

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 434-20	Wellbore No.	OH
Well Name	PA 434-20	Common Name	PA 434-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	296.20 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	10/17/2011	UWI	PA 434-20
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	10/17/2011	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 (°)
10/17/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/17/2011	NORMAL	83.0	0.18	80.42	83.00	0.02	0.13	-0.11	0.22	0.22	0.00	80.42
	NORMAL	205.0	1.85	295.31	204.98	0.90	-1.46	1.71	1.64	1.37	-118.94	211.94
	NORMAL	295.0	3.61	289.34	294.87	2.46	-5.45	5.97	1.98	1.96	-6.63	347.83
	NORMAL	386.0	4.49	296.46	385.65	4.99	-11.34	12.38	1.11	0.97	7.82	33.33
	NORMAL	476.0	5.72	290.92	475.29	8.16	-18.69	20.37	1.47	1.37	-6.16	335.39
	NORMAL	567.0	7.57	292.94	565.67	12.12	-28.44	30.87	2.05	2.03	2.22	8.21
	NORMAL	670.0	9.67	291.28	667.50	17.90	-42.75	46.26	2.05	2.04	-1.61	352.42
	NORMAL	760.0	12.91	290.38	755.75	24.15	-59.23	63.80	3.61	3.60	-1.00	356.45
	NORMAL	881.0	16.85	289.75	872.67	34.79	-88.41	94.69	3.26	3.26	-0.52	357.34
	NORMAL	971.0	17.60	293.35	958.64	44.59	-113.18	121.24	1.45	0.83	4.00	56.60
	NORMAL	1,025.0	17.62	294.49	1,010.11	51.21	-128.12	137.56	0.64	0.04	2.11	87.22
10/18/2011	NORMAL	1,094.0	17.88	295.49	1,075.82	60.10	-147.18	158.59	0.58	0.38	1.45	50.02
	NORMAL	1,158.0	18.34	294.48	1,136.65	68.50	-165.21	178.48	0.87	0.72	-1.58	325.21
	NORMAL	1,253.0	17.76	293.94	1,226.98	80.57	-192.06	207.90	0.64	-0.61	-0.57	195.84
	NORMAL	1,348.0	16.75	296.85	1,317.70	92.63	-217.52	236.07	1.40	-1.06	3.06	140.86
	NORMAL	1,443.0	16.88	300.80	1,408.64	105.88	-241.58	263.50	1.21	0.14	4.16	85.40
	NORMAL	1,538.0	15.94	299.91	1,499.77	119.45	-264.73	290.27	1.02	-0.99	-0.94	194.55
	NORMAL	1,633.0	16.17	299.13	1,591.07	132.39	-287.60	316.50	0.33	0.24	-0.82	316.46
	NORMAL	1,728.0	15.41	297.03	1,682.48	144.57	-310.39	342.33	1.00	-0.80	-2.21	215.93
	NORMAL	1,824.0	15.61	299.43	1,774.99	156.71	-333.01	367.98	0.70	0.21	2.50	73.85

2.1.2 Survey Stations (Continued)

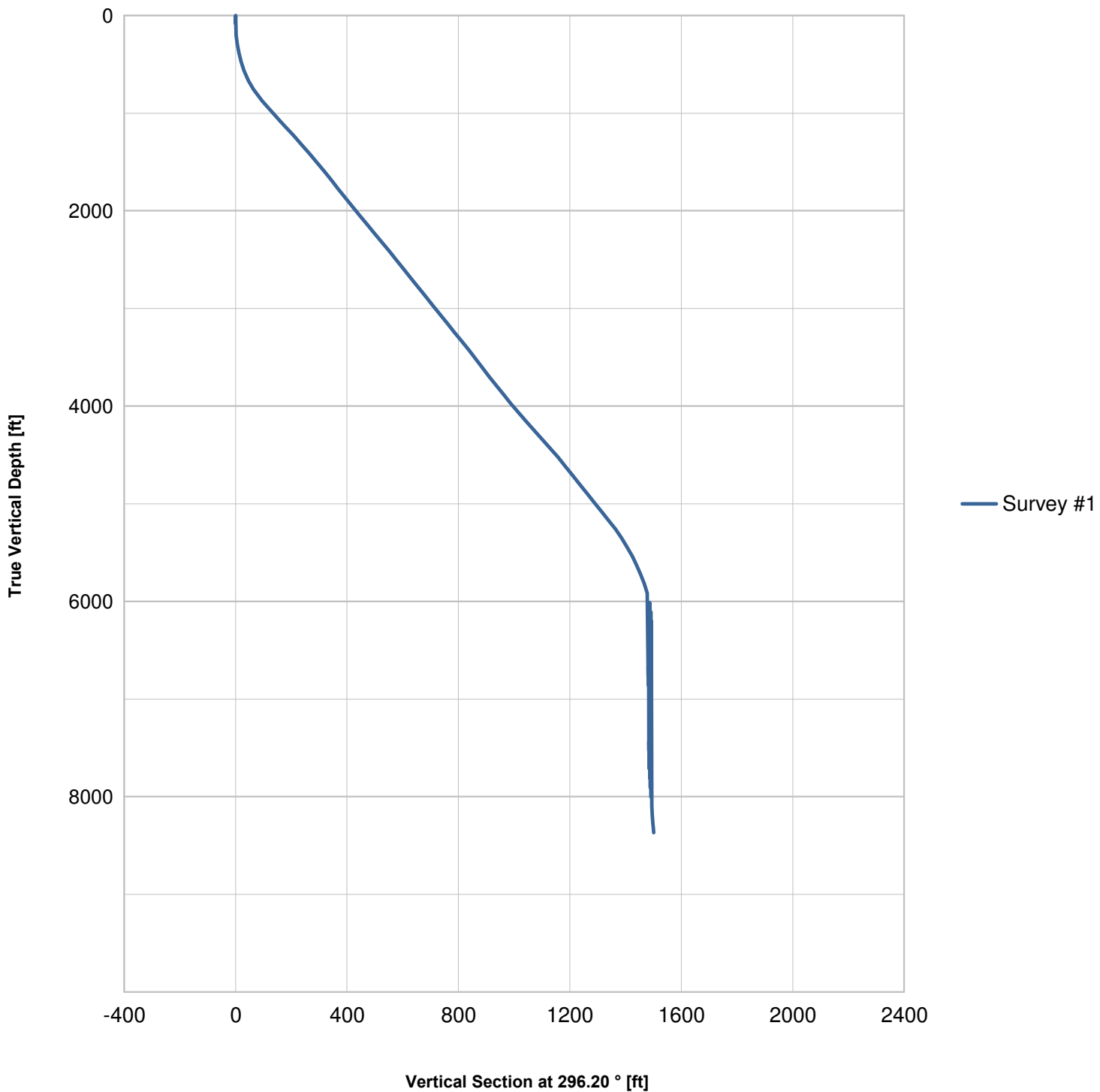
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
10/18/2011	NORMAL	1,918.0	16.08	302.16	1,865.41	169.85	-355.04	393.56	0.94	0.50	2.90	59.08
	NORMAL	2,013.0	15.42	300.85	1,956.85	183.33	-377.02	419.23	0.79	-0.69	-1.38	207.69
	NORMAL	2,108.0	15.92	298.86	2,048.32	196.10	-399.28	444.83	0.77	0.53	-2.09	311.97
	NORMAL	2,204.0	16.93	299.04	2,140.40	209.24	-423.03	471.95	1.05	1.05	0.19	2.97
	NORMAL	2,299.0	15.90	297.01	2,231.53	221.87	-446.72	498.77	1.24	-1.08	-2.14	208.15
10/19/2011	NORMAL	2,395.0	16.16	294.49	2,323.79	233.38	-470.59	525.28	0.77	0.27	-2.63	289.27
	NORMAL	2,490.0	16.21	295.24	2,415.03	244.51	-494.61	551.75	0.23	0.05	0.79	76.91
	NORMAL	2,586.0	15.64	290.40	2,507.35	254.73	-518.87	578.02	1.50	-0.59	-5.04	244.46
	NORMAL	2,681.0	15.91	291.37	2,598.77	263.94	-542.99	603.74	0.40	0.28	1.02	44.79
	NORMAL	2,777.0	16.12	291.40	2,691.04	273.60	-567.66	630.13	0.22	0.22	0.03	2.27
	NORMAL	2,872.0	15.25	290.12	2,782.51	282.71	-591.67	655.70	0.99	-0.92	-1.35	201.08
	NORMAL	2,968.0	15.52	290.56	2,875.07	291.56	-615.55	681.03	0.31	0.28	0.46	23.59
	NORMAL	3,064.0	16.05	292.55	2,967.45	301.16	-639.83	707.06	0.79	0.55	2.07	46.57
	NORMAL	3,159.0	15.76	294.20	3,058.81	311.49	-663.73	733.06	0.57	-0.31	1.74	123.47
	NORMAL	3,255.0	15.98	299.28	3,151.16	323.30	-687.14	759.28	1.46	0.23	5.29	83.45
	NORMAL	3,350.0	15.74	298.66	3,242.54	335.87	-709.86	785.22	0.31	-0.25	-0.65	214.92
	NORMAL	3,445.0	16.04	299.05	3,333.91	348.43	-732.64	811.20	0.34	0.32	0.41	19.78
	NORMAL	3,540.0	15.28	297.68	3,425.38	360.61	-755.20	836.82	0.89	-0.80	-1.44	205.29
	NORMAL	3,636.0	14.78	298.82	3,518.10	372.39	-777.13	861.70	0.61	-0.52	1.19	149.96
	NORMAL	3,732.0	14.85	302.83	3,610.91	384.97	-798.19	886.15	1.07	0.07	4.18	88.03
	NORMAL	3,826.0	15.55	302.88	3,701.62	398.34	-818.90	910.63	0.74	0.74	0.05	1.10
	NORMAL	3,922.0	15.90	301.94	3,794.03	412.28	-840.86	936.50	0.45	0.36	-0.98	323.50
	NORMAL	4,017.0	16.01	299.14	3,885.37	425.54	-863.35	962.53	0.82	0.12	-2.95	276.79
	NORMAL	4,112.0	16.45	296.59	3,976.58	437.94	-886.82	989.06	0.88	0.46	-2.68	300.46
	NORMAL	4,207.0	16.64	295.69	4,067.65	449.86	-911.11	1,016.11	0.34	0.20	-0.95	306.12
	NORMAL	4,303.0	16.77	293.33	4,159.60	461.30	-936.21	1,043.69	0.72	0.14	-2.46	279.72
	NORMAL	4,399.0	17.43	294.47	4,251.36	472.74	-962.01	1,071.89	0.77	0.69	1.19	27.47
	NORMAL	4,494.0	17.41	294.29	4,342.00	484.48	-987.92	1,100.32	0.06	-0.02	-0.19	249.55
	NORMAL	4,589.0	17.27	296.94	4,432.68	496.72	-1,013.44	1,128.63	0.84	-0.15	2.79	101.31
	NORMAL	4,685.0	17.21	297.38	4,524.37	509.71	-1,038.76	1,157.07	0.15	-0.06	0.46	114.92
	NORMAL	4,780.0	15.79	295.39	4,615.46	521.71	-1,062.92	1,184.05	1.61	-1.49	-2.09	200.75
	NORMAL	4,876.0	15.22	294.27	4,707.96	532.49	-1,086.20	1,209.70	0.67	-0.59	-1.17	207.17
	NORMAL	4,972.0	15.75	295.60	4,800.48	543.30	-1,109.44	1,235.33	0.66	0.55	1.39	34.46
10/20/2011	NORMAL	5,067.0	15.50	298.14	4,891.97	554.86	-1,132.26	1,260.91	0.77	-0.26	2.67	111.29
	NORMAL	5,163.0	15.49	297.49	4,984.48	566.83	-1,154.95	1,286.54	0.18	-0.01	-0.68	266.39
	NORMAL	5,258.0	15.80	298.44	5,075.96	578.84	-1,177.57	1,312.15	0.42	0.33	1.00	40.03
	NORMAL	5,354.0	15.83	296.47	5,168.33	590.90	-1,200.79	1,338.30	0.56	0.03	-2.05	272.25
	NORMAL	5,449.0	14.45	293.16	5,260.03	601.34	-1,223.28	1,363.10	1.71	-1.45	-3.48	210.48
	NORMAL	5,544.0	12.87	294.31	5,352.34	610.36	-1,243.83	1,385.51	1.69	-1.66	1.21	170.80
	NORMAL	5,639.0	11.68	293.98	5,445.16	618.62	-1,262.25	1,405.69	1.25	-1.25	-0.35	183.21
	NORMAL	5,735.0	10.34	294.88	5,539.40	626.20	-1,278.95	1,424.02	1.41	-1.40	0.94	173.13
10/21/2011	NORMAL	5,830.0	9.06	294.79	5,633.04	632.92	-1,293.48	1,440.02	1.35	-1.35	-0.09	180.63
	NORMAL	5,925.0	7.96	300.06	5,726.99	639.35	-1,305.96	1,454.06	1.42	-1.16	5.55	147.25
	NORMAL	6,021.0	7.70	306.84	5,822.10	646.54	-1,316.86	1,467.01	1.00	-0.27	7.06	109.06
	NORMAL	6,116.0	6.15	322.58	5,916.41	654.40	-1,325.05	1,477.83	2.56	-1.63	16.57	136.88
	NORMAL	6,212.0	5.62	342.51	6,011.91	662.96	-1,329.58	1,485.68	2.19	-0.55	20.76	114.31
	NORMAL	6,307.0	4.12	0.11	6,106.57	670.82	-1,330.98	1,490.40	2.21	-1.58	18.53	143.65
	NORMAL	6,402.0	2.50	32.04	6,201.42	675.98	-1,329.87	1,491.69	2.52	-1.71	33.61	146.50
	NORMAL	6,497.0	1.49	96.57	6,296.37	677.60	-1,327.54	1,490.31	2.42	-1.06	67.93	144.10
	NORMAL	6,593.0	2.02	147.30	6,392.33	676.03	-1,325.39	1,487.69	1.64	0.55	52.84	97.69
10/22/2011	NORMAL	6,688.0	2.15	159.26	6,487.27	672.96	-1,323.85	1,484.95	0.48	0.14	12.59	79.40
	NORMAL	6,781.0	1.90	167.45	6,580.21	669.82	-1,322.90	1,482.71	0.41	-0.27	8.81	134.87
	NORMAL	6,876.0	1.70	181.90	6,675.16	666.88	-1,322.61	1,481.15	0.52	-0.21	15.21	120.89
	NORMAL	6,971.0	1.88	215.87	6,770.12	664.20	-1,323.57	1,480.83	1.12	0.19	35.76	97.63
	NORMAL	7,065.0	1.67	266.36	6,864.08	662.87	-1,325.84	1,482.28	1.62	-0.22	53.71	122.39
	NORMAL	7,160.0	0.71	263.47	6,959.06	662.71	-1,327.80	1,483.97	1.01	-1.01	-3.04	182.13
	NORMAL	7,253.0	0.20	7.32	7,052.06	662.81	-1,328.35	1,484.51	0.84	-0.55	111.67	165.63

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 (°)
10/22/2011	NORMAL	7,348.0	0.49	316.57	7,147.05	663.27	-1,328.61	1,484.95	0.42	0.31	-53.42	286.17
	NORMAL	7,444.0	0.64	156.29	7,243.05	663.08	-1,328.68	1,484.92	1.16	0.16	-166.96	191.18
	NORMAL	7,539.0	0.64	156.09	7,338.05	662.10	-1,328.25	1,484.11	0.00	0.00	-0.21	269.90
	NORMAL	7,634.0	0.20	151.97	7,433.04	661.47	-1,327.96	1,483.57	0.46	-0.46	-4.34	181.87
10/23/2011	NORMAL	7,729.0	0.81	201.22	7,528.04	660.70	-1,328.12	1,483.37	0.73	0.64	51.84	61.82
	NORMAL	7,824.0	0.80	254.89	7,623.03	659.90	-1,329.01	1,483.81	0.77	-0.01	56.49	117.54
	NORMAL	7,919.0	0.87	305.90	7,718.02	660.15	-1,330.23	1,485.02	0.76	0.07	53.69	110.48
	NORMAL	8,014.0	1.78	348.55	7,813.00	662.02	-1,331.11	1,486.63	1.35	0.96	44.89	69.98
	NORMAL	8,109.0	1.60	314.07	7,907.96	664.39	-1,332.35	1,488.80	1.07	-0.19	-36.29	243.03
	NORMAL	8,204.0	1.48	273.70	8,002.93	665.39	-1,334.53	1,491.19	1.12	-0.13	-42.49	243.77
	NORMAL	8,299.0	2.02	252.49	8,097.88	664.97	-1,337.35	1,493.54	0.88	0.57	-22.33	298.89
	NORMAL	8,394.0	2.32	238.86	8,192.82	663.47	-1,340.59	1,495.79	0.63	0.32	-14.35	293.24
	NORMAL	8,490.0	2.66	238.58	8,288.73	661.30	-1,344.16	1,498.03	0.35	0.35	-0.29	357.81
	NORMAL	8,510.0	2.93	239.59	8,308.70	660.80	-1,345.00	1,498.56	1.37	1.35	5.05	10.84
	NORMAL	8,568.0	2.93	239.59	8,366.63	659.30	-1,347.55	1,500.19	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

