

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 421-24-198	Wellbore No.	
Well Name	FEDERAL RGU 421-24-198	Common Name	RGU 421-24-198
Project	RG 24-01S-098W	Site	RGU 31-24-198 Pad
Vertical Section Azimuth	287.03 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	1/25/2013	UWI	RGU 421-24-198
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	1/25/2013	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

10071

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 (°)
1/25/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/25/2013	NORMAL	338.0	2.21	277.29	337.92	0.83	-6.47	6.42	0.65	0.65	0.00	277.29
	NORMAL	430.0	4.04	302.50	429.78	2.79	-10.96	11.30	2.44	1.99	27.40	49.95
	NORMAL	522.0	6.86	306.29	521.35	7.79	-18.12	19.61	3.09	3.07	4.12	9.16
1/26/2013	NORMAL	614.0	9.85	294.33	612.37	14.28	-29.72	32.60	3.74	3.25	-13.00	323.82
	NORMAL	706.0	11.52	289.94	702.78	20.66	-45.53	49.59	2.02	1.82	-4.77	331.85
	NORMAL	799.0	13.28	284.84	793.61	26.56	-64.59	69.54	2.23	1.89	-5.48	325.60
	NORMAL	891.0	13.37	276.14	883.14	30.41	-85.38	90.54	2.18	0.10	-9.46	268.33
	NORMAL	982.0	12.22	278.78	971.88	33.00	-105.36	110.41	1.42	-1.26	2.90	154.33
	NORMAL	1,082.0	11.96	286.25	1,069.67	37.52	-125.77	131.24	1.58	-0.26	7.47	103.07
	NORMAL	1,177.0	11.96	287.57	1,162.61	43.24	-144.60	150.93	0.29	0.00	1.39	90.65
	NORMAL	1,271.0	11.96	286.69	1,254.56	48.98	-163.22	170.41	0.19	0.00	-0.94	269.57
	NORMAL	1,366.0	11.26	284.75	1,347.62	54.17	-181.62	189.52	0.84	-0.74	-2.04	208.20
	NORMAL	1,460.0	10.73	286.60	1,439.90	59.01	-198.88	207.44	0.68	-0.56	1.97	147.25
	NORMAL	1,555.0	11.26	290.82	1,533.15	64.83	-216.02	225.54	1.01	0.56	4.44	58.72
	NORMAL	1,744.0	10.96	292.54	1,718.61	78.28	-249.86	261.83	0.24	-0.16	0.91	132.99
	NORMAL	1,838.0	10.75	290.91	1,810.93	84.83	-266.31	279.47	0.40	-0.22	-1.73	234.83
	NORMAL	1,933.0	11.34	287.39	1,904.17	90.78	-283.50	297.65	0.94	0.62	-3.71	309.45
	NORMAL	2,027.0	12.05	286.51	1,996.22	96.33	-301.72	316.71	0.78	0.76	-0.94	345.47
	NORMAL	2,238.0	11.70	286.34	2,202.70	108.61	-343.37	360.12	0.17	-0.17	-0.08	185.62

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 (°)
1/26/2013	NORMAL	2,687.0	9.85	286.78	2,643.77	132.51	-423.83	444.06	0.41	-0.41	0.10	177.67
	NORMAL	2,874.0	9.01	285.80	2,828.24	141.11	-453.24	474.69	0.46	-0.45	-0.52	190.34
1/27/2013	NORMAL	2,969.0	8.72	286.00	2,922.10	145.12	-467.32	489.33	0.31	-0.31	0.21	174.03
	NORMAL	3,063.0	9.82	285.51	3,014.87	149.23	-481.89	504.47	1.17	1.17	-0.52	355.65
	NORMAL	3,157.0	11.85	285.89	3,107.19	154.02	-498.90	522.13	2.16	2.16	0.40	2.20
	NORMAL	3,252.0	12.13	286.51	3,200.12	159.53	-517.85	541.87	0.32	0.29	0.65	25.01
	NORMAL	3,346.0	13.10	286.25	3,291.85	165.31	-537.55	562.39	1.03	1.03	-0.28	356.52
	NORMAL	3,441.0	14.09	285.57	3,384.19	171.43	-559.02	584.72	1.06	1.04	-0.72	350.50
	NORMAL	3,535.0	14.61	286.91	3,475.26	177.95	-581.39	608.01	0.66	0.55	1.43	33.22
	NORMAL	3,629.0	14.49	285.23	3,566.24	184.49	-604.08	631.62	0.47	-0.13	-1.79	253.32
	NORMAL	3,724.0	13.54	284.67	3,658.41	190.43	-626.30	654.61	1.01	-1.00	-0.59	187.85
	NORMAL	3,816.0	14.51	284.49	3,747.67	196.04	-647.88	676.89	1.06	1.05	-0.20	357.34
2/11/2013	NORMAL	3,875.0	14.42	283.61	3,804.80	199.62	-662.18	691.60	0.40	-0.15	-1.49	247.31
	NORMAL	3,994.0	10.46	280.89	3,920.98	205.15	-687.20	717.15	3.36	-3.33	-2.29	187.09
	NORMAL	4,089.0	11.78	275.61	4,014.20	207.72	-705.32	735.23	1.75	1.39	-5.56	319.74
	NORMAL	4,183.0	12.49	289.94	4,106.12	212.13	-724.43	754.79	3.28	0.76	15.24	83.81
	NORMAL	4,277.0	11.96	284.14	4,197.99	217.97	-743.43	774.67	1.42	-0.56	-6.17	243.84
	NORMAL	4,371.0	11.61	285.28	4,290.01	222.85	-762.00	793.85	0.45	-0.37	1.21	146.92
	NORMAL	4,465.0	13.28	290.12	4,381.80	229.05	-781.26	814.09	2.09	1.78	5.15	34.37
	NORMAL	4,559.0	12.40	292.58	4,473.45	236.64	-800.72	834.91	1.10	-0.94	2.62	149.35
	NORMAL	4,654.0	13.98	289.32	4,565.94	244.36	-820.97	856.53	1.84	1.66	-3.43	333.19
	NORMAL	4,748.0	16.00	292.14	4,656.74	253.00	-843.68	880.79	2.28	2.15	3.00	21.22
2/12/2013	NORMAL	4,842.0	13.45	290.73	4,747.64	261.75	-865.91	904.60	2.74	-2.71	-1.50	187.32
	NORMAL	4,937.0	13.19	290.03	4,840.09	269.37	-886.43	926.45	0.32	-0.27	-0.74	211.47
	NORMAL	5,031.0	11.96	289.94	4,931.83	276.37	-905.66	946.89	1.31	-1.31	-0.10	180.87
	NORMAL	5,126.0	12.66	291.87	5,024.65	283.60	-924.57	967.09	0.85	0.74	2.03	31.39
	NORMAL	5,218.0	9.67	290.82	5,114.90	290.11	-941.16	984.85	3.26	-3.25	-1.14	183.38
	NORMAL	5,312.0	9.85	294.33	5,207.54	296.22	-955.86	1,000.71	0.66	0.19	3.73	74.90
	NORMAL	5,407.0	11.61	291.43	5,300.87	303.07	-972.17	1,018.30	1.94	1.85	-3.05	341.52
	NORMAL	5,502.0	11.87	293.81	5,393.89	310.50	-990.00	1,037.53	0.58	0.27	2.51	62.94
	NORMAL	5,596.0	11.52	291.43	5,485.94	317.83	-1,007.59	1,056.49	0.63	-0.37	-2.53	232.88
	NORMAL	5,690.0	12.31	283.08	5,577.92	323.53	-1,026.09	1,075.85	2.02	0.84	-8.88	290.50
2/13/2013	NORMAL	5,785.0	13.19	281.59	5,670.57	328.00	-1,046.57	1,096.74	0.99	0.93	-1.57	338.78
	NORMAL	5,879.0	13.28	284.84	5,762.08	332.92	-1,067.51	1,118.21	0.80	0.10	3.46	84.66
	NORMAL	5,973.0	13.81	290.47	5,853.47	339.61	-1,088.46	1,140.19	1.51	0.56	5.99	70.86
	NORMAL	6,068.0	12.93	292.93	5,945.89	347.72	-1,108.87	1,162.08	1.10	-0.93	2.59	148.31
	NORMAL	6,162.0	13.19	291.87	6,037.46	355.81	-1,128.51	1,183.23	0.38	0.28	-1.13	316.83
	NORMAL	6,257.0	11.70	290.38	6,130.23	363.20	-1,147.60	1,203.65	1.60	-1.57	-1.57	191.43
	NORMAL	6,351.0	11.17	293.10	6,222.36	370.09	-1,164.91	1,222.22	0.80	-0.56	2.89	135.83
	NORMAL	6,445.0	10.20	289.15	6,314.73	376.40	-1,181.14	1,239.59	1.29	-1.03	-4.20	215.12
	NORMAL	6,539.0	10.73	285.63	6,407.17	381.48	-1,197.43	1,256.66	0.88	0.56	-3.74	307.92
	NORMAL	6,633.0	10.29	284.58	6,499.59	385.96	-1,213.99	1,273.79	0.51	-0.47	-1.12	203.01
2/13/2013	NORMAL	6,728.0	8.79	290.20	6,593.28	390.60	-1,229.01	1,289.52	1.86	-1.58	5.92	150.91
	NORMAL	6,822.0	7.39	299.70	6,686.34	396.07	-1,241.00	1,302.59	2.05	-1.49	10.11	140.96
	NORMAL	6,916.0	8.00	290.38	6,779.50	401.35	-1,252.39	1,315.02	1.48	0.65	-9.91	291.38
	NORMAL	7,011.0	8.09	291.52	6,873.56	406.10	-1,264.80	1,328.28	0.19	0.09	1.20	61.14
	NORMAL	7,105.0	7.47	291.17	6,966.70	410.73	-1,276.65	1,340.97	0.66	-0.66	-0.37	184.20
	NORMAL	7,200.0	6.33	290.20	7,061.01	414.77	-1,287.33	1,352.36	1.21	-1.20	-1.02	185.36
	NORMAL	7,294.0	5.45	290.03	7,154.51	418.09	-1,296.39	1,361.99	0.94	-0.94	-0.18	181.05
	NORMAL	7,389.0	5.19	286.69	7,249.10	420.87	-1,304.74	1,370.79	0.43	-0.27	-3.52	228.33
	NORMAL	7,483.0	4.35	289.87	7,342.78	423.30	-1,312.17	1,378.60	0.94	-0.89	3.38	164.11
	NORMAL	7,577.0	3.87	284.67	7,436.53	425.32	-1,318.59	1,385.33	0.65	-0.51	-5.53	215.25
2/13/2013	NORMAL	7,672.0	3.49	283.33	7,531.34	426.80	-1,324.50	1,391.42	0.41	-0.40	-1.41	192.09
	NORMAL	7,766.0	3.17	282.73	7,625.18	428.03	-1,329.82	1,396.87	0.34	-0.34	-0.64	185.92
	NORMAL	7,861.0	2.29	283.70	7,720.07	429.06	-1,334.23	1,401.38	0.93	-0.93	1.02	177.48
	NORMAL	7,955.0	2.02	287.30	7,814.00	429.99	-1,337.63	1,404.91	0.32	-0.29	3.83	155.16
	NORMAL	8,049.0	1.49	298.82	7,907.96	431.08	-1,340.29	1,407.77	0.67	-0.56	12.26	152.02

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 (°)	
2/13/2013	NORMAL	8,144.0	0.88	330.99	8,002.94	432.31	-1,341.72	1,409.50	0.93	-0.64	33.86	147.84	
	NORMAL	8,239.0	0.88	322.72	8,097.93	433.53	-1,342.52	1,410.62	0.13	0.00	-8.71	265.87	
	NORMAL	8,333.0	0.79	341.80	8,191.92	434.72	-1,343.16	1,411.58	0.31	-0.10	20.30	117.32	
2/14/2013	NORMAL	8,426.0	0.79	324.66	8,284.91	435.85	-1,343.73	1,412.46	0.25	0.00	-18.43	261.43	
	NORMAL	8,520.0	0.62	300.49	8,378.90	436.64	-1,344.54	1,413.46	0.36	-0.18	-25.71	228.53	
	NORMAL	8,614.0	0.70	315.52	8,472.90	437.30	-1,345.38	1,414.46	0.20	0.09	15.99	72.84	
	NORMAL	8,708.0	0.70	274.03	8,566.89	437.76	-1,346.36	1,415.53	0.53	0.00	-44.14	249.26	
	NORMAL	8,803.0	0.74	27.47	8,661.89	438.34	-1,346.65	1,415.98	1.27	0.04	119.41	145.67	
	NORMAL	8,897.0	0.65	22.16	8,755.88	439.37	-1,346.17	1,415.82	0.12	-0.10	-5.65	212.95	
	NORMAL	8,991.0	0.43	354.40	8,849.88	440.22	-1,346.01	1,415.91	0.36	-0.23	-29.53	216.62	
	NORMAL	9,086.0	0.18	37.25	8,944.88	440.69	-1,345.95	1,416.00	0.34	-0.26	45.11	157.67	
	NORMAL	9,180.0	0.44	320.09	9,038.87	441.09	-1,346.09	1,416.25	0.46	0.28	-82.09	259.15	
	NORMAL	9,274.0	0.70	306.38	9,132.87	441.70	-1,346.79	1,417.09	0.31	0.28	-14.59	325.35	
	NORMAL	9,369.0	0.44	294.25	9,227.86	442.20	-1,347.59	1,418.00	0.30	-0.27	-12.77	198.91	
	2/15/2013	NORMAL	9,463.0	0.70	300.22	9,321.86	442.63	-1,348.41	1,418.92	0.28	0.28	6.35	15.86
NORMAL		9,557.0	0.53	287.65	9,415.85	443.05	-1,349.32	1,419.91	0.23	-0.18	-13.37	212.27	
NORMAL		9,651.0	0.53	268.41	9,509.85	443.17	-1,350.17	1,420.76	0.19	0.00	-20.47	260.38	
NORMAL		9,745.0	0.18	14.32	9,603.85	443.31	-1,350.57	1,421.18	0.64	-0.37	112.67	163.36	
NORMAL		9,839.0	0.53	28.73	9,697.85	443.83	-1,350.32	1,421.10	0.38	0.37	15.33	21.59	
NORMAL		9,933.0	0.70	38.40	9,791.84	444.66	-1,349.76	1,420.80	0.21	0.18	10.29	36.30	
NORMAL		10,027.0	0.79	49.65	9,885.83	445.53	-1,348.91	1,420.24	0.18	0.10	11.97	64.10	
NORMAL		10,121.0	0.62	52.20	9,979.83	446.26	-1,348.01	1,419.60	0.18	-0.18	2.71	170.82	
NORMAL		10,216.0	0.35	76.28	10,074.82	446.65	-1,347.32	1,419.06	0.35	-0.28	25.35	154.58	
NORMAL		10,310.0	0.35	84.89	10,168.82	446.74	-1,346.76	1,418.54	0.06	0.00	9.16	94.30	
NORMAL		10,404.0	0.62	301.28	10,262.82	447.03	-1,346.91	1,418.77	0.98	0.29	-152.78	203.42	
NORMAL		10,498.0	0.67	283.96	10,356.81	447.43	-1,347.87	1,419.81	0.21	0.05	-18.43	275.62	
2/16/2013	NORMAL	10,593.0	0.97	289.32	10,451.80	447.83	-1,349.17	1,421.17	0.33	0.32	5.64	17.03	
	NORMAL	10,688.0	0.96	298.15	10,546.79	448.47	-1,350.63	1,422.75	0.16	-0.01	9.29	98.25	
	NORMAL	10,782.0	0.88	266.82	10,640.78	448.80	-1,352.05	1,424.20	0.53	-0.09	-33.33	245.52	
	NORMAL	10,877.0	0.88	328.26	10,735.77	449.38	-1,353.16	1,425.44	0.95	0.00	64.67	120.72	
	NORMAL	10,971.0	0.70	22.93	10,829.76	450.52	-1,353.32	1,425.92	0.79	-0.19	58.16	129.76	
	NORMAL	11,065.0	0.35	49.82	10,923.76	451.24	-1,352.87	1,425.71	0.45	-0.37	28.61	157.80	
	NORMAL	11,155.0	0.44	354.36	11,013.76	451.76	-1,352.70	1,425.69	0.42	0.10	-61.62	254.50	
	NORMAL	11,249.0	0.53	359.55	11,107.75	452.55	-1,352.74	1,425.96	0.11	0.10	5.52	28.63	
	2/17/2013	NORMAL	11,343.0	0.35	281.15	11,201.75	453.04	-1,353.02	1,426.38	0.61	-0.19	-83.40	216.72
		NORMAL	11,438.0	0.53	284.67	11,296.75	453.21	-1,353.73	1,427.10	0.19	0.19	3.71	10.30
		NORMAL	11,532.0	0.70	219.80	11,390.74	452.88	-1,354.52	1,427.76	0.72	0.18	-69.01	249.84
		NORMAL	11,627.0	0.88	234.66	11,485.73	452.01	-1,355.49	1,428.43	0.29	0.19	15.64	56.25
NORMAL		11,722.0	0.79	239.58	11,580.72	451.26	-1,356.65	1,429.32	0.12	-0.09	5.18	143.90	
NORMAL		11,816.0	0.62	245.56	11,674.72	450.72	-1,357.67	1,430.14	0.20	-0.18	6.36	159.57	
NORMAL		11,910.0	0.44	244.68	11,768.71	450.35	-1,358.46	1,430.79	0.19	-0.19	-0.94	182.15	
NORMAL		12,003.0	0.70	277.28	11,861.71	450.27	-1,359.34	1,431.61	0.44	0.28	35.05	68.35	
NORMAL		12,097.0	0.79	264.01	11,955.70	450.28	-1,360.56	1,432.77	0.21	0.10	-14.12	290.87	
NORMAL		12,192.0	0.79	281.68	12,050.69	450.34	-1,361.85	1,434.03	0.26	0.00	18.60	98.83	
NORMAL		12,286.0	0.35	283.88	12,144.69	450.54	-1,362.76	1,434.96	0.47	-0.47	2.34	178.25	
2/18/2013		NORMAL	12,380.0	0.18	269.02	12,238.69	450.61	-1,363.19	1,435.39	0.19	-0.18	-15.81	194.70
	NORMAL	12,473.0	0.62	251.18	12,331.68	450.44	-1,363.81	1,435.93	0.49	0.47	-19.18	335.15	
	NORMAL	12,567.0	0.35	260.41	12,425.68	450.23	-1,364.58	1,436.60	0.30	-0.29	9.82	168.37	
	NORMAL	12,660.0	0.18	286.34	12,518.68	450.22	-1,365.00	1,437.00	0.22	-0.18	27.88	157.49	
	NORMAL	12,753.0	0.44	247.75	12,611.68	450.13	-1,365.47	1,437.43	0.34	0.28	-41.49	300.85	
	NORMAL	12,905.0	0.44	247.75	12,763.67	449.69	-1,366.55	1,438.33	0.00	0.00	0.00	0.00	