

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 522-11	Wellbore No.	
Well Name	PA 522-11	Common Name	PA 522-11
Project	PA 11-07S-095W	Site	PA 22-11 Pad
Vertical Section Azimuth	32.32 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	5/23/2013	UWI	PA 522-11
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	5/23/2013	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 (°)
5/23/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5/23/2013	NORMAL	75.0	0.26	54.05	75.00	0.10	0.14	0.16	0.35	0.35	0.00	54.05
	NORMAL	165.0	0.88	37.09	164.99	0.77	0.72	1.04	0.71	0.69	-18.84	336.19
	NORMAL	256.0	0.70	50.19	255.99	1.68	1.57	2.26	0.28	-0.20	14.40	141.33
	NORMAL	346.0	0.79	59.24	345.98	2.35	2.52	3.34	0.16	0.10	10.06	57.17
5/24/2013	NORMAL	437.0	1.06	11.51	436.97	3.50	3.23	4.68	0.87	0.30	-52.45	264.40
	NORMAL	527.0	1.06	14.24	526.95	5.12	3.60	6.25	0.06	0.00	3.03	91.36
	NORMAL	600.0	1.18	24.22	599.94	6.46	4.08	7.64	0.31	0.16	13.67	63.46
	NORMAL	690.0	1.31	19.36	689.92	8.28	4.80	9.56	0.19	0.14	-5.40	318.47
	NORMAL	781.0	1.51	32.07	780.89	10.28	5.78	11.77	0.41	0.22	13.97	63.86
	NORMAL	877.0	1.59	26.73	876.86	12.54	7.05	14.36	0.17	0.08	-5.56	296.29
5/25/2013	NORMAL	962.0	1.67	23.80	961.82	14.72	8.08	16.76	0.14	0.09	-3.45	312.36
	NORMAL	1,055.0	1.72	25.66	1,054.78	17.22	9.23	19.49	0.08	0.05	2.00	48.67
	NORMAL	1,149.0	1.72	44.40	1,148.74	19.50	10.83	22.27	0.60	0.00	19.94	99.37
	NORMAL	1,242.0	1.83	47.47	1,241.69	21.50	12.90	25.07	0.16	0.12	3.30	42.38
	NORMAL	1,336.0	0.77	26.17	1,335.67	23.08	14.28	27.14	1.22	-1.13	-22.66	194.11
	NORMAL	1,431.0	0.87	24.74	1,430.66	24.31	14.87	28.49	0.11	0.11	-1.51	347.72
	NORMAL	1,526.0	0.98	50.17	1,525.65	25.49	15.79	29.98	0.44	0.12	26.77	87.95
	NORMAL	1,619.0	1.48	28.04	1,618.63	27.06	16.97	31.94	0.73	0.54	-23.80	305.04
	NORMAL	1,713.0	1.36	16.83	1,712.60	29.19	17.86	34.22	0.32	-0.13	-11.93	241.10
	NORMAL	1,807.0	1.06	21.08	1,806.58	31.07	18.50	36.15	0.33	-0.32	4.52	165.46

2.1.2 Survey Stations (Continued)

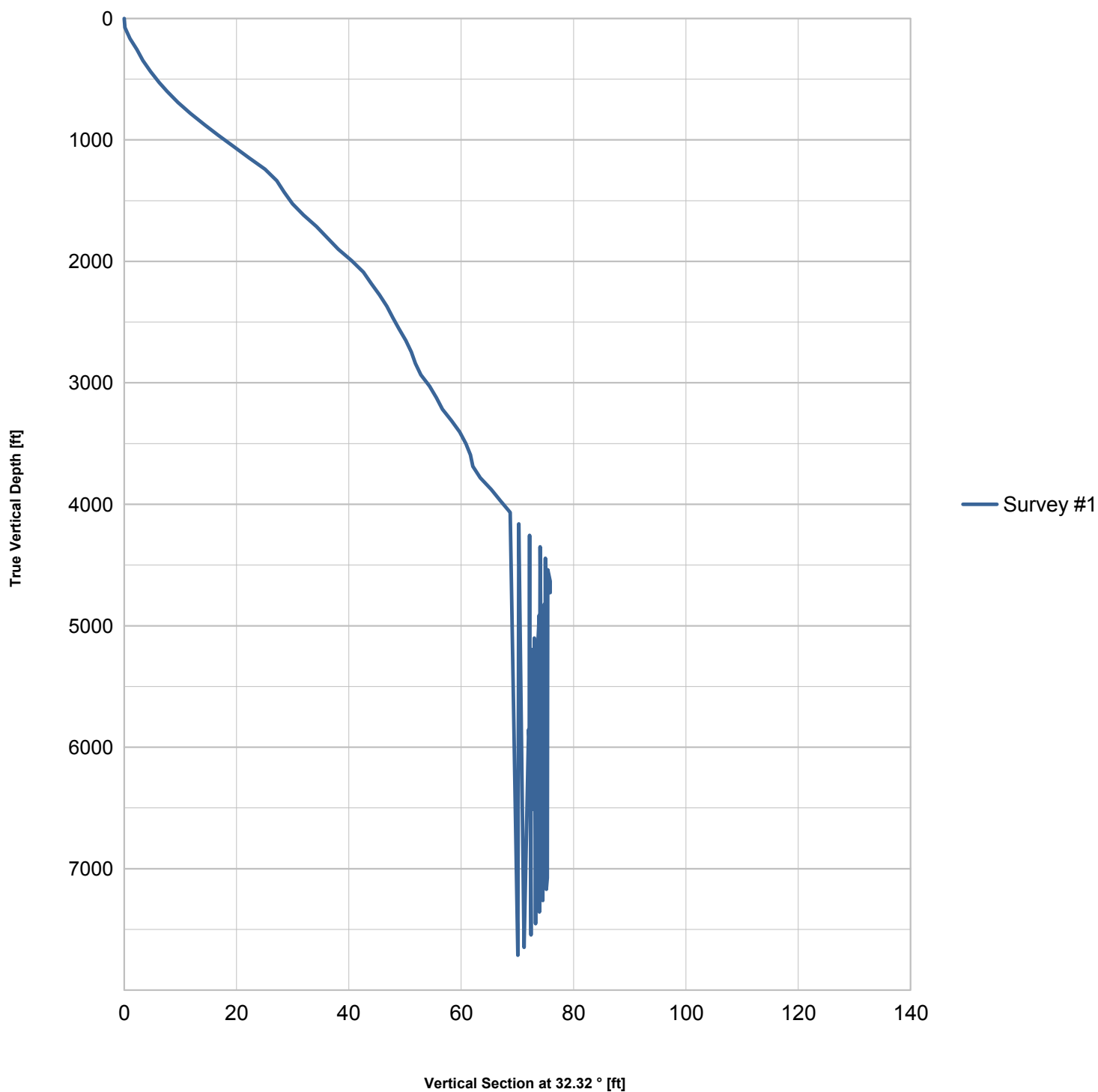
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
5/25/2013	NORMAL	1,901.0	1.35	31.43	1,900.56	32.83	19.39	38.11	0.38	0.31	11.01	42.14
	NORMAL	1,995.0	1.68	9.81	1,994.52	35.13	20.20	40.49	0.70	0.35	-23.00	288.90
	NORMAL	2,089.0	1.04	19.91	2,088.50	37.29	20.73	42.60	0.72	-0.68	10.74	164.47
	NORMAL	2,183.0	0.72	43.08	2,182.49	38.53	21.42	44.01	0.50	-0.34	24.65	143.16
	NORMAL	2,277.0	1.05	21.88	2,276.47	39.76	22.14	45.44	0.49	0.35	-22.55	304.29
	NORMAL	2,371.0	0.62	14.05	2,370.46	41.05	22.59	46.77	0.47	-0.46	-8.33	190.97
	NORMAL	2,465.0	0.90	353.96	2,464.46	42.28	22.63	47.83	0.41	0.30	-21.37	306.08
	NORMAL	2,558.0	1.14	85.22	2,557.45	43.08	23.48	48.96	1.58	0.26	98.13	129.06
	NORMAL	2,652.0	1.15	83.32	2,651.43	43.27	25.35	50.12	0.04	0.01	-2.02	283.80
	NORMAL	2,746.0	1.21	98.06	2,745.41	43.24	27.27	51.12	0.33	0.06	15.68	86.25
	NORMAL	2,841.0	0.40	58.34	2,840.40	43.27	28.54	51.83	0.99	-0.85	-41.81	195.82
	NORMAL	2,935.0	0.99	0.27	2,934.39	44.26	28.83	52.81	0.90	0.63	-61.78	278.37
	NORMAL	3,028.0	1.07	21.80	3,027.38	45.87	29.15	54.35	0.42	0.09	23.15	89.22
	NORMAL	3,123.0	0.70	340.34	3,122.37	47.24	29.29	55.58	0.75	-0.39	-43.64	220.36
	NORMAL	3,218.0	0.97	3.41	3,217.36	48.59	29.14	56.64	0.45	0.28	24.28	63.15
	NORMAL	3,312.0	1.15	22.86	3,311.34	50.25	29.55	58.26	0.43	0.19	20.69	73.37
	NORMAL	3,405.0	0.71	11.70	3,404.33	51.67	30.03	59.72	0.51	-0.47	-12.00	196.86
	NORMAL	3,501.0	0.71	59.03	3,500.32	52.56	30.66	60.81	0.59	0.00	49.30	113.66
	NORMAL	3,594.0	0.52	355.10	3,593.32	53.28	31.12	61.66	0.72	-0.20	-68.74	224.13
	NORMAL	3,689.0	0.14	349.31	3,688.32	53.82	31.06	62.09	0.40	-0.40	-6.09	182.12
	NORMAL	3,783.0	1.49	38.60	3,782.30	54.89	31.80	63.39	1.49	1.44	52.44	53.63
	NORMAL	3,878.0	0.91	28.59	3,877.28	56.52	32.94	65.37	0.65	-0.61	-10.54	194.91
	NORMAL	3,972.0	1.05	21.18	3,971.27	57.98	33.60	66.96	0.20	0.15	-7.88	314.10
	NORMAL	4,068.0	1.12	50.69	4,067.25	59.39	34.65	68.71	0.58	0.07	30.74	97.77
5/26/2013	NORMAL	4,162.0	0.87	14.61	4,161.24	60.66	35.54	70.27	0.70	-0.27	-38.38	230.87
	NORMAL	4,256.0	1.51	38.37	4,255.22	62.32	36.49	72.18	0.85	0.68	25.28	49.91
	NORMAL	4,351.0	0.93	69.00	4,350.20	63.58	37.98	74.04	0.90	-0.61	32.24	146.27
	NORMAL	4,445.0	1.04	98.20	4,444.18	63.73	39.54	75.00	0.54	0.12	31.06	92.50
	NORMAL	4,540.0	0.71	115.13	4,539.17	63.36	40.93	75.43	0.44	-0.35	17.82	150.18
	NORMAL	4,633.0	1.08	99.86	4,632.16	62.97	42.31	75.83	0.47	0.40	-16.42	319.40
	NORMAL	4,728.0	0.55	170.41	4,727.15	62.36	43.27	75.84	1.09	-0.56	74.26	149.96
	NORMAL	4,822.0	1.16	168.65	4,821.14	60.99	43.53	74.81	0.65	0.65	-1.87	356.65
	NORMAL	4,916.0	0.32	228.25	4,915.14	59.88	43.52	73.87	1.10	-0.89	63.40	164.54
	NORMAL	5,009.0	0.21	49.57	5,008.14	59.82	43.46	73.78	0.57	-0.12	-192.13	180.52
	NORMAL	5,102.0	1.12	216.95	5,101.13	59.20	43.04	73.04	1.43	0.98	179.98	169.36
	NORMAL	5,197.0	0.57	54.56	5,196.13	58.73	42.87	72.55	1.76	-0.58	-170.94	185.92
	NORMAL	5,291.0	0.43	48.91	5,290.12	59.23	43.52	73.32	0.16	-0.15	-6.01	196.59
	NORMAL	5,384.0	0.35	235.00	5,383.12	59.30	43.55	73.40	0.84	-0.09	-187.00	182.73
	NORMAL	5,479.0	0.88	256.01	5,478.12	58.96	42.60	72.60	0.60	0.56	22.12	33.79
5/27/2013	NORMAL	5,573.0	0.76	314.67	5,572.11	59.22	41.46	72.21	0.86	-0.13	62.40	126.75
	NORMAL	5,668.0	0.44	319.57	5,667.10	59.94	40.77	72.46	0.34	-0.34	5.16	173.33
	NORMAL	5,762.0	0.55	286.99	5,761.10	60.35	40.11	72.44	0.32	0.12	-34.66	274.53
	NORMAL	5,855.0	0.50	251.25	5,854.09	60.35	39.30	72.01	0.35	-0.05	-38.43	243.73
	NORMAL	5,949.0	0.62	60.35	5,948.09	60.47	39.35	72.14	1.19	0.13	179.89	173.96
	NORMAL	6,042.0	0.41	48.88	6,041.09	60.94	40.04	72.90	0.25	-0.23	-12.33	200.49
	NORMAL	6,136.0	0.24	98.55	6,135.09	61.13	40.49	73.30	0.33	-0.18	52.84	144.31
	NORMAL	6,229.0	0.83	180.21	6,228.08	60.43	40.68	72.81	0.89	0.63	87.81	98.29
	NORMAL	6,323.0	0.30	131.27	6,322.08	59.58	40.86	72.20	0.72	-0.56	-52.06	199.67
5/28/2013	NORMAL	6,417.0	0.52	80.40	6,416.08	59.49	41.46	72.44	0.43	0.23	-54.12	273.99
	NORMAL	6,511.0	0.44	328.36	6,510.08	59.87	41.70	72.89	0.85	-0.09	-119.19	210.77
	NORMAL	6,604.0	0.40	2.43	6,603.07	60.50	41.52	73.33	0.27	-0.04	36.63	115.87
	NORMAL	6,699.0	0.50	352.44	6,698.07	61.24	41.48	73.93	0.13	0.11	-10.52	316.82
	NORMAL	6,793.0	0.46	347.90	6,792.07	62.02	41.35	74.52	0.06	-0.04	-4.83	221.30
	NORMAL	6,887.0	0.78	315.98	6,886.06	62.85	40.82	74.94	0.49	0.34	-33.96	296.10
	NORMAL	6,982.0	0.70	306.28	6,981.05	63.65	39.91	75.13	0.16	-0.08	-10.21	232.65
	NORMAL	7,076.0	1.14	310.96	7,075.04	64.61	38.74	75.31	0.47	0.47	4.98	12.04
	NORMAL	7,170.0	1.08	283.51	7,169.02	65.43	37.17	75.16	0.56	-0.06	-29.20	249.96

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 (°)
5/28/2013	NORMAL	7,264.0	0.89	272.96	7,263.01	65.67	35.58	74.52	0.28	-0.20	-11.22	218.47
	NORMAL	7,358.0	0.88	283.47	7,357.00	65.88	34.15	73.93	0.17	-0.01	11.18	98.77
	NORMAL	7,453.0	1.13	273.37	7,451.99	66.10	32.50	73.24	0.32	0.26	-10.63	319.56
5/29/2013	NORMAL	7,546.0	1.62	286.36	7,544.96	66.53	30.33	72.43	0.62	0.53	13.97	39.07
	NORMAL	7,649.0	2.29	277.74	7,647.90	67.21	26.89	71.18	0.71	0.65	-8.37	331.96
	NORMAL	7,714.0	2.29	277.74	7,712.85	67.56	24.32	70.10	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

