

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	PA 431-29	Wellbore No.	OH
Well Name	PA 431-29	Common Name	PA 431-29
Project	PA 20-06S-095W	Site	DOE 1-W-20 Pad
Vertical Section Azimuth	213.63 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	12/14/2011	UWI	PA 431-29
Active Datum	KB @6,255.5ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Started	12/5/2011	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)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
12/5/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/14/2011	NORMAL	83.0	0.79	129.55	83.00	-0.36	0.44	0.06	0.95	0.95	0.00	129.55
	NORMAL	115.0	0.62	99.05	115.00	-0.53	0.78	0.01	1.27	-0.53	-95.31	230.89
	NORMAL	146.0	0.88	166.29	145.99	-0.79	1.00	0.10	2.77	0.84	216.90	109.01
	NORMAL	176.0	1.14	164.97	175.99	-1.30	1.14	0.45	0.87	0.87	-4.40	354.23
	NORMAL	207.0	1.14	201.01	206.98	-1.89	1.11	0.96	2.28	0.00	116.26	108.02
	NORMAL	237.0	1.58	203.73	236.97	-2.54	0.83	1.66	1.48	1.47	9.07	9.71
	NORMAL	268.0	2.38	212.08	267.96	-3.48	0.32	2.72	2.74	2.58	26.94	24.04
	NORMAL	299.0	3.52	206.37	298.91	-4.88	-0.45	4.31	3.79	3.68	-18.42	342.68
	NORMAL	329.0	4.66	204.96	328.84	-6.81	-1.37	6.43	3.81	3.80	-4.70	354.26
	NORMAL	360.0	5.81	205.66	359.71	-9.37	-2.58	9.23	3.72	3.71	2.26	3.53
	NORMAL	391.0	7.39	202.85	390.50	-12.62	-4.03	12.74	5.20	5.10	-9.06	347.05
	NORMAL	421.0	9.06	200.48	420.19	-16.61	-5.61	16.94	5.68	5.57	-7.90	347.35
	NORMAL	452.0	10.12	199.42	450.76	-21.46	-7.37	21.95	3.47	3.42	-3.42	350.02
	NORMAL	482.0	11.09	200.13	480.24	-26.66	-9.24	27.31	3.26	3.23	2.37	8.02
	NORMAL	512.0	12.32	202.15	509.62	-32.33	-11.44	33.26	4.32	4.10	6.73	19.42
	NORMAL	542.0	12.58	204.26	538.92	-38.27	-13.99	39.62	1.75	0.87	7.03	61.28
	NORMAL	554.0	12.83	207.03	550.62	-40.65	-15.13	42.23	5.49	2.08	23.08	69.04
	NORMAL	584.0	13.08	211.46	579.86	-46.52	-18.42	48.93	3.41	0.83	14.77	78.04
	NORMAL	614.0	13.49	213.45	609.06	-52.33	-22.12	55.82	2.05	1.37	6.63	49.09
	NORMAL	705.0	13.87	215.31	697.47	-70.09	-34.27	77.34	0.64	0.42	2.04	50.08

2.1.2 Survey Stations (Continued)

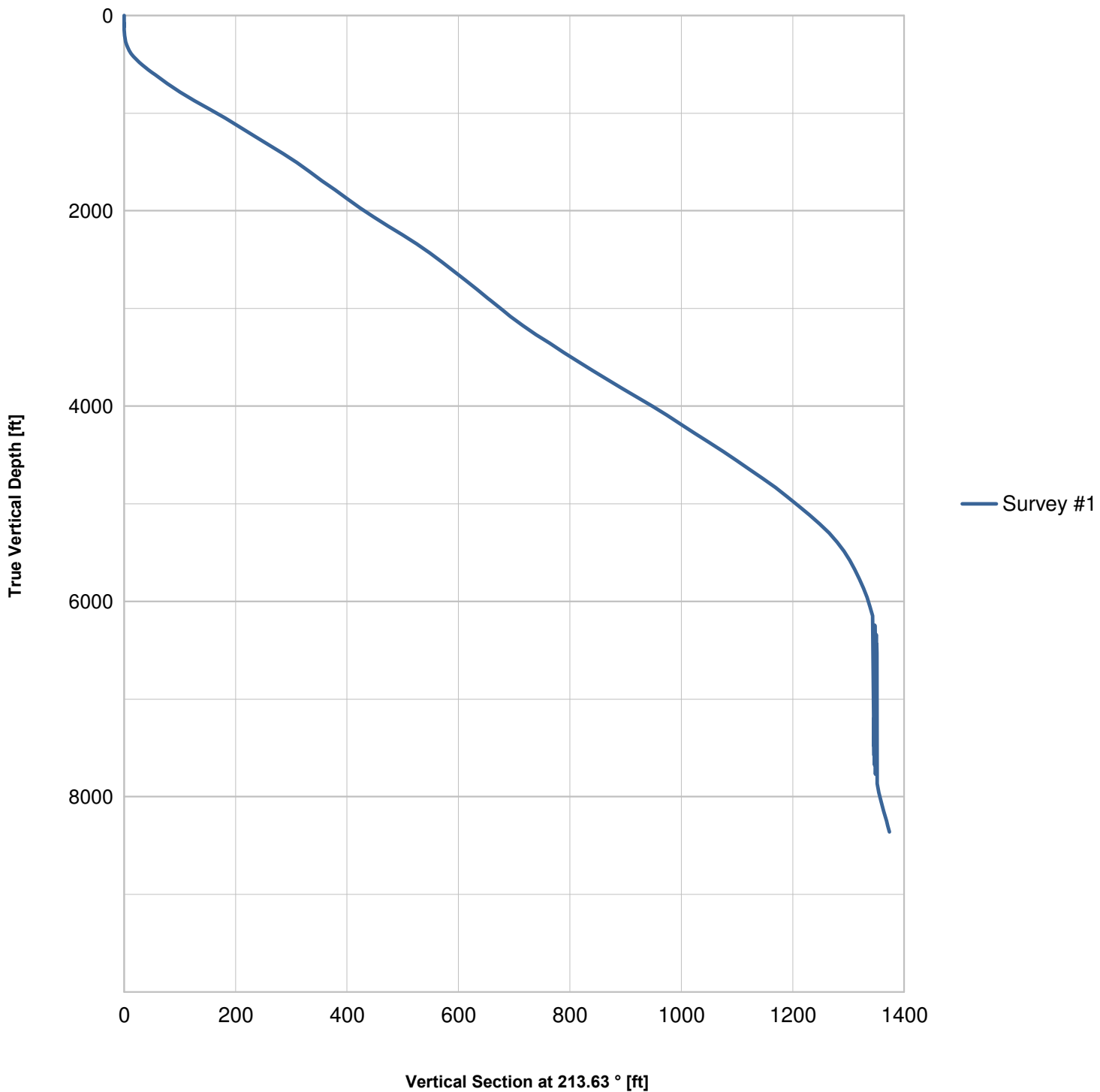
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
12/14/2011	NORMAL	796.0	15.78	216.04	785.44	-89.00	-47.86	100.61	2.11	2.10	0.80	5.94
	NORMAL	887.0	16.86	214.44	872.77	-109.89	-62.60	126.16	1.29	1.19	-1.76	336.63
	NORMAL	978.0	17.84	212.38	959.63	-132.54	-77.53	153.30	1.27	1.08	-2.26	326.93
	NORMAL	1,074.0	16.52	213.39	1,051.35	-156.36	-92.92	181.65	1.41	-1.38	1.05	167.75
	NORMAL	1,168.0	15.45	213.26	1,141.71	-177.99	-107.14	207.53	1.14	-1.14	-0.14	181.85
	NORMAL	1,263.0	15.93	212.76	1,233.17	-199.53	-121.13	233.22	0.52	0.51	-0.53	344.03
	NORMAL	1,359.0	16.27	212.86	1,325.41	-221.91	-135.56	259.84	0.36	0.35	0.10	4.71
	NORMAL	1,453.0	15.63	215.93	1,415.79	-243.22	-150.13	285.66	1.13	-0.68	3.27	128.65
	NORMAL	1,548.0	14.03	216.38	1,507.62	-262.86	-164.47	309.95	1.69	-1.68	0.47	176.10
	NORMAL	1,644.0	13.37	215.10	1,600.89	-281.31	-177.76	332.67	0.76	-0.69	-1.33	204.05
	NORMAL	1,739.0	13.79	214.04	1,693.23	-299.67	-190.41	354.97	0.51	0.44	-1.12	328.83
	NORMAL	1,835.0	14.01	213.98	1,786.42	-318.79	-203.31	378.04	0.23	0.23	-0.06	356.22
12/15/2011	NORMAL	1,930.0	13.62	213.39	1,878.67	-337.67	-215.90	400.72	0.44	-0.41	-0.62	199.58
	NORMAL	2,025.0	13.88	213.43	1,970.95	-356.52	-228.33	423.30	0.27	0.27	0.04	2.11
	NORMAL	2,121.0	15.39	212.91	2,063.83	-376.82	-241.59	447.55	1.58	1.57	-0.54	354.78
	NORMAL	2,216.0	16.22	214.39	2,155.24	-398.35	-255.94	473.43	0.97	0.87	1.56	26.62
	NORMAL	2,312.0	15.55	215.16	2,247.58	-419.94	-270.92	499.70	0.73	-0.70	0.80	162.91
	NORMAL	2,407.0	15.06	215.22	2,339.21	-440.43	-285.37	524.76	0.52	-0.52	0.06	178.18
	NORMAL	2,503.0	13.46	214.42	2,432.25	-459.84	-298.88	548.40	1.68	-1.67	-0.83	186.63
	NORMAL	2,598.0	13.09	213.98	2,524.71	-477.88	-311.14	570.22	0.40	-0.39	-0.46	195.06
	NORMAL	2,694.0	12.75	214.73	2,618.28	-495.60	-323.25	591.68	0.39	-0.35	0.78	154.11
	NORMAL	2,790.0	12.90	213.28	2,711.88	-513.26	-335.17	612.99	0.37	0.16	-1.51	294.28
	NORMAL	2,885.0	11.91	213.91	2,804.66	-530.27	-346.46	633.39	1.05	-1.04	0.66	172.52
	NORMAL	2,981.0	11.83	213.49	2,898.61	-546.69	-357.41	653.14	0.12	-0.08	-0.44	226.99
12/17/2011	NORMAL	2,997.0	12.05	215.26	2,914.26	-549.43	-359.28	656.45	2.67	1.38	11.06	59.87
	NORMAL	3,108.0	12.60	214.33	3,022.71	-568.88	-372.80	680.14	0.53	0.50	-0.84	339.70
	NORMAL	3,168.0	12.84	211.92	3,081.23	-579.95	-380.02	693.35	0.97	0.40	-4.02	293.16
	NORMAL	3,264.0	13.77	215.25	3,174.66	-598.33	-392.25	715.43	1.25	0.97	3.47	41.12
	NORMAL	3,360.0	14.94	214.17	3,267.66	-617.90	-405.79	739.22	1.25	1.22	-1.13	346.59
	NORMAL	3,455.0	14.94	211.26	3,359.45	-638.50	-419.03	763.71	0.79	0.00	-3.06	268.59
	NORMAL	3,551.0	15.42	211.54	3,452.10	-659.96	-432.13	788.82	0.51	0.50	0.29	8.82
	NORMAL	3,646.0	15.63	210.37	3,543.63	-681.76	-445.20	814.22	0.40	0.22	-1.23	303.28
	NORMAL	3,742.0	15.84	211.40	3,636.03	-704.10	-458.57	840.23	0.36	0.22	1.07	53.56
	NORMAL	3,837.0	16.46	213.09	3,727.29	-726.45	-472.67	866.64	0.82	0.65	1.78	37.98
	NORMAL	3,933.0	16.75	215.91	3,819.28	-749.05	-488.21	894.06	0.89	0.30	2.94	71.56
	NORMAL	4,028.0	16.41	214.93	3,910.33	-771.14	-503.92	921.16	0.46	-0.36	-1.03	218.97
	NORMAL	4,124.0	16.07	217.70	4,002.50	-792.77	-519.81	947.97	0.88	-0.35	2.89	115.02
12/18/2011	NORMAL	4,219.0	15.65	216.85	4,093.89	-813.42	-535.54	973.88	0.51	-0.44	-0.89	208.54
	NORMAL	4,315.0	14.96	217.02	4,186.48	-833.68	-550.76	999.18	0.72	-0.72	0.18	176.36
	NORMAL	4,410.0	15.20	214.90	4,278.21	-853.68	-565.27	1,023.87	0.63	0.25	-2.23	292.49
	NORMAL	4,506.0	15.67	214.36	4,370.75	-874.71	-579.79	1,049.41	0.51	0.49	-0.56	342.74
	NORMAL	4,602.0	15.12	214.78	4,463.30	-895.69	-594.25	1,074.89	0.58	-0.57	0.44	168.74
	NORMAL	4,697.0	14.14	216.38	4,555.22	-915.21	-608.20	1,098.87	1.12	-1.03	1.68	158.36
	NORMAL	4,793.0	14.19	215.76	4,648.30	-934.20	-622.03	1,122.34	0.17	0.05	-0.65	287.94
	NORMAL	4,888.0	14.41	215.87	4,740.36	-953.23	-635.76	1,145.79	0.23	0.23	0.12	7.09
	NORMAL	4,984.0	13.41	214.41	4,833.55	-972.09	-649.05	1,168.86	1.10	-1.04	-1.52	198.63
	NORMAL	5,079.0	12.19	212.28	4,926.18	-989.66	-660.63	1,189.90	1.38	-1.28	-2.24	200.11
	NORMAL	5,175.0	12.28	210.81	5,020.00	-1,007.00	-671.28	1,210.23	0.34	0.09	-1.53	285.39
	NORMAL	5,270.0	11.70	209.99	5,112.93	-1,024.02	-681.27	1,229.94	0.64	-0.61	-0.86	195.97
	NORMAL	5,363.0	10.78	212.76	5,204.15	-1,039.50	-690.69	1,248.04	1.15	-0.99	2.98	150.95
	NORMAL	5,459.0	9.45	219.49	5,298.66	-1,053.13	-700.56	1,264.86	1.85	-1.39	7.01	141.65
	NORMAL	5,554.0	7.94	215.86	5,392.56	-1,064.47	-709.36	1,279.18	1.69	-1.59	-3.82	198.18
12/19/2011	NORMAL	5,649.0	7.46	207.16	5,486.71	-1,075.28	-716.02	1,291.86	1.33	-0.51	-9.16	243.35
	NORMAL	5,744.0	5.69	196.32	5,581.08	-1,085.29	-720.16	1,302.49	2.27	-1.86	-11.41	209.74
	NORMAL	5,840.0	5.28	196.63	5,676.64	-1,094.08	-722.76	1,311.25	0.43	-0.43	0.32	176.02
	NORMAL	5,935.0	4.98	200.56	5,771.26	-1,102.13	-725.46	1,319.45	0.49	-0.32	4.14	132.43
	NORMAL	6,028.0	4.60	203.93	5,863.94	-1,109.32	-728.39	1,327.06	0.51	-0.41	3.62	145.15

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
12/19/2011	NORMAL	6,123.0	3.56	186.67	5,958.70	-1,115.73	-730.28	1,333.44	1.68	-1.09	-18.17	221.35
12/20/2011	NORMAL	6,218.0	2.94	193.88	6,053.55	-1,121.03	-731.20	1,338.36	0.78	-0.65	7.59	150.17
	NORMAL	6,313.0	2.90	217.81	6,148.43	-1,125.29	-733.26	1,343.05	1.27	-0.04	25.19	103.80
	NORMAL	6,408.0	2.12	237.08	6,243.34	-1,128.15	-736.21	1,347.06	1.20	-0.82	20.28	142.10
	NORMAL	6,504.0	1.19	248.72	6,339.30	-1,129.47	-738.63	1,349.51	1.03	-0.97	12.13	165.88
	NORMAL	6,600.0	0.49	267.62	6,435.28	-1,129.85	-739.97	1,350.57	0.77	-0.73	19.69	167.67
	NORMAL	6,695.0	0.18	321.44	6,530.28	-1,129.75	-740.47	1,350.76	0.43	-0.33	56.65	159.26
12/21/2011	NORMAL	6,790.0	0.73	54.15	6,625.28	-1,129.28	-740.07	1,350.15	0.80	0.58	97.59	106.39
	NORMAL	6,884.0	0.18	159.81	6,719.28	-1,129.07	-739.53	1,349.67	0.85	-0.59	112.40	167.45
	NORMAL	6,980.0	0.34	62.24	6,815.28	-1,129.08	-739.23	1,349.51	0.42	0.17	-101.64	236.30
	NORMAL	7,076.0	1.07	14.09	6,911.27	-1,128.08	-738.76	1,348.42	0.92	0.76	-50.16	295.13
	NORMAL	7,171.0	0.96	359.08	7,006.26	-1,126.42	-738.56	1,346.93	0.30	-0.12	-15.80	240.14
	NORMAL	7,266.0	0.48	336.93	7,101.25	-1,125.26	-738.73	1,346.05	0.58	-0.51	-23.32	199.35
	NORMAL	7,362.0	0.10	340.54	7,197.25	-1,124.81	-738.91	1,345.78	0.40	-0.40	3.76	179.05
	NORMAL	7,458.0	0.35	232.06	7,293.25	-1,124.91	-739.17	1,346.01	0.41	0.26	-113.00	237.57
	NORMAL	7,555.0	0.27	97.79	7,390.25	-1,125.12	-739.18	1,346.19	0.59	-0.08	-138.42	199.75
	NORMAL	7,648.0	0.81	96.74	7,483.24	-1,125.23	-738.31	1,345.80	0.58	0.58	-1.13	358.43
	NORMAL	7,744.0	0.89	134.51	7,579.23	-1,125.83	-737.10	1,345.63	0.58	0.08	39.34	101.05
	NORMAL	7,839.0	1.46	160.74	7,674.21	-1,127.49	-736.18	1,346.50	0.81	0.60	27.61	56.96
12/22/2011	NORMAL	7,935.0	2.04	172.54	7,770.17	-1,130.34	-735.55	1,348.53	0.71	0.60	12.29	37.84
	NORMAL	8,030.0	2.59	167.40	7,865.09	-1,134.11	-734.86	1,351.29	0.62	0.58	-5.41	336.74
	NORMAL	8,125.0	3.12	166.74	7,959.97	-1,138.72	-733.80	1,354.54	0.56	0.56	-0.69	356.12
	NORMAL	8,220.0	2.88	186.05	8,054.84	-1,143.61	-733.46	1,358.42	1.09	-0.25	20.33	112.88
	NORMAL	8,315.0	3.05	212.04	8,149.72	-1,148.13	-735.05	1,363.06	1.41	0.18	27.36	95.89
	NORMAL	8,411.0	3.44	250.43	8,245.58	-1,151.26	-739.12	1,367.92	2.25	0.41	39.99	99.37
	NORMAL	8,464.0	3.98	261.19	8,298.47	-1,152.07	-742.44	1,370.44	1.66	1.02	20.30	57.65
	NORMAL	8,526.0	3.98	261.19	8,360.32	-1,152.73	-746.69	1,373.34	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

