

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 24-20	Wellbore No.	OH
Well Name	PA 24-20	Common Name	PA 24-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	275.20 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	10/25/2011	UWI	PA 24-20
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	10/25/2011	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 (°)
10/25/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/25/2011	NORMAL	83.0	0.18	49.31	83.00	0.09	0.10	-0.09	0.22	0.22	0.00	49.31
	NORMAL	174.0	2.82	278.35	173.96	0.50	-2.01	2.05	3.23	2.90	-143.91	226.39
	NORMAL	267.0	5.98	281.34	266.68	1.79	-9.02	9.15	3.41	3.40	3.22	5.64
	NORMAL	358.0	8.89	276.06	356.91	3.46	-20.67	20.89	3.28	3.20	-5.80	344.16
	NORMAL	449.0	11.26	273.87	446.50	4.81	-36.52	36.81	2.64	2.60	-2.41	349.74
	NORMAL	522.0	13.70	272.23	517.77	5.62	-52.28	52.57	3.38	3.34	-2.25	350.93
	NORMAL	612.0	16.63	276.53	604.62	7.50	-75.73	76.09	3.49	3.26	4.78	23.09
	NORMAL	703.0	19.64	276.36	691.09	10.68	-103.87	104.41	3.31	3.31	-0.19	358.91
	NORMAL	793.0	22.76	275.22	774.99	13.94	-136.25	136.95	3.50	3.47	-1.27	351.94
	NORMAL	883.0	25.12	273.82	857.25	16.80	-172.65	173.46	2.70	2.62	-1.56	345.82
	NORMAL	974.0	26.77	272.43	939.07	18.95	-212.40	213.24	1.93	1.81	-1.53	339.14
10/27/2011	NORMAL	1,065.0	27.23	272.83	1,020.15	20.85	-253.67	254.51	0.54	0.51	0.44	21.72
	NORMAL	1,160.0	27.50	274.93	1,104.52	23.81	-297.23	298.16	1.06	0.28	2.21	75.31
	NORMAL	1,255.0	27.87	275.86	1,188.65	27.96	-341.17	342.30	0.60	0.39	0.98	49.84
	NORMAL	1,350.0	26.18	275.48	1,273.27	32.23	-384.12	385.46	1.79	-1.78	-0.40	185.66
	NORMAL	1,445.0	25.24	276.80	1,358.87	36.63	-425.10	426.67	1.16	-0.99	1.39	149.24
	NORMAL	1,540.0	24.07	276.57	1,445.21	41.24	-464.46	466.28	1.24	-1.23	-0.24	184.58
	NORMAL	1,635.0	24.24	277.11	1,531.89	45.87	-503.05	505.14	0.29	0.18	0.57	52.67
	NORMAL	1,730.0	23.79	274.49	1,618.67	49.79	-541.51	543.79	1.22	-0.47	-2.76	245.93
	NORMAL	1,826.0	24.75	275.65	1,706.18	53.28	-580.81	583.25	1.12	1.00	1.21	26.94

2.1.2 Survey Stations (Continued)

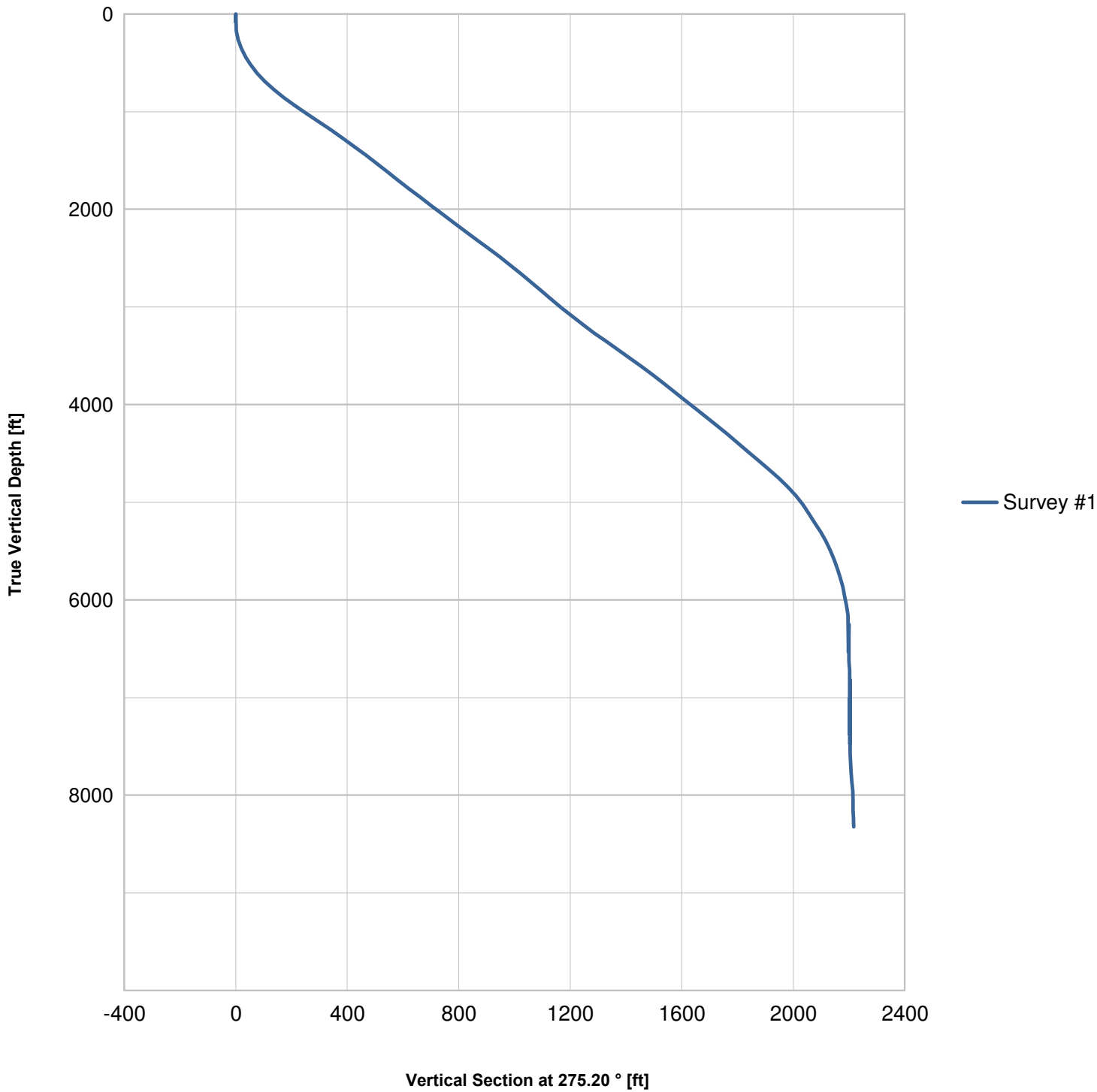
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
10/27/2011	NORMAL	1,920.0	24.28	273.96	1,791.71	56.55	-619.67	622.25	0.90	-0.50	-1.80	235.40
	NORMAL	2,014.0	24.87	275.55	1,877.19	59.80	-658.63	661.34	0.94	0.63	1.69	48.98
	NORMAL	2,110.0	24.32	274.05	1,964.49	63.15	-698.44	701.29	0.87	-0.57	-1.56	227.94
	NORMAL	2,206.0	24.98	271.75	2,051.74	65.16	-738.42	741.29	1.21	0.69	-2.40	303.48
	NORMAL	2,301.0	25.53	275.52	2,137.66	67.74	-778.85	781.78	1.79	0.58	3.97	72.83
	NORMAL	2,397.0	25.52	277.86	2,224.30	72.56	-819.93	823.13	1.05	-0.01	2.44	91.62
	NORMAL	2,492.0	25.14	277.76	2,310.16	78.09	-860.19	863.73	0.40	-0.40	-0.11	186.38
	NORMAL	2,588.0	25.02	277.12	2,397.11	83.36	-900.54	904.39	0.31	-0.12	-0.67	245.85
	NORMAL	2,683.0	24.99	276.53	2,483.21	88.13	-940.42	944.53	0.26	-0.03	-0.62	262.87
	NORMAL	2,779.0	23.72	274.59	2,570.66	91.98	-979.81	984.12	1.56	-1.32	-2.02	211.33
	NORMAL	2,874.0	23.53	276.74	2,657.70	95.73	-1,017.69	1,022.18	0.93	-0.20	2.26	103.42
	NORMAL	2,970.0	22.39	277.01	2,746.10	100.21	-1,054.87	1,059.61	1.19	-1.19	0.28	174.85
	NORMAL	3,066.0	22.03	275.73	2,834.97	104.24	-1,090.93	1,095.89	0.63	-0.38	-1.33	232.76
	NORMAL	3,161.0	22.63	277.11	2,922.85	108.28	-1,126.80	1,131.97	0.84	0.63	1.45	41.79
	NORMAL	3,257.0	23.89	273.48	3,011.05	111.75	-1,164.53	1,169.87	1.99	1.31	-3.78	309.64
	NORMAL	3,353.0	24.08	274.03	3,098.76	114.31	-1,203.47	1,208.88	0.31	0.20	0.57	49.89
	NORMAL	3,447.0	23.81	275.98	3,184.67	117.63	-1,241.47	1,247.02	0.89	-0.29	2.07	109.73
	NORMAL	3,542.0	26.06	275.04	3,270.81	121.46	-1,281.33	1,287.07	2.40	2.37	-0.99	349.58
	NORMAL	3,638.0	26.50	275.15	3,356.89	125.24	-1,323.67	1,329.57	0.46	0.46	0.11	6.37
	NORMAL	3,734.0	26.57	275.66	3,442.78	129.28	-1,366.37	1,372.46	0.25	0.07	0.53	73.15
	NORMAL	3,828.0	26.31	273.37	3,526.95	132.58	-1,408.08	1,414.31	1.12	-0.28	-2.44	254.67
10/28/2011	NORMAL	3,924.0	25.92	272.74	3,613.15	134.83	-1,450.28	1,456.53	0.50	-0.41	-0.66	215.13
	NORMAL	4,019.0	24.63	274.62	3,699.05	137.42	-1,490.75	1,497.07	1.60	-1.36	1.98	148.96
	NORMAL	4,114.0	24.08	279.56	3,785.61	142.23	-1,529.60	1,536.20	2.22	-0.58	5.20	107.35
	NORMAL	4,209.0	23.73	278.57	3,872.46	148.30	-1,567.61	1,574.60	0.56	-0.37	-1.04	228.45
	NORMAL	4,305.0	23.83	278.74	3,960.31	154.12	-1,605.88	1,613.24	0.13	0.10	0.18	34.51
	NORMAL	4,401.0	24.03	276.55	4,048.06	159.30	-1,644.47	1,652.14	0.95	0.21	-2.28	281.69
	NORMAL	4,496.0	23.57	274.79	4,134.98	163.09	-1,682.62	1,690.47	0.89	-0.48	-1.85	236.27
	NORMAL	4,592.0	23.25	276.29	4,223.08	166.77	-1,720.58	1,728.61	0.70	-0.33	1.56	118.92
	NORMAL	4,687.0	23.00	276.13	4,310.44	170.81	-1,757.67	1,765.91	0.27	-0.26	-0.17	194.04
	NORMAL	4,783.0	22.44	275.49	4,398.99	174.56	-1,794.55	1,802.99	0.64	-0.58	-0.67	203.52
	NORMAL	4,878.0	22.63	272.71	4,486.74	177.16	-1,830.86	1,839.38	1.14	0.20	-2.93	278.83
	NORMAL	4,974.0	22.27	273.21	4,575.47	179.05	-1,867.47	1,876.01	0.42	-0.38	0.52	152.29
	NORMAL	5,070.0	21.98	273.42	4,664.40	181.14	-1,903.57	1,912.15	0.31	-0.30	0.22	164.84
	NORMAL	5,165.0	21.50	274.65	4,752.64	183.62	-1,938.67	1,947.33	0.70	-0.51	1.29	137.06
	NORMAL	5,261.0	19.59	281.82	4,842.55	188.34	-1,971.96	1,980.91	3.29	-1.99	7.47	130.52
	NORMAL	5,356.0	16.64	286.27	4,932.83	195.42	-2,000.61	2,010.09	3.43	-3.11	4.68	156.97
	NORMAL	5,451.0	14.14	291.93	5,024.42	203.56	-2,024.44	2,034.56	3.07	-2.63	5.96	151.71
	NORMAL	5,546.0	12.63	283.58	5,116.85	210.34	-2,045.30	2,055.95	2.58	-1.59	-8.79	227.99
	NORMAL	5,642.0	12.55	271.51	5,210.56	213.07	-2,065.94	2,076.74	2.74	-0.08	-12.57	262.37
	NORMAL	5,737.0	12.63	269.25	5,303.27	213.21	-2,086.64	2,097.37	0.53	0.08	-2.38	278.12
10/29/2011	NORMAL	5,833.0	9.81	275.19	5,397.43	213.81	-2,105.28	2,116.00	3.17	-2.94	6.19	160.61
	NORMAL	5,928.0	9.03	276.01	5,491.15	215.33	-2,120.76	2,131.54	0.83	-0.82	0.86	170.64
	NORMAL	6,023.0	7.70	273.78	5,585.14	216.53	-2,134.52	2,145.36	1.44	-1.40	-2.35	192.61
	NORMAL	6,119.0	6.71	269.90	5,680.38	216.94	-2,146.55	2,157.38	1.15	-1.03	-4.04	204.26
	NORMAL	6,214.0	5.99	269.02	5,774.79	216.85	-2,157.05	2,167.83	0.76	-0.76	-0.93	187.26
	NORMAL	6,309.0	5.07	281.84	5,869.36	217.62	-2,166.12	2,176.93	1.62	-0.97	13.49	132.94
	NORMAL	6,404.0	4.22	278.56	5,964.04	219.00	-2,173.68	2,184.59	0.94	-0.89	-3.45	195.72
10/30/2011	NORMAL	6,500.0	3.68	291.09	6,059.82	220.64	-2,180.05	2,191.08	1.06	-0.56	13.05	128.18
	NORMAL	6,595.0	2.86	294.17	6,154.66	222.71	-2,185.06	2,196.25	0.88	-0.86	3.24	169.44
	NORMAL	6,690.0	1.24	246.58	6,249.60	223.27	-2,188.16	2,199.39	2.34	-1.71	-50.09	204.35
	NORMAL	6,784.0	2.08	158.62	6,343.57	221.27	-2,188.48	2,199.52	2.54	0.89	-93.57	240.72
	NORMAL	6,878.0	2.10	169.80	6,437.51	217.99	-2,187.55	2,198.30	0.43	0.02	11.89	92.79
	NORMAL	6,973.0	1.62	202.75	6,532.46	215.04	-2,187.76	2,198.25	1.21	-0.51	34.68	130.04
	NORMAL	7,067.0	1.69	256.40	6,626.43	213.49	-2,189.62	2,199.96	1.59	0.07	57.07	114.42
	NORMAL	7,162.0	1.86	321.81	6,721.39	214.37	-2,191.94	2,202.34	2.02	0.18	68.85	118.43
	NORMAL	7,256.0	2.48	2.67	6,815.33	217.60	-2,192.79	2,203.48	1.73	0.66	43.47	89.43

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 (°)
10/31/2011	NORMAL	7,351.0	2.12	5.45	6,910.25	221.40	-2,192.52	2,203.57	0.40	-0.38	2.93	164.17
	NORMAL	7,446.0	1.14	29.30	7,005.22	223.98	-2,191.89	2,203.17	1.23	-1.03	25.11	156.84
	NORMAL	7,541.0	0.21	81.86	7,100.21	224.83	-2,191.26	2,202.62	1.08	-0.98	55.33	170.65
	NORMAL	7,636.0	0.39	167.57	7,195.21	224.54	-2,191.02	2,202.35	0.45	0.19	90.22	114.94
	NORMAL	7,731.0	0.73	201.54	7,290.20	223.66	-2,191.17	2,202.42	0.49	0.36	35.76	62.16
	NORMAL	7,826.0	1.37	194.20	7,385.19	221.99	-2,191.67	2,202.77	0.69	0.67	-7.73	344.45
	NORMAL	7,921.0	0.75	207.18	7,480.17	220.34	-2,192.23	2,203.18	0.70	-0.65	13.66	165.23
	NORMAL	8,016.0	0.80	244.04	7,575.16	219.50	-2,193.11	2,203.98	0.52	0.05	38.80	102.90
	NORMAL	8,111.0	1.60	230.36	7,670.14	218.36	-2,194.73	2,205.49	0.89	0.84	-14.40	333.37
	NORMAL	8,206.0	1.93	237.25	7,765.10	216.65	-2,197.10	2,207.69	0.41	0.35	7.25	36.22
	NORMAL	8,301.0	1.76	255.62	7,860.05	215.42	-2,199.86	2,210.33	0.64	-0.18	19.34	115.09
	NORMAL	8,396.0	1.93	258.08	7,955.00	214.73	-2,202.83	2,213.23	0.20	0.18	2.59	26.21
11/1/2011	NORMAL	8,765.0	3.16	202.02	8,323.71	205.77	-2,207.50	2,217.06	0.00	0.00	0.00	0.00
11/1/2011	NORMAL	8,492.0	1.40	22.90	8,050.98	215.47	-2,203.96	2,214.42	3.08	-0.55	130.02	157.16
	NORMAL	8,588.0	2.63	198.76	8,146.95	214.47	-2,204.21	2,214.58	4.20	1.28	183.19	177.30
	NORMAL	8,683.0	3.14	200.41	8,241.83	209.97	-2,205.82	2,215.77	0.54	0.54	1.74	10.07
	NORMAL	8,703.0	3.16	202.02	8,261.80	208.94	-2,206.22	2,216.07	0.45	0.10	8.05	78.07

3 Charts

3.1 Vertical Section View



3.2 Plan View

