

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	PA 313-2	Wellbore No.	00
Wellbore Legal Name	PA 313-2	Common Wellbore Name	PA 313-2
Project	PA 02-07S-095WV	Site	GV 86-2 Pad
Vertical Section Azimuth	272.80 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	3/2/2014	UWI	PA 313-2
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	3/2/2014	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 (°)
3/2/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3/2/2014	NORMAL	71.0	1.76	314.65	70.99	0.77	-0.78	0.81	2.48	2.48	0.00	314.65
	NORMAL	161.0	0.79	293.03	160.97	1.98	-2.33	2.42	1.18	-1.08	-24.02	195.85
	NORMAL	251.0	2.29	265.69	250.93	2.09	-4.69	4.79	1.81	1.67	-30.38	319.80
	NORMAL	342.0	3.87	274.13	341.80	2.17	-9.57	9.67	1.80	1.74	9.27	20.26
	NORMAL	432.0	5.63	272.64	431.49	2.59	-17.01	17.12	1.96	1.96	-1.66	355.25
	NORMAL	523.0	7.21	268.33	521.91	2.63	-27.18	27.27	1.81	1.74	-4.74	340.89
	NORMAL	602.0	8.71	269.88	600.15	2.48	-38.12	38.19	1.92	1.80	1.96	8.91
	NORMAL	692.0	11.01	267.27	688.82	2.05	-53.52	53.55	2.60	2.56	-2.90	347.71
	NORMAL	784.0	12.66	269.70	778.86	1.58	-72.37	72.37	1.87	1.79	2.64	18.00
	NORMAL	878.0	15.05	271.72	868.17	1.89	-94.40	94.38	2.65	2.60	2.20	12.42
	NORMAL	966.0	17.30	275.16	954.61	3.44	-119.41	119.44	2.72	2.50	3.82	24.73
	NORMAL	1,061.0	17.74	272.86	1,045.20	5.43	-147.93	148.02	0.86	0.46	-2.42	301.33
	NORMAL	1,074.0	17.54	271.78	1,057.59	5.59	-151.87	151.96	2.95	-1.54	-8.31	238.06
3/4/2014	NORMAL	1,151.0	17.23	269.28	1,131.08	5.81	-174.87	174.95	1.05	-0.40	-3.25	246.27
	NORMAL	1,246.0	17.94	271.64	1,221.64	6.05	-203.56	203.62	1.06	0.75	2.48	46.25
	NORMAL	1,341.0	17.85	273.13	1,312.04	7.27	-232.73	232.81	0.49	-0.09	1.57	101.83
	NORMAL	1,435.0	17.87	273.05	1,401.51	8.82	-261.52	261.63	0.03	0.02	-0.09	309.15
	NORMAL	1,530.0	17.51	271.99	1,492.02	10.09	-290.35	290.50	0.51	-0.38	-1.12	221.32
	NORMAL	1,625.0	17.32	276.38	1,582.67	12.16	-318.69	318.90	1.40	-0.20	4.62	100.32
	NORMAL	1,720.0	16.62	275.24	1,673.53	14.97	-346.27	346.59	0.82	-0.74	-1.20	204.88

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 (°)
3/4/2014	NORMAL	1,815.0	17.32	277.88	1,764.40	18.15	-373.81	374.25	1.10	0.74	2.78	49.01
	NORMAL	1,909.0	16.97	278.05	1,854.22	21.99	-401.26	401.85	0.38	-0.37	0.18	171.93
	NORMAL	2,004.0	16.74	276.48	1,945.14	25.48	-428.58	429.31	0.54	-0.24	-1.65	242.45
	NORMAL	2,099.0	16.36	276.91	2,036.20	28.63	-455.45	456.31	0.42	-0.40	0.45	162.34
	NORMAL	2,194.0	17.41	276.30	2,127.11	31.80	-482.86	483.84	1.12	1.11	-0.64	350.13
	NORMAL	2,289.0	16.94	275.80	2,217.87	34.76	-510.76	511.85	0.52	-0.49	-0.53	197.20
	NORMAL	2,384.0	16.36	276.12	2,308.89	37.58	-537.83	539.03	0.62	-0.61	0.34	171.17
	NORMAL	2,479.0	17.53	277.35	2,399.76	40.84	-565.33	566.65	1.29	1.23	1.29	17.62
	NORMAL	2,574.0	16.97	276.47	2,490.49	44.23	-593.29	594.74	0.65	-0.59	-0.93	204.57
	NORMAL	2,668.0	17.85	278.30	2,580.18	47.86	-621.18	622.77	1.10	0.94	1.95	32.77
	NORMAL	2,763.0	17.23	277.79	2,670.77	51.87	-649.53	651.28	0.67	-0.65	-0.54	193.68
	NORMAL	2,858.0	18.14	276.36	2,761.28	55.41	-678.16	680.06	1.06	0.96	-1.51	333.80
	NORMAL	2,953.0	17.62	276.10	2,851.69	58.58	-707.16	709.18	0.55	-0.55	-0.27	188.60
	NORMAL	3,048.0	18.46	274.33	2,942.02	61.24	-736.45	738.57	1.06	0.88	-1.86	326.03
	NORMAL	3,143.0	18.20	274.45	3,032.20	63.53	-766.24	768.43	0.28	-0.27	0.13	171.80
	NORMAL	3,238.0	17.59	273.75	3,122.60	65.62	-795.36	797.62	0.68	-0.64	-0.74	199.09
	NORMAL	3,333.0	17.15	274.27	3,213.27	67.60	-823.65	825.97	0.49	-0.46	0.55	160.81
	NORMAL	3,428.0	16.50	274.20	3,304.20	69.63	-851.07	853.46	0.68	-0.68	-0.07	181.75
	NORMAL	3,523.0	17.96	273.53	3,394.94	71.52	-879.15	881.59	1.55	1.54	-0.71	351.94
	NORMAL	3,618.0	17.89	273.30	3,485.33	73.26	-908.34	910.83	0.10	-0.07	-0.24	225.21
	NORMAL	3,712.0	17.50	272.78	3,574.88	74.78	-936.87	939.40	0.45	-0.41	-0.55	201.81
	NORMAL	3,807.0	17.15	273.22	3,665.57	76.26	-965.12	967.69	0.39	-0.37	0.46	159.69
	NORMAL	3,902.0	16.67	272.82	3,756.46	77.72	-992.71	995.32	0.52	-0.51	-0.42	193.43
	NORMAL	3,997.0	16.12	272.39	3,847.60	78.94	-1,019.50	1,022.14	0.59	-0.58	-0.45	192.24
	NORMAL	4,092.0	15.22	272.06	3,939.07	79.94	-1,045.14	1,047.79	0.95	-0.95	-0.35	185.50
	NORMAL	4,187.0	14.25	270.67	4,030.94	80.52	-1,069.29	1,071.95	1.09	-1.02	-1.46	199.35
3/5/2014	NORMAL	4,281.0	13.45	274.98	4,122.21	81.61	-1,091.75	1,094.43	1.39	-0.85	4.59	129.87
	NORMAL	4,377.0	11.87	277.00	4,215.87	83.78	-1,112.67	1,115.44	1.71	-1.65	2.10	165.33
	NORMAL	4,471.0	11.28	275.41	4,307.96	85.82	-1,131.42	1,134.26	0.71	-0.63	-1.69	207.62
	NORMAL	4,566.0	9.76	273.75	4,401.36	87.23	-1,148.71	1,151.60	1.63	-1.60	-1.75	190.46
	NORMAL	4,661.0	7.83	267.95	4,495.24	87.52	-1,163.21	1,166.10	2.23	-2.03	-6.11	201.83
	NORMAL	4,756.0	7.56	266.10	4,589.39	86.86	-1,175.91	1,178.75	0.39	-0.28	-1.95	221.62
	NORMAL	4,851.0	6.24	263.99	4,683.70	85.90	-1,187.28	1,190.06	1.41	-1.39	-2.22	189.82
	NORMAL	4,946.0	5.10	266.28	4,778.23	85.08	-1,196.63	1,199.36	1.22	-1.20	2.41	169.91
	NORMAL	5,040.0	4.81	264.12	4,871.88	84.41	-1,204.72	1,207.41	0.37	-0.31	-2.30	211.68
	NORMAL	5,135.0	3.44	268.13	4,966.63	83.91	-1,211.53	1,214.19	1.47	-1.44	4.22	170.11
	NORMAL	5,230.0	2.37	285.44	5,061.51	84.34	-1,216.28	1,218.94	1.44	-1.13	18.22	149.08
	NORMAL	5,325.0	0.53	318.12	5,156.48	85.19	-1,218.46	1,221.17	2.05	-1.94	34.40	171.54
	NORMAL	5,418.0	0.28	261.23	5,249.48	85.47	-1,218.97	1,221.69	0.48	-0.27	-61.17	211.88
	NORMAL	5,514.0	0.39	223.70	5,345.48	85.20	-1,219.43	1,222.14	0.25	0.11	-39.09	277.03
	NORMAL	5,609.0	0.53	221.10	5,440.47	84.64	-1,219.94	1,222.62	0.15	0.15	-2.74	350.22
	NORMAL	5,704.0	0.15	283.39	5,535.47	84.33	-1,220.35	1,223.02	0.50	-0.40	65.57	163.91
	NORMAL	5,799.0	0.49	224.14	5,630.47	84.07	-1,220.76	1,223.41	0.46	0.36	-62.37	283.43
	NORMAL	5,893.0	0.60	239.82	5,724.47	83.54	-1,221.46	1,224.09	0.20	0.12	16.68	61.60
	NORMAL	5,988.0	1.06	225.76	5,819.46	82.67	-1,222.52	1,225.10	0.53	0.48	-14.80	328.98
3/6/2014	NORMAL	6,083.0	0.66	182.11	5,914.45	81.51	-1,223.17	1,225.69	0.78	-0.42	-45.95	218.03
	NORMAL	6,178.0	0.97	187.18	6,009.44	80.17	-1,223.29	1,225.75	0.33	0.33	5.34	15.64
	NORMAL	6,273.0	1.14	195.35	6,104.42	78.46	-1,223.64	1,226.02	0.24	0.18	8.60	45.64
	NORMAL	6,368.0	1.56	204.67	6,199.39	76.37	-1,224.43	1,226.70	0.50	0.44	9.81	32.31
	NORMAL	6,463.0	1.71	197.23	6,294.36	73.84	-1,225.39	1,227.54	0.27	0.16	-7.83	301.49
	NORMAL	6,558.0	1.67	193.24	6,389.31	71.14	-1,226.13	1,228.14	0.13	-0.04	-4.20	249.24
	NORMAL	6,652.0	1.93	202.20	6,483.27	68.34	-1,227.04	1,228.92	0.41	0.28	9.53	51.80
	NORMAL	6,748.0	2.16	218.83	6,579.21	65.44	-1,228.79	1,230.52	0.66	0.24	17.32	77.26
	NORMAL	6,843.0	2.35	224.35	6,674.14	62.65	-1,231.27	1,232.86	0.30	0.20	5.81	51.60
	NORMAL	6,938.0	2.46	230.33	6,769.05	59.96	-1,234.20	1,235.66	0.29	0.12	6.29	69.34
	NORMAL	7,033.0	2.92	241.86	6,863.95	57.51	-1,237.90	1,239.24	0.75	0.48	12.14	55.49

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 (°)
3/6/2014	NORMAL	7,128.0	2.90	243.25	6,958.83	55.29	-1,242.18	1,243.40	0.08	-0.02	1.46	106.52
	NORMAL	7,223.0	2.89	245.81	7,053.70	53.23	-1,246.52	1,247.63	0.14	-0.01	2.69	95.70
	NORMAL	7,318.0	3.16	238.88	7,148.57	50.89	-1,250.94	1,251.93	0.48	0.28	-7.29	302.94
	NORMAL	7,413.0	3.72	237.27	7,243.40	47.87	-1,255.78	1,256.61	0.60	0.59	-1.69	349.41
	NORMAL	7,507.0	3.71	236.43	7,337.20	44.54	-1,260.87	1,261.55	0.06	-0.01	-0.89	259.17
	NORMAL	7,604.0	3.69	232.70	7,434.00	40.92	-1,265.97	1,266.46	0.25	-0.02	-3.85	263.39