

Deviation Summary

PICEANCE HL

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 411-14-298	Wellbore No.	00
Wellbore Legal Name	RG 411-14-298	Common Wellbore Name	RG 411-14-298
Project	RG 14-02S-098W	Site	RG 12-14-298 Pad
Vertical Section Azimuth	13.87 (°)	North reference	True
Origin N/S		Origin EW	
Spud date	2/16/2014	UWI	RG 411-14-298
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	2/16/2014	Ended	
Tool Name	MWD	Engineer	

2.1.1 Tie On Point

MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	EW (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)	EW (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
2/16/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2/16/2014	NORMAL	154.0	2.72	349.99	153.94	3.60	-0.64	3.34	1.77	1.77	0.00	349.99
	NORMAL	247.0	5.74	3.55	246.68	10.42	-0.73	9.94	3.40	3.25	14.58	25.17
	NORMAL	339.0	8.74	11.95	337.94	21.85	1.00	21.45	3.45	3.26	9.13	23.64
	NORMAL	431.0	12.14	13.87	428.40	38.08	4.77	38.12	3.71	3.70	2.09	6.79
	NORMAL	523.0	13.36	11.81	518.13	57.88	9.26	58.41	1.41	1.33	-2.24	338.55
	NORMAL	616.0	14.08	9.08	608.48	79.57	13.25	80.42	1.04	0.77	-2.94	316.70
	NORMAL	708.0	14.18	10.97	697.70	101.68	17.16	102.83	0.51	0.11	2.05	78.69
	NORMAL	800.0	13.94	16.37	786.95	123.38	22.43	125.16	1.45	-0.26	5.87	102.98
	NORMAL	892.0	14.68	18.80	876.09	145.05	29.31	147.84	1.04	0.80	2.64	40.25
	NORMAL	985.0	14.38	15.88	966.12	167.31	36.26	171.12	0.85	-0.32	-3.14	246.32
	NORMAL	1,079.0	14.68	13.51	1,057.11	190.12	42.24	194.70	0.71	0.32	-2.52	295.62
	NORMAL	1,174.0	14.77	15.34	1,148.99	213.50	48.26	218.84	0.50	0.09	1.93	79.94
	NORMAL	1,269.0	15.41	15.16	1,240.72	237.36	54.76	243.57	0.68	0.67	-0.19	355.73
	NORMAL	1,364.0	16.00	12.52	1,332.17	262.33	60.90	269.28	0.98	0.62	-2.78	308.27
	NORMAL	1,458.0	15.30	15.39	1,422.69	286.93	67.00	294.63	1.11	-0.74	3.05	133.49
	NORMAL	1,553.0	12.94	14.02	1,514.81	309.34	72.90	317.80	2.51	-2.48	-1.44	187.40
	NORMAL	1,648.0	12.25	12.74	1,607.53	329.49	77.70	338.51	0.78	-0.73	-1.35	201.40
2/17/2014	NORMAL	1,743.0	12.86	13.09	1,700.25	349.62	82.32	359.16	0.65	0.64	0.37	7.28
2/18/2014	NORMAL	1,838.0	13.20	13.58	1,792.81	370.46	87.26	380.58	0.38	0.36	0.52	18.24
	NORMAL	1,932.0	13.51	14.28	1,884.27	391.53	92.49	402.29	0.37	0.33	0.74	27.89

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 (°)
2/18/2014	NORMAL	2,027.0	13.39	13.11	1,976.66	413.00	97.72	424.38	0.31	-0.13	-1.23	245.64
	NORMAL	2,122.0	13.54	14.61	2,069.05	434.47	103.02	446.50	0.40	0.16	1.58	67.49
	NORMAL	2,217.0	12.98	11.98	2,161.52	455.67	108.04	468.29	0.87	-0.59	-2.77	225.85
	NORMAL	2,311.0	11.61	9.56	2,253.36	475.33	111.80	488.27	1.56	-1.46	-2.57	199.43
	NORMAL	2,406.0	10.56	4.36	2,346.59	493.44	114.05	506.39	1.53	-1.11	-5.47	221.06
	NORMAL	2,501.0	10.17	3.92	2,440.04	510.48	115.29	523.24	0.42	-0.41	-0.46	191.26
	NORMAL	2,596.0	8.86	1.25	2,533.73	526.17	116.02	538.64	1.45	-1.38	-2.81	197.31
	NORMAL	2,690.0	8.29	1.13	2,626.68	540.18	116.31	552.31	0.61	-0.61	-0.13	181.74
	NORMAL	2,785.0	8.04	357.14	2,720.72	553.66	116.12	565.35	0.65	-0.26	-4.20	244.23
2/23/2014	NORMAL	2,884.0	7.21	356.51	2,818.84	566.78	115.39	577.91	0.84	-0.84	-0.64	185.44
2/24/2014	NORMAL	2,978.0	8.18	7.15	2,912.00	579.30	115.87	590.19	1.83	1.03	11.32	61.10
	NORMAL	3,073.0	9.23	12.88	3,005.91	593.43	118.41	604.52	1.43	1.11	6.03	42.41
	NORMAL	3,168.0	10.90	13.56	3,099.44	609.59	122.21	621.12	1.76	1.76	0.72	4.41
	NORMAL	3,263.0	10.52	15.24	3,192.79	626.69	126.60	638.77	0.52	-0.40	1.77	141.42
	NORMAL	3,357.0	11.52	20.42	3,285.05	643.77	132.13	656.67	1.50	1.06	5.51	47.28
	NORMAL	3,452.0	10.45	26.88	3,378.32	660.35	139.33	674.49	1.72	-1.13	6.80	134.14
	NORMAL	3,547.0	10.48	14.17	3,471.75	676.41	145.34	691.53	2.43	0.03	-13.38	264.49
	NORMAL	3,641.0	14.60	19.89	3,563.49	695.85	151.47	711.87	4.57	4.38	6.09	19.59
	NORMAL	3,736.0	12.40	20.33	3,655.86	716.68	159.09	733.92	2.32	-2.32	0.46	177.54
	NORMAL	3,831.0	12.40	19.10	3,748.64	735.88	165.97	754.21	0.28	0.00	-1.29	269.40
	NORMAL	3,926.0	13.54	15.05	3,841.22	756.26	172.20	775.49	1.53	1.20	-4.26	319.45
	NORMAL	4,021.0	12.99	18.76	3,933.69	777.11	178.52	797.24	1.07	-0.58	3.91	124.66
	NORMAL	4,115.0	11.72	13.89	4,025.51	796.38	184.21	817.32	1.75	-1.35	-5.18	217.01
	NORMAL	4,210.0	11.25	14.52	4,118.61	814.72	188.85	836.23	0.51	-0.49	0.66	165.36
	NORMAL	4,304.0	10.99	10.31	4,210.85	832.41	192.75	854.34	0.91	-0.28	-4.48	250.19
	NORMAL	4,399.0	12.99	20.52	4,303.78	851.32	198.11	873.99	3.06	2.11	10.75	51.75
	NORMAL	4,494.0	12.33	19.04	4,396.47	870.91	205.17	894.70	0.77	-0.69	-1.56	205.45
	NORMAL	4,589.0	13.03	19.91	4,489.15	890.57	212.12	915.45	0.76	0.74	0.92	15.68
	NORMAL	4,684.0	13.19	22.53	4,581.68	910.65	219.92	936.82	0.65	0.17	2.76	76.21
	NORMAL	4,778.0	13.98	17.87	4,673.05	931.36	227.52	958.75	1.44	0.84	-4.96	303.54
	NORMAL	4,873.0	14.33	19.01	4,765.16	953.40	234.87	981.90	0.47	0.37	1.20	39.09
	NORMAL	4,968.0	12.57	17.69	4,857.56	974.37	241.84	1,003.93	1.88	-1.85	-1.39	189.25
2/25/2014	NORMAL	5,062.0	13.42	19.05	4,949.15	994.42	248.51	1,025.00	0.96	0.90	1.45	20.45
	NORMAL	5,157.0	11.51	17.14	5,041.91	1,013.90	254.90	1,045.44	2.06	-2.01	-2.01	191.25
	NORMAL	5,252.0	12.20	16.91	5,134.88	1,032.56	260.61	1,064.93	0.73	0.73	-0.24	355.97
	NORMAL	5,347.0	11.43	17.17	5,227.87	1,051.16	266.31	1,084.35	0.81	-0.81	0.27	176.17
	NORMAL	5,442.0	9.76	14.70	5,321.24	1,067.94	271.13	1,101.80	1.82	-1.76	-2.60	194.00
	NORMAL	5,536.0	8.79	34.30	5,414.04	1,081.59	277.20	1,116.50	3.50	-1.03	20.85	116.59
	NORMAL	5,631.0	7.39	44.59	5,508.09	1,091.94	285.58	1,128.56	2.11	-1.47	10.83	139.05
	NORMAL	5,725.0	4.31	64.63	5,601.60	1,097.76	293.02	1,135.99	3.88	-3.28	21.32	156.15
	NORMAL	5,820.0	3.61	45.47	5,696.38	1,101.38	298.38	1,140.80	1.57	-0.74	-20.17	232.78
	NORMAL	5,915.0	2.11	37.91	5,791.26	1,104.86	301.59	1,144.94	1.62	-1.58	-7.96	190.36
	NORMAL	6,010.0	2.37	352.12	5,886.19	1,108.19	302.39	1,148.36	1.85	0.27	-48.20	254.95
	NORMAL	6,104.0	1.93	341.39	5,980.13	1,111.61	301.62	1,151.50	0.63	-0.47	-11.41	217.18
	NORMAL	6,199.0	1.45	316.19	6,075.09	1,114.00	300.28	1,153.50	0.92	-0.51	-26.53	224.97
	NORMAL	6,294.0	2.73	325.75	6,170.02	1,116.73	298.17	1,155.65	1.39	1.35	10.06	20.05
	NORMAL	6,388.0	2.81	324.43	6,263.91	1,120.46	295.57	1,158.64	0.11	0.09	-1.40	320.77
	NORMAL	6,483.0	3.21	9.47	6,358.80	1,124.98	294.66	1,162.81	2.46	0.42	47.41	103.38
	NORMAL	6,578.0	2.59	44.08	6,453.68	1,129.14	296.59	1,167.32	1.92	-0.65	36.43	126.23
	NORMAL	6,672.0	1.76	97.06	6,547.62	1,130.49	299.50	1,169.32	2.21	-0.88	56.36	137.43
2/26/2014	NORMAL	6,767.0	1.58	111.38	6,642.58	1,129.83	302.16	1,169.33	0.48	-0.19	15.07	120.38
	NORMAL	6,862.0	1.49	122.55	6,737.55	1,128.69	304.43	1,168.76	0.33	-0.09	11.76	112.27
	NORMAL	6,956.0	1.32	134.76	6,831.52	1,127.27	306.22	1,167.81	0.37	-0.18	12.99	125.60
	NORMAL	7,051.0	1.14	166.76	6,926.50	1,125.58	307.22	1,166.41	0.74	-0.19	33.68	120.31
	NORMAL	7,146.0	1.14	183.98	7,021.48	1,123.72	307.37	1,164.64	0.36	0.00	18.13	98.61
	NORMAL	7,241.0	1.49	204.02	7,116.46	1,121.65	306.80	1,162.49	0.60	0.37	21.09	63.03

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 (°)
2/26/2014	NORMAL	7,336.0	1.23	272.14	7,211.43	1,120.56	305.28	1,161.07	1.62	-0.27	71.71	132.10
	NORMAL	7,430.0	1.67	337.61	7,305.41	1,121.86	303.75	1,161.97	1.71	0.47	69.65	109.45
	NORMAL	7,525.0	1.32	32.90	7,400.38	1,124.06	303.82	1,164.12	1.50	-0.37	58.20	130.24
	NORMAL	7,620.0	0.26	1.08	7,495.37	1,125.20	304.41	1,165.36	1.17	-1.12	-33.49	187.11
	NORMAL	7,715.0	0.53	270.82	7,590.37	1,125.42	303.98	1,165.47	0.62	0.28	-95.01	243.66
	NORMAL	7,809.0	0.79	13.91	7,684.37	1,126.05	303.70	1,166.02	1.11	0.28	109.67	132.65
	NORMAL	7,904.0	0.10	1.32	7,779.36	1,126.77	303.86	1,166.76	0.73	-0.73	-13.25	181.80
	NORMAL	7,999.0	0.79	238.30	7,874.36	1,126.51	303.30	1,166.37	0.89	0.73	-129.49	231.31
	NORMAL	8,093.0	1.32	299.91	7,968.35	1,126.71	301.81	1,166.21	1.25	0.56	65.54	97.96
	NORMAL	8,188.0	1.14	306.68	8,063.33	1,127.82	300.11	1,166.88	0.24	-0.19	7.13	144.44
2/27/2014	NORMAL	8,283.0	0.97	106.20	8,158.32	1,128.16	300.12	1,167.21	2.19	-0.18	167.92	170.59
	NORMAL	8,378.0	0.79	135.64	8,253.31	1,127.47	301.35	1,166.83	0.51	-0.19	30.99	125.99
	NORMAL	8,472.0	0.90	180.34	8,347.30	1,126.27	301.80	1,165.77	0.69	0.12	47.55	103.35
	NORMAL	8,567.0	1.23	194.53	8,442.28	1,124.53	301.54	1,164.03	0.44	0.35	14.94	45.87
	NORMAL	8,661.0	0.88	295.60	8,536.28	1,123.87	300.64	1,163.17	1.75	-0.37	107.52	148.31
	NORMAL	8,756.0	1.32	277.06	8,631.26	1,124.32	298.89	1,163.18	0.59	0.46	-19.52	311.52
	NORMAL	8,851.0	1.32	303.16	8,726.23	1,125.05	296.89	1,163.42	0.63	0.00	27.47	103.05
	NORMAL	8,946.0	0.18	284.88	8,821.22	1,125.69	295.83	1,163.78	1.21	-1.20	-19.24	182.81
	NORMAL	9,041.0	1.06	13.12	8,916.22	1,126.58	295.89	1,164.66	1.13	0.93	92.88	97.92
	NORMAL	9,135.0	0.70	312.30	9,010.21	1,127.81	295.66	1,165.80	1.00	-0.38	-64.70	220.38
2/28/2014	NORMAL	9,230.0	1.41	260.09	9,105.19	1,128.00	294.08	1,165.61	1.19	0.75	-54.96	278.38
	NORMAL	9,325.0	0.79	334.10	9,200.18	1,128.39	292.64	1,165.64	1.49	-0.65	77.91	147.50
	NORMAL	9,419.0	1.32	12.42	9,294.17	1,130.03	292.59	1,167.22	0.91	0.56	40.77	73.29
	NORMAL	9,514.0	1.76	53.64	9,389.13	1,131.97	294.00	1,169.44	1.22	0.46	43.39	89.80
	NORMAL	9,609.0	0.53	191.45	9,484.12	1,132.40	295.09	1,170.12	2.30	-1.29	145.06	170.61
	NORMAL	9,703.0	1.41	243.13	9,578.11	1,131.45	293.97	1,168.93	1.23	0.94	54.98	72.71
	NORMAL	9,798.0	0.53	2.49	9,673.10	1,131.36	292.95	1,168.60	1.82	-0.93	125.64	164.53
	NORMAL	9,893.0	2.22	34.42	9,768.07	1,133.32	294.00	1,170.75	1.89	1.78	33.61	40.92
	NORMAL	9,987.0	0.88	27.98	9,862.03	1,135.46	295.37	1,173.16	1.44	-1.43	-6.85	184.20
	NORMAL	10,082.0	0.35	15.50	9,957.03	1,136.38	295.79	1,174.15	0.57	-0.56	-13.14	188.00
	NORMAL	10,176.0	0.70	233.99	10,051.03	1,136.32	295.40	1,174.00	1.06	0.37	-150.54	205.88
	NORMAL	10,271.0	1.67	240.41	10,146.01	1,135.30	293.73	1,172.61	1.03	1.02	6.76	11.01
	NORMAL	10,366.0	2.81	240.23	10,240.93	1,133.46	290.51	1,170.05	1.20	1.20	-0.19	359.56
	NORMAL	10,460.0	3.34	240.06	10,334.80	1,130.95	286.13	1,166.56	0.56	0.56	-0.18	358.93
	NORMAL	10,555.0	3.78	237.95	10,429.61	1,127.90	281.08	1,162.40	0.48	0.46	-2.22	342.36
	NORMAL	10,650.0	3.87	241.46	10,524.40	1,124.71	275.61	1,157.98	0.26	0.09	3.69	70.73
	NORMAL	10,745.0	3.25	242.52	10,619.22	1,121.93	270.41	1,154.04	0.66	-0.65	1.12	174.47
	NORMAL	10,840.0	2.90	237.07	10,714.08	1,119.39	266.00	1,150.51	0.48	-0.37	-5.74	217.17
3/1/2014	NORMAL	10,934.0	4.48	233.64	10,807.88	1,115.92	261.05	1,145.96	1.70	1.68	-3.65	350.33
	NORMAL	11,029.0	4.31	233.55	10,902.60	1,111.60	255.19	1,140.36	0.18	-0.18	-0.09	182.28
	NORMAL	11,124.0	4.31	233.55	10,997.34	1,107.35	249.44	1,134.86	0.00	0.00	0.00	0.00