

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	RU 313-5	Wellbore No.	00
Wellbore Legal Name	RU 313-5	Common Wellbore Name	RU 313-5
Project	RU 05-07S-093W	Site	RU 23-5 Pad
Vertical Section Azimuth	235.63 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	10/8/2013	UWI	RU 313-5
Active datum	KB @7,627.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	10/8/2013	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 (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/8/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/8/2013	NORMAL	93.0	0.79	202.24	93.00	-0.59	-0.24	0.54	0.85	0.85	0.00	202.24
	NORMAL	178.0	3.43	248.29	177.94	-2.08	-2.83	3.51	3.46	3.11	54.18	57.20
	NORMAL	268.0	6.16	233.44	267.62	-5.95	-9.21	10.96	3.31	3.03	-16.50	328.02
	NORMAL	360.0	9.77	232.82	358.71	-13.61	-19.40	23.69	3.92	3.92	-0.67	358.33
	NORMAL	452.0	14.25	232.65	448.68	-25.20	-34.62	42.81	4.87	4.87	-0.18	359.46
	NORMAL	524.0	17.11	233.00	517.99	-36.96	-50.13	62.24	3.97	3.97	0.49	2.06
	NORMAL	615.0	20.68	237.60	604.08	-53.63	-74.40	91.68	4.25	3.92	5.05	24.84
	NORMAL	707.0	21.98	238.48	689.77	-71.33	-102.79	125.12	1.46	1.41	0.96	14.24
	NORMAL	800.0	22.28	234.47	775.93	-90.68	-131.98	160.13	1.66	0.32	-4.31	279.37
	NORMAL	892.0	22.77	232.06	860.91	-111.76	-160.21	195.33	1.14	0.53	-2.62	296.84
	NORMAL	984.0	23.68	235.54	945.46	-133.16	-189.49	231.58	1.79	0.99	3.78	58.06
	NORMAL	1,079.0	24.62	234.87	1,032.14	-155.34	-221.40	270.44	1.03	0.99	-0.71	343.44
	NORMAL	1,128.0	25.50	234.17	1,076.53	-167.39	-238.30	291.20	1.90	1.80	-1.43	341.06
10/10/2013	NORMAL	1,269.0	25.74	234.16	1,203.67	-203.09	-287.73	352.14	0.17	0.17	-0.01	358.96
	NORMAL	1,364.0	23.83	236.28	1,289.92	-225.82	-320.42	391.96	2.22	-2.01	2.23	156.01
	NORMAL	1,459.0	23.57	236.01	1,376.90	-247.09	-352.13	430.14	0.30	-0.27	-0.28	202.53
	NORMAL	1,554.0	22.86	235.66	1,464.21	-268.12	-383.11	467.59	0.76	-0.75	-0.37	190.84
	NORMAL	1,649.0	23.57	237.68	1,551.52	-288.69	-414.40	505.03	1.12	0.75	2.13	49.21
	NORMAL	1,744.0	24.44	237.41	1,638.30	-309.43	-447.01	543.65	0.92	0.92	-0.28	352.68
	NORMAL	1,839.0	24.04	237.24	1,724.93	-330.48	-479.84	582.64	0.43	-0.42	-0.18	189.82

2.1.2 Survey Stations (Continued)

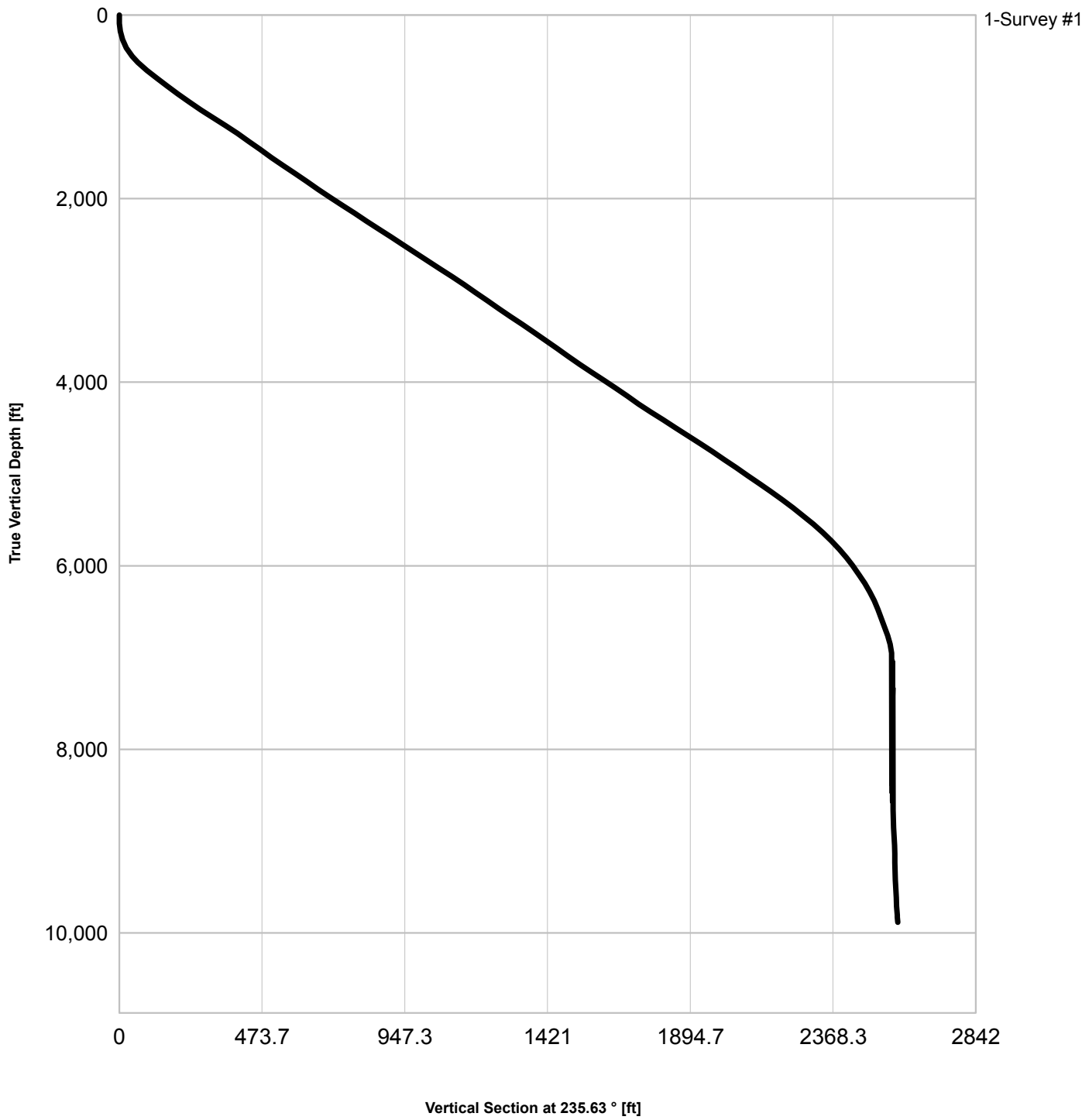
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/10/2013	NORMAL	1,935.0	24.06	237.78	1,812.59	-351.50	-512.84	621.74	0.23	0.02	0.56	85.05
	NORMAL	2,031.0	23.70	237.79	1,900.38	-372.22	-545.72	660.57	0.38	-0.38	0.01	179.36
	NORMAL	2,126.0	25.08	237.72	1,986.90	-393.15	-578.90	699.78	1.45	1.45	-0.07	358.77
	NORMAL	2,220.0	25.39	237.77	2,071.93	-414.53	-612.79	739.82	0.33	0.33	0.05	3.96
10/11/2013	NORMAL	2,316.0	24.95	237.65	2,158.81	-436.35	-647.31	780.63	0.46	-0.46	-0.12	186.56
	NORMAL	2,412.0	25.04	237.78	2,245.82	-458.01	-681.60	821.16	0.11	0.09	0.14	31.46
	NORMAL	2,506.0	25.01	237.95	2,331.00	-479.16	-715.27	860.90	0.08	-0.03	0.18	112.72
	NORMAL	2,602.0	25.23	235.48	2,417.92	-501.53	-749.33	901.64	1.12	0.23	-2.57	280.73
	NORMAL	2,698.0	25.26	234.71	2,504.75	-524.95	-782.91	942.58	0.34	0.03	-0.80	274.87
	NORMAL	2,793.0	25.24	233.99	2,590.67	-548.57	-815.84	983.09	0.32	-0.02	-0.76	265.95
	NORMAL	2,888.0	24.97	233.91	2,676.70	-572.29	-848.43	1,023.38	0.29	-0.28	-0.08	187.13
	NORMAL	2,984.0	24.89	233.99	2,763.75	-596.11	-881.14	1,063.83	0.09	-0.08	0.08	157.18
	NORMAL	3,080.0	24.89	234.17	2,850.84	-619.81	-913.86	1,104.22	0.08	0.00	0.19	90.08
	NORMAL	3,175.0	24.22	233.99	2,937.25	-642.97	-945.84	1,143.68	0.71	-0.71	-0.19	186.29
	NORMAL	3,270.0	24.00	234.23	3,023.96	-665.72	-977.27	1,182.47	0.25	-0.23	0.25	156.09
	NORMAL	3,365.0	23.97	234.56	3,110.76	-688.20	-1,008.67	1,221.08	0.14	-0.03	0.35	102.76
	NORMAL	3,461.0	23.39	235.90	3,198.67	-710.19	-1,040.34	1,259.63	0.82	-0.60	1.40	137.75
	NORMAL	3,556.0	24.63	236.36	3,285.45	-731.73	-1,072.44	1,298.29	1.32	1.31	0.48	8.79
	NORMAL	3,649.0	24.45	236.16	3,370.05	-753.19	-1,104.56	1,336.91	0.21	-0.19	-0.22	204.68
	NORMAL	3,745.0	23.92	235.22	3,457.63	-775.35	-1,137.04	1,376.24	0.68	-0.55	-0.98	215.57
	NORMAL	3,839.0	23.70	235.74	3,543.63	-796.86	-1,168.31	1,414.19	0.32	-0.23	0.55	136.58
	NORMAL	3,934.0	23.11	234.63	3,630.81	-818.40	-1,199.29	1,451.92	0.78	-0.62	-1.17	216.26
	NORMAL	4,029.0	23.91	236.70	3,717.92	-839.76	-1,230.59	1,489.81	1.21	0.84	2.18	46.86
	NORMAL	4,124.0	23.72	236.70	3,804.84	-860.82	-1,262.65	1,528.16	0.20	-0.20	0.00	180.00
	NORMAL	4,219.0	24.76	236.23	3,891.46	-882.37	-1,295.16	1,567.16	1.11	1.09	-0.49	349.27
	NORMAL	4,314.0	24.90	236.48	3,977.68	-904.47	-1,328.37	1,607.05	0.18	0.15	0.26	36.98
	NORMAL	4,409.0	24.26	235.98	4,064.07	-926.44	-1,361.22	1,646.57	0.71	-0.67	-0.53	197.78
	NORMAL	4,504.0	23.48	236.96	4,150.94	-947.67	-1,393.26	1,685.00	0.92	-0.82	1.03	153.50
	NORMAL	4,599.0	24.39	236.03	4,237.77	-968.95	-1,425.39	1,723.54	1.04	0.96	-0.98	337.05
	NORMAL	4,694.0	25.50	236.19	4,323.91	-991.29	-1,458.65	1,763.60	1.17	1.17	0.17	3.55
	NORMAL	4,790.0	25.58	236.58	4,410.53	-1,014.21	-1,493.12	1,804.99	0.19	0.08	0.41	64.73
	NORMAL	4,885.0	25.50	236.81	4,496.25	-1,036.70	-1,527.35	1,845.94	0.13	-0.08	0.24	129.00
10/12/2013	NORMAL	4,981.0	25.32	236.54	4,582.96	-1,059.33	-1,561.77	1,887.13	0.22	-0.19	-0.28	212.65
	NORMAL	5,076.0	25.06	236.10	4,668.92	-1,081.75	-1,595.42	1,927.56	0.34	-0.27	-0.46	215.57
	NORMAL	5,172.0	24.58	235.99	4,756.06	-1,104.26	-1,628.84	1,967.85	0.50	-0.50	-0.11	185.44
	NORMAL	5,268.0	24.21	235.38	4,843.49	-1,126.61	-1,661.59	2,007.50	0.47	-0.39	-0.64	213.97
	NORMAL	5,364.0	24.23	235.74	4,931.04	-1,148.88	-1,694.07	2,046.89	0.16	0.02	0.38	82.45
	NORMAL	5,459.0	24.09	235.93	5,017.71	-1,170.72	-1,726.24	2,085.77	0.17	-0.15	0.20	151.04
	NORMAL	5,553.0	23.86	235.93	5,103.61	-1,192.11	-1,757.88	2,123.96	0.24	-0.24	0.00	180.00
	NORMAL	5,649.0	23.15	235.77	5,191.64	-1,213.61	-1,789.57	2,162.25	0.74	-0.74	-0.17	185.06
	NORMAL	5,745.0	23.04	236.98	5,279.95	-1,234.46	-1,820.92	2,199.90	0.51	-0.11	1.26	103.60
	NORMAL	5,840.0	20.93	235.58	5,368.03	-1,254.18	-1,850.51	2,235.46	2.29	-2.22	-1.47	193.30
10/14/2013	NORMAL	5,935.0	20.89	235.57	5,456.78	-1,273.35	-1,878.48	2,269.37	0.04	-0.04	-0.01	185.09
	NORMAL	6,031.0	20.31	233.99	5,546.64	-1,292.82	-1,906.08	2,303.14	0.84	-0.60	-1.65	223.05
	NORMAL	6,126.0	18.29	233.95	5,636.30	-1,311.29	-1,931.47	2,334.52	2.13	-2.13	-0.04	180.36
	NORMAL	6,222.0	16.52	233.16	5,727.90	-1,328.34	-1,954.57	2,363.22	1.86	-1.84	-0.82	187.23
	NORMAL	6,318.0	15.13	233.53	5,820.26	-1,343.97	-1,975.57	2,389.37	1.45	-1.45	0.39	176.03
	NORMAL	6,413.0	13.83	237.50	5,912.24	-1,357.44	-1,995.12	2,413.11	1.72	-1.37	4.18	144.55
	NORMAL	6,500.0	12.57	241.73	5,996.94	-1,367.51	-2,012.23	2,432.92	1.82	-1.45	4.86	144.57
	NORMAL	6,605.0	12.27	242.34	6,099.48	-1,378.11	-2,032.17	2,455.36	0.31	-0.29	0.58	156.68
	NORMAL	6,701.0	10.80	240.19	6,193.54	-1,387.31	-2,049.01	2,474.46	1.60	-1.53	-2.24	195.25
10/15/2013	NORMAL	6,796.0	9.06	238.48	6,287.12	-1,395.65	-2,063.11	2,490.80	1.86	-1.83	-1.80	188.78
	NORMAL	6,891.0	8.09	239.88	6,381.05	-1,402.91	-2,075.27	2,504.94	1.04	-1.02	1.47	168.55
	NORMAL	6,987.0	6.86	239.00	6,476.24	-1,409.26	-2,086.03	2,517.40	1.29	-1.28	-0.92	184.88
	NORMAL	7,082.0	6.77	237.81	6,570.57	-1,415.16	-2,095.63	2,528.66	0.18	-0.09	-1.25	236.90
	NORMAL	7,177.0	6.24	236.19	6,664.95	-1,421.02	-2,104.66	2,539.42	0.59	-0.56	-1.71	198.30

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/15/2013	NORMAL	7,273.0	5.80	240.58	6,760.43	-1,426.30	-2,113.22	2,549.47	0.66	-0.46	4.57	135.87
	NORMAL	7,368.0	4.31	237.68	6,855.05	-1,430.57	-2,120.42	2,557.82	1.59	-1.57	-3.05	188.29
10/16/2013	NORMAL	7,463.0	2.20	227.05	6,949.90	-1,433.72	-2,124.77	2,563.19	2.30	-2.22	-11.19	190.70
	NORMAL	7,559.0	0.94	192.49	7,045.86	-1,435.75	-2,126.29	2,565.59	1.59	-1.31	-36.00	200.51
	NORMAL	7,654.0	0.62	146.28	7,140.85	-1,436.93	-2,126.17	2,566.16	0.71	-0.34	-48.64	221.22
	NORMAL	7,749.0	0.70	158.06	7,235.85	-1,437.90	-2,125.67	2,566.29	0.17	0.08	12.40	65.46
	NORMAL	7,844.0	0.26	193.83	7,330.84	-1,438.65	-2,125.51	2,566.58	0.54	-0.46	37.65	162.74
	NORMAL	7,939.0	0.53	49.69	7,425.84	-1,438.57	-2,125.22	2,566.30	0.80	0.28	-151.73	204.24
	NORMAL	8,035.0	0.18	53.99	7,521.84	-1,438.20	-2,124.76	2,565.71	0.37	-0.36	4.48	177.79
	NORMAL	8,130.0	0.18	222.92	7,616.84	-1,438.22	-2,124.74	2,565.71	0.38	0.00	177.82	174.46
	NORMAL	8,226.0	0.54	11.87	7,712.84	-1,437.89	-2,124.75	2,565.53	0.73	0.38	155.16	156.57
	NORMAL	8,322.0			7,808.84	-1,437.44	-2,124.66	2,565.20	0.56	-0.56	0.00	180.00
10/17/2013	NORMAL	8,322.0	0.53	12.95	7,808.84	-1,437.44	-2,124.66	2,565.20	0.00	0.00	0.00	12.95
	NORMAL	8,417.0	0.33	53.15	7,903.84	-1,436.85	-2,124.34	2,564.60	0.37	-0.21	42.32	142.54
	NORMAL	8,512.0	0.35	97.24	7,998.83	-1,436.72	-2,123.83	2,564.11	0.27	0.02	46.41	107.89
	NORMAL	8,607.0	0.31	109.35	8,093.83	-1,436.84	-2,123.30	2,563.74	0.08	-0.04	12.75	125.80
	NORMAL	8,703.0	0.53	140.92	8,189.83	-1,437.28	-2,122.78	2,563.55	0.32	0.23	32.89	62.97
10/18/2013	NORMAL	8,798.0	0.53	168.78	8,284.83	-1,438.05	-2,122.42	2,563.69	0.27	0.00	29.33	103.93
	NORMAL	8,893.0	0.78	188.82	8,379.82	-1,439.12	-2,122.43	2,564.31	0.35	0.26	21.09	52.81
	NORMAL	8,988.0	1.06	177.39	8,474.81	-1,440.63	-2,122.49	2,565.21	0.35	0.29	-12.03	320.96
	NORMAL	9,082.0	1.06	190.66	8,568.79	-1,442.36	-2,122.61	2,566.28	0.26	0.00	14.12	96.63
	NORMAL	9,177.0	1.23	187.85	8,663.77	-1,444.23	-2,122.91	2,567.59	0.19	0.18	-2.96	340.31
	NORMAL	9,272.0	0.88	193.56	8,758.76	-1,445.95	-2,123.22	2,568.82	0.38	-0.37	6.01	166.12
	NORMAL	9,368.0	0.88	190.58	8,854.75	-1,447.39	-2,123.53	2,569.89	0.05	0.00	-3.10	268.51
	NORMAL	9,463.0	1.06	198.84	8,949.73	-1,448.94	-2,123.95	2,571.10	0.24	0.19	8.69	42.02
	NORMAL	9,558.0	0.87	219.45	9,044.72	-1,450.33	-2,124.69	2,572.50	0.41	-0.20	21.69	128.74
	NORMAL	9,653.0	0.21	287.76	9,139.72	-1,450.83	-2,125.31	2,573.30	0.86	-0.69	71.91	166.17
	NORMAL	9,747.0	0.44	274.25	9,233.71	-1,450.75	-2,125.84	2,573.69	0.26	0.24	-14.37	334.74
10/19/2013	NORMAL	9,842.0	0.70	264.32	9,328.71	-1,450.78	-2,126.78	2,574.48	0.29	0.27	-10.45	334.18
	NORMAL	9,937.0	0.91	271.55	9,423.70	-1,450.82	-2,128.11	2,575.60	0.25	0.22	7.61	29.46
	NORMAL	10,032.0	0.82	252.57	9,518.69	-1,451.00	-2,129.51	2,576.86	0.31	-0.09	-19.98	243.22
	NORMAL	10,127.0	0.78	241.10	9,613.68	-1,451.52	-2,130.73	2,578.16	0.17	-0.04	-12.07	250.29
	NORMAL	10,223.0	1.13	228.87	9,709.67	-1,452.46	-2,132.01	2,579.75	0.42	0.36	-12.74	323.57
	NORMAL	10,318.0	1.19	227.02	9,804.65	-1,453.75	-2,133.44	2,581.65	0.07	0.06	-1.95	327.10
	NORMAL	10,340.0	1.18	219.57	9,826.64	-1,454.08	-2,133.75	2,582.10	0.70	-0.05	-33.86	262.57
	NORMAL	10,397.0	1.18	219.57	9,883.61	-1,454.98	-2,134.50	2,583.22	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

