

## I 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 331-24-198	Wellbore No.	
Well Name	FEDERAL RGU 331-24-198	Common Name	RGU 331-24-198
Project	RG 24-01S-098W	Site	RGU 31-24-198 Pad
Vertical Section Azimuth	352.43 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	1/22/2013	UWI	RGU 331-24-198
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	1/22/2013	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

10013

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 (°)
1/22/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/22/2013	NORMAL	215.0	2.37	0.52	214.94	4.45	0.04	4.40	1.10	1.10	0.00	0.52
	NORMAL	246.0	2.61	10.30	245.91	5.78	0.17	5.71	1.57	0.77	31.55	65.49
	NORMAL	338.0	3.61	355.42	337.77	10.73	0.32	10.59	1.39	1.09	-16.17	313.50
	NORMAL	430.0	4.11	353.57	429.57	16.89	-0.28	16.78	0.56	0.54	-2.01	345.09
	NORMAL	522.0	5.09	342.36	521.27	24.06	-1.89	24.10	1.44	1.07	-12.18	311.79
	NORMAL	614.0	5.87	349.49	612.85	32.57	-3.99	32.81	1.12	0.85	7.75	44.71
1/23/2013	NORMAL	707.0	6.20	350.40	705.33	42.20	-5.69	42.58	0.37	0.35	0.98	16.62
	NORMAL	799.0	6.42	351.82	796.78	52.19	-7.25	52.69	0.29	0.24	1.54	36.06
	NORMAL	891.0	6.97	350.32	888.15	62.78	-8.92	63.41	0.63	0.60	-1.63	341.62
	NORMAL	982.0	7.28	351.07	978.45	73.92	-10.74	74.69	0.36	0.34	0.82	17.08
	NORMAL	1,083.0	7.56	353.48	1,078.60	86.85	-12.49	87.73	0.41	0.28	2.39	49.22
	NORMAL	1,177.0	7.74	349.71	1,171.76	99.22	-14.33	100.24	0.57	0.19	-4.01	287.86
	NORMAL	1,271.0	8.25	347.48	1,264.85	112.03	-16.92	113.28	0.63	0.54	-2.37	327.59
	NORMAL	1,366.0	6.74	352.35	1,359.04	124.21	-19.14	125.65	1.72	-1.59	5.13	159.59
	NORMAL	1,460.0	6.60	350.58	1,452.40	135.01	-20.76	136.56	0.26	-0.15	-1.88	234.87
	NORMAL	1,555.0	6.95	2.01	1,546.74	146.14	-21.45	147.69	1.46	0.37	12.03	81.17
	NORMAL	1,649.0	6.77	1.57	1,640.07	157.36	-21.10	158.77	0.20	-0.19	-0.47	196.06
	NORMAL	1,838.0	7.30	350.15	1,827.65	180.33	-22.85	181.76	0.79	0.28	-6.04	285.02
	NORMAL	2,027.0	6.51	352.61	2,015.28	202.78	-26.28	204.48	0.45	-0.42	1.30	160.69

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 (°)
1/23/2013	NORMAL	2,310.0	6.16	5.61	2,296.57	233.80	-26.86	235.31	0.52	-0.12	4.59	110.12
	NORMAL	2,594.0	6.16	10.01	2,578.93	263.97	-22.72	264.67	0.17	0.00	1.55	92.19
	NORMAL	2,875.0	6.07	5.70	2,858.33	293.61	-18.62	293.50	0.17	-0.03	-1.53	256.77
	NORMAL	2,969.0	6.42	2.71	2,951.78	303.80	-17.88	303.51	0.51	0.37	-3.18	315.61
	NORMAL	3,063.0	6.42	0.25	3,045.19	314.30	-17.61	313.89	0.29	0.00	-2.62	268.78
1/24/2013	NORMAL	3,158.0	6.33	353.31	3,139.60	324.82	-18.20	324.38	0.82	-0.09	-7.31	259.90
	NORMAL	3,252.0	6.60	344.17	3,233.01	335.16	-20.27	334.91	1.13	0.29	-9.72	280.13
	NORMAL	3,347.0	6.68	344.61	3,327.37	345.74	-23.23	345.79	0.10	0.08	0.46	32.67
	NORMAL	3,441.0	6.95	347.51	3,420.70	356.57	-25.91	356.87	0.47	0.29	3.09	53.33
	NORMAL	3,535.0	7.39	347.07	3,513.97	368.01	-28.49	368.56	0.47	0.47	-0.47	352.67
	NORMAL	3,630.0	7.54	349.64	3,608.16	380.10	-30.98	380.86	0.39	0.16	2.71	67.09
	NORMAL	3,724.0	7.68	348.97	3,701.34	392.33	-33.29	393.29	0.18	0.15	-0.71	327.30
	NORMAL	3,817.0	7.12	347.07	3,793.56	404.04	-35.77	405.24	0.66	-0.60	-2.04	202.66
2/21/2013	NORMAL	3,907.0	6.69	343.71	3,882.91	414.51	-38.49	415.97	0.66	-0.48	-3.73	221.55
	NORMAL	4,002.0	7.30	349.62	3,977.20	425.76	-41.13	427.47	0.99	0.64	6.22	52.68
	NORMAL	4,096.0	7.30	353.05	4,070.44	437.56	-42.93	439.41	0.46	0.00	3.65	91.70
	NORMAL	4,190.0	7.21	347.86	4,163.69	449.26	-44.89	451.26	0.70	-0.10	-5.52	259.67
	NORMAL	4,284.0	7.15	351.58	4,256.95	460.81	-46.99	462.99	0.50	-0.06	3.96	99.20
	NORMAL	4,378.0	7.93	355.74	4,350.14	473.07	-48.33	475.31	1.01	0.83	4.43	37.06
	NORMAL	4,472.0	6.60	354.22	4,443.38	484.91	-49.35	487.18	1.43	-1.41	-1.62	187.47
	NORMAL	4,567.0	7.27	356.61	4,537.69	496.34	-50.26	498.64	0.77	0.71	2.52	24.48
	NORMAL	4,661.0	7.49	355.61	4,630.91	508.39	-51.08	510.68	0.27	0.23	-1.06	329.22
	NORMAL	4,755.0	6.77	353.61	4,724.18	520.00	-52.16	522.34	0.81	-0.77	-2.13	198.03
	NORMAL	4,849.0	6.42	351.64	4,817.56	530.71	-53.54	533.14	0.44	-0.37	-2.10	211.90
	NORMAL	4,944.0	6.62	352.89	4,911.95	541.40	-54.99	543.92	0.26	0.21	1.32	35.98
	NORMAL	5,038.0	6.95	350.50	5,005.29	552.38	-56.60	555.02	0.46	0.35	-2.54	318.26
	NORMAL	5,133.0	7.03	350.15	5,099.58	563.78	-58.55	566.58	0.10	0.08	-0.37	331.78
	NORMAL	5,225.0	6.77	345.47	5,190.92	574.57	-60.87	577.59	0.67	-0.28	-5.09	242.87
2/22/2013	NORMAL	5,320.0	8.00	351.11	5,285.13	586.53	-63.30	589.75	1.50	1.29	5.94	33.33
	NORMAL	5,414.0	9.06	350.76	5,378.09	600.29	-65.50	603.69	1.13	1.13	-0.37	357.02
	NORMAL	5,509.0	8.71	351.02	5,471.95	614.78	-67.82	618.36	0.37	-0.37	0.27	173.58
	NORMAL	5,603.0	8.88	353.13	5,564.84	629.02	-69.80	632.73	0.39	0.18	2.24	63.26
	NORMAL	5,698.0	9.15	353.22	5,658.67	643.80	-71.57	647.61	0.28	0.28	0.09	3.03
	NORMAL	5,792.0	9.06	347.60	5,751.48	658.45	-74.04	662.46	0.95	-0.10	-5.98	261.45
	NORMAL	5,886.0	9.15	350.67	5,844.30	673.05	-76.84	677.31	0.53	0.10	3.27	81.02
	NORMAL	5,981.0	9.50	348.83	5,938.04	688.19	-79.58	692.68	0.48	0.37	-1.94	318.66
	NORMAL	6,075.0	8.71	349.09	6,030.86	702.79	-82.43	707.53	0.84	-0.84	0.28	177.15
	NORMAL	6,170.0	7.74	350.76	6,124.88	716.17	-84.82	721.10	1.05	-1.02	1.76	166.99
	NORMAL	6,264.0	8.50	355.42	6,217.94	729.34	-86.39	734.37	1.07	0.81	4.96	43.22
	NORMAL	6,359.0	8.35	353.22	6,311.91	743.19	-87.77	748.28	0.37	-0.16	-2.32	243.96
	NORMAL	6,452.0	7.53	353.02	6,404.02	755.95	-89.31	761.12	0.88	-0.88	-0.22	181.83
	NORMAL	6,546.0	7.12	350.32	6,497.26	767.80	-91.03	773.10	0.57	-0.44	-2.87	218.68
	NORMAL	6,640.0	6.55	349.24	6,590.59	778.81	-93.01	784.28	0.62	-0.61	-1.15	192.17
	NORMAL	6,735.0	6.42	342.50	6,684.98	789.20	-95.62	794.92	0.81	-0.14	-7.09	256.97
	NORMAL	6,829.0	5.63	350.50	6,778.46	798.76	-97.96	804.71	1.22	-0.84	8.51	137.18
2/23/2013	NORMAL	6,924.0	5.63	356.39	6,873.00	808.01	-99.03	814.01	0.61	0.00	6.20	92.93
	NORMAL	7,018.0	5.01	352.43	6,966.60	816.68	-99.86	822.72	0.77	-0.66	-4.21	208.67
	NORMAL	7,112.0	4.13	350.94	7,060.30	824.09	-100.93	830.20	0.94	-0.94	-1.59	186.94
	NORMAL	7,207.0	4.04	353.75	7,155.06	830.79	-101.84	836.97	0.23	-0.09	2.96	115.67
	NORMAL	7,301.0	3.25	354.72	7,248.87	836.74	-102.44	842.94	0.84	-0.84	1.03	176.02
	NORMAL	7,396.0	2.90	350.50	7,343.73	841.79	-103.09	848.04	0.44	-0.37	-4.44	210.80
	NORMAL	7,491.0	2.55	351.20	7,438.62	846.25	-103.81	852.55	0.37	-0.37	0.74	174.92
	NORMAL	7,585.0	1.67	354.19	7,532.56	849.68	-104.26	856.01	0.94	-0.94	3.18	174.36
	NORMAL	7,679.0	1.49	338.90	7,626.52	852.18	-104.84	858.57	0.49	-0.19	-16.27	239.36
	NORMAL	7,773.0	1.35	330.67	7,720.49	854.29	-105.82	860.78	0.26	-0.15	-8.76	231.46
	NORMAL	7,868.0	1.23	325.27	7,815.47	856.10	-106.95	862.73	0.18	-0.13	-5.68	222.69
	NORMAL	7,962.0	0.70	70.39	7,909.46	857.12	-106.99	863.75	1.67	-0.56	111.83	154.43

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 (°)
2/23/2013	NORMAL	8,057.0	0.53	82.96	8,004.46	857.37	-106.01	863.86	0.23	-0.18	13.23	147.74
	NORMAL	8,152.0	0.35	134.11	8,099.45	857.22	-105.36	863.63	0.43	-0.19	53.84	138.72
	NORMAL	8,246.0	0.35	152.04	8,193.45	856.77	-105.02	863.14	0.12	0.00	19.07	98.96
2/24/2013	NORMAL	8,340.0	0.35	200.99	8,287.45	856.25	-104.99	862.62	0.31	0.00	52.07	114.47
	NORMAL	8,433.0	0.35	180.43	8,380.45	855.70	-105.09	862.09	0.13	0.00	-22.11	259.72
	NORMAL	8,527.0	0.18	144.04	8,474.45	855.29	-105.01	861.67	0.25	-0.18	-38.71	207.50
	NORMAL	8,621.0	0.35	218.66	8,568.45	854.95	-105.10	861.34	0.37	0.18	79.38	104.48
	NORMAL	8,715.0	0.26	258.21	8,662.45	854.68	-105.49	861.13	0.24	-0.10	42.07	132.09
	NORMAL	8,810.0	0.53	203.28	8,757.44	854.23	-105.87	860.74	0.46	0.28	-57.82	275.86
	NORMAL	8,904.0	1.06	229.65	8,851.43	853.27	-106.71	859.89	0.67	0.56	28.05	48.28
	NORMAL	8,999.0	0.62	211.54	8,946.42	852.26	-107.65	859.02	0.54	-0.46	-19.06	202.27
	NORMAL	9,093.0	0.09	53.87	9,040.42	851.87	-107.85	858.66	0.75	-0.56	-167.73	182.78
	NORMAL	9,187.0	0.53	39.45	9,134.42	852.25	-107.52	858.99	0.47	0.47	-15.34	342.68
2/25/2013	NORMAL	9,282.0	0.35	61.34	9,229.42	852.73	-106.98	859.39	0.26	-0.19	23.04	147.55
	NORMAL	9,376.0	0.44	63.18	9,323.42	853.03	-106.41	859.62	0.10	0.10	1.96	8.94
	NORMAL	9,470.0	0.35	152.48	9,417.41	852.94	-105.95	859.47	0.59	-0.10	95.00	141.23
	NORMAL	9,564.0	0.35	149.75	9,511.41	852.44	-105.68	858.93	0.02	0.00	-2.90	268.64
	NORMAL	9,658.0	0.70	151.86	9,605.41	851.68	-105.26	858.13	0.37	0.37	2.24	4.22
	NORMAL	9,752.0	1.41	234.66	9,699.40	850.51	-105.93	857.05	1.59	0.76	88.09	110.50
	NORMAL	9,846.0	1.11	100.00	9,793.39	849.68	-105.98	856.24	2.48	-0.32	-143.26	199.83
	NORMAL	9,940.0	1.06	118.64	9,887.37	849.11	-104.32	855.45	0.38	-0.05	19.83	107.3'
	NORMAL	10,034.0	1.32	131.74	9,981.35	847.97	-102.75	854.11	0.40	0.28	13.94	52.97
	NORMAL	10,129.0	1.06	140.53	10,076.33	846.56	-101.37	852.54	0.33	-0.27	9.25	149.27
2/26/2013	NORMAL	10,223.0	0.87	154.21	10,170.32	845.25	-100.51	851.12	0.32	-0.20	14.55	136.22
	NORMAL	10,316.0	1.60	169.04	10,263.29	843.34	-99.96	849.16	0.85	0.78	15.95	31.18
	NORMAL	10,411.0	1.23	192.82	10,358.27	841.04	-99.93	846.88	0.72	-0.39	25.03	133.73
	NORMAL	10,505.0	0.62	47.45	10,452.26	840.40	-99.78	846.22	1.89	-0.65	-154.65	191.45
	NORMAL	10,600.0	0.44	162.50	10,547.26	840.40	-99.29	846.16	0.95	-0.19	121.11	153.68
	NORMAL	10,694.0	1.32	319.82	10,641.25	840.88	-99.88	846.71	1.84	0.94	167.36	162.93
	NORMAL	10,788.0	1.58	309.54	10,735.22	842.54	-101.58	848.58	0.39	0.28	-10.94	309.77
	NORMAL	10,883.0	1.14	271.75	10,830.20	843.40	-103.54	849.69	1.03	-0.46	-39.78	225.8'
	NORMAL	10,977.0	1.06	303.74	10,924.18	843.91	-105.19	850.41	0.65	-0.09	34.03	113.22
	NORMAL	11,072.0	1.23	320.97	11,019.16	845.19	-106.57	851.86	0.40	0.18	18.14	72.5'
2/27/2013	NORMAL	11,166.0	0.88	329.32	11,113.14	846.60	-107.57	853.39	0.41	-0.37	8.88	160.42
	NORMAL	11,260.0	1.41	307.34	11,207.13	847.92	-108.86	854.87	0.72	0.56	-23.38	309.0'
	NORMAL	11,355.0	0.53	343.20	11,302.11	849.05	-109.91	856.13	1.08	-0.93	37.75	162.43
	NORMAL	11,449.0	0.35	274.82	11,396.11	849.49	-110.33	856.62	0.55	-0.19	-72.74	219.05
	NORMAL	11,543.0	0.26	292.23	11,490.11	849.59	-110.81	856.79	0.14	-0.10	18.52	142.64
	NORMAL	11,638.0	0.79	312.62	11,585.10	850.12	-111.49	857.40	0.58	0.56	21.46	29.80
	NORMAL	11,733.0	0.62	263.00	11,680.10	850.50	-112.48	857.90	0.64	-0.18	-52.23	230.57
	NORMAL	11,827.0	0.57	273.42	11,774.09	850.46	-113.45	858.00	0.13	-0.05	11.09	119.95
	NORMAL	11,921.0	0.18	51.58	11,868.09	850.58	-113.80	858.16	0.76	-0.41	146.98	170.32
	NORMAL	12,014.0	0.62	308.05	11,961.09	850.99	-114.09	858.60	0.74	0.47	-111.32	241.67
2/28/2013	NORMAL	12,109.0	0.26	236.33	12,056.09	851.18	-114.67	858.87	0.62	-0.38	-75.49	204.63
	NORMAL	12,203.0	0.26	41.39	12,150.09	851.22	-114.71	858.92	0.55	0.00	175.60	172.53
	NORMAL	12,297.0	0.35	262.08	12,244.09	851.34	-114.85	859.06	0.61	0.10	-148.20	203.48
	NORMAL	12,391.0	0.53	86.47	12,338.08	851.33	-114.70	859.02	0.94	0.19	-186.82	182.64
	NORMAL	12,485.0	0.88	56.15	12,432.08	851.76	-113.67	859.31	0.53	0.37	-32.26	297.34
	NORMAL	12,578.0	0.35	259.27	12,525.07	852.11	-113.35	859.61	1.30	-0.57	-168.69	186.52
	NORMAL	12,671.0	0.79	174.36	12,618.07	851.41	-113.57	858.96	0.90	0.47	-91.30	250.42
	NORMAL	12,769.0	0.26	173.84	12,716.07	850.52	-113.48	858.06	0.54	-0.54	-0.53	180.26
	NORMAL	12,817.0	0.26	173.84	12,764.07	850.30	-113.46	857.84	0.00	0.00	0.00	0.00