

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 411-11	Wellbore No.	1
Well Name	PA 411-11	Common Name	PA 411-11
Project	PA 11-07S-095W	Site	PA 22-11 Pad
Vertical Section Azimuth	317.98 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	5/6/2013	UWI	PA 411-11
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	5/6/2013	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 (°)
5/6/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5/6/2013	NORMAL	75.0	0.35	215.16	75.00	-0.19	-0.13	-0.05	0.47	0.47	0.00	215.16
	NORMAL	165.0	1.41	326.95	164.99	0.52	-0.89	0.98	1.75	1.18	124.21	123.70
	NORMAL	256.0	3.34	316.85	255.91	3.39	-3.32	4.74	2.16	2.12	-11.10	342.69
5/7/2013	NORMAL	346.0	5.89	325.63	345.61	9.11	-7.72	11.94	2.93	2.83	9.76	19.89
	NORMAL	437.0	9.24	321.15	435.81	18.66	-14.94	23.86	3.74	3.68	-4.92	347.79
	NORMAL	509.0	12.27	318.97	506.53	28.94	-23.59	37.29	4.25	4.21	-3.03	351.28
	NORMAL	600.0	14.77	318.38	595.00	44.91	-37.64	58.56	2.75	2.75	-0.65	356.55
	NORMAL	690.0	17.07	312.45	681.55	62.40	-55.01	83.18	3.13	2.56	-6.59	321.85
	NORMAL	781.0	20.48	311.64	767.70	82.00	-76.77	112.31	3.76	3.75	-0.89	355.24
	NORMAL	873.0	21.88	317.67	853.49	105.37	-100.35	145.45	2.81	1.52	6.55	60.11
	NORMAL	964.0	24.37	320.97	937.18	132.49	-123.59	181.16	3.08	2.74	3.63	29.02
	NORMAL	1,057.0	27.46	320.52	1,020.82	163.96	-149.32	221.76	3.33	3.32	-0.48	356.16
	NORMAL	1,122.0	28.90	320.41	1,078.11	187.63	-168.86	252.42	2.22	2.22	-0.17	357.89
5/8/2013	NORMAL	1,242.0	29.64	319.50	1,182.79	232.54	-206.61	311.06	0.72	0.62	-0.76	328.59
	NORMAL	1,336.0	28.59	318.32	1,264.91	267.01	-236.66	356.79	1.27	-1.12	-1.26	208.16
	NORMAL	1,431.0	28.50	317.94	1,348.36	300.82	-266.96	402.18	0.21	-0.09	-0.40	243.47
	NORMAL	1,526.0	28.05	317.41	1,432.03	334.09	-297.26	447.18	0.54	-0.47	-0.56	208.92
	NORMAL	1,619.0	28.26	316.47	1,514.02	366.15	-327.22	491.06	0.53	0.23	-1.01	294.92
	NORMAL	1,713.0	29.11	317.51	1,596.49	399.15	-357.99	536.17	1.05	0.90	1.11	30.88
	NORMAL	1,807.0	28.40	317.19	1,678.89	432.41	-388.63	581.38	0.77	-0.76	-0.34	192.09

2.1.2 Survey Stations (Continued)

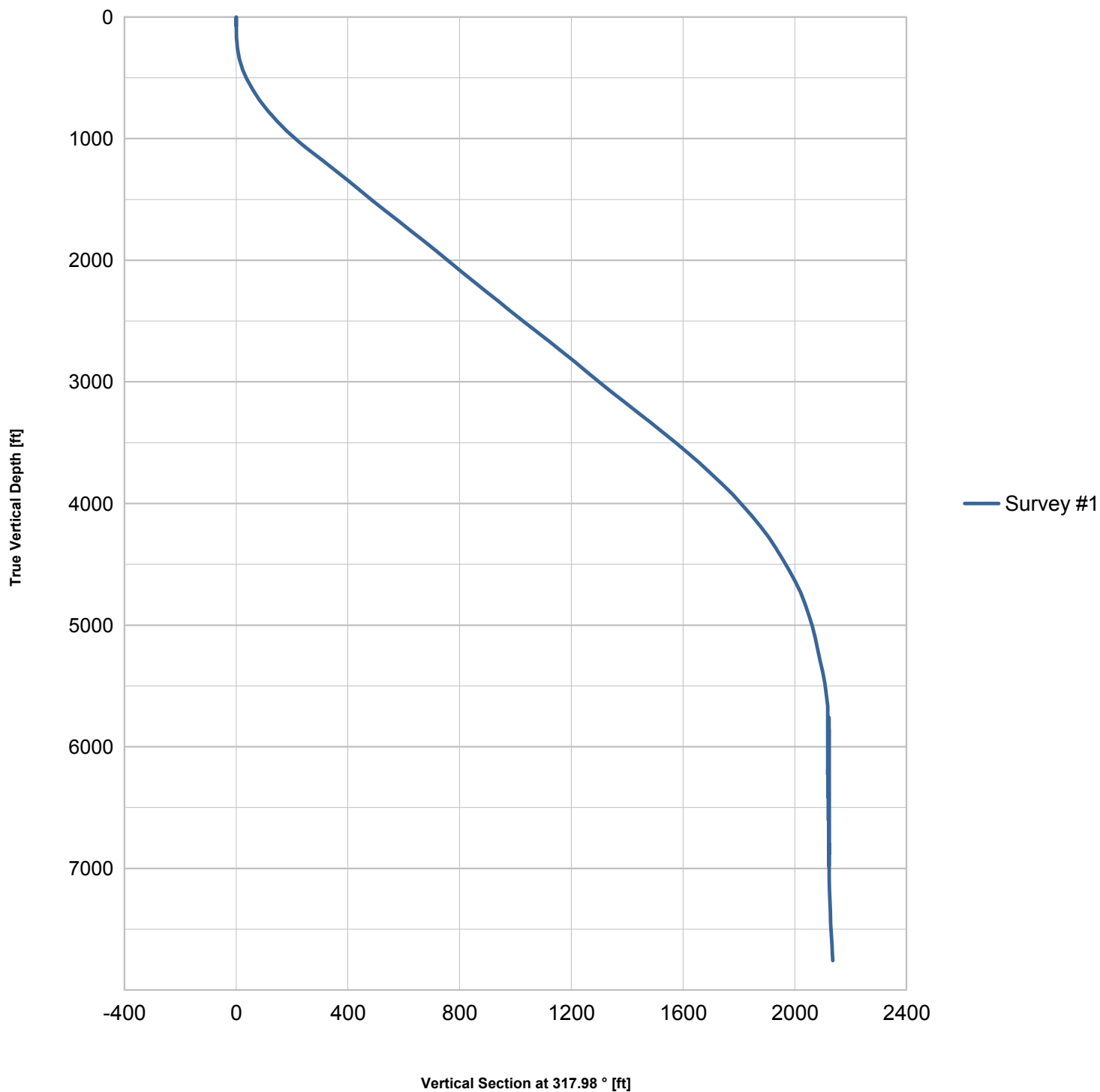
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
5/8/2013	NORMAL	1,901.0	29.34	318.06	1,761.21	465.94	-419.21	626.77	1.10	1.00	0.93	24.46
	NORMAL	1,995.0	29.14	317.72	1,843.23	500.00	-450.00	672.68	0.28	-0.21	-0.36	219.56
	NORMAL	2,089.0	27.84	316.22	1,925.85	532.78	-480.59	717.51	1.58	-1.38	-1.60	208.17
	NORMAL	2,183.0	28.08	317.73	2,008.88	565.00	-510.65	761.57	0.80	0.26	1.61	71.94
	NORMAL	2,277.0	28.06	319.17	2,091.82	598.10	-539.99	805.80	0.72	-0.02	1.53	92.33
	NORMAL	2,371.0	28.91	319.65	2,174.44	632.15	-569.16	850.62	0.94	0.90	0.51	15.28
	NORMAL	2,465.0	28.11	320.28	2,257.04	666.50	-598.02	895.46	0.91	-0.85	0.67	159.68
	NORMAL	2,558.0	28.83	319.33	2,338.80	700.36	-626.63	939.77	0.91	0.77	-1.02	327.41
	NORMAL	2,651.0	27.55	318.90	2,420.76	733.57	-655.39	983.69	1.39	-1.38	-0.46	188.83
5/9/2013	NORMAL	2,746.0	29.47	317.36	2,504.24	767.32	-685.66	1,029.03	2.16	2.02	-1.62	338.37
	NORMAL	2,841.0	29.63	316.63	2,586.88	801.58	-717.62	1,075.87	0.41	0.17	-0.77	293.64
	NORMAL	2,935.0	28.82	315.74	2,668.92	834.70	-749.39	1,121.74	0.98	-0.86	-0.95	207.82
	NORMAL	3,028.0	28.77	317.56	2,750.42	867.27	-780.13	1,166.52	0.94	-0.05	1.96	94.06
	NORMAL	3,123.0	28.16	317.91	2,833.94	900.78	-810.59	1,211.80	0.67	-0.64	0.37	164.86
	NORMAL	3,218.0	26.71	317.38	2,918.25	933.13	-840.07	1,255.57	1.55	-1.53	-0.56	189.32
	NORMAL	3,312.0	28.89	318.07	3,001.39	965.57	-869.55	1,299.40	2.34	2.32	0.73	8.70
	NORMAL	3,405.0	28.62	317.93	3,082.93	998.82	-899.49	1,344.14	0.30	-0.29	-0.15	193.94
	NORMAL	3,501.0	29.40	317.76	3,166.88	1,033.33	-930.74	1,390.70	0.82	0.81	-0.18	353.89
	NORMAL	3,594.0	29.56	317.77	3,247.84	1,067.22	-961.50	1,436.47	0.17	0.17	0.01	1.77
	NORMAL	3,689.0	28.88	318.20	3,330.75	1,101.67	-992.54	1,482.84	0.75	-0.72	0.45	163.03
	NORMAL	3,783.0	27.74	317.97	3,413.51	1,134.84	-1,022.32	1,527.42	1.22	-1.21	-0.24	185.36
	NORMAL	3,878.0	28.38	318.20	3,497.34	1,168.10	-1,052.17	1,572.11	0.68	0.67	0.24	9.70
	NORMAL	3,972.0	27.10	318.39	3,580.53	1,200.76	-1,081.28	1,615.86	1.36	-1.36	0.20	176.13
	NORMAL	4,068.0	25.55	317.80	3,666.58	1,232.45	-1,109.71	1,658.43	1.64	-1.61	-0.61	189.32
	NORMAL	4,162.0	25.19	318.03	3,751.51	1,262.34	-1,136.70	1,698.70	0.40	-0.38	0.24	164.79
	NORMAL	4,256.0	24.51	318.37	3,836.81	1,291.79	-1,163.03	1,738.21	0.74	-0.72	0.36	168.29
	NORMAL	4,351.0	23.24	319.88	3,923.68	1,320.85	-1,188.20	1,776.65	1.48	-1.34	1.59	154.99
	NORMAL	4,445.0	20.80	319.48	4,010.81	1,347.72	-1,211.00	1,811.87	2.60	-2.60	-0.43	183.33
	NORMAL	4,540.0	20.58	319.18	4,099.69	1,373.18	-1,232.88	1,845.43	0.26	-0.23	-0.32	205.58
5/10/2013	NORMAL	4,633.0	18.68	320.99	4,187.28	1,397.13	-1,252.94	1,876.64	2.14	-2.04	1.95	163.10
	NORMAL	4,728.0	17.90	324.07	4,277.48	1,420.77	-1,271.08	1,906.35	1.31	-0.82	3.24	130.36
	NORMAL	4,822.0	14.89	320.66	4,367.65	1,441.81	-1,287.22	1,932.79	3.36	-3.20	-3.63	196.10
	NORMAL	4,916.0	14.83	323.69	4,458.51	1,460.85	-1,302.00	1,956.82	0.83	-0.06	3.22	95.88
	NORMAL	5,009.0	13.89	319.11	4,548.60	1,478.88	-1,316.35	1,979.83	1.58	-1.01	-4.92	228.19
	NORMAL	5,102.0	13.01	320.78	4,639.05	1,495.43	-1,330.28	2,001.44	1.03	-0.95	1.80	156.99
	NORMAL	5,197.0	10.87	321.37	4,731.99	1,510.71	-1,342.63	2,021.07	2.26	-2.25	0.62	177.02
	NORMAL	5,291.0	8.39	325.60	4,824.66	1,523.29	-1,352.04	2,036.72	2.74	-2.64	4.50	166.15
	NORMAL	5,384.0	8.21	318.56	4,916.69	1,533.87	-1,360.27	2,050.08	1.11	-0.19	-7.57	256.49
	NORMAL	5,479.0	7.15	323.71	5,010.84	1,543.72	-1,368.26	2,062.75	1.33	-1.12	5.42	149.54
	NORMAL	5,573.0	5.62	314.36	5,104.25	1,551.66	-1,375.01	2,073.16	1.96	-1.63	-9.95	209.61
	NORMAL	5,668.0	5.13	315.97	5,198.84	1,557.96	-1,381.29	2,082.05	0.54	-0.52	1.69	163.69
	NORMAL	5,762.0	5.49	333.27	5,292.44	1,565.00	-1,386.24	2,090.59	1.74	0.38	18.40	86.03
	NORMAL	5,855.0	5.87	326.59	5,384.98	1,572.94	-1,390.86	2,099.58	0.82	0.41	-7.18	296.54
	NORMAL	5,949.0	3.88	335.97	5,478.64	1,579.86	-1,394.80	2,107.36	2.27	-2.12	9.98	162.80
	NORMAL	6,042.0	3.35	332.64	5,571.45	1,585.15	-1,397.33	2,112.98	0.61	-0.57	-3.58	199.96
5/11/2013	NORMAL	6,136.0	3.00	331.51	5,665.31	1,589.75	-1,399.76	2,118.03	0.38	-0.37	-1.20	189.57
	NORMAL	6,229.0	1.87	336.77	5,758.22	1,593.28	-1,401.52	2,121.83	1.24	-1.22	5.66	171.43
	NORMAL	6,323.0	0.77	124.28	5,852.21	1,594.34	-1,401.61	2,122.67	2.72	-1.17	156.93	170.67
	NORMAL	6,417.0	1.17	87.98	5,946.20	1,594.01	-1,400.12	2,121.44	0.76	0.43	-38.62	284.02
	NORMAL	6,511.0	1.17	90.88	6,040.18	1,594.03	-1,398.21	2,120.17	0.06	0.00	3.09	91.45
	NORMAL	6,604.0	0.87	129.40	6,133.16	1,593.57	-1,396.71	2,118.83	0.78	-0.32	41.42	132.08
	NORMAL	6,699.0	0.38	317.69	6,228.16	1,593.35	-1,396.37	2,118.43	1.31	-0.52	-180.75	182.52
	NORMAL	6,793.0	0.60	350.44	6,322.16	1,594.06	-1,396.66	2,119.16	0.37	0.23	34.84	68.99
	NORMAL	6,887.0	0.74	292.81	6,416.15	1,594.78	-1,397.30	2,120.12	0.70	0.15	-61.31	251.94
	NORMAL	6,982.0	0.18	170.67	6,511.15	1,594.87	-1,397.84	2,120.55	0.89	-0.59	-128.57	190.34
	NORMAL	7,076.0	0.45	271.27	6,605.15	1,594.74	-1,398.19	2,120.68	0.55	0.29	107.02	120.71
	NORMAL	7,170.0	0.79	332.74	6,699.14	1,595.32	-1,398.85	2,121.56	0.74	0.36	65.39	95.98

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 (°)
5/12/2013	NORMAL	7,264.0	0.38	219.11	6,793.14	1,595.65	-1,399.34	2,122.14	1.07	-0.44	-120.88	200.28
	NORMAL	7,358.0	0.44	41.26	6,887.14	1,595.68	-1,399.30	2,122.13	0.87	0.06	-189.20	181.15
	NORMAL	7,452.0	0.94	260.78	6,981.14	1,595.83	-1,399.83	2,122.59	1.39	0.53	-149.45	207.18
	NORMAL	7,546.0	1.13	253.06	7,075.12	1,595.44	-1,401.47	2,123.40	0.25	0.20	-8.21	319.82
	NORMAL	7,641.0	1.19	254.27	7,170.10	1,594.90	-1,403.32	2,124.24	0.07	0.06	1.27	22.81
5/13/2013	NORMAL	7,735.0	1.52	273.77	7,264.08	1,594.71	-1,405.50	2,125.56	0.60	0.35	20.74	64.42
	NORMAL	7,829.0	1.98	258.23	7,358.03	1,594.47	-1,408.34	2,127.27	0.70	0.49	-16.53	306.16
	NORMAL	7,923.0	2.09	248.48	7,451.97	1,593.51	-1,411.52	2,128.69	0.39	0.12	-10.37	282.71
	NORMAL	8,016.0	2.71	266.28	7,544.89	1,592.74	-1,415.29	2,130.65	1.03	0.67	19.14	59.37
	NORMAL	8,109.0	2.64	259.44	7,637.79	1,592.21	-1,419.59	2,133.13	0.35	-0.08	-7.35	254.23
	NORMAL	8,165.0	3.53	250.64	7,693.71	1,591.40	-1,422.49	2,134.47	1.80	1.59	-15.71	327.54
	NORMAL	8,230.0	3.53	250.64	7,758.59	1,590.07	-1,426.26	2,136.01	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

