

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 444-20	Wellbore No.	OH
Well Name	PA 444-20	Common Name	PA 444-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	36.44 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	10/9/2011	UWI	PA 444-20
Active Datum	KB @6,255.5ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	SCIENTIFIC
Date Started	10/9/2011	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 (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
10/9/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/9/2011	NORMAL	83.0	0.35	281.95	83.00	0.05	-0.25	-0.11	0.42	0.42	0.00	281.95
	NORMAL	113.0	0.53	315.79	113.00	0.17	-0.43	-0.12	1.03	0.60	112.80	73.00
	NORMAL	144.0	0.62	7.47	144.00	0.44	-0.51	0.05	1.64	0.29	166.71	106.66
	NORMAL	174.0	0.88	55.37	173.99	0.73	-0.30	0.41	2.18	0.87	159.67	92.63
	NORMAL	205.0	1.32	52.03	204.99	1.09	0.18	0.98	1.43	1.42	-10.77	350.04
	NORMAL	235.0	2.29	43.15	234.97	1.74	0.86	1.91	3.36	3.23	-29.60	339.45
	NORMAL	265.0	2.90	30.50	264.94	2.83	1.65	3.26	2.78	2.03	-42.17	310.37
	NORMAL	295.0	3.78	29.62	294.89	4.34	2.53	4.99	2.94	2.93	-2.93	356.23
	NORMAL	325.0	4.75	31.20	324.81	6.26	3.66	7.21	3.26	3.23	5.27	7.70
	NORMAL	355.0	5.45	34.98	354.69	8.49	5.12	9.87	2.59	2.33	12.60	27.53
10/10/2011	NORMAL	386.0	5.72	36.56	385.54	10.94	6.88	12.89	1.00	0.87	5.10	30.45
	NORMAL	416.0	6.42	38.06	415.37	13.46	8.81	16.06	2.39	2.33	5.00	13.51
	NORMAL	446.0	7.13	38.50	445.16	16.24	11.00	19.60	2.37	2.37	1.47	4.40
	NORMAL	476.0	7.92	36.21	474.91	19.36	13.38	23.53	2.82	2.63	-7.63	338.07
	NORMAL	537.0	9.50	36.74	535.20	26.79	18.88	32.76	2.59	2.59	0.87	3.17
	NORMAL	628.0	10.12	37.27	624.87	39.17	28.21	48.27	0.69	0.68	0.58	8.55
	NORMAL	718.0	10.47	34.19	713.42	52.23	37.59	64.34	0.72	0.39	-3.42	300.93
	NORMAL	790.0	10.83	38.05	784.18	62.96	45.44	77.64	1.11	0.50	5.36	65.13
	NORMAL	881.0	11.47	37.35	873.46	76.89	56.20	95.24	0.72	0.70	-0.77	347.71
	NORMAL	929.0	11.41	37.56	920.51	84.45	61.99	104.75	0.15	-0.12	0.44	145.33

2.1.2 Survey Stations (Continued)

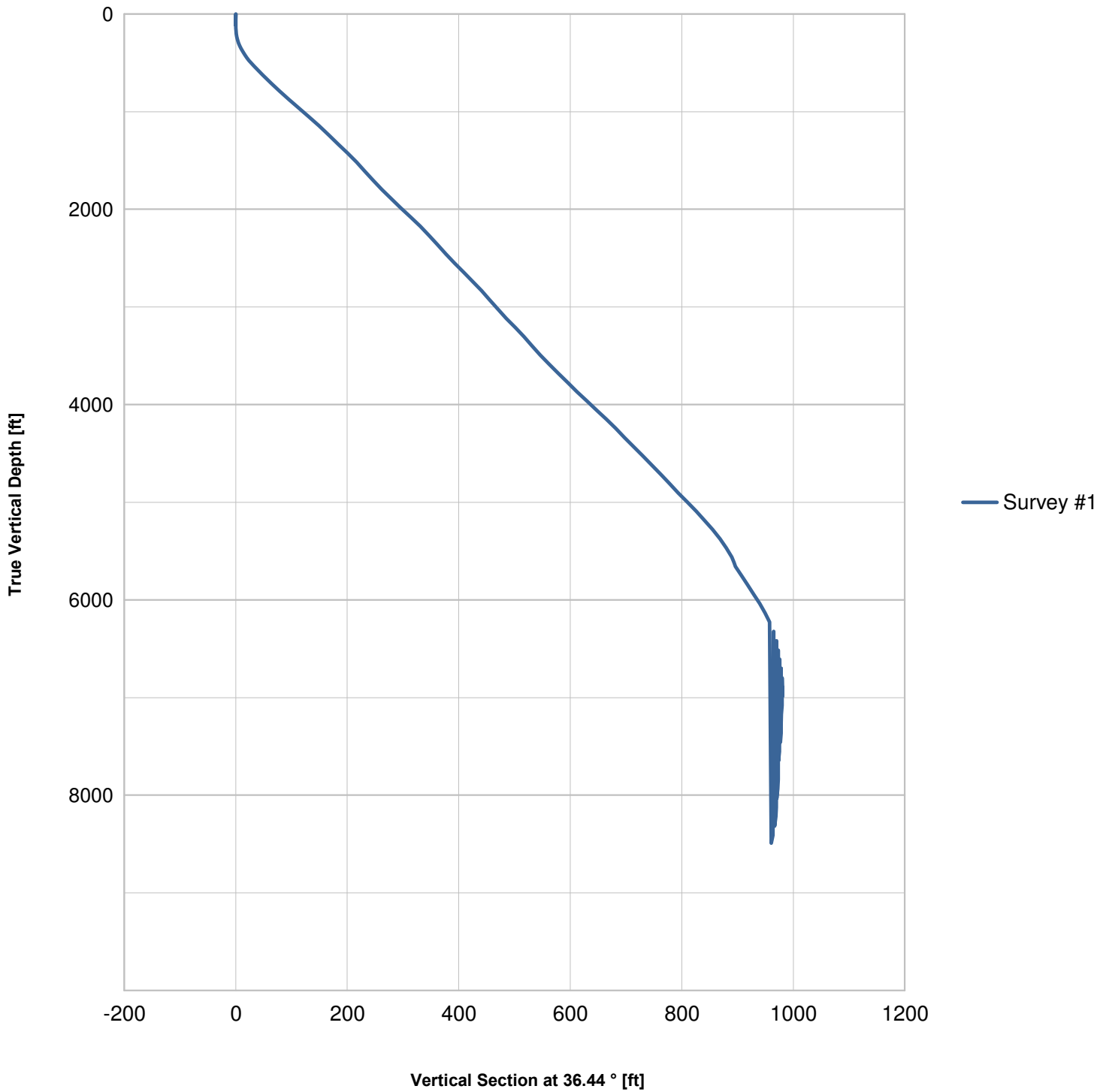
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
10/11/2011	NORMAL	1,062.0	11.27	35.83	1,050.91	105.41	77.61	130.90	0.28	-0.11	-1.30	246.78
	NORMAL	1,157.0	10.72	34.40	1,144.17	120.23	88.04	149.02	0.65	-0.58	-1.51	205.68
	NORMAL	1,252.0	10.55	36.89	1,237.54	134.48	98.25	166.54	0.52	-0.18	2.62	111.52
	NORMAL	1,349.0	10.29	38.82	1,332.94	148.33	109.01	184.08	0.45	-0.27	1.99	127.63
	NORMAL	1,442.0	10.03	38.98	1,424.48	161.10	119.32	200.47	0.28	-0.28	0.17	173.88
	NORMAL	1,537.0	9.45	37.41	1,518.11	173.72	129.26	216.53	0.67	-0.61	-1.65	203.83
	NORMAL	1,633.0	8.76	37.99	1,612.90	185.74	138.54	231.72	0.73	-0.72	0.60	172.71
	NORMAL	1,728.0	9.33	35.88	1,706.72	197.68	147.51	246.65	0.69	0.60	-2.22	328.76
	NORMAL	1,823.0	9.64	37.29	1,800.42	210.25	156.84	262.30	0.41	0.33	1.48	37.55
	NORMAL	1,917.0	10.44	42.52	1,892.98	222.79	167.37	278.64	1.29	0.85	5.56	51.33
	NORMAL	2,012.0	10.60	38.21	1,986.39	236.00	178.59	295.94	0.85	0.17	-4.54	279.37
	NORMAL	2,203.0	9.97	35.39	2,174.21	264.14	198.87	330.62	0.72	-0.71	0.65	171.04
	NORMAL	2,299.0	9.34	35.48	2,268.85	277.26	208.21	346.72	0.66	-0.66	0.09	178.67
	NORMAL	2,394.0	8.84	33.97	2,362.66	289.59	216.76	361.72	0.58	-0.53	-1.59	204.76
	NORMAL	2,585.0	9.81	38.37	2,551.12	314.61	235.04	392.71	0.63	0.47	2.45	41.92
	NORMAL	2,681.0	9.51	39.55	2,645.76	327.14	245.17	408.80	0.37	-0.31	1.23	147.16
	NORMAL	2,776.0	10.02	38.21	2,739.38	339.68	255.28	424.90	0.59	0.54	-1.41	335.32
	NORMAL	2,871.0	9.08	38.72	2,833.07	352.03	265.08	440.65	0.99	-0.99	0.54	175.11
	NORMAL	2,967.0	8.42	40.11	2,927.95	363.31	274.35	455.23	0.72	-0.69	1.45	162.92
	NORMAL	3,063.0	9.10	33.60	3,022.83	375.01	283.08	469.83	1.25	0.71	-6.78	301.20
	NORMAL	3,158.0	9.91	36.34	3,116.53	387.85	292.08	485.51	0.98	0.85	2.88	30.54
	NORMAL	3,254.0	9.50	34.93	3,211.15	401.00	301.51	501.69	0.49	-0.43	-1.47	209.41
	NORMAL	3,349.0	8.94	34.92	3,304.92	413.48	310.22	516.91	0.59	-0.59	-0.01	180.16
	NORMAL	3,444.0	8.56	34.22	3,398.82	425.38	318.43	531.35	0.42	-0.40	-0.74	195.31
	NORMAL	3,540.0	9.04	38.42	3,493.69	437.20	327.13	546.03	0.84	0.50	4.38	55.33
	NORMAL	3,635.0	9.85	36.91	3,587.40	449.54	336.65	561.61	0.89	0.85	-1.59	342.24
	NORMAL	3,731.0	10.56	34.60	3,681.88	463.35	346.58	578.61	0.85	0.74	-2.41	328.90
	NORMAL	3,826.0	10.06	34.82	3,775.35	477.33	356.26	595.61	0.53	-0.53	0.23	175.61
	NORMAL	3,921.0	10.08	34.76	3,868.88	490.97	365.73	612.21	0.02	0.02	-0.06	332.29
	NORMAL	4,016.0	10.81	36.58	3,962.31	504.95	375.78	629.43	0.84	0.77	1.92	25.22
10/11/2011	NORMAL	2,490.0	9.36	36.04	2,457.45	302.02	225.48	376.90	0.64	0.54	2.16	33.22
10/11/2011	NORMAL	2,107.0	10.65	34.77	2,079.76	250.08	189.00	313.44	0.67	0.05	-3.62	272.82
10/12/2011	NORMAL	4,111.0	10.50	37.47	4,055.67	518.98	386.36	647.00	0.37	-0.33	0.94	152.48
	NORMAL	4,206.0	10.44	33.13	4,149.09	533.06	396.33	664.24	0.83	-0.06	-4.57	263.52
	NORMAL	4,302.0	9.99	31.63	4,243.57	547.43	405.45	681.22	0.54	-0.47	-1.56	209.85
	NORMAL	4,398.0	9.79	36.02	4,338.14	561.12	414.62	697.68	0.81	-0.21	4.57	107.01
	NORMAL	4,493.0	9.75	40.48	4,431.77	573.77	424.59	713.79	0.80	-0.04	4.69	95.22
	NORMAL	4,589.0	9.63	36.12	4,526.40	586.44	434.60	729.92	0.77	-0.12	-4.54	258.57
	NORMAL	4,684.0	10.06	37.05	4,620.00	599.48	444.28	746.17	0.48	0.45	0.98	20.75
	NORMAL	4,780.0	9.48	37.21	4,714.61	612.47	454.11	762.46	0.60	-0.60	0.17	177.40
	NORMAL	4,875.0	9.24	40.04	4,808.34	624.54	463.75	777.89	0.55	-0.25	2.98	118.93
	NORMAL	4,971.0	9.74	40.01	4,903.03	636.66	473.93	793.69	0.52	0.52	-0.03	359.42
	NORMAL	5,067.0	9.89	38.51	4,997.62	649.33	484.29	810.03	0.31	0.16	-1.56	299.66
	NORMAL	5,162.0	9.32	38.17	5,091.29	661.76	494.12	825.87	0.60	-0.60	-0.36	185.52
	NORMAL	5,258.0	8.81	36.07	5,186.09	673.82	503.25	841.00	0.63	-0.53	-2.19	211.94
	NORMAL	5,353.0	8.41	35.53	5,280.02	685.35	511.57	855.22	0.43	-0.42	-0.57	191.16
	NORMAL	5,449.0	7.18	36.89	5,375.13	695.86	519.25	868.24	1.30	-1.28	1.42	172.14
	NORMAL	5,544.0	6.27	37.60	5,469.48	704.72	525.98	879.36	0.96	-0.96	0.75	175.13
	NORMAL	5,639.0	6.43	37.86	5,563.89	713.03	532.41	889.86	0.17	0.17	0.27	10.32
	NORMAL	5,693.0	1.48	28.78	5,617.75	716.03	534.61	893.58	9.21	-9.17	-16.81	182.69
	NORMAL	5,734.0	6.41	33.45	5,658.64	718.41	536.12	896.39	12.04	12.02	11.39	6.06
	NORMAL	5,830.0	6.77	33.06	5,754.01	727.62	542.16	907.39	0.38	0.38	-0.41	352.72
	NORMAL	5,925.0	6.41	40.96	5,848.38	736.32	548.70	918.27	1.03	-0.38	8.32	115.55
	NORMAL	6,020.0	6.48	37.59	5,942.78	744.57	555.44	928.91	0.40	0.07	-3.55	278.81
	NORMAL	6,116.0	6.37	37.20	6,038.18	753.11	561.97	939.66	0.12	-0.11	-0.41	201.45
	NORMAL	6,211.0	5.24	37.88	6,132.69	760.73	567.82	949.26	1.19	-1.19	0.72	176.86
	NORMAL	6,306.0	4.62	39.41	6,227.34	767.11	572.91	957.42	0.67	-0.65	1.61	168.79

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
10/12/2011	NORMAL	6,402.0	3.92	39.14	6,323.07	772.64	577.43	964.56	0.73	-0.73	-0.28	181.51
	NORMAL	6,497.0	2.26	39.42	6,417.93	776.61	580.67	969.67	1.75	-1.75	0.29	179.62
	NORMAL	6,593.0	1.48	28.78	6,513.88	779.16	582.47	972.79	0.89	-0.81	-11.08	198.74
	NORMAL	6,687.0	1.71	14.79	6,607.84	781.58	583.42	975.30	0.48	0.24	-14.88	293.45
10/13/2011	NORMAL	6,781.0	1.75	356.69	6,701.80	784.36	583.69	977.71	0.58	0.04	-19.26	265.11
	NORMAL	6,876.0	1.31	346.89	6,796.76	786.87	583.36	979.53	0.54	-0.46	-10.32	205.90
	NORMAL	6,970.0	0.47	328.56	6,890.75	788.25	582.92	980.37	0.93	-0.89	-19.50	189.71
	NORMAL	7,065.0	0.44	265.27	6,985.75	788.55	582.35	980.28	0.50	-0.03	-66.62	235.29
	NORMAL	7,159.0	0.75	232.26	7,079.74	788.14	581.50	979.45	0.48	0.33	-35.12	294.82
	NORMAL	7,253.0	1.01	260.10	7,173.73	787.62	580.20	978.25	0.52	0.28	29.62	73.12
10/14/2011	NORMAL	7,348.0	0.63	314.42	7,268.73	787.84	579.00	977.72	0.86	-0.40	57.18	141.46
	NORMAL	7,443.0	0.74	293.08	7,363.72	788.45	578.07	977.65	0.29	0.12	-22.46	282.41
	NORMAL	7,538.0	1.22	248.44	7,458.71	788.32	576.56	976.65	0.91	0.51	-46.99	278.50
	NORMAL	7,633.0	1.26	249.17	7,553.68	787.58	574.64	974.92	0.05	0.04	0.77	21.92
	NORMAL	7,729.0	0.89	231.19	7,649.67	786.73	573.08	973.31	0.52	-0.39	-18.73	213.60
	NORMAL	7,823.0	0.53	304.01	7,743.66	786.52	572.15	972.58	0.95	-0.38	77.47	145.38
	NORMAL	7,918.0	0.60	301.62	7,838.66	787.03	571.36	972.52	0.08	0.07	-2.52	340.20
	NORMAL	8,014.0	1.40	263.30	7,934.64	787.15	569.77	971.68	1.04	0.83	-39.92	299.86
	NORMAL	8,109.0	1.33	272.64	8,029.61	787.07	567.51	970.27	0.25	-0.07	9.83	112.10
	NORMAL	8,203.0	0.69	274.41	8,123.60	787.16	565.86	969.36	0.68	-0.68	1.88	178.09
	NORMAL	8,298.0	0.94	248.13	8,218.59	786.92	564.56	968.40	0.47	0.26	-27.66	290.17
	NORMAL	8,394.0	1.76	241.40	8,314.56	785.92	562.54	966.39	0.87	0.85	-7.01	345.68
	NORMAL	8,489.0	2.32	238.31	8,409.50	784.21	559.62	963.28	0.60	0.59	-3.25	347.34
	NORMAL	8,571.0	2.32	238.31	8,491.44	782.46	556.80	960.20	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

