

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 23-25-198	Wellbore No.	
Well Name	FEDERAL RGU 23-25-198	Common Name	RGU 23-25-198
Project	RG 25-01S-098W	Site	RGU 32-25-198 Pad
Vertical Section Azimuth	242.95 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	1/16/2012	UWI	RGU 23-25-198
Active Datum	KB @6,691.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	Scientific
Date Started	1/16/2012	Ended	
Tool Name	MWD	Engineer	Karl Davis

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 (°)
1/16/2012	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1/16/2012	NORMAL	222.0	2.50	247.28	221.93	-1.87	-4.47	4.83	1.13	1.13	0.00	247.28
	NORMAL	253.0	2.93	250.37	252.89	-2.40	-5.84	6.29	1.46	1.39	9.97	20.35
	NORMAL	345.0	4.54	247.72	344.70	-4.57	-11.42	12.25	1.76	1.75	-2.88	352.56
1/17/2012	NORMAL	438.0	6.07	245.07	437.30	-8.04	-19.29	20.83	1.67	1.65	-2.85	349.58
	NORMAL	530.0	7.52	242.80	528.65	-12.84	-29.05	31.71	1.60	1.58	-2.47	348.38
	NORMAL	622.0	9.71	240.45	619.60	-19.42	-41.16	45.49	2.41	2.38	-2.55	349.70
	NORMAL	715.0	11.62	238.48	710.99	-28.18	-55.97	62.66	2.09	2.05	-2.12	348.22
	NORMAL	807.0	12.86	239.60	800.90	-38.21	-72.70	82.12	1.37	1.35	1.22	11.39
	NORMAL	899.0	13.37	238.04	890.50	-49.02	-90.55	102.94	0.67	0.55	-1.70	324.48
	NORMAL	994.0	13.46	240.41	982.91	-60.29	-109.48	124.93	0.59	0.09	2.49	81.86
	NORMAL	1,087.0	13.18	244.81	1,073.41	-70.15	-128.49	146.34	1.13	-0.30	4.73	107.57
	NORMAL	1,181.0	14.21	244.69	1,164.74	-79.64	-148.62	168.58	1.10	1.10	-0.13	358.36
	NORMAL	1,275.0	14.16	242.87	1,255.87	-89.82	-169.28	191.61	0.48	-0.05	-1.94	262.72
	NORMAL	1,369.0	13.71	242.66	1,347.10	-100.18	-189.41	214.25	0.48	-0.48	-0.22	186.31
	NORMAL	1,463.0	14.11	240.40	1,438.35	-110.95	-209.27	236.83	0.72	0.43	-2.40	305.26
	NORMAL	1,557.0	13.63	243.14	1,529.61	-121.62	-229.11	259.36	0.87	-0.51	2.91	127.48
	NORMAL	1,651.0	13.15	245.36	1,621.05	-131.08	-248.71	281.12	0.75	-0.51	2.36	134.11
	NORMAL	1,745.0	13.19	245.51	1,712.58	-139.98	-268.19	302.51	0.06	0.04	0.16	40.58
	NORMAL	1,838.0	13.01	242.92	1,803.16	-149.15	-287.17	323.58	0.66	-0.19	-2.78	251.69

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 (°)
1/17/2012	NORMAL	1,931.0	13.28	242.35	1,893.72	-158.87	-305.95	344.73	0.32	0.29	-0.61	334.08
	NORMAL	2,024.0	13.72	242.52	1,984.15	-168.92	-325.19	366.44	0.48	0.47	0.18	5.24
	NORMAL	2,118.0	14.25	243.75	2,075.37	-179.18	-345.46	389.15	0.65	0.56	1.31	29.88
	NORMAL	2,212.0	14.53	243.14	2,166.42	-189.62	-366.36	412.51	0.34	0.30	-0.65	331.27
	NORMAL	2,306.0	14.96	243.89	2,257.32	-200.29	-387.77	436.44	0.50	0.46	0.80	24.30
1/18/2012	NORMAL	2,400.0	15.65	245.61	2,347.99	-210.86	-410.21	461.23	0.88	0.73	1.83	34.18
	NORMAL	2,493.0	15.95	245.87	2,437.48	-221.27	-433.30	486.53	0.33	0.32	0.28	13.40
	NORMAL	2,587.0	16.44	246.04	2,527.74	-231.95	-457.24	512.71	0.52	0.52	0.18	5.61
	NORMAL	2,681.0	16.44	242.43	2,617.90	-243.51	-481.19	539.29	1.09	0.00	-3.84	268.27
	NORMAL	2,774.0	16.80	241.91	2,707.02	-255.93	-504.71	565.89	0.42	0.39	-0.56	337.30
	NORMAL	2,868.0	16.20	238.74	2,797.15	-269.13	-527.90	592.55	1.15	-0.64	-3.37	234.81
	NORMAL	2,962.0	16.36	238.30	2,887.38	-282.89	-550.38	618.82	0.21	0.17	-0.47	322.16
	NORMAL	3,056.0	16.27	236.72	2,977.60	-297.07	-572.65	645.11	0.48	-0.10	-1.68	257.78
	NORMAL	3,149.0	14.16	240.32	3,067.33	-309.86	-593.43	669.42	2.48	-2.27	3.87	157.61
	NORMAL	3,243.0	13.72	240.85	3,158.56	-320.98	-613.15	692.05	0.49	-0.47	0.56	164.08
	NORMAL	3,337.0	13.10	239.36	3,250.00	-331.84	-632.05	713.82	0.76	-0.66	-1.59	208.41
	NORMAL	3,430.0	11.52	236.37	3,340.86	-342.35	-648.85	733.57	1.83	-1.70	-3.22	200.52
	NORMAL	3,525.0	11.87	237.78	3,433.89	-352.82	-665.02	752.72	0.48	0.37	1.48	39.93
	NORMAL	3,619.0	12.49	236.19	3,525.77	-363.63	-681.64	772.44	0.75	0.66	-1.69	330.80
	NORMAL	3,713.0	9.85	234.26	3,617.98	-373.98	-696.62	790.49	2.84	-2.81	-2.05	187.12
	NORMAL	3,806.0	9.67	245.60	3,709.65	-381.85	-710.19	806.15	2.07	-0.19	12.19	100.92
	NORMAL	3,900.0	11.08	255.70	3,802.11	-387.35	-726.13	822.85	2.44	1.50	10.74	57.26
	NORMAL	3,960.0	11.61	256.76	3,860.94	-390.15	-737.60	834.34	0.95	0.88	1.77	22.00
4/11/2012	NORMAL	4,100.0	10.90	251.66	3,998.25	-397.55	-763.87	861.10	0.87	-0.51	-3.64	232.02
	NORMAL	4,194.0	12.40	254.65	4,090.31	-403.01	-782.04	879.77	1.72	1.60	3.18	23.40
	NORMAL	4,289.0	12.20	253.65	4,183.13	-408.54	-801.51	899.62	0.31	-0.21	-1.05	226.32
	NORMAL	4,384.0	12.49	249.99	4,275.94	-414.88	-820.80	919.68	0.88	0.31	-3.85	288.54
	NORMAL	4,478.0	15.34	249.52	4,367.17	-422.71	-842.00	942.13	3.03	3.03	-0.50	357.50
4/12/2012	NORMAL	4,572.0	14.29	242.35	4,458.05	-432.45	-863.93	966.08	2.25	-1.12	-7.63	236.77
	NORMAL	4,667.0	15.20	243.40	4,549.92	-443.46	-885.45	990.26	1.00	0.96	1.11	16.87
	NORMAL	4,762.0	13.73	242.59	4,641.91	-454.23	-906.59	1,013.99	1.56	-1.55	-0.85	187.45
	NORMAL	4,856.0	13.62	243.63	4,733.24	-464.28	-926.41	1,036.21	0.29	-0.12	1.11	114.61
	NORMAL	4,950.0	13.10	243.05	4,824.70	-474.03	-945.82	1,057.93	0.57	-0.55	-0.62	194.17
	NORMAL	5,044.0	12.66	243.75	4,916.33	-483.41	-964.56	1,078.88	0.50	-0.47	0.74	160.81
	NORMAL	5,138.0	12.66	247.09	5,008.05	-491.98	-983.29	1,099.46	0.78	0.00	3.55	91.63
	NORMAL	5,232.0	12.84	245.33	5,099.73	-500.35	-1,002.26	1,120.17	0.46	0.19	-1.87	294.00
	NORMAL	5,327.0	13.10	244.81	5,192.31	-509.33	-1,021.60	1,141.48	0.30	0.27	-0.55	335.57
	NORMAL	5,421.0	13.45	245.33	5,283.80	-518.43	-1,041.17	1,163.04	0.39	0.37	0.55	19.09
	NORMAL	5,516.0	13.63	241.38	5,376.16	-528.40	-1,061.04	1,185.27	0.99	0.19	-4.16	279.09
	NORMAL	5,610.0	13.72	244.37	5,467.50	-538.53	-1,080.81	1,207.49	0.76	0.10	3.18	84.20
	NORMAL	5,705.0	14.42	244.55	5,559.65	-548.49	-1,101.65	1,230.58	0.74	0.74	0.19	3.66
	NORMAL	5,799.0	14.60	242.52	5,650.65	-558.98	-1,122.73	1,254.12	0.57	0.19	-2.16	288.50
	NORMAL	5,894.0	12.93	241.82	5,742.92	-569.53	-1,142.72	1,276.72	1.77	-1.76	-0.74	185.36
	NORMAL	5,988.0	13.54	241.38	5,834.42	-579.77	-1,161.65	1,298.24	0.66	0.65	-0.47	350.41
	NORMAL	6,082.0	13.81	244.10	5,925.75	-589.94	-1,181.40	1,320.46	0.74	0.29	2.89	68.55
	NORMAL	6,178.0	12.56	243.83	6,019.22	-599.55	-1,201.08	1,342.35	1.30	-1.30	-0.28	182.69
	NORMAL	6,273.0	12.75	243.93	6,111.91	-608.71	-1,219.77	1,363.16	0.20	0.20	0.11	6.63
	NORMAL	6,367.0	12.57	239.36	6,203.63	-618.48	-1,237.89	1,383.74	1.08	-0.19	-4.86	257.59
4/13/2012	NORMAL	6,461.0	12.40	240.41	6,295.41	-628.68	-1,255.46	1,404.03	0.30	-0.18	1.12	127.34
	NORMAL	6,555.0	11.52	241.38	6,387.37	-638.16	-1,272.48	1,423.50	0.96	-0.94	1.03	167.61
	NORMAL	6,648.0	9.85	238.57	6,478.75	-646.75	-1,287.42	1,440.71	1.88	-1.80	-3.02	195.95
	NORMAL	6,742.0	8.97	241.03	6,571.49	-654.50	-1,300.69	1,456.05	1.03	-0.94	2.62	156.65
	NORMAL	6,836.0	8.09	243.31	6,664.45	-661.02	-1,313.01	1,469.99	1.00	-0.94	2.43	160.10
	NORMAL	6,931.0	7.12	242.08	6,758.61	-666.78	-1,324.19	1,482.56	1.04	-1.02	-1.29	188.92
	NORMAL	7,025.0	7.21	241.73	6,851.88	-672.30	-1,334.53	1,494.29	0.11	0.10	-0.37	333.95
	NORMAL	7,119.0	6.95	243.93	6,945.16	-677.59	-1,344.83	1,505.87	0.40	-0.28	2.34	134.88
	NORMAL	7,214.0	6.33	242.43	7,039.52	-682.54	-1,354.64	1,516.85	0.68	-0.65	-1.58	194.88

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 (°)
4/13/2012	NORMAL	7,308.0	6.07	242.70	7,132.97	-687.22	-1,363.65	1,527.00	0.28	-0.28	0.29	173.74
	NORMAL	7,403.0	5.64	241.82	7,227.48	-691.73	-1,372.23	1,536.69	0.46	-0.45	-0.93	191.35
	NORMAL	7,498.0	5.58	240.95	7,322.02	-696.17	-1,380.38	1,545.98	0.11	-0.06	-0.92	234.37
	NORMAL	7,593.0	4.60	234.91	7,416.65	-700.61	-1,387.54	1,554.37	1.17	-1.03	-6.36	205.68
	NORMAL	7,687.0	3.52	239.36	7,510.41	-704.24	-1,393.10	1,560.98	1.20	-1.15	4.73	165.95
	NORMAL	7,781.0	2.99	230.92	7,604.26	-707.26	-1,397.49	1,566.26	0.76	-0.56	-8.98	217.96
	NORMAL	7,876.0	2.81	228.11	7,699.14	-710.38	-1,401.15	1,570.93	0.24	-0.19	-2.96	216.90
	NORMAL	7,970.0	2.37	244.02	7,793.04	-712.77	-1,404.61	1,575.10	0.89	-0.47	16.93	129.25
4/14/2012	NORMAL	8,064.0	2.46	243.84	7,886.96	-714.51	-1,408.17	1,579.06	0.10	0.10	-0.19	355.09
	NORMAL	8,156.0	1.75	234.09	7,978.89	-716.20	-1,411.08	1,582.42	0.86	-0.77	-10.60	201.95
	NORMAL	8,251.0	0.53	210.79	8,073.87	-717.43	-1,412.48	1,584.23	1.35	-1.28	-24.53	189.42
	NORMAL	8,345.0	0.53	192.78	8,167.87	-718.23	-1,412.79	1,584.88	0.18	0.00	-19.16	261.00
	NORMAL	8,439.0	0.44	175.11	8,261.87	-719.01	-1,412.86	1,585.29	0.18	-0.10	-18.80	230.33
	NORMAL	8,533.0	0.88	190.84	8,355.86	-720.08	-1,412.96	1,585.87	0.50	0.47	16.73	30.37
	NORMAL	8,627.0	0.88	104.87	8,449.85	-720.97	-1,412.40	1,585.78	1.28	0.00	-91.46	227.02
	NORMAL	8,720.0	0.88	103.83	8,542.84	-721.33	-1,411.02	1,584.70	0.02	0.00	-1.12	269.48
	NORMAL	8,814.0	0.26	352.56	8,636.84	-721.29	-1,410.35	1,584.09	1.07	-0.66	-118.37	193.97
	NORMAL	8,909.0	0.62	306.68	8,731.84	-720.77	-1,410.79	1,584.24	0.50	0.38	-48.29	291.09
	NORMAL	9,004.0	0.88	265.64	8,826.83	-720.52	-1,411.93	1,585.14	0.61	0.27	-43.20	274.33
	NORMAL	9,098.0	1.14	247.71	8,920.81	-720.93	-1,413.51	1,586.74	0.43	0.28	-19.07	300.25
4/15/2012	NORMAL	9,192.0	0.52	174.31	9,014.81	-721.71	-1,414.33	1,587.83	1.18	-0.66	-78.09	206.69
	NORMAL	9,286.0	1.00	170.88	9,108.80	-722.94	-1,414.16	1,588.24	0.51	0.51	-3.65	352.87
	NORMAL	9,380.0	0.53	158.85	9,202.79	-724.16	-1,413.87	1,588.53	0.53	-0.50	-12.80	192.92
	NORMAL	9,474.0	0.62	280.75	9,296.79	-724.47	-1,414.22	1,588.98	1.07	0.10	129.68	148.46
	NORMAL	9,569.0	0.53	281.02	9,391.78	-724.29	-1,415.15	1,589.73	0.09	-0.09	0.28	178.41
	NORMAL	9,663.0	0.70	247.79	9,485.78	-724.42	-1,416.11	1,590.65	0.41	0.18	-35.35	278.24
	NORMAL	9,757.0	0.26	84.32	9,579.77	-724.62	-1,416.43	1,591.02	1.01	-0.47	-173.90	184.46
	NORMAL	9,849.0	0.88	203.88	9,671.77	-725.24	-1,416.51	1,591.37	1.12	0.67	129.96	132.20
	NORMAL	9,944.0	0.70	216.59	9,766.76	-726.38	-1,417.15	1,592.46	0.26	-0.19	13.38	142.00
	NORMAL	10,039.0	0.53	19.98	9,861.76	-726.43	-1,417.35	1,592.66	1.28	-0.18	171.99	172.85
	NORMAL	10,133.0	0.79	77.37	9,955.75	-725.88	-1,416.57	1,591.71	0.72	0.28	61.05	98.90
4/16/2012	NORMAL	10,228.0	1.14	79.92	10,050.74	-725.57	-1,415.00	1,590.17	0.37	0.37	2.68	8.27
	NORMAL	10,323.0	0.44	47.73	10,145.73	-725.16	-1,413.80	1,588.92	0.84	-0.74	-33.88	196.98
	NORMAL	10,417.0	0.26	155.33	10,239.73	-725.11	-1,413.44	1,588.58	0.61	-0.19	114.47	154.46
	NORMAL	10,511.0	0.78	177.51	10,333.73	-725.94	-1,413.32	1,588.85	0.58	0.55	23.60	32.50
	NORMAL	10,606.0	0.67	180.10	10,428.72	-727.14	-1,413.30	1,589.38	0.12	-0.12	2.73	164.70
	NORMAL	10,700.0	1.03	192.07	10,522.71	-728.52	-1,413.47	1,590.16	0.43	0.38	12.73	32.32
4/17/2012	NORMAL	10,794.0	0.62	243.75	10,616.70	-729.57	-1,414.11	1,591.20	0.86	-0.44	54.98	143.00
	NORMAL	10,889.0	0.44	84.41	10,711.70	-729.76	-1,414.20	1,591.38	1.10	-0.19	-167.73	188.56
	NORMAL	10,984.0	1.67	23.23	10,806.68	-728.45	-1,413.29	1,589.97	1.59	1.29	-64.40	284.01
	NORMAL	11,078.0	1.05	8.28	10,900.66	-726.34	-1,412.63	1,588.42	0.75	-0.66	-15.90	202.45
	NORMAL	11,172.0	0.70	26.22	10,994.64	-724.98	-1,412.25	1,587.46	0.47	-0.37	19.09	150.69
	NORMAL	11,266.0	0.44	351.86	11,088.64	-724.10	-1,412.05	1,586.88	0.45	-0.28	-36.55	216.40
	NORMAL	11,361.0	0.88	315.38	11,183.63	-723.22	-1,412.61	1,586.99	0.62	0.46	-38.40	297.09
	NORMAL	11,455.0	0.88	298.51	11,277.62	-722.37	-1,413.76	1,587.61	0.27	0.00	-17.95	261.57
	NORMAL	11,549.0	1.14	272.76	11,371.61	-721.98	-1,415.32	1,588.83	0.55	0.28	-27.39	286.51
	NORMAL	11,644.0	0.88	290.69	11,466.59	-721.67	-1,416.95	1,590.14	0.43	-0.27	18.87	138.18
	NORMAL	11,738.0	0.09	214.13	11,560.59	-721.48	-1,417.67	1,590.69	0.92	-0.84	-81.45	185.82
	NORMAL	11,832.0	0.44	265.72	11,654.59	-721.57	-1,418.07	1,591.09	0.42	0.37	54.88	61.99
	NORMAL	11,927.0	0.97	262.38	11,749.58	-721.70	-1,419.23	1,592.19	0.56	0.56	-3.52	353.89
4/18/2012	NORMAL	12,021.0	0.26	254.03	11,843.58	-721.86	-1,420.22	1,593.15	0.76	-0.76	-8.88	183.03
	NORMAL	12,115.0	0.44	271.88	11,937.57	-721.91	-1,420.79	1,593.67	0.22	0.19	18.99	40.34
	NORMAL	12,209.0	0.79	237.95	12,031.57	-722.24	-1,421.70	1,594.63	0.52	0.37	-36.10	296.04
	NORMAL	12,303.0	0.79	237.95	12,125.56	-722.93	-1,422.80	1,595.92	0.00	0.00	0.00	0.00
	NORMAL	12,398.0	1.23	248.50	12,220.54	-723.65	-1,424.30	1,597.59	0.50	0.46	11.11	28.24
	NORMAL	12,492.0	1.32	253.51	12,314.52	-724.33	-1,426.28	1,599.66	0.15	0.10	5.33	53.61
	NORMAL	12,586.0	2.11	251.66	12,408.48	-725.18	-1,428.96	1,602.43	0.84	0.84	-1.97	355.07

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 (°)
4/18/2012	NORMAL	12,680.0	2.37	241.03	12,502.41	-726.67	-1,432.30	1,606.09	0.52	0.28	-11.31	296.65
	NORMAL	12,774.0	2.55	247.44	12,596.32	-728.41	-1,435.93	1,610.11	0.35	0.19	6.82	60.04
4/20/2012	NORMAL	12,875.0	25.00	247.44	12,693.79	-737.58	-1,458.00	1,633.94	22.23	22.23	0.00	0.00