

1 General

1.1 Customer Information

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

1.2 Well/Wellbore Information

Well	RGU 423-23-198	Wellbore No.	00
Wellbore Legal Name	RGU 423-23-198	Common Wellbore Name	RGU 423-23-198
Project	RG 23-01S-098W	Site	RGU 23-23-198 Pad
Vertical Section Azimuth	354.08 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	3/29/2013	UWI	RGU 423-23-198
Active datum	KB @6,566.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	3/29/2013	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

9742

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 (°)
3/29/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3/29/2013	NORMAL	209.0	1.41	329.39	208.98	2.21	-1.31	2.34	0.67	0.67	0.00	329.39
	NORMAL	301.0	2.90	2.26	300.91	5.51	-1.79	5.67	2.04	1.62	35.73	56.89
	NORMAL	392.0	3.17	12.37	391.79	10.27	-1.16	10.34	0.66	0.30	11.11	68.34
	NORMAL	485.0	2.81	353.21	484.66	15.05	-0.88	15.06	1.14	-0.39	-20.60	240.79
	NORMAL	577.0	3.17	354.00	576.54	19.82	-1.42	19.86	0.39	0.39	0.86	6.92
	NORMAL	669.0	2.55	354.53	668.42	24.38	-1.88	24.45	0.67	-0.67	0.58	177.82
	NORMAL	761.0	2.20	354.44	760.34	28.18	-2.24	28.26	0.38	-0.38	-0.10	180.57
3/30/2013	NORMAL	853.0	2.46	6.13	852.27	31.90	-2.20	31.96	0.59	0.28	12.71	67.24
	NORMAL	944.0	2.37	3.49	943.19	35.72	-1.88	35.72	0.16	-0.10	-2.80	229.71
	NORMAL	1,042.0	2.11	4.55	1,041.11	39.54	-1.61	39.49	0.27	-0.27	1.08	171.48
	NORMAL	1,136.0	2.73	345.65	1,135.03	43.43	-2.03	43.41	1.07	0.66	-20.11	298.15
	NORMAL	1,230.0	2.73	342.23	1,228.92	47.73	-3.27	47.82	0.17	0.00	-3.64	268.29
	NORMAL	1,325.0	2.02	340.20	1,323.84	51.46	-4.53	51.66	0.75	-0.75	-2.14	185.74
	NORMAL	1,418.0	2.81	355.14	1,416.76	55.28	-5.27	55.53	1.08	0.85	16.06	46.17
	NORMAL	1,512.0	4.84	354.62	1,510.55	61.52	-5.84	61.80	2.16	2.16	-0.55	358.76
	NORMAL	1,606.0	5.36	347.50	1,604.18	69.76	-7.16	70.12	0.87	0.55	-7.57	305.82
	NORMAL	1,638.0	5.45	346.97	1,636.03	72.70	-7.83	73.12	0.32	0.28	-1.66	330.72
	NORMAL	1,732.0	4.84	343.02	1,729.65	80.84	-9.99	81.44	0.75	-0.65	-4.20	208.19
	NORMAL	1,827.0	4.31	343.46	1,824.35	88.09	-12.18	88.88	0.56	-0.56	0.46	176.43
	NORMAL	1,921.0	4.04	351.54	1,918.10	94.75	-13.67	95.66	0.69	-0.29	8.60	118.65

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)	Buila Rate (°/100usft)	Turn (°/100usft)	Tface (°)
3/30/2013	NORMAL	2,015.0	3.87	351.81	2,011.88	101.17	-14.81	102.14	0.18	-0.18	0.29	173.88
	NORMAL	2,109.0	3.78	351.10	2,105.67	107.37	-15.54	108.40	0.11	-0.10	-0.76	207.40
	NORMAL	2,204.0	3.96	351.19	2,200.45	113.71	-16.53	114.80	0.19	0.19	0.09	1.98
	NORMAL	2,298.0	3.96	352.86	2,294.23	120.13	-17.43	121.29	0.12	0.00	1.78	90.83
	NORMAL	2,392.0	3.78	354.71	2,388.02	126.44	-18.12	127.63	0.23	-0.19	1.97	146.17
	NORMAL	2,486.0	3.78	357.25	2,481.81	132.62	-18.56	133.83	0.18	0.00	2.70	91.27
	NORMAL	2,581.0	3.87	0.07	2,576.60	138.95	-18.70	140.14	0.22	0.09	2.97	65.84
	NORMAL	2,675.0	3.78	0.07	2,670.39	145.22	-18.69	146.38	0.10	-0.10	0.00	180.00
	NORMAL	2,769.0	3.52	2.00	2,764.20	151.21	-18.59	152.32	0.31	-0.28	2.05	155.67
3/31/2013	NORMAL	2,863.0	2.37	7.63	2,858.07	156.02	-18.23	157.07	1.26	-1.22	5.99	168.68
	NORMAL	2,957.0	2.46	5.43	2,951.99	159.95	-17.78	160.93	0.14	0.10	-2.34	313.05
	NORMAL	3,050.0	1.58	22.83	3,044.93	163.12	-17.10	164.01	1.14	-0.95	18.71	153.61
	NORMAL	3,145.0	1.58	26.08	3,139.90	165.50	-16.01	166.27	0.09	0.00	3.42	91.62
	NORMAL	3,239.0	1.06	55.53	3,233.87	167.16	-14.72	167.79	0.89	-0.55	31.33	141.57
	NORMAL	3,332.0	0.88	45.15	3,326.86	168.15	-13.51	168.65	0.27	-0.19	-11.16	219.20
	NORMAL	3,427.0	1.06	58.60	3,421.85	169.12	-12.24	169.48	0.30	0.19	14.16	58.52
	NORMAL	3,521.0	0.97	54.73	3,515.83	170.04	-10.85	170.25	0.12	-0.10	-4.12	215.37
	NORMAL	3,616.0	1.06	60.97	3,610.82	170.93	-9.43	170.99	0.15	0.09	6.57	53.99
	NORMAL	3,709.0	0.88	76.53	3,703.80	171.51	-7.98	171.42	0.34	-0.19	16.73	131.96
	NORMAL	3,781.0	0.44	74.60	3,775.80	171.71	-7.17	171.54	0.61	-0.61	-2.68	181.93
5/29/2013	NORMAL	3,921.0	0.34	78.66	3,915.80	171.94	-6.25	171.66	0.07	-0.07	2.90	166.58
	NORMAL	4,016.0	0.24	193.31	4,010.80	171.80	-6.02	171.50	0.52	-0.11	120.68	153.63
	NORMAL	4,111.0	0.78	252.20	4,105.79	171.41	-6.68	171.18	0.72	0.57	61.99	76.28
	NORMAL	4,205.0	1.06	353.83	4,199.79	172.08	-7.38	171.92	1.53	0.30	108.12	133.74
	NORMAL	4,300.0	0.62	310.05	4,294.78	173.28	-7.87	173.17	0.79	-0.46	-46.08	215.01
	NORMAL	4,394.0	0.60	292.84	4,388.77	173.80	-8.71	173.77	0.20	-0.02	-18.31	255.21
	NORMAL	4,489.0	0.44	259.43	4,483.77	173.93	-9.53	173.98	0.35	-0.17	-35.17	226.15
	NORMAL	4,584.0	1.14	248.62	4,578.76	173.51	-10.77	173.70	0.75	0.74	-11.38	342.54
	NORMAL	4,679.0	1.41	24.85	4,673.75	174.23	-11.16	174.45	2.49	0.28	143.40	155.67
	NORMAL	4,774.0	1.23	30.83	4,768.72	176.17	-10.14	176.27	0.24	-0.19	6.29	145.54
	NORMAL	4,869.0	0.79	35.40	4,863.71	177.58	-9.24	177.58	0.47	-0.46	4.81	171.90
	NORMAL	4,963.0	0.09	159.06	4,957.71	178.03	-8.84	178.00	0.90	-0.74	131.55	174.90
	NORMAL	5,058.0	1.23	5.69	5,052.70	178.98	-8.71	178.92	1.38	1.20	-161.44	204.87
	NORMAL	5,153.0	1.32	293.62	5,147.68	180.43	-9.61	180.46	1.58	0.09	-75.86	236.75
	NORMAL	5,247.0	2.11	271.56	5,241.64	180.91	-12.34	181.22	1.08	0.84	-23.47	308.74
	NORMAL	5,342.0	0.88	331.59	5,336.61	181.60	-14.43	182.12	1.93	-1.29	63.19	155.46
5/30/2013	NORMAL	5,910.0	0.79	113.45	5,904.52	186.37	-6.98	186.10	0.38	-0.19	21.38	129.88
	NORMAL	6,004.0	0.88	152.91	5,998.51	185.47	-6.06	185.11	0.61	0.10	41.98	101.18
	NORMAL	6,099.0	0.53	188.33	6,093.51	184.39	-5.79	184.00	0.57	-0.37	37.28	145.57
	NORMAL	6,193.0	0.82	203.20	6,187.50	183.34	-6.12	182.99	0.36	0.31	15.82	38.71
	NORMAL	6,288.0	0.97	214.70	6,282.49	182.05	-6.84	181.79	0.25	0.16	12.11	55.98
5/30/2013	NORMAL	5,437.0	1.49	57.55	5,431.60	182.91	-13.74	183.35	1.76	0.64	90.48	117.53
	NORMAL	5,531.0	1.14	37.07	5,525.57	184.31	-12.14	184.58	0.62	-0.37	-21.79	223.38
	NORMAL	5,626.0	0.70	33.73	5,620.56	185.55	-11.25	185.72	0.47	-0.46	-3.52	185.28
	NORMAL	5,721.0	1.14	68.36	5,715.55	186.38	-10.05	186.42	0.73	0.46	36.45	69.82
	NORMAL	5,815.0	0.97	93.14	5,809.53	186.68	-8.39	186.55	0.51	-0.18	26.36	122.53
	NORMAL	6,383.0	0.45	23.98	6,377.48	181.73	-7.15	181.50	1.49	-0.55	178.17	176.60
	NORMAL	6,477.0	1.93	51.83	6,471.46	183.05	-5.76	182.67	1.65	1.57	29.65	35.68
	NORMAL	6,572.0	1.41	45.33	6,566.42	184.86	-3.67	184.25	0.58	-0.55	-6.84	196.79
	NORMAL	6,666.0	0.62	355.50	6,660.41	186.18	-2.88	185.48	1.19	-0.84	-53.01	205.13
	NORMAL	6,761.0	0.18	315.33	6,755.41	186.80	-3.03	186.12	0.52	-0.46	-42.28	193.53
	NORMAL	6,951.0	1.41	83.56	6,945.40	187.44	-2.92	186.74	2.08	0.83	158.46	159.43
	NORMAL	7,046.0	1.14	88.13	7,040.37	187.60	-0.81	186.68	0.30	-0.28	4.81	161.64
	NORMAL	7,141.0	2.11	76.97	7,135.33	188.03	1.84	186.83	1.07	1.02	-11.75	336.30
	NORMAL	7,235.0	1.23	77.59	7,229.29	188.63	4.51	187.16	0.94	-0.94	0.66	179.13
	NORMAL	7,330.0	0.70	90.68	7,324.28	188.84	6.08	187.21	0.60	-0.56	13.78	163.87

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)	Build Rate (%/100usft)	Turn (%/100usft)	Tface (')
5/30/2013	NORMAL	7,425.0	1.41	94.72	7,419.26	188.74	7.83	186.93	0.75	0.75	4.25	8.00
	NORMAL	7,520.0	0.53	108.33	7,514.25	188.51	9.41	186.53	0.95	-0.93	14.33	172.07
	NORMAL	7,615.0	2.11	56.84	7,609.22	189.33	11.29	187.15	1.92	1.66	-54.20	295.40
5/30/2013	NORMAL	6,856.0	0.62	293.02	6,850.40	187.11	-3.61	186.48	0.48	0.46	-23.48	329.12
5/31/2013	NORMAL	7,709.0	1.49	60.10	7,703.18	190.88	13.80	188.44	0.67	-0.66	3.47	172.25
	NORMAL	7,804.0	1.14	103.60	7,798.15	191.27	15.79	188.63	1.08	-0.37	45.79	130.19
	NORMAL	7,899.0	1.93	173.21	7,893.13	189.46	16.90	186.71	1.97	0.83	73.27	104.48
	NORMAL	7,993.0	0.97	194.39	7,987.10	187.12	16.89	184.38	1.15	-1.02	22.53	161.13
	NORMAL	8,088.0	1.11	191.59	8,082.08	185.44	16.50	182.75	0.16	0.15	-2.95	338.65
	NORMAL	8,183.0	1.14	202.13	8,177.06	183.66	15.96	181.04	0.22	0.03	11.09	87.04
	NORMAL	8,278.0	1.41	215.22	8,272.04	181.83	14.93	179.32	0.42	0.28	13.78	53.84
	NORMAL	8,372.0	0.77	286.07	8,366.02	181.06	13.66	178.69	1.45	-0.68	75.37	147.85
	NORMAL	8,468.0	1.41	255.39	8,462.01	180.94	11.89	178.75	0.88	0.67	-31.96	301.61
	NORMAL	8,562.0	1.14	342.16	8,555.99	181.54	10.49	179.49	1.87	-0.29	92.31	139.77
	NORMAL	8,657.0	1.23	52.10	8,650.98	183.07	11.00	180.96	1.43	0.09	73.62	121.86
	NORMAL	8,752.0	0.79	46.39	8,745.96	184.15	12.28	181.90	0.47	-0.46	-6.01	190.04
	NORMAL	8,846.0	0.26	36.72	8,839.96	184.77	12.88	182.45	0.57	-0.56	-10.29	184.68
	NORMAL	8,941.0	0.09	314.98	8,934.96	184.99	12.95	182.67	0.28	-0.18	-86.04	199.82
6/1/2013	NORMAL	9,036.0	0.44	253.54	9,029.96	184.94	12.55	182.66	0.43	0.37	-64.67	287.30
	NORMAL	9,130.0	1.14	240.45	9,123.95	184.38	11.39	182.22	0.76	0.74	-13.93	338.94
	NORMAL	9,225.0	0.97	261.81	9,218.93	183.80	9.77	181.81	0.45	-0.18	22.48	123.81
	NORMAL	9,320.0	1.06	52.54	9,313.93	184.22	9.68	182.24	2.07	0.09	158.66	164.70
	NORMAL	9,415.0	0.32	16.77	9,408.92	185.00	10.45	182.94	0.87	-0.78	-37.65	193.15
	NORMAL	9,509.0	0.35	247.92	9,502.92	185.15	10.26	183.10	0.64	0.03	-137.07	206.80
	NORMAL	9,604.0	0.84	259.64	9,597.91	184.91	9.31	182.97	0.53	0.52	12.34	19.86
	NORMAL	9,699.0	1.49	245.19	9,692.89	184.27	7.50	182.51	0.75	0.68	-15.21	328.34
	NORMAL	9,794.0	0.53	98.06	9,787.88	183.69	6.81	182.01	2.06	-1.01	-154.87	188.46
	NORMAL	9,888.0	0.35	54.03	9,881.88	183.80	7.48	182.05	0.39	-0.19	-46.84	221.15
	NORMAL	9,971.0	0.26	178.40	9,964.88	183.76	7.69	181.99	0.00	0.00	0.00	0.00
6/2/2013	NORMAL	9,971.0	0.26	178.40	9,964.88	183.76	7.69	181.99	0.65	-0.11	149.84	156.64
	NORMAL	10,065.0	0.70	240.71	10,058.88	183.26	7.19	181.55	0.66	0.47	66.29	83.99
	NORMAL	10,160.0	0.62	196.50	10,153.87	182.49	6.54	180.84	0.53	-0.08	-46.54	239.41
	NORMAL	10,255.0	0.89	138.04	10,248.87	181.45	6.89	179.77	0.81	0.28	-61.54	258.49
	NORMAL	10,350.0	0.88	116.17	10,343.86	180.58	8.04	178.78	0.35	-0.01	-23.02	257.39
	NORMAL	10,444.0	0.26	107.38	10,437.85	180.19	8.89	178.32	0.66	-0.66	-9.35	183.65
	NORMAL	10,539.0	0.18	163.02	10,532.85	179.99	9.14	178.08	0.23	-0.08	58.57	136.83
	NORMAL	10,634.0	0.35	213.02	10,627.85	179.60	9.02	177.71	0.29	0.18	52.63	80.48
	NORMAL	10,729.0	0.79	170.40	10,722.85	178.71	8.97	176.83	0.61	0.46	-44.86	293.39
6/3/2013	NORMAL	10,823.0	0.70	200.55	10,816.84	177.53	8.88	175.67	0.42	-0.10	32.07	117.71
	NORMAL	10,918.0	1.41	171.63	10,911.82	175.83	8.85	173.98	0.91	0.75	-30.44	308.08
	NORMAL	11,013.0	1.93	185.34	11,006.78	173.09	8.87	171.25	0.69	0.55	14.43	44.52
	NORMAL	11,108.0	0.88	179.01	11,101.75	170.76	8.73	168.95	1.12	-1.11	-6.66	185.25
	NORMAL	11,202.0	0.88	220.14	11,195.74	169.49	8.28	167.73	0.66	0.00	43.76	110.56
	NORMAL	11,297.0	1.32	222.69	11,290.72	168.13	7.07	166.50	0.47	0.46	2.68	7.62
	NORMAL	11,392.0	1.58	232.19	11,385.69	166.52	5.29	165.09	0.37	0.27	10.00	47.57
	NORMAL	11,486.0	1.49	235.35	11,479.66	165.03	3.26	163.82	0.13	-0.10	3.36	138.33
	NORMAL	11,581.0	1.67	233.86	11,574.63	163.51	1.13	162.52	0.19	0.19	-1.57	346.40
	NORMAL	11,676.0	1.93	239.31	11,669.58	161.88	-1.37	161.16	0.33	0.27	5.74	36.11
	NORMAL	11,771.0	1.85	245.37	11,764.53	160.42	-4.14	160.00	0.23	-0.08	6.38	114.82
6/4/2013	NORMAL	11,866.0	1.98	250.93	11,859.47	159.25	-7.08	158.13	0.24	0.14	5.85	57.82
	NORMAL	11,960.0	2.46	254.42	11,953.40	158.18	-10.56	158.42	0.53	0.51	3.71	17.48
	NORMAL	12,055.0	2.46	264.35	12,048.32	157.43	-14.55	158.09	0.45	0.00	10.45	94.96
	NORMAL	12,150.0	2.64	253.02	12,143.22	156.59	-18.67	157.68	0.56	0.19	-11.93	283.93
6/5/2013	NORMAL	12,245.0	3.08	251.43	12,238.11	155.14	-23.19	156.70	0.47	0.46	-1.67	348.98
	NORMAL	12,339.0	3.43	249.68	12,331.95	153.36	-28.22	155.45	0.39	0.37	-1.86	343.28
	NORMAL	12,434.0	3.52	242.91	12,426.78	151.04	-33.48	153.69	0.44	0.09	-7.13	278.98

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)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
6/5/2013	NORMAL	12,458.0	3.61	243.08	12,450.73	150.36	-34.81	153.15	0.38	0.38	0.71	6.78
	NORMAL	12,518.0	3.61	243.08	12,510.61	148.65	-38.18	151.80	0.00	0.00	0.00	0.00