

Deviation Summary

PICEANCE VLY

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	PA 524-16	Wellbore No.	00
Wellbore Legal Name	PA 524-16	Common Wellbore Name	PA 524-16
Project	PA 21-06S-095W	Site	PA 22-21 Pad
Vertical Section Azimuth	14.43 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	4/29/2014	UWI	PA 524-16
Active datum	KB @6,056.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	4/29/2014	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 (°)
4/29/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/29/2014	NORMAL	105.0	0.18	41.57	105.00	0.12	0.11	0.15	0.17	0.17	0.00	41.57
	NORMAL	136.0	1.06	342.69	136.00	0.43	0.06	0.43	3.16	2.84	-189.94	292.07
	NORMAL	166.0	2.20	354.11	165.99	1.27	-0.09	1.21	3.93	3.80	38.07	21.66
	NORMAL	196.0	3.08	0.26	195.95	2.65	-0.14	2.53	3.08	2.93	20.50	20.93
	NORMAL	226.0	3.78	15.73	225.90	4.41	0.13	4.30	3.85	2.33	51.57	60.79
	NORMAL	257.0	4.75	19.42	256.81	6.60	0.83	6.60	3.25	3.13	11.90	17.64
	NORMAL	287.0	5.81	18.37	286.69	9.21	1.73	9.35	3.55	3.53	-3.50	354.27
	NORMAL	317.0	7.30	17.40	316.49	12.47	2.78	12.77	4.98	4.97	-3.23	355.27
	NORMAL	348.0	8.80	17.84	347.18	16.61	4.09	17.11	4.84	4.84	1.42	2.57
	NORMAL	378.0	10.21	18.72	376.77	21.31	5.65	22.05	4.72	4.70	2.93	6.32
	NORMAL	409.0	11.26	15.00	407.23	26.84	7.31	27.82	4.06	3.39	-12.00	324.74
	NORMAL	439.0	12.40	14.24	436.59	32.79	8.86	33.97	3.84	3.80	-2.53	351.85
	NORMAL	469.0	13.81	14.33	465.81	39.38	10.54	40.77	4.70	4.70	0.30	0.87
	NORMAL	499.0	15.04	14.15	494.86	46.63	12.38	48.24	4.10	4.10	-0.60	357.82
	NORMAL	529.0	16.19	15.03	523.75	54.44	14.42	56.32	3.91	3.83	2.93	12.06
	NORMAL	560.0	17.51	14.68	553.42	63.13	16.72	65.30	4.27	4.26	-1.13	355.44
	NORMAL	590.0	18.74	15.29	581.93	72.14	19.13	74.63	4.15	4.10	2.03	9.06
	NORMAL	620.0	19.97	15.29	610.24	81.73	21.75	84.57	4.10	4.10	0.00	0.00
	NORMAL	651.0	21.47	14.77	639.23	92.32	24.60	95.54	4.87	4.84	-1.68	352.76
	NORMAL	681.0	22.43	14.50	667.06	103.17	27.43	106.75	3.22	3.20	-0.90	353.87

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 (°)
4/29/2014	NORMAL	711.0	23.05	12.22	694.72	114.46	30.11	118.35	3.59	2.07	-7.60	304.07
	NORMAL	741.0	23.75	11.78	722.26	126.11	32.58	130.25	2.40	2.33	-1.47	345.78
	NORMAL	772.0	24.81	14.33	750.52	138.52	35.47	142.99	4.81	3.42	8.23	45.86
	NORMAL	802.0	26.30	15.38	777.58	151.03	38.79	155.93	5.19	4.97	3.50	17.38
	NORMAL	832.0	28.15	17.23	804.26	164.20	42.65	169.65	6.78	6.17	6.17	25.41
	NORMAL	862.0	29.30	16.26	830.56	178.01	46.80	184.05	4.14	3.83	-3.23	337.51
	NORMAL	892.0	29.56	13.52	856.69	192.25	50.58	198.79	4.57	0.87	-9.13	279.73
	NORMAL	922.0	30.88	12.74	882.62	206.95	54.01	213.88	4.59	4.40	-2.60	343.10
	NORMAL	952.0	31.76	15.29	908.25	222.08	57.79	229.47	5.30	2.93	8.50	57.51
4/30/2014	NORMAL	983.0	32.99	16.00	934.43	238.06	62.27	246.07	4.15	3.97	2.29	17.48
	NORMAL	1,026.0	34.85	16.46	970.11	261.10	68.98	270.05	4.37	4.33	1.07	8.05
	NORMAL	1,058.0	36.23	16.23	996.15	278.95	74.21	288.64	4.33	4.31	-0.72	354.37
	NORMAL	1,090.0	37.46	15.62	1,021.75	297.40	79.48	307.82	4.01	3.84	-1.91	343.19
	NORMAL	1,122.0	38.34	14.65	1,047.00	316.38	84.61	327.48	3.32	2.75	-3.03	325.51
	NORMAL	1,154.0	38.88	14.59	1,072.01	335.70	89.65	347.45	1.69	1.69	-0.19	356.01
	NORMAL	1,169.0	38.87	14.82	1,083.69	344.80	92.04	356.86	0.96	-0.07	1.53	94.05
5/1/2014	NORMAL	1,261.0	39.30	17.02	1,155.10	400.57	107.95	414.84	1.58	0.47	2.39	73.63
	NORMAL	1,357.0	38.77	13.95	1,229.68	458.82	124.10	475.27	2.09	-0.55	-3.20	253.48
	NORMAL	1,452.0	38.59	12.63	1,303.84	516.60	137.74	534.63	0.89	-0.19	-1.39	257.18
	NORMAL	1,547.0	38.73	11.92	1,378.02	574.59	150.36	593.93	0.49	0.15	-0.75	287.24
	NORMAL	1,642.0	39.25	10.87	1,451.86	633.18	162.17	653.62	0.88	0.55	-1.11	307.80
	NORMAL	1,737.0	37.19	12.10	1,526.50	690.78	173.85	712.31	2.31	-2.17	1.29	160.21
	NORMAL	1,832.0	36.09	12.98	1,602.72	746.12	186.16	768.97	1.28	-1.16	0.93	154.83
	NORMAL	1,928.0	36.75	13.95	1,679.97	801.54	199.43	825.96	0.91	0.69	1.01	41.50
	NORMAL	2,023.0	37.36	14.47	1,755.79	857.04	213.49	883.20	0.72	0.64	0.55	27.40
	NORMAL	2,119.0	38.02	14.30	1,831.76	913.89	228.07	941.89	0.70	0.69	-0.18	350.98
	NORMAL	2,214.0	37.98	14.91	1,906.62	970.49	242.82	1,000.38	0.40	-0.04	0.64	96.32
	NORMAL	2,309.0	38.42	14.12	1,981.27	1,027.36	257.54	1,059.13	0.69	0.46	-0.83	311.70
	NORMAL	2,404.0	37.85	14.91	2,056.00	1,084.15	272.24	1,117.79	0.79	-0.60	0.83	139.75
	NORMAL	2,499.0	38.20	15.00	2,130.83	1,140.69	287.34	1,176.31	0.37	0.37	0.09	9.04
5/2/2014	NORMAL	2,594.0	38.37	14.47	2,205.40	1,197.61	302.31	1,235.17	0.39	0.18	-0.56	297.16
	NORMAL	2,690.0	38.20	17.11	2,280.76	1,254.84	318.49	1,294.62	1.71	-0.18	2.75	96.97
	NORMAL	2,786.0	38.73	17.90	2,355.93	1,311.78	336.45	1,354.24	0.75	0.55	0.82	43.15
	NORMAL	2,881.0	38.68	17.72	2,430.06	1,368.34	354.62	1,413.55	0.13	-0.05	-0.19	245.98
	NORMAL	2,977.0	39.21	16.76	2,504.73	1,425.97	372.50	1,473.81	0.84	0.55	-1.00	310.92
	NORMAL	3,072.0	39.43	15.44	2,578.22	1,483.81	389.19	1,533.98	0.91	0.23	-1.39	284.23
	NORMAL	3,167.0	39.12	14.91	2,651.76	1,541.85	404.94	1,594.12	0.48	-0.33	-0.56	227.06
	NORMAL	3,264.0	38.20	12.72	2,727.51	1,600.68	419.42	1,654.70	1.70	-0.95	-2.26	235.23
	NORMAL	3,358.0	37.49	12.98	2,801.74	1,656.91	432.24	1,712.35	0.77	-0.76	0.28	167.44
	NORMAL	3,453.0	36.88	12.89	2,877.43	1,712.87	445.09	1,769.75	0.64	-0.64	-0.09	185.06
	NORMAL	3,548.0	37.01	11.92	2,953.35	1,768.63	457.36	1,826.81	0.63	0.14	-1.02	282.18
	NORMAL	3,644.0	37.36	12.01	3,029.83	1,825.39	469.39	1,884.78	0.37	0.36	0.09	8.87
	NORMAL	3,739.0	37.80	13.59	3,105.12	1,881.88	482.23	1,942.69	1.12	0.46	1.66	66.08
	NORMAL	3,835.0	37.63	15.62	3,181.07	1,938.71	497.03	2,001.41	1.31	-0.18	2.11	98.60
	NORMAL	3,930.0	38.37	15.44	3,255.93	1,995.06	512.69	2,059.88	0.79	0.78	-0.19	351.41
	NORMAL	4,025.0	39.08	15.62	3,330.04	2,052.32	528.60	2,119.30	0.76	0.75	0.19	9.08
	NORMAL	4,121.0	38.68	15.35	3,404.77	2,110.39	544.69	2,179.55	0.45	-0.42	-0.28	202.86
	NORMAL	4,216.0	38.46	15.00	3,479.05	2,167.55	560.20	2,238.77	0.33	-0.23	-0.37	224.63
	NORMAL	4,311.0	37.45	14.12	3,553.96	2,224.10	574.89	2,297.20	1.21	-1.06	-0.93	207.84
	NORMAL	4,406.0	37.89	14.74	3,629.15	2,280.33	589.36	2,355.26	0.61	0.46	0.65	40.98
5/3/2014	NORMAL	4,502.0	37.23	15.18	3,705.25	2,336.86	604.46	2,413.77	0.74	-0.69	0.46	158.06
	NORMAL	4,597.0	37.32	14.82	3,780.85	2,392.44	619.35	2,471.31	0.25	0.09	-0.38	292.29
	NORMAL	4,692.0	37.10	14.30	3,856.51	2,448.04	633.80	2,528.76	0.40	-0.23	-0.55	234.82
	NORMAL	4,788.0	37.49	14.56	3,932.88	2,504.38	648.29	2,586.92	0.44	0.41	0.27	22.10
	NORMAL	4,883.0	37.58	14.47	4,008.21	2,560.41	662.80	2,644.80	0.11	0.09	-0.09	328.61
	NORMAL	4,979.0	36.62	14.39	4,084.78	2,616.49	677.23	2,702.71	1.00	-1.00	-0.08	182.85

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 (°)
5/3/2014	NORMAL	5,074.0	36.62	13.07	4,161.03	2,671.53	690.68	2,759.37	0.83	0.00	-1.39	269.47
	NORMAL	5,169.0	34.42	13.33	4,238.35	2,725.27	703.28	2,814.55	2.32	-2.32	0.27	176.18
	NORMAL	5,265.0	34.24	12.98	4,317.62	2,777.99	715.60	2,868.67	0.28	-0.19	-0.36	227.49
	NORMAL	5,360.0	33.49	14.47	4,396.51	2,829.41	728.15	2,921.60	1.18	-0.79	1.57	132.71
	NORMAL	5,455.0	32.00	15.70	4,476.41	2,879.02	741.52	2,972.98	1.72	-1.57	1.29	156.45
	NORMAL	5,550.0	29.85	15.18	4,557.90	2,926.08	754.52	3,021.79	2.28	-2.26	-0.55	186.86
	NORMAL	5,646.0	27.82	14.56	4,641.99	2,970.82	766.41	3,068.09	2.14	-2.11	-0.65	188.11
5/4/2014	NORMAL	5,741.0	26.81	14.82	4,726.40	3,012.99	777.46	3,111.68	1.07	-1.06	0.27	173.38
	NORMAL	5,836.0	25.80	13.51	4,811.56	3,053.81	787.77	3,153.78	1.23	-1.06	-1.38	209.30
	NORMAL	5,932.0	24.53	13.51	4,898.45	3,093.50	797.31	3,194.59	1.32	-1.32	0.00	180.00
	NORMAL	6,027.0	23.03	15.97	4,985.38	3,130.54	807.03	3,232.89	1.89	-1.58	2.59	147.64
	NORMAL	6,122.0	23.25	16.93	5,072.74	3,166.34	817.60	3,270.20	0.46	0.23	1.01	60.19
	NORMAL	6,218.0	22.02	15.88	5,161.34	3,201.78	828.04	3,307.12	1.35	-1.28	-1.09	197.70
	NORMAL	6,313.0	19.69	15.00	5,250.11	3,234.37	837.06	3,340.93	2.47	-2.45	-0.93	187.25
	NORMAL	6,408.0	18.02	13.42	5,340.01	3,264.13	844.61	3,371.63	1.84	-1.76	-1.66	186.26
	NORMAL	6,504.0	18.07	13.24	5,431.29	3,293.06	851.47	3,401.36	0.08	0.05	-0.19	311.80
	NORMAL	6,599.0	16.18	13.95	5,522.08	3,320.25	858.03	3,429.33	2.00	-1.99	0.75	174.03
	NORMAL	6,694.0	14.68	13.68	5,613.65	3,344.80	864.07	3,454.60	1.58	-1.58	-0.28	182.61
	NORMAL	6,789.0	13.49	13.51	5,705.79	3,367.27	869.51	3,477.72	1.25	-1.25	-0.18	181.91
	NORMAL	6,870.0	14.29	13.51	5,784.42	3,386.18	874.05	3,497.16	0.99	0.99	0.00	0.00
	NORMAL	6,965.0	13.63	11.84	5,876.62	3,408.53	879.09	3,520.07	0.81	-0.69	-1.76	210.59
5/6/2014	NORMAL	7,061.0	13.36	15.79	5,969.97	3,430.27	884.43	3,542.46	1.00	-0.28	4.11	108.24
	NORMAL	7,157.0	12.88	14.47	6,063.46	3,451.31	890.12	3,564.24	0.59	-0.50	-1.38	211.33
	NORMAL	7,252.0	13.14	15.18	6,156.02	3,471.98	895.59	3,585.63	0.32	0.27	0.75	31.93
	NORMAL	7,347.0	12.44	15.26	6,248.66	3,492.27	901.11	3,606.66	0.74	-0.74	0.08	178.59
	NORMAL	7,442.0	11.87	12.10	6,341.54	3,511.70	905.85	3,626.65	0.92	-0.60	-3.33	227.88
	NORMAL	7,538.0	10.99	10.61	6,435.63	3,530.35	909.61	3,645.65	0.97	-0.92	-1.55	197.82
	NORMAL	7,633.0	10.90	12.19	6,528.90	3,548.03	913.17	3,663.66	0.33	-0.09	1.66	107.47
	NORMAL	7,728.0	10.15	10.61	6,622.30	3,565.04	916.61	3,680.99	0.85	-0.79	-1.66	200.27
	NORMAL	7,823.0	9.19	8.94	6,715.95	3,580.76	919.33	3,696.89	1.05	-1.01	-1.76	195.47
	NORMAL	7,919.0	9.71	13.07	6,810.65	3,596.22	922.35	3,712.61	0.89	0.54	4.30	54.57
	NORMAL	8,014.0	8.35	12.54	6,904.47	3,610.76	925.66	3,727.52	1.43	-1.43	-0.56	183.24
	NORMAL	8,109.0	7.34	13.24	6,998.58	3,623.40	928.55	3,740.48	1.07	-1.06	0.74	174.94
	NORMAL	8,204.0	6.86	7.62	7,092.85	3,634.93	930.69	3,752.18	0.89	-0.51	-5.92	232.59
	NORMAL	8,298.0	6.55	14.39	7,186.21	3,645.68	932.77	3,763.12	0.90	-0.33	7.20	114.75
5/7/2014	NORMAL	8,393.0	5.71	15.00	7,280.67	3,655.50	935.34	3,773.26	0.89	-0.88	0.64	175.87
	NORMAL	8,488.0	4.40	24.93	7,375.30	3,663.37	938.10	3,781.57	1.65	-1.38	10.45	151.14
	NORMAL	8,584.0	3.38	32.84	7,471.08	3,669.09	941.18	3,787.88	1.20	-1.06	8.24	156.16
	NORMAL	8,679.0	2.37	38.73	7,565.96	3,672.97	943.93	3,792.32	1.11	-1.06	6.20	166.62
	NORMAL	8,774.0	1.89	74.68	7,660.89	3,674.92	946.67	3,794.89	1.46	-0.51	37.84	127.12
	NORMAL	8,870.0	1.80	125.13	7,756.85	3,674.47	949.43	3,795.14	1.64	-0.09	52.55	118.18
	NORMAL	8,965.0	2.11	147.54	7,851.80	3,672.13	951.59	3,793.42	0.86	0.33	23.59	79.38
	NORMAL	9,060.0	2.07	154.92	7,946.73	3,669.10	953.26	3,790.90	0.29	-0.04	7.77	102.13
	NORMAL	9,155.0	2.15	171.53	8,041.67	3,665.79	954.25	3,787.94	0.65	0.08	17.48	90.90
	NORMAL	9,251.0	2.15	177.86	8,137.60	3,662.21	954.58	3,784.55	0.25	0.00	6.59	93.16
	NORMAL	9,346.0	2.37	176.19	8,232.53	3,658.47	954.78	3,780.98	0.24	0.23	-1.76	342.50
	NORMAL	9,441.0	2.50	184.37	8,327.44	3,654.44	954.75	3,777.07	0.39	0.14	8.61	73.61
	NORMAL	9,535.0	2.50	184.19	8,421.35	3,650.35	954.44	3,773.04	0.01	0.00	-0.19	269.91
	NORMAL	9,630.0	2.59	193.68	8,516.26	3,646.20	953.78	3,768.85	0.45	0.09	9.99	82.71
5/8/2014	NORMAL	9,775.0	2.99	198.60	8,661.09	3,639.43	951.80	3,761.80	0.32	0.28	3.39	33.38
	NORMAL	9,871.0	2.99	203.61	8,756.96	3,634.76	950.00	3,756.84	0.27	0.00	5.22	92.50
	NORMAL	9,916.0	3.25	205.72	8,801.89	3,632.54	948.98	3,754.43	0.63	0.58	4.69	24.89
	NORMAL	10,011.0	3.43	203.26	8,896.73	3,627.50	946.69	3,748.98	0.24	0.19	-2.59	320.24
	NORMAL	10,038.0	3.65	205.72	8,923.68	3,625.99	945.99	3,747.34	0.99	0.81	9.11	35.85
	NORMAL	10,088.0	3.65	205.72	8,973.58	3,623.12	944.61	3,744.21	0.00	0.00	0.00	0.00