

1 General

1.1 Customer Information

Company	PICEANCE HL
Representative	Eric Kolstad
Address	1515 Arapahoe St., Suite 1000 Denver, CO 80202

1.2 Well Information

Well	BCU 411-31-198	Wellbore No.	
Well Name	FEDERAL BCU 411-31-198	Common Name	BCU 411-31-198
Project	BC 31-01N-098W	Site	BCU 12-31-198 PAD
Vertical Section Azimuth	10.50 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	6/27/2012	UWI	BCU 411-31-198
Active Datum	KB @6,864.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	6/27/2012	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 (°)
6/27/2012	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6/27/2012	NORMAL	228.0	1.32	11.63	227.98	2.57	0.53	2.63	0.58	0.58	0.00	11.63
	NORMAL	320.0	3.34	6.18	319.90	6.28	1.03	6.36	2.21	2.20	-5.92	351.01
	NORMAL	412.0	5.00	12.56	411.65	12.85	2.19	13.04	1.87	1.80	6.93	18.81
	NORMAL	504.0	7.53	13.08	503.10	22.64	4.43	23.07	2.75	2.75	0.57	1.54
	NORMAL	596.0	9.14	9.54	594.12	35.72	7.00	36.40	1.84	1.75	-3.85	340.56
	NORMAL	688.0	9.58	6.70	684.90	50.53	9.11	51.34	0.69	0.48	-3.09	312.20
	NORMAL	780.0	10.95	5.80	775.42	66.82	10.88	67.69	1.50	1.49	-0.98	352.88
	NORMAL	872.0	11.70	5.21	865.63	84.81	12.61	85.69	0.82	0.82	-0.64	350.93
	NORMAL	966.0	12.16	4.61	957.60	104.17	14.28	105.02	0.51	0.49	-0.64	344.62
	NORMAL	1,060.0	12.05	8.64	1,049.51	123.74	16.55	124.68	0.91	-0.12	4.29	99.38
	NORMAL	1,155.0	12.05	11.45	1,142.42	143.26	20.00	144.51	0.62	0.00	2.96	91.37
	NORMAL	1,249.0	12.22	10.40	1,234.32	162.66	23.75	164.27	0.30	0.18	-1.12	307.09
	NORMAL	1,344.0	12.30	14.00	1,327.15	182.37	28.01	184.42	0.81	0.08	3.79	85.79
	NORMAL	1,438.0	10.97	15.06	1,419.22	200.72	32.76	203.33	1.43	-1.41	1.13	171.39
	NORMAL	1,532.0	11.07	14.18	1,511.49	218.11	37.29	221.25	0.21	0.11	-0.94	300.30
	NORMAL	1,626.0	11.08	14.09	1,603.74	235.62	41.70	239.27	0.02	0.01	-0.10	300.00
	NORMAL	1,721.0	9.94	10.57	1,697.14	252.53	45.43	256.58	1.38	-1.20	-3.71	207.67
	NORMAL	1,815.0	9.76	10.75	1,789.76	268.34	48.40	272.66	0.19	-0.19	0.19	170.38
	NORMAL	1,909.0	10.02	11.28	1,882.36	284.18	51.49	288.81	0.29	0.28	0.56	19.56

2.1.2 Survey Stations (Continued)

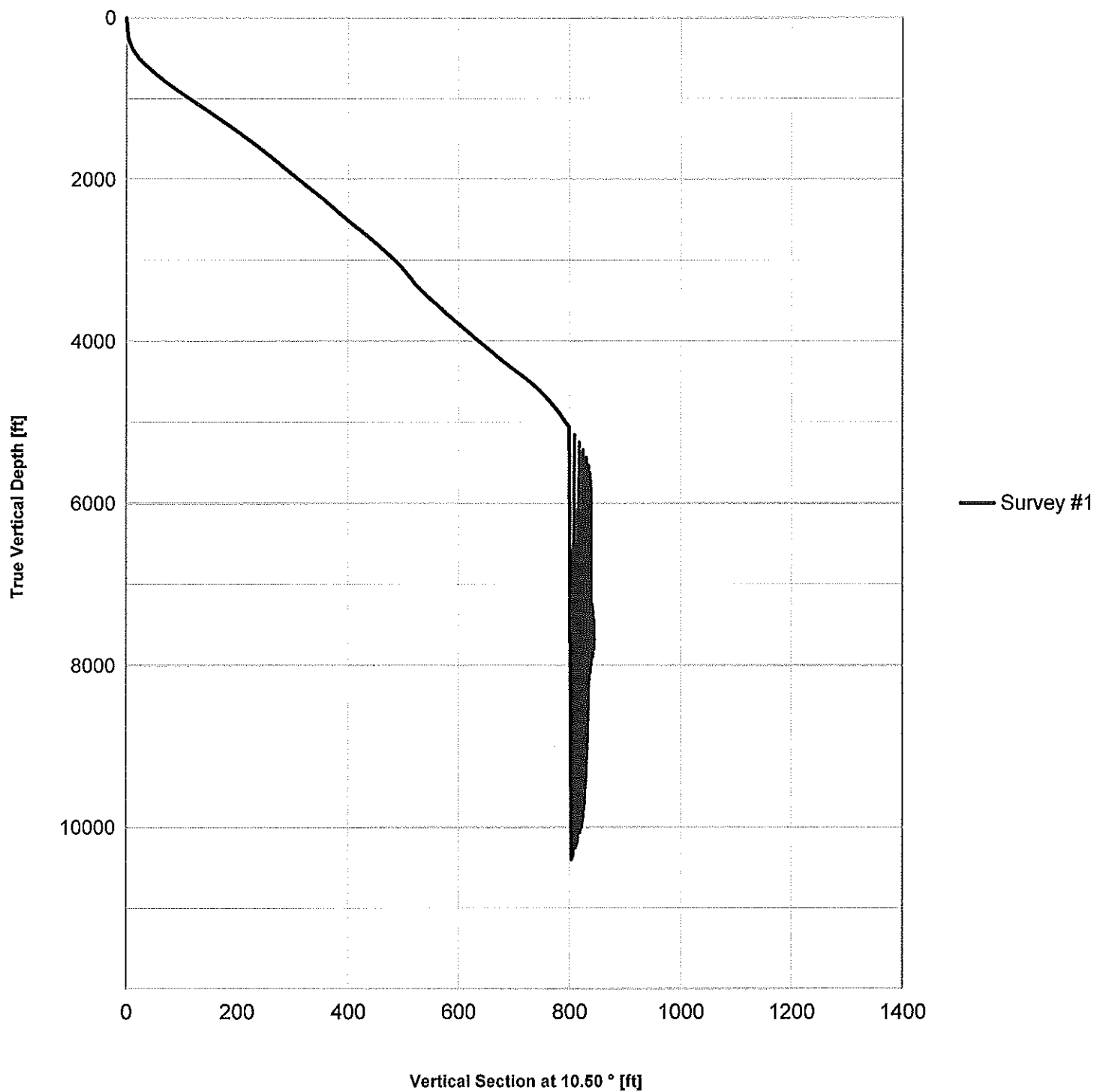
Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (%/100ft)	Build Rate (%/100ft)	Turn (%/100ft)	TFace (°)
6/27/2012	NORMAL	2,003.0	10.20	11.28	1,974.90	300.36	54.72	305.31	0.19	0.19	0.00	0.00
	NORMAL	2,098.0	10.29	11.63	2,068.39	316.92	58.07	322.20	0.12	0.09	0.37	34.84
	NORMAL	2,191.0	10.51	12.13	2,159.86	333.35	61.53	338.98	0.26	0.24	0.54	22.55
	NORMAL	2,286.0	10.12	10.13	2,253.32	350.04	64.82	355.99	0.56	-0.41	-2.11	221.58
	NORMAL	2,380.0	9.33	7.08	2,345.97	365.73	67.21	371.86	1.00	-0.84	-3.24	211.61
	NORMAL	2,474.0	9.79	9.76	2,438.67	381.17	69.50	387.45	0.68	0.49	2.85	45.38
	NORMAL	2,570.0	10.11	11.89	2,533.22	397.46	72.62	404.04	0.51	0.33	2.22	50.05
6/28/2012	NORMAL	2,665.0	10.29	12.15	2,626.72	413.91	76.13	420.85	0.20	0.19	0.27	14.48
	NORMAL	2,759.0	10.11	10.40	2,719.24	430.23	79.38	437.50	0.38	-0.19	-1.86	238.99
	NORMAL	2,852.0	9.27	6.52	2,810.91	445.71	81.71	453.13	1.14	-0.90	-4.17	215.96
	NORMAL	2,947.0	9.32	5.56	2,904.66	460.96	83.32	468.43	0.17	0.05	-1.01	287.40
	NORMAL	3,041.0	8.79	359.76	2,997.49	475.72	84.03	483.07	1.12	-0.56	-6.17	237.02
	NORMAL	3,134.0	8.09	357.04	3,089.48	489.36	83.66	496.42	0.87	-0.75	-2.92	208.36
6/30/2012	NORMAL	3,248.0	6.09	354.32	3,202.61	503.39	82.65	510.03	1.78	-1.75	-2.39	188.18
	NORMAL	3,343.0	7.63	357.65	3,296.92	514.71	81.89	521.01	1.67	1.62	3.51	16.14
	NORMAL	3,438.0	8.51	6.52	3,390.99	528.00	82.43	534.18	1.60	0.93	9.34	59.20
	NORMAL	3,531.0	9.50	8.84	3,482.84	542.42	84.39	548.71	1.13	1.06	2.49	21.29
	NORMAL	3,626.0	8.79	13.56	3,576.63	557.22	87.30	563.80	1.09	-0.75	4.97	135.74
	NORMAL	3,720.0	9.59	8.30	3,669.43	571.95	90.11	578.79	1.23	0.85	-5.60	310.98
	NORMAL	3,815.0	10.08	15.36	3,763.03	587.80	93.46	594.99	1.37	0.52	7.43	71.39
	NORMAL	3,909.0	9.68	14.20	3,855.64	603.39	97.57	611.07	0.48	-0.43	-1.23	205.88
	NORMAL	4,003.0	9.94	13.49	3,948.27	618.94	101.40	627.06	0.31	0.28	-0.76	334.70
	NORMAL	4,098.0	10.38	12.39	4,041.78	635.28	105.15	643.80	0.51	0.46	-1.16	335.66
	NORMAL	4,191.0	9.89	14.66	4,133.32	651.18	108.97	660.14	0.68	-0.53	2.44	141.93
	NORMAL	4,285.0	10.11	17.52	4,225.90	666.86	113.50	676.38	0.58	0.23	3.04	67.52
	NORMAL	4,380.0	10.99	16.99	4,319.29	683.47	118.66	693.65	0.93	0.93	-0.56	353.45
	NORMAL	4,475.0	10.73	20.59	4,412.59	700.41	124.41	711.36	0.76	-0.27	3.79	112.73
	NORMAL	4,570.0	10.73	18.66	4,505.93	717.07	130.35	728.82	0.38	0.00	-2.03	269.05
	NORMAL	4,665.0	8.35	19.89	4,599.61	731.94	135.53	744.38	2.51	-2.51	1.29	175.71
	NORMAL	4,759.0	7.80	17.82	4,692.68	744.43	139.80	757.44	0.66	-0.59	-2.20	206.84
	NORMAL	4,853.0	7.30	18.83	4,785.86	756.15	143.68	769.68	0.55	-0.53	1.07	165.64
	NORMAL	4,947.0	6.09	15.83	4,879.22	766.60	146.97	780.55	1.34	-1.29	-3.19	194.64
	NORMAL	5,039.0	5.54	15.49	4,970.74	775.58	149.49	789.83	0.60	-0.60	-0.37	183.41
	NORMAL	5,134.0	6.24	19.27	5,065.24	784.87	152.42	799.50	0.84	0.74	3.98	30.88
	NORMAL	5,227.0	4.84	12.59	5,157.81	793.47	154.94	808.42	1.65	-1.51	-7.18	201.43
	NORMAL	5,321.0	5.37	25.38	5,251.44	801.32	157.69	816.64	1.33	0.56	13.61	71.49
	NORMAL	5,416.0	3.96	22.53	5,346.12	808.36	160.85	824.14	1.50	-1.48	-3.00	187.92
	NORMAL	5,508.0	3.08	22.61	5,437.95	813.58	163.02	829.66	0.96	-0.96	0.09	179.72
	NORMAL	5,603.0	1.93	24.28	5,532.85	817.39	164.66	833.71	1.21	-1.21	1.76	177.20
	NORMAL	5,697.0	1.09	44.19	5,626.82	819.48	165.93	835.99	1.04	-0.89	21.18	157.70
	NORMAL	5,791.0	0.79	46.70	5,720.81	820.56	167.03	837.26	0.32	-0.32	2.67	173.44
	NORMAL	5,885.0	0.50	60.84	5,814.80	821.21	167.86	838.05	0.35	-0.31	15.04	158.18
	NORMAL	5,981.0	0.51	233.79	5,910.80	821.16	167.88	838.00	1.05	0.01	180.16	176.44
	NORMAL	6,076.0	0.84	263.77	6,005.79	820.83	166.84	837.49	0.50	0.35	31.56	62.59
	NORMAL	6,170.0	0.88	250.16	6,099.78	820.51	165.48	836.93	0.22	0.04	-14.48	274.22
	NORMAL	6,264.0	0.91	272.96	6,193.77	820.31	164.06	836.47	0.38	0.03	24.26	96.65
7/1/2012	NORMAL	6,359.0	1.22	255.73	6,288.76	820.10	162.32	835.95	0.47	0.33	-18.14	305.24
	NORMAL	6,453.0	1.58	249.46	6,382.73	819.40	160.14	834.86	0.42	0.38	-6.67	333.79
	NORMAL	6,548.0	1.06	265.45	6,477.70	818.87	158.04	833.95	0.67	-0.55	16.83	152.50
	NORMAL	6,643.0	0.26	239.00	6,572.70	818.69	156.98	833.58	0.88	-0.84	-27.84	187.97
	NORMAL	6,738.0	0.81	233.81	6,667.69	818.18	156.25	832.95	0.58	0.58	-5.46	352.37
	NORMAL	6,832.0	0.35	18.66	6,761.69	818.06	155.80	832.75	1.19	-0.49	154.10	169.58
	NORMAL	6,927.0	0.83	14.60	6,856.68	819.00	156.07	833.73	0.51	0.51	-4.27	352.99
	NORMAL	7,020.0	1.67	43.97	6,949.66	820.63	157.18	835.53	1.11	0.90	31.58	52.63
	NORMAL	7,115.0	1.14	46.52	7,044.63	822.27	158.83	837.45	0.56	-0.56	2.68	174.55
	NORMAL	7,209.0	0.53	90.38	7,138.62	822.91	159.94	838.28	0.90	-0.65	46.66	154.15
	NORMAL	7,304.0	1.32	18.13	7,233.61	823.95	160.72	839.44	1.33	0.83	-76.05	264.21

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 (°)
7/1/2012	NORMAL	7,398.0	1.26	349.52	7,327.59	826.00	160.87	841.48	0.68	-0.06	-30.44	250.49
	NORMAL	7,492.0	1.06	312.12	7,421.57	827.60	160.04	842.90	0.82	-0.21	-39.79	237.01
	NORMAL	7,587.0	0.97	270.11	7,516.56	828.19	158.58	843.22	0.77	-0.09	-44.22	242.41
	NORMAL	7,681.0	0.86	38.12	7,610.55	828.74	158.22	843.70	1.75	-0.12	136.18	155.68
	NORMAL	7,775.0	1.36	98.47	7,704.54	829.13	159.76	844.36	1.27	0.53	64.20	98.99
	NORMAL	7,869.0	1.30	145.09	7,798.51	828.09	161.47	843.65	1.12	-0.06	49.60	116.30
	NORMAL	7,964.0	1.67	173.13	7,893.48	825.84	162.26	841.58	0.85	0.39	29.52	77.50
	NORMAL	8,058.0	1.35	195.11	7,987.45	823.41	162.13	839.17	0.70	-0.34	23.38	129.61
7/2/2012	NORMAL	8,152.0	1.23	207.62	8,081.43	821.44	161.38	837.10	0.32	-0.13	13.31	119.25
	NORMAL	8,246.0	1.46	149.83	8,175.41	819.52	161.51	835.23	1.40	0.24	-61.48	249.92
	NORMAL	8,341.0	0.78	152.95	8,270.39	817.89	162.41	833.79	0.72	-0.72	3.28	176.43
	NORMAL	8,435.0	0.99	248.79	8,364.38	817.03	161.95	832.86	1.41	0.22	101.96	131.80
	NORMAL	8,529.0	0.35	356.51	8,458.37	817.02	161.17	832.71	1.22	-0.68	114.60	163.09
	NORMAL	8,623.0	0.20	251.36	8,552.37	817.26	161.00	832.91	0.47	-0.16	-111.86	205.64
	NORMAL	8,717.0	0.26	239.18	8,646.37	817.09	160.66	832.69	0.08	0.06	-12.96	314.63
	NORMAL	8,812.0	1.37	253.36	8,741.36	816.66	159.39	832.03	1.18	1.17	14.93	17.44
7/3/2012	NORMAL	8,906.0	0.37	313.00	8,835.35	816.54	158.09	831.68	1.30	-1.06	63.45	164.90
	NORMAL	9,000.0	0.60	280.23	8,929.35	816.84	157.38	831.84	0.37	0.24	-34.86	292.50
	NORMAL	9,095.0	0.89	238.58	9,024.34	816.54	156.26	831.35	0.63	0.31	-43.84	276.28
	NORMAL	9,189.0	0.44	132.04	9,118.34	815.92	155.91	830.67	1.17	-0.48	-113.34	202.56
	NORMAL	9,283.0	0.35	228.54	9,212.34	815.49	155.96	830.25	0.63	-0.10	102.66	144.06
	NORMAL	9,377.0	1.49	258.86	9,306.32	815.06	154.55	829.58	1.28	1.21	32.26	38.78
	NORMAL	9,475.0	0.53	221.77	9,404.31	814.48	152.99	828.72	1.14	-0.98	-37.85	196.67
	NORMAL	9,572.0	1.06	228.89	9,501.30	813.55	152.02	827.63	0.55	0.55	7.34	14.13
	NORMAL	9,666.0	0.44	143.37	9,595.29	812.69	151.58	826.71	1.19	-0.66	-90.98	203.16
	NORMAL	9,760.0	0.53	199.19	9,689.29	811.99	151.65	826.03	0.49	0.10	59.38	107.97
	NORMAL	9,854.0	0.88	224.32	9,783.28	811.06	151.00	825.00	0.49	0.37	26.73	54.48
	NORMAL	9,949.0	1.27	238.03	9,878.26	809.99	149.60	823.68	0.49	0.41	14.43	40.39
	NORMAL	10,043.0	2.38	231.54	9,972.21	808.22	147.19	821.51	1.20	1.18	-6.90	346.20
	NORMAL	10,137.0	2.73	227.22	10,066.12	805.49	144.02	818.24	0.42	0.37	-4.60	329.01
	NORMAL	10,231.0	3.43	226.87	10,159.98	802.04	140.32	814.18	0.74	0.74	-0.37	358.29
	NORMAL	10,325.0	2.99	222.04	10,253.84	798.30	136.63	809.83	0.55	-0.47	-5.14	209.18
	NORMAL	10,412.0	3.08	228.28	10,340.72	795.06	133.36	806.05	0.39	0.10	7.17	77.89
	NORMAL	10,468.0	3.08	228.28	10,396.63	793.06	131.12	803.67	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

