

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 434-14-298	Wellbore No.	00
Wellbore Legal Name	RG 434-14-298	Common Wellbore Name	RG 434-14-298
Project	RG 14-02S-098W	Site	RG 24-14-298 Pad
Vertical Section Azimuth	77.10 (°)	North reference	
Origin N/S		Origin E/W	
Spud date	10/7/2013	UWI	RG 434-14-298
Active datum	KB @8,707.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	SDI
Date Started	10/7/2013	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 (°)
10/7/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/7/2013	NORMAL	165.0	2.46	103.97	164.95	-0.85	3.44	3.16	1.49	1.49	0.00	103.97
	NORMAL	257.0	4.31	85.43	256.79	-1.06	8.80	8.34	2.31	2.01	-20.15	319.91
	NORMAL	350.0	6.42	75.50	349.38	0.52	17.32	17.00	2.47	2.27	-10.68	331.25
	NORMAL	442.0	8.45	71.98	440.60	3.90	28.73	28.87	2.26	2.21	-3.83	345.60
	NORMAL	534.0	10.47	75.85	531.35	8.04	43.26	43.96	2.30	2.20	4.21	19.39
	NORMAL	607.0	11.52	74.34	603.00	11.63	56.71	57.88	1.49	1.44	-2.07	343.92
	NORMAL	699.0	13.10	74.87	692.89	16.83	75.62	77.47	1.72	1.72	0.58	4.35
	NORMAL	792.0	13.45	73.99	783.40	22.56	96.19	98.80	0.43	0.38	-0.95	329.57
	NORMAL	884.0	13.89	73.46	872.80	28.66	117.07	120.51	0.50	0.48	-0.58	343.85
	NORMAL	976.0	13.01	73.99	962.27	34.66	137.61	141.87	0.97	-0.96	0.58	172.28
	NORMAL	1,071.0	13.54	77.24	1,054.73	40.06	158.73	163.67	0.96	0.56	3.42	56.21
	NORMAL	1,166.0	13.19	79.44	1,147.16	44.51	180.23	185.62	0.65	-0.37	2.32	125.60
	NORMAL	1,261.0	13.19	76.63	1,239.66	49.00	201.43	207.29	0.67	0.00	-2.96	268.63
	NORMAL	1,355.0	14.68	75.22	1,330.89	54.52	223.38	229.92	1.63	1.59	-1.50	346.48
	NORMAL	1,450.0	14.77	75.48	1,422.77	60.62	246.75	254.05	0.12	0.09	0.27	36.42
	NORMAL	1,545.0	14.51	78.91	1,514.69	65.95	270.15	276.05	0.95	-0.27	3.61	108.35
10/8/2013	NORMAL	1,640.0	12.40	80.32	1,607.07	69.95	291.88	300.13	2.25	-2.22	1.48	171.85
	NORMAL	1,734.0	12.57	81.02	1,698.85	73.25	311.94	320.42	0.24	0.18	0.74	42.02
	NORMAL	1,829.0	13.19	81.64	1,791.46	76.44	332.87	341.53	0.67	0.65	0.65	12.87
	NORMAL	1,924.0	13.54	82.34	1,883.89	79.50	354.62	363.41	0.41	0.37	0.74	25.15

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 (°)
10/8/2013	NORMAL	2,019.0	14.25	82.87	1,976.11	82.43	377.24	386.12	0.76	0.75	0.56	10.42
	NORMAL	2,113.0	14.33	80.76	2,067.20	85.73	400.20	409.24	0.56	0.09	-2.24	277.71
	NORMAL	2,208.0	14.07	78.47	2,159.30	89.93	423.12	432.52	0.65	-0.27	-2.41	244.06
	NORMAL	2,303.0	14.07	77.33	2,251.45	94.77	445.70	455.61	0.29	0.00	-1.20	269.45
	NORMAL	2,398.0	14.25	77.59	2,343.56	99.82	468.39	478.85	0.20	0.19	0.27	19.59
	NORMAL	2,492.0	14.25	77.68	2,434.67	104.77	490.99	501.99	0.02	0.00	0.10	90.04
	NORMAL	2,587.0	14.33	78.12	2,526.73	109.69	513.92	525.43	0.14	0.08	0.46	53.84
	NORMAL	2,681.0	14.42	78.30	2,617.79	114.45	536.76	548.77	0.11	0.10	0.19	26.49
	NORMAL	2,776.0	14.25	78.21	2,709.83	119.24	559.79	572.28	0.18	-0.18	-0.09	187.42
	NORMAL	2,871.0	14.16	77.68	2,801.93	124.11	582.59	595.59	0.17	-0.09	-0.56	235.06
	NORMAL	2,966.0	13.81	77.24	2,894.11	129.09	605.00	618.55	0.39	-0.37	-0.46	196.69
	NORMAL	3,060.0	14.86	74.69	2,985.18	134.75	627.57	641.81	1.30	1.12	-2.71	327.74
	NORMAL	3,155.0	15.04	73.46	3,076.97	141.48	651.13	666.29	0.38	0.19	-1.29	298.97
	NORMAL	3,250.0	14.77	72.94	3,168.77	148.54	674.53	690.66	0.32	-0.28	-0.55	206.10
	NORMAL	3,344.0	14.86	74.61	3,259.65	155.26	697.60	714.66	0.46	0.10	1.78	78.91
	NORMAL	3,380.0	14.95	74.34	3,294.44	157.73	706.52	723.91	0.32	0.25	-0.75	322.21
10/19/2013	NORMAL	3,453.0	14.07	76.36	3,365.11	162.37	724.21	742.19	1.39	-1.21	2.77	151.07
	NORMAL	3,548.0	12.93	78.21	3,457.48	167.26	745.84	764.36	1.28	-1.20	1.95	160.15
	NORMAL	3,643.0	14.95	74.08	3,549.68	172.80	768.03	787.23	2.37	2.13	-4.35	331.76
	NORMAL	3,736.0	12.75	74.30	3,639.97	178.87	789.45	809.46	2.37	-2.37	0.24	178.74
10/20/2013	NORMAL	3,831.0	12.93	90.34	3,732.63	181.64	810.18	830.28	3.75	0.19	16.88	94.95
	NORMAL	3,927.0	10.83	104.53	3,826.59	179.31	829.66	848.75	3.73	-2.19	14.78	132.52
	NORMAL	4,022.0	12.51	89.33	3,919.64	177.19	848.59	866.73	3.67	1.77	-16.00	291.06
	NORMAL	4,117.0	11.28	73.33	4,012.62	179.98	867.78	886.06	3.69	-1.29	-16.84	241.84
	NORMAL	4,211.0	11.27	77.29	4,104.81	184.64	885.55	904.42	0.82	-0.01	4.21	92.68
	NORMAL	4,306.0	12.29	71.53	4,197.81	189.88	904.20	923.77	1.64	1.07	-6.06	308.09
	NORMAL	4,401.0	13.66	68.11	4,290.39	197.27	924.20	944.91	1.65	1.44	-3.60	329.06
	NORMAL	4,495.0	12.54	69.83	4,381.94	204.93	944.08	966.00	1.26	-1.19	1.83	161.64
	NORMAL	4,590.0	12.43	75.93	4,474.70	210.97	963.68	986.45	1.39	-0.12	6.42	97.74
	NORMAL	4,685.0	13.75	75.67	4,567.23	216.25	984.53	1,007.96	1.39	1.39	-0.27	357.32
	NORMAL	4,780.0	11.94	76.66	4,659.85	221.31	1,005.04	1,029.08	1.92	-1.91	1.04	173.55
	NORMAL	4,875.0	13.59	71.54	4,752.50	227.11	1,025.19	1,050.02	2.10	1.74	-5.39	323.05
	NORMAL	4,969.0	12.12	70.21	4,844.14	233.95	1,044.95	1,070.81	1.60	-1.56	-1.41	190.73
	NORMAL	5,064.0	10.11	70.09	4,937.35	240.17	1,062.18	1,088.98	2.12	-2.12	-0.13	180.60
	NORMAL	5,159.0	7.45	70.50	5,031.23	245.06	1,075.82	1,103.38	2.80	-2.80	0.43	178.85
	NORMAL	5,253.0	9.07	79.68	5,124.26	248.43	1,088.86	1,116.84	2.22	1.72	9.77	43.75
	NORMAL	5,348.0	9.82	78.99	5,217.97	251.32	1,104.18	1,132.42	0.80	0.79	-0.73	351.07
	NORMAL	5,443.0	8.23	79.19	5,311.79	254.14	1,118.81	1,147.31	1.67	-1.67	0.21	178.97
	NORMAL	5,537.0	8.80	73.51	5,404.76	257.44	1,132.31	1,161.21	1.08	0.61	-6.04	301.30
	NORMAL	5,633.0	7.92	74.57	5,499.74	261.29	1,145.73	1,175.15	0.93	-0.92	1.10	170.59
	NORMAL	5,726.0	7.33	76.90	5,591.91	264.33	1,157.68	1,187.48	0.72	-0.63	2.51	153.50
10/21/2013	NORMAL	5,822.0	6.43	77.58	5,687.22	266.88	1,168.90	1,198.98	0.94	-0.94	0.71	175.17
	NORMAL	5,917.0	5.85	78.48	5,781.68	268.99	1,178.84	1,209.14	0.62	-0.61	0.95	171.02
	NORMAL	6,011.0	5.14	80.07	5,875.24	270.67	1,187.68	1,218.13	0.77	-0.76	1.69	168.69
	NORMAL	6,105.0	4.91	68.24	5,968.89	272.89	1,195.56	1,226.31	1.13	-0.24	-12.59	251.64
10/22/2013	NORMAL	6,200.0	4.94	66.49	6,063.53	276.03	1,203.09	1,234.35	0.16	0.03	-1.84	280.42
	NORMAL	6,295.0	5.07	66.61	6,158.17	279.33	1,210.69	1,242.50	0.14	0.14	0.13	4.66
	NORMAL	6,389.0	4.26	53.00	6,251.86	283.08	1,217.30	1,249.77	1.45	-0.86	-14.48	227.15
	NORMAL	6,484.0	4.36	61.54	6,346.60	286.92	1,223.29	1,256.47	0.68	0.11	8.99	85.42
	NORMAL	6,579.0	4.28	49.40	6,441.33	290.95	1,229.15	1,263.09	0.96	-0.08	-12.78	258.97
	NORMAL	6,674.0	3.15	30.61	6,536.13	295.50	1,233.18	1,268.02	1.73	-1.19	-19.78	218.02
	NORMAL	6,768.0	2.20	35.22	6,630.03	299.20	1,235.53	1,271.14	1.04	-1.01	4.90	169.53
	NORMAL	6,863.0	0.70	24.95	6,724.99	301.22	1,236.83	1,272.86	1.60	-1.58	-10.81	184.72
	NORMAL	6,958.0	0.09	116.53	6,819.99	301.71	1,237.14	1,273.27	0.75	-0.64	96.40	172.70
	NORMAL	7,053.0	0.27	184.20	6,914.99	301.45	1,237.19	1,273.26	0.26	0.19	71.23	87.12
	NORMAL	7,147.0	0.11	81.62	7,008.99	301.24	1,237.26	1,273.29	0.33	-0.17	-109.13	200.06

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 (°)
10/22/2013	NORMAL	7,242.0	0.09	197.48	7,103.99	301.19	1,237.33	1,273.34	0.18	-0.02	121.96	151.52
	NORMAL	7,337.0	0.26	240.89	7,198.99	301.01	1,237.12	1,273.10	0.21	0.18	45.69	61.04
	NORMAL	7,432.0	0.41	200.95	7,293.99	300.59	1,236.81	1,272.70	0.28	0.16	-42.04	281.67
	NORMAL	7,527.0	0.27	173.83	7,388.99	300.05	1,236.71	1,272.48	0.22	-0.15	-28.55	215.96
	NORMAL	7,621.0	0.11	265.05	7,482.99	299.82	1,236.65	1,272.37	0.31	-0.17	97.04	158.01
	NORMAL	7,716.0	0.26	231.23	7,577.99	299.68	1,236.39	1,272.09	0.19	0.16	-35.60	308.22
	NORMAL	7,811.0	0.18	210.31	7,672.99	299.41	1,236.14	1,271.79	0.12	-0.08	-22.02	214.98
	NORMAL	7,906.0	0.17	263.78	7,767.99	299.27	1,235.93	1,271.55	0.17	-0.01	56.28	119.98
	NORMAL	8,001.0	0.26	231.58	7,862.99	299.12	1,235.62	1,271.21	0.16	0.09	-33.89	289.85
	NORMAL	8,096.0	0.09	318.88	7,957.99	299.04	1,235.40	1,270.98	0.29	-0.18	91.89	160.63
	NORMAL	8,190.0	0.21	152.68	8,051.99	298.95	1,235.43	1,270.99	0.32	0.13	-176.81	189.67
	NORMAL	8,285.0	0.43	226.75	8,146.99	298.55	1,235.25	1,270.73	0.45	0.23	77.97	102.54
	NORMAL	8,380.0	0.26	203.37	8,241.98	298.10	1,234.91	1,270.29	0.23	-0.18	-24.61	208.33
	NORMAL	8,474.0	0.18	173.83	8,335.98	297.76	1,234.84	1,270.15	0.14	-0.09	-31.43	220.84
	NORMAL	8,569.0	0.18	283.79	8,430.98	297.65	1,234.71	1,270.00	0.31	0.00	115.75	144.98
	NORMAL	8,663.0	0.26	202.57	8,524.98	297.49	1,234.48	1,269.74	0.31	0.09	-86.40	241.36
	NORMAL	8,758.0	0.18	187.55	8,619.98	297.14	1,234.38	1,269.56	0.10	-0.08	-15.81	208.43
10/23/2013	NORMAL	8,853.0	0.35	194.31	8,714.98	296.71	1,234.29	1,269.38	0.18	0.18	7.12	13.81
	NORMAL	8,948.0	0.09	254.82	8,809.98	296.41	1,234.15	1,269.17	0.33	-0.27	63.69	165.63
	NORMAL	9,042.0	0.26	215.76	8,903.98	296.22	1,233.95	1,268.94	0.21	0.18	-41.55	304.33
	NORMAL	9,137.0	0.35	192.91	8,998.98	295.76	1,233.76	1,268.65	0.16	0.09	-24.05	294.71
	NORMAL	9,231.0	0.35	211.63	9,092.98	295.24	1,233.55	1,268.32	0.12	0.00	19.91	99.36
	NORMAL	9,326.0	0.35	184.38	9,187.98	294.70	1,233.37	1,268.03	0.17	0.00	-28.68	256.38
	NORMAL	9,421.0	0.14	219.37	9,282.98	294.32	1,233.28	1,267.86	0.26	-0.22	36.83	161.16
	NORMAL	9,515.0	0.00	323.51	9,376.98	294.23	1,233.20	1,267.77	0.15	-0.15	0.00	180.00
	NORMAL	9,610.0	0.18	271.31	9,471.98	294.24	1,233.05	1,267.62	0.19	0.19	0.00	271.31
	NORMAL	9,705.0	0.48	194.54	9,566.98	293.85	1,232.80	1,267.29	0.50	0.32	-80.81	261.46
10/24/2013	NORMAL	9,800.0	0.57	208.91	9,661.97	293.05	1,232.48	1,266.79	0.17	0.09	15.13	62.97
	NORMAL	9,895.0	1.23	236.06	9,756.96	292.07	1,231.40	1,265.53	0.81	0.69	28.58	46.94
	NORMAL	9,990.0	2.48	241.30	9,851.91	290.52	1,228.75	1,262.60	1.33	1.32	5.52	10.35
	NORMAL	10,084.0	2.69	238.92	9,945.81	288.40	1,225.08	1,258.55	0.25	0.22	-2.53	331.73
	NORMAL	10,179.0	2.56	240.88	10,040.71	286.22	1,221.32	1,254.39	0.17	-0.14	2.06	146.35
	NORMAL	10,273.0	2.89	238.95	10,134.61	283.97	1,217.45	1,250.12	0.36	0.35	-2.05	343.50
	NORMAL	10,368.0	3.16	241.99	10,229.48	281.51	1,213.09	1,245.32	0.33	0.28	3.20	32.24
	NORMAL	10,462.0	3.06	242.29	10,323.34	279.12	1,208.58	1,240.39	0.11	-0.11	0.32	170.91
	NORMAL	10,557.0	3.36	243.69	10,418.19	276.71	1,203.84	1,235.23	0.33	0.32	1.47	15.34
	NORMAL	10,652.0	3.69	246.36	10,513.01	274.25	1,198.54	1,229.52	0.39	0.35	2.81	27.79
	NORMAL	10,747.0	4.20	242.14	10,607.78	271.40	1,192.67	1,223.16	0.62	0.54	-4.44	328.23
	NORMAL	10,841.0	4.16	240.71	10,701.53	268.12	1,186.65	1,216.56	0.12	-0.04	-1.52	248.29
	NORMAL	10,936.0	4.47	241.03	10,796.26	264.64	1,180.41	1,209.70	0.33	0.33	0.34	4.60
	NORMAL	10,999.0	4.66	238.43	10,859.07	262.12	1,176.08	1,204.91	0.45	0.30	-4.13	311.26
	NORMAL	11,096.0	4.74	235.74	10,955.74	257.80	1,169.41	1,197.45	0.24	0.08	-2.77	288.60
	NORMAL	11,145.0	4.74	235.74	11,004.57	255.52	1,166.06	1,193.68	0.00	0.00	0.00	0.00