

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 521-11	Wellbore No.	
Well Name	PA 521-11	Common Name	PA 521-11
Project	PA 11-07S-095W	Site	PA 22-11 Pad
Vertical Section Azimuth	358.94 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	6/12/2013	UWI	PA 521-11
Active Datum	KB @6,295.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	6/12/2013	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 (°)
6/12/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6/12/2013	NORMAL	75.0	0.00	109.42	75.00	0.00	0.00	0.00	0.00	0.00	0.00	109.42
	NORMAL	166.0	2.20	2.81	165.98	1.74	0.09	1.74	2.42	2.42	0.00	2.81
	NORMAL	257.0	3.61	357.89	256.86	6.35	0.07	6.35	1.57	1.55	-5.41	347.51
	NORMAL	347.0	5.37	1.76	346.58	13.39	0.09	13.39	1.98	1.96	4.30	11.70
	NORMAL	438.0	7.83	357.54	436.97	23.84	-0.04	23.84	2.75	2.70	-4.64	346.74
	NORMAL	528.0	10.65	357.80	525.79	38.28	-0.63	38.29	3.13	3.13	0.29	0.98
	NORMAL	619.0	10.21	2.72	615.29	54.74	-0.57	54.74	1.09	-0.48	5.41	118.69
	NORMAL	709.0	9.94	1.85	703.90	70.47	0.06	70.46	0.34	-0.30	-0.97	208.98
	NORMAL	800.0	10.73	355.78	793.43	86.77	-0.31	86.76	1.48	0.87	-6.67	302.95
	NORMAL	892.0	10.29	356.57	883.88	103.52	-1.43	103.52	0.50	-0.48	0.86	162.25
6/14/2013	NORMAL	992.0	10.74	356.40	982.21	121.73	-2.55	121.76	0.45	0.45	-0.17	355.97
	NORMAL	1,055.0	11.31	355.88	1,044.04	133.75	-3.36	133.79	0.92	0.90	-0.83	349.85
	NORMAL	1,149.0	10.39	357.70	1,136.36	151.41	-4.36	151.47	1.04	-0.98	1.94	160.47
	NORMAL	1,242.0	10.78	358.44	1,227.78	168.49	-4.94	168.55	0.44	0.42	0.80	19.58
	NORMAL	1,336.0	10.14	357.45	1,320.22	185.54	-5.54	185.61	0.71	-0.68	-1.05	195.20
	NORMAL	1,431.0	9.26	359.03	1,413.86	201.54	-6.05	201.62	0.97	-0.93	1.66	163.95
	NORMAL	1,525.0	9.41	359.00	1,506.61	216.78	-6.31	216.86	0.16	0.16	-0.03	358.13
	NORMAL	1,619.0	9.44	359.92	1,599.34	232.18	-6.45	232.26	0.16	0.03	0.98	79.19
	NORMAL	1,713.0	8.97	358.71	1,692.13	247.21	-6.63	247.29	0.54	-0.50	-1.29	201.79
	NORMAL	1,806.0	10.24	358.70	1,783.83	262.72	-6.98	262.81	1.37	1.37	-0.01	359.92

2.1.2 Survey Stations (Continued)

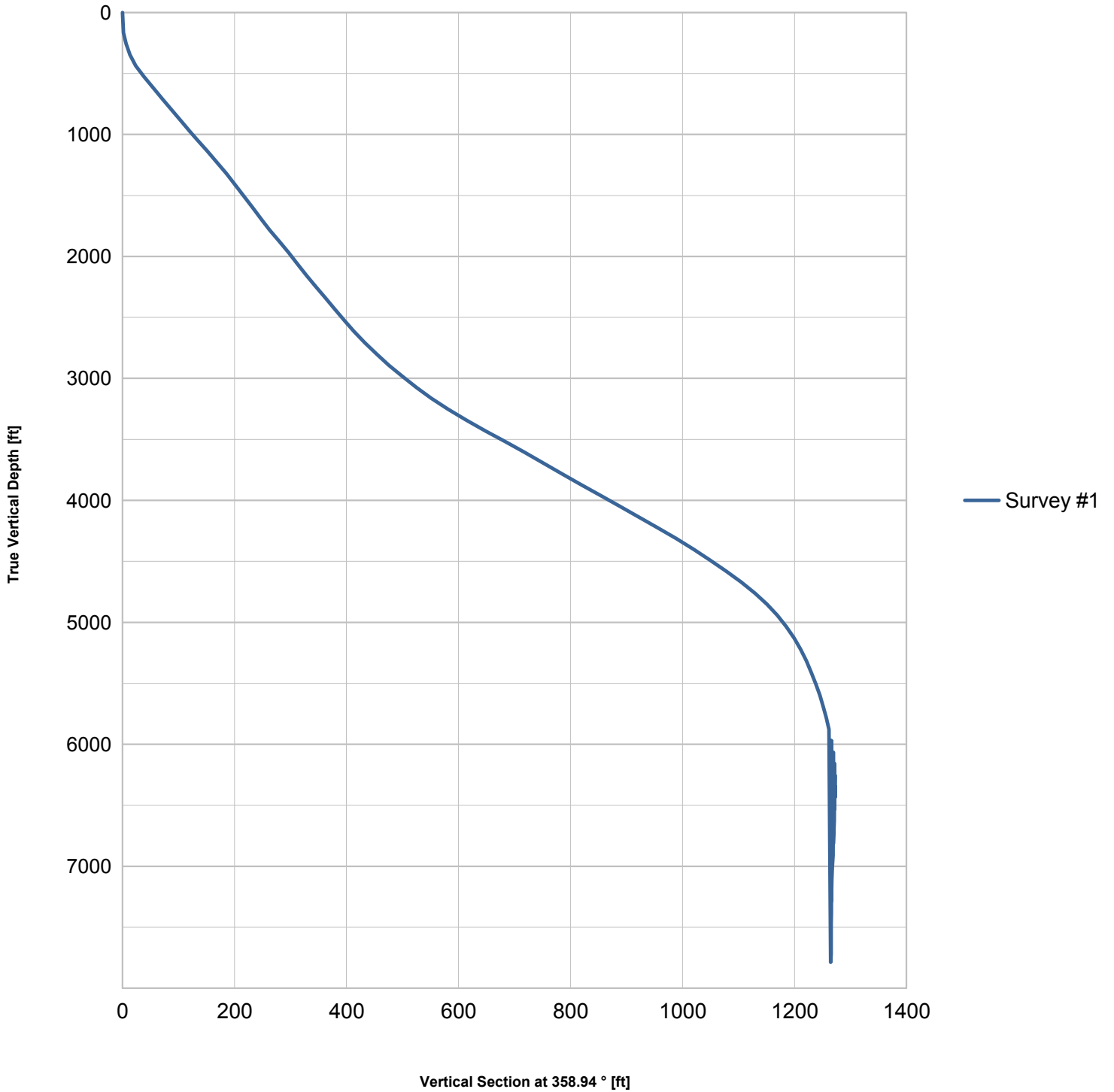
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
6/14/2013	NORMAL	1,901.0	10.49	357.20	1,877.28	279.80	-7.59	279.90	0.39	0.26	-1.58	312.07
	NORMAL	1,995.0	10.16	357.64	1,969.75	296.63	-8.35	296.74	0.36	-0.35	0.47	166.78
	NORMAL	2,089.0	9.58	358.60	2,062.36	312.74	-8.89	312.85	0.64	-0.62	1.02	164.63
	NORMAL	2,183.0	9.94	0.05	2,155.00	328.67	-9.07	328.78	0.46	0.38	1.54	35.04
	NORMAL	2,277.0	10.55	0.40	2,247.50	345.39	-9.00	345.50	0.65	0.65	0.37	6.00
	NORMAL	2,371.0	10.56	1.15	2,339.91	362.61	-8.77	362.71	0.15	0.01	0.80	86.21
	NORMAL	2,465.0	9.99	359.10	2,432.41	379.37	-8.72	379.47	0.72	-0.61	-2.18	211.68
	NORMAL	2,557.0	10.55	359.61	2,522.93	395.77	-8.91	395.87	0.62	0.61	0.55	9.47
	NORMAL	2,651.0	11.40	0.68	2,615.21	413.67	-8.86	413.76	0.93	0.90	1.14	14.00
	NORMAL	2,746.0	12.02	0.81	2,708.23	432.95	-8.60	433.03	0.65	0.65	0.14	2.50
	NORMAL	2,841.0	13.39	1.00	2,800.91	453.84	-8.27	453.91	1.44	1.44	0.20	1.84
	NORMAL	2,935.0	13.80	0.18	2,892.27	475.93	-8.05	476.00	0.48	0.44	-0.87	334.42
	NORMAL	3,028.0	15.14	359.35	2,982.32	499.17	-8.15	499.23	1.46	1.44	-0.89	350.80
	NORMAL	3,123.0	15.97	358.92	3,073.84	524.64	-8.54	524.71	0.88	0.87	-0.45	351.88
	NORMAL	3,217.0	17.66	358.36	3,163.82	551.82	-9.19	551.90	1.81	1.80	-0.60	354.26
	NORMAL	3,311.0	19.23	359.27	3,252.99	581.56	-9.79	581.64	1.70	1.67	0.97	10.82
	NORMAL	3,405.0	20.64	359.81	3,341.35	613.60	-10.05	613.68	1.51	1.50	0.57	7.69
	NORMAL	3,501.0	21.81	359.17	3,430.84	648.36	-10.36	648.44	1.24	1.22	-0.67	348.50
	NORMAL	3,594.0	21.47	358.33	3,517.28	682.64	-11.11	682.73	0.49	-0.37	-0.90	221.95
6/15/2013	NORMAL	3,689.0	21.33	357.59	3,605.73	717.28	-12.34	717.39	0.32	-0.15	-0.78	242.25
	NORMAL	3,783.0	20.68	357.24	3,693.49	750.94	-13.86	751.07	0.70	-0.69	-0.37	190.76
	NORMAL	3,877.0	20.82	358.08	3,781.39	784.22	-15.22	784.36	0.35	0.15	0.89	65.20
	NORMAL	3,972.0	21.10	359.15	3,870.10	818.19	-16.04	818.35	0.50	0.29	1.13	54.31
	NORMAL	4,068.0	21.64	1.19	3,959.50	853.17	-15.93	853.31	0.96	0.56	2.13	54.96
	NORMAL	4,162.0	21.26	359.64	4,046.99	887.54	-15.67	887.67	0.73	-0.40	-1.65	235.44
	NORMAL	4,256.0	21.02	358.82	4,134.67	921.43	-16.13	921.57	0.41	-0.26	-0.87	230.56
	NORMAL	4,351.0	20.84	357.84	4,223.40	955.35	-17.11	955.51	0.41	-0.19	-1.03	242.33
	NORMAL	4,445.0	19.76	359.22	4,311.56	987.95	-17.96	988.12	1.26	-1.15	1.47	156.74
	NORMAL	4,540.0	19.04	359.96	4,401.17	1,019.51	-18.19	1,019.67	0.80	-0.76	0.78	161.50
	NORMAL	4,633.0	17.76	359.61	4,489.41	1,048.86	-18.30	1,049.02	1.38	-1.38	-0.38	184.77
	NORMAL	4,728.0	17.28	359.02	4,580.00	1,077.46	-18.64	1,077.62	0.54	-0.51	-0.62	200.02
	NORMAL	4,821.0	16.06	358.50	4,669.09	1,104.13	-19.21	1,104.29	1.32	-1.31	-0.56	186.72
	NORMAL	4,916.0	14.58	358.52	4,760.71	1,129.22	-19.86	1,129.39	1.56	-1.56	0.02	179.81
	NORMAL	5,009.0	12.31	356.36	4,851.16	1,150.82	-20.80	1,151.00	2.50	-2.44	-2.32	191.43
	NORMAL	5,102.0	10.35	355.51	4,942.34	1,169.04	-22.08	1,169.25	2.12	-2.11	-0.91	184.45
	NORMAL	5,196.0	9.07	359.56	5,035.00	1,184.87	-22.80	1,185.09	1.54	-1.36	4.31	153.90
	NORMAL	5,291.0	7.98	3.96	5,128.95	1,198.94	-22.40	1,199.15	1.34	-1.15	4.63	151.27
6/16/2013	NORMAL	5,384.0	6.73	7.65	5,221.18	1,210.78	-21.23	1,210.96	1.44	-1.34	3.97	161.12
	NORMAL	5,479.0	5.63	6.30	5,315.63	1,220.93	-19.98	1,221.09	1.17	-1.16	-1.42	186.86
	NORMAL	5,573.0	5.13	10.22	5,409.21	1,229.65	-18.72	1,229.78	0.66	-0.53	4.17	145.62
	NORMAL	5,668.0	5.01	15.98	5,503.84	1,237.81	-16.83	1,237.91	0.55	-0.13	6.06	106.12
	NORMAL	5,762.0	4.10	9.29	5,597.54	1,245.08	-15.16	1,245.14	1.12	-0.97	-7.12	206.97
	NORMAL	5,855.0	3.73	8.11	5,690.33	1,251.35	-14.19	1,251.40	0.41	-0.40	-1.27	191.70
	NORMAL	5,949.0	3.30	8.65	5,784.15	1,257.05	-13.35	1,257.09	0.46	-0.46	0.57	175.87
	NORMAL	6,043.0	2.71	26.62	5,878.02	1,261.71	-11.95	1,261.72	1.17	-0.63	19.12	130.82
	NORMAL	6,136.0	2.76	14.69	5,970.92	1,265.85	-10.40	1,265.82	0.61	0.05	-12.83	269.04
	NORMAL	6,229.0	1.98	39.15	6,063.84	1,269.26	-8.82	1,269.20	1.36	-0.84	26.30	139.43
	NORMAL	6,323.0	1.11	24.96	6,157.80	1,271.34	-7.41	1,271.26	1.00	-0.93	-15.10	196.75
6/17/2013	NORMAL	6,417.0	0.47	46.42	6,251.79	1,272.43	-6.74	1,272.34	0.74	-0.68	22.83	165.66
	NORMAL	6,417.0	0.47	46.42	6,251.79	1,272.43	-6.74	1,272.34	0.00	0.00	0.00	0.00
	NORMAL	6,511.0	0.38	67.36	6,345.79	1,272.82	-6.18	1,272.72	0.19	-0.10	22.28	130.28
	NORMAL	6,511.0	0.38	67.36	6,345.79	1,272.82	-6.18	1,272.72	0.00	0.00	0.00	0.00
	NORMAL	6,604.0	0.80	225.80	6,438.79	1,272.49	-6.36	1,272.39	1.25	0.45	170.37	165.34
	NORMAL	6,604.0	0.80	225.80	6,438.79	1,272.49	-6.36	1,272.39	0.00	0.00	0.00	0.00
	NORMAL	6,698.0	0.97	242.60	6,532.78	1,271.66	-7.53	1,271.58	0.33	0.18	17.87	65.36
	NORMAL	6,698.0	0.97	242.60	6,532.78	1,271.66	-7.53	1,271.58	0.00	0.00	0.00	0.00
	NORMAL	6,793.0	0.80	258.97	6,627.77	1,271.17	-8.90	1,271.11	0.32	-0.18	17.23	131.92

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 (°)
6/17/2013	NORMAL	6,793.0	0.80	258.97	6,627.77	1,271.17	-8.90	1,271.11	0.00	0.00	0.00	0.00
	NORMAL	6,887.0	1.71	238.41	6,721.74	1,270.31	-10.74	1,270.29	1.07	0.97	-21.87	323.15
	NORMAL	6,887.0	1.71	238.41	6,721.74	1,270.31	-10.74	1,270.29	0.00	0.00	0.00	0.00
	NORMAL	6,982.0	1.87	260.10	6,816.70	1,269.30	-13.47	1,269.33	0.73	0.17	22.83	87.71
	NORMAL	6,982.0	1.87	260.10	6,816.70	1,269.30	-13.47	1,269.33	0.00	0.00	0.00	0.00
	NORMAL	7,076.0	1.82	253.86	6,910.65	1,268.62	-16.42	1,268.70	0.22	-0.05	-6.64	252.92
	NORMAL	7,076.0	1.82	253.86	6,910.65	1,268.62	-16.42	1,268.70	0.00	0.00	0.00	0.00
	NORMAL	7,170.0	2.65	250.31	7,004.58	1,267.47	-19.90	1,267.62	0.89	0.88	-3.78	348.75
	NORMAL	7,170.0	2.65	250.31	7,004.58	1,267.47	-19.90	1,267.62	0.00	0.00	0.00	0.00
	NORMAL	7,264.0	2.00	258.10	7,098.50	1,266.40	-23.55	1,266.62	0.77	-0.69	8.29	157.93
	NORMAL	7,264.0	2.00	258.10	7,098.50	1,266.40	-23.55	1,266.62	0.00	0.00	0.00	0.00
	NORMAL	7,358.0	2.37	264.34	7,192.43	1,265.87	-27.09	1,266.15	0.47	0.39	6.64	35.88
	NORMAL	7,358.0	2.37	264.34	7,192.43	1,265.87	-27.09	1,266.15	0.00	0.00	0.00	0.00
	NORMAL	7,452.0	1.47	263.31	7,286.38	1,265.54	-30.22	1,265.88	0.96	-0.96	-1.10	181.68
	NORMAL	7,452.0	1.47	263.31	7,286.38	1,265.54	-30.22	1,265.88	0.00	0.00	0.00	0.00
	NORMAL	7,546.0	1.78	269.05	7,380.34	1,265.37	-32.88	1,265.76	0.37	0.33	6.11	30.59
	NORMAL	7,641.0	2.46	266.54	7,475.27	1,265.23	-36.39	1,265.68	0.72	0.72	-2.64	350.97
	NORMAL	7,641.0	2.46	266.54	7,475.27	1,265.23	-36.39	1,265.68	0.00	0.00	0.00	0.00
	NORMAL	7,735.0	2.20	267.94	7,569.20	1,265.04	-40.20	1,265.57	0.28	-0.28	1.49	168.35
	NORMAL	7,735.0	2.20	267.94	7,569.20	1,265.04	-40.20	1,265.57	0.00	0.00	0.00	0.00
	NORMAL	7,829.0	2.90	267.24	7,663.10	1,264.86	-44.38	1,265.46	0.75	0.74	-0.74	357.10
	NORMAL	7,829.0	2.90	267.24	7,663.10	1,264.86	-44.38	1,265.46	0.00	0.00	0.00	0.00
	NORMAL	7,889.0	3.06	262.86	7,723.02	1,264.59	-47.49	1,265.25	0.46	0.27	-7.30	302.89
	NORMAL	7,889.0	3.06	262.86	7,723.02	1,264.59	-47.49	1,265.25	0.00	0.00	0.00	0.00
	NORMAL	7,954.0	3.23	258.12	7,787.92	1,264.00	-51.00	1,264.72	0.48	0.26	-7.29	300.79

3 Charts

3.1 Vertical Section View



3.2 Plan View

