

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	PA 43-20	Wellbore No.	OH
Well Name	PA 43-20	Common Name	PA 43-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	16.94 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	8/28/2011	UWI	PA 43-20
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	8/28/2011	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 (°)
8/28/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/28/2011	NORMAL	80.0	0.09	59.33	80.00	0.03	0.05	0.05	0.11	0.11	0.00	59.33
	NORMAL	174.0	2.82	23.99	173.96	2.18	1.06	2.40	2.92	2.90	-37.60	323.58
	NORMAL	265.0	4.84	15.38	264.75	7.93	2.99	8.46	2.30	2.22	-9.46	339.78
	NORMAL	357.0	7.57	18.72	356.21	17.41	5.96	18.39	2.99	2.97	3.63	9.20
	NORMAL	448.0	11.09	17.23	445.99	31.45	10.48	33.14	3.88	3.87	-1.64	355.34
	NORMAL	539.0	15.04	16.44	534.62	51.15	16.42	53.71	4.34	4.34	-0.87	357.03
	NORMAL	630.0	18.21	19.78	621.80	75.86	24.57	79.72	3.64	3.48	3.67	18.38
	NORMAL	721.0	20.41	16.08	707.68	104.49	33.78	109.80	2.77	2.42	-4.07	329.16
	NORMAL	812.0	23.23	16.52	792.15	136.95	43.28	143.61	3.10	3.10	0.48	3.52
	NORMAL	904.0	24.11	17.23	876.41	172.29	54.00	180.55	1.01	0.96	0.77	18.27
	NORMAL	996.0	23.75	15.73	960.51	208.07	64.59	217.86	0.77	-0.39	-1.63	238.70
	NORMAL	1,028.0	23.40	15.73	989.83	220.39	68.06	230.66	1.09	-1.09	0.00	180.00
8/29/2011	NORMAL	1,069.0	23.50	16.52	1,027.45	236.06	72.59	246.97	0.80	0.24	1.93	72.72
	NORMAL	1,164.0	24.15	17.27	1,114.35	272.78	83.75	285.34	0.75	0.68	0.79	25.33
	NORMAL	1,259.0	24.58	17.33	1,200.89	310.20	95.40	324.54	0.45	0.45	0.06	3.32
	NORMAL	1,354.0	24.93	15.89	1,287.16	348.32	106.77	364.31	0.73	0.37	-1.52	299.48
	NORMAL	1,449.0	23.92	13.84	1,373.66	386.27	116.86	403.56	1.39	-1.06	-2.16	219.08
	NORMAL	1,544.0	23.70	15.55	1,460.58	423.37	126.59	441.88	0.76	-0.23	1.80	108.46
	NORMAL	1,639.0	22.83	17.41	1,547.85	459.35	137.22	479.40	1.20	-0.92	1.96	140.67
	NORMAL	1,735.0	21.47	16.90	1,636.76	493.93	147.90	515.59	1.43	-1.42	-0.53	187.81

## 2.1.2 Survey Stations (Continued)

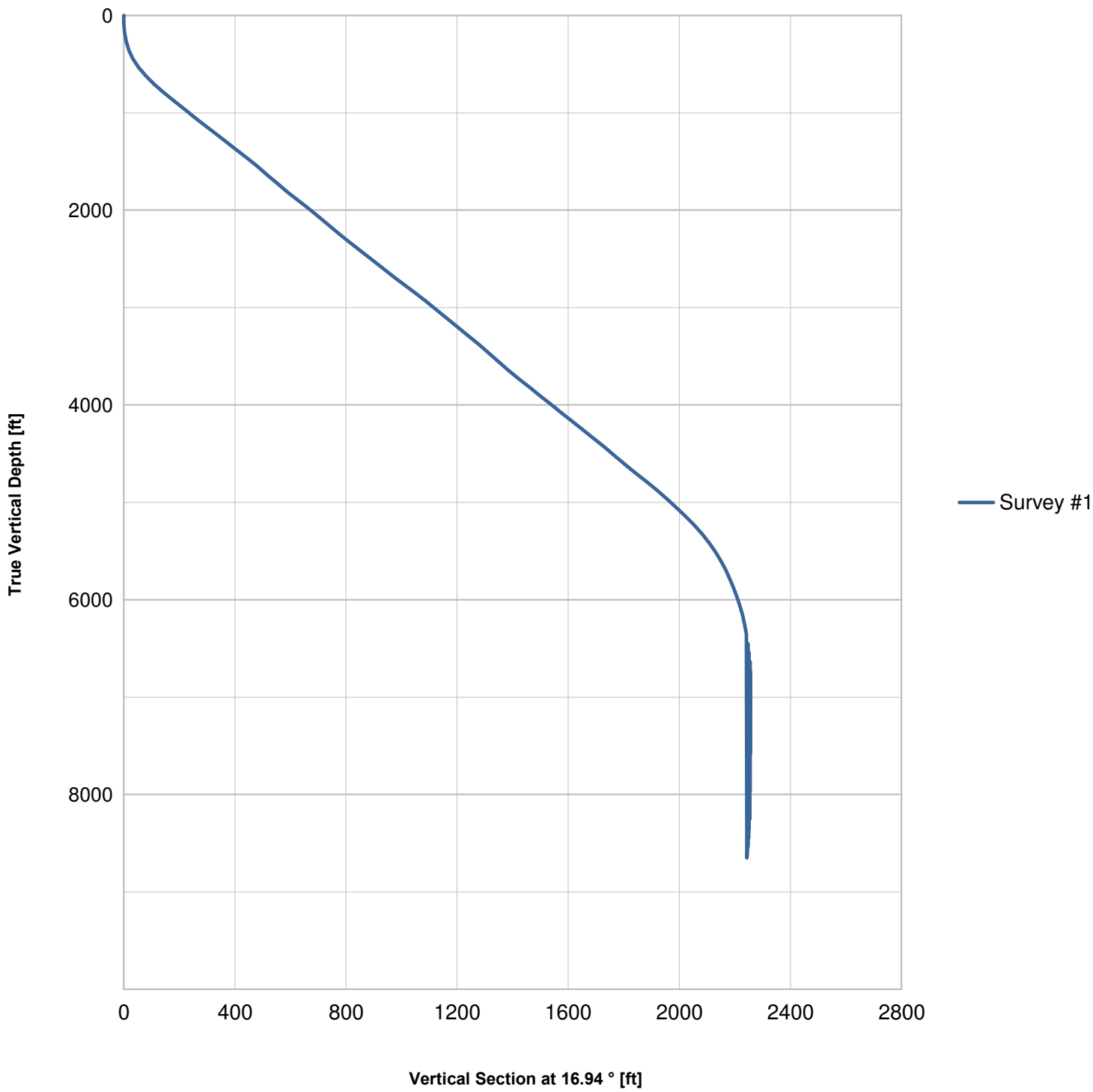
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
8/29/2011	NORMAL	1,830.0	22.72	18.20	1,724.79	528.00	158.68	551.32	1.41	1.32	1.37	21.97
	NORMAL	1,924.0	23.55	14.39	1,811.23	563.43	169.02	588.23	1.82	0.88	-4.05	297.25
	NORMAL	2,019.0	24.43	17.16	1,898.03	600.59	179.53	626.84	1.50	0.93	2.92	53.27
	NORMAL	2,114.0	23.53	16.57	1,984.83	637.54	190.74	665.45	0.98	-0.95	-0.62	194.65
	NORMAL	2,210.0	22.76	18.58	2,073.10	673.51	202.12	703.17	1.15	-0.80	2.09	135.18
	NORMAL	2,305.0	23.05	20.95	2,160.61	708.29	214.63	740.10	1.02	0.31	2.49	73.64
	NORMAL	2,401.0	23.42	20.58	2,248.83	743.71	228.05	777.88	0.41	0.39	-0.39	338.30
	NORMAL	2,496.0	23.95	18.31	2,335.82	779.69	240.75	816.00	1.11	0.56	-2.39	299.12
	NORMAL	2,592.0	24.55	17.42	2,423.35	817.22	252.84	855.43	0.73	0.63	-0.93	328.24
	NORMAL	2,687.0	23.87	15.87	2,510.00	854.54	264.00	894.38	0.98	-0.72	-1.63	222.36
	NORMAL	2,783.0	24.19	16.70	2,597.68	892.06	274.97	933.47	0.48	0.33	0.86	46.95
	NORMAL	2,878.0	24.52	15.57	2,684.22	929.69	285.85	972.64	0.60	0.35	-1.19	304.79
	NORMAL	2,974.0	25.29	16.80	2,771.30	968.51	297.13	1,013.06	0.97	0.80	1.28	34.49
	NORMAL	3,070.0	24.63	16.69	2,858.33	1,007.30	308.80	1,053.57	0.69	-0.69	-0.11	183.97
	NORMAL	3,165.0	23.86	15.31	2,944.95	1,044.80	319.56	1,092.58	1.01	-0.81	-1.45	215.72
	NORMAL	3,261.0	22.84	15.14	3,033.09	1,081.51	329.55	1,130.61	1.06	-1.06	-0.18	183.70
	NORMAL	3,356.0	23.70	17.28	3,120.36	1,117.54	340.04	1,168.13	1.27	0.91	2.25	45.50
	NORMAL	3,451.0	23.30	17.02	3,207.48	1,153.74	351.21	1,206.01	0.43	-0.42	-0.27	194.41
	NORMAL	3,547.0	22.99	16.70	3,295.75	1,189.85	362.15	1,243.74	0.35	-0.32	-0.33	201.94
8/30/2011	NORMAL	3,642.0	21.86	15.86	3,383.57	1,224.64	372.29	1,279.98	1.24	-1.19	-0.88	195.44
	NORMAL	3,738.0	21.62	19.44	3,472.75	1,258.51	383.06	1,315.52	1.40	-0.25	3.73	101.92
	NORMAL	3,833.0	21.46	16.68	3,561.11	1,291.66	393.88	1,350.38	1.08	-0.17	-2.91	259.75
	NORMAL	3,928.0	23.20	15.61	3,648.99	1,326.33	403.90	1,386.47	1.88	1.83	-1.13	346.35
	NORMAL	4,023.0	23.79	15.57	3,736.11	1,362.81	414.08	1,424.33	0.62	0.62	-0.04	358.43
	NORMAL	4,118.0	23.91	17.80	3,823.00	1,399.60	425.11	1,462.74	0.96	0.13	2.35	83.44
	NORMAL	4,213.0	23.22	18.18	3,910.08	1,435.73	436.84	1,500.71	0.74	-0.73	0.40	167.76
	NORMAL	4,309.0	23.54	17.90	3,998.19	1,471.95	448.63	1,538.80	0.35	0.33	-0.29	340.72
	NORMAL	4,405.0	24.15	15.97	4,086.00	1,509.07	459.93	1,577.60	1.03	0.64	-2.01	307.13
	NORMAL	4,500.0	24.14	14.99	4,172.69	1,546.52	470.30	1,616.45	0.42	-0.01	-1.03	268.12
	NORMAL	4,596.0	23.80	16.88	4,260.41	1,584.02	481.00	1,655.44	0.87	-0.35	1.97	114.75
	NORMAL	4,691.0	23.40	17.46	4,347.47	1,620.36	492.23	1,693.47	0.49	-0.42	0.61	150.13
	NORMAL	4,787.0	22.82	16.84	4,435.76	1,656.36	503.34	1,731.15	0.66	-0.60	-0.65	202.48
	NORMAL	4,882.0	22.57	16.00	4,523.41	1,691.52	513.70	1,767.80	0.43	-0.26	-0.88	231.97
	NORMAL	4,978.0	23.32	17.44	4,611.81	1,727.36	524.48	1,805.22	0.98	0.78	1.50	37.48
	NORMAL	5,074.0	23.56	18.37	4,699.89	1,763.69	536.22	1,843.41	0.46	0.25	0.97	57.45
	NORMAL	5,169.0	23.62	19.61	4,786.95	1,799.64	548.59	1,881.40	0.53	0.06	1.31	83.67
	NORMAL	5,265.0	22.84	17.44	4,875.17	1,835.53	560.63	1,919.24	1.21	-0.81	-2.26	226.66
	NORMAL	5,360.0	21.46	19.45	4,963.16	1,869.51	571.94	1,955.04	1.66	-1.45	2.12	152.15
	NORMAL	5,455.0	21.05	19.48	5,051.69	1,901.98	583.42	1,989.45	0.43	-0.43	0.03	178.49
	NORMAL	5,550.0	19.19	19.18	5,140.89	1,932.82	594.24	2,022.10	1.96	-1.96	-0.32	183.03
	NORMAL	5,646.0	18.24	19.84	5,231.82	1,961.85	604.52	2,052.87	1.01	-0.99	0.69	167.75
	NORMAL	5,741.0	16.63	18.20	5,322.45	1,988.75	613.81	2,081.31	1.77	-1.69	-1.73	196.19
	NORMAL	5,837.0	14.24	14.59	5,414.98	2,013.23	621.08	2,106.84	2.68	-2.49	-3.76	200.17
	NORMAL	5,932.0	13.08	15.71	5,507.29	2,034.89	626.93	2,129.27	1.25	-1.22	1.18	167.70
8/31/2011	NORMAL	6,027.0	10.73	17.28	5,600.24	2,053.68	632.47	2,148.86	2.50	-2.47	1.65	172.92
	NORMAL	6,123.0	10.47	17.26	5,694.61	2,070.55	637.71	2,166.52	0.27	-0.27	-0.02	180.80
	NORMAL	6,218.0	8.74	18.61	5,788.27	2,085.63	642.58	2,182.37	1.84	-1.82	1.42	173.25
	NORMAL	6,313.0	7.74	18.95	5,882.29	2,098.52	646.96	2,195.97	1.05	-1.05	0.36	177.38
	NORMAL	6,408.0	6.86	15.81	5,976.52	2,110.03	650.58	2,208.04	1.02	-0.93	-3.31	202.84
	NORMAL	6,504.0	6.35	20.48	6,071.88	2,120.52	654.00	2,219.07	0.77	-0.53	4.86	135.82
	NORMAL	6,599.0	4.97	19.53	6,166.42	2,129.32	657.22	2,228.43	1.46	-1.45	-1.00	183.41
	NORMAL	6,694.0	3.73	11.28	6,261.14	2,136.23	659.20	2,235.61	1.46	-1.31	-8.68	202.70
9/1/2011	NORMAL	6,788.0	3.28	10.06	6,354.97	2,141.88	660.26	2,241.32	0.49	-0.48	-1.30	188.80
	NORMAL	6,883.0	2.95	3.37	6,449.83	2,146.99	660.88	2,246.40	0.52	-0.35	-7.04	224.46
	NORMAL	6,977.0	2.50	20.33	6,543.72	2,151.33	661.74	2,250.80	0.98	-0.48	18.04	127.46
	NORMAL	7,071.0	1.88	31.24	6,637.65	2,154.57	663.25	2,254.34	0.79	-0.66	11.61	151.45
	NORMAL	7,166.0	1.36	129.96	6,732.63	2,155.18	664.92	2,255.41	2.61	-0.55	103.92	147.19

## 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 (°)
9/1/2011	NORMAL	7,260.0	1.69	153.53	6,826.60	2,153.22	666.39	2,253.96	0.75	0.35	25.07	74.37
	NORMAL	7,355.0	2.10	171.51	6,921.54	2,150.25	667.28	2,251.37	0.76	0.43	18.93	64.62
	NORMAL	7,450.0	1.44	174.40	7,016.50	2,147.34	667.65	2,248.70	0.70	-0.69	3.04	173.74
	NORMAL	7,545.0	0.63	42.45	7,111.49	2,146.54	668.12	2,248.07	2.02	-0.85	-138.89	194.13
	NORMAL	7,640.0	2.06	338.84	7,206.46	2,148.51	667.85	2,249.88	1.97	1.51	-66.96	278.81
	NORMAL	7,735.0	1.85	332.76	7,301.41	2,151.47	666.54	2,252.33	0.31	-0.22	-6.40	221.63
	NORMAL	7,830.0	1.69	317.99	7,396.36	2,153.87	664.90	2,254.15	0.51	-0.17	-15.55	243.39
	NORMAL	7,925.0	1.32	287.99	7,491.33	2,155.25	662.92	2,254.89	0.90	-0.39	-31.58	230.36
9/2/2011	NORMAL	8,020.0	1.56	261.79	7,586.30	2,155.41	660.60	2,254.36	0.73	0.25	-27.58	276.61
	NORMAL	8,115.0	1.45	256.32	7,681.27	2,154.94	658.15	2,253.20	0.19	-0.12	-5.76	229.85
	NORMAL	8,210.0	1.01	304.54	7,776.25	2,155.13	656.29	2,252.84	1.14	-0.46	50.76	135.89
	NORMAL	8,305.0	1.15	319.37	7,871.23	2,156.33	654.98	2,253.61	0.33	0.15	15.61	70.94
	NORMAL	8,401.0	0.86	275.16	7,967.22	2,157.12	653.64	2,253.98	0.84	-0.30	-46.05	228.34
	NORMAL	8,496.0	0.50	235.41	8,062.21	2,156.95	652.59	2,253.51	0.60	-0.38	-41.84	213.91
	NORMAL	8,592.0	0.48	128.00	8,158.21	2,156.47	652.56	2,253.03	0.82	-0.02	-111.89	215.44
	NORMAL	8,687.0	0.86	157.01	8,253.21	2,155.56	653.15	2,252.34	0.52	0.40	30.54	56.88
	NORMAL	8,783.0	0.97	180.46	8,349.19	2,154.09	653.42	2,251.01	0.40	0.11	24.43	85.57
	NORMAL	8,879.0	1.31	202.68	8,445.18	2,152.26	652.99	2,249.14	0.57	0.35	23.15	63.89
9/3/2011	NORMAL	8,974.0	1.56	207.60	8,540.15	2,150.12	651.98	2,246.79	0.29	0.26	5.18	28.71
	NORMAL	9,027.0	1.79	207.56	8,593.12	2,148.74	651.26	2,245.27	0.43	0.43	-0.08	359.69
	NORMAL	9,084.0	1.79	207.56	8,650.10	2,147.16	650.44	2,243.52	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

