

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	PA 13-2	Wellbore No.	00
Wellbore Legal Name	PA 13-2	Common Wellbore Name	PA 13-2
Project	PA 02-07S-095W	Site	GV 86-2 Pad
Vertical Section Azimuth	287.48 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	1/31/2014	UWI	PA 13-2
Active datum	KB @5,847.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	1/31/2014	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 (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
1/31/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/31/2014	NORMAL	149.0	1.09	313.76	148.99	0.98	-1.02	1.27	0.73	0.73	0.00	313.76
	NORMAL	238.0	1.86	300.64	237.96	2.30	-2.88	3.44	0.94	0.87	-14.74	329.67
	NORMAL	329.0	4.43	286.60	328.82	4.06	-7.52	8.39	2.93	2.82	-15.43	336.22
	NORMAL	420.0	6.86	290.16	419.37	6.94	-15.99	17.33	2.70	2.67	3.91	9.98
2/1/2014	NORMAL	511.0	8.00	284.83	509.61	10.43	-27.21	29.09	1.46	1.25	-5.86	326.18
	NORMAL	602.0	9.50	285.71	599.54	14.08	-40.56	42.92	1.65	1.65	0.97	5.54
	NORMAL	693.0	11.17	286.47	689.07	18.62	-56.25	59.24	1.84	1.84	0.84	5.04
	NORMAL	784.0	13.42	289.21	777.97	24.59	-74.67	78.61	2.55	2.47	3.01	15.88
	NORMAL	846.0	13.53	287.69	838.27	29.15	-88.38	93.06	0.63	0.18	-2.61	285.46
2/2/2014	NORMAL	977.0	14.07	283.87	965.49	37.60	-118.45	124.27	0.79	0.41	-2.84	299.51
	NORMAL	1,072.0	14.02	282.27	1,057.65	42.81	-140.90	147.26	0.41	-0.05	-1.68	261.89
2/3/2014	NORMAL	1,167.0	13.59	280.76	1,149.90	47.34	-163.11	169.80	0.59	-0.45	-1.59	219.16
	NORMAL	1,262.0	13.28	283.32	1,242.31	51.94	-184.70	191.77	0.71	-0.33	2.69	118.69
	NORMAL	1,357.0	12.87	284.10	1,334.84	57.03	-205.57	213.21	0.47	-0.43	0.82	157.09
	NORMAL	1,452.0	12.40	283.95	1,427.54	62.07	-225.74	233.95	0.50	-0.49	-0.16	183.92
	NORMAL	1,547.0	12.11	283.32	1,520.38	66.82	-245.33	254.07	0.34	-0.31	-0.66	204.45
	NORMAL	1,642.0	11.76	282.72	1,613.32	71.25	-264.47	273.66	0.39	-0.37	-0.63	199.23
	NORMAL	1,737.0	11.55	280.03	1,708.37	75.04	-283.28	292.74	0.61	-0.22	-2.83	247.56
	NORMAL	1,831.0	12.05	277.36	1,798.38	77.93	-302.28	311.73	0.79	0.53	-2.84	311.17
	NORMAL	1,926.0	11.63	275.78	1,891.36	80.17	-321.64	330.87	0.56	-0.44	-1.66	216.89

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
2/4/2014	NORMAL	2,015.0	11.73	290.74	1,978.54	84.28	-339.03	348.69	3.40	0.11	16.81	95.45
	NORMAL	2,110.0	12.21	292.59	2,071.47	91.56	-357.34	368.34	0.65	0.51	1.95	39.54
	NORMAL	2,204.0	14.13	293.36	2,163.00	99.92	-377.05	389.65	2.05	2.04	0.82	5.60
	NORMAL	2,299.0	14.02	292.74	2,255.14	108.97	-398.31	412.65	0.20	-0.12	-0.65	233.59
	NORMAL	2,394.0	14.02	292.67	2,347.31	117.85	-419.54	435.57	0.02	0.00	-0.07	269.97
	NORMAL	2,489.0	13.86	292.16	2,439.52	126.58	-440.70	458.37	0.21	-0.17	-0.54	217.27
	NORMAL	2,584.0	13.52	291.44	2,531.82	134.93	-461.57	480.79	0.40	-0.36	-0.76	206.27
	NORMAL	2,679.0	13.25	292.76	2,624.24	143.20	-481.95	502.70	0.43	-0.28	1.39	132.10
	NORMAL	2,774.0	12.52	291.74	2,716.84	151.23	-501.55	523.81	0.80	-0.77	-1.07	196.81
	NORMAL	2,869.0	13.16	292.82	2,809.47	159.24	-521.08	544.85	0.72	0.67	1.14	21.08
	NORMAL	2,964.0	13.51	291.08	2,901.91	167.42	-541.41	566.69	0.56	0.37	-1.83	310.24
	NORMAL	3,059.0	13.32	288.86	2,994.32	174.95	-562.12	588.71	0.58	-0.20	-2.34	248.67
	NORMAL	3,154.0	13.04	289.46	3,086.81	182.06	-582.58	610.36	0.33	-0.29	0.63	154.25
	NORMAL	3,249.0	12.81	287.60	3,179.41	188.81	-602.72	631.60	0.50	-0.24	-1.96	240.16
	NORMAL	3,343.0	12.67	288.08	3,271.09	195.16	-622.45	652.33	0.19	-0.15	0.51	143.14
	NORMAL	3,438.0	12.40	286.33	3,363.83	201.27	-642.15	672.95	0.49	-0.28	-1.84	233.74
	NORMAL	3,533.0	12.61	287.54	3,456.58	207.26	-661.82	693.52	0.35	0.22	1.27	51.88
	NORMAL	3,628.0	12.80	287.91	3,549.25	213.62	-681.72	714.41	0.22	0.20	0.39	23.37
	NORMAL	3,723.0	12.58	287.39	3,641.93	219.95	-701.61	735.28	0.26	-0.23	-0.55	207.19
	NORMAL	3,818.0	12.84	287.97	3,734.60	226.30	-721.52	756.18	0.30	0.27	0.61	26.43
2/5/2014	NORMAL	3,913.0	12.72	287.68	3,827.25	232.73	-741.53	777.19	0.14	-0.13	-0.31	207.99
	NORMAL	4,008.0	12.52	287.84	3,919.95	239.06	-761.30	797.95	0.21	-0.21	0.17	170.16
	NORMAL	4,103.0	12.26	288.20	4,012.74	245.37	-780.68	818.33	0.29	-0.27	0.38	163.63
	NORMAL	4,197.0	11.84	283.64	4,104.67	250.76	-799.53	837.93	1.11	-0.45	-4.85	243.97
	NORMAL	4,292.0	12.17	285.69	4,197.60	255.76	-818.65	857.67	0.57	0.35	2.16	53.27
	NORMAL	4,387.0	11.51	284.00	4,290.57	260.77	-837.48	877.14	0.78	-0.69	-1.78	206.89
	NORMAL	4,482.0	10.43	285.83	4,383.84	265.40	-854.95	895.19	1.19	-1.14	1.93	163.03
	NORMAL	4,577.0	10.05	288.73	4,477.32	270.41	-871.08	912.08	0.67	-0.40	3.05	127.81
	NORMAL	4,672.0	9.22	286.85	4,570.98	275.28	-886.21	927.97	0.93	-0.87	-1.98	199.84
	NORMAL	4,766.0	8.09	292.24	4,663.91	279.97	-899.54	942.10	1.48	-1.20	5.73	146.97
	NORMAL	4,861.0	7.19	290.88	4,758.07	284.62	-911.28	954.69	0.97	-0.95	-1.43	190.69
	NORMAL	4,956.0	5.79	297.54	4,852.46	288.95	-921.09	965.35	1.67	-1.47	7.01	155.01
	NORMAL	5,051.0	5.35	302.51	4,947.01	293.55	-929.07	974.34	0.69	-0.46	5.23	134.82
	NORMAL	5,146.0	4.16	300.02	5,041.68	297.65	-935.79	981.98	1.27	-1.25	-2.62	188.60
	NORMAL	5,240.0	3.16	295.80	5,135.49	300.48	-941.08	987.88	1.10	-1.06	-4.49	192.98
	NORMAL	5,335.0	1.47	290.86	5,230.41	302.06	-944.57	991.68	1.79	-1.78	-5.20	184.27
	NORMAL	5,430.0	1.78	273.00	5,325.37	302.57	-947.18	994.33	0.62	0.33	-18.80	292.34
	NORMAL	5,525.0	0.18	314.44	5,420.36	302.75	-948.76	995.89	1.74	-1.68	43.62	175.86
	NORMAL	5,620.0	0.34	284.94	5,515.36	302.93	-949.14	996.30	0.21	0.17	-31.05	304.70
	NORMAL	5,715.0	0.56	246.28	5,610.35	302.81	-949.84	996.94	0.38	0.23	-40.69	285.54
2/6/2014	NORMAL	5,809.0	0.62	248.99	5,704.35	302.45	-950.74	997.68	0.07	0.06	2.88	26.30
	NORMAL	5,904.0	1.15	243.56	5,799.34	301.84	-952.07	998.77	0.56	0.56	-5.72	348.29
	NORMAL	5,999.0	0.96	285.75	5,894.32	301.63	-953.69	1,000.25	0.82	-0.20	44.41	124.23
	NORMAL	6,094.0	0.85	286.28	5,989.31	302.04	-955.13	1,001.75	0.12	-0.12	0.56	175.91
	NORMAL	6,189.0	1.11	277.72	6,084.30	302.36	-956.72	1,003.36	0.31	0.27	-9.01	326.29
2/7/2014	NORMAL	6,284.0	0.33	307.11	6,179.29	302.65	-957.85	1,004.53	0.88	-0.82	30.94	168.86
	NORMAL	6,379.0	0.17	233.51	6,274.29	302.73	-958.18	1,004.87	0.34	-0.17	-77.47	210.04
	NORMAL	6,473.0	0.53	240.10	6,368.29	302.43	-958.67	1,005.24	0.38	0.38	7.01	9.68
	NORMAL	6,568.0	1.49	230.08	6,463.27	301.42	-960.00	1,006.21	1.02	1.01	-10.55	344.54
	NORMAL	6,663.0	1.18	222.55	6,558.25	299.91	-961.61	1,007.29	0.37	-0.33	-7.93	205.78
	NORMAL	6,758.0	1.29	228.43	6,653.22	298.48	-963.07	1,008.25	0.18	0.12	6.19	52.01
	NORMAL	6,853.0	1.73	220.56	6,748.19	296.68	-964.80	1,009.36	0.51	0.46	-8.28	330.80
	NORMAL	6,948.0	1.25	221.47	6,843.16	294.81	-966.42	1,010.35	0.51	-0.51	0.96	177.63
	NORMAL	7,043.0	2.28	218.18	6,938.11	292.55	-968.27	1,011.44	1.09	1.08	-3.46	352.74
	NORMAL	7,138.0	2.59	222.72	7,033.03	289.49	-970.90	1,013.02	0.38	0.33	4.78	34.17
	NORMAL	7,233.0	3.08	226.89	7,127.91	286.17	-974.22	1,015.19	0.56	0.52	4.39	24.92

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	EW (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
2/7/2014	NORMAL	7,328.0	2.09	225.49	7,222.81	283.21	-977.32	1,017.25	1.04	-1.04	-1.47	182.95
	NORMAL	7,422.0	2.36	220.50	7,316.74	280.54	-979.80	1,018.82	0.35	0.29	-5.31	321.83
	NORMAL	7,532.0	2.49	210.94	7,426.64	276.77	-982.49	1,020.26	0.39	0.12	-8.69	283.00
	NORMAL	7,595.0	2.49	210.94	7,489.59	274.42	-983.90	1,020.89	0.00	0.00	0.00	0.00