

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	PA 544-20	Wellbore No.	OH
Well Name	PA 544-20	Common Name	PA 544-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	105.23 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	11/10/2011	UWI	PA 544-20
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	11/10/2011	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 (°)
11/10/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11/10/2011	NORMAL	83.0	0.35	349.98	83.00	0.25	-0.04	-0.11	0.42	0.42	0.00	349.98
	NORMAL	176.0	1.50	114.96	175.99	0.02	1.01	0.97	1.85	1.24	134.39	134.55
	NORMAL	268.0	3.78	105.15	267.89	-1.29	5.03	5.19	2.52	2.48	-10.66	343.86
	NORMAL	359.0	7.13	103.36	358.46	-3.37	13.42	13.84	3.69	3.68	-1.97	356.20
	NORMAL	449.0	10.21	106.88	447.42	-6.98	26.49	27.40	3.47	3.42	3.91	11.52
	NORMAL	540.0	12.76	107.31	536.59	-12.32	43.81	45.50	2.80	2.80	0.47	2.13
	NORMAL	630.0	15.00	106.10	623.96	-18.50	64.49	67.08	2.51	2.49	-1.34	352.03
	NORMAL	721.0	15.09	102.93	711.84	-24.42	87.35	90.70	0.91	0.10	-3.48	274.71
	NORMAL	811.0	14.59	106.25	798.84	-30.21	109.65	113.74	1.10	-0.56	3.69	122.05
	NORMAL	902.0	15.05	106.42	886.81	-36.76	131.99	137.01	0.51	0.51	0.19	5.48
	NORMAL	957.0	15.24	106.22	939.90	-40.80	145.78	151.37	0.36	0.35	-0.36	344.53
11/11/2011	NORMAL	1,158.0	15.91	104.16	1,133.52	-54.92	197.86	205.33	0.43	0.33	-1.02	319.46
	NORMAL	1,253.0	14.57	102.04	1,225.18	-60.59	222.17	230.28	1.53	-1.41	-2.23	201.56
	NORMAL	1,348.0	14.72	104.27	1,317.10	-66.06	245.55	254.28	0.61	0.16	2.35	76.18
	NORMAL	1,443.0	14.86	104.48	1,408.95	-72.08	269.05	278.53	0.16	0.15	0.22	21.05
	NORMAL	1,538.0	15.27	104.59	1,500.68	-78.28	292.95	303.22	0.43	0.43	0.12	4.04
	NORMAL	1,633.0	15.12	105.25	1,592.36	-84.69	317.01	328.12	0.24	-0.16	0.69	131.25
	NORMAL	1,728.0	15.15	105.68	1,684.07	-91.30	340.91	352.93	0.12	0.03	0.45	75.25
	NORMAL	1,823.0	14.57	105.80	1,775.89	-97.91	364.36	377.29	0.61	-0.61	0.13	177.02
	NORMAL	1,918.0	13.96	106.12	1,867.96	-104.35	386.87	400.69	0.65	-0.64	0.34	172.79

## 2.1.2 Survey Stations (Continued)

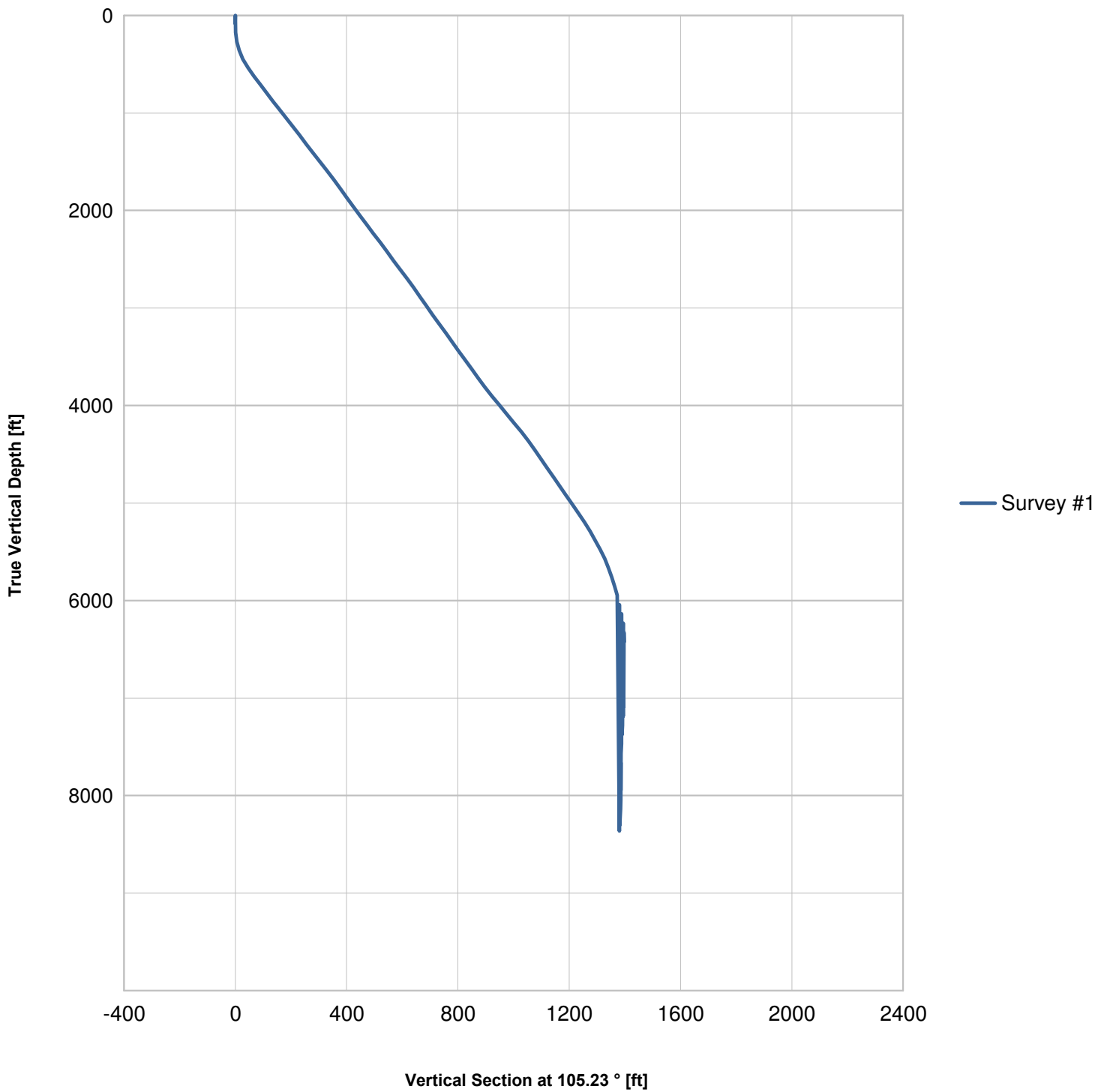
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
11/11/2011	NORMAL	2,013.0	14.43	105.53	1,960.06	-110.70	409.28	423.99	0.52	0.49	-0.62	342.60
	NORMAL	2,108.0	14.36	105.13	2,052.08	-116.94	432.06	447.61	0.13	-0.07	-0.42	234.66
	NORMAL	2,203.0	14.77	106.18	2,144.02	-123.39	455.06	471.49	0.51	0.43	1.11	33.29
	NORMAL	2,299.0	15.08	106.69	2,236.78	-130.39	478.78	496.21	0.35	0.32	0.53	23.21
	NORMAL	2,395.0	14.58	105.76	2,329.59	-137.26	502.37	520.78	0.58	-0.52	-0.97	205.01
	NORMAL	2,490.0	15.06	104.07	2,421.43	-143.51	525.85	545.08	0.68	0.51	-1.78	317.18
	NORMAL	2,586.0	14.17	103.42	2,514.32	-149.27	549.38	569.29	0.94	-0.93	-0.68	190.13
	NORMAL	2,681.0	14.73	104.81	2,606.31	-155.05	572.36	592.99	0.69	0.59	1.46	32.45
	NORMAL	2,777.0	14.82	104.48	2,699.14	-161.24	596.05	617.47	0.13	0.09	-0.34	316.76
	NORMAL	2,872.0	14.08	104.96	2,791.13	-167.26	618.98	641.18	0.79	-0.78	0.51	171.04
11/12/2011	NORMAL	2,967.0	13.31	105.09	2,883.43	-173.09	640.70	663.67	0.81	-0.81	0.14	177.77
	NORMAL	3,064.0	13.39	105.22	2,977.81	-178.95	662.32	686.07	0.09	0.08	0.13	20.63
	NORMAL	3,159.0	14.35	102.33	3,070.04	-184.35	684.43	708.82	1.25	1.01	-3.04	322.77
	NORMAL	3,254.0	14.38	103.23	3,162.07	-189.56	707.42	732.37	0.24	0.03	0.95	82.78
	NORMAL	3,350.0	14.21	104.81	3,255.10	-195.30	730.41	756.07	0.44	-0.18	1.65	114.31
	NORMAL	3,445.0	13.72	106.28	3,347.29	-201.44	752.50	778.99	0.64	-0.52	1.55	144.81
	NORMAL	3,540.0	14.14	106.58	3,439.50	-207.91	774.44	801.86	0.45	0.44	0.32	9.90
	NORMAL	3,636.0	14.43	106.53	3,532.53	-214.66	797.14	825.54	0.30	0.30	-0.05	357.54
	NORMAL	3,731.0	13.95	105.85	3,624.63	-221.16	819.51	848.82	0.53	-0.51	-0.72	198.82
	NORMAL	3,826.0	13.99	105.63	3,716.82	-227.38	841.58	871.75	0.07	0.04	-0.23	306.88
	NORMAL	3,922.0	15.10	104.53	3,809.74	-233.64	864.86	895.86	1.19	1.16	-1.15	345.49
	NORMAL	4,017.0	15.93	104.43	3,901.28	-239.99	889.47	921.27	0.87	0.87	-0.11	358.11
	NORMAL	4,112.0	16.06	105.67	3,992.60	-246.79	914.74	947.45	0.38	0.14	1.31	69.77
	NORMAL	4,207.0	16.14	106.12	4,083.88	-254.01	940.08	973.79	0.16	0.08	0.47	57.55
	NORMAL	4,303.0	16.25	107.65	4,176.07	-261.79	965.70	1,000.55	0.46	0.11	1.59	76.28
	NORMAL	4,402.0	15.95	108.17	4,271.18	-270.23	991.82	1,027.98	0.34	-0.30	0.53	154.58
	NORMAL	4,498.0	14.53	109.18	4,363.81	-278.30	1,015.73	1,053.16	1.50	-1.48	1.05	169.90
	NORMAL	4,593.0	13.60	106.83	4,455.96	-285.45	1,037.68	1,076.22	1.15	-0.98	-2.47	210.42
	NORMAL	4,689.0	13.44	105.41	4,549.30	-291.68	1,059.24	1,098.66	0.38	-0.17	-1.48	243.58
	NORMAL	4,785.0	13.51	100.57	4,642.66	-296.70	1,081.02	1,120.99	1.18	0.07	-5.04	271.20
	NORMAL	4,880.0	13.62	99.69	4,735.01	-300.62	1,102.95	1,143.18	0.25	0.12	-0.93	297.63
	NORMAL	4,975.0	13.86	101.95	4,827.29	-304.86	1,125.11	1,165.68	0.62	0.25	2.38	67.01
	NORMAL	5,071.0	13.82	102.53	4,920.50	-309.73	1,147.55	1,188.61	0.15	-0.04	0.60	106.36
	NORMAL	5,166.0	13.59	103.21	5,012.80	-314.74	1,169.49	1,211.10	0.30	-0.24	0.72	145.32
	NORMAL	5,262.0	13.54	101.00	5,106.12	-319.46	1,191.50	1,233.58	0.54	-0.05	-2.30	263.42
	NORMAL	5,355.0	12.83	99.69	5,196.67	-323.28	1,212.37	1,254.71	0.83	-0.76	-1.41	202.19
	NORMAL	5,451.0	11.19	102.00	5,290.56	-327.01	1,231.99	1,274.62	1.78	-1.71	2.41	164.79
	NORMAL	5,546.0	11.11	102.55	5,383.77	-330.91	1,249.94	1,292.97	0.14	-0.08	0.58	127.22
	NORMAL	5,641.0	10.36	103.71	5,477.11	-334.93	1,267.17	1,310.65	0.82	-0.79	1.22	164.50
11/15/2011	NORMAL	5,736.0	9.27	104.81	5,570.72	-338.91	1,282.87	1,326.84	1.16	-1.15	1.16	170.78
	NORMAL	5,831.0	7.14	105.97	5,664.74	-342.49	1,295.95	1,340.40	2.25	-2.24	1.22	176.13
	NORMAL	5,927.0	6.65	104.83	5,760.04	-345.55	1,307.05	1,351.92	0.53	-0.51	-1.19	195.04
	NORMAL	6,020.0	6.56	106.67	5,852.43	-348.45	1,317.35	1,362.62	0.25	-0.10	1.98	113.95
	NORMAL	6,115.0	5.28	102.85	5,946.92	-350.98	1,326.81	1,372.41	1.41	-1.35	-4.02	195.22
	NORMAL	6,210.0	4.83	101.97	6,041.55	-352.78	1,334.98	1,380.77	0.48	-0.47	-0.93	189.34
	NORMAL	6,305.0	4.09	92.96	6,136.26	-353.79	1,342.28	1,388.08	1.07	-0.78	-9.48	219.00
	NORMAL	6,401.0	3.11	88.90	6,232.07	-353.91	1,348.30	1,393.92	1.05	-1.02	-4.23	192.56
	NORMAL	6,496.0	0.77	91.24	6,327.01	-353.88	1,351.52	1,397.01	2.46	-2.46	2.46	179.23
	NORMAL	6,592.0	1.08	352.43	6,423.00	-353.00	1,352.04	1,397.29	1.48	0.32	-102.93	228.77
	NORMAL	6,687.0	1.25	346.86	6,517.98	-351.10	1,351.69	1,396.45	0.21	0.18	-5.86	323.52
	NORMAL	6,782.0	0.95	319.66	6,612.97	-349.49	1,350.94	1,395.31	0.63	-0.32	-28.63	226.99
	NORMAL	6,876.0	0.35	326.50	6,706.96	-348.66	1,350.28	1,394.45	0.64	-0.64	7.28	176.04
	NORMAL	6,972.0	0.75	76.98	6,802.96	-348.27	1,350.73	1,394.78	0.97	0.42	115.08	131.08
	NORMAL	7,067.0	0.43	159.84	6,897.95	-348.47	1,351.46	1,395.54	0.86	-0.34	87.22	148.51
11/16/2011	NORMAL	7,163.0	0.98	193.62	6,993.94	-349.60	1,351.39	1,395.77	0.69	0.57	35.19	54.79
	NORMAL	7,258.0	1.21	220.74	7,088.93	-351.15	1,350.55	1,395.36	0.59	0.24	28.55	80.03
	NORMAL	7,353.0	1.59	231.92	7,183.90	-352.72	1,348.85	1,394.14	0.49	0.40	11.77	41.38

## 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 (°)
11/16/2011	NORMAL	7,449.0	1.89	262.46	7,279.86	-353.75	1,346.24	1,391.88	1.00	0.31	31.81	87.74
	NORMAL	7,545.0	1.06	283.65	7,375.83	-353.75	1,343.80	1,389.54	1.02	-0.86	22.07	156.98
	NORMAL	7,640.0	1.29	312.63	7,470.81	-352.82	1,342.16	1,387.71	0.66	0.24	30.51	83.74
	NORMAL	7,736.0	0.81	284.73	7,566.79	-351.91	1,340.71	1,386.07	0.72	-0.50	-29.06	213.43
	NORMAL	7,831.0	0.26	330.58	7,661.79	-351.56	1,339.96	1,385.25	0.69	-0.58	48.26	163.48
	NORMAL	7,926.0	0.59	36.43	7,756.78	-350.98	1,340.14	1,385.27	0.57	0.35	69.32	91.98
	NORMAL	8,022.0	0.27	74.42	7,852.78	-350.52	1,340.65	1,385.65	0.43	-0.33	39.57	156.22
	NORMAL	8,117.0	0.68	210.28	7,947.78	-350.94	1,340.58	1,385.69	0.94	0.43	143.01	148.00
	NORMAL	8,212.0	1.60	211.32	8,042.76	-352.56	1,339.61	1,385.18	0.97	0.97	1.09	1.81
	NORMAL	8,307.0	1.76	215.83	8,137.72	-354.88	1,338.07	1,384.30	0.22	0.17	4.75	41.84
	NORMAL	8,403.0	2.73	216.41	8,233.64	-357.91	1,335.85	1,382.95	1.01	1.01	0.60	1.63
	NORMAL	8,471.0	3.11	217.12	8,301.56	-360.69	1,333.77	1,381.68	0.56	0.56	1.04	5.79
	NORMAL	8,533.0	3.11	217.12	8,363.46	-363.37	1,331.74	1,380.43	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

