

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 423-12	Wellbore No.	OH
Well Name	PA 423-12	Common Name	PA 423-12
Project	PA 12-07S-095W	Site	PA 23-12 Pad
Vertical Section Azimuth	159.61 (°)	North Reference	
Origin N/S		Origin E/W	
Spud Date	8/10/2013	UWI	PA 423-12
Active Datum	KB @6,533.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	8/10/2013	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 (°)
8/10/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/10/2013	NORMAL	74.0	1.14	180.00	74.00	-0.74	0.00	0.69	1.54	1.54	0.00	180.00
	NORMAL	104.0	2.38	191.34	103.98	-1.65	-0.12	1.50	4.27	4.13	37.80	21.41
	NORMAL	164.0	3.08	175.17	163.91	-4.47	-0.23	4.11	1.72	1.17	-26.95	304.00
	NORMAL	255.0	2.90	143.17	254.80	-8.75	1.35	8.68	1.82	-0.20	-35.16	248.03
	NORMAL	346.0	3.87	150.56	345.64	-13.27	4.24	13.92	1.17	1.07	8.12	27.94
	NORMAL	436.0	4.11	171.72	435.42	-19.11	6.20	20.07	1.65	0.27	23.51	91.40
	NORMAL	506.0	5.98	163.51	505.15	-25.09	7.60	26.16	2.86	2.67	-11.73	334.77
	NORMAL	597.0	7.42	157.09	595.53	-35.04	11.23	36.76	1.78	1.58	-7.05	329.30
	NORMAL	688.0	9.09	159.92	685.58	-47.21	15.99	49.82	1.89	1.84	3.11	15.08
	NORMAL	780.0	10.34	159.76	776.26	-61.78	21.34	65.34	1.36	1.36	-0.17	358.68
	NORMAL	889.0	10.86	159.38	883.40	-80.57	28.34	85.40	0.48	0.48	-0.35	352.16
8/11/2013	NORMAL	980.0	11.25	158.76	972.71	-96.87	34.57	102.84	0.45	0.43	-0.68	342.74
	NORMAL	1,076.0	9.71	158.06	1,067.11	-113.11	40.99	120.30	1.61	-1.60	-0.73	184.38
	NORMAL	1,171.0	8.75	160.26	1,160.88	-127.34	46.42	135.53	1.08	-1.01	2.32	160.90
	NORMAL	1,267.0	8.75	160.78	1,255.76	-141.11	51.29	150.14	0.08	0.00	0.54	90.26
8/12/2013	NORMAL	1,362.0	8.79	161.49	1,349.65	-154.81	55.98	164.62	0.12	0.04	0.75	70.07
	NORMAL	1,457.0	8.70	159.38	1,443.54	-168.42	60.81	179.06	0.35	-0.09	-2.22	253.29
	NORMAL	1,553.0	8.13	161.13	1,538.51	-181.64	65.57	193.10	0.65	-0.59	1.82	156.67
	NORMAL	1,649.0	8.44	162.80	1,633.51	-194.79	69.84	206.92	0.41	0.32	1.74	38.65
	NORMAL	1,744.0	9.36	159.82	1,727.36	-208.70	74.57	221.61	1.08	0.97	-3.14	331.91

2.1.2 Survey Stations (Continued)

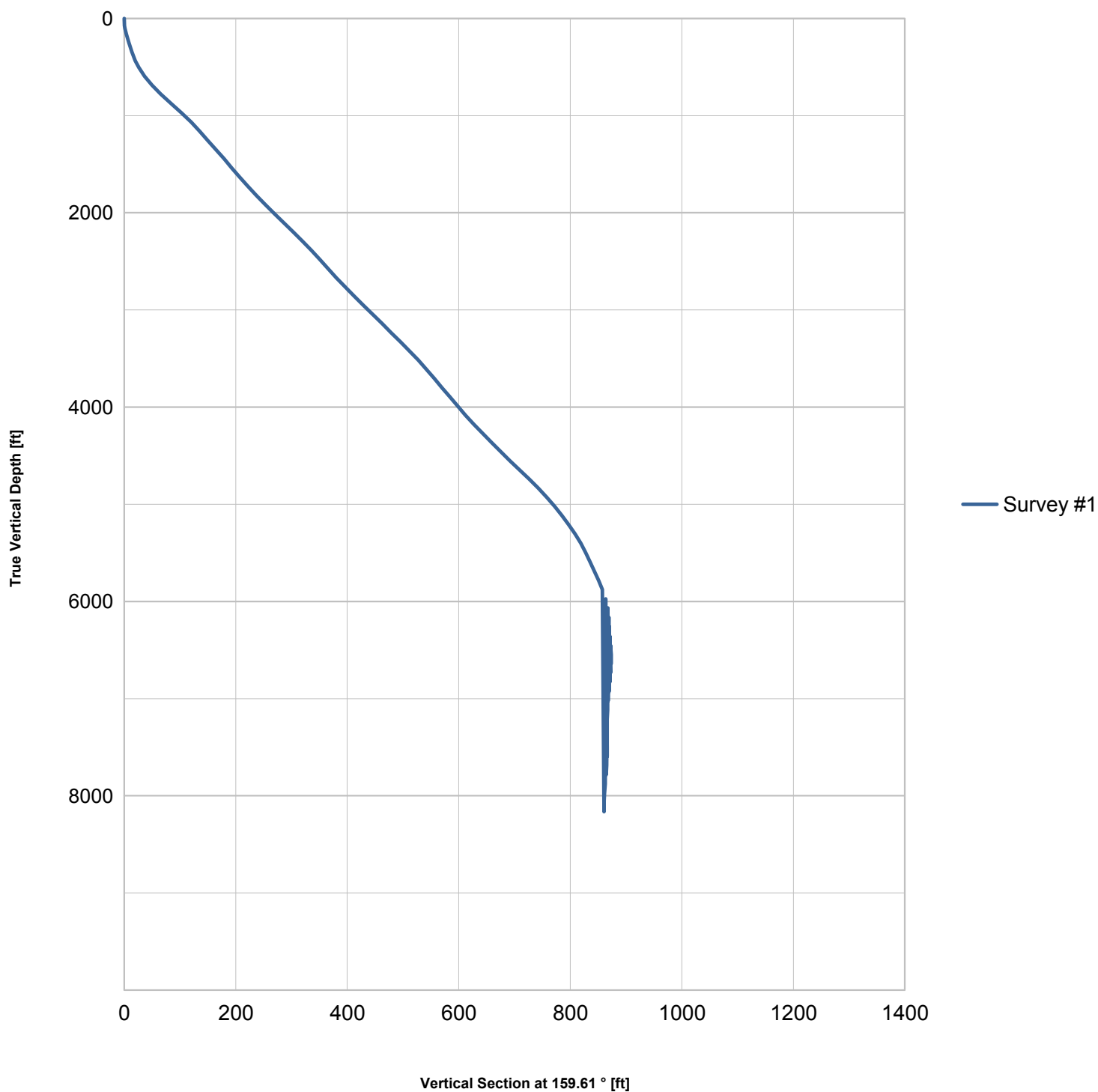
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
8/12/2013	NORMAL	1,840.0	9.32	158.67	1,822.09	-223.27	80.09	237.19	0.20	-0.04	-1.20	257.34
	NORMAL	1,935.0	10.11	159.38	1,915.73	-238.24	85.83	253.22	0.84	0.83	0.75	8.97
	NORMAL	2,031.0	9.85	161.05	2,010.28	-253.89	91.46	269.85	0.41	-0.27	1.74	132.76
	NORMAL	2,126.0	10.20	157.53	2,103.83	-269.35	97.31	286.38	0.74	0.37	-3.71	297.99
	NORMAL	2,222.0	10.15	157.18	2,198.32	-285.00	103.84	303.33	0.08	-0.05	-0.36	230.87
	NORMAL	2,318.0	10.11	156.83	2,292.82	-300.55	110.44	320.19	0.08	-0.04	-0.36	236.81
	NORMAL	2,413.0	9.01	159.82	2,386.50	-315.20	116.29	335.96	1.27	-1.16	3.15	157.17
	NORMAL	2,509.0	8.75	158.32	2,481.35	-329.04	121.58	350.78	0.36	-0.27	-1.56	220.95
	NORMAL	2,604.0	8.97	159.38	2,575.21	-342.68	126.85	365.41	0.29	0.23	1.12	37.10
	NORMAL	2,699.0	9.45	158.32	2,668.99	-356.86	132.34	380.61	0.54	0.51	-1.12	340.01
	NORMAL	2,795.0	9.58	159.11	2,763.67	-371.65	138.10	396.48	0.19	0.14	0.82	45.52
	NORMAL	2,890.0	9.89	157.62	2,857.30	-386.58	144.03	412.54	0.42	0.33	-1.57	320.16
	NORMAL	2,986.0	9.89	157.97	2,951.87	-401.84	150.26	429.02	0.06	0.00	0.36	90.17
	NORMAL	3,081.0	10.33	156.12	3,045.40	-417.20	156.77	445.67	0.58	0.46	-1.95	322.66
	NORMAL	3,177.0	9.76	157.53	3,139.93	-432.59	163.36	462.40	0.65	-0.59	1.47	157.35
	NORMAL	3,273.0	10.15	158.41	3,234.48	-447.97	169.59	478.99	0.44	0.41	0.92	21.74
	NORMAL	3,368.0	9.89	159.73	3,328.03	-463.41	175.49	495.51	0.37	-0.27	1.39	139.19
	NORMAL	3,463.0	9.67	158.59	3,421.65	-478.49	181.23	511.65	0.31	-0.23	-1.20	220.79
	NORMAL	3,559.0	9.32	159.38	3,516.34	-493.27	186.91	527.48	0.39	-0.36	0.82	159.97
	NORMAL	3,654.0	8.48	161.05	3,610.19	-507.10	191.90	542.18	0.92	-0.88	1.76	163.73
8/13/2013	NORMAL	3,750.0	8.26	160.70	3,705.17	-520.30	196.47	556.15	0.24	-0.23	-0.36	192.87
	NORMAL	3,846.0	8.40	159.82	3,800.16	-533.39	201.17	570.06	0.20	0.15	-0.92	317.24
	NORMAL	3,941.0	8.31	159.90	3,894.15	-546.35	205.92	583.86	0.10	-0.09	0.08	172.68
	NORMAL	4,037.0	8.70	159.46	3,989.09	-559.66	210.86	598.06	0.41	0.41	-0.46	350.31
	NORMAL	4,132.0	8.31	158.85	4,083.05	-572.79	215.85	612.11	0.42	-0.41	-0.64	192.72
	NORMAL	4,227.0	9.45	159.38	4,176.91	-586.50	221.08	626.77	1.20	1.20	0.56	4.37
	NORMAL	4,323.0	10.11	161.57	4,271.51	-601.87	226.52	643.07	0.79	0.69	2.28	30.49
	NORMAL	4,418.0	9.71	164.47	4,365.10	-617.49	231.30	659.39	0.67	-0.42	3.05	130.13
	NORMAL	4,513.0	9.67	162.63	4,458.74	-632.83	235.82	675.34	0.33	-0.04	-1.94	261.73
	NORMAL	4,608.0	10.37	158.59	4,552.29	-648.40	241.33	691.86	1.04	0.74	-4.25	312.88
	NORMAL	4,703.0	10.20	159.03	4,645.77	-664.22	247.46	708.82	0.20	-0.18	0.46	155.41
	NORMAL	4,799.0	10.42	160.78	4,740.22	-680.35	253.36	726.00	0.40	0.23	1.82	55.78
	NORMAL	4,894.0	9.63	161.13	4,833.76	-695.98	258.76	742.53	0.83	-0.83	0.37	175.76
	NORMAL	4,990.0	9.05	161.13	4,928.49	-710.73	263.80	758.10	0.60	-0.60	0.00	180.00
	NORMAL	5,085.0	7.91	161.75	5,022.45	-724.01	268.26	772.11	1.20	-1.20	0.65	175.72
	NORMAL	5,179.0	7.69	161.57	5,115.58	-736.12	272.27	784.85	0.24	-0.23	-0.19	186.25
	NORMAL	5,274.0	7.12	163.60	5,209.79	-747.79	275.95	797.08	0.66	-0.60	2.14	156.35
	NORMAL	5,370.0	6.68	166.67	5,305.09	-758.93	278.91	808.56	0.60	-0.46	3.20	141.55
	NORMAL	5,466.0	5.58	165.97	5,400.54	-768.90	281.33	818.74	1.15	-1.15	-0.73	183.54
	NORMAL	5,562.0	4.92	159.99	5,496.14	-777.29	283.87	827.49	0.89	-0.69	-6.23	216.71
8/14/2013	NORMAL	5,657.0	4.48	154.72	5,590.82	-784.47	286.85	835.26	0.65	-0.46	-5.55	221.86
	NORMAL	5,752.0	4.70	159.03	5,685.52	-791.46	289.83	842.85	0.43	0.23	4.54	59.63
	NORMAL	5,848.0	4.44	162.45	5,781.21	-798.68	292.36	850.50	0.39	-0.27	3.56	135.35
	NORMAL	5,944.0	3.87	152.35	5,876.96	-805.09	294.98	857.42	0.96	-0.59	-10.52	227.12
	NORMAL	6,040.0	3.56	142.15	5,972.76	-810.32	298.31	863.48	0.76	-0.32	-10.63	239.84
	NORMAL	6,135.0	2.33	108.49	6,067.64	-813.26	301.95	867.50	2.18	-1.29	-35.43	218.56
	NORMAL	6,231.0	2.37	83.53	6,163.56	-813.65	305.78	869.21	1.06	0.04	-26.00	259.73
	NORMAL	6,327.0	2.37	78.69	6,259.48	-813.04	309.70	870.00	0.21	0.00	-5.04	267.58
	NORMAL	6,422.0	2.46	89.86	6,354.40	-812.65	313.66	871.01	0.50	0.09	11.76	84.79
	NORMAL	6,517.0	2.33	83.53	6,449.31	-812.43	317.62	872.18	0.31	-0.14	-6.66	240.69
	NORMAL	6,613.0	1.98	90.56	6,545.24	-812.22	321.22	873.25	0.46	-0.36	7.32	146.41
8/15/2013	NORMAL	6,708.0	2.68	56.02	6,640.17	-811.00	324.70	873.31	1.62	0.74	-36.36	278.54
	NORMAL	6,804.0	2.37	46.35	6,736.08	-808.37	328.00	872.00	0.55	-0.32	-10.07	229.19
	NORMAL	6,899.0	1.54	45.03	6,831.02	-806.12	330.32	870.69	0.87	-0.87	-1.39	182.45
	NORMAL	6,995.0	1.27	26.57	6,926.99	-804.25	331.71	869.43	0.55	-0.28	-19.23	230.17
	NORMAL	7,090.0	0.88	341.49	7,021.98	-802.62	331.95	867.98	0.95	-0.41	-47.45	223.85
	NORMAL	7,186.0	0.61	320.13	7,117.97	-801.53	331.39	866.76	0.40	-0.28	-22.25	215.46

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 (°)
8/15/2013	NORMAL	7,281.0	0.92	259.40	7,212.96	-801.28	330.31	866.16	0.86	0.33	-63.93	258.71
	NORMAL	7,376.0	0.92	259.57	7,307.95	-801.56	328.81	865.90	0.00	0.00	0.18	90.08
	NORMAL	7,472.0	1.76	247.79	7,403.92	-802.25	326.69	865.81	0.92	0.88	-12.27	335.89
	NORMAL	7,566.0	1.58	240.32	7,497.88	-803.44	324.23	866.06	0.30	-0.19	-7.95	226.72
	NORMAL	7,661.0	1.98	255.00	7,592.84	-804.52	321.50	866.12	0.64	0.42	15.45	56.23
	NORMAL	7,755.0	2.33	267.31	7,686.77	-805.03	318.03	865.39	0.62	0.37	13.10	59.16
8/16/2013	NORMAL	7,851.0	2.64	264.32	7,782.68	-805.34	313.88	864.23	0.35	0.32	-3.11	335.81
	NORMAL	7,946.0	2.37	274.95	7,877.59	-805.38	309.74	862.84	0.56	-0.28	11.19	125.40
	NORMAL	8,041.0	2.94	261.86	7,972.49	-805.56	305.38	861.48	0.87	0.60	-13.78	306.57
	NORMAL	8,136.0	3.25	254.83	8,067.35	-806.61	300.36	860.72	0.52	0.33	-7.40	305.69
	NORMAL	8,186.0	3.60	250.78	8,117.26	-807.50	297.51	860.56	0.85	0.70	-8.10	323.31
	NORMAL	8,231.0	3.60	250.78	8,162.17	-808.43	294.85	860.50	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

