

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 412-14-298	Wellbore No.	00
Wellbore Legal Name	RG 412-14-298	Common Wellbore Name	RG 412-14-298
Project	RG 14-02S-098W	Site	RG 12-14-298 Pad
Vertical Section Azimuth	173.57 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	12/1/2013	UWI	RG 412-14-298
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	12/1/2013	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 (°)
12/1/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/1/2013	NORMAL	247.0	1.81	184.71	246.96	-3.89	-0.32	3.83	0.73	0.73	0.00	184.71
	NORMAL	340.0	2.73	168.63	339.89	-7.52	0.00	7.48	1.19	0.99	-17.29	317.09
	NORMAL	432.0	4.84	173.20	431.68	-13.53	0.89	13.54	2.31	2.29	4.97	10.42
	NORMAL	524.0	7.03	169.86	523.18	-22.92	2.34	23.04	2.41	2.38	-3.63	349.37
	NORMAL	616.0	8.00	171.18	614.39	-34.79	4.31	35.06	1.07	1.05	1.43	10.75
	NORMAL	709.0	8.53	171.53	706.42	-48.01	6.32	48.41	0.57	0.57	0.38	5.60
	NORMAL	801.0	9.41	171.70	797.30	-62.20	8.41	62.75	0.86	0.86	0.18	1.81
	NORMAL	893.0	8.88	176.98	888.13	-76.73	9.87	77.36	1.08	-0.58	5.74	124.86
	NORMAL	986.0	8.88	176.28	980.02	-91.06	10.71	91.69	0.12	0.00	-0.75	269.65
	NORMAL	1,080.0	9.41	176.28	1,072.82	-105.97	11.68	106.61	0.56	0.56	0.00	0.00
	NORMAL	1,175.0	9.10	179.25	1,166.58	-121.23	12.29	121.85	0.60	-0.33	3.13	124.44
	NORMAL	1,270.0	8.24	172.69	1,260.50	-135.50	13.25	136.13	1.38	-0.91	-6.91	225.78
	NORMAL	1,365.0	6.93	169.03	1,354.67	-147.88	15.21	148.65	1.47	-1.38	-3.85	198.44
	NORMAL	1,459.0	7.32	169.87	1,447.94	-159.34	17.34	160.28	0.43	0.41	0.89	15.37
	NORMAL	1,554.0	7.45	169.86	1,542.15	-171.36	19.49	172.47	0.14	0.14	-0.01	359.43
	NORMAL	1,649.0	8.09	169.85	1,636.28	-184.00	21.75	185.28	0.67	0.67	-0.01	359.87
12/2/2013	NORMAL	1,744.0	7.65	175.86	1,730.39	-196.89	23.38	198.27	0.98	-0.46	6.33	121.09
	NORMAL	1,839.0	7.73	177.74	1,824.53	-209.58	24.09	210.96	0.28	0.08	1.98	73.29
	NORMAL	1,934.0	6.65	176.94	1,918.78	-221.46	24.64	222.82	1.14	-1.14	-0.84	184.90
	NORMAL	2,029.0	7.28	177.90	2,013.08	-232.97	25.15	234.32	0.67	0.66	1.01	10.95

2.1.2 Survey Stations (Continued)

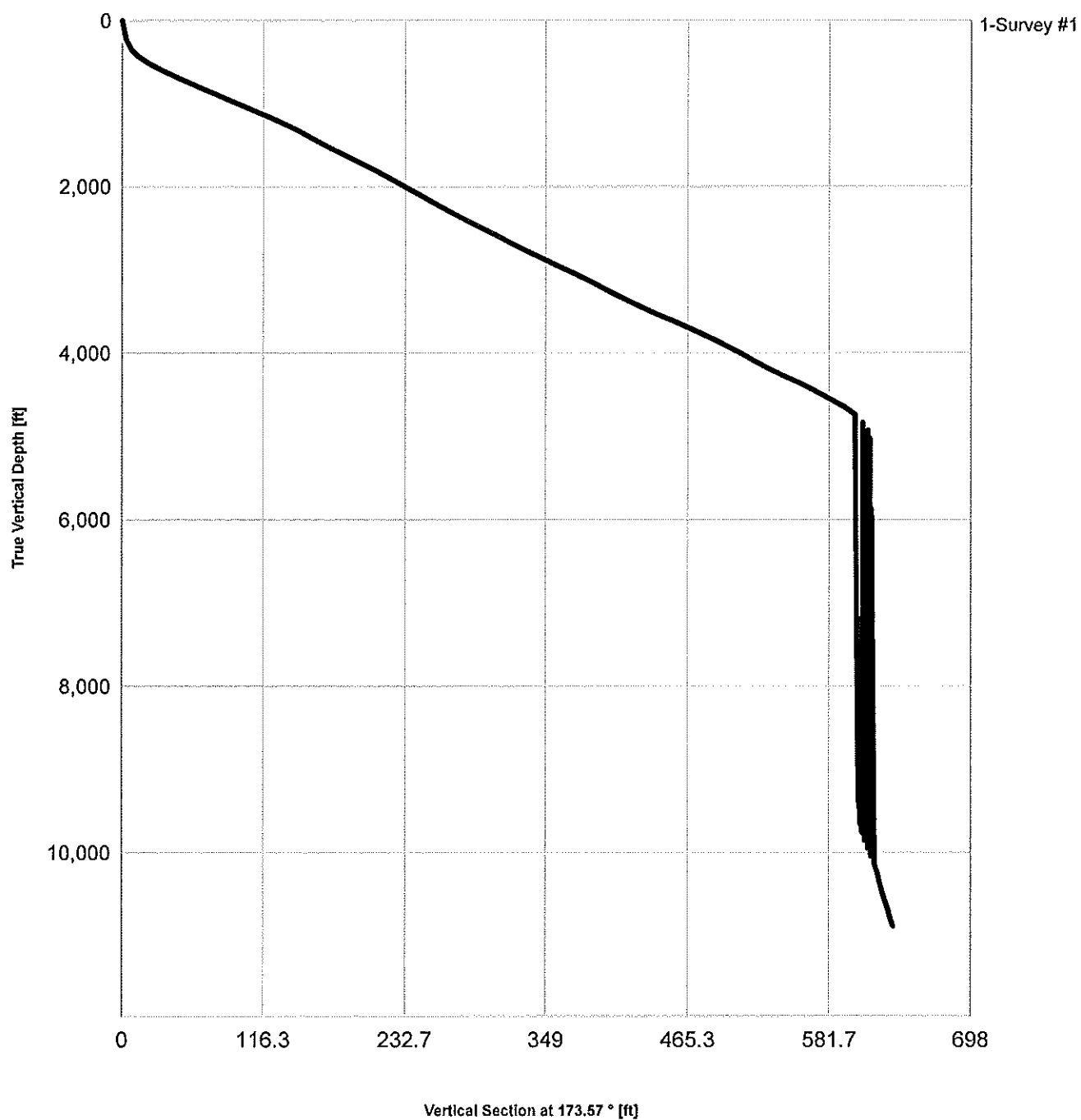
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
12/2/2013	NORMAL	2,124.0	6.77	173.55	2,107.37	-244.55	26.00	245.92	0.78	-0.54	-4.58	224.07
	NORMAL	2,218.0	6.95	172.14	2,200.70	-255.69	27.40	257.15	0.26	0.19	-1.50	316.20
	NORMAL	2,313.0	7.39	174.52	2,294.95	-267.46	28.77	269.00	0.56	0.46	2.51	35.21
	NORMAL	2,408.0	7.56	173.46	2,389.15	-279.75	30.07	281.36	0.23	0.18	-1.12	320.43
	NORMAL	2,502.0	8.09	175.40	2,482.27	-292.49	31.30	294.15	0.63	0.56	2.06	27.45
	NORMAL	2,597.0	7.39	170.39	2,576.41	-305.17	32.86	306.93	1.02	-0.74	-5.27	221.48
	NORMAL	2,692.0	7.74	167.22	2,670.58	-317.44	35.29	319.39	0.57	0.37	-3.34	308.41
	NORMAL	2,787.0	7.91	168.54	2,764.70	-330.08	38.01	332.26	0.26	0.18	1.39	47.25
	NORMAL	2,882.0	8.35	168.98	2,858.74	-343.26	40.62	345.65	0.47	0.46	0.46	8.27
	NORMAL	2,976.0	8.35	168.98	2,951.74	-356.66	43.23	359.26	0.00	0.00	0.00	0.00
1/7/2014	NORMAL	3,071.0	8.18	170.21	3,045.76	-370.09	45.70	372.88	0.26	-0.18	1.29	134.48
	NORMAL	3,168.0	8.00	168.98	3,141.80	-383.52	48.17	386.50	0.26	-0.19	-1.27	223.27
	NORMAL	3,263.0	6.68	168.01	3,236.02	-395.41	50.58	398.59	1.40	-1.39	-1.02	184.88
	NORMAL	3,358.0	7.97	169.86	3,330.24	-407.30	52.88	410.66	1.38	1.36	1.95	11.28
	NORMAL	3,452.0	8.53	154.57	3,423.28	-420.01	57.03	423.76	2.40	0.60	-16.27	276.67
	NORMAL	3,547.0	9.15	167.05	3,517.16	-433.74	61.74	437.92	2.12	0.65	13.14	78.32
	NORMAL	3,642.0	9.41	168.01	3,610.92	-448.69	65.05	453.16	0.32	0.27	1.01	31.24
	NORMAL	3,736.0	8.31	163.99	3,703.79	-462.74	68.52	467.50	1.34	-1.17	-4.28	207.40
	NORMAL	3,831.0	8.18	170.39	3,797.81	-476.00	71.54	481.02	0.98	-0.14	6.74	101.22
	NORMAL	3,926.0	8.09	175.31	3,891.86	-489.33	73.22	494.45	0.74	-0.09	5.18	99.80
1/8/2014	NORMAL	4,021.0	7.12	174.87	3,986.02	-501.86	74.29	507.02	1.02	-1.02	-0.46	183.22
	NORMAL	4,115.0	6.86	162.21	4,079.33	-513.01	76.53	518.35	1.66	-0.28	-13.47	254.18
	NORMAL	4,210.0	7.85	156.88	4,173.55	-524.37	80.81	530.13	1.26	1.04	-5.61	322.76
	NORMAL	4,304.0	9.06	160.37	4,266.53	-537.25	85.81	543.48	1.40	1.29	3.71	24.71
	NORMAL	4,399.0	8.09	162.21	4,360.46	-550.66	90.37	557.32	1.06	-1.02	1.94	165.12
	NORMAL	4,494.0	7.81	160.73	4,454.55	-563.12	94.54	570.16	0.37	-0.29	-1.56	215.44
	NORMAL	4,589.0	7.30	163.70	4,548.73	-575.00	98.37	582.40	0.68	-0.54	3.13	144.03
	NORMAL	4,684.0	6.68	169.16	4,643.02	-586.22	101.10	593.86	0.96	-0.65	5.75	135.71
	NORMAL	4,778.0	4.66	166.78	4,736.56	-595.31	103.00	603.10	2.16	-2.15	-2.53	185.46
	NORMAL	4,873.0	2.81	174.43	4,831.35	-601.39	104.11	609.26	2.01	-1.95	8.05	168.72
	NORMAL	4,968.0	2.29	188.84	4,926.26	-605.58	104.04	613.42	0.86	-0.55	15.17	136.09
	NORMAL	5,063.0	1.41	274.45	5,021.22	-607.37	102.59	615.03	2.73	-0.93	90.12	147.20
	NORMAL	5,157.0	0.53	31.87	5,115.21	-606.91	101.66	614.47	1.83	-0.94	124.91	164.12
	NORMAL	5,252.0	0.35	337.82	5,210.21	-606.26	101.79	613.85	0.45	-0.19	-56.89	221.12
	NORMAL	5,347.0	0.09	192.53	5,305.21	-606.07	101.66	613.64	0.45	-0.27	-152.94	186.89
	NORMAL	5,442.0	0.70	233.40	5,400.21	-606.49	101.18	614.00	0.67	0.64	43.02	46.19
	NORMAL	5,537.0	0.79	62.02	5,495.21	-606.53	101.29	614.05	1.56	0.09	-180.40	184.57
	NORMAL	5,631.0	0.26	174.08	5,589.20	-606.43	101.89	614.03	0.98	-0.56	119.21	164.81
	NORMAL	5,726.0	0.26	137.25	5,684.20	-606.81	102.05	614.42	0.17	0.00	-38.77	251.59
	NORMAL	5,820.0	0.79	196.40	5,778.20	-607.59	102.02	615.19	0.74	0.56	62.93	77.92
	NORMAL	5,915.0	0.88	195.08	5,873.19	-608.92	101.64	616.47	0.10	0.09	-1.39	347.27
	NORMAL	6,010.0	0.53	68.70	5,968.19	-609.46	101.86	617.04	1.34	-0.37	-133.03	199.66
	NORMAL	6,105.0	0.35	145.16	6,063.18	-609.54	102.44	617.18	0.59	-0.19	80.48	142.78
	NORMAL	6,199.0	1.28	25.61	6,157.18	-608.83	103.05	616.54	1.58	0.99	-127.18	228.61
	NORMAL	6,294.0	1.67	30.20	6,252.14	-606.68	104.21	614.53	0.43	0.41	4.83	19.16
	NORMAL	6,388.0	1.16	20.72	6,346.12	-604.60	105.23	612.59	0.60	-0.54	-10.09	199.97
	NORMAL	6,483.0	0.81	33.99	6,441.10	-603.15	105.95	611.22	0.44	-0.37	13.97	153.42
	NORMAL	6,578.0	0.59	124.86	6,536.10	-602.87	106.73	611.03	1.06	-0.23	95.65	144.23
	NORMAL	6,672.0	1.11	179.06	6,630.09	-604.06	107.14	612.26	0.96	0.55	57.66	86.23
	NORMAL	6,767.0	1.37	218.15	6,725.07	-605.87	106.45	613.98	0.91	0.27	41.15	93.09
	NORMAL	6,862.0	1.49	216.79	6,820.04	-607.75	105.01	615.69	0.13	0.13	-1.43	343.53
	NORMAL	6,957.0	0.05	106.17	6,915.03	-608.75	104.31	616.61	1.59	-1.52	-116.44	181.78
	NORMAL	7,052.0	0.62	228.13	7,010.03	-609.11	103.97	616.92	0.68	0.60	128.38	125.71
	NORMAL	7,146.0	1.14	259.33	7,104.02	-609.62	102.67	617.28	0.73	0.55	33.19	58.98
	NORMAL	7,241.0	0.35	359.53	7,199.01	-609.51	101.74	617.06	1.32	-0.83	105.47	164.01
	NORMAL	7,336.0	1.31	37.58	7,294.00	-608.35	102.40	615.99	1.11	1.01	40.05	49.83

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 (°)
1/9/2014	NORMAL	7,431.0	0.70	73.44	7,388.98	-607.33	103.62	615.11	0.89	-0.64	37.75	151.09
	NORMAL	7,525.0	0.62	252.65	7,482.98	-607.32	103.68	615.11	1.40	-0.09	190.65	179.63
	NORMAL	7,620.0	0.44	257.22	7,577.98	-607.55	102.84	615.24	0.19	-0.19	4.81	169.06
	NORMAL	7,715.0	0.88	260.65	7,672.97	-607.75	101.76	615.32	0.46	0.46	3.61	6.85
	NORMAL	7,809.0	0.70	272.95	7,766.96	-607.84	100.47	615.27	0.26	-0.19	13.09	142.75
	NORMAL	7,904.0	1.02	343.02	7,861.98	-607.00	99.65	614.34	1.08	0.34	73.76	110.17
	NORMAL	7,999.0	0.88	306.35	7,956.94	-605.76	98.81	613.01	0.64	-0.15	-38.60	239.13
	NORMAL	8,093.0	0.79	346.08	8,050.93	-604.70	98.08	611.88	0.61	-0.10	42.27	118.35
	NORMAL	8,188.0	0.79	352.06	8,145.93	-603.42	97.83	610.58	0.09	0.00	6.29	92.99
	NORMAL	8,283.0	0.97	21.76	8,240.92	-602.02	98.04	609.21	0.51	0.19	31.26	83.75
	NORMAL	8,378.0	0.70	33.54	8,335.91	-600.79	98.65	608.06	0.34	-0.28	12.40	153.35
	NORMAL	8,473.0	0.09	134.53	8,430.90	-600.36	99.03	607.67	0.76	-0.64	106.31	172.98
	NORMAL	8,567.0	0.77	277.90	8,524.90	-600.32	98.46	607.57	0.90	0.72	152.52	147.02
	NORMAL	8,662.0	1.36	227.58	8,619.89	-601.00	96.99	608.08	1.11	0.62	-52.97	275.37
	NORMAL	8,757.0	2.20	228.04	8,714.84	-602.98	94.80	609.80	0.88	0.88	0.48	1.20
1/10/2014	NORMAL	8,851.0	1.58	266.10	8,808.79	-604.27	92.17	610.79	1.45	-0.66	40.49	134.46
	NORMAL	8,945.0	1.67	345.99	8,902.76	-603.03	90.54	609.38	2.22	0.10	84.99	128.04
	NORMAL	9,040.0	1.49	59.91	8,997.74	-601.07	91.28	607.51	2.01	-0.19	77.81	131.28
	NORMAL	9,134.0	0.88	105.26	9,091.72	-600.64	93.03	607.28	1.14	-0.65	48.24	144.31
	NORMAL	9,229.0	0.62	334.48	9,186.71	-600.37	93.51	607.07	1.44	-0.27	-137.66	200.07
	NORMAL	9,324.0	0.70	32.22	9,281.71	-599.42	93.60	606.13	0.67	0.08	60.78	112.60
	NORMAL	9,419.0	1.06	222.95	9,376.71	-599.57	93.31	606.25	1.84	0.38	-178.18	186.47
	NORMAL	9,513.0	0.26	142.26	9,470.70	-600.38	92.85	607.00	1.12	-0.85	-85.84	194.15
	NORMAL	9,608.0	0.52	241.69	9,565.70	-600.75	92.60	607.34	0.65	0.27	104.66	123.94
	NORMAL	9,703.0	1.11	247.13	9,660.69	-601.31	91.38	607.76	0.63	0.62	5.73	10.20
	NORMAL	9,797.0	1.49	149.73	9,754.67	-602.72	91.15	609.14	2.09	0.40	-103.62	228.62
	NORMAL	9,892.0	1.40	154.63	9,849.64	-604.84	92.27	611.37	0.16	-0.09	5.16	128.50
	NORMAL	9,986.0	1.67	186.65	9,943.61	-607.24	92.61	613.79	0.94	0.29	34.06	88.96
	NORMAL	10,081.0	1.85	208.97	10,038.57	-609.95	91.70	616.38	0.74	0.19	23.49	86.62
	NORMAL	10,175.0	2.51	217.37	10,132.50	-612.92	89.72	619.11	0.78	0.70	8.94	30.07
1/11/2014	NORMAL	10,270.0	1.71	226.28	10,227.44	-615.55	87.43	621.47	0.91	-0.84	9.38	162.11
	NORMAL	10,365.0	0.97	195.61	10,322.41	-617.30	86.19	623.07	1.06	-0.78	-32.28	209.47
	NORMAL	10,460.0	1.58	221.98	10,417.39	-619.05	85.10	624.69	0.88	0.64	27.76	57.58
	NORMAL	10,554.0	1.28	199.52	10,511.36	-621.00	83.88	626.49	0.67	-0.32	-23.89	230.92
	NORMAL	10,649.0	1.41	193.15	10,606.33	-623.14	83.26	628.55	0.21	0.14	-6.71	307.79
	NORMAL	10,744.0	1.14	189.81	10,701.31	-625.21	82.83	630.55	0.29	-0.28	-3.52	193.72
	NORMAL	10,839.0	1.67	210.38	10,796.28	-627.34	81.97	632.57	0.76	0.56	21.65	54.17
	NORMAL	10,920.0	1.67	210.38	10,877.25	-629.37	80.78	634.46	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

