

1 General

1.1 Customer Information

Company	PICEANCE HL
Representative	
Address	

1.2 Well/Wellbore Information

Well	BCU 23-30-198	Wellbore No.	00
Wellbore Legal Name	BCU 23-30-198	Common Wellbore Name	BCU 23-30-198
Project	BC 30-01N-098W	Site	BCU 33-30-198 Pad
Vertical Section Azimuth	291.79 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	8/28/2014	UWI	BCU 23-30-198
Active datum	KB @6,759.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	8/29/2014	Ended	
Tool Name	MWD	Engineer	

2.1.1 Tie On Point

17690

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 (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
8/29/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/29/2014	NORMAL	150.0	0.45	337.90	150.00	0.55	-0.22	0.41	0.30	0.30	0.00	337.90
	NORMAL	243.0	2.28	296.33	242.97	1.70	-2.02	2.51	2.11	1.97	-44.70	309.70
	NORMAL	335.0	4.48	294.75	334.80	4.02	-6.92	7.92	2.39	2.39	-1.72	356.79
	NORMAL	427.0	6.83	293.14	426.35	7.68	-15.22	16.98	2.56	2.55	-1.75	355.34
	NORMAL	519.0	8.79	292.33	517.49	12.50	-26.75	29.48	2.13	2.13	-0.88	356.38
	NORMAL	612.0	9.83	292.09	609.27	18.18	-40.68	44.52	1.12	1.12	-0.26	357.74
	NORMAL	704.0	10.71	293.06	699.79	24.48	-55.82	60.92	0.97	0.96	1.05	11.60
	NORMAL	796.0	11.20	291.23	790.12	31.07	-72.02	78.40	0.65	0.53	-1.99	323.73
	NORMAL	888.0	11.91	288.23	880.25	37.27	-89.36	96.81	1.01	0.77	-3.26	318.28
	NORMAL	980.0	9.66	282.98	970.62	41.98	-105.90	113.92	2.67	-2.45	-5.71	201.02
	NORMAL	1,075.0	9.06	285.03	1,064.36	45.71	-120.89	129.22	0.72	-0.63	2.16	151.95
	NORMAL	1,170.0	8.89	286.84	1,158.20	49.77	-135.14	143.96	0.35	-0.18	1.91	121.94
	NORMAL	1,265.0	8.90	282.93	1,252.05	53.54	-149.33	158.54	0.64	0.01	-4.12	269.02
	NORMAL	1,360.0	8.29	283.04	1,345.99	56.73	-163.17	172.57	0.64	-0.64	0.12	178.51
	NORMAL	1,455.0	9.30	289.09	1,439.87	60.79	-177.09	187.01	1.44	1.06	6.37	45.50
	NORMAL	1,550.0	10.28	297.07	1,533.49	67.16	-191.90	203.11	1.76	1.03	8.40	58.14
	NORMAL	1,644.0	10.32	297.36	1,625.98	74.85	-206.84	219.85	0.07	0.04	0.31	52.50
	NORMAL	1,739.0	10.07	295.39	1,719.48	82.32	-221.90	236.61	0.45	-0.26	-2.07	233.39
	NORMAL	1,834.0	10.43	296.21	1,812.96	89.68	-237.12	253.47	0.41	0.38	0.86	22.47
	NORMAL	1,929.0	10.72	296.01	1,906.35	97.35	-252.78	270.85	0.31	0.31	-0.21	352.69

2.1.2 Survey Stations (Continued)

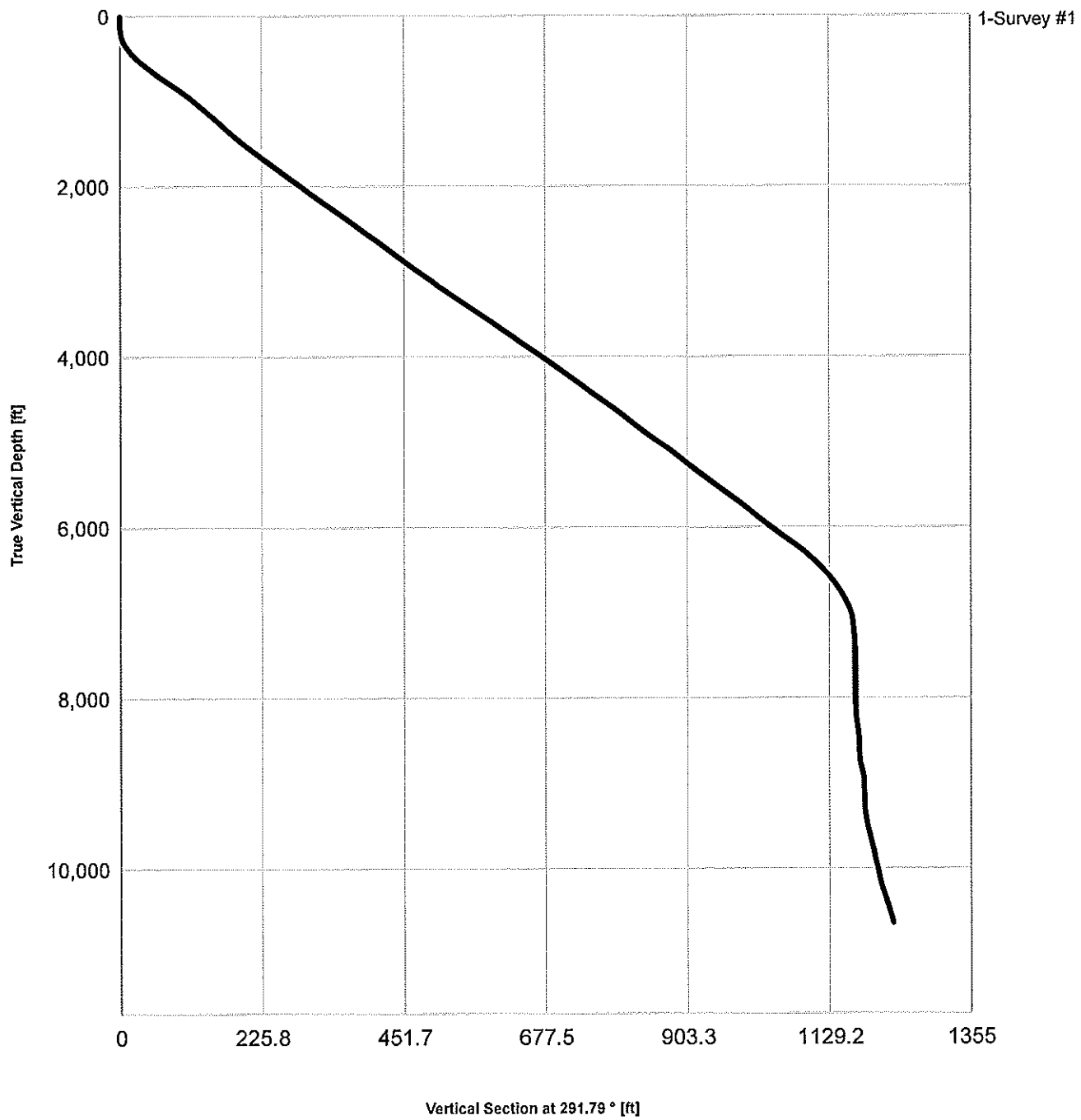
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	EW (ft)	V. sec. (ft)	DLS (%/100usft)	Builld Rate (%/100usft)	Turn (%/100usft)	Tface (°)
8/29/2014	NORMAL	2,023.0	10.31	290.13	1,998.77	104.08	-268.53	287.98	1.22	-0.44	-6.26	246.21
	NORMAL	2,118.0	10.82	289.91	2,092.16	110.04	-284.90	305.39	0.54	0.54	-0.23	355.37
	NORMAL	2,212.0	10.73	289.52	2,184.50	115.97	-301.44	322.95	0.12	-0.10	-0.41	218.82
	NORMAL	2,307.0	10.82	290.13	2,277.83	121.99	-318.15	340.70	0.15	0.09	0.64	52.02
	NORMAL	2,402.0	10.90	285.82	2,371.13	127.51	-335.16	358.55	0.86	0.08	-4.54	273.51
	NORMAL	2,497.0	10.29	291.27	2,464.51	133.04	-351.71	375.97	1.23	-0.64	5.74	123.99
	NORMAL	2,592.0	10.64	290.48	2,557.93	139.18	-367.84	393.22	0.40	0.37	-0.83	337.32
	NORMAL	2,686.0	10.73	288.70	2,650.30	145.03	-384.25	410.63	0.36	0.10	-1.89	284.38
8/30/2014	NORMAL	2,781.0	10.23	293.20	2,743.72	151.18	-400.39	427.90	1.01	-0.53	4.74	123.62
	NORMAL	2,876.0	10.22	293.04	2,837.21	157.81	-415.90	444.76	0.03	-0.01	-0.17	250.52
	NORMAL	2,970.0	10.63	292.45	2,929.66	164.38	-431.58	461.76	0.45	0.44	-0.63	345.11
	NORMAL	3,065.0	10.82	291.89	3,023.00	171.05	-447.95	479.44	0.23	0.20	-0.59	330.98
	NORMAL	3,160.0	10.64	289.96	3,116.34	177.37	-464.47	497.13	0.42	-0.19	-2.03	242.45
	NORMAL	3,214.0	10.73	288.37	3,169.40	180.66	-473.93	507.13	0.57	0.17	-2.94	286.19
9/11/2014	NORMAL	3,348.0	11.40	291.43	3,300.91	189.43	-498.09	532.82	0.66	0.50	2.28	42.74
	NORMAL	3,443.0	11.61	289.25	3,394.00	196.01	-515.86	551.76	0.51	0.22	-2.29	294.71
	NORMAL	3,537.0	11.78	295.67	3,486.06	203.28	-533.44	570.78	1.40	0.18	6.83	85.71
	NORMAL	3,632.0	11.26	293.74	3,579.14	211.22	-550.67	589.73	0.68	-0.55	-2.03	215.60
	NORMAL	3,727.0	11.34	295.93	3,672.30	219.04	-567.56	608.31	0.46	0.08	2.31	80.51
	NORMAL	3,821.0	10.45	291.98	3,764.61	226.27	-583.78	626.06	1.24	-0.95	-4.20	218.06
	NORMAL	3,916.0	11.67	296.29	3,857.84	233.75	-600.38	644.25	1.55	1.28	4.54	36.25
	NORMAL	4,011.0	11.37	295.90	3,950.93	242.09	-617.42	663.17	0.33	-0.32	-0.41	194.36
	NORMAL	4,105.0	10.48	293.38	4,043.23	249.53	-633.60	680.96	1.07	-0.95	-2.68	206.99
	NORMAL	4,200.0	11.27	295.65	4,136.52	256.98	-649.90	698.86	0.95	0.83	2.39	29.58
	NORMAL	4,294.0	10.77	295.06	4,228.79	264.68	-666.14	716.79	0.55	-0.53	-0.63	192.42
	NORMAL	4,389.0	9.96	292.55	4,322.24	271.59	-681.76	733.87	0.98	-0.85	-2.64	207.91
	NORMAL	4,484.0	10.69	295.70	4,415.70	278.56	-697.29	750.87	0.97	0.77	3.32	39.27
	NORMAL	4,579.0	11.26	295.93	4,508.96	286.44	-713.57	768.92	0.60	0.60	0.24	4.51
	NORMAL	4,674.0	10.55	294.79	4,602.25	294.14	-729.81	786.85	0.78	-0.75	-1.20	196.34
	NORMAL	4,768.0	10.11	294.44	4,694.72	301.16	-745.13	803.69	0.47	-0.47	-0.37	187.95
	NORMAL	4,863.0	9.41	294.61	4,788.35	307.84	-759.79	819.77	0.74	-0.74	0.18	177.73
	NORMAL	4,958.0	9.96	289.60	4,881.99	313.84	-774.59	835.74	1.06	0.58	-5.27	300.64
	NORMAL	5,053.0	11.72	286.41	4,975.30	319.32	-791.58	853.56	1.96	1.85	-3.36	339.61
	NORMAL	5,147.0	10.70	284.06	5,067.50	324.13	-809.21	871.71	1.19	-1.09	-2.50	202.98
	NORMAL	5,242.0	10.02	287.32	5,160.95	328.74	-825.65	888.69	0.94	-0.72	3.43	140.83
	NORMAL	5,337.0	9.27	281.74	5,254.61	332.76	-841.03	904.46	1.26	-0.79	-5.87	228.53
	NORMAL	5,432.0	9.94	286.59	5,348.28	336.65	-856.38	920.16	1.11	0.71	5.11	52.79
	NORMAL	5,526.0	11.05	291.75	5,440.71	342.31	-872.53	937.25	1.55	1.18	5.49	42.81
9/12/2014	NORMAL	5,621.0	10.28	287.98	5,534.07	348.30	-889.05	954.81	1.09	-0.81	-3.97	220.34
	NORMAL	5,716.0	10.65	295.72	5,627.49	354.73	-905.02	972.03	1.53	0.39	8.15	79.08
	NORMAL	5,811.0	10.11	296.22	5,720.94	362.22	-920.41	989.10	0.58	-0.57	0.53	170.77
	NORMAL	5,906.0	9.36	292.98	5,814.57	368.92	-935.00	1,005.14	0.98	-0.79	-3.41	214.56
	NORMAL	6,001.0	10.20	299.80	5,908.19	376.12	-949.41	1,021.19	1.50	0.88	7.18	57.45
	NORMAL	6,095.0	9.68	295.99	6,000.78	383.72	-963.74	1,037.32	0.89	-0.55	-4.05	229.80
	NORMAL	6,190.0	11.19	305.08	6,094.22	392.51	-978.46	1,054.26	2.35	1.59	9.57	52.01
	NORMAL	6,285.0	11.47	306.80	6,187.36	403.47	-993.57	1,072.35	0.46	0.29	1.81	51.20
	NORMAL	6,379.0	9.75	305.42	6,279.75	413.68	-1,007.54	1,089.11	1.85	-1.83	-1.47	187.73
	NORMAL	6,474.0	8.40	303.82	6,373.56	422.21	-1,019.86	1,103.72	1.45	-1.42	-1.68	189.80
	NORMAL	6,569.0	7.53	300.66	6,467.65	429.24	-1,030.98	1,116.66	1.02	-0.92	-3.33	205.16
	NORMAL	6,663.0	6.85	293.78	6,560.91	434.64	-1,041.41	1,128.34	1.17	-0.72	-7.32	228.32
	NORMAL	6,758.0	5.28	291.54	6,655.37	438.53	-1,050.66	1,138.38	1.67	-1.65	-2.36	187.46
	NORMAL	6,852.0	5.55	286.55	6,748.96	441.42	-1,059.04	1,147.23	0.58	0.29	-5.31	297.33
	NORMAL	6,947.0	3.89	277.87	6,843.63	443.17	-1,066.64	1,154.93	1.90	-1.75	-9.14	199.00
	NORMAL	7,042.0	3.62	284.52	6,938.43	444.36	-1,072.73	1,161.04	0.54	-0.28	7.00	125.09
	NORMAL	7,137.0	1.73	298.90	7,033.32	445.81	-1,076.89	1,165.43	2.10	-1.99	15.14	167.54
	NORMAL	7,232.0	1.41	349.37	7,128.29	447.65	-1,078.36	1,167.48	1.44	-0.34	53.13	127.43

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (%/100usft)	Builld Rate (%/100usft)	Turn (%/100usft)	Tface (')
9/12/2014	NORMAL	7,326.0	1.20	354.16	7,222.27	449.76	-1,078.68	1,168.56	0.25	-0.22	5.10	154.93
	NORMAL	7,421.0	1.07	324.10	7,317.25	451.47	-1,079.30	1,169.77	0.63	-0.14	-31.64	242.93
	NORMAL	7,516.0	0.88	271.83	7,412.24	452.21	-1,080.55	1,171.21	0.92	-0.20	-55.02	232.64
	NORMAL	7,611.0	1.31	55.80	7,507.23	452.85	-1,080.38	1,171.29	2.20	0.45	151.55	158.33
	NORMAL	7,706.0	0.74	50.76	7,602.21	453.85	-1,079.00	1,170.38	0.61	-0.60	-5.31	186.47
	NORMAL	7,800.0	0.30	47.19	7,696.21	454.40	-1,078.35	1,169.98	0.47	-0.47	-3.80	182.43
9/13/2014	NORMAL	7,895.0	0.18	187.48	7,791.21	454.42	-1,078.19	1,169.84	0.48	-0.13	147.67	165.30
	NORMAL	7,990.0	0.88	206.64	7,886.21	453.62	-1,078.54	1,169.86	0.75	0.74	20.17	23.92
	NORMAL	8,085.0	0.69	235.44	7,981.20	452.64	-1,079.34	1,170.24	0.45	-0.20	30.32	129.64
	NORMAL	8,180.0	0.43	301.95	8,076.19	452.51	-1,080.11	1,170.91	0.69	-0.27	70.01	142.75
	NORMAL	8,274.0	0.88	241.79	8,170.19	452.35	-1,081.04	1,171.72	0.81	0.48	-64.00	270.59
	NORMAL	8,369.0	1.49	240.56	8,265.17	451.40	-1,082.76	1,172.96	0.64	0.64	-1.29	357.00
9/14/2014	NORMAL	8,464.0	1.41	268.07	8,360.14	450.75	-1,085.01	1,174.81	0.73	-0.08	28.96	110.18
	NORMAL	8,558.0	0.90	341.35	8,454.12	451.41	-1,086.40	1,176.34	1.53	-0.54	77.96	143.17
	NORMAL	8,653.0	0.83	13.48	8,549.11	452.79	-1,086.48	1,176.93	0.51	-0.07	33.82	114.06
	NORMAL	8,748.0	1.85	16.88	8,644.09	454.93	-1,085.87	1,177.16	1.08	1.07	3.58	6.16
	NORMAL	8,842.0	1.12	335.79	8,738.06	457.22	-1,085.81	1,177.95	1.33	-0.78	-43.71	216.20
	NORMAL	8,937.0	3.29	288.95	8,832.99	458.95	-1,088.77	1,181.34	2.79	2.28	-49.31	295.24
	NORMAL	9,032.0	1.96	16.19	8,927.91	461.39	-1,090.89	1,184.22	3.94	-1.40	91.83	148.48
	NORMAL	9,126.0	1.90	20.20	9,021.86	464.40	-1,089.91	1,184.42	0.16	-0.06	4.27	115.95
	NORMAL	9,221.0	1.68	358.32	9,116.82	467.27	-1,089.40	1,185.02	0.75	-0.23	-23.03	241.43
	NORMAL	9,316.0	0.96	28.20	9,211.79	469.36	-1,089.07	1,185.49	1.02	-0.76	31.45	150.57
	NORMAL	9,411.0	0.88	313.16	9,306.78	470.56	-1,089.23	1,186.08	1.18	-0.08	-78.99	229.24
	NORMAL	9,506.0	1.21	274.13	9,401.77	471.14	-1,090.76	1,187.71	0.80	0.35	-41.08	274.50
	NORMAL	9,601.0	2.06	264.65	9,496.73	471.05	-1,093.46	1,190.19	0.94	0.89	-9.98	337.57
	NORMAL	9,695.0	2.28	257.58	9,590.66	470.49	-1,096.97	1,193.24	0.37	0.23	-7.52	305.85
	NORMAL	9,790.0	2.70	249.95	9,685.57	469.32	-1,100.91	1,196.47	0.56	0.44	-8.03	317.86
	NORMAL	9,885.0	2.60	244.55	9,780.47	467.62	-1,104.96	1,199.60	0.28	-0.11	-5.68	245.49
	NORMAL	9,979.0	2.56	244.82	9,874.38	465.81	-1,108.79	1,202.48	0.04	-0.04	0.29	163.23
	NORMAL	10,074.0	2.64	241.52	9,969.28	463.87	-1,112.63	1,205.32	0.18	0.08	-3.47	296.47
9/15/2014	NORMAL	10,169.0	2.38	242.91	10,064.19	461.93	-1,116.31	1,208.02	0.28	-0.27	1.46	167.52
	NORMAL	10,263.0	2.77	251.33	10,158.09	460.31	-1,120.20	1,211.03	0.58	0.41	8.96	48.38
	NORMAL	10,358.0	3.57	244.58	10,252.95	458.30	-1,125.04	1,214.79	0.93	0.84	-7.11	331.59
	NORMAL	10,452.0	4.14	243.33	10,346.73	455.53	-1,130.72	1,219.02	0.61	0.61	-1.33	350.99
	NORMAL	10,547.0	3.61	247.59	10,441.52	452.85	-1,136.55	1,223.44	0.63	-0.56	4.48	153.60
	NORMAL	10,677.0	3.17	244.08	10,571.29	449.71	-1,143.57	1,228.80	0.37	-0.34	-2.70	203.51
	NORMAL	10,738.0	3.17	244.08	10,632.18	448.24	-1,146.60	1,231.06	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

