

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	PA 341-27	Wellbore No.	00
Wellbore Legal Name	PA 341-27	Common Wellbore Name	PA 341-27
Project	PA 27-06S-095W	Site	DOE 2-W-27 Pad
Vertical Section Azimuth	11.32 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	11/27/2014	UWI	PA 341-27
Active datum	KB @5,882.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	11/27/2014	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 (°)
11/27/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11/27/2014	NORMAL	87.0	1.41	37.18	86.99	0.85	0.65	0.96	1.62	1.62	0.00	37.18
	NORMAL	175.0	2.38	17.14	174.94	3.46	1.84	3.76	1.32	1.10	-22.77	315.37
	NORMAL	267.0	2.99	18.46	266.84	7.56	3.16	8.04	0.67	0.66	1.43	6.45
	NORMAL	359.0	5.19	6.77	358.60	13.97	4.41	14.57	2.55	2.39	-12.71	333.35
	NORMAL	450.0	8.80	14.68	448.91	24.80	6.66	25.62	4.10	3.97	8.69	18.89
	NORMAL	541.0	13.37	13.62	538.19	41.76	10.91	43.09	5.03	5.02	-1.16	356.93
	NORMAL	631.0	15.31	9.05	625.39	63.61	15.23	65.37	2.49	2.16	-5.08	327.51
	NORMAL	703.0	16.44	8.76	694.64	83.07	18.27	85.04	1.57	1.57	-0.40	355.84
	NORMAL	795.0	17.56	10.86	782.62	109.57	22.87	111.93	1.39	1.22	2.28	29.74
	NORMAL	886.0	18.36	10.22	869.18	137.16	28.00	139.98	0.91	0.88	-0.70	345.84
	NORMAL	977.0	18.91	9.12	955.41	165.82	32.88	169.05	0.72	0.60	-1.21	326.90
	NORMAL	1,069.0	18.83	11.65	1,042.47	195.08	38.24	198.79	0.89	-0.09	2.75	96.78
	NORMAL	1,164.0	19.14	12.72	1,132.30	225.29	44.77	229.69	0.49	0.33	1.13	48.82
	NORMAL	1,259.0	19.84	12.56	1,221.86	256.22	51.70	261.38	0.74	0.74	-0.17	355.56
	NORMAL	1,354.0	18.40	12.03	1,311.61	286.62	58.33	292.49	1.53	-1.52	-0.56	186.62
	NORMAL	1,449.0	19.11	11.99	1,401.57	316.49	64.69	323.03	0.75	0.75	-0.04	358.94
	NORMAL	1,545.0	20.25	10.54	1,491.96	348.20	70.99	355.36	1.29	1.19	-1.51	336.13
	NORMAL	1,640.0	18.48	10.85	1,581.58	379.15	76.83	386.86	1.87	-1.86	0.33	176.82
	NORMAL	1,736.0	16.88	12.31	1,673.05	407.71	82.67	416.01	1.73	-1.67	1.52	165.20
	NORMAL	1,830.0	17.12	12.87	1,762.94	434.54	88.66	443.49	0.31	0.26	0.60	34.57
	NORMAL	1,925.0	18.03	13.50	1,853.50	462.46	95.21	472.16	0.98	0.96	0.66	12.11

2.1.2 Survey Stations (Continued)

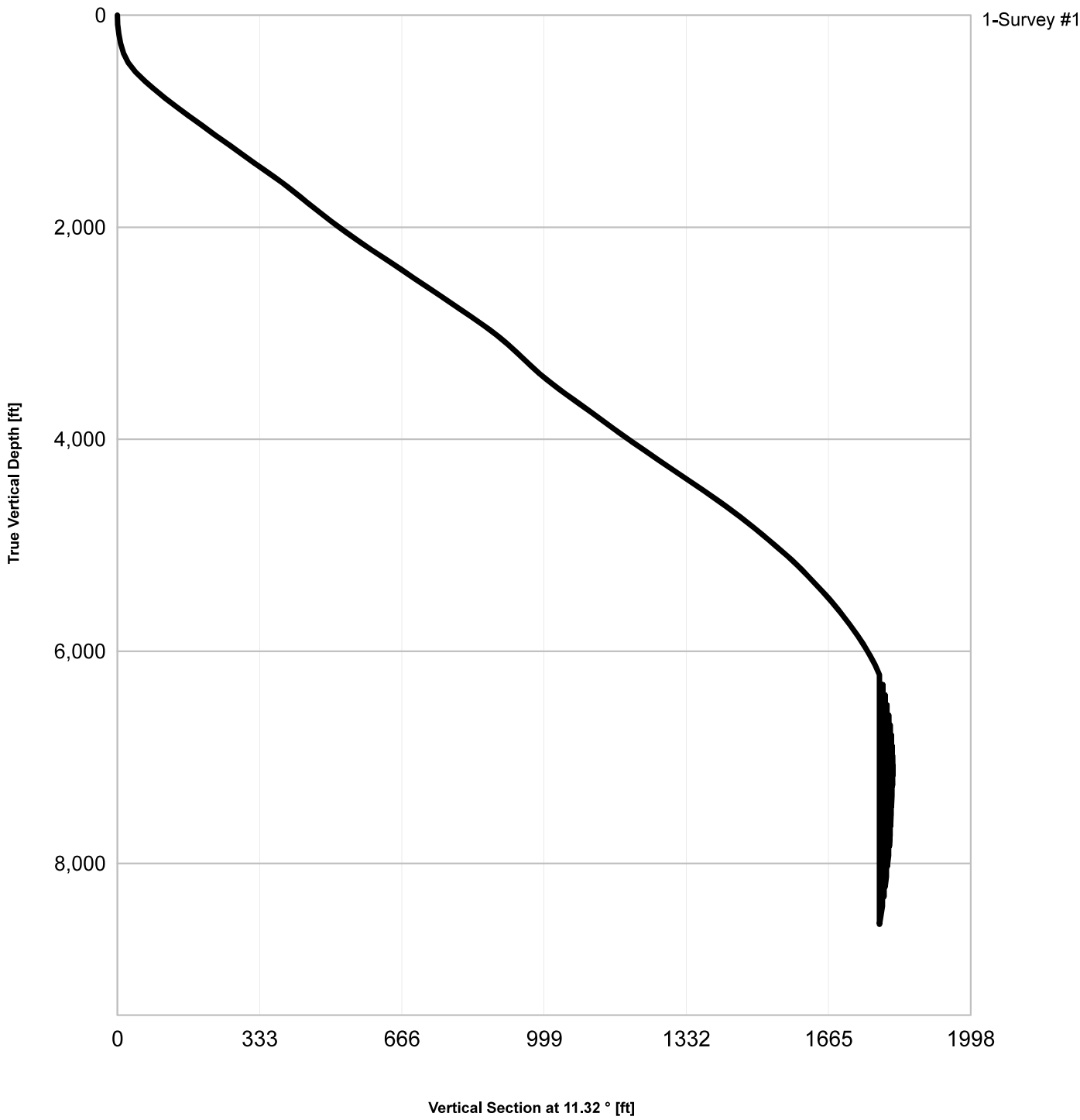
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	Tface (°)
11/28/2014	NORMAL	2,020.0	17.75	10.52	1,943.91	491.00	101.28	501.33	1.01	-0.29	-3.14	251.58
	NORMAL	2,115.0	19.01	10.13	2,034.06	520.47	106.65	531.28	1.33	1.33	-0.41	354.24
	NORMAL	2,209.0	19.36	10.78	2,122.84	550.84	112.26	562.16	0.44	0.37	0.69	31.70
	NORMAL	2,305.0	20.41	11.11	2,213.12	582.90	118.46	594.81	1.10	1.09	0.34	6.26
	NORMAL	2,400.0	21.52	10.60	2,301.83	616.28	124.86	628.80	1.18	1.17	-0.54	350.43
	NORMAL	2,495.0	19.59	11.05	2,390.78	649.05	131.11	662.16	2.04	-2.03	0.47	175.53
	NORMAL	2,590.0	19.81	11.06	2,480.22	680.48	137.26	694.18	0.23	0.23	0.01	0.88
	NORMAL	2,685.0	21.13	11.08	2,569.22	713.08	143.63	727.40	1.39	1.39	0.02	0.31
	NORMAL	2,780.0	20.25	11.18	2,658.09	746.01	150.11	760.97	0.93	-0.93	0.11	177.75
	NORMAL	2,875.0	19.87	11.83	2,747.32	777.94	156.61	793.55	0.46	-0.40	0.68	149.90
11/29/2014	NORMAL	2,902.0	20.17	12.15	2,772.69	786.98	158.53	802.79	1.18	1.11	1.19	20.21
	NORMAL	2,972.0	20.33	14.22	2,838.37	810.57	164.06	827.00	1.05	0.23	2.96	78.38
	NORMAL	3,067.0	18.63	15.24	2,927.93	841.21	172.10	858.63	1.82	-1.79	1.07	169.17
	NORMAL	3,161.0	18.09	15.25	3,017.14	869.78	179.89	888.17	0.57	-0.57	0.01	179.67
	NORMAL	3,257.0	15.38	12.67	3,109.07	896.58	186.60	915.77	2.93	-2.82	-2.69	194.10
	NORMAL	3,352.0	14.84	12.79	3,200.78	920.74	192.06	940.52	0.57	-0.57	0.13	176.74
	NORMAL	3,448.0	14.60	7.49	3,293.64	944.72	196.36	964.89	1.42	-0.25	-5.52	257.34
	NORMAL	3,543.0	16.00	11.94	3,385.27	969.41	200.63	989.93	1.92	1.47	4.68	42.15
	NORMAL	3,639.0	17.73	13.50	3,477.14	996.57	206.78	1,017.77	1.86	1.80	1.63	15.41
	NORMAL	3,734.0	18.73	11.18	3,567.37	1,025.60	213.11	1,047.48	1.30	1.05	-2.44	322.92
11/30/2014	NORMAL	3,829.0	19.76	12.18	3,657.06	1,056.26	219.46	1,078.79	1.14	1.08	1.05	18.22
	NORMAL	3,924.0	19.17	11.66	3,746.63	1,087.23	226.00	1,110.44	0.65	-0.62	-0.55	196.12
	NORMAL	4,020.0	18.11	11.13	3,837.59	1,117.31	232.06	1,141.12	1.12	-1.10	-0.55	188.83
	NORMAL	4,115.0	18.82	12.45	3,927.70	1,146.76	238.22	1,171.21	0.87	0.75	1.39	31.12
	NORMAL	4,210.0	20.12	10.60	4,017.27	1,177.78	244.53	1,202.87	1.51	1.37	-1.95	333.75
	NORMAL	4,306.0	19.35	10.03	4,107.63	1,209.68	250.33	1,235.28	0.83	-0.80	-0.59	193.77
	NORMAL	4,401.0	20.33	10.48	4,196.99	1,241.40	256.08	1,267.52	1.04	1.03	0.47	9.07
	NORMAL	4,496.0	19.43	10.43	4,286.33	1,273.17	261.94	1,299.82	0.95	-0.95	-0.05	181.06
	NORMAL	4,591.0	20.80	10.07	4,375.53	1,305.32	267.75	1,332.48	1.45	1.44	-0.38	354.67
	NORMAL	4,685.0	20.33	9.87	4,463.54	1,337.84	273.47	1,365.49	0.51	-0.50	-0.21	188.41
	NORMAL	4,781.0	19.57	9.31	4,553.78	1,370.14	278.93	1,398.23	0.82	-0.79	-0.58	193.85
	NORMAL	4,876.0	18.66	9.82	4,643.54	1,400.81	284.09	1,429.33	0.97	-0.96	0.54	169.84
	NORMAL	4,972.0	17.69	8.90	4,734.75	1,430.36	288.97	1,459.25	1.05	-1.01	-0.96	196.04
	NORMAL	5,067.0	17.14	9.35	4,825.39	1,458.43	293.48	1,487.66	0.60	-0.58	0.47	166.46
	NORMAL	5,162.0	16.44	9.28	4,916.34	1,485.51	297.92	1,515.09	0.74	-0.74	-0.07	181.62
	NORMAL	5,257.0	16.18	12.36	5,007.52	1,511.71	302.92	1,541.76	0.95	-0.27	3.24	108.20
	NORMAL	5,352.0	16.09	11.39	5,098.78	1,537.54	308.35	1,568.16	0.30	-0.09	-1.02	251.07
	NORMAL	5,448.0	14.16	12.98	5,191.45	1,562.03	313.62	1,593.20	2.06	-2.01	1.66	168.63
	NORMAL	5,543.0	12.96	12.32	5,283.80	1,583.76	318.50	1,615.47	1.27	-1.26	-0.69	187.03
	NORMAL	5,638.0	13.63	12.76	5,376.25	1,605.08	323.25	1,637.31	0.71	0.71	0.46	8.80
	NORMAL	5,732.0	12.34	12.18	5,467.85	1,625.70	327.81	1,658.42	1.38	-1.37	-0.62	185.49
	NORMAL	5,828.0	11.97	16.22	5,561.70	1,645.29	332.76	1,678.60	0.97	-0.39	4.21	115.47
	NORMAL	5,924.0	10.71	16.15	5,655.82	1,663.42	338.02	1,697.41	1.31	-1.31	-0.07	180.59
	NORMAL	6,019.0	10.71	13.23	5,749.17	1,680.49	342.49	1,715.03	0.57	0.00	-3.07	268.57
	NORMAL	6,114.0	9.67	12.71	5,842.67	1,696.87	346.27	1,731.83	1.10	-1.09	-0.55	184.80
	NORMAL	6,210.0	8.84	12.82	5,937.42	1,711.93	349.68	1,747.26	0.86	-0.86	0.11	178.83
	NORMAL	6,305.0	8.31	12.81	6,031.36	1,725.74	352.82	1,761.42	0.56	-0.56	-0.01	180.16
	NORMAL	6,400.0	6.95	12.28	6,125.51	1,738.05	355.57	1,774.03	1.43	-1.43	-0.56	182.70
	NORMAL	6,496.0	5.50	17.93	6,220.94	1,748.10	358.22	1,784.41	1.64	-1.51	5.89	159.89
	NORMAL	6,591.0	3.70	22.22	6,315.63	1,755.27	360.78	1,791.94	1.93	-1.89	4.52	171.31
	NORMAL	6,686.0	3.00	23.81	6,410.47	1,760.38	362.94	1,797.38	0.74	-0.74	1.67	173.23
	NORMAL	6,781.0	2.62	22.84	6,505.36	1,764.66	364.79	1,801.93	0.40	-0.40	-1.02	186.65
	NORMAL	6,877.0	2.24	17.33	6,601.27	1,768.47	366.20	1,805.95	0.46	-0.40	-5.74	208.85
	NORMAL	6,972.0	1.93	13.48	6,696.21	1,771.80	367.13	1,809.39	0.36	-0.33	-4.05	202.40
	NORMAL	7,066.0	1.78	51.18	6,790.16	1,774.25	368.63	1,812.10	1.28	-0.16	40.11	115.60
	NORMAL	7,162.0	1.39	59.86	6,886.13	1,775.77	370.80	1,814.01	0.48	-0.41	9.04	152.67
	NORMAL	7,257.0	1.06	69.31	6,981.10	1,776.66	372.62	1,815.24	0.41	-0.35	9.95	153.19

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 (°)
12/2/2014	NORMAL	7,352.0	0.62	107.81	7,076.09	1,776.82	373.93	1,815.65	0.73	-0.46	40.53	146.12
	NORMAL	7,447.0	0.84	122.25	7,171.09	1,776.29	375.01	1,815.34	0.30	0.23	15.20	47.27
	NORMAL	7,542.0	0.64	137.70	7,266.08	1,775.52	375.95	1,814.78	0.30	-0.21	16.26	142.62
	NORMAL	7,638.0	0.76	156.25	7,362.07	1,774.54	376.57	1,813.94	0.27	0.13	19.32	71.58
	NORMAL	7,734.0	0.91	169.61	7,458.06	1,773.21	376.97	1,812.71	0.26	0.16	13.92	59.19
	NORMAL	7,829.0	0.83	236.02	7,553.05	1,772.08	376.53	1,811.52	1.01	-0.08	69.91	127.22
	NORMAL	7,924.0	0.96	241.29	7,648.04	1,771.32	375.26	1,810.52	0.16	0.14	5.55	35.00
	NORMAL	8,020.0	1.17	238.68	7,744.02	1,770.42	373.72	1,809.34	0.22	0.22	-2.72	345.69
	NORMAL	8,115.0	1.49	235.57	7,839.00	1,769.22	371.87	1,807.80	0.35	0.34	-3.27	345.73
	NORMAL	8,210.0	1.86	232.41	7,933.96	1,767.58	369.63	1,805.75	0.40	0.39	-3.33	344.40
	NORMAL	8,305.0	2.60	241.12	8,028.89	1,765.60	366.52	1,803.20	0.85	0.78	9.17	29.00
	NORMAL	8,400.0	2.91	244.51	8,123.78	1,763.52	362.46	1,800.36	0.37	0.33	3.57	29.43
	NORMAL	8,496.0	2.85	244.96	8,219.65	1,761.46	358.10	1,797.49	0.07	-0.06	0.47	159.58
	NORMAL	8,591.0	2.90	244.41	8,314.53	1,759.42	353.79	1,794.64	0.06	0.05	-0.58	330.84
	NORMAL	8,686.0	3.09	236.14	8,409.41	1,756.96	349.50	1,791.38	0.50	0.20	-8.71	289.57
	NORMAL	8,781.0	3.27	234.37	8,504.26	1,753.96	345.17	1,787.59	0.22	0.19	-1.86	330.50
	NORMAL	8,851.0	3.27	234.37	8,574.15	1,751.63	341.92	1,784.67	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

