

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 344-20	Wellbore No.	OH
Well Name	PA 344-20	Common Name	PA 344-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	66.29 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	7/26/2011	UWI	PA 344-20
Active Datum	KB @6,255.5ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company
Started	7/26/2011	Ended
Tool Name	MWD	Engineer

2.1.1 Tie On Point

MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	Turn (°/100ft)	TFace (°)
0.0	0.00	0.00	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)	Dleg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
7/26/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7/26/2011	NORMAL	99.0	0.71	47.22	99.00	0.42	0.45	0.58	0.72	0.72	0.00	47.22
	NORMAL	180.0	1.67	76.64	159.98	0.88	1.59	1.81	1.82	1.57	48.23	47.76
	NORMAL	251.0	3.70	71.71	250.88	2.11	5.67	6.04	2.24	2.23	-5.42	351.04
	NORMAL	341.0	6.28	62.03	340.53	5.33	12.78	13.84	3.01	2.87	-10.76	337.06
	NORMAL	433.0	8.09	66.96	431.81	10.22	23.18	25.33	2.08	1.97	5.36	21.27
	NORMAL	524.0	9.45	68.48	521.74	15.47	36.02	39.20	1.52	1.49	1.67	10.42
	NORMAL	615.0	11.03	66.58	611.29	21.67	50.96	55.37	1.78	1.74	-2.09	347.00
	NORMAL	706.0	10.96	67.12	700.62	28.49	66.92	72.73	0.14	-0.08	0.59	124.47
	NORMAL	797.0	10.61	65.22	790.01	35.37	82.49	89.75	0.55	-0.38	-2.09	224.52
	NORMAL	863.0	11.19	63.85	854.82	40.74	93.76	102.23	0.96	0.88	-2.08	335.26
7/28/2011	NORMAL	949.0	11.74	61.95	939.10	48.53	108.97	119.29	0.78	0.64	-2.21	324.59
	NORMAL	981.0	11.80	61.46	970.43	51.62	114.72	125.79	0.36	0.19	-1.53	300.74
	NORMAL	1,076.0	10.27	68.68	1,063.68	59.34	131.14	143.94	2.17	-1.61	7.60	141.42
	NORMAL	1,170.0	10.07	68.10	1,156.20	65.45	146.58	160.52	0.24	-0.21	-0.62	206.83
	NORMAL	1,266.0	9.90	69.70	1,250.75	71.45	162.10	177.15	0.34	-0.18	1.67	122.29
	NORMAL	1,361.0	10.85	66.43	1,344.19	77.86	177.96	194.24	1.18	1.00	-3.44	326.59
	NORMAL	1,456.0	10.31	67.92	1,437.58	84.63	194.03	211.68	0.64	-0.57	1.57	153.86
	NORMAL	1,551.0	9.54	66.49	1,531.15	90.96	209.13	228.05	0.85	-0.81	-1.51	197.05
	NORMAL	1,647.0	10.15	67.84	1,625.74	97.33	224.26	244.46	0.68	0.64	1.41	21.39
	NORMAL	1,742.0	10.98	67.12	1,719.13	104.00	240.35	261.88	0.88	0.87	-0.76	350.61

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	NIS (ft)	EW (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
7/28/2011	NORMAL	1,838.0	10.33	67.13	1,813.47	110.90	256.70	279.63	0.68	-0.68	0.01	179.84
	NORMAL	1,933.0	10.97	62.15	1,906.84	118.44	272.54	297.16	1.18	0.67	-5.24	302.35
	NORMAL	2,028.0	10.19	62.73	2,000.22	126.51	288.00	314.56	0.83	-0.82	0.61	172.51
	NORMAL	2,123.0	10.83	65.29	2,093.63	134.09	303.58	331.87	0.83	0.67	2.69	37.38
	NORMAL	2,219.0	11.12	67.12	2,187.87	141.46	320.30	350.15	0.47	0.30	1.91	51.13
	NORMAL	2,315.0	10.55	66.72	2,282.16	148.53	336.90	368.19	0.60	-0.59	-0.42	187.32
	NORMAL	2,410.0	10.28	64.24	2,375.60	155.65	352.53	385.36	0.55	-0.28	-2.61	237.73
	NORMAL	2,506.0	10.34	66.95	2,470.05	162.75	368.17	402.54	0.51	0.06	2.82	84.28
	NORMAL	2,601.0	10.92	70.20	2,563.42	169.14	384.48	420.04	0.88	0.61	3.42	47.55
	NORMAL	2,697.0	11.33	66.38	2,657.62	176.00	401.68	438.54	0.88	0.43	-3.98	297.20
	NORMAL	2,792.0	10.86	66.64	2,750.84	183.26	418.44	456.82	0.50	-0.49	0.27	174.05
	NORMAL	2,887.0	9.77	65.06	2,844.30	190.23	433.97	473.83	1.19	-1.15	-1.66	193.77
	NORMAL	2,983.0	9.09	63.77	2,939.00	197.02	448.16	489.55	0.74	-0.71	-1.34	196.63
	NORMAL	3,079.0	9.76	63.23	3,033.71	204.03	462.22	505.25	0.70	0.70	-0.56	352.21
	NORMAL	3,174.0	9.28	69.63	3,127.40	210.33	476.59	520.94	1.22	-0.51	6.74	117.53
	NORMAL	3,270.0	10.75	70.26	3,221.94	216.05	492.28	537.60	1.54	1.53	0.66	4.57
	NORMAL	3,365.0	10.56	66.27	3,315.30	222.54	508.59	555.14	0.80	-0.20	-4.20	253.60
	NORMAL	3,460.0	10.57	66.62	3,408.69	229.50	524.55	572.56	0.07	0.01	0.37	81.31
	NORMAL	3,556.0	11.56	67.18	3,502.90	236.73	541.50	590.99	1.04	1.03	0.58	6.47
	NORMAL	3,651.0	11.16	66.08	3,596.04	244.15	558.68	609.70	0.48	-0.42	-1.16	207.90
	NORMAL	3,747.0	10.08	65.12	3,690.40	251.45	574.79	627.39	1.14	-1.13	-1.00	188.83
7/29/2011	NORMAL	3,842.0	11.04	65.77	3,783.79	258.68	590.63	644.79	1.02	1.01	0.68	7.39
	NORMAL	3,937.0	11.82	69.14	3,876.90	265.88	608.02	663.61	1.08	0.82	3.55	42.23
	NORMAL	4,032.0	11.05	68.49	3,970.02	272.68	625.58	682.42	0.82	-0.81	-0.68	189.18
	NORMAL	4,127.0	10.22	68.47	4,063.38	279.11	641.89	699.94	0.87	-0.87	-0.02	180.24
	NORMAL	4,223.0	11.13	66.16	4,157.72	285.98	658.29	717.72	1.05	0.95	-2.41	333.68
	NORMAL	4,318.0	10.25	64.96	4,251.07	293.27	674.33	735.34	0.96	-0.93	-1.26	193.61
	NORMAL	4,414.0	10.97	66.43	4,345.43	300.53	690.45	753.01	0.80	0.75	1.53	21.33
	NORMAL	4,509.0	10.39	68.29	4,438.79	307.32	706.69	770.61	0.71	-0.61	1.96	150.19
	NORMAL	4,605.0	9.52	69.40	4,533.34	313.31	722.16	787.19	0.93	-0.91	1.16	168.11
	NORMAL	4,700.0	10.12	65.87	4,626.95	319.49	737.13	803.38	0.89	0.63	-3.72	313.15
	NORMAL	4,796.0	10.33	69.06	4,721.42	326.01	752.87	820.41	0.63	0.22	3.32	71.23
	NORMAL	4,891.0	10.70	64.56	4,814.83	332.84	768.79	837.74	0.95	0.39	-4.74	292.03
	NORMAL	4,987.0	9.89	65.61	4,909.26	340.08	784.35	854.89	0.87	-0.84	1.09	167.47
	NORMAL	5,083.0	10.01	62.29	5,003.84	347.36	799.24	871.46	0.61	0.12	-3.46	280.18
	NORMAL	5,178.0	10.06	62.11	5,097.39	355.08	813.88	887.97	0.06	0.05	-0.19	327.81
	NORMAL	5,274.0	10.82	67.22	5,191.80	362.49	829.60	905.34	1.25	0.79	5.32	53.15
	NORMAL	5,369.0	10.91	70.76	5,285.10	368.91	846.31	923.22	0.71	0.09	3.73	84.06
	NORMAL	5,465.0	10.72	71.56	5,379.39	374.73	863.36	941.17	0.25	-0.20	0.83	142.08
	NORMAL	5,559.0	10.15	65.72	5,471.84	380.90	879.21	958.16	1.28	-0.61	-6.21	238.83
	NORMAL	5,655.0	9.09	57.26	5,566.49	388.48	893.30	974.10	1.84	-1.10	-8.81	229.02
	NORMAL	5,750.0	8.80	57.44	5,660.34	396.45	905.73	988.70	0.31	-0.31	0.19	174.58
	NORMAL	5,846.0	7.90	62.08	5,755.32	403.49	917.75	1,002.53	1.17	-0.94	4.83	145.46
	NORMAL	5,941.0	7.46	63.79	5,849.47	409.27	929.05	1,015.20	0.52	-0.46	1.80	153.40
	NORMAL	6,036.0	6.92	61.48	5,943.72	414.73	939.61	1,027.07	0.64	-0.57	-2.43	207.02
	NORMAL	6,132.0	5.11	58.82	6,039.19	419.70	948.35	1,037.07	1.91	-1.89	-2.77	187.43
	NORMAL	6,227.0	3.30	63.88	6,133.93	423.10	954.43	1,044.00	1.94	-1.91	5.33	170.93
	NORMAL	6,322.0	1.48	62.19	6,228.84	424.87	957.97	1,047.95	1.92	-1.92	-1.78	181.37
	NORMAL	6,418.0	1.75	0.15	6,324.81	426.92	959.07	1,049.78	1.75	0.28	-64.63	246.90
7/31/2011	NORMAL	6,513.0	1.01	352.28	6,419.78	429.20	958.96	1,050.60	0.80	-0.78	-8.28	190.45
	NORMAL	6,608.0	0.74	286.98	6,514.77	430.21	958.26	1,050.37	1.02	-0.28	-68.74	223.81
	NORMAL	6,703.0	0.32	82.86	6,609.77	430.42	957.94	1,050.16	1.10	-0.44	164.08	172.78
	NORMAL	6,797.0	0.97	123.80	6,703.77	430.01	958.86	1,050.83	0.81	0.69	43.55	57.00
	NORMAL	6,891.0	1.17	43.22	6,797.75	430.26	960.18	1,052.15	1.48	0.21	-85.72	236.01
	NORMAL	6,986.0	0.51	39.52	6,892.74	431.30	961.11	1,053.42	0.70	-0.69	-3.89	182.85
	NORMAL	7,081.0	0.65	215.80	6,987.74	431.19	961.07	1,053.33	1.22	0.15	185.56	177.92
	NORMAL	7,175.0	0.55	299.48	7,081.74	430.98	960.36	1,052.60	0.86	-0.11	89.02	137.16

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
7/31/2011	NORMAL	7,259.0	0.79	266.26	7,175.73	431.16	959.32	1,051.72	0.48	0.26	-35.34	284.37
	NORMAL	7,364.0	0.76	233.78	7,270.72	430.74	958.16	1,050.49	0.46	-0.03	-34.19	249.96
	NORMAL	7,459.0	0.29	183.56	7,365.72	430.13	957.64	1,049.76	0.65	-0.49	-52.86	201.21
	NORMAL	7,554.0	0.79	60.28	7,460.72	430.21	958.19	1,050.30	1.03	0.53	-129.77	222.39
	NORMAL	7,649.0	0.82	76.14	7,555.71	430.70	959.42	1,051.63	0.24	0.03	16.69	90.31
	NORMAL	7,744.0	0.84	105.99	7,650.70	430.67	960.75	1,052.83	0.45	0.02	31.42	102.34
	NORMAL	7,839.0	0.65	103.36	7,745.69	430.36	961.94	1,053.80	0.20	-0.20	-2.77	188.89
8/1/2011	NORMAL	7,934.0	0.59	187.17	7,840.69	429.75	962.41	1,053.98	0.87	-0.06	88.22	134.99
	NORMAL	8,029.0	1.56	193.67	7,935.67	428.00	962.04	1,052.94	1.03	1.02	6.84	10.42
	NORMAL	8,124.0	3.00	200.97	8,030.59	424.43	960.84	1,050.41	1.54	1.52	7.68	15.07
	NORMAL	8,219.0	4.51	206.74	8,125.38	418.77	958.27	1,045.78	1.64	1.59	6.07	16.94
	NORMAL	8,314.0	3.90	195.89	8,220.13	412.33	955.71	1,040.84	1.05	-0.64	-11.42	227.19
	NORMAL	8,409.0	3.63	175.77	8,314.93	406.22	955.05	1,037.78	1.41	-0.28	-21.18	248.53
	NORMAL	8,505.0	3.79	181.22	8,410.73	400.02	955.20	1,035.43	0.40	0.17	5.68	68.33
	NORMAL	8,553.0	3.83	182.28	8,458.62	396.83	955.10	1,034.05	0.17	0.08	2.21	60.94
	NORMAL	8,605.0	3.83	182.28	8,510.51	393.36	954.97	1,032.53	0.00	0.00	0.00	0.00