

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 313-23-198	Wellbore No.	00
Wellbore Legal Name	RGU 313-23-198	Common Wellbore Name	RGU 313-23-198
Project	RG 23-01S-098W	Site	RGU 23-23-198 Pad
Vertical Section	286.24 (')	North reference	True
Azimuth		Origin E/W	
Origin N/S		UWI	RGU 313-23-198
Spud date	4/4/2013		
Active datum	KB @6,566.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	SDI
Date Started	4/4/2013	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

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 (')
4/4/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/4/2013	NORMAL	239.0	1.80	294.73	238.96	1.57	-3.41	3.71	0.75	0.75	0.00	294.73
	NORMAL	301.0	2.11	283.68	300.93	2.25	-5.40	5.82	0.78	0.50	-17.82	303.82
	NORMAL	392.0	3.25	277.27	391.82	2.97	-9.59	10.04	1.29	1.25	-7.04	342.05
	NORMAL	485.0	4.48	288.16	484.61	4.44	-15.66	16.27	1.53	1.32	11.71	36.34
	NORMAL	577.0	5.89	283.77	576.23	6.68	-23.66	24.58	1.59	1.53	-4.77	342.09
	NORMAL	669.0	7.47	289.83	667.61	9.83	-33.87	35.27	1.88	1.72	6.59	27.07
	NORMAL	761.0	7.83	288.08	758.79	13.81	-45.45	47.50	0.47	0.39	-1.90	326.22
	NORMAL	853.0	8.79	286.23	849.82	17.72	-58.16	60.79	1.08	1.04	-2.01	343.52
	NORMAL	944.0	9.06	285.09	939.72	21.52	-71.75	74.91	0.35	0.30	-1.25	326.21
	NORMAL	1,042.0	9.50	283.95	1,036.44	25.48	-87.05	90.70	0.49	0.45	-1.16	336.76
	NORMAL	1,136.0	9.76	281.84	1,129.11	28.99	-102.38	106.40	0.47	0.28	-2.24	305.33
	NORMAL	1,230.0	9.94	281.31	1,221.73	32.21	-118.13	122.42	0.21	0.19	-0.56	333.00
	NORMAL	1,325.0	10.20	286.23	1,315.27	36.17	-134.25	139.01	0.95	0.27	5.18	75.62
	NORMAL	1,418.0	10.02	284.03	1,406.82	40.44	-150.00	155.32	0.46	-0.19	-2.37	243.93
	NORMAL	1,512.0	8.27	285.18	1,499.63	44.19	-164.46	170.26	1.87	-1.86	1.22	174.60
	NORMAL	1,606.0	7.65	284.39	1,592.72	47.51	-177.05	183.27	0.67	-0.66	-0.84	189.62
	NORMAL	1,701.0	7.74	280.43	1,686.87	50.24	-189.46	195.95	0.57	0.09	-4.17	277.67
	NORMAL	1,795.0	6.77	279.11	1,780.11	52.27	-201.16	207.75	1.05	-1.03	-1.40	189.10
	NORMAL	1,890.0	7.12	288.25	1,874.42	55.00	-212.28	219.19	1.22	0.37	9.62	77.00
	NORMAL	1,984.0	7.12	289.83	1,967.69	58.80	-223.29	230.83	0.21	0.00	1.68	90.78

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 (°)
4/4/2013	NORMAL	2,078.0	7.56	290.54	2,060.92	62.94	-234.56	242.81	0.48	0.47	0.76	12.00
	NORMAL	2,172.0	7.83	291.15	2,154.08	67.42	-246.33	255.35	0.30	0.29	0.65	17.13
	NORMAL	2,266.0	7.30	290.45	2,247.26	71.82	-257.89	267.69	0.57	-0.56	-0.74	189.52
	NORMAL	2,360.0	7.39	290.80	2,340.49	76.05	-269.14	279.67	0.11	0.10	0.37	26.61
	NORMAL	2,455.0	6.77	286.49	2,434.76	79.81	-280.22	291.36	0.86	-0.65	-4.54	218.47
4/5/2013	NORMAL	2,549.0	7.12	287.29	2,528.07	83.12	-291.10	302.72	0.39	0.37	0.85	15.85
	NORMAL	2,644.0	7.21	289.83	2,622.33	86.89	-302.33	314.56	0.35	0.09	2.67	75.40
	NORMAL	2,738.0	7.47	291.24	2,715.56	91.10	-313.57	326.54	0.34	0.28	1.50	35.42
	NORMAL	2,832.0	7.65	292.73	2,808.75	95.73	-325.04	338.84	0.28	0.19	1.59	48.18
	NORMAL	2,926.0	8.53	287.11	2,901.81	100.20	-337.47	352.03	1.26	0.94	-5.98	315.25
	NORMAL	3,019.0	8.97	287.20	2,993.73	104.38	-350.99	366.17	0.47	0.47	0.10	1.83
	NORMAL	3,113.0	8.88	286.32	3,086.59	108.58	-364.95	380.76	0.17	-0.10	-0.94	236.17
	NORMAL	3,208.0	8.71	285.09	3,180.47	112.51	-378.93	395.28	0.27	-0.18	-1.29	227.28
	NORMAL	3,302.0	8.27	283.07	3,273.44	115.90	-392.39	409.15	0.57	-0.47	-2.15	213.13
	NORMAL	3,395.0	8.44	282.19	3,365.46	118.85	-405.58	422.63	0.23	0.18	-0.95	322.61
	NORMAL	3,490.0	9.76	281.13	3,459.26	121.88	-420.29	437.61	1.40	1.39	-1.12	352.24
	NORMAL	3,584.0	10.11	280.25	3,551.85	124.88	-436.23	453.75	0.41	0.37	-0.94	336.12
	NORMAL	3,678.0	10.38	280.17	3,644.35	127.85	-452.68	470.37	0.29	0.29	-0.09	356.94
	NORMAL	3,771.0	10.64	280.52	3,735.79	130.89	-469.37	487.25	0.29	0.28	0.38	13.97
	NORMAL	3,865.0	10.64	280.62	3,847.83	134.75	-490.06	508.19	0.02	0.00	0.09	90.05
6/17/2013	NORMAL	3,921.0	10.29	282.10	3,883.30	136.23	-496.09	514.71	0.30	-0.23	1.05	141.42
	NORMAL	4,015.0	13.28	280.60	3,975.30	139.98	-514.91	533.51	3.20	3.18	-1.60	353.41
	NORMAL	4,110.0	12.66	279.72	4,067.88	143.74	-535.90	554.71	0.68	-0.65	-0.93	197.24
	NORMAL	4,204.0	12.22	274.63	4,159.68	146.28	-555.97	574.69	1.26	-0.47	-5.41	245.66
	NORMAL	4,299.0	14.60	283.06	4,252.09	149.80	-577.66	596.50	3.24	2.51	8.87	43.56
	NORMAL	4,394.0	16.80	285.35	4,343.54	156.14	-602.56	622.19	2.41	2.32	2.41	16.84
	NORMAL	4,488.0	16.44	288.25	4,433.61	163.90	-628.30	649.06	0.96	-0.38	3.09	114.85
	NORMAL	4,583.0	17.15	290.80	4,524.56	173.09	-654.16	676.46	1.08	0.75	2.68	47.29
	NORMAL	4,678.0	16.36	287.99	4,615.53	182.19	-679.98	703.80	1.19	-0.83	-2.96	224.38
	NORMAL	4,773.0	16.80	288.87	4,706.58	190.77	-705.69	730.89	0.53	0.46	0.93	30.14
	NORMAL	4,868.0	17.58	287.66	4,797.34	199.56	-732.36	758.94	0.90	0.82	-1.27	334.79
	NORMAL	4,963.0	16.71	287.55	4,888.12	208.03	-759.05	786.94	0.92	-0.92	-0.12	182.08
	NORMAL	5,057.0	16.52	287.70	4,978.19	216.17	-784.67	813.81	0.21	-0.20	0.16	167.35
	NORMAL	5,152.0	17.07	287.46	5,069.14	224.46	-810.83	841.25	0.58	0.58	-0.25	352.70
	NORMAL	5,246.0	16.62	289.98	5,159.11	233.19	-836.63	868.46	0.91	-0.48	2.68	122.84
	NORMAL	5,341.0	17.76	287.20	5,249.86	242.12	-863.24	896.51	1.48	1.20	-2.93	322.89
	NORMAL	5,436.0	16.00	285.79	5,340.77	249.97	-889.68	924.09	1.90	-1.85	-1.48	192.42
	NORMAL	5,531.0	16.27	295.11	5,432.04	259.18	-914.34	950.33	2.74	0.28	9.81	88.54
	NORMAL	5,625.0	17.76	292.29	5,521.92	270.21	-939.53	977.60	1.81	1.59	-3.00	329.67
6/18/2013	NORMAL	5,720.0	16.88	290.54	5,612.62	280.54	-965.85	1,005.77	1.08	-0.93	-1.84	209.79
	NORMAL	5,815.0	17.15	289.66	5,703.46	290.09	-991.95	1,033.50	0.39	0.28	-0.93	315.94
	NORMAL	5,909.0	16.05	288.64	5,793.54	298.91	-1,017.32	1,060.32	1.21	-1.17	-1.09	194.35
	NORMAL	6,004.0	15.89	286.97	5,884.87	306.90	-1,042.20	1,086.45	0.51	-0.17	-1.76	250.00
	NORMAL	6,098.0	16.09	289.39	5,975.24	314.98	-1,066.80	1,112.32	0.74	0.21	2.57	74.47
	NORMAL	6,193.0	14.16	288.51	6,066.94	323.04	-1,090.24	1,137.08	2.05	-2.03	-0.93	186.36
	NORMAL	6,287.0	13.89	285.00	6,158.14	329.61	-1,112.04	1,159.85	0.95	-0.29	-3.73	250.69
	NORMAL	6,382.0	11.87	284.82	6,250.75	335.06	-1,132.50	1,181.02	2.13	-2.13	-0.19	181.05
	NORMAL	6,477.0	10.11	290.54	6,344.01	340.49	-1,149.75	1,199.10	2.18	-1.85	6.02	151.00
	NORMAL	6,571.0	9.15	290.89	6,436.68	346.05	-1,164.46	1,214.78	1.02	-1.02	0.37	176.68
	NORMAL	6,666.0	9.23	284.73	6,530.46	350.68	-1,178.89	1,229.92	1.04	0.08	-6.48	271.60
	NORMAL	6,760.0	8.09	283.59	6,623.39	354.15	-1,192.61	1,244.07	1.23	-1.21	-1.21	188.00
	NORMAL	6,855.0	7.66	283.50	6,717.49	357.20	-1,205.26	1,257.07	0.45	-0.45	-0.09	181.60
	NORMAL	6,950.0	6.77	292.29	6,811.74	360.80	-1,216.60	1,268.96	1.49	-0.94	9.25	133.18
	NORMAL	7,045.0	5.28	294.14	6,906.22	364.71	-1,225.77	1,278.86	1.58	-1.57	1.95	173.49
	NORMAL	7,140.0	3.78	298.71	7,000.92	368.01	-1,232.51	1,286.25	1.62	-1.58	4.81	168.74
	NORMAL	7,235.0	2.81	304.07	7,095.76	370.81	-1,237.18	1,291.52	1.07	-1.02	5.64	165.04

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 (°)
6/18/2013	NORMAL	7,329.0	1.85	317.25	7,189.68	373.22	-1,240.12	1,295.02	1.16	-1.02	14.02	157.31
6/19/2013	NORMAL	7,424.0	1.49	292.64	7,284.64	374.82	-1,242.30	1,297.56	0.84	-0.38	-25.91	231.40
	NORMAL	7,519.0	1.32	277.88	7,379.62	375.45	-1,244.53	1,299.87	0.42	-0.18	-15.54	237.58
	NORMAL	7,614.0	1.23	276.12	7,474.59	375.70	-1,246.63	1,301.95	0.10	-0.09	-1.85	202.64
	NORMAL	7,709.0	1.67	351.36	7,569.57	377.18	-1,247.85	1,303.54	1.90	0.46	79.20	116.47
	NORMAL	7,803.0	2.42	357.03	7,663.51	380.52	-1,248.16	1,304.77	0.83	0.80	6.03	17.94
	NORMAL	7,898.0	2.29	1.99	7,758.43	384.42	-1,248.19	1,305.90	0.25	-0.14	5.22	124.99
	NORMAL	7,993.0	1.32	352.67	7,853.38	387.40	-1,248.27	1,306.80	1.06	-1.02	-9.81	192.22
	NORMAL	8,088.0	1.76	7.88	7,948.35	389.93	-1,248.21	1,307.45	0.63	0.46	16.01	50.66
	NORMAL	8,182.0	2.29	38.64	8,042.29	392.83	-1,246.84	1,306.94	1.27	0.56	32.72	79.92
	NORMAL	8,277.0	2.20	55.87	8,137.22	395.33	-1,244.14	1,305.06	0.71	-0.09	18.14	106.15
6/20/2013	NORMAL	8,372.0	1.06	67.73	8,232.18	396.69	-1,241.82	1,303.21	1.25	-1.20	12.48	169.39
	NORMAL	8,467.0	0.53	117.65	8,327.17	396.82	-1,240.62	1,302.09	0.87	-0.56	52.55	150.57
	NORMAL	8,562.0	0.79	189.90	8,422.17	395.97	-1,240.34	1,301.59	0.85	0.27	76.05	111.02
	NORMAL	8,656.0	1.14	188.85	8,516.15	394.41	-1,240.60	1,301.39	0.37	0.37	-1.12	356.58
	NORMAL	8,751.0	1.49	198.60	8,611.13	392.30	-1,241.13	1,301.32	0.44	0.37	10.26	37.53
	NORMAL	8,846.0	1.67	211.43	8,706.09	389.95	-1,242.25	1,301.74	0.42	0.19	13.51	69.54
	NORMAL	8,941.0	0.35	309.08	8,801.08	388.95	-1,243.20	1,302.37	1.84	-1.39	102.79	168.57
6/21/2013	NORMAL	9,035.0	0.53	1.46	8,895.08	389.57	-1,243.41	1,302.74	0.45	0.19	55.72	93.61
	NORMAL	9,130.0	0.53	314.44	8,990.07	390.32	-1,243.71	1,303.24	0.45	0.00	-49.49	246.49
	NORMAL	9,225.0	0.88	18.16	9,085.07	391.32	-1,243.80	1,303.61	0.84	0.37	67.07	100.09
	NORMAL	9,320.0	0.44	337.47	9,180.06	392.35	-1,243.71	1,303.81	0.65	-0.46	-42.83	207.70
	NORMAL	9,414.0	0.88	318.48	9,274.06	393.22	-1,244.33	1,304.65	0.52	0.47	-20.20	323.86
	NORMAL	9,509.0	1.54	2.59	9,369.04	395.04	-1,244.75	1,305.56	1.15	0.69	46.43	78.10
6/22/2013	NORMAL	9,604.0	1.08	335.41	9,464.01	397.13	-1,245.07	1,306.45	0.80	-0.48	-28.61	220.42
	NORMAL	9,699.0	0.44	319.28	9,559.00	398.22	-1,245.68	1,307.34	0.70	-0.67	-16.98	190.53
	NORMAL	9,793.0	0.53	242.11	9,653.00	398.29	-1,246.30	1,307.96	0.65	0.10	-82.10	238.05
	NORMAL	9,888.0	1.06	237.71	9,747.99	397.62	-1,247.43	1,308.85	0.56	0.56	-4.63	351.23
	NORMAL	9,983.0	0.79	197.46	9,842.98	396.52	-1,248.37	1,309.45	0.72	-0.28	-42.37	228.16
	NORMAL	10,077.0	1.14	206.42	9,936.97	395.07	-1,248.98	1,309.63	0.40	0.37	9.53	27.85
	NORMAL	10,172.0	0.97	210.73	10,031.95	393.53	-1,249.81	1,310.00	0.20	-0.18	4.54	157.12
	NORMAL	10,267.0	0.39	238.53	10,126.94	392.67	-1,250.50	1,310.42	0.69	-0.61	29.26	163.77
	NORMAL	10,362.0	1.48	314.00	10,221.93	393.35	-1,251.66	1,311.72	1.51	1.15	79.44	90.74
	NORMAL	10,456.0	0.45	8.04	10,315.92	394.56	-1,252.48	1,312.85	1.35	-1.10	57.49	163.32
	NORMAL	10,551.0	0.82	269.79	10,410.92	394.93	-1,253.11	1,313.55	1.04	0.39	-103.42	235.03
	NORMAL	10,646.0	0.55	200.36	10,505.91	394.50	-1,253.94	1,314.24	0.85	-0.28	-73.08	219.41
	NORMAL	10,741.0	0.96	254.38	10,600.90	393.86	-1,254.87	1,314.94	0.82	0.43	56.86	88.96
6/23/2013	NORMAL	10,836.0	1.67	274.45	10,695.88	393.75	-1,257.02	1,316.98	0.88	0.75	21.13	43.27
	NORMAL	10,930.0	1.38	268.10	10,789.84	393.82	-1,259.51	1,319.39	0.36	-0.31	-6.76	207.08
	NORMAL	11,025.0	0.62	252.83	10,884.83	393.63	-1,261.15	1,320.91	0.84	-0.80	-16.07	191.80
	NORMAL	11,120.0	0.79	240.61	10,979.82	393.16	-1,262.21	1,321.80	0.24	0.18	-12.86	312.29
	NORMAL	11,214.0	1.36	250.26	11,073.81	392.46	-1,263.82	1,323.15	0.63	0.61	10.27	22.48
	NORMAL	11,309.0	2.02	247.73	11,168.76	391.45	-1,266.43	1,325.37	0.70	0.69	-2.66	352.28
	NORMAL	11,404.0	2.11	246.24	11,263.70	390.11	-1,269.58	1,328.02	0.11	0.09	-1.57	328.44
	NORMAL	11,498.0	2.02	240.53	11,357.64	388.59	-1,272.61	1,330.51	0.24	-0.10	-6.07	243.54
6/24/2013	NORMAL	11,593.0	1.93	246.77	11,452.59	387.14	-1,275.54	1,332.91	0.25	-0.09	6.57	115.81
	NORMAL	11,688.0	2.09	247.05	11,547.53	385.83	-1,278.60	1,335.49	0.17	0.17	0.29	3.65
	NORMAL	11,783.0	2.12	244.91	11,642.46	384.41	-1,281.79	1,338.15	0.09	0.03	-2.25	289.82
	NORMAL	11,878.0	2.50	245.34	11,737.39	382.80	-1,285.26	1,341.04	0.40	0.40	0.45	2.83
	NORMAL	11,972.0	3.05	242.81	11,831.28	380.81	-1,289.35	1,344.40	0.60	0.59	-2.69	346.18
	NORMAL	12,067.0	2.88	240.63	11,926.15	378.48	-1,293.68	1,347.91	0.21	-0.18	-2.29	212.47
	NORMAL	12,162.0	3.26	238.18	12,021.01	375.88	-1,298.05	1,351.38	0.42	0.40	-2.58	339.72
	NORMAL	12,257.0	3.55	234.70	12,115.85	372.76	-1,302.75	1,355.02	0.37	0.31	-3.66	322.78
	NORMAL	12,351.0	3.61	242.46	12,209.66	369.71	-1,307.75	1,358.96	0.52	0.06	8.26	86.82
6/25/2013	NORMAL	12,446.0	3.80	242.66	12,304.46	366.88	-1,313.20	1,363.40	0.20	0.20	0.21	3.99
	NORMAL	12,522.0	3.78	242.66	12,380.30	364.58	-1,317.66	1,367.04	0.03	-0.03	0.00	180.00

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 (°)
6/25/2013	NORMAL	12,569.0	3.78	242.66	12,427.20	363.15	-1,320.41	1,369.29	0.00	0.00	0.00	0.00