

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	PA 424-12	Wellbore No.	OH
Well Name	PA 424-12	Common Name	PA 424-12
Project	PA 12-07S-095W	Site	PA 23-12 Pad
Vertical Section Azimuth	171.92 (°)	North Reference	
Origin N/S		Origin E/W	
Spud Date	8/17/2013	UWI	PA 424-12
Active Datum	KB @6,533.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	8/17/2013	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 (°)
8/17/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/17/2013	NORMAL	74.0	0.18	173.50	74.00	-0.12	0.01	0.12	0.24	0.24	0.00	173.50
	NORMAL	164.0	3.08	193.36	163.92	-4.29	-1.02	2.51	1.88	1.88	0.00	193.36
	NORMAL	255.0	3.87	171.39	254.76	-9.70	-1.12	9.45	1.69	0.87	-24.14	289.40
	NORMAL	346.0	6.42	172.88	345.38	-17.79	-0.03	17.61	2.81	2.80	1.64	3.74
	NORMAL	416.0	8.53	180.38	414.79	-26.86	0.42	26.66	3.31	3.01	10.71	28.57
	NORMAL	506.0	10.18	175.49	503.59	-41.47	1.00	41.20	2.03	1.83	-5.43	331.85
	NORMAL	595.0	12.35	171.58	590.87	-58.73	3.01	58.57	2.58	2.44	-4.39	338.68
	NORMAL	688.0	14.25	168.11	681.37	-79.77	6.83	79.94	2.22	2.04	-3.73	335.51
	NORMAL	778.0	17.50	170.80	767.93	-103.97	11.27	104.52	3.70	3.61	2.99	14.06
	NORMAL	870.0	20.05	167.20	855.03	-133.01	16.98	134.08	3.04	2.77	-3.91	333.85
8/18/2013	NORMAL	961.0	22.51	168.87	939.82	-165.32	23.80	167.02	2.78	2.70	1.84	14.62
	NORMAL	1,031.0	23.48	173.17	1,004.26	-192.32	28.04	194.35	2.77	1.39	6.14	61.99
	NORMAL	1,176.0	23.96	169.04	1,137.02	-249.91	37.08	252.64	1.19	0.33	-2.85	284.22
8/19/2013	NORMAL	1,272.0	25.06	170.19	1,224.37	-289.08	44.25	292.43	1.25	1.15	1.20	23.97
	NORMAL	1,367.0	26.02	172.30	1,310.09	-329.56	50.47	333.38	1.39	1.01	2.22	44.41
	NORMAL	1,463.0	27.21	173.44	1,395.91	-372.23	55.80	376.38	1.35	1.24	1.19	23.74
	NORMAL	1,559.0	27.03	173.18	1,481.36	-415.69	60.90	420.13	0.22	-0.19	-0.27	213.25
	NORMAL	1,654.0	27.74	171.07	1,565.71	-458.97	66.89	463.82	1.27	0.75	-2.22	305.25
	NORMAL	1,750.0	27.43	170.01	1,650.80	-502.82	74.20	508.26	0.60	-0.32	-1.10	237.26
	NORMAL	1,845.0	26.77	169.04	1,735.37	-545.37	82.06	551.49	0.84	-0.69	-1.02	213.37

## 2.1.2 Survey Stations (Continued)

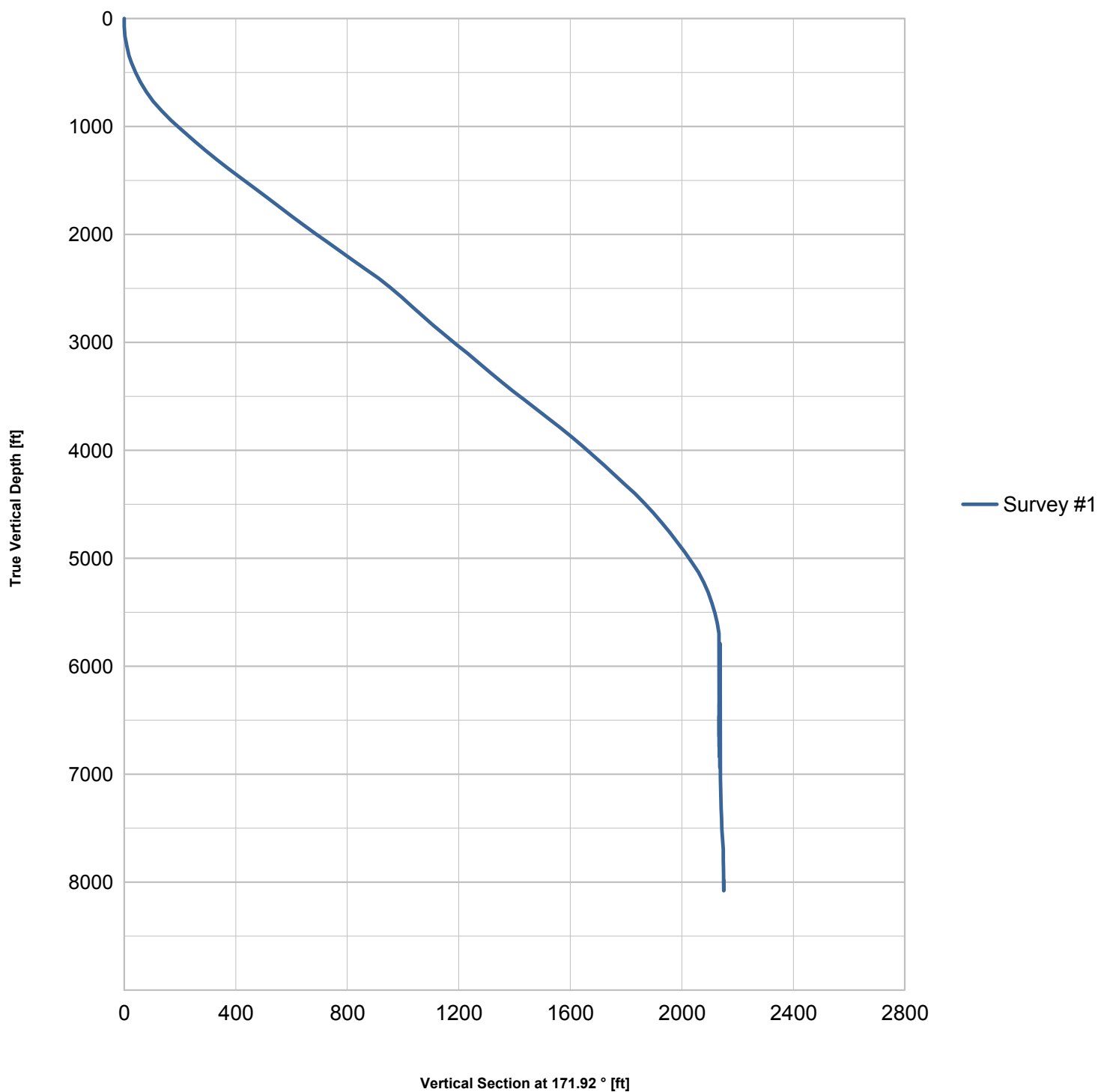
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
8/19/2013	NORMAL	1,941.0	27.43	173.53	1,820.84	-588.58	88.66	595.19	2.24	0.69	4.68	74.12
	NORMAL	2,036.0	27.74	173.26	1,905.04	-632.27	93.72	639.17	0.35	0.33	-0.28	337.92
	NORMAL	2,131.0	28.44	172.82	1,988.85	-676.67	99.14	683.89	0.77	0.74	-0.46	343.32
8/20/2013	NORMAL	2,227.0	28.79	171.51	2,073.13	-722.22	105.42	729.87	0.75	0.36	-1.36	298.58
	NORMAL	2,323.0	28.70	170.54	2,157.30	-767.82	112.62	776.03	0.49	-0.09	-1.01	258.66
	NORMAL	2,418.0	28.53	170.80	2,240.69	-812.72	119.99	821.51	0.22	-0.18	0.27	143.89
	NORMAL	2,514.0	29.14	170.71	2,324.79	-858.41	127.43	867.80	0.64	0.64	-0.09	355.89
	NORMAL	2,609.0	27.78	171.42	2,408.31	-903.13	134.47	913.07	1.48	-1.43	0.75	166.34
	NORMAL	2,704.0	25.10	170.01	2,493.36	-944.88	141.27	955.35	2.90	-2.82	-1.48	192.55
	NORMAL	2,800.0	23.60	169.48	2,580.82	-983.83	148.31	994.90	1.58	-1.56	-0.55	188.05
	NORMAL	2,895.0	23.34	174.32	2,667.97	-1,021.25	153.64	1,032.71	2.05	-0.27	5.09	99.90
	NORMAL	2,991.0	23.39	172.65	2,756.10	-1,059.08	157.96	1,070.76	0.69	0.05	-1.74	273.55
	NORMAL	3,086.0	24.13	175.37	2,843.05	-1,097.13	161.94	1,109.00	1.39	0.78	2.86	57.22
	NORMAL	3,182.0	25.63	175.99	2,930.14	-1,137.41	164.98	1,149.30	1.59	1.56	0.65	10.15
	NORMAL	3,278.0	25.45	174.14	3,016.76	-1,178.64	168.54	1,190.63	0.85	-0.19	-1.93	256.45
	NORMAL	3,373.0	25.41	173.09	3,102.55	-1,219.18	173.07	1,231.40	0.48	-0.04	-1.11	264.46
	NORMAL	3,469.0	24.88	172.12	3,189.46	-1,259.63	178.32	1,272.19	0.70	-0.55	-1.01	217.43
	NORMAL	3,564.0	24.00	171.86	3,275.94	-1,298.55	183.80	1,311.49	0.93	-0.93	-0.27	186.85
8/21/2013	NORMAL	3,660.0	25.19	173.26	3,363.23	-1,338.17	188.96	1,351.44	1.38	1.24	1.46	26.73
	NORMAL	3,755.0	26.68	174.14	3,448.66	-1,379.46	193.51	1,392.97	1.62	1.57	0.93	14.88
	NORMAL	3,851.0	26.73	173.35	3,534.42	-1,422.35	198.21	1,436.09	0.37	0.05	-0.82	277.66
	NORMAL	3,946.0	26.59	172.03	3,619.32	-1,464.63	203.63	1,478.71	0.64	-0.15	-1.39	256.11
	NORMAL	4,042.0	26.59	170.63	3,705.17	-1,507.10	210.11	1,521.67	0.65	0.00	-1.46	269.37
	NORMAL	4,137.0	25.93	170.71	3,790.36	-1,548.58	216.92	1,563.69	0.70	-0.69	0.08	176.97
	NORMAL	4,233.0	25.14	170.80	3,876.99	-1,589.42	223.57	1,605.07	0.82	-0.82	0.09	177.23
	NORMAL	4,328.0	24.26	170.54	3,963.29	-1,628.59	230.01	1,644.75	0.93	-0.93	-0.27	186.92
	NORMAL	4,423.0	23.52	170.36	4,050.15	-1,666.53	236.39	1,683.22	0.78	-0.78	-0.19	185.54
	NORMAL	4,518.0	23.12	170.98	4,137.39	-1,703.64	242.49	1,720.81	0.49	-0.42	0.65	148.75
	NORMAL	4,613.0	22.86	169.48	4,224.85	-1,740.21	248.78	1,757.90	0.67	-0.27	-1.58	245.38
	NORMAL	4,709.0	22.95	169.66	4,313.28	-1,776.95	255.55	1,795.23	0.12	0.09	0.19	37.98
	NORMAL	4,804.0	21.98	170.28	4,401.07	-1,812.70	261.87	1,831.51	1.05	-1.02	0.65	166.56
	NORMAL	4,900.0	20.40	170.45	4,490.58	-1,846.91	267.68	1,866.20	1.65	-1.65	0.18	177.85
	NORMAL	4,995.0	18.73	170.63	4,580.09	-1,878.29	272.91	1,898.00	1.76	-1.76	0.19	178.02
	NORMAL	5,090.0	17.89	174.93	4,670.28	-1,907.87	276.68	1,927.82	1.67	-0.88	4.53	123.90
	NORMAL	5,184.0	17.27	175.55	4,759.89	-1,936.16	279.04	1,956.16	0.69	-0.66	0.66	163.49
	NORMAL	5,279.0	16.35	174.85	4,850.83	-1,963.54	281.34	1,983.59	0.99	-0.97	-0.74	192.07
	NORMAL	5,375.0	15.74	175.64	4,943.09	-1,989.98	283.54	2,010.08	0.67	-0.64	0.82	160.68
	NORMAL	5,471.0	15.21	175.64	5,035.61	-2,015.52	285.49	2,035.64	0.55	-0.55	0.00	180.00
	NORMAL	5,567.0	13.19	173.70	5,128.67	-2,038.97	287.65	2,059.16	2.16	-2.10	-2.02	192.32
	NORMAL	5,662.0	10.51	174.23	5,221.64	-2,058.37	289.71	2,078.65	2.82	-2.82	0.56	177.93
	NORMAL	5,757.0	8.66	172.21	5,315.31	-2,074.07	291.55	2,094.46	1.98	-1.95	-2.13	189.31
	NORMAL	5,853.0	7.25	167.11	5,410.38	-2,087.14	293.88	2,107.73	1.64	-1.47	-5.31	204.08
8/22/2013	NORMAL	5,949.0	5.80	172.82	5,505.76	-2,097.86	295.84	2,118.61	1.65	-1.51	5.95	158.71
	NORMAL	6,045.0	4.00	176.43	5,601.41	-2,106.01	296.65	2,126.80	1.90	-1.88	3.76	172.07
	NORMAL	6,140.0	3.38	162.89	5,696.21	-2,112.00	297.68	2,132.87	1.12	-0.65	-14.25	227.94
	NORMAL	6,236.0	1.23	194.45	5,792.13	-2,115.70	298.26	2,136.62	2.52	-2.24	32.88	164.56
	NORMAL	6,332.0	0.66	44.68	5,888.12	-2,116.31	298.39	2,137.24	1.91	-0.59	-156.01	190.46
	NORMAL	6,427.0	0.83	49.16	5,983.12	-2,115.47	299.29	2,136.53	0.19	0.18	4.72	21.16
	NORMAL	6,523.0	0.70	47.84	6,079.11	-2,114.62	300.26	2,135.83	0.14	-0.14	-1.38	187.06
	NORMAL	6,618.0	0.35	31.94	6,174.10	-2,113.98	300.84	2,135.28	0.40	-0.37	-16.74	194.78
	NORMAL	6,713.0	0.40	57.78	6,269.10	-2,113.56	301.27	2,134.92	0.18	0.05	27.20	86.71
	NORMAL	6,809.0	0.26	355.99	6,365.10	-2,113.16	301.54	2,134.57	0.37	-0.15	-64.36	219.59
	NORMAL	6,905.0	0.61	59.45	6,461.10	-2,112.69	301.97	2,134.16	0.57	0.36	66.10	88.68
	NORMAL	7,000.0	0.61	72.36	6,556.09	-2,112.28	302.88	2,133.88	0.14	0.00	13.59	96.45
	NORMAL	7,096.0	0.00	247.36	6,652.09	-2,112.12	303.37	2,133.79	0.64	-0.64	0.00	180.00
	NORMAL	7,191.0	1.10	236.11	6,747.08	-2,112.63	302.61	2,134.19	1.16	1.16	0.00	236.11
8/23/2013	NORMAL	7,286.0	1.76	213.78	6,842.06	-2,114.35	301.05	2,135.67	0.90	0.69	-23.51	308.30

## 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 (°)
8/23/2013	NORMAL	7,381.0	0.61	137.32	6,937.04	-2,115.93	300.58	2,137.18	1.81	-1.21	-80.48	200.14
	NORMAL	7,477.0	0.61	166.85	7,033.03	-2,116.81	301.04	2,138.11	0.32	0.00	30.76	104.76
	NORMAL	7,572.0	0.92	206.13	7,128.02	-2,117.99	300.82	2,139.24	0.62	0.33	41.35	80.05
	NORMAL	7,666.0	1.50	240.41	7,222.00	-2,119.27	299.42	2,140.32	0.96	0.62	36.47	69.28
	NORMAL	7,761.0	2.24	245.86	7,316.95	-2,120.64	296.64	2,141.29	0.80	0.78	5.74	16.25
	NORMAL	7,856.0	3.08	248.50	7,411.85	-2,122.34	292.57	2,142.39	0.89	0.88	2.78	9.62
	NORMAL	7,952.0	2.99	239.53	7,507.72	-2,124.55	288.01	2,143.94	0.50	-0.09	-9.34	254.81
8/24/2013	NORMAL	8,047.0	2.37	208.07	7,602.62	-2,127.54	284.96	2,146.47	1.65	-0.65	-33.12	231.95
	NORMAL	8,142.0	1.50	239.97	7,697.56	-2,129.90	282.95	2,148.53	1.42	-0.92	33.58	144.13
	NORMAL	8,237.0	0.97	251.57	7,792.54	-2,130.78	281.11	2,149.13	0.61	-0.56	12.21	160.47
	NORMAL	8,333.0	1.50	246.12	7,888.52	-2,131.54	279.19	2,149.62	0.56	0.55	-5.68	344.77
	NORMAL	8,428.0	1.32	255.70	7,983.49	-2,132.31	277.00	2,150.08	0.31	-0.19	10.08	132.09
	NORMAL	8,523.0	1.35	268.99	8,078.46	-2,132.60	274.82	2,150.06	0.33	0.03	13.99	91.13

### 3 Charts

#### 3.1 Vertical Section View



### 3.2 Plan View

