

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	RG 512-14-298	Wellbore No.	00
Wellbore Legal Name	RG 512-14-298	Common Wellbore Name	RG 512-14-298
Project	RG 14-02S-098W	Site	RG 12-14-298 Pad
Vertical Section Azimuth	178.05 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	12/13/2013	UWI	RG 512-14-298
Active datum	KB @6,581.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	12/13/2013	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

7121

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 (°)
12/13/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/13/2013	NORMAL	114.0	0.53	158.47	114.00	-0.49	0.19	0.50	0.46	0.46	0.00	158.47
	NORMAL	144.0	1.14	177.19	144.00	-0.92	0.26	0.93	2.20	2.03	62.40	33.65
	NORMAL	175.0	1.85	180.26	174.98	-1.73	0.27	1.73	2.30	2.29	9.90	7.97
	NORMAL	206.0	2.38	184.31	205.96	-2.87	0.22	2.87	1.78	1.71	13.06	17.78
	NORMAL	237.0	2.82	180.62	236.93	-4.27	0.16	4.28	1.52	1.42	-11.90	337.32
	NORMAL	267.0	3.70	182.46	266.88	-5.98	0.12	5.98	2.95	2.93	6.13	7.70
	NORMAL	298.0	4.22	176.04	297.81	-8.11	0.15	8.12	2.20	1.68	-20.71	316.32
	NORMAL	329.0	5.45	181.93	328.70	-10.72	0.18	10.72	4.27	3.97	19.00	24.93
	NORMAL	421.0	8.71	177.54	419.99	-22.05	0.33	22.05	3.59	3.54	-4.77	348.39
	NORMAL	513.0	11.26	179.12	510.58	-38.00	0.77	38.00	2.79	2.77	1.72	6.91
	NORMAL	606.0	11.88	178.51	601.69	-56.64	1.16	56.65	0.68	0.67	-0.66	348.54
	NORMAL	698.0	11.17	174.73	691.84	-74.99	2.22	75.02	1.13	-0.77	-4.11	224.93
	NORMAL	790.0	10.82	176.04	782.15	-92.47	3.64	92.54	0.47	-0.38	1.42	145.12
	NORMAL	882.0	10.73	175.43	872.53	-109.63	4.92	109.73	0.16	-0.10	-0.66	231.42
	NORMAL	975.0	10.29	175.34	963.97	-126.53	6.28	126.67	0.47	-0.47	-0.10	182.09
	NORMAL	1,069.0	10.29	180.88	1,056.46	-143.30	6.83	143.45	1.05	0.00	5.89	92.73
	NORMAL	1,159.0	10.21	184.31	1,145.03	-159.29	6.11	159.40	0.68	-0.09	3.81	99.15
	NORMAL	1,175.0	9.98	183.28	1,160.78	-162.09	5.92	162.19	1.83	-1.44	-6.44	217.62
	NORMAL	1,270.0	9.62	175.24	1,254.40	-178.22	6.11	178.32	1.49	-0.38	-8.46	251.32
	NORMAL	1,365.0	11.75	176.45	1,347.74	-195.78	7.37	195.92	2.25	2.24	1.27	6.61

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 (°)
12/13/2013	NORMAL	1,459.0	12.16	175.91	1,439.70	-215.21	8.67	215.38	0.45	0.44	-0.57	344.48
	NORMAL	1,554.0	12.45	176.39	1,532.52	-235.41	10.03	235.62	0.32	0.31	0.51	19.66
	NORMAL	1,649.0	13.14	176.10	1,625.16	-256.41	11.41	256.65	0.73	0.73	-0.31	354.54
12/14/2013	NORMAL	1,744.0	11.78	181.55	1,717.93	-276.87	11.88	277.12	1.89	-1.43	5.74	141.79
	NORMAL	1,839.0	12.19	181.72	1,810.86	-296.59	11.32	296.81	0.43	0.43	0.18	5.00
	NORMAL	1,934.0	12.31	183.13	1,903.69	-316.73	10.46	316.90	0.34	0.13	1.48	68.83
	NORMAL	2,029.0	12.93	181.72	1,996.40	-337.47	9.59	337.60	0.73	0.65	-1.48	332.89
	NORMAL	2,124.0	12.40	180.23	2,089.09	-358.29	9.23	358.40	0.66	-0.56	-1.57	210.92
	NORMAL	2,218.0	11.08	176.98	2,181.12	-377.40	9.66	377.51	1.57	-1.40	-3.46	205.03
	NORMAL	2,313.0	11.17	176.89	2,274.33	-395.71	10.65	395.84	0.10	0.09	-0.09	349.03
	NORMAL	2,408.0	11.34	176.80	2,367.51	-414.22	11.67	414.38	0.18	0.18	-0.09	354.06
	NORMAL	2,502.0	11.17	176.36	2,459.70	-432.54	12.76	432.72	0.20	-0.18	-0.47	206.59
	NORMAL	2,597.0	11.34	176.10	2,552.87	-451.04	13.98	451.25	0.19	0.18	-0.27	343.25
	NORMAL	2,692.0	11.61	176.98	2,645.97	-469.90	15.12	470.14	0.34	0.28	0.93	33.39
	NORMAL	2,787.0	11.17	176.89	2,739.10	-488.64	16.12	488.90	0.46	-0.46	-0.09	182.27
	NORMAL	2,882.0	11.52	177.77	2,832.25	-507.30	16.99	507.59	0.41	0.37	0.93	26.75
	NORMAL	2,976.0	11.26	177.33	2,924.40	-525.85	17.78	526.15	0.29	-0.28	-0.47	198.26
	NORMAL	3,071.0	10.99	178.03	3,017.61	-544.17	18.53	544.48	0.32	-0.28	0.74	153.77
	NORMAL	3,166.0	10.99	177.77	3,110.87	-562.26	19.19	562.59	0.05	0.00	-0.27	269.87
	NORMAL	3,261.0	10.99	177.15	3,204.13	-580.36	19.99	580.70	0.12	0.00	-0.65	269.70
	NORMAL	3,355.0	10.85	178.71	3,296.43	-598.15	20.64	598.51	0.35	-0.15	1.66	116.11
12/24/2013	NORMAL	3,453.0	10.11	177.76	3,392.79	-615.97	21.18	616.33	0.78	-0.76	-0.97	192.68
	NORMAL	3,547.0	10.99	171.43	3,485.20	-633.07	22.84	633.48	1.55	0.94	-6.73	304.07
	NORMAL	3,642.0	11.43	175.65	3,578.39	-651.41	24.90	651.88	0.98	0.46	4.44	63.87
	NORMAL	3,736.0	9.76	175.12	3,670.79	-668.64	28.29	669.15	1.78	-1.78	-0.56	183.08
	NORMAL	3,831.0	10.64	170.82	3,764.29	-685.32	28.37	685.89	1.22	0.93	-4.53	317.00
	NORMAL	3,926.0	10.99	174.16	3,857.60	-702.99	30.69	703.62	0.76	0.37	3.52	62.47
	NORMAL	4,021.0	10.55	176.44	3,950.93	-720.68	32.15	721.35	0.64	-0.46	2.40	137.04
	NORMAL	4,116.0	9.94	179.52	4,044.41	-737.56	32.76	738.24	0.86	-0.64	3.24	139.58
	NORMAL	4,210.0	10.38	171.70	4,136.94	-754.05	34.05	754.77	1.54	0.47	-8.32	283.82
	NORMAL	4,304.0	10.74	174.93	4,229.35	-771.15	36.05	771.93	0.74	0.38	3.44	60.29
	NORMAL	4,399.0	11.65	177.28	4,322.54	-789.55	37.28	790.36	1.07	0.96	2.47	27.78
	NORMAL	4,494.0	10.73	176.53	4,415.74	-807.96	38.28	808.79	0.98	-0.97	-0.79	188.62
12/25/2013	NORMAL	4,589.0	9.67	176.44	4,509.23	-824.75	39.31	825.61	1.12	-1.12	-0.09	180.82
	NORMAL	4,684.0	8.21	173.34	4,603.08	-839.45	40.59	840.35	1.62	-1.54	-3.26	196.73
	NORMAL	4,778.0	9.14	161.70	4,696.01	-853.21	43.71	854.20	2.11	0.99	-12.38	292.07
	NORMAL	4,873.0	9.15	158.78	4,789.80	-867.41	48.81	868.57	0.49	0.01	-3.07	269.79
	NORMAL	4,968.0	8.79	164.31	4,883.64	-881.44	53.51	882.75	0.98	-0.38	5.82	115.38
	NORMAL	5,063.0	7.43	166.91	4,977.69	-894.42	56.87	895.83	1.48	-1.43	2.74	166.19
	NORMAL	5,157.0	6.85	168.37	5,070.96	-905.83	59.37	907.32	0.65	-0.62	1.55	163.35
	NORMAL	5,252.0	4.92	169.85	5,165.46	-915.39	61.23	916.94	2.04	-2.03	1.56	176.24
	NORMAL	5,347.0	4.84	177.94	5,260.11	-923.40	62.09	924.98	0.73	-0.08	8.52	100.65
	NORMAL	5,442.0	3.25	189.36	5,354.88	-930.06	61.80	931.63	1.87	-1.67	12.02	158.75
	NORMAL	5,537.0	1.85	218.01	5,449.78	-933.93	60.42	935.44	1.95	-1.47	30.16	151.39
	NORMAL	5,631.0	1.23	272.42	5,543.75	-935.08	58.48	936.53	1.61	-0.66	57.88	138.58
	NORMAL	5,726.0	1.58	257.04	5,638.73	-935.33	56.18	936.70	0.54	0.37	-16.19	305.00
	NORMAL	5,821.0	1.23	329.46	5,733.70	-934.75	54.39	936.06	1.77	-0.37	76.23	135.86
	NORMAL	5,915.0	1.06	349.32	5,827.69	-933.03	53.71	934.31	0.46	-0.18	21.13	122.91
	NORMAL	6,010.0	0.62	344.31	5,922.68	-931.67	53.41	932.95	0.47	-0.46	-5.27	186.98
	NORMAL	6,105.0	0.82	316.29	6,017.67	-930.68	52.80	931.94	0.42	0.21	-29.49	285.09
	NORMAL	6,199.0	0.67	317.06	6,111.66	-929.79	51.96	931.02	0.16	-0.16	0.82	176.57
	NORMAL	6,294.0	0.53	347.39	6,206.66	-928.96	51.49	930.17	0.36	-0.15	31.93	128.45
	NORMAL	6,388.0	0.35	334.38	6,300.65	-928.27	51.27	929.48	0.22	-0.19	-13.84	202.63
	NORMAL	6,483.0	0.35	320.32	6,395.65	-927.79	50.96	928.99	0.09	0.00	-14.80	262.97
	NORMAL	6,578.0	0.67	273.92	6,490.65	-927.53	50.22	928.70	0.52	0.34	-48.84	283.00
	NORMAL	6,673.0	0.74	226.20	6,585.64	-927.91	49.22	929.05	0.60	0.07	-50.23	252.55

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 (")
12/25/2013	NORMAL	6,767.0	1.31	237.18	6,679.63	-928.92	47.88	930.01	0.64	0.61	11.68	24.56
	NORMAL	6,862.0	1.85	306.70	6,774.60	-928.59	45.74	929.61	1.95	0.57	73.18	110.92
	NORMAL	6,957.0	1.76	357.50	6,869.56	-926.21	44.45	927.19	1.63	-0.09	53.47	118.39
	NORMAL	7,052.0	0.95	342.96	6,964.53	-924.00	44.15	924.97	0.92	-0.85	-15.31	195.84
12/26/2013	NORMAL	7,146.0	0.96	279.88	7,058.52	-923.12	43.15	924.06	1.06	0.01	-67.11	238.95
	NORMAL	7,241.0	1.02	281.24	7,153.51	-922.82	41.53	923.70	0.07	0.06	1.43	22.07
	NORMAL	7,336.0	1.14	280.42	7,248.49	-922.49	39.77	923.31	0.13	0.13	-0.86	352.25
	NORMAL	7,431.0	1.58	22.63	7,343.47	-921.11	39.35	921.91	2.25	0.46	107.59	133.66
	NORMAL	7,525.0	1.41	42.67	7,437.44	-919.06	40.63	919.91	0.58	-0.18	21.32	117.86
	NORMAL	7,620.0	0.70	34.94	7,532.42	-917.73	41.76	918.61	0.76	-0.75	-8.14	187.49
	NORMAL	7,715.0	0.26	36.35	7,627.42	-917.08	42.22	917.98	0.46	-0.46	1.48	179.17
	NORMAL	7,810.0	0.44	210.98	7,722.42	-917.22	42.16	918.12	0.74	0.19	183.82	176.62
	NORMAL	7,904.0	0.79	210.81	7,816.42	-918.08	41.64	918.97	0.37	0.37	-0.18	359.62
	NORMAL	7,999.0	0.44	263.28	7,911.41	-918.69	40.94	919.55	0.66	-0.37	55.23	146.24
	NORMAL	8,094.0	0.62	274.70	8,006.41	-918.69	40.07	919.52	0.22	0.19	12.02	36.20
	NORMAL	8,188.0	0.53	216.26	8,100.40	-919.00	39.30	919.80	0.60	-0.10	-62.17	232.82
	NORMAL	8,283.0	0.88	15.69	8,195.40	-918.65	39.24	919.45	1.46	0.37	167.82	167.14
	NORMAL	8,378.0	0.35	321.90	8,290.40	-917.72	39.26	918.52	0.77	-0.56	-56.62	202.76
	NORMAL	8,473.0	0.55	34.66	8,385.39	-917.11	39.34	917.92	0.59	0.21	76.59	109.59
	NORMAL	8,567.0	0.18	343.79	8,479.39	-916.60	39.55	917.42	0.49	-0.39	-54.12	197.74
	NORMAL	8,662.0	0.26	226.54	8,574.39	-916.61	39.36	917.41	0.40	0.08	-123.42	217.70
	NORMAL	8,756.0	0.53	268.03	8,668.39	-916.77	38.77	917.56	0.40	0.29	44.14	68.68
12/27/2013	NORMAL	8,850.0	1.49	184.15	8,762.38	-918.00	38.24	918.77	1.62	1.02	-89.23	255.94
	NORMAL	8,945.0	2.11	176.71	8,857.33	-920.98	38.25	921.75	0.70	0.65	-7.83	335.60
	NORMAL	9,040.0	2.11	188.23	8,952.27	-924.46	38.10	925.22	0.45	0.00	12.13	95.76
	NORMAL	9,134.0	0.81	91.92	9,046.24	-926.19	38.52	926.97	2.49	-1.38	-102.46	200.11
	NORMAL	9,229.0	0.44	88.65	9,141.24	-926.21	39.56	927.01	0.39	-0.39	-3.44	183.87
	NORMAL	9,324.0	0.44	103.40	9,236.23	-926.28	40.28	927.12	0.12	0.00	15.53	97.37
	NORMAL	9,419.0	0.70	185.86	9,331.23	-926.94	40.57	927.79	0.82	0.27	86.80	116.64
	NORMAL	9,513.0	0.53	230.94	9,425.23	-927.79	40.18	928.62	0.53	-0.18	47.96	130.96
	NORMAL	9,608.0	0.54	229.94	9,520.22	-928.35	39.49	929.16	0.01	0.01	-1.05	316.46
	NORMAL	9,703.0	0.44	349.07	9,615.22	-928.28	39.08	929.08	0.89	-0.11	125.40	152.99
12/28/2013	NORMAL	9,797.0	0.88	224.79	9,709.22	-928.44	38.50	929.21	1.26	0.47	-132.21	217.85
	NORMAL	9,892.0	1.17	38.75	9,804.21	-928.20	38.60	928.98	2.15	0.31	183.12	176.55
	NORMAL	9,986.0	0.53	45.42	9,898.20	-927.15	39.51	927.96	0.69	-0.68	7.10	174.54
	NORMAL	10,081.0	0.97	266.36	9,993.20	-926.89	39.02	927.68	1.49	0.46	-146.38	206.72
	NORMAL	10,176.0	1.23	259.33	10,088.18	-927.13	37.21	927.86	0.31	0.27	-7.40	329.02
	NORMAL	10,270.0	1.14	255.29	10,182.16	-927.56	35.32	928.22	0.13	-0.10	-4.30	220.86
	NORMAL	10,365.0	1.70	248.42	10,277.13	-928.31	33.09	928.90	0.62	0.59	-7.23	339.64
	NORMAL	10,460.0	1.93	246.41	10,372.08	-929.47	30.32	929.97	0.25	0.24	-2.12	343.52
	NORMAL	10,554.0	2.02	261.35	10,466.03	-930.35	27.23	930.74	0.55	0.10	15.89	87.61
	NORMAL	10,649.0	2.37	250.98	10,560.96	-931.25	23.71	931.51	0.56	0.37	-10.92	306.13
	NORMAL	10,744.0	1.85	249.93	10,655.90	-932.41	20.42	932.57	0.55	-0.55	-1.11	183.73
	NORMAL	10,839.0	3.43	232.88	10,750.79	-934.65	16.71	934.68	1.84	1.66	-17.95	324.88
	NORMAL	10,914.0	3.52	230.33	10,825.66	-937.48	13.15	937.38	0.24	0.12	-3.40	298.93
	NORMAL	10,967.0	3.52	230.33	10,878.56	-939.56	10.64	939.37	0.00	0.00	0.00	0.00