

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	RG 11-23-298	Wellbore No.	
Well Name	FEDERAL RG 11-23-298	Common Name	RG 11-23-298
Project	RG 14-02S-098W	Site	RG 24-14-298 Pad
Vertical Section Azimuth	249.09 (°)	North Reference	
Origin N/S		Origin E/W	
Spud Date	5/18/2010	UWI	RG 11-23-298
Active Datum	KB @6,707.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	5/18/2012	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 (°)
5/18/2012	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5/18/2012	NORMAL	227.0	4.31	243.70	226.79	-3.78	-7.65	8.50	1.90	1.90	0.00	243.70
	NORMAL	319.0	6.51	254.78	318.37	-6.68	-15.78	17.13	2.64	2.39	12.04	30.99
	NORMAL	411.0	9.06	255.22	409.52	-9.90	-27.82	29.52	2.77	2.77	0.48	1.56
	NORMAL	504.0	10.90	250.82	501.11	-14.66	-43.21	45.59	2.14	1.98	-4.73	335.31
	NORMAL	596.0	12.66	250.21	591.17	-20.93	-60.91	64.37	1.92	1.91	-0.66	355.65
	NORMAL	688.0	14.86	248.18	680.52	-28.73	-81.35	86.25	2.45	2.39	-2.21	346.63
	NORMAL	780.0	16.09	247.39	769.18	-38.01	-104.07	110.79	1.36	1.34	-0.86	349.89
	NORMAL	872.0	16.80	245.46	857.42	-48.44	-127.94	136.80	0.97	0.77	-2.10	321.49
	NORMAL	969.0	17.15	246.07	950.19	-60.06	-153.76	165.07	0.40	0.36	0.63	27.26
	NORMAL	1,064.0	17.67	248.80	1,040.84	-70.96	-180.01	193.48	1.02	0.55	2.87	58.83
	NORMAL	1,159.0	18.03	248.10	1,131.27	-81.65	-207.09	222.59	0.44	0.38	-0.74	328.87
	NORMAL	1,254.0	18.38	248.62	1,221.52	-92.60	-234.68	252.27	0.41	0.37	0.55	25.15
	NORMAL	1,347.0	18.64	249.50	1,309.70	-103.15	-262.25	281.79	0.41	0.28	0.95	47.47
	NORMAL	1,442.0	18.03	255.74	1,399.89	-112.09	-290.73	311.58	2.16	-0.64	6.57	110.21
5/19/2012	NORMAL	1,536.0	18.11	254.95	1,489.25	-119.46	-318.93	340.57	0.27	0.09	-0.84	287.70
	NORMAL	1,631.0	18.29	253.55	1,579.50	-127.52	-347.49	370.11	0.50	0.19	-1.47	291.71
	NORMAL	1,725.0	18.38	252.67	1,668.73	-136.11	-375.78	399.61	0.31	0.10	-0.94	287.59
	NORMAL	1,818.0	18.55	252.58	1,756.94	-144.91	-403.89	429.01	0.19	0.18	-0.10	350.44
	NORMAL	1,913.0	19.08	252.93	1,846.87	-153.99	-433.15	459.59	0.57	0.56	0.37	12.19

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 (°)
5/19/2012	NORMAL	2,008.0	16.97	248.62	1,937.20	-163.60	-460.91	488.95	2.63	-2.22	-4.54	210.26
	NORMAL	2,101.0	16.53	248.01	2,026.26	-173.50	-485.82	515.75	0.51	-0.47	-0.66	201.49
	NORMAL	2,195.0	16.53	246.43	2,116.37	-183.86	-510.47	542.47	0.48	0.00	-1.68	269.24
	NORMAL	2,290.0	16.44	247.48	2,207.47	-194.41	-535.28	569.41	0.33	-0.09	1.11	107.31
	NORMAL	2,384.0	16.18	244.67	2,297.68	-205.11	-559.40	595.77	0.88	-0.28	-2.99	250.42
	NORMAL	2,480.0	16.71	244.05	2,389.76	-216.87	-583.90	622.85	0.58	0.55	-0.65	341.38
	NORMAL	2,570.0	16.97	247.74	2,475.90	-227.51	-607.69	648.87	1.22	0.29	4.10	78.10
	NORMAL	2,664.0	16.62	244.93	2,565.89	-238.40	-632.57	675.99	0.94	-0.37	-2.99	245.34
	NORMAL	2,758.0	17.06	247.74	2,655.86	-249.32	-657.50	703.19	0.98	0.47	2.99	62.96
	NORMAL	2,852.0	17.41	250.03	2,745.64	-259.35	-683.48	731.03	0.81	0.37	2.44	63.81
	NORMAL	2,946.0	17.41	247.66	2,835.34	-269.50	-709.71	759.15	0.75	0.00	-2.52	268.87
	NORMAL	3,040.0	16.97	248.27	2,925.14	-279.92	-735.46	786.93	0.51	-0.47	0.65	158.01
	NORMAL	3,134.0	16.62	248.10	3,015.13	-290.01	-760.67	814.08	0.38	-0.37	-0.18	187.91
	NORMAL	3,228.0	16.71	248.10	3,105.18	-300.07	-785.69	841.04	0.10	0.10	0.00	0.00
	NORMAL	3,322.0	16.27	247.74	3,195.31	-310.10	-810.41	867.71	0.48	-0.47	-0.38	192.90
5/31/2012	NORMAL	3,416.0	16.09	246.16	3,285.59	-320.35	-834.51	893.89	0.51	-0.19	-1.68	247.01
	NORMAL	3,504.0	14.58	245.61	3,370.46	-329.85	-855.76	917.12	1.72	-1.72	-0.63	185.24
	NORMAL	3,599.0	14.25	253.11	3,462.47	-338.19	-877.84	940.72	1.99	-0.35	7.89	103.64
	NORMAL	3,694.0	16.00	252.49	3,554.18	-345.52	-901.51	965.46	1.85	1.84	-0.65	354.42
	NORMAL	3,787.0	14.25	249.24	3,643.95	-353.44	-924.44	989.70	2.09	-1.88	-3.49	204.29
	NORMAL	3,882.0	14.33	247.83	3,736.02	-362.02	-946.26	1,013.15	0.38	0.08	-1.48	282.26
	NORMAL	3,976.0	14.95	245.99	3,826.96	-371.34	-968.11	1,036.88	0.82	0.66	-1.96	322.23
	NORMAL	4,069.0	14.66	249.23	3,916.88	-380.40	-990.07	1,060.63	0.94	-0.31	3.48	110.87
6/1/2012	NORMAL	4,164.0	12.67	252.74	4,009.19	-387.75	-1,011.26	1,083.05	2.27	-2.09	3.69	159.08
	NORMAL	4,259.0	12.66	254.16	4,101.87	-393.69	-1,031.23	1,103.82	0.33	-0.01	1.49	92.53
	NORMAL	4,353.0	15.30	253.55	4,193.08	-400.01	-1,053.04	1,126.45	2.81	2.81	-0.65	356.51
	NORMAL	4,448.0	13.89	255.57	4,285.01	-406.40	-1,076.10	1,150.28	1.58	-1.48	2.13	161.13
	NORMAL	4,543.0	12.49	253.37	4,377.51	-412.18	-1,096.99	1,171.85	1.57	-1.47	-2.32	198.66
	NORMAL	4,637.0	13.98	251.35	4,469.01	-418.72	-1,117.49	1,193.33	1.66	1.59	-2.15	341.77
	NORMAL	4,732.0	13.72	248.71	4,561.25	-426.48	-1,138.86	1,216.07	0.72	-0.27	-2.78	246.36
	NORMAL	4,825.0	12.93	247.13	4,651.74	-434.53	-1,158.72	1,237.49	0.94	-0.85	-1.70	203.98
	NORMAL	4,918.0	12.09	244.86	4,742.53	-442.71	-1,177.12	1,257.61	1.05	-0.90	-2.44	209.24
	NORMAL	5,012.0	12.49	245.11	4,834.38	-451.17	-1,195.26	1,277.56	0.43	0.43	0.27	7.70
	NORMAL	5,106.0	11.00	242.00	4,926.41	-459.66	-1,212.40	1,296.60	1.72	-1.59	-3.31	201.50
	NORMAL	5,200.0	11.43	245.64	5,018.62	-467.71	-1,228.80	1,314.80	0.88	0.46	3.87	60.52
	NORMAL	5,294.0	10.64	253.55	5,110.88	-474.01	-1,245.61	1,332.75	1.81	-0.84	8.41	121.40
	NORMAL	5,387.0	9.67	252.05	5,202.43	-478.85	-1,261.27	1,349.11	1.08	-1.04	-1.61	194.51
	NORMAL	5,481.0	10.46	252.05	5,294.98	-483.92	-1,276.90	1,365.52	0.84	0.84	0.00	0.00
	NORMAL	5,576.0	9.94	250.21	5,388.48	-489.35	-1,292.82	1,382.33	0.65	-0.55	-1.94	211.17
	NORMAL	5,669.0	9.15	250.47	5,480.19	-494.54	-1,307.34	1,397.75	0.85	-0.85	0.28	177.00
	NORMAL	5,764.0	6.95	250.30	5,574.25	-499.00	-1,319.87	1,411.04	2.32	-2.32	-0.18	180.54
	NORMAL	5,859.0	6.07	249.50	5,668.63	-502.70	-1,329.99	1,421.81	0.93	-0.93	-0.84	185.49
	NORMAL	5,954.0	5.10	251.17	5,763.18	-505.82	-1,338.69	1,431.06	1.04	-1.02	1.76	171.32
	NORMAL	6,048.0	3.87	243.62	5,856.89	-508.58	-1,345.49	1,438.39	1.45	-1.31	-8.03	201.91
	NORMAL	6,143.0	2.46	259.08	5,951.75	-510.39	-1,350.36	1,443.59	1.72	-1.48	16.27	156.37
	NORMAL	6,237.0	0.26	260.75	6,045.71	-510.81	-1,352.55	1,445.79	2.34	-2.34	1.78	179.80
	NORMAL	6,332.0	0.35	351.90	6,140.71	-510.55	-1,352.81	1,445.93	0.46	0.09	95.95	127.35
	NORMAL	6,427.0	0.18	298.99	6,235.71	-510.19	-1,352.98	1,445.96	0.30	-0.18	-55.69	210.74
	NORMAL	6,522.0	0.35	261.81	6,330.71	-510.16	-1,353.40	1,446.34	0.25	0.18	-39.14	295.05
	NORMAL	6,616.0	0.44	237.38	6,424.71	-510.40	-1,353.99	1,446.98	0.20	0.10	-25.99	285.54
	NORMAL	6,711.0	0.53	242.65	6,519.71	-510.80	-1,354.68	1,447.77	0.11	0.09	5.55	29.02
	NORMAL	6,805.0	0.88	240.72	6,613.70	-511.35	-1,355.70	1,448.92	0.37	0.37	-2.05	355.15
6/2/2012	NORMAL	6,899.0	0.26	114.86	6,707.69	-511.79	-1,356.13	1,449.48	1.12	-0.66	-133.89	191.54
	NORMAL	6,994.0	0.26	131.47	6,802.69	-512.03	-1,355.78	1,449.23	0.08	0.00	17.48	98.30
	NORMAL	7,088.0	0.53	217.25	6,896.69	-512.51	-1,355.88	1,449.50	0.61	0.29	91.26	112.69
	NORMAL	7,182.0	1.06	240.45	6,990.68	-513.29	-1,356.90	1,450.73	0.65	0.56	24.68	43.22
	NORMAL	7,277.0	0.18	87.08	7,085.68	-513.71	-1,357.52	1,451.46	1.29	-0.93	-161.44	183.78

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 (°)
6/2/2012	NORMAL	7,371.0	0.09	78.73	7,179.68	-513.69	-1,357.30	1,451.24	0.10	-0.10	-8.88	188.18
	NORMAL	7,465.0	0.18	296.17	7,273.68	-513.61	-1,357.36	1,451.27	0.27	0.10	-151.66	205.16
	NORMAL	7,560.0	1.06	30.92	7,368.67	-512.79	-1,357.04	1,450.68	1.15	0.93	99.74	104.22
	NORMAL	7,655.0	0.65	50.25	7,463.66	-511.69	-1,356.17	1,449.48	0.52	-0.43	20.35	154.28
	NORMAL	7,750.0	0.15	323.46	7,558.66	-511.25	-1,355.83	1,449.01	0.69	-0.53	-91.36	193.14
	NORMAL	7,845.0	0.62	46.21	7,653.66	-510.79	-1,355.54	1,448.57	0.65	0.49	87.11	96.65
	NORMAL	7,939.0	1.32	71.93	7,747.64	-510.11	-1,354.14	1,447.02	0.86	0.74	27.36	45.18
	NORMAL	8,034.0	0.97	83.04	7,842.63	-509.67	-1,352.30	1,445.14	0.43	-0.37	11.69	153.09
	NORMAL	8,129.0	0.53	81.55	7,937.62	-509.51	-1,351.07	1,443.93	0.46	-0.46	-1.57	181.79
	NORMAL	8,223.0	0.26	163.63	8,031.61	-509.65	-1,350.58	1,443.53	0.59	-0.29	87.32	152.48
	NORMAL	8,318.0	0.18	193.16	8,126.61	-510.00	-1,350.55	1,443.63	0.14	-0.08	31.08	139.37
	NORMAL	8,413.0	0.44	261.72	8,221.61	-510.20	-1,350.95	1,444.07	0.43	0.27	72.17	92.68
6/3/2012	NORMAL	8,508.0	0.53	265.56	8,316.61	-510.28	-1,351.74	1,444.84	0.10	0.09	4.04	21.78
	NORMAL	8,602.0	0.44	55.79	8,410.61	-510.12	-1,351.88	1,444.91	1.00	-0.10	159.82	166.53
	NORMAL	8,696.0	0.39	214.54	8,504.61	-510.18	-1,351.76	1,444.82	0.87	-0.05	168.88	170.02
	NORMAL	8,791.0	0.44	282.81	8,599.61	-510.36	-1,352.30	1,445.39	0.49	0.05	71.86	119.06
	NORMAL	8,885.0	0.79	259.44	8,693.60	-510.40	-1,353.29	1,446.33	0.45	0.37	-24.86	312.31
	NORMAL	8,979.0	1.06	249.15	8,787.59	-510.83	-1,354.74	1,447.84	0.34	0.29	-10.95	323.18
	NORMAL	9,073.0	0.62	172.60	8,881.58	-511.64	-1,355.49	1,448.82	1.17	-0.47	-81.44	213.36
	NORMAL	9,168.0	1.14	152.21	8,976.57	-512.99	-1,354.98	1,448.83	0.63	0.55	-21.46	318.48
	NORMAL	9,262.0	0.58	193.65	9,070.56	-514.28	-1,354.66	1,448.99	0.85	-0.60	44.09	151.44
	NORMAL	9,357.0	0.44	25.03	9,165.56	-514.41	-1,354.62	1,449.00	1.07	-0.15	-177.49	184.91
	NORMAL	9,451.0	0.53	0.86	9,259.55	-513.65	-1,354.46	1,448.58	0.24	0.10	-25.71	281.35
	NORMAL	9,545.0	0.44	350.84	9,353.55	-512.86	-1,354.51	1,448.34	0.13	-0.10	-10.66	218.36
6/4/2012	NORMAL	9,639.0	0.35	343.37	9,447.55	-512.23	-1,354.65	1,448.25	0.11	-0.10	-7.95	206.08
	NORMAL	9,734.0	0.62	252.32	9,542.55	-512.11	-1,355.22	1,448.74	0.76	0.28	-95.84	239.76
	NORMAL	9,827.0	0.26	246.60	9,635.54	-512.35	-1,355.89	1,449.45	0.39	-0.39	-6.15	184.10
	NORMAL	9,922.0	0.62	275.90	9,730.54	-512.38	-1,356.60	1,450.13	0.44	0.38	30.84	47.23
	NORMAL	10,016.0	0.88	291.87	9,824.53	-512.06	-1,357.78	1,451.11	0.35	0.28	16.99	46.97
	NORMAL	10,110.0	1.06	275.87	9,918.52	-511.70	-1,359.31	1,452.42	0.34	0.19	-17.02	295.43
	NORMAL	10,205.0	1.49	255.92	10,013.50	-511.91	-1,361.39	1,454.43	0.64	0.45	-21.00	303.82
	NORMAL	10,299.0	0.88	294.25	10,107.48	-511.91	-1,363.23	1,456.15	1.03	-0.65	40.78	145.69
	NORMAL	10,393.0	1.06	286.24	10,201.46	-511.37	-1,364.72	1,457.35	0.24	0.19	-8.52	318.96
	NORMAL	10,487.0	1.67	255.48	10,295.44	-511.47	-1,366.88	1,459.41	0.99	0.65	-32.72	293.71
	NORMAL	10,582.0	1.32	263.30	10,390.40	-511.95	-1,369.31	1,461.84	0.43	-0.37	8.23	153.63
	NORMAL	10,676.0	1.58	262.95	10,484.37	-512.23	-1,371.67	1,464.15	0.28	0.28	-0.37	357.87
	NORMAL	10,770.0	1.76	251.44	10,578.33	-512.85	-1,374.33	1,466.85	0.40	0.19	-12.24	292.39
	NORMAL	10,865.0	2.46	244.67	10,673.27	-514.19	-1,377.55	1,470.34	0.78	0.74	-7.13	337.00
	NORMAL	10,939.0	2.46	244.67	10,747.20	-515.55	-1,380.42	1,473.51	0.00	0.00	0.00	0.00
	NORMAL	10,676.0	1.58	262.95	10,484.37	-512.23	-1,371.67	1,464.15	0.28	0.28	-0.37	357.87
	NORMAL	10,770.0	1.76	251.44	10,578.33	-512.85	-1,374.33	1,466.85	0.40	0.19	-12.24	292.39
	NORMAL	10,865.0	2.46	244.67	10,673.27	-514.19	-1,377.55	1,470.34	0.78	0.74	-7.13	337.00
	NORMAL	10,939.0	2.46	244.67	10,747.20	-515.55	-1,380.42	1,473.51	0.00	0.00	0.00	0.00