

Deviation Summary

PICEANCE HL

1 General

1.1 Customer Information

Company	PICEANCE HL
Representative	
Address	

1.2 Well/Wellbore Information

Well	BCU 542-30-198	Wellbore No.	00
Wellbore Legal Name	BCU 542-30-198	Common Wellbore Name	BCU 542-30-198
Project	BC 30-01N-098W	Site	BCU 33-30-198 Pad
Vertical Section Azimuth	77.11 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	8/31/2014	UWI	BCU 542-30-198
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	8/31/2014	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 (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
8/31/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8/31/2014	NORMAL	150.0	1.09	70.42	149.99	0.48	1.34	1.42	0.73	0.73	0.00	70.42
	NORMAL	212.0	2.16	69.79	211.97	1.08	3.00	3.16	1.73	1.73	-1.02	358.73
	NORMAL	304.0	3.63	80.82	303.85	2.14	7.50	7.79	1.70	1.60	11.99	26.32
	NORMAL	396.0	5.45	80.44	395.55	3.33	14.68	15.06	1.98	1.98	-0.41	358.86
	NORMAL	488.0	6.69	80.60	487.05	4.82	24.20	24.69	1.24	1.24	0.17	0.82
	NORMAL	581.0	7.98	78.51	579.29	7.30	35.74	36.47	1.59	1.49	-4.40	337.50
	NORMAL	673.0	10.06	78.81	670.15	10.35	49.84	50.89	2.29	2.26	2.50	10.07
	NORMAL	765.0	12.39	79.83	760.39	13.65	67.44	68.78	2.54	2.53	1.11	6.37
	NORMAL	857.0	13.19	80.34	850.10	17.15	87.50	89.12	0.88	0.87	0.55	8.28
	NORMAL	950.0	13.35	78.41	940.62	21.09	108.48	110.45	0.51	0.17	-2.08	288.82
	NORMAL	1,044.0	12.57	74.36	1,032.23	26.03	128.86	131.52	1.27	-0.83	-4.31	227.38
	NORMAL	1,139.0	11.91	70.80	1,125.07	32.04	148.17	151.69	1.06	-0.69	-3.75	227.10
	NORMAL	1,234.0	10.11	81.74	1,218.33	36.46	165.68	169.64	2.89	-1.89	11.62	136.03
	NORMAL	1,328.0	10.34	81.41	1,310.83	38.91	182.19	186.28	0.25	0.24	-0.35	345.55
	NORMAL	1,423.0	12.40	80.34	1,403.96	41.89	200.68	204.97	2.18	2.17	-1.13	353.63
	NORMAL	1,518.0	13.07	79.02	1,496.63	45.65	221.28	225.89	0.77	0.71	-1.39	335.88
	NORMAL	1,613.0	13.70	78.88	1,589.05	49.87	242.86	247.87	0.66	0.66	-0.15	356.09
	NORMAL	1,707.0	13.66	78.54	1,680.38	54.22	264.66	270.09	0.10	-0.04	-0.36	243.39
	NORMAL	1,739.0	13.74	78.48	1,711.47	55.73	272.09	277.67	0.25	0.25	-0.19	349.90
	NORMAL	1,834.0	14.51	77.95	1,803.60	60.47	294.78	300.84	0.82	0.81	-0.56	350.21

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Asl (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (%/100usft)	Build Rate (%/100usft)	Turn (%/100usft)	Face (°)
8/31/2014	NORMAL	1,929.0	13.19	75.06	1,895.83	65.75	316.90	323.58	1.57	-1.39	-3.04	206.26
	NORMAL	2,023.0	13.54	76.03	1,887.29	71.17	337.94	345.30	0.44	0.37	1.03	33.12
9/2/2014	NORMAL	2,118.0	13.72	75.77	2,079.61	76.62	359.65	367.08	0.20	0.19	-0.27	341.08
	NORMAL	2,212.0	14.16	77.08	2,170.84	81.93	381.66	390.32	0.58	0.47	1.39	36.29
	NORMAL	2,307.0	14.54	77.64	2,262.88	87.08	404.64	413.87	0.43	0.40	0.59	20.34
	NORMAL	2,402.0	13.28	74.54	2,355.09	92.55	426.80	436.69	1.54	-1.33	-3.26	209.10
	NORMAL	2,497.0	12.85	71.74	2,447.64	98.76	447.35	458.11	0.81	-0.45	-2.95	234.45
	NORMAL	2,592.0	12.71	73.45	2,540.28	105.05	467.40	478.06	0.42	-0.15	1.80	111.14
	NORMAL	2,686.0	12.87	71.59	2,631.95	111.30	487.25	499.80	0.47	0.17	-1.98	290.33
	NORMAL	2,781.0	13.10	74.01	2,724.52	117.61	507.63	521.08	0.62	0.24	2.55	68.25
	NORMAL	2,876.0	13.01	74.10	2,817.07	123.51	528.27	542.51	0.10	-0.09	0.09	167.32
	NORMAL	2,970.0	13.01	72.25	2,908.66	129.63	548.52	563.62	0.44	0.00	-1.97	289.10
	NORMAL	3,065.0	12.80	75.70	3,001.26	135.49	568.80	584.79	0.84	-0.22	3.63	106.82
	NORMAL	3,160.0	12.62	75.86	3,093.93	140.62	589.16	605.69	0.19	-0.19	0.17	169.01
	NORMAL	3,277.0	12.40	73.39	3,208.16	147.34	613.60	631.00	0.49	-0.19	-2.11	246.45
9/3/2014	NORMAL	3,351.0	11.95	73.10	3,280.49	151.84	628.54	646.57	0.61	-0.61	-0.39	187.60
	NORMAL	3,446.0	10.20	81.36	3,373.72	155.96	646.27	664.78	2.48	-1.84	8.69	141.81
	NORMAL	3,540.0	10.80	84.19	3,466.15	158.10	663.26	681.82	0.84	0.64	3.01	42.08
	NORMAL	3,635.0	13.40	85.31	3,559.03	159.00	683.09	701.55	2.75	2.74	1.18	5.71
	NORMAL	3,730.0	15.11	78.07	3,651.11	163.36	706.18	724.83	2.60	1.80	-7.62	310.26
	NORMAL	3,824.0	13.29	77.78	3,742.23	168.18	728.73	747.88	1.94	-1.94	-0.31	182.10
	NORMAL	3,918.0	12.74	81.75	3,834.79	172.00	749.77	769.24	1.10	-0.68	4.18	123.52
	NORMAL	4,013.0	14.06	80.17	3,925.23	176.43	771.28	790.98	1.46	1.40	-1.68	343.73
	NORMAL	4,108.0	13.89	78.00	4,018.42	179.77	793.80	813.90	0.58	-0.18	-2.28	250.98
	NORMAL	4,202.0	13.68	77.69	4,109.72	184.49	815.68	836.28	0.26	-0.24	-0.33	197.64
	NORMAL	4,297.0	14.33	78.24	4,201.90	189.27	838.15	859.25	0.72	0.71	0.58	11.50
	NORMAL	4,392.0	12.62	78.55	4,294.28	193.73	859.83	881.38	1.80	-1.80	0.33	177.73
	NORMAL	4,487.0	13.37	77.26	4,386.85	198.21	880.72	902.74	0.85	0.79	-1.36	338.23
	NORMAL	4,582.0	14.01	77.38	4,479.15	203.15	902.65	925.23	0.67	0.67	0.13	2.60
	NORMAL	4,676.0	13.81	75.77	4,570.39	208.39	924.63	947.82	0.46	-0.21	-1.71	241.89
	NORMAL	4,771.0	14.60	78.58	4,662.49	213.55	947.36	971.12	1.10	0.83	2.86	42.48
	NORMAL	4,866.0	13.72	78.83	4,754.60	218.08	970.15	994.35	0.03	-0.03	0.37	174.61
	NORMAL	4,961.0	13.89	79.81	4,846.86	222.26	992.43	1,017.01	0.28	0.18	0.93	51.43
	NORMAL	5,055.0	14.25	78.58	4,938.04	226.55	1,014.88	1,039.84	0.50	0.38	-1.31	319.69
9/4/2014	NORMAL	5,150.0	13.44	78.51	5,030.26	231.07	1,037.16	1,062.57	0.85	-0.85	-0.07	181.15
	NORMAL	5,245.0	12.80	80.99	5,122.80	234.91	1,058.37	1,084.10	0.80	-0.67	2.61	139.87
	NORMAL	5,340.0	12.88	74.75	5,215.41	239.37	1,079.06	1,105.28	1.48	0.19	-6.57	274.32
	NORMAL	5,434.0	10.59	74.49	5,307.42	244.45	1,097.67	1,124.44	2.64	-2.64	-0.28	181.15
	NORMAL	5,529.0	10.77	73.44	5,400.77	249.32	1,114.49	1,142.02	0.28	0.19	-1.11	312.25
	NORMAL	5,624.0	12.51	75.39	5,493.82	254.44	1,132.85	1,161.17	1.88	1.83	2.05	13.70
	NORMAL	5,719.0	11.26	77.44	5,586.78	259.06	1,151.96	1,180.73	1.39	-1.32	2.16	162.34
9/5/2014	NORMAL	5,814.0	11.50	72.92	5,679.91	263.86	1,170.07	1,199.45	0.97	0.25	-4.76	282.84
	NORMAL	5,909.0	12.84	73.78	5,772.78	269.59	1,189.26	1,219.43	1.42	1.41	0.92	8.22
	NORMAL	6,003.0	13.25	72.09	5,864.35	275.81	1,209.54	1,240.59	0.60	0.44	-1.81	316.07
	NORMAL	6,098.0	14.22	73.83	5,956.63	282.41	1,231.11	1,263.08	1.11	1.02	1.83	23.92
	NORMAL	6,193.0	13.92	75.51	6,048.79	288.52	1,253.38	1,286.15	0.53	-0.32	1.77	127.11
	NORMAL	6,288.0	13.91	77.29	6,141.00	293.89	1,275.58	1,309.00	0.45	-0.01	1.87	92.20
	NORMAL	6,382.0	14.66	77.19	6,232.09	299.02	1,298.22	1,332.21	0.82	0.82	-0.11	358.11
	NORMAL	6,477.0	14.41	77.74	6,324.04	304.20	1,321.51	1,356.08	0.32	-0.28	0.58	153.17
	NORMAL	6,571.0	13.72	78.14	6,415.22	308.97	1,343.84	1,378.91	0.74	-0.73	0.43	172.17
	NORMAL	6,666.0	13.28	78.49	6,507.60	313.48	1,365.56	1,401.08	0.47	-0.46	0.37	169.65
	NORMAL	6,761.0	12.58	76.81	6,600.19	318.00	1,386.33	1,422.33	0.84	-0.74	-1.77	207.42
	NORMAL	6,855.0	10.58	71.00	6,692.28	323.15	1,404.46	1,441.15	2.46	-2.13	-6.18	207.42
	NORMAL	6,950.0	8.63	73.74	6,785.94	327.98	1,419.55	1,456.94	2.11	-2.05	2.88	168.15
	NORMAL	7,045.0	7.76	74.84	6,879.97	331.66	1,432.58	1,470.46	0.93	-0.92	1.16	170.33
	NORMAL	7,140.0	6.25	73.48	6,974.26	334.80	1,443.73	1,482.03	1.60	-1.59	-1.43	185.59

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (")	Azi. (")	TVD (ft)	N/S (ft)	EW (ft)	V. sec. (ft)	DLS (%/100usft)	Build Rate (%/100usft)	Turn (%/100usft)	Tface (")
9/5/2014	NORMAL	7,235.0	5.18	78.32	7,068.78	337.14	1,452.89	1,491.48	1.23	-1.13	6.09	158.16
	NORMAL	7,329.0	4.11	79.38	7,162.47	338.62	1,460.35	1,499.09	1.14	-1.14	1.13	175.94
	NORMAL	7,424.0	3.27	79.74	7,257.28	339.73	1,466.36	1,505.20	0.88	-0.88	0.38	178.60
	NORMAL	7,519.0	2.44	91.32	7,352.16	340.17	1,471.05	1,509.87	1.06	-0.87	12.19	150.89
	NORMAL	7,614.0	1.65	103.83	7,447.10	339.79	1,474.40	1,513.05	0.95	-0.83	13.17	156.68
	NORMAL	7,708.0	1.33	116.69	7,541.07	338.98	1,476.69	1,516.10	0.49	-0.34	13.68	140.05
9/6/2014	NORMAL	7,803.0	1.40	153.76	7,636.04	337.45	1,478.19	1,516.22	0.92	0.07	39.02	104.16
	NORMAL	7,898.0	1.15	98.97	7,731.02	336.26	1,479.64	1,517.37	1.26	-0.26	-57.67	231.90
	NORMAL	7,993.0	0.57	142.72	7,826.01	335.73	1,480.87	1,518.45	0.88	-0.61	46.05	151.90
	NORMAL	8,087.0	1.49	25.58	7,920.00	336.46	1,481.68	1,519.40	1.94	0.98	-124.62	226.70
	NORMAL	8,182.0	1.40	21.56	8,014.97	338.65	1,482.64	1,520.83	0.14	-0.09	-4.23	226.40
	NORMAL	8,277.0	0.64	15.72	8,109.96	340.24	1,483.21	1,521.74	0.81	-0.80	-6.15	184.88
	NORMAL	8,372.0	0.41	352.06	8,204.95	341.09	1,483.31	1,522.02	0.33	-0.24	-24.91	211.89
	NORMAL	8,466.0	0.32	261.72	8,298.95	341.39	1,483.00	1,521.79	0.55	-0.10	-95.11	217.84
	NORMAL	8,561.0	0.73	238.65	8,393.95	341.03	1,482.22	1,520.95	0.48	0.43	-24.28	320.87
	NORMAL	8,656.0	0.83	228.39	8,488.94	340.26	1,481.19	1,519.77	0.18	0.11	-10.80	300.40
9/7/2014	NORMAL	8,751.0	1.58	234.94	8,583.92	339.05	1,479.61	1,517.96	0.80	0.79	6.89	13.69
	NORMAL	8,845.0	1.36	240.94	8,677.89	337.77	1,477.57	1,515.69	0.29	-0.23	6.38	148.00
	NORMAL	8,940.0	0.82	331.89	8,772.88	337.82	1,476.27	1,514.42	1.69	-0.57	95.84	149.19
	NORMAL	9,034.0	0.62	71.37	8,866.87	338.58	1,476.43	1,514.76	1.18	-0.21	105.72	146.41
	NORMAL	9,129.0	2.90	36.92	8,961.82	340.66	1,478.36	1,517.10	2.54	2.40	-36.26	317.20
	NORMAL	9,224.0	1.83	11.96	9,056.74	344.07	1,480.12	1,519.58	1.54	-1.13	-26.27	211.80
	NORMAL	9,319.0	2.40	27.69	9,151.68	347.31	1,481.36	1,521.51	0.85	0.60	16.56	53.56
	NORMAL	9,414.0	2.25	44.83	9,246.60	350.40	1,483.60	1,524.38	0.75	-0.16	18.04	110.65
	NORMAL	9,509.0	3.49	50.03	9,341.48	353.58	1,487.13	1,528.53	1.33	1.31	5.47	14.46
	NORMAL	9,603.0	2.55	48.15	9,435.35	356.81	1,490.88	1,532.91	1.01	-1.00	-2.00	185.08
	NORMAL	9,698.0	2.40	44.80	9,530.26	359.63	1,493.86	1,536.44	0.22	-0.16	-3.42	221.48
	NORMAL	9,793.0	1.39	29.27	9,625.21	362.04	1,495.83	1,538.90	1.18	-1.06	-16.45	199.43
	NORMAL	9,887.0	0.97	359.17	9,719.19	363.83	1,496.37	1,539.83	0.78	-0.45	-32.02	221.45
	NORMAL	9,982.0	0.91	300.34	9,814.18	365.02	1,495.71	1,539.45	0.97	-0.06	-61.93	237.35
	NORMAL	10,077.0	1.61	275.16	9,909.16	365.62	1,493.73	1,537.63	0.92	0.74	-26.51	308.61
	NORMAL	10,171.0	1.83	259.41	10,003.11	365.36	1,490.94	1,534.87	0.55	0.23	-16.76	286.95
	NORMAL	10,266.0	2.17	254.06	10,098.06	364.59	1,487.72	1,531.56	0.41	0.36	-5.63	328.54
9/8/2014	NORMAL	10,360.0	2.37	251.55	10,191.98	363.49	1,484.16	1,527.85	0.24	0.21	-2.67	332.31
	NORMAL	10,455.0	2.29	245.83	10,286.90	362.09	1,480.57	1,524.03	0.26	-0.08	-6.02	248.17
	NORMAL	10,550.0	2.88	237.56	10,381.81	360.03	1,476.82	1,519.92	0.73	0.62	-8.71	323.52
	NORMAL	10,644.0	3.26	226.16	10,475.67	356.91	1,472.90	1,515.40	0.76	0.40	-12.13	296.12
	NORMAL	10,739.0	3.25	227.47	10,570.52	353.22	1,468.97	1,510.75	0.08	-0.01	1.38	98.31
	NORMAL	10,833.0	2.92	224.21	10,664.38	349.70	1,465.34	1,506.42	0.40	-0.35	-3.47	206.38
	NORMAL	10,915.0	3.08	225.88	10,746.27	346.67	1,462.30	1,502.78	0.22	0.20	2.04	29.48
	NORMAL	10,973.0	3.08	225.88	10,804.19	344.50	1,460.06	1,500.12	0.00	0.00	0.00	0.00