

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 534-20	Wellbore No.	OH
Well Name	PA 534-20	Common Name	PA 534-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	277.31 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	7/16/2011	UWI	PA 534-20
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	7/17/2011	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)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
7/17/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7/17/2011	NORMAL	84.0	0.18	214.89	84.00	-0.11	-0.08	0.06	0.21	0.21	0.00	214.89
	NORMAL	117.0	0.79	288.11	117.00	-0.08	-0.32	0.31	2.30	1.85	221.88	86.36
	NORMAL	147.0	0.97	278.00	147.00	0.02	-0.77	0.77	0.79	0.60	-33.70	314.09
	NORMAL	178.0	1.23	272.64	177.99	0.07	-1.36	1.36	0.90	0.84	-17.29	335.71
	NORMAL	208.0	1.67	273.78	207.98	0.12	-2.12	2.12	1.47	1.47	3.80	4.32
	NORMAL	238.0	2.46	287.40	237.96	0.34	-3.17	3.19	3.08	2.63	45.40	38.78
	NORMAL	269.0	3.08	290.74	268.92	0.83	-4.58	4.65	2.07	2.00	10.77	16.26
	NORMAL	299.0	3.70	287.49	298.87	1.41	-6.26	6.39	2.16	2.07	-10.83	341.15
	NORMAL	329.0	4.22	282.57	328.80	1.94	-8.26	8.44	2.07	1.73	-16.40	324.37
	NORMAL	359.0	4.49	277.91	358.71	2.34	-10.50	10.71	1.48	0.90	-15.53	305.01
	NORMAL	451.0	5.10	271.58	450.39	2.95	-18.16	18.38	0.88	0.66	-6.88	315.88
	NORMAL	542.0	5.45	275.80	541.01	3.50	-26.50	26.73	0.57	0.38	4.64	50.06
	NORMAL	615.0	4.72	276.64	613.72	4.19	-32.93	33.20	1.01	-1.00	1.15	174.59
	NORMAL	706.0	3.85	273.79	704.46	4.83	-39.70	39.99	0.98	-0.96	-3.13	192.34
	NORMAL	797.0	4.19	272.76	795.24	5.19	-46.07	46.35	0.38	0.37	-1.13	347.50
	NORMAL	888.0	4.14	283.41	886.00	6.11	-52.58	52.93	0.85	-0.05	11.70	99.00
	NORMAL	980.0	3.93	289.16	977.77	7.92	-58.79	59.32	0.50	-0.23	6.25	120.28
	NORMAL	1,075.0	3.43	288.44	1,072.58	9.88	-64.56	65.30	0.53	-0.53	-0.76	184.92
	NORMAL	1,094.0	3.61	287.96	1,091.54	10.25	-65.67	66.44	0.96	0.95	-2.53	350.46
7/18/2011	NORMAL	1,163.0	3.51	289.30	1,160.41	11.62	-69.73	70.64	0.19	-0.14	1.94	140.91

2.1.2 Survey Stations (Continued)

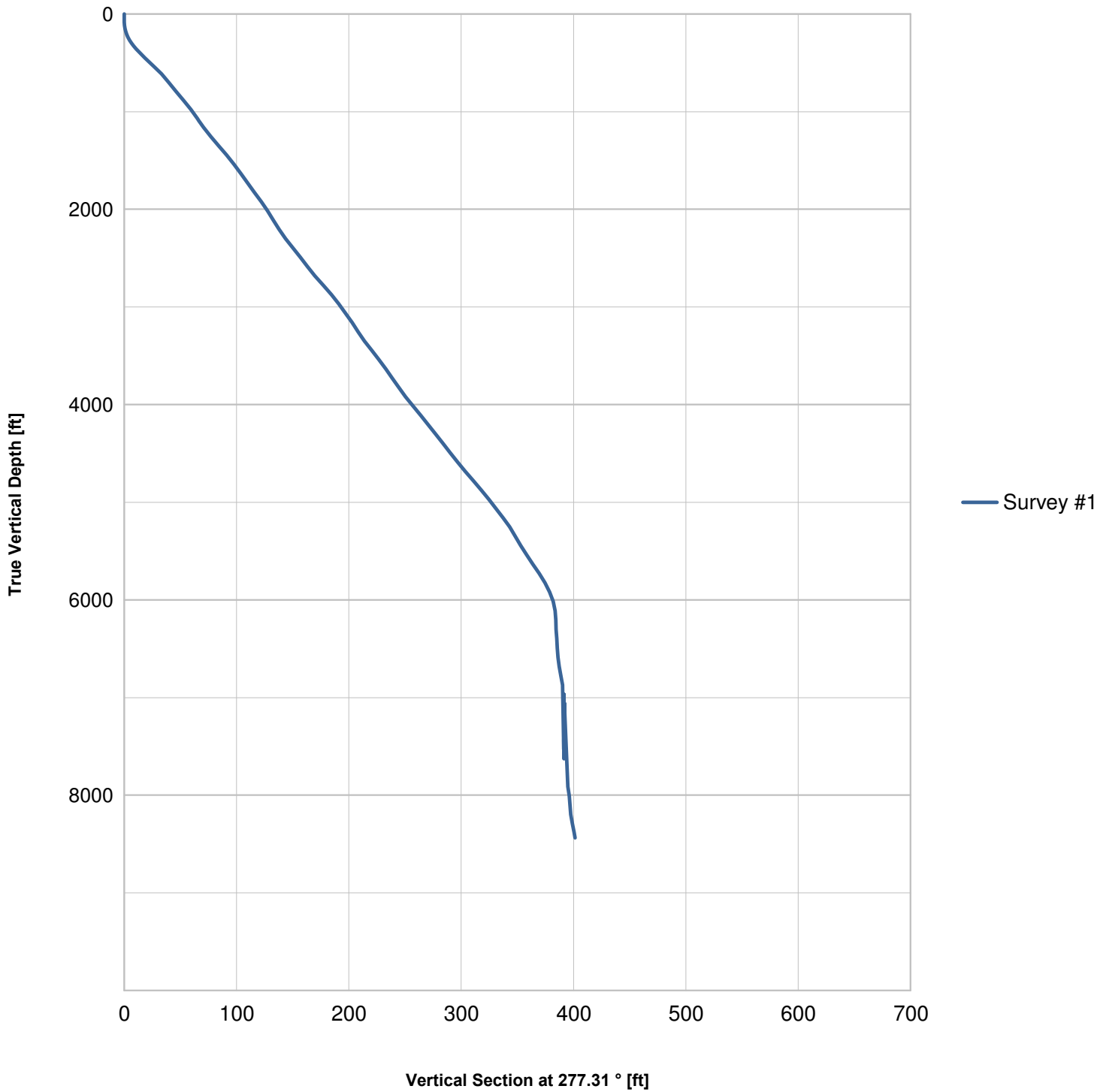
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
7/18/2011	NORMAL	1,258.0	4.25	285.44	1,255.19	13.52	-75.87	76.97	0.83	0.78	-4.06	338.63
	NORMAL	1,353.0	4.40	268.87	1,349.92	14.38	-82.91	84.06	1.32	0.16	-17.44	268.54
	NORMAL	1,448.0	4.28	264.19	1,444.65	13.95	-90.08	91.12	0.39	-0.13	-4.93	248.96
	NORMAL	1,544.0	3.73	270.39	1,540.42	13.61	-96.76	97.71	0.73	-0.57	6.46	144.85
7/19/2011	NORMAL	1,639.0	3.73	271.23	1,635.21	13.70	-102.94	103.85	0.06	0.00	0.88	90.42
	NORMAL	1,734.0	3.45	270.34	1,730.03	13.78	-108.89	109.76	0.30	-0.29	-0.94	190.81
	NORMAL	1,830.0	3.86	278.21	1,825.83	14.26	-114.98	115.86	0.67	0.43	8.20	54.71
	NORMAL	1,926.0	3.38	277.02	1,921.64	15.07	-120.98	121.92	0.51	-0.50	-1.24	188.30
	NORMAL	2,020.0	3.30	274.28	2,015.48	15.61	-126.43	127.39	0.19	-0.09	-2.91	242.02
	NORMAL	2,116.0	2.92	276.59	2,111.34	16.09	-131.62	132.59	0.42	-0.40	2.41	162.90
	NORMAL	2,211.0	3.40	282.77	2,206.20	16.99	-136.77	137.82	0.62	0.51	6.51	38.48
	NORMAL	2,307.0	3.73	279.43	2,302.01	18.13	-142.62	143.77	0.41	0.34	-3.48	326.14
	NORMAL	2,402.0	4.11	282.31	2,396.79	19.37	-149.00	150.25	0.45	0.40	3.03	28.83
	NORMAL	2,498.0	3.97	281.81	2,492.55	20.78	-155.61	156.99	0.15	-0.15	-0.52	193.87
	NORMAL	2,593.0	3.40	277.17	2,587.35	21.80	-161.63	163.09	0.68	-0.60	-4.88	205.32
	NORMAL	2,689.0	4.59	279.92	2,683.12	22.82	-168.24	169.77	1.26	1.24	2.86	10.52
	NORMAL	2,784.0	4.34	277.45	2,777.83	23.94	-175.54	177.16	0.33	-0.26	-2.60	216.34
	NORMAL	2,880.0	4.27	277.72	2,873.56	24.89	-182.69	184.37	0.08	-0.07	0.28	163.99
	NORMAL	2,975.0	3.74	280.83	2,968.33	25.95	-189.24	191.00	0.60	-0.56	3.27	159.26
	NORMAL	3,071.0	3.51	271.53	3,064.13	26.62	-195.25	197.05	0.66	-0.24	-9.69	244.04
	NORMAL	3,167.0	3.52	272.62	3,159.95	26.83	-201.13	202.91	0.07	0.01	1.14	82.03
	NORMAL	3,262.0	3.15	263.62	3,254.79	26.67	-206.64	208.35	0.67	-0.39	-9.47	230.31
	NORMAL	3,358.0	3.61	268.99	3,350.63	26.33	-212.28	213.90	0.58	0.48	5.59	37.24
	NORMAL	3,453.0	3.97	272.58	3,445.42	26.42	-218.56	220.14	0.45	0.38	3.78	35.19
	NORMAL	3,548.0	3.96	270.08	3,540.19	26.58	-225.12	226.67	0.18	-0.01	-2.63	265.44
	NORMAL	3,644.0	3.46	282.98	3,635.99	27.23	-231.26	232.84	1.01	-0.52	13.44	127.25
	NORMAL	3,739.0	3.67	285.01	3,730.81	28.66	-236.99	238.71	0.26	0.22	2.14	32.02
	NORMAL	3,834.0	3.32	278.94	3,825.63	29.88	-242.64	244.47	0.54	-0.37	-6.39	223.59
	NORMAL	3,929.0	4.07	291.61	3,920.44	31.55	-248.50	250.49	1.16	0.79	13.34	53.87
7/20/2011	NORMAL	4,024.0	4.09	288.07	4,015.19	33.84	-254.85	257.08	0.27	0.02	-3.73	272.77
	NORMAL	4,120.0	4.07	286.42	4,110.95	35.86	-261.37	263.81	0.12	-0.02	-1.72	259.51
	NORMAL	4,215.0	4.03	284.27	4,205.71	37.64	-267.84	270.45	0.17	-0.04	-2.26	254.17
	NORMAL	4,311.0	3.99	282.57	4,301.48	39.20	-274.37	277.13	0.13	-0.04	-1.77	250.56
	NORMAL	4,406.0	3.83	277.86	4,396.26	40.35	-280.74	283.59	0.38	-0.17	-4.96	241.18
	NORMAL	4,502.0	3.86	275.64	4,492.04	41.11	-287.13	290.03	0.16	0.03	-2.31	280.28
	NORMAL	4,597.0	4.13	278.65	4,586.81	41.94	-293.70	296.65	0.36	0.28	3.17	39.34
	NORMAL	4,693.0	4.11	275.48	4,682.56	42.78	-300.54	303.54	0.24	-0.02	-3.30	263.40
	NORMAL	4,788.0	4.30	272.33	4,777.31	43.25	-307.49	310.49	0.31	0.20	-3.32	307.86
	NORMAL	4,884.0	4.31	266.78	4,873.04	43.20	-314.68	317.62	0.43	0.01	-5.78	268.61
	NORMAL	4,979.0	4.03	263.14	4,967.79	42.60	-321.56	324.37	0.41	-0.29	-3.83	221.58
	NORMAL	5,075.0	3.80	282.39	5,063.57	42.88	-328.02	330.81	1.38	-0.24	20.05	109.44
	NORMAL	5,171.0	3.87	278.04	5,159.35	44.01	-334.33	337.22	0.31	0.07	-4.53	281.35
	NORMAL	5,266.0	3.20	281.95	5,254.17	45.01	-340.10	343.07	0.75	-0.71	4.12	162.15
	NORMAL	5,361.0	2.86	285.93	5,349.04	46.21	-344.98	348.05	0.42	-0.36	4.19	150.23
	NORMAL	5,457.0	3.11	279.22	5,444.91	47.29	-349.85	353.02	0.45	0.26	-6.99	302.20
	NORMAL	5,552.0	3.25	270.85	5,539.76	47.74	-355.09	358.27	0.51	0.15	-8.81	282.57
7/21/2011	NORMAL	5,647.0	3.33	273.73	5,634.60	47.96	-360.53	363.70	0.19	0.08	3.03	65.61
	NORMAL	5,743.0	3.47	269.04	5,730.44	48.09	-366.22	369.36	0.32	0.15	-4.89	294.36
	NORMAL	5,838.0	2.66	282.48	5,825.30	48.52	-371.25	374.40	1.13	-0.85	14.15	145.00
	NORMAL	5,933.0	2.53	304.03	5,920.21	50.17	-375.14	378.47	1.03	-0.14	22.68	108.26
	NORMAL	6,029.0	2.26	322.15	6,016.12	52.85	-378.05	381.70	0.83	-0.28	18.88	118.53
	NORMAL	6,124.0	2.33	353.62	6,111.05	56.25	-379.42	383.49	1.31	0.07	33.13	102.62
	NORMAL	6,219.0	2.01	371	6,205.98	59.83	-379.52	384.05	0.52	-0.34	10.62	134.92
	NORMAL	6,315.0	1.46	357.78	6,301.94	62.73	-379.46	384.36	0.60	-0.57	-6.18	195.13
	NORMAL	6,410.0	0.57	326.36	6,396.92	64.33	-379.77	384.87	1.07	-0.94	-33.07	196.97
	NORMAL	6,505.0	0.35	302.68	6,491.92	64.88	-380.28	385.44	0.30	-0.23	-24.93	209.40
	NORMAL	6,601.0	0.44	268.01	6,587.92	65.03	-380.89	386.07	0.26	0.09	-36.11	272.72

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 (°)
7/21/2011	NORMAL	6,695.0	0.81	251.46	6,681.91	64.81	-381.88	387.02	0.43	0.39	-17.61	325.56
7/22/2011	NORMAL	6,789.0	1.13	252.02	6,775.90	64.31	-383.39	388.46	0.34	0.34	0.60	1.98
	NORMAL	6,884.0	1.32	255.57	6,870.88	63.75	-385.34	390.32	0.22	0.20	3.74	23.55
	NORMAL	6,979.0	0.23	277.03	6,965.87	63.50	-386.59	391.53	1.17	-1.15	22.59	175.65
	NORMAL	7,073.0	0.72	235.85	7,059.86	63.19	-387.27	392.16	0.60	0.52	-43.81	303.34
	NORMAL	7,168.0	0.41	82.58	7,154.86	62.90	-387.43	392.28	1.16	-0.33	-161.34	189.64
	NORMAL	7,261.0	0.68	166.84	7,247.86	62.40	-386.97	391.77	0.82	0.29	90.60	116.81
	NORMAL	7,356.0	0.14	73.97	7,342.86	61.89	-386.73	391.46	0.74	-0.57	-97.76	191.50
	NORMAL	7,452.0	0.54	8.76	7,438.85	62.37	-386.55	391.34	0.52	0.42	-67.93	280.00
	NORMAL	7,546.0	0.23	185.19	7,532.85	62.62	-386.50	391.32	0.82	-0.33	187.69	178.93
	NORMAL	7,641.0	0.59	223.90	7,627.85	62.07	-386.86	391.61	0.46	0.38	40.75	58.02
7/23/2011	NORMAL	7,926.0	2.14	216.05	7,912.76	56.71	-391.00	395.04	0.55	0.54	-2.75	349.19
	NORMAL	8,022.0	1.38	206.34	8,008.72	54.23	-392.57	396.28	0.85	-0.79	-10.11	196.62
	NORMAL	8,117.0	1.08	198.40	8,103.69	52.35	-393.36	396.83	0.36	-0.32	-8.36	205.67
	NORMAL	8,212.0	1.62	214.27	8,198.67	50.39	-394.40	397.61	0.69	0.57	16.71	42.80
	NORMAL	8,307.0	1.96	220.96	8,293.62	48.06	-396.22	399.12	0.42	0.36	7.04	34.95
	NORMAL	8,393.0	1.85	214.15	8,379.57	45.80	-397.97	400.56	0.29	-0.13	-7.92	240.71
	NORMAL	8,450.0	1.85	214.15	8,436.54	44.28	-399.00	401.39	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

