

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 312-11	Wellbore No.	1
Well Name	PA 312-11	Common Name	PA 312-11
Project	PA 11-07S-095W	Site	PA 22-11 Pad
Vertical Section Azimuth	293.65 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	4/16/2013	UWI	PA 312-11
Active Datum	KB @6,295.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	Scientific Drilling
Date Started	4/9/2013	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 (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
4/9/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/9/2013	NORMAL	75.0	0.53	328.45	75.00	0.30	-0.18	0.28	0.71	0.71	0.00	328.45
4/17/2013	NORMAL	166.0	2.02	304.01	165.97	1.55	-1.73	2.21	1.71	1.64	-26.86	327.45
	NORMAL	257.0	3.78	301.99	256.85	4.04	-5.61	6.75	1.94	1.93	-2.22	355.67
	NORMAL	347.0	5.98	299.18	346.52	7.90	-12.22	14.36	2.46	2.44	-3.12	352.40
	NORMAL	438.0	8.89	289.60	436.75	12.57	-22.98	26.09	3.47	3.20	-10.53	332.12
	NORMAL	528.0	12.32	293.03	525.20	18.66	-38.37	42.63	3.87	3.81	3.81	12.12
	NORMAL	619.0	15.92	293.91	613.44	27.52	-58.72	64.83	3.96	3.96	0.97	3.84
	NORMAL	709.0	18.91	290.92	699.30	37.73	-83.64	91.75	3.47	3.32	-3.32	341.91
	NORMAL	782.0	19.79	291.32	768.18	46.45	-106.20	115.91	1.22	1.21	0.55	8.75
	NORMAL	885.0	19.18	291.37	865.28	58.95	-138.20	150.24	0.59	-0.59	0.05	178.46
4/18/2013	NORMAL	961.0	19.25	293.91	937.05	68.58	-161.28	175.24	1.10	0.09	3.34	86.41
	NORMAL	1,055.0	19.43	293.99	1,025.74	81.22	-189.73	206.37	0.19	0.19	0.09	8.41
	NORMAL	1,149.0	18.73	294.43	1,114.58	93.81	-217.75	237.10	0.76	-0.74	0.47	168.60
	NORMAL	1,241.0	19.96	293.81	1,201.38	106.26	-245.57	267.57	1.36	1.34	-0.67	350.23
	NORMAL	1,336.0	19.43	294.25	1,290.83	119.30	-274.81	299.59	0.58	-0.56	0.46	164.58
	NORMAL	1,430.0	19.98	293.66	1,379.32	132.17	-303.78	331.28	0.62	0.59	-0.63	339.84
	NORMAL	1,525.0	19.75	293.36	1,468.67	145.04	-333.38	363.56	0.26	-0.24	-0.32	203.76
	NORMAL	1,619.0	19.67	294.02	1,557.16	157.78	-362.41	395.26	0.25	-0.09	0.70	110.08
	NORMAL	1,713.0	20.49	293.02	1,645.45	170.65	-392.00	427.54	0.95	0.87	-1.06	336.81
	NORMAL	1,806.0	20.30	291.61	1,732.62	182.96	-421.98	459.93	0.57	-0.20	-1.52	248.20

2.1.2 Survey Stations (Continued)

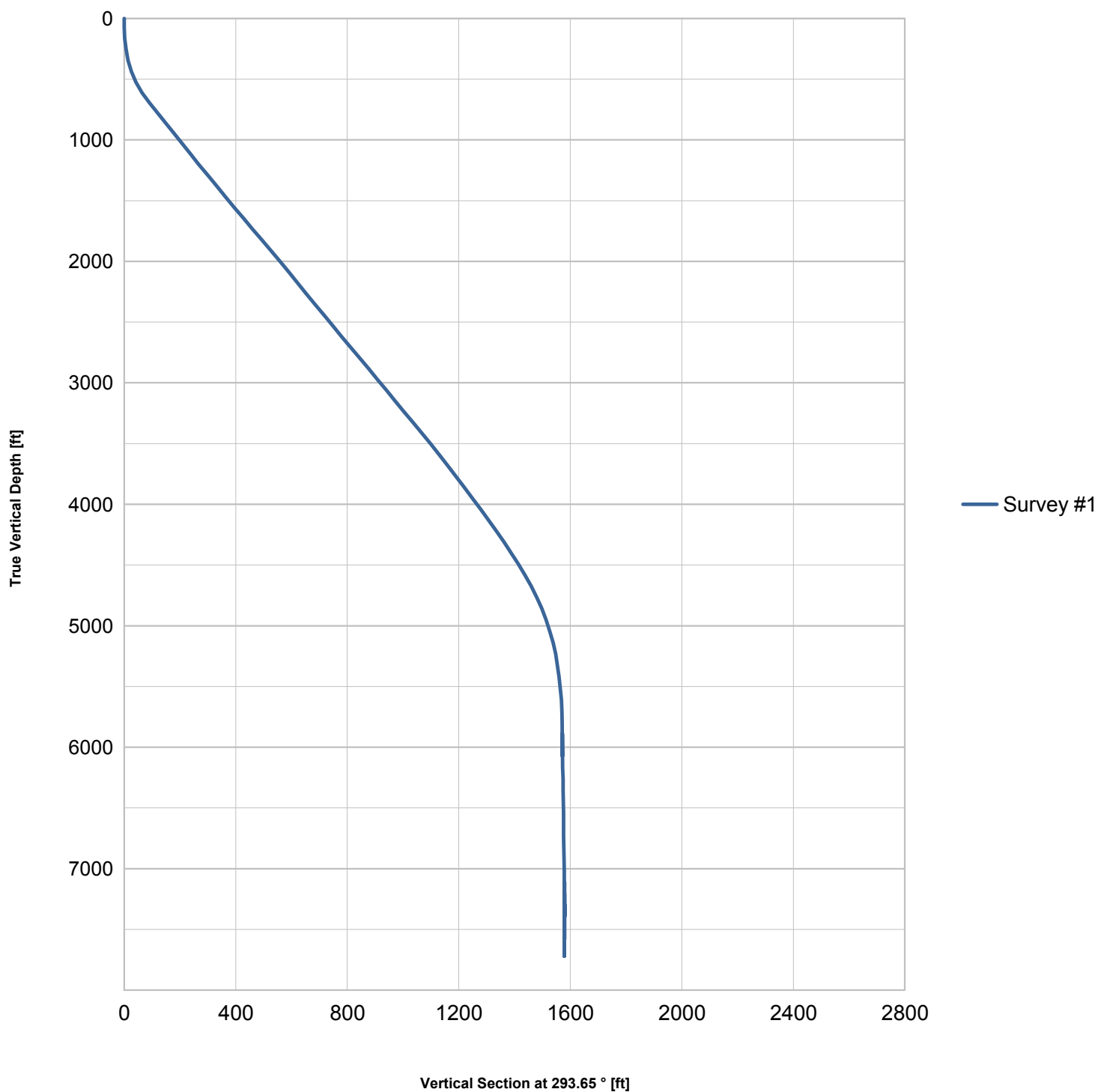
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
4/18/2013	NORMAL	1,901.0	20.63	292.62	1,821.62	195.47	-452.75	493.14	0.51	0.35	1.06	47.41
	NORMAL	1,995.0	20.51	295.03	1,909.63	208.80	-482.96	526.16	0.91	-0.13	2.56	99.19
	NORMAL	2,089.0	19.70	293.64	1,997.90	222.12	-512.39	558.46	1.00	-0.86	-1.48	209.88
	NORMAL	2,183.0	19.23	291.40	2,086.53	234.13	-541.32	589.78	0.94	-0.50	-2.38	236.75
	NORMAL	2,277.0	19.57	295.37	2,175.20	246.52	-569.96	620.98	1.45	0.36	4.22	77.42
	NORMAL	2,371.0	19.03	292.72	2,263.92	259.18	-598.32	652.04	1.09	-0.57	-2.82	237.10
4/19/2013	NORMAL	2,465.0	20.45	296.30	2,352.39	272.38	-627.18	683.77	1.98	1.51	3.81	42.11
	NORMAL	2,557.0	20.22	296.36	2,438.66	286.56	-655.83	715.71	0.25	-0.25	0.07	174.85
	NORMAL	2,651.0	19.26	296.71	2,527.13	300.74	-684.24	747.41	1.03	-1.02	0.37	173.14
	NORMAL	2,746.0	19.44	293.27	2,616.77	314.03	-712.76	778.87	1.21	0.19	-3.62	277.35
	NORMAL	2,840.0	20.33	292.49	2,705.16	326.46	-742.22	810.84	0.99	0.95	-0.83	343.03
	NORMAL	2,935.0	20.58	293.28	2,794.17	339.37	-772.80	844.03	0.39	0.26	0.83	48.21
	NORMAL	3,028.0	19.52	291.44	2,881.54	351.51	-802.28	875.91	1.33	-1.14	-1.98	209.90
	NORMAL	3,123.0	20.14	295.22	2,970.91	364.28	-831.85	908.12	1.50	0.65	3.98	65.98
	NORMAL	3,217.0	19.80	295.01	3,059.26	377.91	-860.92	940.21	0.37	-0.36	-0.22	191.81
	NORMAL	3,311.0	18.91	293.64	3,147.94	390.74	-889.30	971.36	1.06	-0.95	-1.46	206.38
	NORMAL	3,404.0	20.09	292.83	3,235.61	402.99	-917.83	1,002.40	1.30	1.27	-0.87	346.71
	NORMAL	3,500.0	20.33	294.55	3,325.70	416.31	-948.19	1,035.56	0.67	0.25	1.79	68.81
	NORMAL	3,594.0	19.73	292.32	3,414.01	429.12	-977.73	1,067.75	1.03	-0.64	-2.37	230.80
	NORMAL	3,689.0	19.21	292.53	3,503.58	441.20	-1,007.00	1,099.41	0.55	-0.55	0.22	172.43
	NORMAL	3,783.0	18.98	291.70	3,592.41	452.78	-1,035.48	1,130.15	0.38	-0.24	-0.88	229.34
	NORMAL	3,877.0	18.69	291.55	3,681.37	463.96	-1,063.69	1,160.48	0.31	-0.31	-0.16	189.41
	NORMAL	3,972.0	18.34	291.55	3,771.46	475.04	-1,091.75	1,190.62	0.37	-0.37	0.00	180.00
	NORMAL	4,068.0	18.25	290.82	3,862.60	485.93	-1,119.85	1,220.73	0.26	-0.09	-0.76	248.21
	NORMAL	4,162.0	17.94	294.05	3,951.96	497.07	-1,146.83	1,249.91	1.12	-0.33	3.44	108.70
	NORMAL	4,256.0	17.96	294.76	4,041.38	509.03	-1,173.21	1,278.87	0.23	0.02	0.76	85.12
	NORMAL	4,351.0	17.25	294.83	4,131.93	521.08	-1,199.30	1,307.60	0.75	-0.75	0.07	178.33
	NORMAL	4,445.0	16.97	291.83	4,221.77	532.04	-1,224.68	1,335.25	0.98	-0.30	-3.19	250.97
	NORMAL	4,540.0	16.51	295.15	4,312.75	542.93	-1,249.77	1,362.60	1.12	-0.48	3.49	117.27
	NORMAL	4,633.0	15.48	296.71	4,402.15	554.13	-1,272.82	1,388.20	1.20	-1.11	1.68	158.10
	NORMAL	4,727.0	15.92	294.69	4,492.64	565.15	-1,295.74	1,413.62	0.75	0.47	-2.15	307.86
	NORMAL	4,821.0	14.07	296.27	4,583.44	575.59	-1,317.70	1,437.93	2.02	-1.97	1.68	168.30
	NORMAL	4,915.0	12.80	296.16	4,674.86	585.24	-1,337.29	1,459.74	1.35	-1.35	-0.12	181.10
	NORMAL	5,009.0	11.80	296.87	4,766.70	594.18	-1,355.21	1,479.74	1.08	-1.06	0.76	171.75
	NORMAL	5,102.0	10.46	298.12	4,857.95	602.45	-1,371.14	1,497.66	1.46	-1.44	1.34	170.40
	NORMAL	5,196.0	8.46	300.28	4,950.67	609.96	-1,384.64	1,513.03	2.16	-2.13	2.30	171.00
	NORMAL	5,290.0	7.71	298.04	5,043.74	616.41	-1,396.17	1,526.19	0.87	-0.80	-2.38	201.68
	NORMAL	5,384.0	6.58	299.42	5,137.00	622.02	-1,406.43	1,537.83	1.22	-1.20	1.47	172.05
	NORMAL	5,479.0	4.98	304.73	5,231.52	627.05	-1,414.56	1,547.30	1.77	-1.68	5.59	164.15
	NORMAL	5,573.0	3.47	295.34	5,325.26	630.59	-1,420.49	1,554.14	1.76	-1.61	-9.99	199.98
	NORMAL	5,667.0	3.13	296.39	5,419.11	632.95	-1,425.36	1,559.55	0.37	-0.36	1.12	170.44
	NORMAL	5,762.0	2.81	315.10	5,513.98	635.75	-1,429.32	1,564.31	1.07	-0.34	19.69	117.46
	NORMAL	5,855.0	1.88	306.45	5,606.90	638.27	-1,432.16	1,567.92	1.07	-1.00	-9.30	196.55
	NORMAL	5,949.0	0.68	344.38	5,700.88	639.72	-1,433.55	1,569.77	1.50	-1.28	40.35	162.72
4/21/2013	NORMAL	6,042.0	1.06	320.71	5,793.87	640.92	-1,434.24	1,570.89	0.55	0.41	-25.45	304.35
	NORMAL	6,136.0	0.09	53.25	5,887.86	641.64	-1,434.74	1,571.63	1.14	-1.03	98.45	175.17
	NORMAL	6,229.0	0.53	157.76	5,980.86	641.28	-1,434.51	1,571.28	0.60	0.47	112.38	113.47
	NORMAL	6,323.0	0.53	240.29	6,074.86	640.66	-1,434.73	1,571.23	0.74	0.00	87.80	131.26
	NORMAL	6,417.0	1.93	233.87	6,168.83	639.52	-1,436.38	1,572.29	1.49	1.49	-6.83	351.16
	NORMAL	6,511.0	1.06	282.65	6,262.80	638.77	-1,438.51	1,573.94	1.56	-0.93	51.89	147.08
	NORMAL	6,604.0	0.14	175.00	6,355.80	638.85	-1,439.34	1,574.73	1.19	-0.99	-115.75	186.90
	NORMAL	6,698.0	0.54	237.12	6,449.80	638.49	-1,439.70	1,574.92	0.52	0.43	66.09	76.74
	NORMAL	6,793.0	0.88	318.07	6,544.79	638.79	-1,440.57	1,575.83	1.01	0.36	85.21	114.80
	NORMAL	6,887.0	0.88	64.94	6,638.79	639.64	-1,440.39	1,576.01	1.50	0.00	113.69	143.43
	NORMAL	6,981.0	0.92	312.83	6,732.78	640.45	-1,440.29	1,576.24	1.59	0.04	-119.27	214.81
	NORMAL	7,076.0	0.13	21.91	6,827.78	641.07	-1,440.81	1,576.97	0.93	-0.83	72.72	172.09
	NORMAL	7,170.0	0.81	290.73	6,921.77	641.41	-1,441.39	1,577.64	0.88	0.72	-97.00	259.73

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 (°)
4/21/2013	NORMAL	7,264.0	0.40	232.47	7,015.77	641.44	-1,442.28	1,578.46	0.73	-0.44	-61.98	209.57
	NORMAL	7,358.0	0.88	345.58	7,109.76	641.94	-1,442.72	1,579.06	1.17	0.51	120.33	132.64
	NORMAL	7,452.0	0.35	255.93	7,203.76	642.57	-1,443.17	1,579.73	1.01	-0.56	-95.37	201.74
	NORMAL	7,546.0	0.44	349.09	7,297.76	642.86	-1,443.52	1,580.16	0.61	0.10	99.11	130.43
	NORMAL	7,641.0	0.56	151.35	7,392.76	642.81	-1,443.37	1,580.00	1.04	0.13	170.80	170.06
	NORMAL	7,735.0	0.71	174.74	7,486.75	641.82	-1,443.09	1,579.36	0.32	0.16	24.88	71.99
4/22/2013	NORMAL	7,828.0	1.19	205.62	7,579.74	640.38	-1,443.46	1,579.11	0.74	0.52	33.20	62.99
	NORMAL	7,903.0	0.69	184.49	7,654.73	639.23	-1,443.83	1,578.99	0.80	-0.67	-28.17	204.48
	NORMAL	7,968.0	0.69	184.49	7,719.72	638.45	-1,443.89	1,578.74	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

