

**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 21-24-198	Wellbore No.	
Well Name	FEDERAL RGU 21-24-198	Common Name	RGU 21-24-198
Project	RG 24-01S-098W	Site	RGU 31-24-198 Pad
Vertical Section Azimuth	309.64 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	1/28/2013	UWI	RGU 21-24-198
Active Datum	KB @6,567.0ft (above Mean Sea Level)		

**2 Survey Name**

**2.1 Survey Name: Survey #1**

Survey Name	Survey #1	Company	
Date Started	1/28/2013	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**

10136

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 (°)
1/28/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/28/2013	NORMAL	246.0	2.14	307.01	245.94	2.77	-3.67	4.59	0.87	0.87	0.00	307.01
	NORMAL	338.0	3.11	314.78	337.85	5.56	-6.81	8.79	1.12	1.05	8.45	24.06
	NORMAL	430.0	4.53	313.57	429.64	9.82	-11.22	14.90	1.55	1.54	-1.32	356.15
	NORMAL	523.0	7.03	320.06	522.16	16.72	-17.53	24.16	2.77	2.69	6.98	17.90
	NORMAL	615.0	9.31	316.46	613.22	26.43	-26.27	37.09	2.54	2.48	-3.91	345.57
	NORMAL	707.0	11.48	309.50	703.71	37.65	-38.47	53.64	2.72	2.36	-7.57	326.49
	NORMAL	799.0	14.33	309.09	793.38	50.65	-54.37	74.18	3.10	3.10	-0.45	357.96
	NORMAL	892.0	16.03	308.22	883.13	65.85	-73.39	98.53	1.84	1.83	-0.94	351.95
1/29/2013	NORMAL	246.0	2.14	307.01	245.94	2.77	-3.67	4.59	0.00	0.00	0.00	0.00
	NORMAL	338.0	3.11	314.78	337.85	5.56	-6.81	8.79	0.00	0.00	0.00	0.00
	NORMAL	430.0	4.53	313.57	429.64	9.82	-11.22	14.90	1.55	1.54	-1.32	356.15
	NORMAL	523.0	7.03	320.06	522.16	16.72	-17.53	24.16	0.00	0.00	0.00	0.00
	NORMAL	615.0	9.31	316.46	613.22	26.43	-26.27	37.09	0.00	0.00	0.00	0.00
	NORMAL	707.0	11.48	309.50	703.71	37.65	-38.47	53.64	2.72	2.36	-7.57	326.49
	NORMAL	799.0	14.33	309.09	793.38	50.65	-54.37	74.18	3.10	3.10	-0.45	357.96
	NORMAL	892.0	16.03	308.22	883.13	65.85	-73.39	98.53	0.00	0.00	0.00	0.00
	NORMAL	984.0	16.01	307.77	971.55	81.48	-93.40	123.91	0.14	-0.02	-0.49	260.64
	NORMAL	1,082.0	15.68	306.66	1,065.83	97.67	-114.71	150.64	0.46	-0.34	-1.13	222.03
	NORMAL	1,177.0	15.68	303.45	1,157.30	112.41	-135.72	176.22	0.91	0.00	-3.38	268.45

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 (°)
1/29/2013	NORMAL	1,271.0	16.36	304.17	1,247.65	126.85	-157.27	202.03	0.75	0.72	0.77	16.64
	NORMAL	1,366.0	16.00	305.40	1,338.88	141.95	-179.01	228.41	0.52	-0.38	1.29	137.00
	NORMAL	1,460.0	14.95	308.21	1,429.48	156.95	-199.10	253.45	1.37	-1.12	2.99	145.82
	NORMAL	1,555.0	14.42	307.51	1,521.37	171.73	-218.11	277.52	0.59	-0.56	-0.74	198.17
	NORMAL	1,649.0	14.42	311.46	1,612.41	186.61	-236.17	300.91	1.05	0.00	4.20	91.91
	NORMAL	1,744.0	16.62	316.56	1,703.95	204.31	-254.38	326.23	2.72	2.32	5.37	34.29
	NORMAL	1,838.0	16.63	316.54	1,794.02	223.83	-272.87	352.93	0.01	0.01	-0.02	330.21
	NORMAL	1,933.0	16.80	316.21	1,885.00	243.61	-291.72	380.06	0.20	0.18	-0.35	330.67
	NORMAL	2,027.0	17.32	313.31	1,974.87	263.02	-311.31	407.52	1.06	0.55	-3.09	300.04
	NORMAL	2,121.0	17.06	312.43	2,064.67	281.92	-331.66	435.26	0.39	-0.28	-0.94	224.59
	NORMAL	2,593.0	15.30	312.08	2,517.96	370.37	-429.00	566.64	0.37	-0.37	-0.07	183.00
	NORMAL	2,960.0	13.63	310.94	2,873.31	431.16	-497.60	658.25	0.46	-0.46	-0.31	189.13
	NORMAL	3,054.0	13.28	309.62	2,964.73	445.30	-514.29	680.12	0.50	-0.37	-1.40	220.63
	NORMAL	3,148.0	12.22	308.83	3,056.41	458.43	-530.35	700.87	1.14	-1.13	-0.84	188.96
1/30/2013	NORMAL	3,243.0	11.61	306.19	3,149.37	470.37	-545.90	720.46	0.86	-0.64	-2.78	220.50
	NORMAL	3,337.0	11.70	301.88	3,241.43	480.99	-561.63	739.35	0.93	0.10	-4.59	273.79
	NORMAL	3,432.0	12.05	302.85	3,334.40	491.46	-578.14	758.74	0.42	0.37	1.02	30.17
	NORMAL	3,526.0	14.42	309.88	3,425.90	504.29	-595.37	780.19	3.04	2.52	7.48	37.64
	NORMAL	3,620.0	15.39	310.58	3,516.74	519.91	-613.82	804.37	1.05	1.03	0.74	10.85
	NORMAL	3,714.0	15.56	311.38	3,607.33	536.36	-632.76	829.44	0.29	0.18	0.85	51.85
	NORMAL	3,809.0	15.30	310.67	3,698.90	552.95	-651.82	854.71	0.34	-0.27	-0.75	215.66
2/2/2013	NORMAL	3,903.0	14.25	309.09	3,789.80	568.33	-670.21	878.68	1.20	-1.12	-1.68	200.23
	NORMAL	3,994.0	12.31	307.95	3,878.36	581.36	-686.55	899.58	2.15	-2.13	-1.25	187.13
	NORMAL	4,088.0	11.08	307.60	3,970.40	593.03	-701.61	918.62	1.31	-1.31	-0.37	183.13
	NORMAL	4,183.0	12.31	318.76	4,063.44	606.22	-715.52	937.74	2.70	1.29	11.75	67.07
	NORMAL	4,277.0	12.31	317.88	4,155.28	621.18	-728.85	957.56	0.20	0.00	-0.94	269.57
	NORMAL	4,370.0	12.20	316.33	4,246.16	635.64	-742.28	977.13	0.37	-0.12	-1.67	250.76
	NORMAL	4,465.0	14.33	314.63	4,338.62	651.17	-757.58	998.81	2.28	2.24	-1.79	348.79
	NORMAL	4,559.0	16.88	312.43	4,429.15	668.55	-775.94	1,024.03	2.78	2.71	-2.34	345.87
	NORMAL	4,653.0	15.48	305.84	4,519.43	685.10	-796.18	1,050.19	2.45	-1.49	-7.01	229.54
	NORMAL	4,748.0	16.71	310.76	4,610.71	701.45	-816.81	1,076.49	1.93	1.29	5.18	50.34
	NORMAL	4,842.0	15.65	311.99	4,700.99	718.75	-836.47	1,102.67	1.19	-1.13	1.31	162.67
	NORMAL	4,936.0	15.48	308.56	4,791.54	735.05	-855.70	1,127.88	1.00	-0.18	-3.65	257.88
	NORMAL	5,031.0	14.86	306.19	4,883.23	750.15	-875.45	1,152.72	0.92	-0.65	-2.49	223.87
	NORMAL	5,125.0	15.04	309.44	4,974.05	765.01	-894.59	1,176.95	0.91	0.19	3.46	79.46
2/3/2013	NORMAL	5,218.0	14.77	312.52	5,063.93	780.69	-912.65	1,200.85	0.90	-0.29	3.31	110.30
	NORMAL	5,312.0	14.33	310.58	5,154.91	796.36	-930.32	1,224.45	0.70	-0.47	-2.06	226.99
	NORMAL	5,407.0	15.97	312.96	5,246.61	812.91	-948.81	1,249.26	1.85	1.73	2.51	21.92
	NORMAL	5,501.0	15.57	314.66	5,337.07	830.59	-967.25	1,274.73	0.65	-0.43	1.81	131.70
	NORMAL	5,596.0	15.99	312.76	5,428.49	848.44	-985.92	1,300.50	0.70	0.44	-2.00	308.19
	NORMAL	5,690.0	15.94	307.46	5,518.87	865.08	-1,005.68	1,326.33	1.55	-0.05	-5.64	265.48
	NORMAL	5,784.0	17.76	309.97	5,608.83	882.14	-1,026.91	1,353.57	2.08	1.94	2.67	22.99
	NORMAL	5,879.0	18.29	311.64	5,699.17	901.35	-1,049.16	1,382.95	0.78	0.56	1.76	45.07
	NORMAL	5,973.0	16.00	309.00	5,788.99	919.31	-1,070.25	1,410.65	2.57	-2.44	-2.81	197.57
	NORMAL	6,068.0	15.12	311.81	5,880.50	935.81	-1,089.66	1,436.13	1.22	-0.93	2.96	140.77
	NORMAL	6,162.0	16.53	312.89	5,970.94	953.09	-1,108.60	1,461.73	1.53	1.50	1.15	12.32
	NORMAL	6,257.0	15.14	316.45	6,062.33	971.28	-1,127.05	1,487.54	1.78	-1.46	3.75	146.76
	NORMAL	6,351.0	15.79	316.59	6,152.93	989.46	-1,144.30	1,512.43	0.69	0.69	0.15	3.35
	NORMAL	6,445.0	15.95	314.06	6,243.35	1,007.74	-1,162.37	1,538.00	0.76	0.17	-2.69	281.80
NORMAL	6,539.0	14.33	310.32	6,334.09	1,024.25	-1,180.52	1,562.51	2.01	-1.72	-3.98	209.29	
NORMAL	6,633.0	14.62	304.74	6,425.11	1,038.54	-1,199.14	1,585.96	1.51	0.31	-5.94	279.04	
NORMAL	6,727.0	13.19	303.20	6,516.35	1,051.17	-1,217.86	1,608.44	1.57	-1.52	-1.64	193.76	
NORMAL	6,822.0	13.87	296.97	6,608.72	1,062.27	-1,237.08	1,630.32	1.69	0.72	-6.56	291.96	
NORMAL	6,916.0	12.13	302.85	6,700.31	1,072.74	-1,255.42	1,651.12	2.32	-1.85	6.26	145.60	
NORMAL	7,010.0	10.99	303.03	6,792.40	1,082.98	-1,271.23	1,669.83	1.21	-1.21	0.19	178.28	
NORMAL	7,105.0	10.29	306.01	6,885.77	1,092.90	-1,285.68	1,687.29	0.94	-0.74	3.14	143.29	
NORMAL	7,200.0	8.97	310.23	6,979.43	1,102.68	-1,298.20	1,703.17	1.57	-1.39	4.44	153.93	

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 (°)
2/3/2013	NORMAL	7,294.0	7.56	318.41	7,072.45	1,112.03	-1,307.90	1,716.61	1.95	-1.50	8.70	144.17
	NORMAL	7,389.0	6.60	318.93	7,166.73	1,120.82	-1,315.64	1,728.17	1.01	-1.01	0.55	176.44
	NORMAL	7,483.0	5.54	319.55	7,260.20	1,128.35	-1,322.13	1,737.98	1.13	-1.13	0.66	176.77
	NORMAL	7,577.0	4.31	322.63	7,353.85	1,134.61	-1,327.22	1,745.89	1.34	-1.31	3.28	169.40
	NORMAL	7,672.0	3.17	338.53	7,448.65	1,139.89	-1,330.35	1,751.67	1.61	-1.20	16.74	145.45
	NORMAL	7,766.0	2.73	339.50	7,542.52	1,144.41	-1,332.08	1,755.88	0.47	-0.47	1.03	174.01
	NORMAL	7,860.0	2.73	336.02	7,636.42	1,148.55	-1,333.78	1,759.83	0.18	0.00	-3.70	268.26
	NORMAL	7,955.0	2.37	335.02	7,731.32	1,152.40	-1,335.53	1,763.63	0.38	-0.38	-1.05	186.55
	NORMAL	8,049.0	2.29	325.17	7,825.25	1,155.70	-1,337.42	1,767.20	0.43	-0.09	-10.48	253.81
2/4/2013	NORMAL	8,144.0	1.49	311.46	7,920.19	1,158.08	-1,339.43	1,770.26	0.96	-0.84	-14.43	202.74
	NORMAL	8,238.0	1.23	307.77	8,014.17	1,159.50	-1,341.14	1,772.49	0.29	-0.28	-3.93	196.78
	NORMAL	8,333.0	1.06	61.50	8,109.16	1,160.55	-1,341.18	1,773.18	2.02	-0.18	119.72	149.63
	NORMAL	8,426.0	1.49	88.66	8,202.13	1,160.99	-1,339.21	1,771.95	0.79	0.46	29.20	68.66
	NORMAL	8,519.0	1.23	94.73	8,295.11	1,160.93	-1,337.01	1,770.22	0.32	-0.28	6.53	154.02
	NORMAL	8,614.0	0.70	104.39	8,390.09	1,160.70	-1,335.43	1,768.86	0.58	-0.56	10.17	167.73
	NORMAL	8,708.0	0.70	131.02	8,484.09	1,160.18	-1,334.44	1,767.76	0.34	0.00	28.33	103.3'
	NORMAL	8,802.0	0.62	133.13	8,578.08	1,159.46	-1,333.64	1,766.68	0.09	-0.09	2.24	164.15
	NORMAL	8,897.0	0.62	151.50	8,673.08	1,158.66	-1,333.02	1,765.69	0.21	0.00	19.34	99.18
	NORMAL	8,991.0	0.53	158.80	8,767.07	1,157.80	-1,332.62	1,764.84	0.12	-0.10	7.77	144.47
	NORMAL	9,086.0	0.79	150.36	8,862.06	1,156.82	-1,332.13	1,763.84	0.29	0.27	-8.88	335.24
	NORMAL	9,180.0	0.97	156.42	8,956.05	1,155.53	-1,331.49	1,762.53	0.22	0.19	6.45	30.39
	NORMAL	9,274.0	0.79	190.00	9,050.04	1,154.17	-1,331.29	1,761.50	0.57	-0.19	35.72	125.5'
	NORMAL	9,369.0	0.53	194.13	9,145.04	1,153.09	-1,331.51	1,760.98	0.28	-0.27	4.35	171.69
	NORMAL	9,463.0	0.62	204.15	9,239.03	1,152.21	-1,331.82	1,760.66	0.14	0.10	10.66	53.25
2/5/2013	NORMAL	9,556.0	0.79	200.81	9,332.03	1,151.15	-1,332.26	1,760.32	0.19	0.18	-3.59	344.74
	NORMAL	9,651.0	0.35	223.66	9,427.02	1,150.33	-1,332.69	1,760.13	0.51	-0.46	24.05	163.79
	NORMAL	9,744.0	0.53	181.30	9,520.02	1,149.69	-1,332.90	1,759.88	0.39	0.19	-45.55	276.65
	NORMAL	9,839.0	0.62	200.19	9,615.01	1,148.77	-1,333.08	1,759.44	0.22	0.09	19.88	74.25
	NORMAL	9,933.0	0.53	197.29	9,709.01	1,147.88	-1,333.39	1,759.10	0.10	-0.10	-3.09	196.47
	NORMAL	10,027.0	0.70	170.22	9,803.00	1,146.90	-1,333.42	1,758.50	0.35	0.18	-28.80	286.33
	NORMAL	10,121.0	0.26	169.52	9,897.00	1,146.12	-1,333.28	1,757.90	0.47	-0.47	-0.74	180.4'
	NORMAL	10,215.0	0.44	141.66	9,991.00	1,145.63	-1,333.02	1,757.38	0.26	0.19	-29.64	302.10
	NORMAL	10,310.0	0.62	105.01	10,085.99	1,145.21	-1,332.30	1,756.56	0.39	0.19	-38.58	278.82
	NORMAL	10,404.0	0.35	157.39	10,179.99	1,144.81	-1,331.70	1,755.84	0.52	-0.29	55.72	145.70
	NORMAL	10,498.0	0.44	237.81	10,273.99	1,144.36	-1,331.89	1,755.70	0.55	0.10	85.55	122.53
	NORMAL	10,593.0	0.70	229.72	10,368.98	1,143.79	-1,332.64	1,755.92	0.29	0.27	-8.52	338.73
	NORMAL	10,687.0	0.42	244.55	10,462.98	1,143.27	-1,333.39	1,756.16	0.33	-0.30	15.78	159.9'
2/6/2013	NORMAL	10,782.0	0.26	238.95	10,557.98	1,143.01	-1,333.89	1,756.38	0.17	-0.17	-5.89	188.94
	NORMAL	10,876.0	0.26	167.59	10,651.98	1,142.69	-1,334.03	1,756.28	0.32	0.00	-75.91	234.32
	NORMAL	10,971.0	0.26	175.32	10,746.98	1,142.26	-1,333.96	1,755.96	0.04	0.00	8.14	93.86
2/7/2013	NORMAL	11,061.0	0.35	264.27	10,836.98	1,142.03	-1,334.22	1,756.01	0.48	0.10	98.83	125.93
	NORMAL	11,156.0	0.26	298.63	10,931.97	1,142.11	-1,334.70	1,756.43	0.21	-0.09	36.17	132.69
	NORMAL	11,250.0	0.79	261.72	11,025.97	1,142.11	-1,335.53	1,757.07	0.64	0.56	-39.27	308.08
	NORMAL	11,344.0	0.53	145.79	11,119.97	1,141.66	-1,335.92	1,757.09	1.20	-0.28	-123.33	205.0'
	NORMAL	11,439.0	0.53	126.19	11,214.96	1,141.04	-1,335.32	1,756.23	0.19	0.00	-20.63	260.20
	NORMAL	11,533.0	0.97	138.67	11,308.95	1,140.18	-1,334.45	1,755.01	0.50	0.47	13.28	26.68
	NORMAL	11,628.0	0.79	167.76	11,403.94	1,138.94	-1,333.78	1,753.70	0.50	-0.19	30.62	126.06
	NORMAL	11,723.0	0.79	220.94	11,498.94	1,137.81	-1,334.07	1,753.20	0.74	0.00	55.98	116.59
	NORMAL	11,817.0	0.88	230.43	11,592.93	1,136.86	-1,335.05	1,753.35	0.18	0.10	10.10	61.75
2/8/2013	NORMAL	11,911.0	0.88	239.83	11,686.92	1,136.03	-1,336.23	1,753.73	0.15	0.00	10.00	94.70
	NORMAL	12,004.0	0.70	261.45	11,779.91	1,135.59	-1,337.41	1,754.36	0.37	-0.19	23.25	131.63
	NORMAL	12,098.0	0.70	282.72	11,873.90	1,135.63	-1,338.54	1,755.25	0.27	0.00	22.63	100.63
	NORMAL	12,193.0	0.62	293.80	11,968.89	1,135.97	-1,339.57	1,756.26	0.16	-0.08	11.66	127.54
	NORMAL	12,287.0	0.88	290.98	12,062.89	1,136.43	-1,340.71	1,757.44	0.28	0.28	-3.00	350.5'
	NORMAL	12,381.0	0.70	294.85	12,156.88	1,136.93	-1,341.91	1,758.68	0.20	-0.19	4.12	165.42
	NORMAL	12,474.0	0.97	309.71	12,249.87	1,137.67	-1,343.03	1,760.01	0.37	0.29	15.98	46.32
	NORMAL	12,568.0	0.88	316.39	12,343.85	1,138.70	-1,344.14	1,761.53	0.15	-0.10	7.11	133.16

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 (°)
2/8/2013	NORMAL	12,661.0	0.62	306.89	12,436.85	1,139.52	-1,345.03	1,762.74	0.31	-0.28	-10.22	200.86
	NORMAL	12,754.0	0.79	288.35	12,529.84	1,140.03	-1,346.04	1,763.84	0.30	0.18	-19.94	297.18
	NORMAL	12,847.0	0.79	295.56	12,622.83	1,140.50	-1,347.23	1,765.06	0.11	0.00	7.75	93.60
	NORMAL	12,984.0	0.73	295.56	12,759.82	1,141.29	-1,348.87	1,766.82	0.04	-0.04	0.00	180.00