

## 1 General

### 1.1 Customer Information

Company	PICEANCE HL
Representative	
Address	

### 1.2 Well/Wellbore Information

Well	RGU 442-24-198	Wellbore No.	00
Wellbore Legal Name	RGU 442-24-198	Common Wellbore Name	RGU 442-24-198
Project	RG 24-01S-098W	Site	RGU 33-24-198 Pad
Vertical Section	54.00 (°)	North reference	True
Azimuth		Origin E/W	
Origin N/S		UWI	RGU 442-24-198
Spud date	4/23/2014		
Active datum	KB @6,617.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	4/23/2014	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 (°)
4/23/2014	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4/23/2014	NORMAL	132.0	0.26	18.02	132.00	0.28	0.09	0.24	0.20	0.20	0.00	18.02
	NORMAL	224.0	1.85	52.12	223.98	1.40	1.33	1.90	1.78	1.73	37.07	39.19
	NORMAL	316.0	4.57	55.11	315.83	4.40	5.51	7.05	2.96	2.96	3.25	5.02
	NORMAL	408.0	6.33	52.82	407.41	9.57	12.56	15.78	1.93	1.91	-2.49	351.81
	NORMAL	501.0	7.83	54.58	499.70	16.34	21.80	27.24	1.63	1.61	1.89	9.10
	NORMAL	593.0	7.92	56.16	590.83	23.50	32.18	39.84	0.25	0.10	1.72	68.21
	NORMAL	685.0	7.74	57.74	681.97	30.33	42.68	52.36	0.30	-0.20	1.72	130.68
4/24/2014	NORMAL	777.0	7.65	58.10	773.15	36.88	53.12	64.65	0.11	-0.10	0.39	152.00
	NORMAL	855.0	7.29	61.00	850.48	42.02	61.85	74.74	0.67	-0.46	3.72	135.11
	NORMAL	947.0	6.98	50.74	941.78	48.39	71.29	86.11	1.42	-0.34	-11.15	251.27
	NORMAL	1,041.0	6.68	52.56	1,035.11	55.33	80.05	97.28	0.39	-0.32	1.94	145.09
	NORMAL	1,135.0	6.59	54.54	1,128.48	61.78	88.78	108.14	0.26	-0.10	2.11	112.46
	NORMAL	1,230.0	6.58	55.86	1,222.85	68.00	97.73	119.03	0.16	-0.01	1.39	94.44
	NORMAL	1,325.0	6.16	47.11	1,317.27	74.52	105.97	129.53	1.11	-0.44	-9.21	242.30
	NORMAL	1,420.0	5.28	41.05	1,411.80	81.29	112.57	138.85	1.12	-0.93	-6.38	211.47
	NORMAL	1,514.0	5.63	46.50	1,505.37	87.72	118.76	147.64	0.66	0.37	5.80	58.69
	NORMAL	1,609.0	5.45	48.87	1,599.93	93.90	125.54	156.75	0.31	-0.19	2.49	129.37
	NORMAL	1,693.0	5.00	47.71	1,683.58	98.98	131.25	164.36	0.55	-0.54	-1.38	192.63
	NORMAL	1,787.0	5.38	56.53	1,777.19	104.17	137.96	172.84	0.94	0.40	9.38	68.97
	NORMAL	1,882.0	6.51	61.30	1,871.68	109.21	146.40	182.63	1.30	1.19	5.02	26.00

## 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 (°)
4/24/2014	NORMAL	1,977.0	6.49	61.77	1,966.07	114.34	155.85	193.29	0.06	-0.02	0.49	110.83
	NORMAL	2,072.0	7.01	51.13	2,060.42	120.52	165.09	204.40	1.42	0.55	-11.20	287.24
	NORMAL	2,167.0	6.56	48.98	2,154.75	127.72	173.70	215.60	0.54	-0.47	-2.26	208.38
	NORMAL	2,262.0	6.55	51.23	2,249.13	134.67	182.02	226.42	0.27	-0.01	2.37	93.35
	NORMAL	2,356.0	6.55	51.18	2,342.52	141.39	190.38	237.13	0.01	0.00	-0.05	269.98
	NORMAL	2,451.0	6.88	49.99	2,436.87	148.44	198.96	248.21	0.38	0.35	-1.25	336.55
	NORMAL	2,545.0	6.54	51.59	2,530.22	155.39	207.46	259.18	0.41	-0.36	1.70	151.99
	NORMAL	2,640.0	6.35	48.33	2,624.62	162.24	215.63	269.81	0.43	-0.20	-3.43	240.95
	NORMAL	2,735.0	5.86	46.60	2,719.08	169.07	223.08	279.85	0.55	-0.52	-1.82	199.72
	NORMAL	2,830.0	7.05	45.47	2,813.48	176.49	230.76	290.42	1.26	1.25	-1.19	353.34
4/25/2014	NORMAL	2,924.0	7.59	54.14	2,906.72	184.17	239.90	302.34	1.31	0.57	9.22	68.29
	NORMAL	3,019.0	8.18	57.14	3,000.82	191.51	250.66	315.36	0.76	0.62	3.16	36.39
	NORMAL	3,113.0	7.72	60.16	3,093.92	198.28	261.76	328.31	0.66	-0.49	3.21	139.25
	NORMAL	3,208.0	7.07	56.07	3,188.13	204.72	272.14	340.50	0.88	-0.68	-4.31	216.99
	NORMAL	3,303.0	6.52	55.20	3,282.46	211.06	281.42	351.74	0.59	-0.58	-0.92	190.17
	NORMAL	3,398.0	7.72	52.94	3,376.72	217.99	290.94	363.51	1.30	1.26	-2.38	345.74
	NORMAL	3,492.0	9.38	54.39	3,469.68	226.25	302.21	377.48	1.78	1.77	1.54	8.12
	NORMAL	3,587.0	10.38	54.91	3,563.27	235.68	315.51	393.78	1.06	1.05	0.55	5.35
	NORMAL	3,682.0	10.18	54.64	3,656.74	245.46	329.36	410.73	0.22	-0.21	-0.28	193.41
	NORMAL	3,776.0	9.74	53.81	3,749.32	254.96	342.55	426.99	0.49	-0.47	-0.88	197.66
5/17/2014	NORMAL	3,953.0	8.29	55.21	3,924.13	271.08	365.11	454.72	0.83	-0.82	0.79	172.09
	NORMAL	4,017.0	11.30	53.79	3,987.19	277.42	373.96	465.61	4.72	4.70	-2.22	354.71
	NORMAL	4,112.0	11.14	57.14	4,080.38	287.90	389.18	484.08	0.71	-0.17	3.53	105.43
	NORMAL	4,206.0	12.25	56.00	4,172.43	298.40	405.08	503.11	1.21	1.18	-1.21	347.68
5/18/2014	NORMAL	4,301.0	14.52	55.86	4,264.84	310.72	423.29	525.09	2.39	2.39	-0.15	359.11
	NORMAL	4,396.0	16.37	55.77	4,356.41	324.94	444.22	550.38	1.95	1.95	-0.09	359.21
	NORMAL	4,491.0	16.81	56.34	4,447.45	340.09	466.72	577.48	0.49	0.46	0.60	20.57
	NORMAL	4,585.0	15.32	57.88	4,537.78	354.22	488.55	603.46	1.65	-1.59	1.64	164.78
	NORMAL	4,680.0	17.22	57.70	4,628.97	368.41	511.07	630.01	2.00	2.00	-0.19	358.39
	NORMAL	4,775.0	15.69	58.74	4,720.08	382.59	533.94	656.85	1.64	-1.61	1.09	169.60
	NORMAL	4,870.0	15.79	53.64	4,811.52	396.92	555.33	682.58	1.46	0.11	-5.37	271.68
	NORMAL	4,965.0	14.73	51.96	4,903.17	412.03	575.25	707.57	1.21	-1.12	-1.77	201.83
	NORMAL	5,059.0	15.16	49.46	4,993.99	427.38	594.00	731.77	0.82	0.46	-2.66	302.49
	NORMAL	5,154.0	15.08	48.00	5,085.70	443.72	612.63	756.44	0.41	-0.08	-1.54	257.43
	NORMAL	5,249.0	15.71	47.15	5,177.29	460.74	631.24	781.50	0.70	0.66	-0.89	339.88
	NORMAL	5,344.0	15.47	49.89	5,268.80	477.65	650.36	806.91	0.82	-0.25	2.88	109.37
	NORMAL	5,438.0	16.10	52.86	5,359.26	493.60	670.34	832.44	1.09	0.67	3.16	53.49
	NORMAL	5,533.0	16.14	53.88	5,450.52	509.33	691.51	858.82	0.30	0.04	1.07	82.45
	NORMAL	5,628.0	16.02	52.65	5,541.81	525.07	712.59	885.13	0.38	-0.13	-1.29	250.01
	NORMAL	5,723.0	16.38	52.33	5,633.03	541.21	733.62	911.62	0.39	0.38	-0.34	345.92
	NORMAL	5,817.0	17.39	53.72	5,722.98	557.62	755.43	938.92	1.16	1.07	1.48	22.45
	NORMAL	5,912.0	15.29	53.76	5,814.14	573.43	776.98	965.64	2.21	-2.21	0.04	179.71
	NORMAL	6,007.0	15.52	57.07	5,905.73	587.74	797.75	990.86	0.96	0.24	3.48	76.94
	NORMAL	6,102.0	16.99	56.57	5,996.93	602.30	820.01	1,017.42	1.55	1.55	-0.53	354.32
5/19/2014	NORMAL	6,196.0	15.86	57.15	6,087.09	616.83	842.26	1,043.97	1.21	-1.20	0.62	172.02
	NORMAL	6,291.0	14.60	56.76	6,178.75	630.44	863.18	1,068.89	1.33	-1.33	-0.41	184.46
	NORMAL	6,386.0	12.32	57.77	6,271.14	642.41	881.77	1,090.97	2.41	-2.40	1.06	174.60
	NORMAL	6,480.0	11.01	56.90	6,363.19	652.66	897.77	1,109.94	1.41	-1.39	-0.93	187.22
	NORMAL	6,575.0	9.74	52.95	6,456.64	662.45	911.79	1,127.03	1.53	-1.34	-4.16	207.32
	NORMAL	6,670.0	9.35	50.19	6,550.32	672.24	924.13	1,142.77	0.63	-0.41	-2.91	228.21
	NORMAL	6,765.0	9.60	48.34	6,644.03	682.44	935.98	1,158.35	0.41	0.26	-1.95	308.47
	NORMAL	6,860.0	9.80	43.48	6,737.67	693.58	947.46	1,174.18	0.89	0.21	-5.12	281.32
	NORMAL	6,954.0	8.63	42.30	6,830.46	704.60	957.71	1,188.95	1.26	-1.24	-1.26	188.59
	NORMAL	7,049.0	8.37	43.00	6,924.41	714.93	967.22	1,202.72	0.29	-0.27	0.74	158.65
	NORMAL	7,144.0	8.43	45.15	7,018.40	724.89	976.87	1,216.39	0.34	0.06	2.26	80.25
	NORMAL	7,239.0	7.75	50.10	7,112.45	733.91	986.73	1,229.66	1.02	-0.72	5.21	136.74

## 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 (°)
5/19/2014	NORMAL	7,334.0	6.61	58.48	7,206.71	740.88	996.30	1,241.50	1.63	-1.20	8.82	141.53
	NORMAL	7,428.0	5.65	59.02	7,300.17	746.09	1,004.88	1,251.51	1.02	-1.02	0.57	176.83
	NORMAL	7,523.0	5.31	57.54	7,394.74	750.86	1,012.60	1,260.55	0.39	-0.36	-1.56	201.84
	NORMAL	7,618.0	4.64	57.17	7,489.38	755.30	1,019.54	1,268.78	0.71	-0.71	-0.39	182.56
	NORMAL	7,713.0	3.99	55.27	7,584.11	759.27	1,025.48	1,275.92	0.70	-0.68	-2.00	191.46
5/20/2014	NORMAL	7,807.0	3.87	55.03	7,677.89	762.95	1,030.77	1,282.36	0.13	-0.13	-0.26	187.69
	NORMAL	7,902.0	3.03	54.95	7,772.71	766.23	1,035.45	1,288.08	0.88	-0.88	-0.08	180.29
	NORMAL	7,997.0	2.42	55.13	7,867.61	768.82	1,039.15	1,292.59	0.64	-0.64	0.19	179.29
	NORMAL	8,092.0	2.29	51.63	7,962.53	771.14	1,042.29	1,296.49	0.20	-0.14	-3.68	226.15
	NORMAL	8,186.0	2.16	51.66	8,056.46	773.41	1,045.15	1,300.14	0.14	-0.14	0.03	179.50
	NORMAL	8,281.0	2.08	56.22	8,151.39	775.48	1,047.99	1,303.65	0.20	-0.08	4.80	117.64
5/21/2014	NORMAL	8,376.0	2.25	58.04	8,246.32	777.42	1,051.00	1,307.23	0.19	0.18	1.92	22.93
	NORMAL	8,471.0	1.86	75.91	8,341.26	778.78	1,054.08	1,310.52	0.78	-0.41	18.81	130.05
	NORMAL	8,565.0	2.22	89.90	8,435.20	779.16	1,057.38	1,313.41	0.65	0.38	14.88	61.26
	NORMAL	8,660.0	1.50	106.65	8,530.15	778.81	1,060.41	1,315.66	0.94	-0.76	17.63	151.12
	NORMAL	8,755.0	1.12	109.84	8,625.13	778.13	1,062.47	1,316.94	0.41	-0.40	3.36	170.73
	NORMAL	8,850.0	0.96	133.49	8,720.11	777.27	1,063.92	1,317.60	0.48	-0.17	24.89	122.00
	NORMAL	8,945.0	0.62	153.19	8,815.11	776.26	1,064.73	1,317.66	0.45	-0.36	20.74	150.95
	NORMAL	9,039.0	0.83	142.22	8,909.10	775.27	1,065.38	1,317.60	0.27	0.22	-11.67	320.97
	NORMAL	9,134.0	0.87	158.45	9,004.09	774.06	1,066.07	1,317.45	0.26	0.04	17.08	88.74
	NORMAL	9,229.0	0.89	185.00	9,099.08	772.65	1,066.27	1,316.78	0.43	0.02	27.95	100.52
	NORMAL	9,324.0	0.83	204.62	9,194.07	771.29	1,065.92	1,315.70	0.31	-0.06	20.65	111.22
	NORMAL	9,418.0	1.01	211.70	9,288.06	769.97	1,065.20	1,314.34	0.23	0.19	7.53	35.85
5/22/2014	NORMAL	9,513.0	1.32	219.53	9,383.04	768.41	1,064.06	1,312.50	0.37	0.33	8.24	31.13
	NORMAL	9,608.0	0.64	213.96	9,478.02	767.13	1,063.07	1,310.95	0.72	-0.72	-5.86	185.20
	NORMAL	9,703.0	0.80	195.90	9,573.01	766.05	1,062.59	1,309.93	0.29	0.17	-19.01	295.93
	NORMAL	9,798.0	0.74	202.11	9,668.01	764.84	1,062.18	1,308.88	0.11	-0.06	6.54	128.79
	NORMAL	9,892.0	0.66	188.00	9,762.00	763.74	1,061.87	1,307.99	0.20	-0.09	-15.01	238.16
	NORMAL	9,987.0	0.62	182.60	9,856.99	762.69	1,061.77	1,307.29	0.08	-0.04	-5.68	233.77
	NORMAL	10,082.0	1.01	202.52	9,951.98	761.40	1,061.43	1,306.26	0.50	0.41	20.97	46.23
	NORMAL	10,177.0	0.98	213.95	10,046.97	759.96	1,060.66	1,304.78	0.21	-0.03	12.03	104.28
	NORMAL	10,272.0	1.26	206.68	10,141.95	758.35	1,059.73	1,303.09	0.33	0.29	-7.65	329.43
5/23/2014	NORMAL	10,366.0	1.57	218.25	10,235.92	756.41	1,058.47	1,300.93	0.45	0.33	12.31	48.55
	NORMAL	10,460.0	0.95	204.39	10,329.90	754.69	1,057.35	1,299.01	0.73	-0.66	-14.74	199.36
	NORMAL	10,555.0	1.21	204.79	10,424.88	753.06	1,056.61	1,297.45	0.27	0.27	0.42	1.86
	NORMAL	10,650.0	0.20	327.09	10,519.88	752.29	1,056.10	1,296.59	1.40	-1.06	128.74	172.68
	NORMAL	10,745.0	0.13	227.76	10,614.88	752.36	1,055.93	1,296.49	0.27	-0.07	-104.56	210.12
	NORMAL	10,839.0	0.91	133.36	10,708.87	751.78	1,056.39	1,296.52	0.99	0.83	-100.43	257.58
	NORMAL	10,934.0	1.24	117.48	10,803.86	750.78	1,057.85	1,297.12	0.46	0.35	-16.72	309.80
	NORMAL	11,029.0	1.06	126.80	10,898.84	749.78	1,059.47	1,297.84	0.27	-0.19	9.81	138.50
	NORMAL	11,123.0	1.02	159.01	10,992.82	748.48	1,060.46	1,297.88	0.62	-0.04	34.27	109.91
5/24/2014	NORMAL	11,218.0	1.31	145.00	11,087.80	746.80	1,061.39	1,297.64	0.43	0.31	-14.75	308.37
	NORMAL	11,312.0	1.00	239.97	11,181.79	745.51	1,061.29	1,296.81	1.82	-0.33	101.03	144.49
	NORMAL	11,407.0	1.99	272.31	11,276.76	745.16	1,058.93	1,294.69	1.33	1.04	34.04	57.37
	NORMAL	11,502.0	2.03	318.62	11,371.71	746.49	1,056.17	1,293.23	1.66	0.04	48.75	111.81
	NORMAL	11,597.0	1.75	326.33	11,466.66	748.98	1,054.25	1,293.14	0.40	-0.29	8.12	141.57
	NORMAL	11,692.0	1.28	317.72	11,561.62	750.95	1,052.73	1,293.08	0.55	-0.49	-9.06	201.58
	NORMAL	11,786.0	1.43	313.16	11,655.60	752.53	1,051.17	1,292.74	0.20	0.16	-4.85	322.00
	NORMAL	11,881.0	1.21	311.04	11,750.57	754.00	1,049.55	1,292.30	0.24	-0.23	-2.23	191.46
	NORMAL	11,975.0	0.74	289.59	11,844.56	754.86	1,048.23	1,291.73	0.62	-0.50	-22.82	207.44
	NORMAL	12,070.0	0.47	293.52	11,939.55	755.22	1,047.29	1,291.19	0.29	-0.28	4.14	173.22
	NORMAL	12,165.0	1.31	267.42	12,034.54	755.32	1,045.85	1,290.08	0.96	0.88	-27.47	320.79
	NORMAL	12,260.0	1.25	254.41	12,129.52	755.00	1,043.77	1,288.20	0.31	-0.06	-13.69	251.88
	NORMAL	12,354.0	0.66	256.41	12,223.51	754.59	1,042.26	1,286.74	0.63	-0.63	2.13	177.77
	NORMAL	12,449.0	0.54	274.28	12,318.50	754.50	1,041.28	1,285.89	0.23	-0.13	18.81	131.39
5/25/2014	NORMAL	12,543.0	0.28	332.76	12,412.50	754.74	1,040.73	1,285.59	0.49	-0.28	62.21	148.77

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	EW (ft)	V. sec. (ft)	DLS (%/100usft)	Buidl Rate (%/100usft)	Turn (%/100usft )	Tface (°)
5/25/2014	NORMAL	12,638.0	0.32	54.40	12,507.50	755.10	1,040.84	1,285.89	0.41	0.04	85.94	126.41
	NORMAL	12,733.0	0.53	47.32	12,602.50	755.55	1,041.38	1,286.59	0.23	0.22	-7.45	342.40
	NORMAL	12,828.0	0.21	71.43	12,697.49	755.90	1,041.87	1,287.20	0.37	-0.34	25.38	165.77
	NORMAL	12,905.0	0.21	71.43	12,774.47	755.99	1,042.13	1,287.47	0.00	0.00	0.00	0.00