

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 314-23-198	Wellbore No.	00
Wellbore Legal Name	RGU 314-23-198	Common Wellbore Name	RGU 314-23-198
Project	RG 23-01S-098W	Site	RGU 23-23-198 Pad
Vertical Section Azimuth	235.00 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	4/11/2013	UWI	RGU 314-23-198
Active datum	KB @6,566.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	SDI
Date Started	4/11/2013	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)	Buld Rate (°/100usft)	Turn (°/100usft)	Tface (°)
4/11/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/11/2013	NORMAL	149.0	1.11	305.39	148.99	0.84	-1.18	0.48	0.74	0.74	0.00	305.39
	NORMAL	241.0	1.67	266.88	240.97	1.28	-3.24	1.92	1.15	0.61	-41.86	280.72
	NORMAL	333.0	2.99	247.28	332.89	0.28	-6.79	5.40	1.66	1.43	-21.30	318.84
	NORMAL	424.0	4.22	242.98	423.71	-2.16	-11.97	11.04	1.38	1.35	-4.73	345.45
4/12/2013	NORMAL	515.0	5.98	233.13	514.35	-6.52	-18.74	19.09	2.15	1.93	-10.82	328.59
	NORMAL	607.0	7.30	229.35	605.73	-13.21	-27.01	29.70	1.51	1.43	-4.11	339.80
	NORMAL	699.0	7.74	229.44	696.94	-21.04	-36.15	41.68	0.48	0.48	0.10	1.58
	NORMAL	791.0	8.35	228.74	788.03	-29.48	-45.88	54.49	0.67	0.66	-0.76	350.53
	NORMAL	883.0	7.83	232.25	879.12	-37.72	-55.86	67.39	0.78	-0.57	3.82	138.20
	NORMAL	977.0	7.91	232.17	972.23	-45.61	-66.03	80.25	0.09	0.09	-0.09	352.16
	NORMAL	1,072.0	8.27	229.00	1,066.28	-54.10	-76.35	93.57	0.60	0.38	-3.34	307.33
	NORMAL	1,168.0	7.65	225.40	1,159.38	-62.93	-85.91	106.46	0.85	-0.66	-3.83	217.03
	NORMAL	1,260.0	7.03	238.93	1,252.62	-70.29	-95.29	118.37	1.95	-0.66	14.39	116.36
	NORMAL	1,355.0	7.12	239.02	1,346.89	-76.32	-105.32	130.04	0.10	0.09	0.09	7.07
	NORMAL	1,450.0	7.03	236.03	1,441.17	-82.60	-115.18	141.73	0.40	-0.09	-3.15	254.79
	NORMAL	1,545.0	6.86	232.87	1,535.47	-89.27	-124.53	153.21	0.44	-0.18	-3.33	244.45
	NORMAL	1,639.0	7.56	237.00	1,628.73	-96.03	-134.19	165.00	0.93	0.74	4.39	38.58
	NORMAL	1,734.0	7.74	237.18	1,722.89	-102.90	-144.81	177.64	0.19	0.19	0.19	7.67
	NORMAL	1,828.0	7.65	237.88	1,816.04	-109.66	-155.43	190.21	0.14	-0.10	0.74	134.18
	NORMAL	1,923.0	8.09	237.35	1,910.14	-116.63	-166.41	203.21	0.47	0.46	-0.56	350.37

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 (°)
4/12/2013	NORMAL	2,018.0	8.18	239.72	2,004.19	-123.64	-177.87	216.62	0.37	0.09	2.49	76.15
	NORMAL	2,113.0	8.97	234.63	2,098.13	-131.33	-189.75	230.77	1.15	0.83	-5.36	313.61
	NORMAL	2,207.0	9.58	234.71	2,190.90	-140.10	-202.11	245.92	0.65	0.65	0.09	1.25
	NORMAL	2,302.0	8.27	232.52	2,284.75	-148.82	-213.99	260.65	1.42	-1.38	-2.31	193.46
	NORMAL	2,397.0	8.44	232.87	2,378.74	-157.19	-224.97	274.44	0.19	0.18	0.37	16.83
	NORMAL	2,491.0	8.71	234.71	2,471.69	-165.46	-236.28	288.45	0.41	0.29	1.96	46.37
	NORMAL	2,586.0	9.06	235.51	2,565.55	-173.85	-248.31	303.12	0.39	0.37	0.84	19.84
	NORMAL	2,681.0	9.15	237.09	2,659.35	-182.19	-260.82	318.15	0.28	0.09	1.66	70.98
	NORMAL	2,775.0	9.50	238.14	2,752.11	-190.35	-273.68	333.37	0.41	0.37	1.12	26.44
	NORMAL	2,870.0	9.94	239.72	2,845.75	-198.62	-287.42	349.37	0.54	0.46	1.66	32.01
	NORMAL	2,965.0	10.73	236.47	2,939.20	-207.64	-301.87	366.38	1.03	0.83	-3.42	321.96
	NORMAL	3,059.0	10.73	234.89	3,031.56	-217.51	-316.33	383.88	0.31	0.00	-1.68	269.22
4/13/2013	NORMAL	3,154.0	10.73	232.61	3,124.90	-227.96	-330.59	401.56	0.45	0.00	-2.40	268.88
	NORMAL	3,249.0	10.99	235.95	3,218.20	-238.40	-345.12	419.45	0.72	0.27	3.52	69.20
	NORMAL	3,344.0	10.82	236.12	3,311.49	-248.44	-360.02	437.42	0.18	-0.18	0.18	169.37
	NORMAL	3,439.0	11.17	236.38	3,404.74	-258.51	-375.09	455.53	0.37	0.37	0.27	8.19
	NORMAL	3,533.0	11.08	235.77	3,496.98	-268.63	-390.14	473.66	0.16	-0.10	-0.65	232.30
	NORMAL	3,628.0	11.43	236.30	3,590.15	-278.99	-405.52	492.20	0.38	0.37	0.56	16.73
	NORMAL	3,722.0	11.61	236.47	3,682.25	-289.38	-421.15	510.97	0.19	0.19	0.18	10.76
	NORMAL	3,816.0	11.61	236.47	3,774.33	-299.83	-436.92	529.88	0.00	0.00	0.00	0.00
	NORMAL	3,954.0	11.61	236.47	3,909.51	-315.17	-460.07	557.64	0.00	0.00	0.00	0.00
5/8/2013	NORMAL	3,924.0	12.52	240.75	3,879.80	-311.31	-457.20	553.08	0.63	0.45	2.12	46.62
	NORMAL	4,018.0	12.47	246.93	3,971.57	-320.27	-475.43	573.14	1.42	-0.05	6.57	95.16
5/9/2013	NORMAL	4,113.0	10.43	248.47	4,064.68	-327.44	-492.86	591.54	2.17	-2.15	1.62	172.23
	NORMAL	4,207.0	10.96	240.94	4,157.05	-334.90	-508.59	608.71	1.59	0.58	-8.01	287.04
	NORMAL	4,302.0	10.08	239.14	4,250.45	-343.56	-523.62	625.98	0.99	-0.93	-1.89	199.60
	NORMAL	4,395.0	9.42	238.39	4,342.11	-351.72	-537.09	641.70	0.72	-0.71	-0.81	190.52
	NORMAL	4,490.0	12.69	235.74	4,435.33	-361.67	-552.34	659.90	3.48	3.44	-2.79	349.86
	NORMAL	4,584.0	15.18	236.79	4,526.56	-374.23	-571.17	682.52	2.66	2.65	1.12	6.31
	NORMAL	4,679.0	16.89	232.91	4,617.86	-389.36	-592.59	708.75	2.12	1.80	-4.08	326.05
	NORMAL	4,774.0	18.31	233.78	4,708.42	-406.50	-615.64	737.46	1.52	1.49	0.92	10.91
	NORMAL	4,869.0	19.15	232.47	4,798.38	-424.81	-640.03	767.95	0.99	0.88	-1.38	332.78
	NORMAL	4,964.0	20.23	234.32	4,887.83	-443.89	-665.73	799.94	1.31	1.14	1.95	30.86
5/10/2013	NORMAL	5,058.0	21.45	231.85	4,975.68	-463.98	-692.45	833.36	1.60	1.30	-2.63	323.08
	NORMAL	5,153.0	21.46	234.22	5,064.10	-484.88	-720.21	868.08	0.91	0.01	2.49	90.44
	NORMAL	5,248.0	21.78	233.45	5,152.42	-505.53	-748.47	903.07	0.45	0.34	-0.81	318.08
	NORMAL	5,342.0	21.31	230.22	5,239.85	-526.85	-775.61	937.53	1.36	-0.50	-3.44	246.89
	NORMAL	5,437.0	22.06	231.86	5,328.13	-548.91	-802.90	972.54	1.01	0.79	1.73	39.70
	NORMAL	5,532.0	23.39	234.54	5,415.75	-570.87	-832.30	1,009.21	1.77	1.40	2.82	39.14
	NORMAL	5,626.0	23.92	236.36	5,501.86	-592.25	-863.36	1,046.92	0.97	0.56	1.96	55.17
	NORMAL	5,721.0	22.88	231.93	5,589.05	-614.30	-893.94	1,084.62	2.16	-1.09	-4.68	237.50
	NORMAL	5,816.0	24.73	232.49	5,675.96	-637.79	-924.25	1,122.92	1.96	1.95	0.59	7.22
	NORMAL	5,910.0	24.04	232.77	5,761.58	-661.35	-955.09	1,161.70	0.74	-0.73	0.30	170.62
	NORMAL	6,005.0	22.12	234.57	5,848.97	-683.42	-985.08	1,198.92	2.15	-2.02	1.89	160.65
	NORMAL	6,099.0	21.37	234.19	5,936.28	-703.70	-1,013.39	1,233.74	0.81	-0.80	-0.40	190.45
	NORMAL	6,194.0	19.10	231.29	6,025.41	-723.55	-1,039.55	1,266.57	2.61	-2.39	-3.05	202.48
	NORMAL	6,288.0	18.46	230.17	6,114.41	-742.70	-1,062.98	1,296.74	0.78	-0.68	-1.19	208.87
	NORMAL	6,383.0	16.64	232.23	6,204.99	-760.67	-1,085.29	1,325.32	2.02	-1.92	2.17	162.13
	NORMAL	6,478.0	14.79	230.07	6,296.43	-776.79	-1,105.34	1,350.99	2.04	-1.95	-2.27	196.51
	NORMAL	6,572.0	13.19	229.88	6,387.64	-791.40	-1,122.74	1,373.63	1.70	-1.70	-0.20	181.55
	NORMAL	6,667.0	12.77	229.79	6,480.21	-805.16	-1,139.05	1,394.88	0.44	-0.44	-0.09	182.71
	NORMAL	6,761.0	12.09	229.75	6,572.01	-818.23	-1,154.50	1,415.03	0.72	-0.72	-0.04	180.71
	NORMAL	6,856.0	11.80	229.45	6,664.95	-830.97	-1,169.47	1,434.60	0.31	-0.31	-0.32	191.94
	NORMAL	6,951.0	11.08	227.59	6,758.06	-843.44	-1,183.59	1,453.32	0.85	-0.76	-1.96	206.22
	NORMAL	7,046.0	9.85	229.27	6,851.48	-854.90	-1,196.49	1,470.46	1.33	-1.29	1.77	166.89
5/11/2013	NORMAL	7,141.0	9.19	229.54	6,945.17	-865.13	-1,208.42	1,486.10	0.70	-0.69	0.28	176.26

2.1.2 Survey Stations (Continued)

98031

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 (°)
5/11/2013	NORMAL	7,236.0	7.91	232.69	7,039.12	-874.01	-1,219.39	1,500.18	1.43	-1.35	3.32	161.46
	NORMAL	7,331.0	7.01	233.26	7,133.31	-881.44	-1,229.24	1,512.51	0.95	-0.95	0.60	175.58
	NORMAL	7,425.0	5.63	240.87	7,226.74	-887.12	-1,237.86	1,522.83	1.71	-1.47	8.10	152.48
	NORMAL	7,520.0	5.01	237.18	7,321.33	-891.64	-1,245.42	1,531.61	0.75	-0.65	-3.88	207.06
	NORMAL	7,615.0	4.39	253.80	7,416.02	-894.90	-1,252.40	1,539.20	1.57	-0.65	17.49	122.61
	NORMAL	7,710.0	4.02	247.03	7,510.76	-897.21	-1,258.95	1,545.90	0.65	-0.39	-7.13	229.96
	NORMAL	7,804.0	2.02	243.68	7,604.63	-899.23	-1,263.47	1,550.76	2.14	-2.13	-3.56	183.37
	NORMAL	7,899.0	0.88	212.30	7,699.60	-900.59	-1,265.36	1,553.08	1.42	-1.20	-33.03	199.86
	NORMAL	7,994.0	0.88	221.79	7,794.58	-901.75	-1,266.24	1,554.47	0.15	0.00	9.99	94.74
	NORMAL	8,089.0	0.79	319.27	7,889.58	-901.80	-1,267.15	1,555.24	1.32	-0.09	102.61	141.44
	NORMAL	8,183.0	1.06	348.80	7,983.57	-900.46	-1,267.74	1,554.96	0.57	0.29	31.41	75.79
	NORMAL	8,278.0	1.51	33.41	8,078.55	-898.55	-1,267.23	1,553.44	1.12	0.47	46.96	89.18
	NORMAL	8,373.0	1.53	20.85	8,173.51	-896.32	-1,266.09	1,551.22	0.35	0.02	-13.22	267.14
	NORMAL	8,468.0	1.14	40.48	8,268.49	-894.42	-1,265.02	1,549.26	0.63	-0.41	20.66	139.99
	NORMAL	8,563.0	1.06	50.44	8,363.47	-893.14	-1,263.73	1,547.47	0.22	-0.08	10.48	117.63
5/12/2013	NORMAL	8,658.0	1.08	54.91	8,458.45	-892.06	-1,262.32	1,545.70	0.09	0.02	4.71	78.77
	NORMAL	8,752.0	0.10	72.59	8,552.45	-891.53	-1,261.52	1,544.73	1.05	-1.04	18.81	178.23
	NORMAL	8,847.0	0.44	216.70	8,647.45	-891.80	-1,261.66	1,545.00	0.55	0.36	151.69	150.53
	NORMAL	8,942.0	0.18	34.99	8,742.45	-891.97	-1,261.79	1,545.21	0.65	-0.27	187.67	179.50
	NORMAL	9,036.0	0.11	184.05	8,836.45	-891.94	-1,261.71	1,545.13	0.30	-0.07	158.57	168.35
	NORMAL	9,131.0	0.88	206.68	8,931.44	-892.68	-1,262.04	1,545.83	0.82	0.81	23.82	25.74
	NORMAL	9,226.0	1.04	269.02	9,026.43	-893.35	-1,263.23	1,547.18	1.06	0.17	65.62	113.32
	NORMAL	9,321.0	0.63	219.94	9,121.42	-893.76	-1,264.43	1,548.40	0.83	-0.43	-51.66	217.19
	NORMAL	9,415.0	0.36	175.75	9,215.42	-894.45	-1,264.74	1,549.05	0.48	-0.29	-47.01	214.01
	NORMAL	9,510.0	0.93	227.86	9,310.41	-895.27	-1,265.29	1,549.97	0.80	0.60	54.85	73.95
	NORMAL	9,605.0	0.64	273.98	9,405.41	-895.75	-1,266.39	1,551.15	0.71	-0.31	48.55	136.51
5/13/2013	NORMAL	9,699.0	1.06	265.17	9,499.40	-895.78	-1,267.78	1,552.31	0.47	0.45	-9.37	338.28
	NORMAL	9,794.0	1.16	41.68	9,594.39	-895.14	-1,268.02	1,552.13	2.17	0.11	143.69	157.22
	NORMAL	9,889.0	0.53	44.04	9,689.38	-894.11	-1,267.07	1,550.76	0.66	-0.66	2.48	178.02
	NORMAL	9,984.0	0.33	54.88	9,784.38	-893.63	-1,266.54	1,550.06	0.23	-0.21	11.41	163.23
	NORMAL	10,078.0	0.50	22.14	9,878.37	-893.10	-1,266.17	1,549.44	0.30	0.18	-34.83	288.52
	NORMAL	10,173.0	0.47	280.32	9,973.37	-892.64	-1,266.39	1,549.37	0.79	-0.03	-107.18	217.65
	NORMAL	10,268.0	0.67	214.15	10,068.37	-893.03	-1,267.09	1,550.16	0.68	0.21	-69.65	251.99
5/14/2013	NORMAL	10,363.0	0.87	241.52	10,163.36	-893.84	-1,268.04	1,551.40	0.43	0.21	28.81	75.61
	NORMAL	10,457.0	0.08	315.91	10,257.36	-894.13	-1,268.71	1,552.12	0.91	-0.84	79.14	174.81
	NORMAL	10,552.0	1.05	207.04	10,352.35	-894.86	-1,269.15	1,552.90	1.14	1.02	-114.60	247.11
	NORMAL	10,647.0	0.79	255.19	10,447.34	-895.80	-1,270.18	1,554.28	0.83	-0.27	50.68	131.62
	NORMAL	10,742.0	0.88	303.71	10,542.33	-895.56	-1,271.42	1,555.16	0.73	0.09	51.07	107.44
	NORMAL	10,836.0	1.41	255.90	10,636.31	-895.44	-1,273.14	1,556.50	1.11	0.56	-50.86	273.67
	NORMAL	10,931.0	1.06	245.96	10,731.29	-896.09	-1,275.08	1,558.46	0.43	-0.37	-10.46	206.57
	NORMAL	11,026.0	1.67	278.75	10,826.27	-896.23	-1,277.25	1,560.32	1.02	0.64	34.52	69.17
	NORMAL	11,121.0	0.70	300.28	10,921.25	-895.73	-1,279.12	1,561.56	1.11	-1.02	22.66	165.85
	NORMAL	11,215.0	0.62	259.94	11,015.24	-895.53	-1,280.11	1,562.26	0.49	-0.09	-42.91	240.46
	NORMAL	11,310.0	1.85	279.54	11,110.22	-895.37	-1,282.13	1,563.82	1.35	1.29	20.63	28.93
5/15/2013	NORMAL	11,405.0	2.02	265.48	11,205.16	-895.24	-1,285.31	1,566.36	0.53	0.18	-14.80	282.58
	NORMAL	11,499.0	1.49	290.53	11,299.12	-894.95	-1,288.11	1,568.48	0.98	-0.56	26.65	136.73
	NORMAL	11,594.0	2.02	267.59	11,394.08	-894.58	-1,290.94	1,570.59	0.92	0.56	-24.15	295.19
	NORMAL	11,689.0	2.46	262.84	11,489.00	-894.91	-1,294.64	1,573.80	0.50	0.46	-5.00	334.74
	NORMAL	11,784.0	3.08	262.58	11,583.89	-895.49	-1,299.19	1,577.87	0.65	0.65	-0.27	358.71
	NORMAL	11,879.0	2.64	250.80	11,678.78	-896.54	-1,303.79	1,582.23	0.77	-0.46	-12.40	227.40
	NORMAL	11,973.0	2.73	257.92	11,772.67	-897.72	-1,308.02	1,586.38	0.37	0.10	7.57	78.47
	NORMAL	12,068.0	2.20	258.80	11,867.58	-898.55	-1,312.02	1,590.13	0.56	-0.56	0.93	176.35
	NORMAL	12,163.0	2.46	259.68	11,962.51	-899.27	-1,315.81	1,593.65	0.28	0.27	0.93	8.27
	NORMAL	12,258.0	2.55	258.09	12,057.42	-900.07	-1,319.89	1,597.45	0.12	0.09	-1.67	321.53
5/16/2013	NORMAL	12,352.0	2.99	261.51	12,151.31	-900.86	-1,324.36	1,601.57	0.50	0.47	3.64	22.30
	NORMAL	12,447.0	3.25	259.15	12,246.17	-901.74	-1,329.45	1,606.24	0.31	0.27	-2.48	332.53

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 (°)
5/16/2013	NORMAL	12,541.0	3.44	245.81	12,340.01	-903.39	-1,334.64	1,611.44	0.85	0.20	-14.19	277.00
	NORMAL	12,551.0	3.34	247.72	12,349.99	-903.63	-1,335.19	1,612.02	1.51	-1.00	19.10	132.47
	NORMAL	12,600.0	3.34	247.72	12,398.91	-904.71	-1,337.83	1,614.80	0.00	0.00	0.00	0.00