

# 1 General

## 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

## 1.2 Well Information

Well	PA 433-20	Wellbore No.	OH
Well Name	PA 433-20	Common Name	PA 433-20
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	333.11 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	8/20/2011	UWI	PA 433-20
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	8/20/2011	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 (°)
8/20/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/20/2011	NORMAL	80.0	0.09	177.36	80.00	-0.06	0.00	-0.06	0.11	0.11	0.00	177.36
	NORMAL	174.0	2.29	340.40	173.98	1.63	-0.62	1.74	2.53	2.34	173.45	163.67
	NORMAL	265.0	5.63	339.17	264.75	7.52	-2.82	7.98	3.67	3.67	-1.35	357.93
	NORMAL	357.0	8.18	340.14	356.07	17.89	-6.65	18.97	2.77	2.77	1.05	3.10
	NORMAL	448.0	10.91	332.75	445.81	31.64	-12.79	34.01	3.28	3.00	-8.12	332.15
	NORMAL	539.0	14.52	332.67	534.56	49.44	-21.98	54.03	3.97	3.97	-0.09	359.68
	NORMAL	612.0	17.23	332.45	604.77	67.16	-31.18	74.00	3.71	3.71	-0.30	358.62
	NORMAL	703.0	20.41	332.69	690.89	93.21	-44.70	103.35	3.50	3.49	0.26	1.51
	NORMAL	794.0	24.01	332.93	775.13	123.81	-60.41	137.74	3.96	3.96	0.26	1.55
	NORMAL	886.0	24.67	332.31	858.95	157.47	-77.85	175.66	0.77	0.72	-0.67	338.55
	NORMAL	963.0	24.77	332.11	928.89	185.96	-92.86	207.85	0.17	0.13	-0.26	320.00
8/22/2011	NORMAL	1,069.0	25.14	333.39	1,025.00	225.72	-113.33	252.57	0.62	0.35	1.21	56.17
	NORMAL	1,163.0	26.03	332.15	1,109.78	261.81	-131.91	293.16	1.10	0.95	-1.32	328.41
	NORMAL	1,259.0	25.64	333.10	1,196.19	298.96	-151.15	335.00	0.59	-0.41	0.99	133.72
	NORMAL	1,354.0	25.23	330.02	1,281.98	334.83	-170.57	375.77	1.46	-0.43	-3.24	251.39
	NORMAL	1,449.0	23.98	331.72	1,368.35	369.37	-189.83	415.29	1.51	-1.32	1.79	151.25
	NORMAL	1,544.0	24.18	331.26	1,455.09	403.43	-208.34	454.03	0.29	0.21	-0.48	316.61
	NORMAL	1,640.0	23.48	335.01	1,542.91	438.00	-225.87	492.80	1.74	-0.73	3.91	116.51
	NORMAL	1,735.0	24.24	336.16	1,629.79	472.99	-241.75	531.19	0.94	0.80	1.21	32.00
	NORMAL	1,831.0	24.94	336.47	1,717.08	509.58	-257.79	571.07	0.74	0.73	0.32	10.58

2.1.2 Survey Stations (Continued)

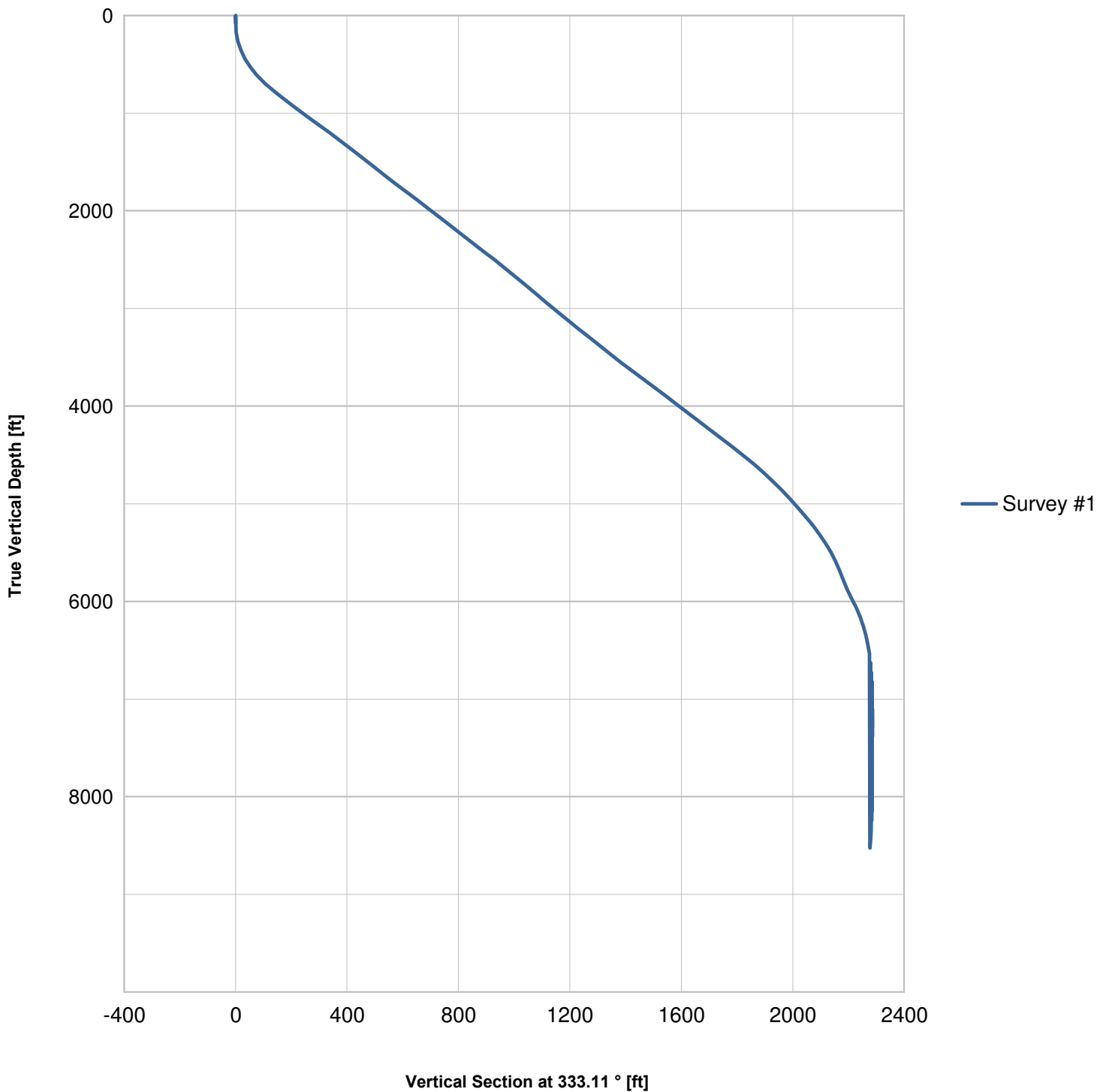
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
8/22/2011	NORMAL	1,926.0	25.13	335.84	1,803.16	546.35	-274.05	611.22	0.34	0.20	-0.66	305.19
	NORMAL	2,021.0	24.62	336.05	1,889.34	582.84	-290.34	651.13	0.54	-0.54	0.22	170.27
	NORMAL	2,116.0	24.62	335.41	1,975.71	618.91	-306.60	690.67	0.28	0.00	-0.67	269.71
	NORMAL	2,212.0	24.35	334.82	2,063.07	655.01	-323.34	730.43	0.38	-0.28	-0.61	221.90
	NORMAL	2,307.0	24.27	334.66	2,149.65	690.38	-340.03	769.52	0.11	-0.08	-0.17	219.39
	NORMAL	2,403.0	24.50	334.18	2,237.09	726.13	-357.15	809.15	0.32	0.24	-0.50	319.03
	NORMAL	2,498.0	24.11	332.04	2,323.67	761.00	-374.82	848.24	1.01	-0.41	-2.25	245.14
	NORMAL	2,594.0	24.26	332.14	2,411.24	795.75	-393.23	887.56	0.16	0.16	0.10	15.32
	NORMAL	2,690.0	24.93	328.91	2,498.53	830.52	-412.90	927.46	1.56	0.70	-3.36	295.02
	NORMAL	2,785.0	23.50	328.86	2,585.17	863.88	-433.03	966.32	1.51	-1.51	-0.05	180.80
	NORMAL	2,880.0	22.92	330.37	2,672.49	896.17	-451.97	1,003.69	0.87	-0.61	1.59	134.96
	NORMAL	2,976.0	22.94	332.25	2,760.90	928.97	-469.93	1,041.07	0.76	0.02	1.96	89.30
	NORMAL	3,072.0	22.20	331.47	2,849.55	961.47	-487.30	1,077.91	0.83	-0.77	-0.81	201.67
	NORMAL	3,167.0	23.10	333.18	2,937.22	993.87	-504.28	1,114.48	1.17	0.95	1.80	36.98
	NORMAL	3,263.0	23.32	335.65	3,025.45	1,027.99	-520.61	1,152.30	1.04	0.23	2.57	78.40
	NORMAL	3,358.0	23.47	334.00	3,112.64	1,062.12	-536.66	1,190.00	0.71	0.16	-1.74	282.14
	NORMAL	3,453.0	23.59	334.40	3,199.75	1,096.27	-553.17	1,227.92	0.21	0.13	0.42	53.26
	NORMAL	3,549.0	23.18	335.84	3,287.86	1,130.83	-569.20	1,266.00	0.73	-0.43	1.50	126.31
	NORMAL	3,644.0	23.60	336.39	3,375.05	1,165.31	-584.47	1,303.66	0.50	0.44	0.58	27.72
8/23/2011	NORMAL	3,740.0	24.15	336.36	3,462.84	1,200.91	-600.04	1,342.45	0.57	0.57	-0.03	358.72
	NORMAL	3,835.0	24.30	333.46	3,549.48	1,236.20	-616.57	1,381.40	1.26	0.16	-3.05	275.86
	NORMAL	3,930.0	25.66	333.21	3,635.59	1,272.05	-634.57	1,421.52	1.44	1.43	-0.26	355.45
	NORMAL	4,025.0	24.96	332.20	3,721.47	1,308.14	-653.19	1,462.13	0.87	-0.74	-1.06	211.21
	NORMAL	4,120.0	25.19	331.15	3,807.52	1,343.58	-672.30	1,502.38	0.53	0.24	-1.11	296.86
	NORMAL	4,216.0	24.58	330.62	3,894.60	1,378.88	-691.95	1,542.74	0.68	-0.64	-0.55	199.84
	NORMAL	4,311.0	24.65	332.05	3,980.97	1,413.59	-710.93	1,582.29	0.63	0.07	1.51	83.95
	NORMAL	4,405.0	24.88	332.34	4,066.32	1,448.42	-729.30	1,621.66	0.28	0.24	0.31	27.97
	NORMAL	4,500.0	24.52	333.15	4,152.63	1,483.71	-747.48	1,661.36	0.52	-0.38	0.85	137.13
	NORMAL	4,596.0	24.67	332.55	4,239.92	1,519.26	-765.71	1,701.31	0.30	0.16	-0.63	300.72
	NORMAL	4,691.0	25.01	333.44	4,326.13	1,554.82	-783.83	1,741.22	0.53	0.36	0.94	48.12
	NORMAL	4,787.0	24.41	332.36	4,413.34	1,590.55	-802.10	1,781.35	0.78	-0.63	-1.13	216.47
	NORMAL	4,882.0	23.79	332.94	4,500.06	1,625.00	-819.93	1,820.14	0.70	-0.65	0.61	159.36
	NORMAL	4,978.0	22.78	332.99	4,588.24	1,658.80	-837.18	1,858.08	1.05	-1.05	0.05	178.90
	NORMAL	5,074.0	20.84	334.31	4,677.37	1,690.75	-853.02	1,893.75	2.08	-2.02	1.38	166.42
	NORMAL	5,169.0	19.78	333.71	4,766.46	1,720.39	-867.47	1,926.72	1.14	-1.12	-0.63	190.83
	NORMAL	5,265.0	19.45	333.87	4,856.89	1,749.31	-881.70	1,958.94	0.35	-0.34	0.17	170.83
	NORMAL	5,360.0	17.73	334.67	4,946.93	1,776.58	-894.86	1,989.22	1.83	-1.81	0.84	171.94
	NORMAL	5,455.0	16.78	333.51	5,037.65	1,801.93	-907.16	2,017.39	1.06	-1.00	-1.22	199.36
	NORMAL	5,550.0	17.01	334.06	5,128.55	1,826.70	-919.36	2,045.00	0.29	0.24	0.58	35.06
	NORMAL	5,646.0	15.14	334.88	5,220.79	1,850.68	-930.82	2,071.57	1.96	-1.95	0.85	173.47
	NORMAL	5,741.0	13.51	332.00	5,312.84	1,871.71	-941.30	2,095.07	1.87	-1.72	-3.03	202.22
	NORMAL	5,837.0	13.22	332.96	5,406.24	1,891.39	-951.55	2,117.26	0.38	-0.30	1.00	143.04
	NORMAL	5,932.0	10.91	334.42	5,499.13	1,909.18	-960.38	2,137.11	2.45	-2.43	1.54	173.19
8/24/2011	NORMAL	6,027.0	8.99	329.69	5,592.70	1,923.70	-968.00	2,153.51	2.19	-2.02	-4.98	200.74
	NORMAL	6,123.0	8.23	331.63	5,687.62	1,936.22	-975.05	2,167.86	0.85	-0.79	2.02	160.04
	NORMAL	6,218.0	8.14	331.25	5,781.65	1,948.10	-981.52	2,181.38	0.11	-0.09	-0.40	210.82
	NORMAL	6,315.0	8.65	333.53	5,877.61	1,960.65	-988.07	2,195.54	0.63	0.53	2.35	34.26
	NORMAL	6,408.0	10.28	336.24	5,969.34	1,974.50	-994.54	2,210.82	1.82	1.75	2.91	16.63
	NORMAL	6,504.0	9.82	336.98	6,063.87	1,989.88	-1,001.19	2,227.54	0.50	-0.48	0.77	164.68
	NORMAL	6,599.0	7.63	340.49	6,157.77	2,003.28	-1,006.46	2,241.88	2.37	-2.31	3.69	168.07
8/25/2011	NORMAL	6,694.0	5.99	328.63	6,252.10	2,013.46	-1,011.15	2,253.08	2.27	-1.73	-12.48	214.83
	NORMAL	6,788.0	5.09	338.57	6,345.66	2,021.53	-1,015.23	2,262.12	1.40	-0.96	10.57	138.04
	NORMAL	6,882.0	3.66	346.66	6,439.39	2,028.33	-1,017.44	2,269.19	1.65	-1.52	8.61	160.66
	NORMAL	6,977.0	3.26	345.36	6,534.21	2,033.89	-1,018.83	2,274.78	0.43	-0.42	-1.37	190.45
	NORMAL	7,071.0	1.86	0.57	6,628.12	2,038.01	-1,019.49	2,278.74	1.64	-1.49	16.18	161.58
	NORMAL	7,166.0	1.85	21.17	6,723.07	2,040.98	-1,018.92	2,281.13	0.70	-0.01	21.68	101.14
	NORMAL	7,260.0	1.78	9.21	6,817.02	2,043.83	-1,018.14	2,283.33	0.41	-0.07	-12.72	253.59

## 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 (°)
8/25/2011	NORMAL	7,355.0	0.24	290.47	6,912.01	2,045.36	-1,018.09	2,284.67	1.84	-1.62	-82.88	187.74
	NORMAL	7,450.0	0.20	292.84	7,007.00	2,045.49	-1,018.43	2,284.94	0.04	-0.04	2.49	168.37
	NORMAL	7,545.0	0.62	39.28	7,102.00	2,045.96	-1,018.25	2,285.27	0.74	0.44	112.04	122.27
	NORMAL	7,640.0	0.23	19.55	7,197.00	2,046.53	-1,017.86	2,285.61	0.43	-0.41	-20.77	190.89
	NORMAL	7,735.0	0.48	229.23	7,292.00	2,046.45	-1,018.10	2,285.65	0.73	0.26	-158.23	200.17
	NORMAL	7,830.0	0.61	194.38	7,386.99	2,045.70	-1,018.53	2,285.17	0.37	0.14	-36.68	273.38
	NORMAL	7,925.0	0.74	205.29	7,481.99	2,044.66	-1,018.92	2,284.42	0.19	0.14	11.48	50.22
	NORMAL	8,020.0	0.78	178.00	7,576.98	2,043.46	-1,019.16	2,283.45	0.38	0.04	-28.73	262.54
	NORMAL	8,115.0	0.84	193.98	7,671.97	2,042.14	-1,019.30	2,282.34	0.25	0.06	16.82	83.21
	NORMAL	8,210.0	1.14	248.81	7,766.96	2,041.12	-1,020.35	2,281.91	1.00	0.32	57.72	101.13
8/26/2011	NORMAL	8,305.0	1.32	257.07	7,861.94	2,040.53	-1,022.30	2,282.27	0.27	0.19	8.69	48.75
	NORMAL	8,401.0	0.84	312.56	7,957.92	2,040.76	-1,023.89	2,283.19	1.14	-0.50	57.80	140.64
	NORMAL	8,496.0	0.71	269.39	8,052.91	2,041.23	-1,025.00	2,284.10	0.61	-0.14	-45.44	236.45
	NORMAL	8,592.0	1.64	219.71	8,148.89	2,040.16	-1,026.47	2,283.82	1.35	0.97	-51.75	285.69
	NORMAL	8,687.0	2.00	219.49	8,243.85	2,037.84	-1,028.39	2,282.62	0.38	0.38	-0.23	358.78
	NORMAL	8,783.0	3.03	222.06	8,339.75	2,034.66	-1,031.16	2,281.04	1.08	1.07	2.68	7.53
	NORMAL	8,878.0	3.16	220.34	8,434.61	2,030.80	-1,034.53	2,279.12	0.17	0.14	-1.81	323.60
	NORMAL	8,908.0	3.45	216.37	8,464.56	2,029.44	-1,035.60	2,278.39	1.23	0.97	-13.23	319.73
	NORMAL	8,968.0	3.45	216.37	8,524.46	2,026.54	-1,037.74	2,276.77	0.00	0.00	0.00	0.00

### 3 Charts

#### 3.1 Vertical Section View



3.2 Plan View

