

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	PA 621-29	Wellbore No.	OH
Well Name	PA 621-29	Common Name	PA 621-29
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	253.67 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	12/25/2011	UWI	PA 621-29
Active Datum	KB @6,255.5ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	SCIENTIFIC DRILLING
Date Started	12/25/2011	Ended	
Tool Name	MWD	Engineer	NICOLE FOSTER

#### 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 (°)
12/25/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/25/2011	NORMAL	83.0	0.09	245.30	83.00	-0.03	-0.06	0.06	0.11	0.11	0.00	245.30
	NORMAL	115.0	0.79	246.18	115.00	-0.13	-0.28	0.31	2.19	2.19	2.75	0.99
	NORMAL	145.0	1.76	249.08	144.99	-0.37	-0.90	0.97	3.24	3.23	9.67	5.26
	NORMAL	176.0	3.34	248.12	175.96	-0.88	-2.19	2.35	5.10	5.10	-3.10	357.97
	NORMAL	207.0	4.84	249.61	206.88	-1.67	-4.25	4.55	4.85	4.84	4.81	4.80
	NORMAL	237.0	6.33	251.19	236.74	-2.65	-7.00	7.46	4.99	4.97	5.27	6.68
	NORMAL	268.0	7.57	247.59	267.51	-3.98	-10.51	11.20	4.24	4.00	-11.61	338.85
	NORMAL	298.0	8.71	250.66	297.21	-5.48	-14.48	15.44	4.07	3.80	10.23	22.40
	NORMAL	329.0	9.94	247.41	327.80	-7.29	-19.16	20.44	4.31	3.97	-10.48	335.21
	NORMAL	360.0	10.82	249.17	358.29	-9.35	-24.35	26.00	3.02	2.84	5.68	20.68
	NORMAL	390.0	11.70	247.94	387.71	-11.49	-29.80	31.83	3.04	2.93	-4.10	344.13
	NORMAL	421.0	12.40	248.55	418.03	-13.89	-35.82	38.28	2.30	2.26	1.97	10.61
	NORMAL	452.0	13.46	250.93	448.24	-16.29	-42.32	45.20	3.83	3.42	7.68	27.84
	NORMAL	494.0	14.86	252.70	488.96	-19.49	-52.09	55.46	3.49	3.33	4.21	18.05
	NORMAL	524.0	16.03	252.79	517.88	-21.86	-59.72	63.45	3.90	3.90	0.30	1.22
	NORMAL	554.0	16.70	251.28	546.66	-24.47	-67.75	71.90	2.65	2.23	-5.03	326.86
	NORMAL	584.0	17.77	251.77	575.32	-27.28	-76.19	80.78	3.60	3.57	1.63	7.96
	NORMAL	614.0	18.58	251.53	603.82	-30.23	-85.07	90.13	2.71	2.70	-0.80	354.61
	NORMAL	644.0	19.63	251.35	632.17	-33.35	-94.37	99.95	3.51	3.50	-0.60	356.70
	NORMAL	674.0	20.68	251.69	660.33	-36.63	-104.18	110.27	3.52	3.50	1.13	6.53

## 2.1.2 Survey Stations (Continued)

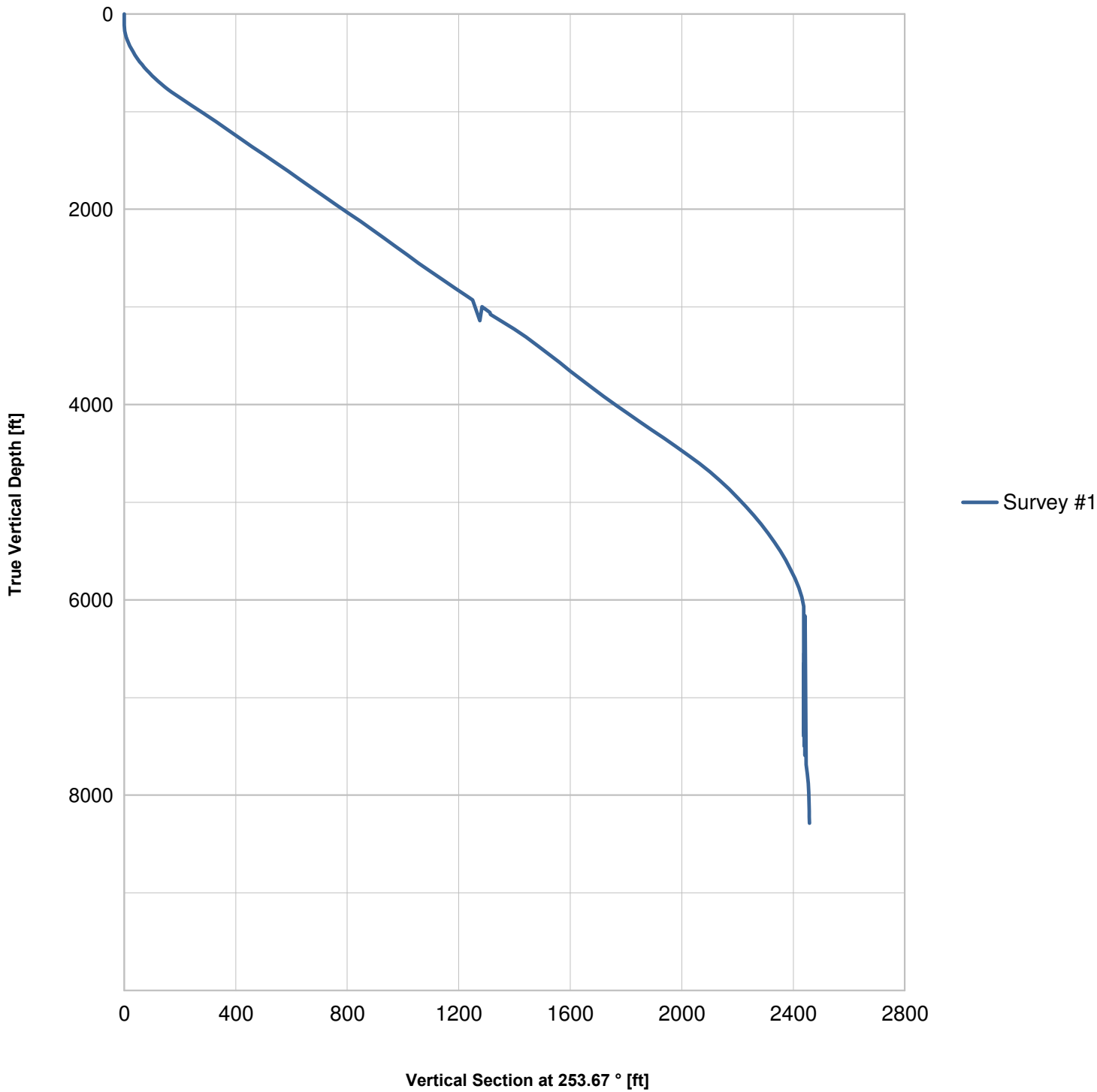
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
12/25/2011	NORMAL	705.0	21.65	252.15	689.24	-40.10	-114.82	121.46	3.17	3.13	1.48	9.93
	NORMAL	735.0	22.67	252.40	717.02	-43.55	-125.60	132.77	3.41	3.40	0.83	5.40
	NORMAL	765.0	23.86	252.28	744.58	-47.14	-136.89	144.62	3.97	3.97	-0.40	357.66
	NORMAL	796.0	25.28	252.53	772.77	-51.04	-149.18	157.51	4.59	4.58	0.81	4.30
	NORMAL	826.0	26.86	252.32	799.72	-55.02	-161.74	170.69	5.28	5.27	-0.70	356.56
	NORMAL	887.0	27.83	253.05	853.90	-63.35	-188.49	198.70	1.68	1.59	1.20	19.39
	NORMAL	978.0	27.45	254.75	934.52	-75.06	-229.05	240.91	0.96	-0.42	1.87	116.48
	NORMAL	1,074.0	27.81	250.93	1,019.58	-88.20	-271.57	285.41	1.88	0.38	-3.98	279.79
	NORMAL	1,168.0	27.46	256.34	1,102.87	-100.49	-313.36	328.97	2.69	-0.37	5.76	100.33
	NORMAL	1,263.0	27.34	256.53	1,187.21	-110.74	-355.86	372.64	0.16	-0.13	0.20	144.01
	NORMAL	1,358.0	26.04	253.86	1,272.09	-121.62	-397.10	415.28	1.86	-1.37	-2.81	221.50
	NORMAL	1,453.0	27.12	253.40	1,357.05	-133.60	-437.89	457.79	1.16	1.14	-0.48	349.00
	NORMAL	1,548.0	26.56	253.79	1,441.81	-145.72	-479.03	500.68	0.62	-0.59	0.41	162.72
	NORMAL	1,643.0	28.19	253.95	1,526.17	-157.85	-520.99	544.36	1.72	1.72	0.17	2.66
12/26/2011	NORMAL	1,739.0	26.88	254.12	1,611.30	-170.06	-563.66	588.74	1.37	-1.36	0.18	176.64
	NORMAL	1,834.0	25.57	254.32	1,696.52	-181.48	-604.06	630.71	1.38	-1.38	0.21	176.23
	NORMAL	1,930.0	27.05	255.55	1,782.57	-192.52	-645.15	673.25	1.64	1.54	1.28	20.77
	NORMAL	2,025.0	26.26	253.32	1,867.48	-203.95	-686.20	715.86	1.34	-0.83	-2.35	230.71
	NORMAL	2,121.0	27.58	252.35	1,953.07	-216.78	-727.72	759.31	1.45	1.38	-1.01	341.16
	NORMAL	2,216.0	27.89	252.91	2,037.16	-229.98	-769.91	803.52	0.43	0.33	0.59	40.30
	NORMAL	2,312.0	26.37	253.19	2,122.59	-242.74	-811.79	847.29	1.59	-1.58	0.29	175.32
	NORMAL	2,407.0	25.46	253.93	2,208.04	-254.50	-851.61	888.81	1.02	-0.96	0.78	160.77
	NORMAL	2,503.0	27.00	254.73	2,294.15	-265.95	-892.46	931.23	1.65	1.60	0.83	13.29
	NORMAL	2,598.0	25.84	255.25	2,379.23	-276.90	-933.29	973.49	1.25	-1.22	0.55	168.95
	NORMAL	2,694.0	25.18	253.60	2,465.87	-287.99	-973.11	1,014.83	1.01	-0.69	-1.72	226.37
	NORMAL	2,789.0	26.20	253.98	2,551.48	-299.49	-1,012.65	1,056.01	1.09	1.07	0.40	9.35
	NORMAL	2,885.0	27.10	254.81	2,637.28	-311.07	-1,054.13	1,099.06	1.01	0.94	0.86	22.84
	NORMAL	2,980.0	27.46	254.75	2,721.71	-322.50	-1,096.14	1,142.60	0.38	0.38	-0.06	355.60
	NORMAL	3,076.0	28.03	255.70	2,806.67	-333.89	-1,139.36	1,187.27	0.75	0.59	0.99	38.23
	NORMAL	3,171.0	26.47	254.81	2,891.13	-344.95	-1,181.42	1,230.75	1.70	-1.64	-0.94	194.24
	NORMAL	3,213.0	26.07	254.56	2,928.79	-349.86	-1,199.35	1,249.34	0.99	-0.95	-0.60	195.35
12/27/2011	NORMAL	3,361.0			3,076.81	-351.94	-1,204.26	1,313.48	0.00	0.00	0.00	0.00
12/28/2011	NORMAL	3,290.0	26.17	253.17	2,997.93	-359.28	-1,231.91	1,283.23	0.81	0.13	-1.81	278.66
	NORMAL	3,354.0	26.97	254.53	3,055.17	-367.24	-1,259.41	1,311.86	1.57	1.25	2.13	37.86
	NORMAL	3,449.0	27.52	253.76	3,139.63	-379.12	-1,301.24	1,275.37	0.69	0.58	-0.81	327.00
	NORMAL	3,545.0	26.79	252.48	3,225.05	-391.84	-1,343.17	1,399.16	0.97	-0.76	-1.33	218.10
	NORMAL	3,640.0	26.02	248.91	3,310.14	-405.78	-1,383.03	1,441.33	1.86	-0.81	-3.76	242.54
	NORMAL	3,736.0	25.00	249.00	3,396.78	-420.63	-1,421.62	1,482.53	1.06	-1.06	0.09	177.86
	NORMAL	3,831.0	24.21	250.81	3,483.16	-434.23	-1,458.75	1,522.00	1.15	-0.83	1.91	137.17
	NORMAL	3,927.0	24.08	253.60	3,570.76	-446.23	-1,496.13	1,561.24	1.20	-0.14	2.91	97.77
12/29/2011	NORMAL	4,022.0	24.15	252.24	3,657.47	-457.63	-1,533.23	1,600.05	0.59	0.07	-1.43	276.56
	NORMAL	4,118.0	24.43	250.53	3,744.97	-470.24	-1,570.65	1,639.51	0.79	0.29	-1.78	290.92
	NORMAL	4,213.0	25.10	254.51	3,831.24	-482.17	-1,608.59	1,679.27	1.89	0.71	4.19	69.92
	NORMAL	4,309.0	25.29	253.08	3,918.11	-493.57	-1,647.84	1,720.14	0.66	0.20	-1.49	286.69
	NORMAL	4,405.0	26.63	254.42	4,004.42	-505.32	-1,688.18	1,762.16	1.52	1.40	1.40	24.24
	NORMAL	4,500.0	26.99	255.21	4,089.21	-516.54	-1,729.53	1,804.99	0.53	0.38	0.83	45.06
	NORMAL	4,596.0	27.06	255.64	4,174.73	-527.52	-1,771.75	1,848.59	0.22	0.07	0.45	70.48
	NORMAL	4,691.0	27.41	252.91	4,259.20	-539.30	-1,813.58	1,892.06	1.37	0.37	-2.87	284.43
	NORMAL	4,787.0	27.32	255.58	4,344.46	-551.28	-1,856.04	1,936.17	1.28	-0.09	2.78	95.38
	NORMAL	4,882.0	26.94	258.12	4,429.01	-561.14	-1,898.22	1,979.42	1.28	-0.40	2.67	109.29
	NORMAL	4,978.0	25.92	255.85	4,514.98	-570.75	-1,939.85	2,022.07	1.50	-1.06	-2.36	223.72
	NORMAL	5,074.0	24.15	255.21	4,601.95	-580.89	-1,979.18	2,062.67	1.87	-1.84	-0.67	188.41
	NORMAL	5,169.0	22.99	256.62	4,689.03	-590.15	-2,016.02	2,100.62	1.36	-1.22	1.48	154.72
	NORMAL	5,264.0	21.28	259.03	4,777.02	-597.72	-2,051.00	2,136.32	2.04	-1.80	2.54	153.14
	NORMAL	5,357.0	20.08	256.59	4,864.03	-604.64	-2,083.10	2,169.07	1.59	-1.29	-2.62	214.54
12/30/2011	NORMAL	5,453.0	18.64	256.61	4,954.60	-612.01	-2,114.05	2,200.85	1.50	-1.50	0.02	179.75
	NORMAL	5,548.0	17.77	256.75	5,044.85	-618.85	-2,142.93	2,230.49	0.92	-0.92	0.15	177.19

## 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 (°)
12/30/2011	NORMAL	5,644.0	16.37	254.31	5,136.62	-625.87	-2,170.22	2,258.64	1.64	-1.46	-2.54	205.93
	NORMAL	5,738.0	15.69	253.95	5,226.96	-632.96	-2,195.19	2,284.60	0.73	-0.72	-0.38	188.14
	NORMAL	5,834.0	14.40	252.61	5,319.67	-640.12	-2,219.06	2,309.52	1.39	-1.34	-1.40	194.44
	NORMAL	5,929.0	13.66	252.57	5,411.83	-647.01	-2,241.03	2,332.54	0.78	-0.78	-0.04	180.73
	NORMAL	6,022.0	12.26	250.26	5,502.46	-653.64	-2,260.80	2,353.38	1.60	-1.51	-2.48	199.18
	NORMAL	6,115.0	11.41	250.99	5,593.48	-659.97	-2,278.79	2,372.43	0.93	-0.91	0.78	170.37
	NORMAL	6,212.0	10.04	248.11	5,688.79	-666.25	-2,295.71	2,390.43	1.52	-1.41	-2.97	199.96
	NORMAL	6,307.0	9.13	254.42	5,782.46	-671.36	-2,310.66	2,406.21	1.46	-0.96	6.64	133.98
12/31/2011	NORMAL	6,403.0	7.10	257.44	5,877.50	-674.69	-2,323.79	2,419.74	2.16	-2.11	3.15	169.63
	NORMAL	6,498.0	5.27	256.44	5,971.94	-676.99	-2,333.76	2,429.96	1.93	-1.93	-1.05	182.87
	NORMAL	6,594.0	3.34	247.33	6,067.67	-679.10	-2,340.63	2,437.14	2.13	-2.01	-9.49	195.01
1/1/2012	NORMAL	6,689.0	1.97	243.78	6,162.56	-680.89	-2,344.64	2,441.50	1.45	-1.44	-3.74	185.07
	NORMAL	6,784.0	0.47	100.47	6,257.55	-681.69	-2,345.73	2,442.76	2.49	-1.58	-150.85	186.83
	NORMAL	6,878.0	1.02	78.26	6,351.54	-681.59	-2,344.53	2,441.59	0.65	0.59	-23.63	320.89
	NORMAL	6,974.0	0.72	91.11	6,447.53	-681.42	-2,343.09	2,440.16	0.37	-0.31	13.39	153.28
	NORMAL	7,070.0	0.48	81.21	6,543.52	-681.37	-2,342.09	2,439.19	0.27	-0.25	-10.31	198.46
	NORMAL	7,165.0	0.10	10.02	6,638.52	-681.23	-2,341.68	2,438.75	0.48	-0.40	-74.94	191.94
	NORMAL	7,260.0	0.26	315.10	6,733.52	-681.00	-2,341.82	2,438.82	0.23	0.17	-57.81	283.08
	NORMAL	7,356.0	0.53	335.41	6,829.52	-680.44	-2,342.16	2,438.99	0.31	0.28	21.16	37.81
1/2/2012	NORMAL	7,451.0	0.88	339.63	6,924.51	-679.35	-2,342.59	2,439.10	0.37	0.37	4.44	10.55
	NORMAL	7,547.0	0.96	341.93	7,020.50	-677.90	-2,343.10	2,439.18	0.09	0.08	2.40	25.93
	NORMAL	7,642.0	0.78	22.43	7,115.49	-676.54	-2,343.10	2,438.80	0.66	-0.19	42.63	125.91
	NORMAL	7,738.0	0.50	63.77	7,211.48	-675.76	-2,342.47	2,437.98	0.54	-0.29	43.06	140.78
	NORMAL	7,833.0	0.35	137.21	7,306.48	-675.79	-2,341.91	2,437.44	0.55	-0.16	77.31	140.03
	NORMAL	7,929.0	0.89	208.99	7,402.48	-676.65	-2,342.07	2,437.84	0.88	0.56	74.77	94.85
	NORMAL	8,024.0	1.41	218.07	7,497.46	-678.22	-2,343.15	2,439.31	0.58	0.55	9.56	23.89
	NORMAL	8,119.0	2.28	219.29	7,592.41	-680.60	-2,345.06	2,441.82	0.92	0.92	1.28	3.19
	NORMAL	8,214.0	2.64	232.41	7,687.32	-683.40	-2,347.99	2,445.42	0.70	0.38	13.81	64.08
1/3/2012	NORMAL	8,309.0	2.93	245.17	7,782.21	-685.75	-2,351.93	2,449.86	0.72	0.31	13.43	71.40
	NORMAL	8,405.0	1.71	245.83	7,878.13	-687.37	-2,355.46	2,453.71	1.27	-1.27	0.69	179.08
	NORMAL	8,501.0	0.42	238.32	7,974.11	-688.14	-2,357.07	2,455.47	1.35	-1.34	-7.82	182.43
	NORMAL	8,596.0	1.09	179.40	8,069.10	-689.23	-2,357.36	2,456.05	0.99	0.71	-62.02	278.69
	NORMAL	8,690.0	2.40	173.81	8,163.06	-692.08	-2,357.14	2,456.64	1.40	1.39	-5.95	349.80
	NORMAL	8,750.0	3.04	172.34	8,222.99	-694.90	-2,356.79	2,457.10	1.07	1.07	-2.45	353.04
	NORMAL	8,813.0	3.04	173.34	8,285.90	-698.22	-2,356.37	2,457.63	0.08	0.00	1.59	90.50

3 Charts

3.1 Vertical Section View



3.2 Plan View

