

Deviation Summary

PICEANCE VLY

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	PA 324-16	Wellbore No.	00
Wellbore Legal Name	PA 324-16	Common Wellbore Name	PA 324-16
Project	PA 21-06S-095W	Site	PA 22-21 Pad
Vertical Section Azimuth	16.07 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	4/8/2014	UWI	PA 324-16
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	4/8/2014	Ended	
Tool Name	MWD	Engineer	

2.1.1 Tie On Point

MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)
		254.79			

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 (°)
4/8/2014	NORMAL	103.0	0.18	254.79	103.00	-0.04	-0.16	-0.08	0.17	0.17	0.00	254.79
	NORMAL	134.0	0.97	357.96	134.00	0.21	-0.21	0.14	3.31	2.55	332.81	113.00
	NORMAL	164.0	1.14	352.00	163.99	0.76	-0.26	0.65	0.67	0.57	-19.87	324.15
	NORMAL	194.0	1.41	0.62	193.99	1.42	-0.30	1.28	1.10	0.90	28.73	39.75
	NORMAL	224.0	0.97	359.91	223.98	2.04	-0.30	1.88	1.47	-1.47	-2.37	181.56
	NORMAL	254.0	2.02	340.75	253.97	2.80	-0.47	2.56	3.83	3.50	-63.87	324.76
	NORMAL	284.0	2.82	337.91	283.94	3.98	-0.92	3.57	2.70	2.67	-9.47	350.05
	NORMAL	315.0	3.61	339.61	314.89	5.60	-1.55	4.95	2.57	2.55	5.48	7.73
	NORMAL	345.0	3.87	345.15	344.83	7.47	-2.14	6.58	1.48	0.87	18.47	57.05
	NORMAL	376.0	4.75	355.25	375.74	9.76	-2.51	8.68	3.74	2.84	32.58	45.89
	NORMAL	406.0	6.07	355.87	405.61	12.58	-2.73	11.33	4.40	4.40	2.07	2.84
	NORMAL	436.0	7.57	357.10	435.39	16.13	-2.94	14.69	5.02	5.00	4.10	6.17
	NORMAL	505.0	10.20	356.55	503.56	26.77	-3.54	24.74	3.81	3.81	-0.80	357.88
	NORMAL	597.0	12.18	356.55	593.81	44.59	-4.62	41.57	2.15	2.15	0.00	0.00
	NORMAL	687.0	13.76	356.38	681.51	64.75	-5.86	60.60	1.76	1.76	-0.19	358.53
	NORMAL	778.0	15.52	1.21	769.55	87.73	-6.29	82.56	2.35	1.93	5.31	37.10
	NORMAL	868.0	17.58	6.13	855.82	113.28	-4.58	107.59	2.77	2.29	5.47	36.60
	NORMAL	959.0	19.74	10.26	942.04	142.07	-0.38	136.42	2.78	2.37	4.54	33.43
	NORMAL	1,054.0	21.80	12.99	1,030.86	175.05	6.44	170.00	2.40	2.17	2.87	26.45
	NORMAL	1,149.0	24.00	14.04	1,118.37	210.99	15.10	206.92	2.36	2.32	1.11	11.01
	NORMAL	1,245.0	26.07	15.80	1,205.35	250.23	25.58	247.53	2.29	2.16	1.83	20.59

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (")	Azl. (")	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS ("/100usft)	Build Rate ("/100usft)	Turn ("/100usft)	Tface (")
4/8/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/9/2014	NORMAL	1,340.0	27.87	15.80	1,290.01	291.69	37.31	290.62	1.89	1.89	0.00	0.00
	NORMAL	1,435.0	30.33	18.09	1,373.02	335.86	50.81	336.80	2.84	2.59	2.41	25.36
	NORMAL	1,531.0	32.40	18.88	1,454.98	383.24	66.66	386.72	2.20	2.16	0.82	11.57
	NORMAL	1,626.0	33.85	18.35	1,534.54	432.44	83.22	438.58	1.56	1.53	-0.56	348.48
4/10/2014	NORMAL	1,739.0	33.71	17.38	1,628.47	492.24	102.50	501.38	0.49	-0.12	-0.86	255.05
	NORMAL	1,834.0	34.20	15.71	1,707.27	543.10	117.60	554.43	1.11	0.52	-1.76	297.02
	NORMAL	1,929.0	35.03	14.31	1,785.45	595.22	131.57	608.39	1.21	0.87	-1.47	315.65
	NORMAL	2,025.0	35.16	13.16	1,864.00	648.84	144.67	663.53	0.70	0.14	-1.20	280.65
	NORMAL	2,120.0	34.81	13.69	1,941.83	701.82	157.32	717.94	0.49	-0.37	0.56	139.25
	NORMAL	2,215.0	35.60	14.75	2,019.46	754.90	170.78	772.68	1.05	0.83	1.12	38.16
	NORMAL	2,311.0	35.78	16.15	2,097.43	808.88	185.70	828.68	0.87	0.19	1.46	78.14
	NORMAL	2,406.0	36.13	17.56	2,174.33	862.26	201.87	884.45	0.95	0.37	1.48	67.65
	NORMAL	2,501.0	36.00	18.88	2,251.13	915.38	219.36	940.33	0.83	-0.14	1.39	100.03
	NORMAL	2,596.0	35.96	17.21	2,328.00	968.45	236.65	986.11	1.03	-0.04	-1.76	266.99
	NORMAL	2,691.0	36.70	18.61	2,404.54	1,021.99	253.96	1,052.36	1.17	0.78	1.47	48.83
	NORMAL	2,786.0	36.66	18.09	2,480.73	1,075.86	271.82	1,109.06	0.33	-0.04	-0.55	262.45
	NORMAL	2,882.0	36.31	17.30	2,557.91	1,130.24	289.17	1,166.12	0.61	-0.36	-0.82	232.99
	NORMAL	2,977.0	35.69	18.17	2,634.77	1,183.42	306.18	1,221.93	0.85	-0.65	0.92	140.84
	NORMAL	3,072.0	35.52	16.59	2,712.01	1,236.20	322.70	1,277.22	0.98	-0.18	-1.66	258.89
	NORMAL	3,168.0	35.16	19.58	2,790.33	1,288.97	339.93	1,332.70	1.84	-0.38	3.11	102.98
	NORMAL	3,263.0	34.42	19.76	2,868.35	1,340.02	358.17	1,386.80	0.79	-0.78	0.19	172.17
	NORMAL	3,358.0	34.46	19.14	2,946.89	1,390.68	376.06	1,440.43	0.37	0.04	-0.65	276.25
	NORMAL	3,454.0	34.64	17.38	3,025.76	1,442.37	393.12	1,494.83	1.06	0.19	-1.83	279.50
	NORMAL	3,549.0	34.29	16.68	3,104.09	1,493.78	408.86	1,548.58	0.56	-0.37	-0.74	228.25
4/11/2014	NORMAL	3,644.0	34.42	16.15	3,182.52	1,545.20	424.01	1,602.19	0.34	0.14	-0.56	293.27
	NORMAL	3,740.0	34.42	15.45	3,261.71	1,597.41	438.79	1,656.46	0.41	0.00	-0.73	269.71
	NORMAL	3,835.0	34.15	16.77	3,340.20	1,648.83	453.64	1,709.97	0.83	-0.28	1.39	110.50
	NORMAL	3,930.0	34.37	15.98	3,418.72	1,700.14	468.71	1,763.45	0.52	0.23	-0.83	295.99
	NORMAL	4,026.0	34.51	17.30	3,497.90	1,752.15	484.26	1,817.73	0.79	0.15	1.38	79.92
	NORMAL	4,121.0	33.85	16.86	3,576.49	1,803.17	499.94	1,871.09	0.74	-0.69	-0.46	200.35
	NORMAL	4,216.0	32.97	16.24	3,655.79	1,853.31	514.84	1,923.40	0.99	-0.93	-0.65	200.94
	NORMAL	4,312.0	34.02	16.68	3,735.84	1,904.11	529.85	1,976.38	1.12	1.09	0.46	13.20
	NORMAL	4,407.0	33.32	15.54	3,814.91	1,954.71	544.47	2,029.04	0.99	-0.74	-1.20	221.61
	NORMAL	4,502.0	33.98	17.03	3,893.99	2,005.23	559.24	2,081.68	1.11	0.69	1.57	51.98
	NORMAL	4,598.0	33.98	15.63	3,973.60	2,056.72	574.32	2,135.33	0.82	0.00	-1.46	269.42
	NORMAL	4,693.0	34.81	17.47	4,051.99	2,108.15	589.62	2,188.99	1.40	0.87	1.94	52.15
	NORMAL	4,788.0	33.85	17.82	4,130.44	2,159.21	605.85	2,242.54	1.03	-1.01	0.37	168.53
	NORMAL	4,884.0	32.04	17.38	4,211.00	2,208.97	621.64	2,294.73	1.90	-1.89	-0.46	187.35
	NORMAL	4,979.0	29.76	17.30	4,292.51	2,255.54	636.18	2,343.50	2.40	-2.40	-0.08	181.00
	NORMAL	5,074.0	29.50	16.33	4,375.09	2,300.49	649.77	2,390.46	0.57	-0.27	-1.02	241.11
	NORMAL	5,170.0	28.00	16.68	4,459.25	2,344.77	662.89	2,436.64	1.57	-1.56	0.36	173.75
	NORMAL	5,265.0	26.37	17.03	4,543.75	2,386.30	675.47	2,480.03	1.72	-1.72	0.37	174.55
	NORMAL	5,361.0	25.54	16.15	4,630.07	2,426.57	687.47	2,522.05	0.95	-0.86	-0.92	204.50
	NORMAL	5,456.0	25.76	17.38	4,715.71	2,465.94	699.33	2,563.16	0.61	0.23	1.29	68.10
4/12/2014	NORMAL	5,552.0	24.48	18.61	4,802.63	2,504.70	711.91	2,603.89	1.44	-1.33	1.28	158.36
	NORMAL	5,647.0	24.35	19.05	4,889.13	2,541.87	724.58	2,643.11	0.24	-0.14	0.46	125.76
	NORMAL	5,743.0	23.69	18.79	4,976.82	2,578.83	737.26	2,682.14	0.70	-0.69	-0.27	188.99
	NORMAL	5,837.0	22.07	18.35	5,063.42	2,613.47	748.90	2,718.65	1.73	-1.72	-0.47	185.83
	NORMAL	5,933.0	20.18	17.82	5,152.97	2,646.36	759.64	2,753.23	1.98	-1.97	-0.55	185.52
	NORMAL	6,028.0	20.09	18.44	5,242.16	2,677.44	769.82	2,785.91	0.24	-0.09	0.65	113.16
	NORMAL	6,123.0	19.69	16.06	5,331.49	2,708.29	779.41	2,818.22	0.95	-0.42	-2.51	242.59
	NORMAL	6,218.0	20.22	16.42	5,420.79	2,739.42	788.48	2,850.64	0.57	0.56	0.38	13.22
	NORMAL	6,313.0	17.93	16.68	5,510.57	2,769.18	797.32	2,881.68	2.41	-2.41	0.27	178.00
	NORMAL	6,409.0	15.91	17.38	5,602.41	2,795.90	805.49	2,909.61	2.11	-2.10	0.73	174.58
	NORMAL	6,504.0	14.73	16.59	5,694.03	2,819.90	812.83	2,934.71	1.26	-1.24	-0.83	189.65

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 (")
4/12/2014	NORMAL	6,599.0	13.41	15.27	5,786.18	2,842.10	819.18	2,957.80	1.43	-1.39	-1.39	193.02
	NORMAL	6,695.0	12.18	15.63	5,879.79	2,862.60	824.84	2,979.06	1.28	-1.28	0.38	176.47
4/14/2014	NORMAL	6,790.0	12.22	16.59	5,972.65	2,881.88	830.41	2,999.14	0.22	0.04	1.01	79.32
	NORMAL	6,885.0	11.74	13.52	6,065.58	2,900.91	835.54	3,018.85	0.84	-0.51	-3.23	231.52
	NORMAL	6,979.0	11.69	19.23	6,157.62	2,919.21	840.91	3,037.91	1.23	-0.05	6.07	95.26
	NORMAL	7,074.0	11.03	18.88	6,250.76	2,936.89	847.02	3,056.60	0.70	-0.69	-0.37	185.79
	NORMAL	7,170.0	10.29	18.97	6,345.11	2,953.69	852.78	3,074.33	0.77	-0.77	0.09	178.76
	NORMAL	7,265.0	9.63	19.32	6,438.67	2,969.21	858.17	3,090.74	0.70	-0.69	0.37	174.93
	NORMAL	7,360.0	9.36	17.38	6,532.37	2,984.08	863.10	3,106.40	0.44	-0.28	-2.04	228.89
	NORMAL	7,455.0	8.79	18.09	6,626.18	2,998.36	867.67	3,121.37	0.61	-0.60	0.75	169.24
	NORMAL	7,551.0	8.97	17.21	6,721.03	3,012.48	872.16	3,136.19	0.23	0.19	-0.92	322.52
	NORMAL	7,646.0	7.60	17.65	6,815.04	3,025.54	876.25	3,149.87	1.44	-1.44	0.46	177.57
	NORMAL	7,742.0	6.95	17.47	6,910.26	3,037.13	879.92	3,162.02	0.68	-0.68	-0.19	181.92
	NORMAL	7,837.0	6.50	15.80	7,004.61	3,047.79	883.11	3,173.15	0.52	-0.47	-1.76	202.66
	NORMAL	7,932.0	6.50	13.78	7,099.00	3,058.18	885.86	3,183.90	0.24	0.00	-2.13	269.00
	NORMAL	8,027.0	5.23	19.05	7,193.50	3,067.50	888.55	3,193.59	1.45	-1.34	5.55	159.63
	NORMAL	8,123.0	3.75	25.00	7,289.20	3,074.48	891.31	3,201.07	1.61	-1.54	6.20	165.48
4/15/2014	NORMAL	8,219.0	2.42	36.02	7,385.06	3,078.96	893.83	3,206.07	1.51	-1.39	11.48	161.40
	NORMAL	8,313.0	1.80	56.93	7,479.00	3,081.37	896.23	3,209.05	1.04	-0.66	22.24	138.98
	NORMAL	8,408.0	1.01	81.54	7,573.97	3,082.31	898.31	3,210.53	1.03	-0.83	25.91	154.50
	NORMAL	8,503.0	0.70	123.70	7,668.96	3,082.11	899.62	3,210.70	0.72	-0.33	44.38	136.27
	NORMAL	8,599.0	0.79	151.24	7,764.96	3,081.21	900.43	3,210.06	0.38	0.09	28.69	89.92
	NORMAL	8,694.0	0.92	171.02	7,859.95	3,079.88	900.86	3,208.90	0.34	0.14	20.82	76.33
	NORMAL	8,789.0	1.19	182.62	7,954.93	3,078.14	900.93	3,207.25	0.36	0.28	12.21	44.24
	NORMAL	8,884.0	1.58	186.92	8,049.90	3,075.86	900.73	3,205.00	0.42	0.41	4.53	17.08
4/16/2014	NORMAL	8,980.0	1.93	198.70	8,145.86	3,073.01	900.05	3,202.08	0.52	0.36	12.27	51.86
	NORMAL	9,073.0	2.24	202.48	8,238.79	3,069.85	898.86	3,198.70	0.36	0.33	4.06	25.82
	NORMAL	9,169.0	2.68	204.24	8,334.71	3,066.07	897.22	3,194.62	0.46	0.46	1.83	10.62
	NORMAL	9,264.0	2.99	203.71	8,429.59	3,061.77	895.31	3,189.96	0.33	0.33	-0.56	354.90
	NORMAL	9,359.0	3.25	208.72	8,524.45	3,057.14	893.02	3,184.88	0.40	0.27	5.27	48.88
	NORMAL	9,454.0	3.30	209.51	8,619.29	3,052.40	890.38	3,179.59	0.07	0.05	0.83	42.47
	NORMAL	9,550.0	4.04	215.14	8,715.10	3,047.23	887.07	3,173.71	0.86	0.77	5.86	28.79
	NORMAL	9,645.0	4.44	218.30	8,809.84	3,041.61	882.86	3,167.14	0.49	0.42	3.33	31.87
	NORMAL	9,710.0	4.62	217.25	8,874.63	3,037.55	879.72	3,162.37	0.30	0.28	-1.62	334.74
	NORMAL	9,760.0	4.62	217.25	8,924.47	3,034.35	877.28	3,158.62	0.00	0.00	0.00	0.00