

## 1 General

### 1.1 Customer Information

Company	PICEANCE HL
Representative	Eric Kolstad
Address	1515 Arapahoe St., Suite 1000 Denver, CO 80202

### 1.2 Well Information

Well	RGU 344-24-198	Wellbore No.	OH
Well Name	FEDERAL RGU 344-24-198	Common Name	RGU 344-24-198
Project	RG 25-01S-098W	Site	RGU 31-25-198 Pad
Vertical Section Azimuth	54.70 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	2/25/2011	UWI	RGU 344-24-198
Active Datum	KELLY BUSHING @6,661.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	2/25/2011	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 (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
2/25/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2/25/2011	NORMAL	151.0	1.40	57.80	150.98	0.98	1.56	1.84	0.93	0.93	0.00	57.80
	NORMAL	306.0	4.30	59.90	305.78	4.91	8.19	9.52	1.87	1.87	1.35	3.11
	NORMAL	398.0	6.60	53.80	397.36	9.76	15.44	18.24	2.57	2.50	-6.63	342.81
	NORMAL	490.0	8.80	53.30	488.52	17.09	25.35	30.57	2.39	2.39	-0.54	358.01
	NORMAL	582.0	11.00	56.30	579.15	26.17	38.30	46.38	2.46	2.39	3.26	14.68
	NORMAL	675.0	13.00	53.10	670.11	37.37	54.05	65.71	2.27	2.15	-3.44	340.03
	NORMAL	767.0	12.90	52.40	759.77	49.85	70.46	86.31	0.20	-0.11	-0.76	237.14
	NORMAL	859.0	12.80	51.50	849.47	62.46	86.57	106.75	0.24	-0.11	-0.98	243.01
	NORMAL	951.0	12.00	51.50	939.32	74.76	102.03	126.47	0.87	-0.87	0.00	180.00
	NORMAL	1,045.0	12.90	54.10	1,031.11	86.99	118.18	146.72	1.13	0.96	2.77	33.19
	NORMAL	1,140.0	12.20	53.10	1,123.84	99.24	134.80	167.36	0.77	-0.74	-1.05	196.76
	NORMAL	1,235.0	13.50	57.30	1,216.46	111.26	152.16	188.47	1.68	1.37	4.42	37.76
	NORMAL	1,329.0	13.20	54.40	1,307.92	123.43	170.12	210.17	0.78	-0.32	-3.09	244.46
	NORMAL	1,423.0	13.60	61.30	1,399.37	134.99	188.54	231.88	1.75	0.43	7.34	79.33
	NORMAL	1,517.0	13.10	58.90	1,490.83	145.80	207.35	253.48	0.79	-0.53	-2.55	226.78
	NORMAL	1,612.0	13.50	60.90	1,583.28	156.75	226.26	275.24	0.64	0.42	2.11	49.97
	NORMAL	1,707.0	13.00	60.30	1,675.75	167.44	245.23	296.90	0.55	-0.53	-0.63	195.09
	NORMAL	1,799.0	12.70	60.80	1,765.45	177.50	263.05	317.25	0.35	-0.33	0.54	159.91
2/26/2011	NORMAL	1,894.0	13.60	61.10	1,857.95	187.99	281.94	338.74	0.95	0.95	0.32	4.48

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (%/100ft)	Build Rate (%/100ft)	Turn (%/100ft)	TFace (°)
2/26/2011	NORMAL	1,988.0	13.20	61.90	1,949.39	198.39	301.09	360.37	0.47	-0.43	0.85	155.52
	NORMAL	2,082.0	14.70	56.00	2,040.62	210.11	320.44	382.94	2.20	1.60	-6.28	313.63
	NORMAL	2,176.0	14.90	57.30	2,131.51	223.31	340.50	406.94	0.41	0.21	1.38	59.57
	NORMAL	2,269.0	14.40	54.30	2,221.48	236.52	359.95	430.45	0.98	-0.54	-3.23	235.17
	NORMAL	2,364.0	14.60	55.30	2,313.46	250.23	379.39	454.23	0.34	0.21	1.05	51.87
	NORMAL	2,645.0	13.10	50.10	2,586.29	290.82	432.94	521.39	0.69	-0.53	-1.85	217.18
	NORMAL	2,740.0	12.40	47.30	2,678.95	304.65	448.70	542.24	0.98	-0.74	-2.95	220.08
	NORMAL	2,834.0	12.10	49.60	2,770.81	317.88	463.62	562.06	0.61	-0.32	2.45	122.70
	NORMAL	2,929.0	12.60	45.50	2,863.61	331.59	478.59	582.21	1.06	0.53	-4.32	297.68
	NORMAL	3,023.0	13.60	47.00	2,955.16	346.32	493.99	603.28	1.12	1.06	1.60	19.51
	NORMAL	3,117.0	13.10	49.10	3,046.62	360.83	510.12	624.84	0.74	-0.53	2.23	136.90
	NORMAL	3,211.0	13.00	48.90	3,138.20	374.75	526.14	645.96	0.12	-0.11	-0.21	204.21
	NORMAL	3,305.0	12.40	51.90	3,229.90	387.93	542.05	666.56	0.95	-0.64	3.19	133.75
	NORMAL	3,400.0	12.60	50.00	3,322.65	400.88	558.02	687.07	0.48	0.21	-2.00	295.01
	NORMAL	3,494.0	14.20	57.10	3,414.09	413.74	575.55	708.81	2.44	1.70	7.55	49.29
2/27/2011	NORMAL	3,588.0	13.90	55.80	3,505.28	426.35	594.57	731.62	0.46	-0.32	-1.38	225.82
	NORMAL	3,683.0	13.40	54.90	3,597.59	439.09	613.01	754.04	0.57	-0.53	-0.95	202.58
	NORMAL	3,777.0	13.50	55.40	3,689.02	451.58	630.96	775.90	0.16	0.11	0.53	49.55
3/1/2011	NORMAL	3,871.0	12.40	54.50	3,780.62	463.68	648.21	796.96	1.19	-1.17	-0.96	189.95
	NORMAL	3,965.0	13.20	54.30	3,872.29	475.80	665.14	817.79	0.85	0.85	-0.21	356.73
	NORMAL	4,059.0	12.60	53.80	3,963.92	488.12	682.13	838.77	0.65	-0.64	-0.53	190.30
3/2/2011	NORMAL	4,153.0	13.00	57.60	4,055.58	499.84	699.33	859.58	0.99	0.43	4.04	66.45
	NORMAL	4,369.0	9.60	57.30	4,267.36	522.59	735.01	901.85	1.57	-1.57	-0.14	180.84
	NORMAL	4,464.0	9.10	55.30	4,361.10	531.15	747.85	917.28	0.63	-0.53	-2.11	212.03
	NORMAL	4,559.0	9.20	55.80	4,454.89	539.70	760.31	932.38	0.13	0.11	0.53	38.74
	NORMAL	4,653.0	9.40	58.10	4,547.66	547.98	773.04	947.56	0.45	0.21	2.45	62.85
	NORMAL	4,747.0	10.10	59.40	4,640.30	556.23	786.65	963.44	0.78	0.74	1.38	18.10
	NORMAL	4,842.0	10.70	59.80	4,733.74	564.90	801.44	980.52	0.64	0.63	0.42	7.06
	NORMAL	4,936.0	10.80	58.80	4,826.09	573.86	816.52	998.00	0.23	0.11	-1.06	297.70
	NORMAL	5,030.0	10.50	55.20	4,918.47	583.31	831.09	1,015.35	0.78	-0.32	-3.83	243.97
	NORMAL	5,125.0	10.50	57.40	5,011.88	592.91	845.49	1,032.65	0.42	0.00	2.32	91.08
	NORMAL	5,219.0	10.70	58.10	5,104.27	602.14	860.11	1,049.92	0.25	0.21	0.74	33.12
	NORMAL	5,313.0	10.50	55.70	5,196.67	611.57	874.59	1,067.19	0.52	-0.21	-2.55	244.45
	NORMAL	5,408.0	9.90	55.50	5,290.17	621.08	888.48	1,084.01	0.63	-0.63	-0.21	183.28
	NORMAL	5,502.0	11.10	60.60	5,382.60	630.10	903.02	1,101.10	1.61	1.28	5.43	40.28
	NORMAL	5,597.0	11.30	52.70	5,475.79	640.23	918.39	1,119.49	1.63	0.21	-8.32	273.54
3/3/2011	NORMAL	5,692.0	11.90	51.70	5,568.85	651.94	933.48	1,138.58	0.67	0.63	-1.05	340.98
	NORMAL	5,786.0	12.80	54.50	5,660.68	663.99	949.57	1,158.67	1.15	0.96	2.98	35.01
	NORMAL	5,881.0	12.90	51.10	5,753.30	676.76	966.39	1,179.78	0.80	0.11	-3.58	275.87
	NORMAL	5,975.0	11.90	51.60	5,845.10	689.37	982.15	1,199.93	1.07	-1.06	0.53	174.12
	NORMAL	6,070.0	12.80	53.40	5,937.90	701.73	998.27	1,220.23	1.03	0.95	1.89	24.04
	NORMAL	6,164.0	1.20	53.50	6,031.04	708.55	1,007.45	1,231.66	12.34	-12.34	0.11	179.99
	NORMAL	6,258.0	12.80	53.50	6,124.18	715.35	1,016.65	1,243.10	12.34	12.34	0.00	0.00
	NORMAL	6,352.0	12.70	49.90	6,215.87	728.20	1,032.92	1,263.80	0.85	-0.11	-3.83	261.07
	NORMAL	6,447.0	12.10	49.70	6,308.65	741.37	1,048.50	1,284.13	0.63	-0.63	-0.21	184.00
	NORMAL	6,541.0	1.60	50.70	6,401.85	748.59	1,057.06	1,295.28	11.17	-11.17	1.06	179.85
	NORMAL	6,636.0	31.10	52.60	6,492.01	764.69	1,078.04	1,321.71	31.05	31.05	2.00	1.99
	NORMAL	6,731.0	13.10	55.20	6,579.67	785.91	1,106.61	1,357.29	18.97	-18.95	2.74	178.10
	NORMAL	6,826.0	12.90	57.20	6,672.23	797.80	1,124.36	1,378.65	0.52	-0.21	2.11	114.94
	NORMAL	6,921.0	12.30	55.30	6,764.94	809.31	1,141.60	1,399.36	0.77	-0.63	-2.00	213.71
	NORMAL	7,014.0	10.50	55.10	6,856.10	819.79	1,156.69	1,417.74	1.94	-1.94	-0.22	181.16
3/3/2011	NORMAL	7,108.0	8.30	55.50	6,948.84	828.54	1,169.31	1,433.09	2.34	-2.34	0.43	178.50
	NORMAL	7,204.0	7.70	52.80	7,043.90	836.35	1,180.14	1,446.45	0.74	-0.63	-2.81	210.73
	NORMAL	7,298.0	6.80	51.80	7,137.15	843.60	1,189.53	1,458.30	0.97	-0.96	-1.06	187.49
	NORMAL	7,392.0	4.70	50.70	7,230.67	849.48	1,196.89	1,467.70	2.24	-2.23	-1.17	182.46
	NORMAL	7,486.0	4.30	53.40	7,324.38	854.02	1,202.69	1,475.07	0.48	-0.43	2.87	153.44
	NORMAL	7,579.0	4.10	50.60	7,417.13	858.21	1,208.06	1,481.87	0.31	-0.22	-3.01	224.33



## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (%/100ft)	Build Rate (%/100ft)	Turn (%/100ft)	TFace (°)
3/3/2011	NORMAL	7,672.0	3.30	57.50	7,509.94	861.76	1,212.89	1,487.86	0.98	-0.86	7.42	154.31
	NORMAL	7,766.0	3.30	62.30	7,603.78	864.47	1,217.57	1,493.24	0.29	0.00	5.11	92.40
	NORMAL	7,859.0	2.90	62.50	7,696.65	866.80	1,222.02	1,498.23	0.43	-0.43	0.22	178.55
	NORMAL	7,953.0	3.20	68.10	7,790.51	868.88	1,226.57	1,503.14	0.45	0.32	5.96	47.62
	NORMAL	8,046.0	2.40	53.70	7,883.40	871.00	1,230.54	1,507.61	1.14	-0.86	-15.48	214.28
3/4/2011	NORMAL	8,139.0	1.80	56.40	7,976.34	872.96	1,233.33	1,511.01	0.65	-0.65	2.90	171.98
	NORMAL	8,232.0	2.30	63.50	8,069.28	874.60	1,236.22	1,514.32	0.60	0.54	7.63	30.51
	NORMAL	8,325.0	3.00	61.00	8,162.18	876.61	1,240.02	1,518.58	0.76	0.75	-2.69	349.37
	NORMAL	8,419.0	2.10	59.90	8,256.09	878.67	1,243.66	1,522.74	0.96	-0.96	-1.17	182.56
	NORMAL	8,513.0	2.20	65.40	8,350.02	880.28	1,246.79	1,526.23	0.24	0.11	5.85	66.91
	NORMAL	8,607.0	1.30	61.70	8,443.98	881.54	1,249.37	1,529.06	0.96	-0.96	-3.94	185.31
	NORMAL	8,700.0	0.60	57.40	8,536.96	882.30	1,250.71	1,530.59	0.76	-0.75	-4.62	183.67
	NORMAL	8,793.0	0.30	65.70	8,629.96	882.67	1,251.34	1,531.32	0.33	-0.32	8.92	171.87
	NORMAL	8,886.0	0.20	174.30	8,722.96	882.61	1,251.58	1,531.48	0.44	-0.11	116.77	152.48
	NORMAL	8,980.0	0.40	86.30	8,816.96	882.46	1,251.92	1,531.68	0.47	0.21	-93.62	245.04
	NORMAL	9,074.0			8,910.96	882.48	1,252.25	1,532.23	0.43	-0.43	0.00	180.00
	NORMAL	9,168.0			9,004.96	882.48	1,252.25	1,532.51	0.00	0.00	0.00	0.00
	NORMAL	9,073.0	0.40	23.30	8,909.96	882.78	1,252.37	1,532.23	0.45	0.00	-67.74	238.50
3/5/2011	NORMAL	9,167.0	0.00	61.20	9,003.95	883.08	1,252.50	1,531.96	0.43	-0.43	0.00	180.00
	NORMAL	9,260.0	0.50	212.50	9,096.95	882.74	1,252.28	1,531.58	0.54	0.54	0.00	212.50
	NORMAL	9,354.0	0.60	241.60	9,190.95	882.16	1,251.63	1,531.27	0.31	0.11	30.96	85.25
	NORMAL	9,447.0	0.60	250.20	9,283.94	881.76	1,250.74	1,530.31	0.10	0.00	9.25	94.30
	NORMAL	9,540.0	0.60	215.90	9,376.94	881.21	1,250.00	1,529.38	0.38	0.00	-36.88	252.85
	NORMAL	9,634.0	0.70	178.00	9,470.93	880.23	1,249.73	1,528.60	0.46	0.11	-40.32	263.68
	NORMAL	9,728.0	0.80	171.00	9,564.93	879.01	1,249.85	1,528.00	0.14	0.11	-7.45	313.97
	NORMAL	9,822.0	1.40	151.50	9,658.91	877.35	1,250.51	1,527.57	0.74	0.64	-20.74	318.04
	NORMAL	9,916.0	0.60	151.50	9,752.89	875.91	1,251.29	1,527.38	0.85	-0.85	0.00	180.00
	NORMAL	10,009.0	0.90	178.50	9,845.89	874.75	1,251.54	1,526.91	0.49	0.32	29.03	63.70
	NORMAL	10,104.0	0.30	218.60	9,940.88	873.81	1,251.40	1,526.26	0.73	-0.63	42.21	163.92
	NORMAL	10,198.0	1.00	266.40	10,034.87	873.57	1,250.43	1,525.32	0.88	0.74	50.85	63.35
	NORMAL	10,292.0	0.90	290.80	10,128.86	873.78	1,248.92	1,524.21	0.44	-0.11	25.96	115.88
3/6/2011	NORMAL	10,386.0			10,222.86	874.04	1,248.23	1,523.39	0.96	-0.96	0.00	180.00
	NORMAL	10,386.0	0.60	268.30	10,222.85	874.03	1,247.74	1,523.39	0.44	-0.32	-23.94	213.59
	NORMAL	10,480.0	0.20	221.40	10,316.85	873.89	1,247.14	1,523.64	0.52	-0.43	-49.89	197.49
	NORMAL	10,574.0	0.30	204.10	10,410.85	873.54	1,246.93	1,522.45	0.13	0.11	-18.40	314.09
	NORMAL	10,668.0	0.40	187.80	10,504.85	872.99	1,246.79	1,522.01	0.15	0.11	-17.34	306.78
	NORMAL	10,761.0	0.80	186.70	10,597.84	872.03	1,246.67	1,521.36	0.43	0.43	-1.18	357.80
	NORMAL	10,855.0	1.10	168.90	10,691.83	870.49	1,246.76	1,520.55	0.44	0.32	-18.94	306.34
	NORMAL	10,949.0	0.10	214.60	10,785.82	869.54	1,246.89	1,520.10	1.10	-1.06	48.62	176.03
	NORMAL	11,042.0	0.60	232.30	10,878.82	869.17	1,246.46	1,519.54	0.54	0.54	19.03	21.15
	NORMAL	11,136.0	0.50	348.90	10,972.82	869.27	1,245.99	1,519.22	1.00	-0.11	124.04	151.51
	NORMAL	11,229.0	0.40	333.70	11,065.82	869.96	1,245.77	1,519.43	0.17	-0.11	-16.34	222.61
	NORMAL	11,324.0	0.90	348.50	11,160.81	870.99	1,245.47	1,519.79	0.55	0.53	15.58	26.06
	NORMAL	11,417.0	0.80	340.80	11,253.80	872.32	1,245.11	1,520.26	0.16	-0.11	-8.28	224.99
3/7/2011	NORMAL	11,512.0	0.60	337.20	11,348.79	873.40	1,244.70	1,520.55	0.22	-0.21	-3.79	190.61
	NORMAL	11,605.0	0.40	327.70	11,441.79	874.13	1,244.34	1,520.68	0.23	-0.22	-10.22	197.81
	NORMAL	11,699.0	0.30	334.00	11,535.79	874.63	1,244.06	1,520.73	0.11	-0.11	6.70	162.08
	NORMAL	11,794.0	0.40	344.10	11,630.79	875.17	1,243.86	1,520.88	0.12	0.11	10.63	36.79
	NORMAL	11,888.0	0.30	27.50	11,724.78	875.70	1,243.88	1,521.21	0.29	-0.11	46.17	131.45
	NORMAL	11,982.0			11,818.78	875.92	1,244.00	1,521.43	0.32	-0.32	0.00	180.00
	NORMAL	11,982.0	0.50	32.50	11,818.78	876.27	1,244.22	1,521.43	0.22	0.21	5.32	12.41
	NORMAL	12,076.0	0.50	11.70	11,912.78	877.01	1,244.52	1,522.49	0.19	0.00	-22.13	259.60
	NORMAL	12,170.0	0.80	11.00	12,006.77	878.06	1,244.73	1,523.26	0.32	0.32	-0.74	358.13
	NORMAL	12,264.0	1.10	358.10	12,100.76	879.61	1,244.82	1,524.23	0.39	0.32	-13.72	317.95
	NORMAL	12,358.0	1.30	5.50	12,194.74	881.57	1,244.90	1,525.43	0.27	0.21	7.87	41.51
	NORMAL	12,452.0			12,288.73	882.63	1,245.00	1,526.12	1.38	-1.38	0.00	180.00
	NORMAL	12,453.0	1.30	22.70	12,289.73	882.64	1,245.00	1,526.13	130.00	130.00	0.00	22.70

## 2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLS (°/100ft)	Build Rate (°/100ft)	Turn (°/100ft)	TFace (°)
3/10/2011	NORMAL	12,547.0	2.10	27.80	12,383.69	885.15	1,246.22	1,528.57	0.87	0.85	5.43	13.27
	NORMAL	12,641.0	2.70	22.90	12,477.61	888.71	1,247.88	1,531.99	0.67	0.64	-5.21	338.66
	NORMAL	12,736.0	2.40	22.00	12,572.51	892.62	1,249.50	1,535.57	0.32	-0.32	-0.95	187.15
	NORMAL	12,829.0	2.10	29.00	12,665.44	895.91	1,251.05	1,538.74	0.44	-0.32	7.53	140.97
	NORMAL	12,910.0	2.30	29.00	12,746.38	898.63	1,252.56	1,541.54	0.25	0.25	0.00	0.00
	NORMAL	12,960.0	2.50	29.00	12,796.34	900.46	1,253.58	1,543.43	0.40	0.40	0.00	0.00