

# 1 General

## 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

## 1.2 Well Information

Well	PA 44-20	Wellbore No.	OH
Well Name	PA 44-20	Common Name	PA 44-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	92.24 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	11/2/2011	UWI	PA 44-20
Active Datum	KB @6,255.5ft (above Mean Sea Level)		

# 2 Survey Name

## 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	11/3/2011	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 (°)
11/3/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11/3/2011	NORMAL	83.0	0.26	146.07	83.00	-0.16	0.11	0.11	0.31	0.31	0.00	146.07
	NORMAL	115.0	0.44	69.52	115.00	-0.17	0.26	0.27	1.43	0.56	-239.22	249.78
	NORMAL	146.0	0.62	109.51	146.00	-0.19	0.53	0.54	1.29	0.58	129.00	84.98
	NORMAL	176.0	1.50	98.44	175.99	-0.30	1.07	1.08	3.00	2.93	-36.90	341.33
	NORMAL	207.0	2.20	93.08	206.98	-0.39	2.07	2.08	2.32	2.26	-17.29	343.43
	NORMAL	237.0	3.26	90.97	236.94	-0.44	3.50	3.51	3.55	3.53	-7.03	353.53
	NORMAL	268.0	4.22	90.97	267.88	-0.47	5.52	5.53	3.10	3.10	0.00	0.00
	NORMAL	298.0	5.63	95.27	297.76	-0.62	8.09	8.10	4.86	4.70	14.33	16.82
	NORMAL	328.0	6.77	95.71	327.59	-0.94	11.31	11.34	3.80	3.80	1.47	2.61
	NORMAL	359.0	7.48	90.53	358.35	-1.14	15.15	15.18	3.09	2.29	-16.71	315.27
	NORMAL	389.0	8.53	90.18	388.06	-1.16	19.32	19.36	3.50	3.50	-1.17	357.17
	NORMAL	431.0	10.02	92.24	429.51	-1.31	26.09	26.12	3.63	3.55	4.90	13.58
	NORMAL	612.0	13.55	92.62	606.49	-3.30	63.79	63.87	1.40	1.38	-1.04	349.91
	NORMAL	703.0	12.20	88.45	695.21	-3.53	84.06	84.13	1.80	-1.48	-4.58	212.52
	NORMAL	793.0	11.66	89.79	783.26	-3.24	102.66	102.71	0.67	-0.60	1.49	153.50
	NORMAL	884.0	12.37	95.04	872.27	-4.06	121.56	121.63	1.43	0.78	5.77	59.58
11/3/2011	NORMAL	522.0	12.31	93.56	518.78	-2.23	43.69	43.74	2.53	2.52	1.45	7.02
11/4/2011	NORMAL	940.0	12.89	95.27	926.92	-5.16	133.76	133.86	0.93	0.93	0.41	5.64
	NORMAL	1,062.0	13.72	96.39	1,045.64	-8.02	161.69	161.88	0.71	0.68	0.92	17.80
	NORMAL	1,157.0	13.23	94.09	1,138.03	-10.05	183.73	183.98	0.76	-0.52	-2.42	226.45

2.1.2 Survey Stations (Continued)

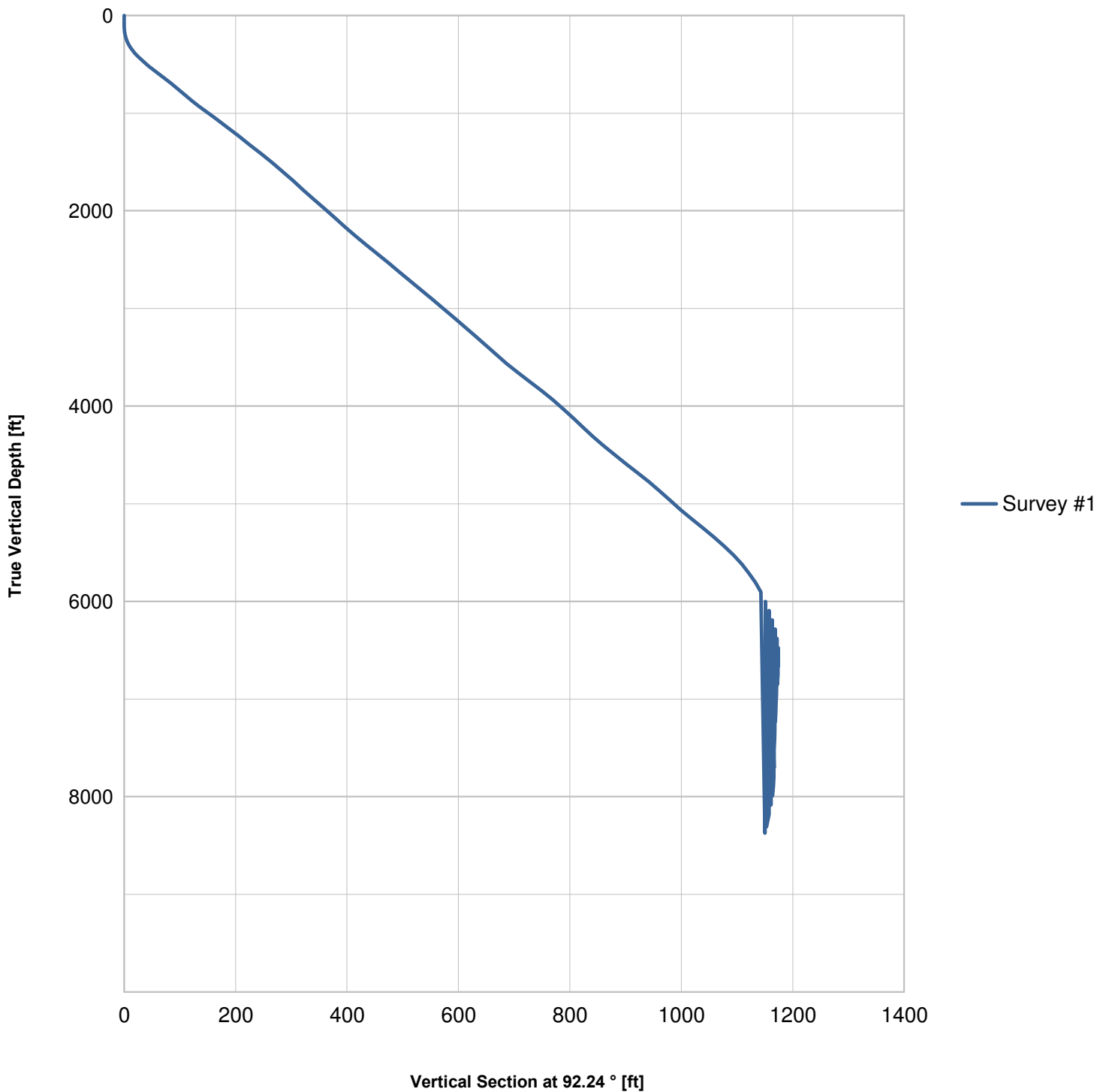
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
11/4/2011	NORMAL	1,252.0	12.47	89.78	1,230.65	-10.79	204.83	205.09	1.29	-0.80	-4.54	229.50
	NORMAL	1,347.0	12.05	90.19	1,323.48	-10.78	225.00	225.25	0.45	-0.44	0.43	168.49
	NORMAL	1,442.0	12.69	89.92	1,416.27	-10.80	245.35	245.59	0.68	0.67	-0.28	354.70
	NORMAL	1,537.0	11.78	89.79	1,509.12	-10.75	265.48	265.70	0.96	-0.96	-0.14	181.67
	NORMAL	1,632.0	11.63	90.32	1,602.14	-10.77	284.76	284.96	0.19	-0.16	0.56	144.63
	NORMAL	1,727.0	10.97	91.03	1,695.30	-10.98	303.37	303.57	0.71	-0.69	0.75	168.44
	NORMAL	1,823.0	10.93	90.82	1,789.55	-11.28	321.60	321.80	0.06	-0.04	-0.22	224.82
	NORMAL	1,917.0	11.35	90.62	1,881.78	-11.51	339.76	339.95	0.45	0.45	-0.21	354.65
	NORMAL	2,012.0	11.45	89.66	1,974.91	-11.55	358.54	358.72	0.23	0.11	-1.01	297.32
	NORMAL	2,107.0	11.00	89.85	2,068.09	-11.47	377.03	377.19	0.48	-0.47	0.20	175.39
	NORMAL	2,203.0	11.22	91.64	2,162.29	-11.72	395.53	395.68	0.43	0.23	1.86	58.35
	NORMAL	2,298.0	11.82	91.14	2,255.37	-12.17	414.49	414.65	0.64	0.63	-0.53	350.31
	NORMAL	2,394.0	12.02	92.35	2,349.30	-12.78	434.31	434.48	0.33	0.21	1.26	51.92
	NORMAL	2,489.0	12.13	93.81	2,442.20	-13.85	454.15	454.35	0.34	0.12	1.54	70.91
	NORMAL	2,585.0	12.01	95.77	2,536.08	-15.52	474.16	474.40	0.44	-0.12	2.04	107.28
11/5/2011	NORMAL	2,680.0	12.02	96.34	2,629.00	-17.61	493.82	494.13	0.13	0.01	0.60	85.46
	NORMAL	2,776.0	12.05	94.07	2,722.89	-19.42	513.75	514.12	0.49	0.03	-2.36	272.52
	NORMAL	2,871.0	11.68	94.57	2,815.86	-20.89	533.23	533.64	0.40	-0.39	0.53	164.72
	NORMAL	2,967.0	12.07	94.32	2,909.81	-22.42	552.92	553.38	0.41	0.41	-0.26	352.36
	NORMAL	3,063.0	12.01	90.60	3,003.70	-23.28	572.92	573.39	0.81	-0.06	-3.87	263.76
	NORMAL	3,158.0	11.70	91.45	3,096.67	-23.63	592.43	592.90	0.37	-0.33	0.89	151.02
	NORMAL	3,254.0	11.45	91.90	3,190.72	-24.19	611.69	612.17	0.28	-0.26	0.47	160.36
	NORMAL	3,349.0	11.08	92.62	3,283.89	-24.92	630.23	630.72	0.42	-0.39	0.76	159.54
	NORMAL	3,444.0	11.16	93.17	3,377.10	-25.85	648.53	649.04	0.14	0.08	0.58	53.25
	NORMAL	3,539.0	10.97	92.51	3,470.34	-26.75	666.74	667.27	0.24	-0.20	-0.69	213.37
	NORMAL	3,635.0	12.02	91.51	3,564.41	-27.42	685.86	686.40	1.11	1.09	-1.04	348.76
	NORMAL	3,731.0	12.45	92.26	3,658.23	-28.09	706.19	706.75	0.48	0.45	0.78	20.65
	NORMAL	3,825.0	13.13	92.45	3,749.90	-28.94	726.98	727.56	0.72	0.72	0.20	3.63
	NORMAL	3,921.0	12.59	94.61	3,843.49	-30.25	748.30	748.92	0.75	-0.56	2.25	139.37
	NORMAL	4,016.0	11.85	94.42	3,936.34	-31.84	768.35	769.01	0.78	-0.78	-0.20	183.02
	NORMAL	4,111.0	11.23	94.69	4,029.41	-33.34	787.30	788.00	0.66	-0.65	0.28	175.15
	NORMAL	4,206.0	10.53	92.23	4,122.71	-34.44	805.19	805.92	0.88	-0.74	-2.59	212.35
	NORMAL	4,301.0	10.40	90.43	4,216.13	-34.84	822.44	823.17	0.37	-0.14	-1.89	247.43
	NORMAL	4,398.0	11.23	89.85	4,311.40	-34.88	840.64	841.36	0.86	0.86	-0.60	352.24
	NORMAL	4,493.0	11.71	90.21	4,404.51	-34.89	859.53	860.24	0.51	0.51	0.38	8.66
	NORMAL	4,589.0	12.55	91.23	4,498.36	-35.15	879.70	880.40	0.90	0.88	1.06	14.81
	NORMAL	4,684.0	12.65	92.41	4,591.07	-35.81	900.41	901.12	0.29	0.11	1.24	69.35
	NORMAL	4,780.0	12.50	94.11	4,684.77	-37.00	921.28	922.02	0.42	-0.16	1.77	112.89
	NORMAL	4,875.0	12.02	92.82	4,777.60	-38.22	941.41	942.19	0.58	-0.51	-1.36	209.08
	NORMAL	4,971.0	11.12	90.38	4,871.65	-38.77	960.65	961.43	1.07	-0.94	-2.54	207.34
11/6/2011	NORMAL	5,067.0	10.87	90.18	4,965.89	-38.86	978.96	979.73	0.26	-0.26	-0.21	188.58
	NORMAL	5,162.0	11.68	89.11	5,059.06	-38.74	997.53	998.29	0.88	0.85	-1.13	344.99
	NORMAL	5,258.0	11.98	89.29	5,153.02	-38.47	1,017.21	1,017.94	0.31	0.31	0.19	7.10
	NORMAL	5,353.0	12.11	91.69	5,245.93	-38.64	1,037.03	1,037.75	0.54	0.14	2.53	76.62
	NORMAL	5,448.0	11.85	93.37	5,338.86	-39.51	1,056.73	1,057.47	0.46	-0.27	1.77	127.53
	NORMAL	5,543.0	11.03	92.31	5,431.97	-40.45	1,075.55	1,076.31	0.89	-0.86	-1.12	193.86
	NORMAL	5,639.0	9.79	90.24	5,526.39	-40.85	1,092.89	1,093.65	1.35	-1.29	-2.16	195.77
	NORMAL	5,734.0	8.38	92.14	5,620.19	-41.14	1,107.88	1,108.64	1.52	-1.48	2.00	168.92
	NORMAL	5,830.0	7.41	91.72	5,715.28	-41.59	1,121.06	1,121.83	1.01	-1.01	-0.44	183.20
	NORMAL	5,925.0	6.12	93.05	5,809.62	-42.04	1,132.24	1,133.02	1.37	-1.36	1.40	173.74
	NORMAL	6,020.0	5.34	91.89	5,904.14	-42.46	1,141.72	1,142.50	0.83	-0.82	-1.22	187.87
11/7/2011	NORMAL	6,116.0	4.44	88.15	5,999.79	-42.49	1,149.90	1,150.68	0.99	-0.94	-3.90	197.65
	NORMAL	6,211.0	3.81	75.81	6,094.55	-41.59	1,156.63	1,157.37	1.14	-0.66	-12.99	228.59
	NORMAL	6,306.0	3.68	61.82	6,189.35	-39.38	1,162.38	1,163.03	0.97	-0.14	-14.73	254.96
	NORMAL	6,401.0	3.23	56.25	6,284.18	-36.45	1,167.29	1,167.82	0.59	-0.47	-5.86	213.96
	NORMAL	6,497.0	1.88	67.28	6,380.08	-34.34	1,170.99	1,171.44	1.49	-1.41	11.49	165.44
	NORMAL	6,592.0	0.74	103.81	6,475.05	-33.89	1,173.03	1,173.45	1.43	-1.20	38.45	161.08

## 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 (°)
11/7/2011	NORMAL	6,687.0	0.69	182.36	6,570.05	-34.61	1,173.60	1,174.05	0.95	-0.05	82.68	131.72
	NORMAL	6,781.0	1.11	199.75	6,664.04	-36.03	1,173.27	1,173.78	0.53	0.45	18.50	41.93
	NORMAL	6,875.0	0.55	279.28	6,758.03	-36.81	1,172.51	1,173.06	1.22	-0.60	84.61	151.83
	NORMAL	6,970.0	0.93	251.96	6,853.02	-36.98	1,171.33	1,171.88	0.54	0.40	-28.76	302.91
	NORMAL	7,064.0	0.70	246.01	6,947.01	-37.45	1,170.08	1,170.65	0.26	-0.24	-6.33	197.24
	NORMAL	7,159.0	0.41	274.23	7,042.01	-37.66	1,169.21	1,169.79	0.41	-0.31	29.71	150.22
	NORMAL	7,253.0	0.53	287.33	7,136.00	-37.50	1,168.46	1,169.04	0.17	0.13	13.94	48.52
11/8/2011	NORMAL	7,348.0	0.40	298.32	7,231.00	-37.22	1,167.75	1,168.31	0.17	-0.14	11.57	150.96
	NORMAL	7,443.0	0.44	313.27	7,326.00	-36.81	1,167.19	1,167.74	0.12	0.04	15.74	77.53
	NORMAL	7,538.0	0.53	257.00	7,421.00	-36.66	1,166.50	1,167.04	0.49	0.09	-59.23	251.71
	NORMAL	7,633.0	0.86	205.72	7,515.99	-37.40	1,165.76	1,166.33	0.71	0.35	-53.98	270.68
	NORMAL	7,728.0	0.64	185.72	7,610.98	-38.57	1,165.40	1,166.02	0.36	-0.23	-21.05	220.25
	NORMAL	7,823.0	0.28	168.19	7,705.98	-39.32	1,165.39	1,166.04	0.40	-0.38	-18.45	192.74
	NORMAL	7,918.0	0.28	218.52	7,800.98	-39.73	1,165.30	1,165.96	0.25	0.00	52.98	115.16
	NORMAL	8,013.0	2.14	208.99	7,895.95	-41.47	1,164.29	1,165.02	1.96	1.96	-10.03	349.05
	NORMAL	8,108.0	2.51	211.80	7,990.87	-44.78	1,162.34	1,163.20	0.41	0.39	2.96	18.53
	NORMAL	8,203.0	2.55	232.06	8,085.78	-47.85	1,159.57	1,160.56	0.94	0.04	21.33	97.59
	NORMAL	8,298.0	2.34	249.30	8,180.70	-49.84	1,156.09	1,157.16	0.80	-0.22	18.15	114.43
11/9/2011	NORMAL	8,393.0	2.18	257.44	8,275.62	-50.92	1,152.52	1,153.63	0.38	-0.17	8.57	120.52
	NORMAL	8,427.0	2.39	248.80	8,309.60	-51.31	1,151.22	1,152.35	1.18	0.62	-25.41	297.00
	NORMAL	8,489.0	2.39	248.08	8,371.54	-52.26	1,148.82	1,149.98	0.05	0.00	-1.16	269.64

### 3 Charts

#### 3.1 Vertical Section View



3.2 Plan View

