

## 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 432-1-298	Wellbore No.	
Well Name	FEDERAL RGU 432-1-298	Common Name	RGU 432-1-298
Project	RG 01-02S-098W	Site	RGU 41-1-298 PAD
Vertical Section Azimuth	232.17 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	10/24/2011	UWI	RGU 432-1-298
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	10/24/2011	Ended	
Tool Name	MWD	Engineer	Greg Morris

#### 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 (°)
10/24/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/24/2011	NORMAL	157.0	0.40	262.20	157.00	-0.07	-0.54	0.47	0.25	0.25	0.00	262.20
	NORMAL	249.0	2.20	242.40	248.97	-0.94	-2.43	2.49	1.99	1.96	-21.52	335.95
	NORMAL	341.0	3.90	236.40	340.84	-3.49	-6.60	7.35	1.88	1.85	-6.52	346.36
	NORMAL	433.0	5.60	232.70	432.52	-7.94	-12.77	14.96	1.88	1.85	-4.02	347.94
	NORMAL	525.0	7.10	230.40	523.95	-14.28	-20.73	25.13	1.65	1.63	-2.50	349.23
	NORMAL	618.0	9.00	228.90	616.03	-22.73	-30.64	38.14	2.06	2.04	-1.61	352.95
	NORMAL	710.0	10.70	232.70	706.67	-32.64	-42.86	53.86	1.98	1.85	4.13	22.81
	NORMAL	802.0	12.40	234.80	796.81	-43.51	-57.72	72.27	1.90	1.85	2.28	14.92
	NORMAL	894.0	14.20	233.30	886.34	-55.94	-74.84	93.42	1.99	1.96	-1.63	348.42
	NORMAL	989.0	15.30	231.10	978.20	-70.78	-93.94	117.61	1.30	1.16	-2.32	331.95
	NORMAL	1,083.0	15.40	228.90	1,068.85	-86.77	-113.00	142.47	0.63	0.11	-2.34	278.68
	NORMAL	1,177.0	15.30	230.80	1,159.50	-102.82	-132.01	167.33	0.55	-0.11	2.02	102.16
	NORMAL	1,272.0	14.40	232.30	1,251.33	-117.96	-151.07	191.67	1.03	-0.95	1.58	157.59
	NORMAL	1,367.0	15.20	234.30	1,343.17	-132.45	-170.53	215.93	1.00	0.84	2.11	33.53
10/25/2011	NORMAL	1,555.0	15.30	234.50	1,524.55	-161.24	-210.74	265.34	0.06	0.05	0.11	27.84
	NORMAL	1,649.0	16.20	233.50	1,615.02	-176.24	-231.38	290.84	1.00	0.96	-1.06	342.73
	NORMAL	1,743.0	16.50	233.10	1,705.22	-192.06	-252.60	317.30	0.34	0.32	-0.43	339.23
	NORMAL	1,838.0	16.80	232.70	1,796.24	-208.48	-274.30	344.52	0.34	0.32	-0.42	338.90
	NORMAL	1,931.0	17.20	233.20	1,885.18	-224.86	-296.01	371.71	0.46	0.43	0.54	20.31

## 2.1.2 Survey Stations (Continued)

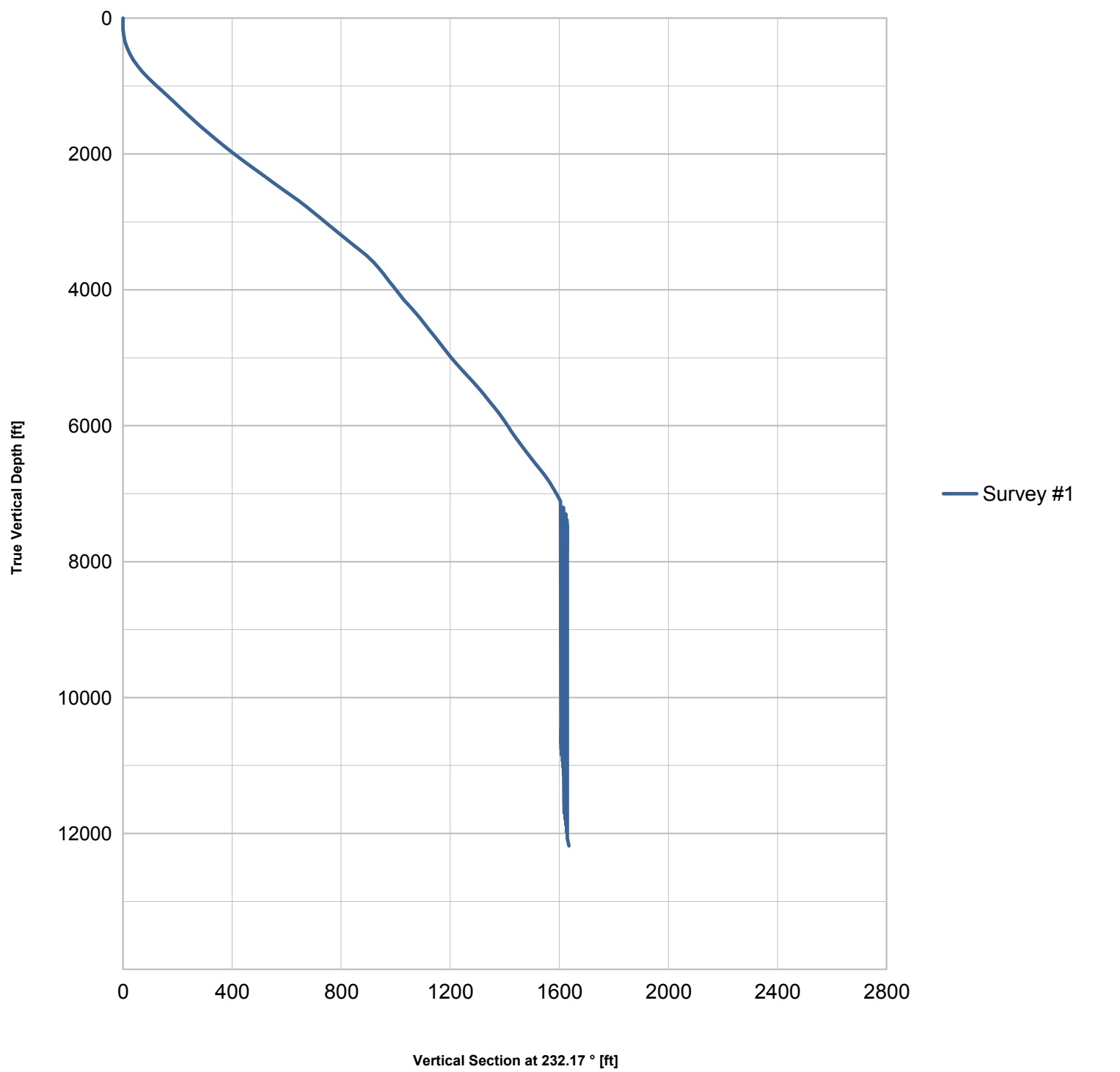
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
10/25/2011	NORMAL	2,026.0	17.80	233.40	1,975.78	-241.93	-318.91	400.27	0.63	0.63	0.21	5.82
	NORMAL	2,120.0	18.30	233.40	2,065.15	-259.29	-342.29	429.39	0.53	0.53	0.00	0.00
	NORMAL	2,215.0	18.90	233.80	2,155.19	-277.27	-366.68	459.68	0.65	0.63	0.42	12.19
	NORMAL	2,310.0	19.30	233.20	2,244.96	-295.76	-391.67	490.75	0.47	0.42	-0.63	333.57
	NORMAL	2,404.0	18.70	231.60	2,333.84	-314.43	-415.92	521.35	0.85	-0.64	-1.70	220.21
	NORMAL	2,498.0	18.70	231.00	2,422.88	-333.27	-439.44	551.49	0.20	0.00	-0.64	269.72
	NORMAL	2,592.0	19.60	231.70	2,511.67	-352.53	-463.52	582.32	0.99	0.96	0.74	14.64
	NORMAL	2,688.0	19.60	231.70	2,602.11	-372.49	-488.80	614.52	0.00	0.00	0.00	0.00
	NORMAL	2,780.0	18.20	231.70	2,689.15	-390.96	-512.18	644.32	1.52	-1.52	0.00	180.00
	NORMAL	2,874.0	17.60	230.70	2,778.60	-409.06	-534.70	673.21	0.72	-0.64	-1.06	206.65
	NORMAL	2,969.0	17.20	229.30	2,869.25	-427.31	-556.46	701.59	0.61	-0.42	-1.47	225.64
	NORMAL	3,064.0	16.70	227.40	2,960.13	-445.71	-577.16	729.22	0.79	-0.53	-2.00	227.02
	NORMAL	3,158.0	16.60	227.30	3,050.18	-463.96	-596.97	756.06	0.11	-0.11	-0.11	195.94
	NORMAL	3,253.0	17.20	230.50	3,141.08	-482.10	-617.78	783.62	1.16	0.63	3.37	58.72
	NORMAL	3,347.0	17.10	233.50	3,230.91	-499.16	-639.62	811.33	0.95	-0.11	3.19	97.88
	NORMAL	3,441.0	17.30	233.10	3,320.70	-515.77	-661.90	839.12	0.25	0.21	-0.43	329.21
	NORMAL	3,536.0	17.60	232.50	3,411.33	-533.00	-684.59	867.61	0.37	0.32	-0.63	328.76
12/26/2011	NORMAL	3,626.0	16.44	232.54	3,497.39	-549.02	-705.50	893.95	1.29	-1.29	0.04	179.44
	NORMAL	3,725.0	13.16	227.23	3,593.09	-565.20	-724.90	919.20	3.58	-3.31	-5.36	199.92
	NORMAL	3,817.0	11.85	226.19	3,682.91	-578.85	-739.40	939.03	1.44	-1.42	-1.13	189.25
	NORMAL	3,912.0	10.82	222.77	3,776.06	-592.15	-752.50	957.53	1.29	-1.08	-3.60	211.46
	NORMAL	4,005.0	11.37	224.42	3,867.32	-605.11	-764.84	975.22	0.68	0.59	1.77	30.81
	NORMAL	4,100.0	10.73	229.36	3,960.56	-617.56	-778.10	993.33	1.20	-0.67	5.20	126.46
	NORMAL	4,196.0	10.95	230.14	4,054.84	-629.22	-791.89	1,011.37	0.28	0.23	0.81	34.08
	NORMAL	4,290.0	12.31	237.27	4,146.92	-640.36	-807.17	1,030.28	2.10	1.45	7.59	50.11
	NORMAL	4,385.0	12.93	237.44	4,239.62	-651.56	-824.65	1,050.95	0.65	0.65	0.18	3.51
	NORMAL	4,479.0	12.22	232.08	4,331.37	-663.33	-841.36	1,071.37	1.45	-0.76	-5.70	236.09
	NORMAL	4,573.0	11.33	234.10	4,423.39	-674.86	-856.69	1,090.55	1.04	-0.95	2.15	156.13
	NORMAL	4,668.0	10.88	230.87	4,516.61	-685.99	-871.20	1,108.84	0.81	-0.47	-3.40	232.54
	NORMAL	4,762.0	11.27	232.88	4,608.86	-697.13	-885.41	1,126.89	0.58	0.41	2.14	45.70
	NORMAL	4,857.0	11.27	232.11	4,702.03	-708.44	-900.14	1,145.46	0.16	0.00	-0.81	269.62
	NORMAL	4,951.0	11.07	229.12	4,794.25	-719.98	-914.21	1,163.65	0.65	-0.21	-3.18	249.49
	NORMAL	5,045.0	10.90	229.18	4,886.53	-731.70	-927.76	1,181.54	0.18	-0.18	0.06	176.18
	NORMAL	5,139.0	11.84	233.24	4,978.68	-743.28	-942.21	1,200.06	1.31	1.00	4.32	42.42
	NORMAL	5,234.0	11.80	230.67	5,071.67	-755.27	-957.53	1,219.51	0.56	-0.04	-2.71	264.40
	NORMAL	5,333.0	13.06	233.32	5,168.35	-768.37	-974.33	1,240.82	1.40	1.27	2.68	25.65
	NORMAL	5,425.0	13.42	234.36	5,257.90	-780.80	-991.34	1,261.88	0.47	0.39	1.13	34.00
	NORMAL	5,520.0	12.52	232.00	5,350.48	-793.56	-1,008.42	1,283.19	1.10	-0.95	-2.48	209.33
	NORMAL	5,617.0	12.08	234.58	5,445.25	-805.92	-1,024.98	1,303.85	0.73	-0.45	2.66	129.93
	NORMAL	5,709.0	11.79	236.23	5,535.26	-816.72	-1,040.63	1,322.84	0.49	-0.32	1.79	131.17
	NORMAL	5,806.0	11.16	244.53	5,630.33	-826.27	-1,057.35	1,341.90	1.82	-0.65	8.56	114.92
	NORMAL	5,901.0	11.61	243.05	5,723.46	-834.55	-1,074.17	1,360.26	0.56	0.47	-1.56	326.28
12/27/2011	NORMAL	5,990.0	10.95	237.79	5,810.75	-843.12	-1,089.30	1,377.47	1.37	-0.74	-5.91	234.76
	NORMAL	6,086.0	9.87	233.37	5,905.17	-852.89	-1,103.62	1,394.77	1.40	-1.13	-4.60	214.32
	NORMAL	6,183.0	9.19	227.26	6,000.83	-863.11	-1,115.98	1,410.80	1.26	-0.70	-6.30	233.10
	NORMAL	6,271.0	9.58	226.55	6,087.65	-872.91	-1,126.46	1,425.09	0.46	0.44	-0.81	343.12
	NORMAL	6,365.0	10.50	229.66	6,180.21	-883.83	-1,138.67	1,441.43	1.14	0.98	3.31	32.05
	NORMAL	6,459.0	10.11	230.68	6,272.69	-894.61	-1,151.58	1,458.24	0.46	-0.41	1.09	155.43
	NORMAL	6,554.0	10.45	234.45	6,366.17	-904.90	-1,165.04	1,475.18	0.79	0.36	3.97	65.05
	NORMAL	6,647.0	11.34	235.77	6,457.49	-914.95	-1,179.46	1,492.73	0.99	0.96	1.42	16.31
	NORMAL	6,740.0	11.59	233.90	6,548.64	-925.59	-1,194.57	1,511.20	0.48	0.27	-2.01	303.01
	NORMAL	6,834.0	11.43	232.26	6,640.75	-936.86	-1,209.56	1,529.95	0.39	-0.17	-1.74	243.14
	NORMAL	6,929.0	10.29	232.35	6,734.04	-947.80	-1,223.73	1,547.85	1.20	-1.20	0.09	179.19
	NORMAL	7,023.0	9.06	235.16	6,826.71	-957.16	-1,236.45	1,563.64	1.40	-1.31	2.99	160.38
	NORMAL	7,117.0	8.63	239.62	6,919.59	-964.96	-1,248.61	1,578.02	0.86	-0.46	4.74	124.28
	NORMAL	7,213.0	8.21	244.31	7,014.56	-971.57	-1,261.00	1,591.86	0.84	-0.44	4.89	123.75
	NORMAL	7,308.0	7.45	241.55	7,108.67	-977.44	-1,272.53	1,604.57	0.89	-0.80	-2.91	204.96

## 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 (°)
12/27/2011	NORMAL	7,400.0	5.72	239.47	7,200.06	-982.61	-1,281.72	1,615.00	1.90	-1.88	-2.26	186.82
12/28/2011	NORMAL	7,495.0	4.13	231.57	7,294.71	-987.15	-1,288.48	1,623.12	1.82	-1.67	-8.32	199.20
	NORMAL	7,583.0	1.76	232.79	7,382.58	-989.93	-1,292.04	1,627.64	2.69	-2.69	1.39	179.09
	NORMAL	7,676.0	0.94	295.07	7,475.56	-990.47	-1,293.87	1,629.42	1.68	-0.88	66.97	147.82
	NORMAL	7,770.0	0.94	53.48	7,569.55	-989.69	-1,293.94	1,629.00	1.72	0.00	125.97	149.20
	NORMAL	7,864.0	1.47	80.41	7,663.53	-989.03	-1,292.14	1,627.16	0.81	0.56	28.65	60.89
	NORMAL	7,957.0	0.48	117.53	7,756.52	-989.01	-1,290.61	1,625.95	1.21	-1.06	39.91	165.08
	NORMAL	8,052.0	0.52	244.03	7,851.52	-989.38	-1,290.65	1,626.21	0.94	0.04	133.16	152.09
	NORMAL	8,146.0	0.32	282.89	7,945.52	-989.51	-1,291.29	1,626.79	0.36	-0.21	41.34	143.45
	NORMAL	8,241.0	0.44	336.81	8,040.51	-989.12	-1,291.69	1,626.87	0.38	0.13	56.76	99.71
	NORMAL	8,337.0	0.55	319.51	8,136.51	-988.43	-1,292.14	1,626.80	0.19	0.11	-18.02	297.49
	NORMAL	8,432.0	0.74	331.99	8,231.51	-987.54	-1,292.72	1,626.71	0.25	0.20	13.14	42.83
12/29/2011	NORMAL	8,523.0	1.14	320.17	8,322.49	-986.33	-1,293.57	1,626.64	0.49	0.44	-12.99	328.15
	NORMAL	8,617.0	1.56	332.35	8,416.47	-984.47	-1,294.77	1,626.45	0.54	0.45	12.96	40.53
	NORMAL	8,709.0	1.29	34.86	8,508.44	-982.51	-1,294.76	1,625.24	1.63	-0.29	67.95	130.12
	NORMAL	8,802.0	1.62	80.50	8,601.42	-981.44	-1,292.86	1,623.08	1.26	0.35	49.08	97.73
	NORMAL	8,896.0	1.48	88.34	8,695.38	-981.18	-1,290.34	1,620.93	0.27	-0.15	8.34	127.31
	NORMAL	8,989.0	1.04	106.46	8,788.36	-981.39	-1,288.33	1,619.47	0.63	-0.47	19.48	146.66
	NORMAL	9,083.0	0.64	120.70	8,882.35	-981.90	-1,287.06	1,618.78	0.48	-0.43	15.15	159.44
	NORMAL	9,178.0	0.44	170.65	8,977.35	-982.53	-1,286.54	1,618.76	0.52	-0.21	52.58	136.66
12/30/2011	NORMAL	9,271.0	1.10	113.87	9,070.34	-983.24	-1,285.67	1,618.51	1.00	0.71	-61.05	280.03
	NORMAL	9,365.0	1.23	127.93	9,164.32	-984.23	-1,284.05	1,617.83	0.33	0.14	14.96	72.68
	NORMAL	9,458.0	0.83	76.30	9,257.30	-984.68	-1,282.61	1,616.97	1.04	-0.43	-55.52	222.32
	NORMAL	9,551.0	0.03	104.50	9,350.30	-984.53	-1,281.93	1,616.34	0.86	-0.86	30.32	178.99
	NORMAL	9,645.0	0.57	242.49	9,444.30	-984.75	-1,282.32	1,616.79	0.63	0.57	146.80	139.93
	NORMAL	9,738.0	0.74	247.85	9,537.29	-985.19	-1,283.29	1,617.82	0.19	0.18	5.76	22.51
	NORMAL	9,832.0	1.01	340.08	9,631.29	-984.64	-1,284.13	1,618.15	1.36	0.29	98.12	127.67
	NORMAL	9,926.0	1.71	36.59	9,725.26	-982.74	-1,283.58	1,616.54	1.52	0.74	60.12	92.66
	NORMAL	10,019.0	0.62	11.21	9,818.24	-981.13	-1,282.65	1,614.83	1.27	-1.17	-27.29	193.01
	NORMAL	10,114.0	1.19	47.86	9,913.23	-979.96	-1,281.82	1,613.46	0.83	0.60	38.58	64.77
	NORMAL	10,211.0	0.63	80.58	10,010.22	-979.20	-1,280.55	1,611.98	0.77	-0.58	33.73	152.71
	NORMAL	10,301.0	0.53	234.72	10,100.22	-979.36	-1,280.40	1,611.96	1.26	-0.11	171.27	168.20
	NORMAL	10,395.0	1.04	44.59	10,194.21	-979.00	-1,280.15	1,611.55	1.66	0.54	180.71	173.29
	NORMAL	10,489.0	0.90	51.72	10,288.20	-977.94	-1,278.98	1,609.97	0.20	-0.15	7.59	142.76
	NORMAL	10,581.0	1.04	62.57	10,380.19	-977.10	-1,277.67	1,608.42	0.25	0.15	11.79	58.19
	NORMAL	10,675.0	1.14	74.49	10,474.17	-976.46	-1,276.01	1,606.72	0.26	0.11	12.68	72.24
12/31/2011	NORMAL	10,769.0	0.53	299.14	10,568.16	-976.00	-1,275.49	1,606.02	1.66	-0.65	-143.99	193.80
	NORMAL	10,863.0	0.22	67.01	10,662.16	-975.72	-1,275.70	1,606.02	0.73	-0.33	136.03	165.36
	NORMAL	10,957.0	1.24	183.59	10,756.16	-976.66	-1,275.60	1,606.52	1.44	1.09	124.02	124.94
	NORMAL	11,051.0	1.62	230.68	10,850.13	-978.52	-1,276.69	1,608.52	1.27	0.40	50.10	96.58
	NORMAL	11,145.0	2.31	234.76	10,944.07	-980.45	-1,279.27	1,611.74	0.75	0.73	4.34	13.51
	NORMAL	11,239.0	1.32	208.09	11,038.03	-982.50	-1,281.32	1,614.62	1.36	-1.05	-28.37	207.66
	NORMAL	11,333.0	0.77	153.19	11,132.01	-984.02	-1,281.55	1,615.73	1.15	-0.59	-58.40	215.69
	NORMAL	11,429.0	1.41	238.41	11,228.00	-985.22	-1,282.26	1,617.03	1.61	0.67	88.77	114.90
	NORMAL	11,522.0	1.23	235.51	11,320.98	-986.38	-1,284.06	1,619.16	0.21	-0.19	-3.12	198.92
	NORMAL	11,616.0	0.62	328.41	11,414.97	-986.52	-1,285.16	1,620.11	1.49	-0.65	98.83	153.85
	NORMAL	11,709.0	1.33	76.76	11,507.96	-985.84	-1,284.37	1,619.08	1.76	0.76	116.51	129.44
	NORMAL	11,803.0	1.06	348.54	11,601.94	-984.74	-1,283.48	1,617.70	1.78	-0.29	-93.85	219.25
	NORMAL	11,897.0	1.92	278.66	11,695.92	-983.65	-1,285.21	1,618.40	1.96	0.91	-74.34	257.51
1/1/2012	NORMAL	11,990.0	3.17	251.68	11,788.83	-984.23	-1,289.19	1,621.89	1.83	1.34	-29.01	302.20
	NORMAL	12,082.0	1.67	171.70	11,880.76	-986.35	-1,291.42	1,624.95	3.60	-1.63	-86.93	209.75
	NORMAL	12,178.0	2.11	173.99	11,976.71	-989.49	-1,291.03	1,626.58	0.46	0.46	2.39	10.89
	NORMAL	12,271.0	2.73	203.61	12,069.63	-993.23	-1,291.74	1,629.42	1.48	0.67	31.85	78.94
	NORMAL	12,382.0	4.11	213.74	12,180.43	-998.96	-1,295.00	1,635.52	1.35	1.24	9.13	28.76
	PROJECTION	12,437.0	4.11	213.74								

3 Charts

3.1 Vertical Section View



3.2 Plan View

