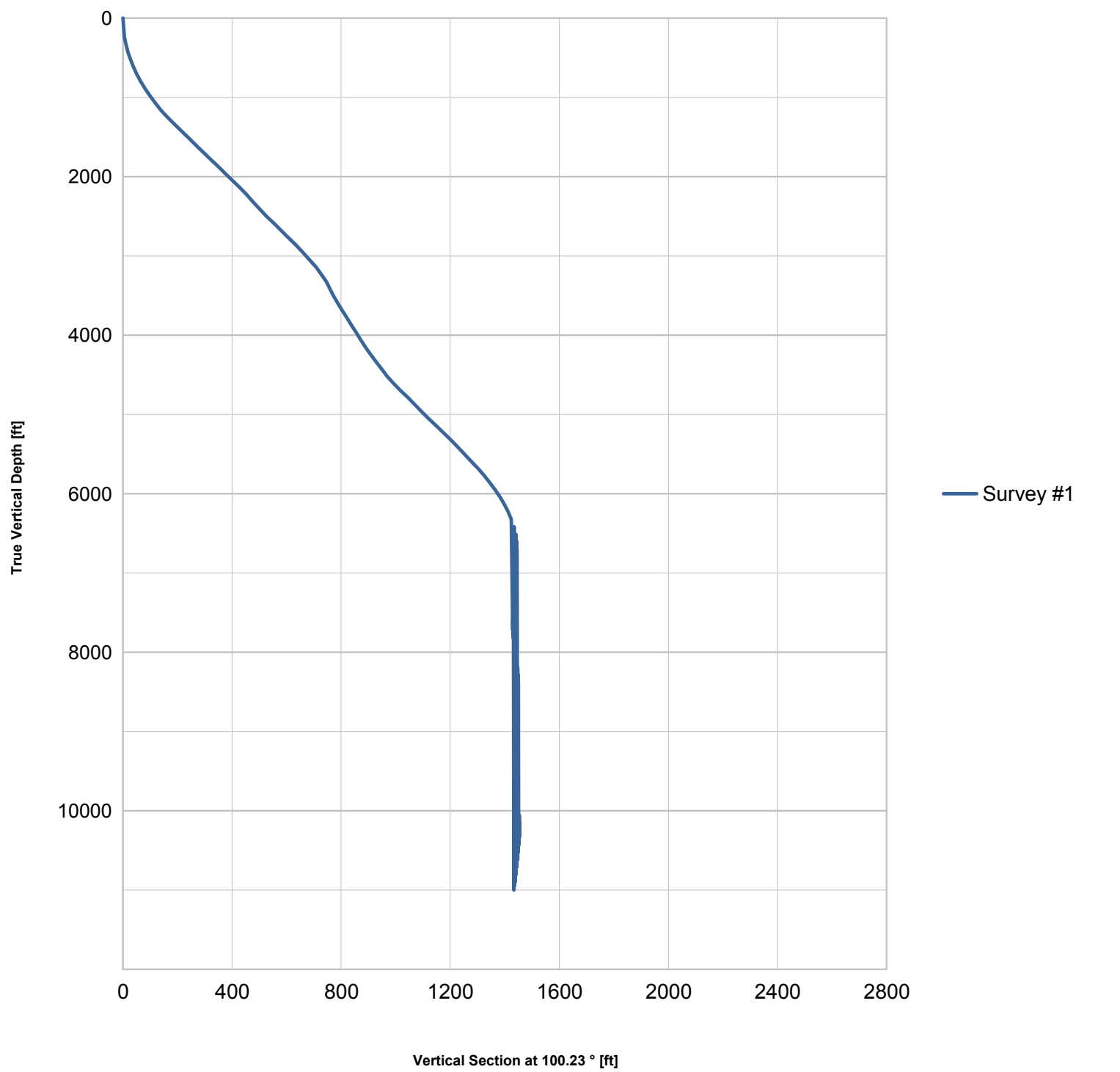
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
3/29/2011	NORMAL	2,010.0	17.10	98.90	1,964.33	-72.45	369.44	376.43	1.18	0.43	-3.76	289.78
	NORMAL	2,102.0	16.70	99.70	2,052.35	-76.77	395.83	403.17	0.50	-0.43	0.87	150.21
	NORMAL	2,196.0	15.80	99.10	2,142.60	-81.07	421.78	429.47	0.97	-0.96	-0.64	190.28
	NORMAL	2,289.0	14.90	98.60	2,232.28	-84.86	446.11	454.09	0.98	-0.97	-0.54	188.13
	NORMAL	2,382.0	14.90	97.60	2,322.15	-88.23	469.78	477.98	0.28	0.00	-1.08	269.52
3/30/2011	NORMAL	2,475.0	14.90	97.40	2,412.03	-91.35	493.49	501.87	0.06	0.00	-0.22	269.90
	NORMAL	2,568.0	16.50	99.80	2,501.55	-95.14	518.36	527.02	1.86	1.72	2.58	23.25
	NORMAL	2,662.0	16.70	102.50	2,591.64	-100.34	544.70	553.86	0.85	0.21	2.87	76.76
	NORMAL	2,755.0	16.60	102.20	2,680.74	-106.04	570.73	580.49	0.14	-0.11	-0.32	220.54
	NORMAL	2,848.0	16.20	99.50	2,769.96	-110.99	596.51	606.74	0.93	-0.43	-2.90	241.02
	NORMAL	2,942.0	16.00	101.00	2,860.27	-115.62	622.16	632.81	0.49	-0.21	1.60	116.40
	NORMAL	3,035.0	15.40	98.50	2,949.80	-119.89	646.96	657.96	0.97	-0.65	-2.69	227.23
	NORMAL	3,126.0	14.70	98.70	3,037.68	-123.43	670.32	681.58	0.77	-0.77	0.22	175.85
	NORMAL	3,219.0	14.20	98.10	3,127.74	-126.82	693.28	704.78	0.56	-0.54	-0.65	196.38
	NORMAL	3,230.0	14.50	99.60	3,138.39	-127.24	695.97	707.50	4.34	2.73	13.64	51.83
5/7/2011	NORMAL	3,422.0	8.70	104.40	3,326.40	-134.86	733.77	746.06	3.06	-3.02	2.50	172.90
	NORMAL	3,515.0	7.70	106.00	3,418.44	-138.33	746.57	759.27	1.10	-1.08	1.72	167.94
	NORMAL	3,608.0	8.90	102.50	3,510.47	-141.60	759.58	772.66	1.40	1.29	-3.76	335.43
	NORMAL	3,701.0	10.40	94.60	3,602.15	-143.84	774.98	788.20	2.15	1.61	-8.49	314.62
	NORMAL	3,794.0	10.70	95.60	3,693.58	-145.35	791.94	805.16	0.38	0.32	1.08	31.89
	NORMAL	3,887.0	9.80	99.60	3,785.10	-147.51	808.33	821.68	1.23	-0.97	4.30	143.62
	NORMAL	3,981.0	10.60	99.40	3,877.61	-150.26	824.75	838.32	0.85	0.85	-0.21	357.37
	NORMAL	4,074.0	10.50	94.60	3,969.04	-152.34	841.64	855.31	0.95	-0.11	-5.16	261.15
	NORMAL	4,167.0	10.50	99.70	4,060.49	-154.44	858.44	872.22	1.00	0.00	5.48	92.51
	NORMAL	4,260.0	10.80	106.30	4,151.89	-158.32	875.15	889.36	1.35	0.32	7.10	79.44
	NORMAL	4,353.0	12.00	108.70	4,243.05	-163.86	892.67	907.58	1.39	1.29	2.58	22.75
	NORMAL	4,446.0	13.30	105.90	4,333.79	-169.89	912.12	927.79	1.55	1.40	-3.01	333.38
	NORMAL	4,539.0	11.90	100.10	4,424.55	-174.51	931.85	948.03	2.03	-1.51	-6.24	219.30
	NORMAL	4,632.0	13.10	98.40	4,515.35	-177.73	951.72	968.15	1.35	1.29	-1.83	342.12
	NORMAL	4,725.0	15.20	100.30	4,605.52	-181.45	974.14	990.88	2.31	2.26	2.04	13.39
5/8/2011	NORMAL	4,819.0	17.00	98.90	4,695.83	-185.78	999.84	1,016.94	1.96	1.91	-1.49	347.15
	NORMAL	4,913.0	17.30	95.50	4,785.66	-189.24	1,027.33	1,044.61	1.11	0.32	-3.62	285.03
	NORMAL	5,006.0	15.10	96.60	4,874.96	-191.96	1,053.13	1,070.48	2.39	-2.37	1.18	172.59
	NORMAL	5,100.0	15.30	95.00	4,965.67	-194.45	1,077.65	1,095.05	0.49	0.21	-1.70	294.72
	NORMAL	5,192.0	17.20	95.60	5,053.99	-196.83	1,103.28	1,120.70	2.07	2.07	0.65	5.34
	NORMAL	5,285.0	17.60	96.00	5,142.73	-199.65	1,130.95	1,148.43	0.45	0.43	0.43	16.84
	NORMAL	5,378.0	16.30	97.10	5,231.69	-202.73	1,157.89	1,175.48	1.44	-1.40	1.18	166.67
	NORMAL	5,472.0	16.80	95.80	5,321.80	-205.73	1,184.49	1,202.20	0.66	0.53	-1.38	322.85
	NORMAL	5,565.0	14.80	96.70	5,411.28	-208.48	1,209.66	1,227.46	2.17	-2.15	0.97	173.45
	NORMAL	5,659.0	15.60	97.80	5,501.99	-211.59	1,234.11	1,252.07	0.90	0.85	1.17	20.36
	NORMAL	5,752.0	15.80	99.00	5,591.52	-215.27	1,259.00	1,277.22	0.41	0.22	1.29	58.95
	NORMAL	5,846.0	14.70	100.10	5,682.21	-219.36	1,283.39	1,301.94	1.21	-1.17	1.17	165.79
	NORMAL	5,938.0	13.60	101.50	5,771.42	-223.57	1,305.48	1,324.43	1.25	-1.20	1.52	163.40
	NORMAL	6,032.0	12.70	102.00	5,862.95	-227.92	1,326.41	1,345.81	0.97	-0.96	0.53	173.04
	NORMAL	6,126.0	11.80	104.20	5,954.81	-232.43	1,345.84	1,365.72	1.08	-0.96	2.34	153.66
	NORMAL	6,219.0	9.90	101.70	6,046.14	-236.38	1,362.89	1,383.20	2.10	-2.04	-2.69	192.69
	NORMAL	6,312.0	9.40	101.80	6,137.83	-239.55	1,378.15	1,398.79	0.54	-0.54	0.11	178.13
	NORMAL	6,407.0	7.60	102.30	6,231.78	-242.48	1,391.88	1,412.82	1.90	-1.89	0.53	177.90
5/9/2011	NORMAL	6,501.0	6.60	105.80	6,325.06	-245.27	1,403.16	1,424.41	1.16	-1.06	3.72	158.34
	NORMAL	6,594.0	5.40	113.00	6,417.55	-248.44	1,412.33	1,434.00	1.52	-1.29	7.74	151.45
	NORMAL	6,688.0	3.60	138.50	6,511.27	-252.38	1,418.36	1,440.63	2.82	-1.91	27.13	144.21
	NORMAL	6,781.0	2.30	160.00	6,604.14	-256.32	1,420.93	1,443.86	1.81	-1.40	23.12	150.00
	NORMAL	6,875.0	1.20	192.00	6,698.10	-259.05	1,421.37	1,444.78	1.52	-1.17	34.04	153.62
	NORMAL	6,968.0	1.20	213.10	6,791.08	-260.82	1,420.64	1,444.37	0.47	0.00	22.69	100.55
	NORMAL	7,061.0	0.80	232.90	6,884.07	-262.03	1,419.59	1,443.55	0.56	-0.43	21.29	148.79
	NORMAL	7,154.0	0.50	265.60	6,977.06	-262.45	1,418.66	1,442.72	0.50	-0.32	35.16	144.54
	NORMAL	7,247.0	0.90	328.10	7,070.05	-261.86	1,417.87	1,441.84	0.86	0.43	67.20	96.03

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 (°)
5/9/2011	NORMAL	7,340.0	1.70	323.40	7,163.03	-260.14	1,416.66	1,440.34	0.87	0.86	-5.05	350.05
	NORMAL	7,433.0	2.00	305.00	7,255.98	-258.10	1,414.51	1,437.86	0.71	0.32	-19.78	287.40
	NORMAL	7,527.0	2.40	290.70	7,349.91	-256.46	1,411.33	1,434.44	0.72	0.43	-15.21	298.79
5/10/2011	NORMAL	7,621.0	1.60	309.70	7,443.86	-254.93	1,408.48	1,431.36	1.09	-0.85	20.21	149.58
	NORMAL	7,715.0	1.70	5.50	7,537.82	-252.70	1,407.60	1,430.10	1.65	0.11	59.36	114.61
	NORMAL	7,808.0	2.00	354.20	7,630.77	-249.71	1,407.57	1,429.54	0.51	0.32	-12.15	303.69
	NORMAL	7,899.0	2.00	16.90	7,721.72	-246.61	1,407.87	1,429.29	0.86	0.00	24.95	101.34
	NORMAL	7,995.0	2.50	61.70	7,817.65	-244.02	1,410.20	1,431.12	1.85	0.52	46.67	97.29
	NORMAL	8,088.0	2.90	84.80	7,910.55	-242.84	1,414.33	1,434.97	1.24	0.43	24.84	81.61
	NORMAL	8,182.0	3.10	104.00	8,004.43	-243.24	1,419.16	1,439.80	1.08	0.21	20.43	88.43
	NORMAL	8,275.0	2.30	120.40	8,097.32	-244.80	1,423.21	1,444.06	1.19	-0.86	17.63	143.99
	NORMAL	8,368.0	1.90	143.40	8,190.26	-246.98	1,425.74	1,446.94	0.99	-0.43	24.73	126.58
	NORMAL	8,462.0	2.20	167.00	8,284.20	-249.99	1,427.08	1,448.79	0.94	0.32	25.11	82.49
	NORMAL	8,555.0	2.80	184.50	8,377.12	-253.99	1,427.30	1,449.72	1.04	0.65	18.82	60.79
	NORMAL	8,648.0	2.50	202.30	8,470.02	-258.13	1,426.35	1,449.52	0.94	-0.32	19.14	118.77
	NORMAL	8,741.0	2.20	219.00	8,562.94	-261.40	1,424.46	1,448.24	0.80	-0.32	17.96	121.85
5/11/2011	NORMAL	8,835.0	2.40	217.70	8,656.86	-264.36	1,422.12	1,446.46	0.22	0.21	-1.38	344.73
	NORMAL	8,928.0	2.20	239.70	8,749.79	-266.80	1,419.39	1,444.21	0.97	-0.22	23.66	113.60
	NORMAL	9,021.0	2.90	245.30	8,842.70	-268.68	1,415.71	1,440.92	0.80	0.75	6.02	22.40
	NORMAL	9,115.0	1.50	321.60	8,936.64	-268.71	1,412.78	1,438.05	3.12	-1.49	81.17	150.19
5/12/2011	NORMAL	9,207.0	2.30	1.90	9,028.60	-265.92	1,412.10	1,436.88	1.64	0.87	43.80	80.29
	NORMAL	9,300.0	2.50	28.30	9,121.52	-262.27	1,413.12	1,437.24	1.20	0.22	28.39	93.11
	NORMAL	9,394.0	1.80	7.10	9,215.45	-259.00	1,414.28	1,437.79	1.12	-0.74	-22.55	218.38
	NORMAL	9,487.0	1.30	336.50	9,308.42	-256.58	1,414.04	1,437.13	1.02	-0.54	-32.90	224.18
	NORMAL	9,580.0	2.50	41.60	9,401.38	-254.10	1,414.96	1,437.60	2.45	1.29	70.00	96.21
	NORMAL	9,674.0	2.50	38.60	9,495.29	-250.96	1,417.60	1,439.64	0.14	0.00	-3.19	268.50
	NORMAL	9,767.0	1.90	23.00	9,588.22	-247.96	1,419.47	1,440.94	0.91	-0.65	-16.77	217.33
5/13/2011	NORMAL	9,861.0	1.60	15.90	9,682.17	-245.26	1,420.44	1,441.42	0.39	-0.32	-7.55	212.34
	NORMAL	9,954.0	2.40	53.00	9,775.12	-242.84	1,422.35	1,442.87	1.59	0.86	39.89	77.74
	NORMAL	10,050.0	2.80	118.50	9,871.04	-242.75	1,426.02	1,446.46	2.95	0.42	68.23	115.90
	NORMAL	10,142.0	2.50	132.90	9,962.94	-245.19	1,429.46	1,450.28	0.79	-0.33	15.65	121.34
	NORMAL	10,236.0	1.70	143.30	10,056.88	-247.70	1,431.80	1,453.03	0.94	-0.85	11.06	159.66
	NORMAL	10,330.0	1.60	170.70	10,150.84	-250.12	1,432.84	1,454.48	0.84	-0.11	29.15	110.78
	NORMAL	10,424.0	1.70	193.40	10,244.80	-252.77	1,432.73	1,454.84	0.70	0.11	24.15	92.76
	NORMAL	10,512.0	1.90	224.30	10,332.76	-255.08	1,431.41	1,453.96	1.11	0.23	35.11	94.08
	NORMAL	10,610.0	2.10	233.60	10,430.70	-257.31	1,428.83	1,451.81	0.39	0.20	9.49	63.06
	NORMAL	10,703.0	2.20	238.70	10,523.64	-259.25	1,425.93	1,449.31	0.23	0.11	5.48	64.97
	NORMAL	10,797.0	2.20	234.00	10,617.57	-261.25	1,422.93	1,446.71	0.19	0.00	-5.00	267.65
5/14/2011	NORMAL	10,890.0	2.50	235.80	10,710.49	-263.43	1,419.81	1,444.02	0.33	0.32	1.94	14.72
	NORMAL	10,984.0	2.70	234.10	10,804.39	-265.89	1,416.32	1,441.03	0.23	0.21	-1.81	338.06
	NORMAL	11,077.0	3.00	232.80	10,897.28	-268.64	1,412.61	1,437.86	0.33	0.32	-1.40	347.19
	NORMAL	11,125.0	3.20	238.80	10,945.21	-270.09	1,410.46	1,436.01	0.79	0.42	12.50	61.37
	NORMAL	11,180.0	3.20	232.80	11,000.12	-271.82	1,407.92	1,433.82	0.61	0.00	-10.91	267.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

