

## I General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	PA 433-2	Wellbore No.	
Well Name	PA 433-2	Common Name	PA 433-2
Project	PA 01-07S-095W	Site	GV 84-1 Pad
Vertical Section Azimuth	254.27 (°)	North Reference	
Origin N/S		Origin E/W	
Spud Date	3/21/2013	UWI	PA 433-2
Active Datum	KB @6,053.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	3/21/2013	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 (°)
3/21/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3/21/2013	NORMAL	103.0	0.62	193.54	103.00	-0.54	-0.13	0.27	0.60	0.60	0.00	193.54
	NORMAL	134.0	2.20	243.72	133.99	-0.97	-0.70	0.94	6.02	5.10	161.87	64.97
	NORMAL	165.0	3.26	253.74	164.95	-1.48	-2.08	2.41	3.74	3.42	32.32	29.30
	NORMAL	195.0	3.96	260.86	194.89	-1.88	-3.92	4.29	2.77	2.33	23.73	36.22
	NORMAL	225.0	4.66	266.48	224.81	-2.12	-6.16	6.51	2.72	2.33	18.73	33.93
	NORMAL	255.0	5.19	269.30	254.70	-2.21	-8.74	9.01	1.94	1.77	9.40	25.96
	NORMAL	286.0	6.07	265.87	285.55	-2.35	-11.77	11.97	3.04	2.84	-11.06	337.36
	NORMAL	316.0	6.16	262.79	315.38	-2.66	-14.95	15.12	1.13	0.30	-10.27	283.80
	NORMAL	345.0	6.77	261.21	344.19	-3.12	-18.19	18.35	2.19	2.10	-5.45	342.96
	NORMAL	375.0	7.30	259.37	373.97	-3.74	-21.81	22.00	1.92	1.77	-6.13	336.05
	NORMAL	406.0	8.18	257.96	404.68	-4.57	-25.90	26.17	2.90	2.84	-4.55	347.12
	NORMAL	436.0	9.33	261.56	434.33	-5.37	-30.39	30.71	4.24	3.83	12.00	27.26
	NORMAL	464.0	10.21	262.88	461.93	-6.01	-35.10	35.41	3.24	3.14	4.71	14.93
	NORMAL	495.0	10.47	264.20	492.42	-6.63	-40.63	40.91	1.13	0.84	4.26	42.96
3/22/2013	NORMAL	524.0	11.35	261.91	520.90	-7.30	-46.08	46.33	3.38	3.03	-7.90	332.65
	NORMAL	555.0	12.32	261.21	551.24	-8.24	-52.36	52.64	3.16	3.13	-2.26	351.24
	NORMAL	585.0	12.93	262.62	580.52	-9.16	-58.86	59.13	2.28	2.03	4.70	27.46
	NORMAL	615.0	13.99	262.09	609.69	-10.09	-65.78	66.05	3.56	3.53	-1.77	353.10
	NORMAL	686.0	16.80	261.03	678.14	-12.87	-84.42	84.74	3.98	3.96	-1.49	353.77
	NORMAL	776.0	19.87	260.06	763.56	-17.54	-112.33	112.88	3.43	3.41	-1.08	353.86

## 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 (°)
3/22/2013	NORMAL	867.0	23.30	261.91	848.16	-22.74	-145.40	146.12	3.84	3.77	2.03	12.09
	NORMAL	959.0	25.32	259.97	932.00	-28.73	-182.79	183.73	2.36	2.20	-2.11	337.54
	NORMAL	1,054.0	28.05	259.36	1,016.88	-36.39	-224.75	226.20	2.89	2.87	-0.64	354.00
	NORMAL	1,149.0	30.16	257.51	1,099.88	-45.68	-270.01	272.28	2.41	2.22	-1.95	336.09
	NORMAL	1,245.0	32.54	260.06	1,181.86	-55.35	-319.00	322.06	2.84	2.48	2.66	30.23
	NORMAL	1,341.0	35.61	261.82	1,261.37	-63.79	-372.10	375.46	3.36	3.20	1.83	18.54
	NORMAL	1,436.0	37.99	260.59	1,337.44	-72.51	-428.33	431.95	2.62	2.51	-1.29	342.30
	NORMAL	1,480.0	38.71	262.12	1,371.94	-76.61	-455.32	459.04	2.71	1.64	3.48	53.42
3/23/2013	NORMAL	1,536.0	39.21	265.86	1,415.49	-80.29	-490.33	493.73	4.29	0.89	6.68	79.46
	NORMAL	1,631.0	39.96	259.97	1,488.73	-87.77	-550.34	553.52	4.03	0.79	-6.20	279.02
	NORMAL	1,726.0	38.02	258.83	1,562.57	-98.75	-609.09	613.05	2.18	-2.04	-1.20	199.85
	NORMAL	1,822.0	38.46	261.56	1,637.98	-108.86	-667.63	672.14	1.82	0.46	2.84	76.48
	NORMAL	1,918.0	38.99	260.24	1,712.87	-118.36	-726.93	731.79	1.02	0.55	-1.38	302.18
	NORMAL	2,012.0	36.44	260.94	1,787.23	-127.77	-783.65	788.94	2.75	-2.71	0.74	170.74
	NORMAL	2,107.0	39.91	265.16	1,861.91	-134.79	-841.91	846.92	4.57	3.65	4.44	38.61
	NORMAL	2,203.0	39.91	264.10	1,935.55	-140.56	-903.23	907.50	0.71	0.00	-1.10	269.58
3/24/2013	NORMAL	2,298.0	37.49	261.82	2,009.69	-147.80	-962.17	966.20	2.96	-2.55	-2.40	209.62
	NORMAL	2,393.0	37.80	260.41	2,084.91	-156.77	-1,019.49	1,023.81	0.96	0.33	-1.48	289.24
	NORMAL	2,489.0	37.93	259.88	2,160.70	-166.85	-1,077.54	1,082.42	0.36	0.14	-0.55	291.57
	NORMAL	2,584.0	37.63	262.08	2,235.79	-175.98	-1,135.02	1,140.22	1.45	-0.32	2.32	103.42
	NORMAL	2,679.0	38.24	261.56	2,310.71	-184.29	-1,192.82	1,198.11	0.72	0.64	-0.55	332.14
	NORMAL	2,774.0	38.86	260.50	2,385.01	-193.52	-1,251.30	1,256.90	0.95	0.65	-1.12	312.77
	NORMAL	2,869.0	38.20	260.85	2,459.33	-203.11	-1,309.70	1,315.71	0.73	-0.69	0.37	161.86
	NORMAL	2,963.0	37.80	262.79	2,533.40	-211.35	-1,366.97	1,373.08	1.34	-0.43	2.06	109.28
	NORMAL	3,057.0	37.41	261.56	2,607.87	-219.16	-1,423.80	1,429.89	0.90	-0.41	-1.31	242.06
	NORMAL	3,152.0	38.37	262.79	2,682.85	-227.10	-1,481.59	1,487.68	1.29	1.01	1.29	38.69
	NORMAL	3,247.0	37.54	261.29	2,757.76	-235.18	-1,539.46	1,545.56	1.31	-0.87	-1.58	227.43
	NORMAL	3,342.0	37.93	261.20	2,832.89	-244.03	-1,596.92	1,603.27	0.41	0.41	-0.09	351.93
	NORMAL	3,437.0	39.30	259.53	2,907.12	-253.96	-1,655.36	1,662.22	1.81	1.44	-1.76	322.08
	NORMAL	3,533.0	38.42	258.66	2,981.87	-265.35	-1,714.51	1,722.24	1.08	-0.92	-0.91	211.47
	NORMAL	3,628.0	38.81	258.30	3,056.10	-277.19	-1,772.60	1,781.37	0.47	0.41	-0.38	329.9
	NORMAL	3,724.0	39.03	255.93	3,130.79	-290.64	-1,831.38	1,841.59	1.57	0.23	-2.47	277.48
	NORMAL	3,819.0	38.73	253.73	3,204.75	-306.24	-1,888.93	1,901.21	1.49	-0.32	-2.32	256.88
	NORMAL	3,915.0	38.07	252.06	3,279.99	-323.77	-1,945.92	1,960.82	1.28	-0.69	-1.74	236.88
	NORMAL	4,010.0	37.89	250.31	3,354.87	-342.63	-2,001.25	2,019.19	1.15	-0.19	-1.84	259.82
	NORMAL	4,105.0	39.16	245.91	3,429.20	-364.70	-2,056.11	2,077.99	3.18	1.34	-4.63	293.13
	NORMAL	4,201.0	39.03	241.16	3,503.73	-391.66	-2,110.28	2,137.43	3.12	-0.14	-4.95	265.67
	NORMAL	4,297.0	38.81	240.46	3,578.42	-421.07	-2,162.93	2,196.08	0.51	-0.23	-0.73	243.15
	NORMAL	4,391.0	38.24	240.20	3,651.96	-450.06	-2,213.80	2,252.90	0.63	-0.61	-0.28	195.76
	NORMAL	4,487.0	37.76	238.70	3,727.61	-480.09	-2,264.70	2,310.04	1.08	-0.50	-1.56	241.95
	NORMAL	4,583.0	35.43	240.37	3,804.68	-509.12	-2,314.01	2,365.37	2.64	-2.43	1.74	157.53
3/25/2013	NORMAL	4,678.0	35.12	240.64	3,882.24	-536.14	-2,361.76	2,418.66	0.37	-0.33	0.28	153.4
	NORMAL	4,774.0	33.41	240.90	3,961.57	-562.53	-2,408.92	2,471.21	1.79	-1.78	0.27	175.2
	NORMAL	4,869.0	31.56	240.90	4,041.70	-587.34	-2,453.50	2,520.85	1.95	-1.95	0.00	180.00
	NORMAL	4,964.0	30.73	243.01	4,123.01	-610.45	-2,496.86	2,568.85	1.44	-0.87	2.22	128.15
	NORMAL	5,060.0	28.97	242.31	4,206.27	-632.39	-2,539.30	2,615.65	1.87	-1.83	-0.73	190.88
	NORMAL	5,155.0	26.33	244.24	4,290.42	-652.24	-2,578.66	2,658.91	2.93	-2.78	2.03	162.1
	NORMAL	5,250.0	25.27	244.24	4,375.95	-670.21	-2,615.90	2,699.63	1.12	-1.12	0.00	180.00
	NORMAL	5,345.0	23.34	244.07	4,462.52	-687.25	-2,651.08	2,738.12	2.03	-2.03	-0.18	182.00
3/26/2013	NORMAL	5,440.0	22.33	243.36	4,550.08	-703.57	-2,684.14	2,774.36	1.10	-1.06	-0.75	194.93
	NORMAL	5,536.0	20.66	243.80	4,639.40	-719.23	-2,715.64	2,808.93	1.75	-1.74	0.46	174.69
	NORMAL	5,631.0	17.36	246.88	4,729.21	-732.20	-2,743.72	2,839.47	3.63	-3.47	3.24	164.54
	NORMAL	5,727.0	15.52	244.77	4,821.28	-743.30	-2,768.51	2,866.34	2.01	-1.92	-2.20	196.97
	NORMAL	5,822.0	14.33	245.56	4,913.07	-753.58	-2,790.71	2,890.50	1.27	-1.25	0.83	170.68
	NORMAL	5,918.0	11.87	241.08	5,006.57	-763.27	-2,810.18	2,911.86	2.77	-2.56	-4.67	200.26
	NORMAL	6,014.0	10.24	239.14	5,100.78	-772.42	-2,826.14	2,929.71	1.74	-1.70	-2.02	191.9
	NORMAL	6,109.0	8.97	239.76	5,194.45	-780.48	-2,839.79	2,945.03	1.34	-1.34	0.65	175.65

## 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 (°)
3/26/2013	NORMAL	6,205.0	7.56	243.54	5,289.45	-787.07	-2,851.91	2,958.48	1.57	-1.47	3.94	160.79
	NORMAL	6,300.0	6.46	236.68	5,383.74	-792.79	-2,861.97	2,969.72	1.45	-1.16	-7.22	213.90
	NORMAL	6,395.0	4.92	240.11	5,478.27	-797.75	-2,869.97	2,978.76	1.66	-1.62	3.61	169.25
	NORMAL	6,491.0	2.55	239.50	5,574.06	-800.89	-2,875.38	2,984.82	2.47	-2.47	-0.64	180.66
	NORMAL	6,587.0	1.36	168.66	5,670.01	-803.09	-2,877.00	2,986.97	2.57	-1.24	-73.79	211.42
	NORMAL	6,682.0	1.89	127.70	5,764.98	-805.15	-2,875.53	2,986.13	1.31	0.56	-43.12	273.12
3/27/2013	NORMAL	6,778.0	2.33	107.13	5,860.91	-806.70	-2,872.42	2,983.54	0.91	0.46	-21.43	289.61
	NORMAL	6,874.0	1.23	86.04	5,956.87	-807.20	-2,869.52	2,980.90	1.32	-1.15	-21.97	200.52
	NORMAL	6,969.0	0.92	25.04	6,051.85	-806.44	-2,868.18	2,979.40	1.18	-0.33	-64.21	225.75
	NORMAL	7,064.0	1.80	343.56	6,146.83	-804.32	-2,868.28	2,978.92	1.33	0.93	-43.66	289.78
	NORMAL	7,160.0	1.93	321.23	6,242.78	-801.61	-2,869.72	2,979.57	0.76	0.14	-23.26	268.86
	NORMAL	7,255.0	2.07	308.05	6,337.72	-799.31	-2,872.08	2,981.21	0.50	0.15	-13.87	280.27
	NORMAL	7,350.0	1.45	289.86	6,432.68	-797.84	-2,874.56	2,983.20	0.87	-0.65	-19.15	213.17
	NORMAL	7,445.0	1.67	277.20	6,527.64	-797.26	-2,877.06	2,985.46	0.43	0.23	-13.33	296.12
3/28/2013	NORMAL	7,540.0	1.58	315.87	6,622.61	-796.14	-2,879.35	2,987.35	1.14	-0.09	40.71	113.84
	NORMAL	7,635.0	1.80	264.45	6,717.57	-795.35	-2,881.74	2,989.44	1.56	0.23	-54.13	252.00
	NORMAL	7,730.0	2.07	257.86	6,812.52	-795.85	-2,884.91	2,992.63	0.37	0.28	-6.94	317.18
	NORMAL	7,825.0	2.46	257.34	6,907.44	-796.66	-2,888.57	2,996.37	0.41	0.41	-0.55	356.72
	NORMAL	7,920.0	2.50	255.49	7,002.35	-797.63	-2,892.57	3,000.48	0.09	0.04	-1.95	295.62
	NORMAL	8,016.0	2.20	260.41	7,098.27	-798.46	-2,896.41	3,004.41	0.38	-0.31	5.13	148.52
	NORMAL	8,111.0	1.80	272.45	7,193.21	-798.70	-2,899.70	3,007.64	0.61	-0.42	12.67	139.50
	NORMAL	8,206.0	1.76	278.96	7,288.17	-798.41	-2,902.63	3,010.38	0.22	-0.04	6.85	104.43
3/29/2013	NORMAL	8,302.0	1.76	275.27	7,384.12	-798.04	-2,905.56	3,013.10	0.12	0.00	-3.84	268.16
	NORMAL	8,397.0	2.11	275.00	7,479.07	-797.76	-2,908.75	3,016.09	0.37	0.37	-0.28	358.37
	NORMAL	8,493.0	2.50	264.54	7,574.99	-797.80	-2,912.60	3,019.81	0.60	0.41	-10.90	307.53
	NORMAL	8,588.0	2.81	254.27	7,669.89	-798.63	-2,916.90	3,024.17	0.60	0.33	-10.81	297.89
	NORMAL	8,640.0	3.17	255.17	7,721.82	-799.34	-2,919.52	3,026.89	0.70	0.69	1.73	7.88
	NORMAL	8,685.0	3.17	255.17	7,766.75	-799.98	-2,921.92	3,029.37	0.00	0.00	0.00	0.00