

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 333-20	Wellbore No.	OH
Well Name	PA 333-20	Common Name	PA 333-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	307.92 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	9/22/2011	UWI	PA 333-20
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	9/22/2011	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)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
9/22/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/22/2011	NORMAL	83.0	0.44	268.33	83.00	-0.01	-0.32	0.25	0.53	0.53	0.00	268.33
	NORMAL	113.0	0.26	262.18	113.00	-0.02	-0.50	0.38	0.61	-0.60	-20.50	188.73
	NORMAL	174.0	0.62	355.61	174.00	0.26	-0.51	0.56	1.40	1.16	-112.84	304.90
	NORMAL	204.0	1.50	312.19	203.99	0.68	-0.81	1.06	3.78	2.93	-144.73	294.49
	NORMAL	235.0	2.64	311.92	234.97	1.43	-1.65	2.18	3.68	3.68	-0.87	359.37
	NORMAL	265.0	3.61	314.47	264.93	2.55	-2.83	3.81	3.27	3.23	8.50	9.43
	NORMAL	296.0	4.13	317.90	295.86	4.07	-4.28	5.87	1.84	1.68	11.06	25.72
	NORMAL	326.0	4.93	318.94	325.76	5.84	-5.85	8.20	2.68	2.67	3.47	6.38
	NORMAL	357.0	5.98	317.64	356.62	8.04	-7.81	11.10	3.41	3.39	-4.19	352.64
	NORMAL	387.0	6.86	315.62	386.43	10.47	-10.12	14.42	3.03	2.93	-6.73	344.60
	NORMAL	418.0	7.65	312.28	417.18	13.18	-12.94	18.31	2.89	2.55	-10.77	330.24
	NORMAL	448.0	8.71	311.22	446.88	16.02	-16.13	22.57	3.57	3.53	-3.53	351.38
	NORMAL	478.0	9.68	309.54	476.49	19.13	-19.78	27.36	3.35	3.23	-5.60	343.70
	NORMAL	508.0	10.29	311.66	506.04	22.51	-23.73	32.55	2.37	2.03	7.07	32.12
	NORMAL	539.0	10.82	313.42	536.51	26.35	-27.91	38.21	2.00	1.71	5.68	32.18
	NORMAL	569.0	11.52	315.00	565.95	30.41	-32.07	43.99	2.55	2.33	5.27	24.39
	NORMAL	599.0	12.49	312.45	595.29	34.72	-36.59	50.20	3.68	3.23	-8.50	330.08
	NORMAL	630.0	13.37	313.15	625.50	39.43	-41.67	57.11	2.88	2.84	2.26	10.43
	NORMAL	660.0	14.08	310.52	654.65	44.17	-46.98	64.21	3.15	2.37	-8.77	317.41
	NORMAL	690.0	14.87	308.58	683.69	48.94	-52.76	71.70	3.09	2.63	-6.47	327.52

2.1.2 Survey Stations (Continued)

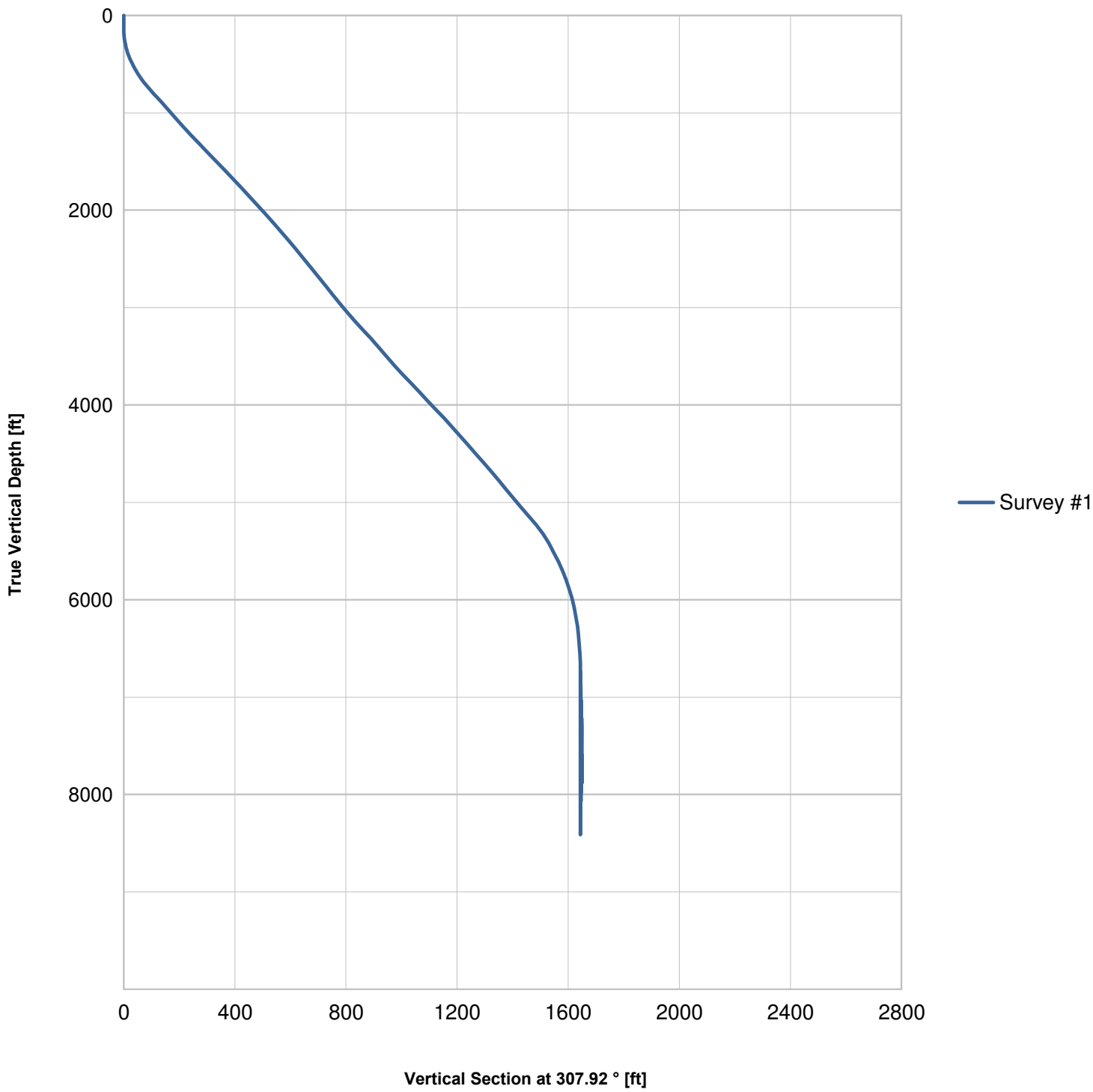
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
9/22/2011	NORMAL	143.0	0.26	30.59	143.00	0.03	-0.53	0.44	1.56	0.00	428.03	154.20
9/23/2011	NORMAL	721.0	15.75	308.06	713.59	54.02	-59.18	79.89	2.87	2.84	-1.68	350.88
	NORMAL	812.0	17.95	306.39	800.68	69.95	-80.20	106.26	2.48	2.42	-1.84	346.79
	NORMAL	904.0	18.65	305.24	888.03	86.85	-103.63	135.12	0.86	0.76	-1.25	332.17
	NORMAL	963.0	17.60	306.74	944.10	97.63	-118.48	153.47	1.95	-1.78	2.54	156.75
	NORMAL	1,069.0	16.23	307.44	1,045.51	116.22	-143.08	184.30	1.31	-1.29	0.66	171.88
	NORMAL	1,164.0	18.10	308.67	1,136.28	133.52	-165.15	212.34	2.01	1.97	1.29	11.57
	NORMAL	1,259.0	17.99	308.10	1,226.61	151.79	-188.22	241.76	0.22	-0.12	-0.60	237.81
	NORMAL	1,354.0	18.21	307.28	1,316.90	169.83	-211.57	271.28	0.35	0.23	-0.86	310.42
	NORMAL	1,449.0	18.48	308.12	1,407.08	188.12	-235.23	301.17	0.40	0.28	0.88	44.80
9/24/2011	NORMAL	1,544.0	18.95	307.68	1,497.05	206.84	-259.28	331.66	0.52	0.49	-0.46	343.07
	NORMAL	1,639.0	18.63	305.95	1,586.99	225.18	-283.77	362.25	0.68	-0.34	-1.82	239.32
	NORMAL	1,735.0	18.41	305.47	1,678.02	242.98	-308.53	392.72	0.28	-0.23	-0.50	214.50
	NORMAL	1,830.0	17.98	308.82	1,768.27	260.88	-332.17	422.37	1.19	-0.45	3.53	113.93
	NORMAL	2,019.0	17.91	308.62	1,948.16	296.85	-377.65	480.35	0.24	0.13	0.68	59.25
	NORMAL	2,114.0	17.62	307.02	2,038.63	314.63	-400.54	509.33	0.60	-0.31	-1.68	238.53
	NORMAL	2,210.0	17.32	310.59	2,130.20	332.67	-423.00	538.14	1.16	-0.31	3.72	107.34
	NORMAL	2,305.0	17.06	310.64	2,220.96	350.95	-444.31	566.18	0.27	-0.27	0.05	176.77
	NORMAL	2,496.0	15.92	309.95	2,403.98	386.13	-486.07	620.74	0.85	-0.85	0.02	179.61
	NORMAL	2,592.0	15.83	308.23	2,496.32	402.69	-506.44	647.00	0.50	-0.09	-1.79	258.34
	NORMAL	2,687.0	16.12	306.74	2,587.65	418.60	-527.19	673.14	0.53	0.31	-1.57	304.55
	NORMAL	2,783.0	15.35	303.52	2,680.06	433.59	-548.47	699.13	1.21	-0.80	-3.35	227.05
	NORMAL	2,878.0	15.78	304.09	2,771.57	447.77	-569.65	724.56	0.48	0.45	0.60	19.85
	NORMAL	2,974.0	16.13	305.33	2,863.87	462.80	-591.34	750.90	0.51	0.36	1.29	44.84
	NORMAL	3,070.0	16.22	306.48	2,956.08	478.48	-613.00	777.63	0.35	0.09	1.20	74.86
	NORMAL	3,165.0	16.21	306.26	3,047.30	494.21	-634.36	804.15	0.07	-0.01	-0.23	260.65
	NORMAL	3,261.0	17.98	308.25	3,139.05	511.31	-656.80	832.36	1.94	1.84	2.07	19.24
	NORMAL	3,356.0	17.41	307.81	3,229.56	529.10	-679.54	861.24	0.62	-0.60	-0.46	192.99
	NORMAL	3,451.0	17.61	310.41	3,320.16	547.13	-701.71	889.81	0.85	0.21	2.74	76.90
	NORMAL	3,547.0	16.81	309.45	3,411.86	565.37	-723.49	918.19	0.88	-0.83	-1.00	199.09
	NORMAL	3,642.0	16.82	309.37	3,502.80	582.81	-744.72	945.66	0.03	0.01	-0.08	293.33
	NORMAL	3,738.0	17.76	310.15	3,594.46	601.06	-766.65	974.18	1.01	0.98	0.81	14.23
	NORMAL	3,833.0	18.44	305.10	3,684.76	619.05	-790.02	1,003.67	1.80	0.72	-5.32	291.02
	NORMAL	3,928.0	18.37	306.53	3,774.90	636.60	-814.34	1,033.64	0.48	-0.07	1.51	99.49
	NORMAL	4,023.0	18.04	308.47	3,865.15	654.66	-837.89	1,063.31	0.73	-0.35	2.04	119.49
	NORMAL	4,118.0	18.20	308.75	3,955.44	673.10	-860.98	1,092.86	0.19	0.17	0.29	28.69
	NORMAL	4,213.0	18.49	308.81	4,045.61	691.82	-884.28	1,122.75	0.31	0.31	0.06	3.75
	NORMAL	4,309.0	18.41	307.17	4,136.67	710.52	-908.23	1,153.13	0.55	-0.08	-1.71	260.46
	NORMAL	4,405.0	17.69	308.91	4,227.95	728.84	-931.66	1,182.87	0.94	-0.75	1.81	144.00
	NORMAL	4,500.0	17.17	308.58	4,318.59	746.65	-953.85	1,211.33	0.56	-0.55	-0.35	190.61
	NORMAL	4,596.0	16.68	307.64	4,410.43	763.90	-975.84	1,239.27	0.58	-0.51	-0.98	208.73
	NORMAL	4,691.0	17.27	306.75	4,501.29	780.67	-997.93	1,267.01	0.68	0.62	-0.94	335.80
	NORMAL	4,787.0	16.77	308.21	4,593.09	797.76	-1,020.23	1,295.10	0.69	-0.52	1.52	140.18
9/24/2011	NORMAL	1,924.0	17.79	307.97	1,857.73	278.81	-354.80	451.23	0.34	-0.20	-0.90	233.55
9/24/2011	NORMAL	2,401.0	16.73	309.93	2,312.81	368.99	-465.59	594.06	0.41	-0.34	-0.74	211.68
9/25/2011	NORMAL	4,882.0	17.06	306.91	4,683.98	814.61	-1,042.14	1,322.74	0.50	0.31	-1.37	306.85
	NORMAL	4,978.0	16.38	306.70	4,775.92	831.15	-1,064.26	1,350.35	0.71	-0.71	-0.22	184.98
	NORMAL	5,074.0	15.89	305.48	4,868.14	846.87	-1,085.81	1,377.02	0.62	-0.51	-1.27	214.10
	NORMAL	5,169.0	16.18	308.80	4,959.44	862.71	-1,106.72	1,403.25	1.01	0.31	3.49	74.05
	NORMAL	5,264.0	16.89	308.94	5,050.51	879.68	-1,127.77	1,430.28	0.75	0.75	0.15	3.28
	NORMAL	5,360.0	16.73	307.97	5,142.41	896.95	-1,149.51	1,458.04	0.34	-0.17	-1.01	239.84
	NORMAL	5,455.0	15.97	307.47	5,233.57	913.31	-1,170.66	1,484.78	0.81	-0.80	-0.53	190.25
	NORMAL	5,550.0	13.70	311.21	5,325.40	928.68	-1,189.50	1,509.09	2.59	-2.39	3.94	158.93
	NORMAL	5,646.0	10.83	308.26	5,419.20	941.75	-1,205.13	1,529.46	3.06	-2.99	-3.07	190.88
	NORMAL	5,741.0	10.43	309.02	5,512.57	952.69	-1,218.82	1,546.98	0.45	-0.42	0.80	161.06
	NORMAL	5,837.0	9.77	309.55	5,607.08	963.35	-1,231.86	1,563.81	0.69	-0.69	0.55	172.24
	NORMAL	5,932.0	8.75	313.15	5,700.84	973.43	-1,243.34	1,579.06	1.23	-1.07	3.79	152.17

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 (°)
9/25/2011	NORMAL	6,027.0	7.36	315.56	5,794.90	982.71	-1,252.88	1,592.29	1.51	-1.46	2.54	167.54
	NORMAL	6,123.0	6.57	322.70	5,890.19	991.47	-1,260.51	1,603.70	1.22	-0.82	7.44	135.88
	NORMAL	6,218.0	6.08	325.29	5,984.61	999.93	-1,266.67	1,613.75	0.60	-0.52	2.73	151.07
	NORMAL	6,313.0	3.88	321.78	6,079.25	1,006.59	-1,271.52	1,621.68	2.34	-2.32	-3.69	186.14
	NORMAL	6,408.0	3.92	323.41	6,174.03	1,011.73	-1,275.45	1,627.93	0.12	0.04	1.72	70.97
	NORMAL	6,504.0	3.15	328.61	6,269.85	1,016.61	-1,278.78	1,633.56	0.87	-0.80	5.42	159.97
	NORMAL	6,599.0	1.69	321.64	6,364.76	1,019.94	-1,281.00	1,637.36	1.56	-1.54	-7.34	187.93
	NORMAL	6,694.0	1.25	313.12	6,459.73	1,021.75	-1,282.63	1,639.75	0.52	-0.46	-8.97	202.20
9/26/2011	NORMAL	6,788.0	1.24	287.20	6,553.71	1,022.75	-1,284.35	1,641.73	0.59	-0.01	-27.57	256.04
	NORMAL	6,882.0	1.08	285.00	6,647.69	1,023.28	-1,286.18	1,643.49	0.18	-0.17	-2.34	194.46
	NORMAL	6,977.0	0.60	242.50	6,742.68	1,023.28	-1,287.48	1,644.52	0.80	-0.51	-44.74	212.45
	NORMAL	7,071.0	1.30	232.86	6,836.66	1,022.41	-1,288.77	1,645.00	0.76	0.74	-10.26	342.29
9/27/2011	NORMAL	7,166.0	1.54	219.66	6,931.64	1,020.77	-1,290.44	1,645.32	0.43	0.25	-13.89	299.55
	NORMAL	7,260.0	0.92	265.29	7,025.62	1,019.74	-1,292.00	1,645.91	1.18	-0.66	48.54	143.74
	NORMAL	7,355.0	1.00	2.60	7,120.61	1,020.51	-1,292.72	1,646.95	1.52	0.08	102.43	136.55
	NORMAL	7,450.0	2.21	26.70	7,215.57	1,022.97	-1,291.86	1,647.79	1.43	1.27	25.37	41.57
	NORMAL	7,545.0	1.44	13.96	7,310.52	1,025.77	-1,290.75	1,648.63	0.91	-0.81	-13.41	201.52
	NORMAL	7,640.0	0.14	21.00	7,405.51	1,027.03	-1,290.42	1,649.15	1.37	-1.37	7.41	179.24
	NORMAL	7,735.0	0.36	231.82	7,500.51	1,026.96	-1,290.62	1,649.26	0.51	0.23	-157.03	202.33
	NORMAL	7,830.0	0.29	216.85	7,595.51	1,026.58	-1,291.00	1,649.32	0.12	-0.07	-15.76	223.17
	NORMAL	7,925.0	0.47	301.56	7,690.51	1,026.59	-1,291.47	1,649.71	0.56	0.19	89.17	117.79
9/28/2011	NORMAL	8,020.0	0.13	40.44	7,785.51	1,026.88	-1,291.73	1,650.09	0.53	-0.36	104.08	165.31
	NORMAL	8,115.0	1.21	165.46	7,880.50	1,025.99	-1,291.41	1,649.29	1.36	1.14	131.60	129.76
	NORMAL	8,210.0	1.89	174.25	7,975.46	1,023.46	-1,291.00	1,647.41	0.76	0.72	9.25	23.70
	NORMAL	8,305.0	1.17	181.19	8,070.43	1,020.93	-1,290.87	1,645.75	0.78	-0.76	7.31	169.02
	NORMAL	8,401.0	1.98	205.86	8,166.39	1,018.46	-1,291.61	1,644.82	1.08	0.84	25.70	52.71
	NORMAL	8,496.0	3.25	214.59	8,261.29	1,014.76	-1,293.85	1,644.32	1.40	1.34	9.19	21.81
	NORMAL	8,589.0	3.72	218.46	8,354.12	1,010.23	-1,297.23	1,644.19	0.56	0.51	4.16	28.53
	NORMAL	8,646.0	3.72	218.46	8,411.00	1,007.34	-1,299.53	1,644.23	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

