

## 1 General

### 1.1 Customer Information

Company	PICEANCE HL
Representative	
Address	

### 1.2 Well/Wellbore Information

Well	RGU 534-23-198	Wellbore No.	00
Wellbore Legal Name	RGU 534-23-198	Common Wellbore Name	RGU 534-23-198
Project	RG 23-01S-098W	Site	RGU 43-23-198 PAD
Vertical Section Azimuth	232.03 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	9/28/2014	UWI	RGU 534-23-198
Active datum	KB @6,592.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	9/28/2014	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 (°)
9/28/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/28/2014	NORMAL	108.0	0.62	350.33	108.00	0.58	-0.10	-0.28	0.57	0.57	0.00	350.33
	NORMAL	200.0	0.53	247.85	200.00	0.91	-0.58	-0.10	0.98	-0.10	-111.39	215.17
	NORMAL	291.0	0.97	210.85	290.99	0.09	-1.36	1.02	0.70	0.48	-40.66	292.74
	NORMAL	381.0	1.41	262.18	380.97	-0.72	-2.85	2.69	1.23	0.49	57.03	94.62
	NORMAL	471.0	2.11	259.68	470.93	-1.17	-5.58	5.11	0.78	0.78	-2.78	352.49
	NORMAL	517.0	2.34	240.17	516.89	-1.78	-7.22	6.79	1.71	0.50	-42.41	276.99
	NORMAL	608.0	3.68	229.05	607.77	-4.62	-11.04	11.55	1.60	1.47	-12.22	330.84
	NORMAL	699.0	4.10	230.50	698.56	-8.61	-15.76	17.72	0.47	0.46	1.59	13.91
	NORMAL	789.0	4.53	230.60	788.30	-12.91	-20.99	24.49	0.48	0.48	0.11	1.05
	NORMAL	879.0	5.07	230.24	877.99	-17.71	-26.79	32.01	0.60	0.60	-0.40	356.63
	NORMAL	975.0	5.43	231.99	973.58	-23.22	-33.63	40.80	0.41	0.38	1.82	24.85
	NORMAL	1,070.0	6.06	231.78	1,068.11	-29.09	-41.11	50.31	0.66	0.66	-0.22	357.98
	NORMAL	1,165.0	6.57	231.59	1,162.53	-35.57	-49.31	60.75	0.54	0.54	-0.20	357.56
	NORMAL	1,260.0	5.28	230.49	1,257.02	-41.73	-56.94	70.56	1.36	-1.36	-1.16	184.48
9/29/2014	NORMAL	1,355.0	5.44	232.28	1,351.61	-47.26	-63.87	79.43	0.24	0.17	1.88	47.16
	NORMAL	1,450.0	4.84	228.73	1,448.22	-52.66	-70.45	87.94	0.71	-0.63	-3.74	206.17
	NORMAL	1,545.0	4.71	223.22	1,540.89	-58.15	-76.13	95.79	0.50	-0.14	-5.80	251.44
	NORMAL	1,639.0	5.01	225.48	1,634.56	-63.84	-81.70	103.68	0.38	0.32	2.40	33.68
	NORMAL	1,726.0	5.00	225.29	1,721.23	-69.17	-87.10	111.22	0.02	-0.01	-0.22	238.80
	NORMAL	1,821.0	5.51	226.52	1,815.83	-75.22	-93.36	119.87	0.55	0.54	1.29	13.07

## 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 (°)
9/29/2014	NORMAL	1,915.0	5.63	225.71	1,909.38	-81.54	-99.93	128.95	0.15	0.13	-0.86	326.36
	NORMAL	2,010.0	5.93	233.32	2,003.90	-87.73	-107.20	138.49	0.87	0.32	8.01	72.44
	NORMAL	2,105.0	6.28	237.09	2,098.36	-93.48	-115.50	148.57	0.56	0.37	3.97	50.77
	NORMAL	2,200.0	6.45	237.92	2,192.78	-99.14	-124.38	159.05	0.20	0.18	0.87	28.84
	NORMAL	2,295.0	6.51	237.84	2,287.17	-104.84	-133.46	169.72	0.06	0.06	-0.08	351.40
	NORMAL	2,390.0	6.65	240.94	2,381.55	-110.38	-142.83	180.51	0.40	0.15	3.26	70.03
	NORMAL	2,485.0	6.62	228.97	2,475.91	-116.65	-151.77	191.41	1.45	-0.03	-12.60	262.82
	NORMAL	2,580.0	6.76	228.39	2,570.27	-123.95	-160.08	202.46	0.16	0.15	-0.61	333.95
	NORMAL	2,675.0	6.87	228.39	2,664.60	-131.44	-168.51	213.71	0.12	0.12	0.00	0.00
	NORMAL	2,770.0	6.97	229.01	2,758.90	-138.99	-177.11	225.14	0.13	0.11	0.65	37.07
	NORMAL	2,865.0	6.99	227.64	2,853.20	-146.67	-185.73	236.66	0.18	0.02	-1.44	276.17
	NORMAL	2,959.0	8.33	232.65	2,946.36	-154.65	-195.37	249.17	1.59	1.43	5.33	28.99
	NORMAL	3,054.0	9.25	234.26	3,040.24	-163.29	-207.04	263.68	1.00	0.97	1.69	15.77
9/30/2014	NORMAL	3,149.0	10.37	233.71	3,133.85	-172.81	-220.13	279.86	1.18	1.18	-0.58	354.95
	NORMAL	3,244.0	11.59	235.83	3,227.11	-183.23	-234.92	297.93	1.35	1.28	2.23	19.36
	NORMAL	3,339.0	12.78	234.31	3,319.97	-194.72	-251.35	317.95	1.30	1.25	-1.60	344.17
	NORMAL	3,434.0	14.28	231.16	3,412.33	-208.20	-269.01	340.16	1.76	1.58	-3.32	332.30
	NORMAL	3,529.0	14.69	230.24	3,504.31	-223.25	-287.40	363.92	0.49	0.43	-0.97	330.25
	NORMAL	3,624.0	15.29	228.56	3,596.08	-239.25	-306.05	388.46	0.78	0.63	-1.77	323.27
	NORMAL	3,719.0	15.97	228.61	3,687.57	-256.18	-325.24	414.01	0.72	0.72	0.05	1.16
	NORMAL	3,814.0	16.26	229.38	3,778.84	-273.48	-345.14	440.34	0.38	0.31	0.81	36.76
10/2/2014	NORMAL	4,010.0	17.03	223.91	3,966.88	-310.10	-386.51	496.17	2.81	1.24	-8.82	293.53
	NORMAL	4,105.0	18.80	223.10	4,057.27	-331.30	-406.61	524.38	1.88	1.86	-0.85	351.60
	NORMAL	4,200.0	19.44	225.24	4,147.03	-353.61	-428.30	555.20	1.00	0.67	2.25	48.62
	NORMAL	4,295.0	21.12	227.70	4,236.14	-376.26	-452.19	587.97	1.98	1.77	2.59	28.07
	NORMAL	4,390.0	20.19	229.24	4,325.04	-398.48	-477.26	621.41	1.13	-0.98	1.62	150.43
	NORMAL	4,485.0	19.50	227.54	4,414.39	-419.89	-501.38	653.59	0.95	-0.73	-1.79	219.11
	NORMAL	4,580.0	20.89	232.87	4,503.56	-440.82	-526.58	686.34	2.43	1.46	5.61	55.45
	NORMAL	4,675.0	23.63	237.52	4,591.48	-461.28	-556.16	722.24	3.43	2.88	4.89	34.91
	NORMAL	4,770.0	23.89	236.46	4,678.43	-482.13	-588.25	760.37	0.53	0.27	-1.12	300.85
	NORMAL	4,865.0	23.27	234.89	4,765.50	-503.55	-619.64	798.29	0.93	-0.65	-1.65	224.65
	NORMAL	4,960.0	20.69	231.78	4,853.59	-524.73	-648.18	833.82	2.98	-2.72	-3.27	202.85
	NORMAL	5,055.0	21.34	232.62	4,942.27	-545.61	-675.10	867.89	0.75	0.68	0.88	25.26
	NORMAL	5,150.0	22.32	232.38	5,030.45	-567.11	-703.12	903.21	1.04	1.03	-0.25	354.69
	NORMAL	5,245.0	21.73	234.08	5,118.52	-588.44	-731.66	938.83	0.91	-0.62	1.79	133.57
10/3/2014	NORMAL	5,340.0	22.27	231.81	5,206.61	-609.89	-760.05	974.40	1.06	0.57	-2.39	301.36
	NORMAL	5,435.0	23.11	232.03	5,294.25	-632.49	-788.89	1,011.05	0.89	0.88	0.23	5.87
	NORMAL	5,530.0	19.97	231.60	5,382.61	-654.04	-816.31	1,045.92	3.31	-3.31	-0.45	182.68
	NORMAL	5,625.0	20.31	230.12	5,471.80	-674.69	-841.68	1,078.62	0.64	0.36	-1.56	303.02
	NORMAL	5,720.0	20.69	234.05	5,560.79	-695.12	-867.92	1,111.88	1.50	0.40	4.14	76.41
	NORMAL	5,815.0	20.82	235.64	5,649.62	-714.50	-895.44	1,145.50	0.61	0.14	1.67	77.75
	NORMAL	5,910.0	20.64	232.77	5,738.47	-734.16	-922.71	1,179.09	1.09	-0.19	-3.02	258.61
	NORMAL	6,005.0	20.63	235.14	5,827.38	-753.85	-949.77	1,212.54	0.88	-0.01	2.49	91.79
	NORMAL	6,100.0	18.59	235.14	5,916.87	-772.08	-975.93	1,244.38	2.15	-2.15	0.00	180.00
	NORMAL	6,195.0	18.54	234.43	6,006.92	-789.52	-1,000.64	1,274.59	0.24	-0.05	-0.75	257.19
	NORMAL	6,290.0	17.13	236.12	6,096.40	-805.93	-1,024.29	1,303.33	1.60	-1.50	1.80	160.64
	NORMAL	6,384.0	16.25	234.08	6,187.40	-821.53	-1,046.67	1,330.57	1.11	-0.93	-2.15	212.68
	NORMAL	6,479.0	14.08	232.40	6,279.09	-836.38	-1,066.60	1,355.41	2.33	-2.28	-1.77	190.64
	NORMAL	6,574.0	13.03	229.93	6,371.44	-850.32	-1,083.95	1,377.67	1.26	-1.11	-2.60	207.67
	NORMAL	6,670.0	12.83	230.85	6,465.01	-864.02	-1,100.50	1,399.14	0.30	-0.21	0.96	134.62
10/4/2014	NORMAL	6,764.0	12.13	229.04	6,556.79	-877.08	-1,116.05	1,419.44	0.85	-0.74	-1.93	208.31
	NORMAL	6,859.0	11.28	227.74	6,649.81	-889.87	-1,130.46	1,438.67	0.94	-0.89	-1.37	196.60
	NORMAL	6,954.0	10.77	230.41	6,743.06	-901.78	-1,144.18	1,456.81	0.76	-0.54	2.81	136.27
	NORMAL	7,050.0	9.72	227.82	6,837.53	-912.94	-1,157.10	1,473.86	1.19	-1.09	-2.70	202.42
	NORMAL	7,144.0	9.87	237.12	6,930.16	-922.64	-1,169.74	1,489.80	1.69	0.16	9.89	89.18
	NORMAL	7,239.0	9.46	240.22	7,023.82	-930.94	-1,183.36	1,505.64	0.70	-0.43	3.26	129.75

## 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 (°)
10/4/2014	NORMAL	7,334.0	7.58	238.48	7,117.76	-938.09	-1,195.48	1,519.59	2.00	-1.98	-1.83	186.95
	NORMAL	7,429.0	6.74	234.44	7,212.02	-944.61	-1,205.35	1,531.39	1.03	-0.88	-4.25	208.95
10/5/2014	NORMAL	7,524.0	4.78	238.48	7,306.54	-949.92	-1,213.26	1,540.89	2.11	-2.06	4.25	170.32
	NORMAL	7,619.0	2.22	240.81	7,401.35	-952.89	-1,218.24	1,546.64	2.70	-2.69	2.45	177.98
	NORMAL	7,714.0	1.09	214.09	7,496.31	-954.53	-1,220.36	1,549.32	1.41	-1.19	-28.13	201.47
	NORMAL	7,808.0	1.22	192.83	7,590.30	-956.25	-1,221.08	1,550.95	0.47	0.14	-22.62	276.06
	NORMAL	7,903.0	0.29	46.80	7,685.29	-957.07	-1,221.13	1,551.49	1.55	-0.98	-153.72	186.33
	NORMAL	7,998.0	0.58	334.15	7,780.29	-956.47	-1,221.16	1,551.15	0.60	0.31	-76.47	258.06
	NORMAL	8,093.0	0.70	259.24	7,875.28	-956.15	-1,221.94	1,551.57	0.83	0.13	-78.85	239.52
	NORMAL	8,187.0	0.30	5.91	7,969.28	-956.01	-1,222.48	1,551.91	0.89	-0.43	113.48	159.92
	NORMAL	8,282.0	0.44	234.43	8,064.28	-955.98	-1,222.75	1,552.10	0.71	0.15	-138.40	209.13
	NORMAL	8,337.0	0.62	268.51	8,119.28	-956.11	-1,223.22	1,552.55	0.65	0.33	61.96	78.05
	NORMAL	8,472.0	1.73	252.09	8,254.25	-956.75	-1,225.89	1,555.05	0.85	0.82	-12.16	334.81
	NORMAL	8,567.0	1.18	192.84	8,349.22	-958.15	-1,227.48	1,557.16	1.60	-0.58	-62.37	222.00
	NORMAL	8,662.0	1.63	163.60	8,444.20	-960.40	-1,227.31	1,558.41	0.88	0.47	-30.78	286.93
10/6/2014	NORMAL	8,757.0	0.40	168.16	8,539.18	-962.02	-1,226.86	1,559.06	1.30	-1.29	4.80	178.52
	NORMAL	8,852.0	0.26	13.23	8,634.18	-962.13	-1,226.74	1,559.03	0.68	-0.15	-163.08	189.83
	NORMAL	8,947.0	1.11	336.54	8,729.17	-961.08	-1,227.06	1,558.63	0.96	0.89	-38.62	313.53
	NORMAL	9,041.0	0.81	4.92	8,823.16	-959.58	-1,227.37	1,557.95	0.59	-0.32	30.19	135.90
	NORMAL	9,136.0	0.89	55.22	8,918.15	-958.49	-1,226.70	1,556.76	0.76	0.08	52.95	109.42
	NORMAL	9,231.0	1.22	47.53	9,013.13	-957.39	-1,225.35	1,555.02	0.38	0.35	-8.09	332.90
	NORMAL	9,326.0	1.49	46.89	9,108.11	-955.86	-1,223.70	1,552.78	0.28	0.28	-0.67	356.47
	NORMAL	9,421.0	1.69	44.51	9,203.07	-954.02	-1,221.82	1,550.16	0.22	0.21	-2.51	340.54
	NORMAL	9,515.0	0.91	26.07	9,297.05	-952.36	-1,220.52	1,548.11	0.93	-0.83	-19.62	199.20
	NORMAL	9,610.0	0.91	42.59	9,392.03	-951.13	-1,219.68	1,546.69	0.28	0.00	17.39	98.26
	NORMAL	9,705.0	0.32	323.02	9,487.03	-950.36	-1,219.33	1,545.94	0.96	-0.62	-83.76	200.27
10/7/2014	NORMAL	9,800.0	0.21	100.38	9,582.03	-950.18	-1,219.32	1,545.82	0.52	-0.12	144.59	163.31
	NORMAL	9,895.0	0.29	307.27	9,677.03	-950.06	-1,219.34	1,545.77	0.51	0.08	-161.17	195.64
	NORMAL	9,990.0	1.41	252.94	9,772.02	-950.26	-1,220.64	1,546.92	1.33	1.18	-57.19	294.92
	NORMAL	10,085.0	0.20	125.85	9,867.01	-950.70	-1,221.63	1,547.97	1.62	-1.27	-133.78	185.95
	NORMAL	10,180.0	0.60	287.16	9,962.01	-950.65	-1,221.97	1,548.20	0.83	0.42	169.80	165.95
	NORMAL	10,275.0	0.14	264.62	10,057.01	-950.51	-1,222.56	1,548.59	0.50	-0.48	-23.73	186.50
	NORMAL	10,370.0	1.12	262.77	10,152.00	-950.64	-1,223.60	1,549.48	1.03	1.03	-1.95	357.89
	NORMAL	10,465.0	1.61	245.99	10,246.97	-951.30	-1,225.74	1,551.58	0.66	0.52	-17.66	312.20
	NORMAL	10,560.0	1.63	260.81	10,341.94	-952.06	-1,228.29	1,554.05	0.44	0.02	15.60	94.69
10/8/2014	NORMAL	10,655.0	1.45	285.28	10,436.90	-951.96	-1,230.78	1,555.96	0.71	-0.19	25.76	117.32
	NORMAL	10,750.0	1.11	284.87	10,531.88	-951.41	-1,232.83	1,557.23	0.36	-0.36	-0.43	181.34
10/9/2014	NORMAL	10,845.0	2.42	263.66	10,626.83	-951.39	-1,235.71	1,559.50	1.52	1.38	-22.33	322.63
	NORMAL	10,940.0	1.74	228.04	10,721.77	-952.58	-1,238.78	1,562.64	1.50	-0.72	-37.49	225.23
10/10/2014	NORMAL	11,035.0	0.33	181.00	10,816.76	-953.82	-1,239.86	1,564.25	1.61	-1.48	-49.52	189.06
	NORMAL	11,130.0	1.37	151.60	10,911.75	-955.09	-1,239.32	1,564.62	1.15	1.09	-30.95	322.09
	NORMAL	11,225.0	1.29	189.90	11,006.72	-957.14	-1,238.97	1,565.60	0.92	-0.08	40.32	114.10
	NORMAL	11,320.0	0.70	266.69	11,101.71	-958.23	-1,239.73	1,566.87	1.39	-0.62	80.83	148.90
	NORMAL	11,415.0	1.33	125.59	11,196.70	-958.90	-1,239.41	1,567.03	2.03	0.66	-148.53	205.71
10/11/2014	NORMAL	11,510.0	0.66	219.94	11,291.69	-959.96	-1,238.87	1,567.26	1.61	-0.71	99.32	154.60
	NORMAL	11,606.0	0.20	247.79	11,387.69	-960.45	-1,239.38	1,567.96	0.51	-0.48	29.01	169.06
	NORMAL	11,701.0	0.75	291.01	11,482.69	-960.29	-1,240.11	1,568.44	0.65	0.58	45.49	55.99
	NORMAL	11,796.0	1.59	293.83	11,577.67	-959.54	-1,241.90	1,569.38	0.89	0.88	2.97	5.33
	NORMAL	11,891.0	1.71	281.79	11,672.63	-958.71	-1,244.49	1,570.92	0.39	0.13	-12.67	283.01
	NORMAL	11,986.0	1.24	284.31	11,767.60	-958.17	-1,246.87	1,572.46	0.50	-0.49	2.65	173.40
	NORMAL	12,081.0	1.67	267.80	11,862.57	-957.97	-1,249.25	1,574.22	0.63	0.45	-17.38	307.28
	NORMAL	12,176.0	1.33	263.10	11,957.53	-958.16	-1,251.73	1,576.28	0.38	-0.36	-4.95	197.55
	NORMAL	12,271.0	1.79	290.00	12,052.50	-957.78	-1,254.22	1,578.02	0.90	0.48	28.32	71.79
	NORMAL	12,366.0	1.09	283.39	12,147.47	-957.06	-1,256.49	1,579.37	0.76	-0.74	-6.96	190.06
10/12/2014	NORMAL	12,461.0	1.42	302.07	12,242.45	-956.23	-1,258.37	1,580.33	0.55	0.35	19.66	60.70
	NORMAL	12,556.0	1.57	301.10	12,337.42	-954.93	-1,260.48	1,581.20	0.16	0.16	-1.02	349.94

## 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 (°)
10/12/2014	NORMAL	12,651.0	1.35	290.84	12,432.38	-953.86	-1,262.64	1,582.24	0.36	-0.23	-10.80	224.86
	NORMAL	12,746.0	2.01	264.20	12,527.35	-953.63	-1,265.34	1,584.23	1.06	0.69	-28.04	296.37
	NORMAL	12,800.0	2.01	264.20	12,581.31	-953.82	-1,267.23	1,585.84	0.00	0.00	0.00	0.00