

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	RWF 34-31	Wellbore No.	
Well Name	RWF 34-31	Common Name	RWF 34-31
Project	RU 31-06S-094W	Site	RWF 34-31 Pad
Vertical Section Azimuth	48.12 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	11/8/2011	UWI	RWF 34-31
Active Datum	KB @5,733.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Started	11/8/2011	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

6054

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Bulld (°/100ft)	Turn (°/100ft)	TFace (°)
11/8/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11/8/2011	NORMAL	147.0	0.53	136.67	147.00	-0.49	0.47	0.02	0.36	0.36	0.00	136.67
	NORMAL	178.0	0.79	125.51	178.00	-0.72	0.74	0.07	0.93	0.84	-36.00	328.04
	NORMAL	268.0	2.64	52.38	267.96	0.18	2.89	2.27	2.81	2.06	-81.26	269.47
	NORMAL	359.0	4.40	45.62	358.78	3.90	7.04	7.85	1.98	1.93	-7.43	343.34
	NORMAL	450.0	7.39	43.77	449.29	10.57	13.59	17.17	3.29	3.29	-2.03	355.44
	NORMAL	542.0	10.03	46.49	540.22	20.36	23.49	31.08	2.90	2.87	2.96	10.22
	NORMAL	633.0	11.09	48.25	629.68	31.65	35.77	47.76	1.22	1.16	1.93	17.79
	NORMAL	705.0	11.20	47.29	700.32	41.00	46.07	61.67	0.30	0.15	-1.33	300.19
	NORMAL	795.0	11.49	46.35	788.56	53.12	58.98	79.37	0.38	0.32	-1.04	327.02
	NORMAL	887.0	12.47	48.18	878.56	66.06	73.01	98.46	1.14	1.07	1.99	22.08
	NORMAL	977.0	12.69	50.19	966.40	78.87	87.85	118.06	0.54	0.24	2.23	64.30
	NORMAL	1,073.0	13.30	47.14	1,059.94	93.13	104.04	139.64	0.96	0.64	-3.18	310.16
	NORMAL	1,115.0	13.71	46.18	1,100.78	99.87	111.18	149.44	1.11	0.98	-2.29	330.86
11/10/2011	NORMAL	1,258.0	15.49	44.49	1,239.16	125.23	136.79	185.44	1.28	1.24	-1.18	345.72
	NORMAL	1,353.0	14.13	46.34	1,331.00	142.28	154.07	209.69	1.52	-1.43	1.95	161.72
	NORMAL	1,448.0	11.85	48.34	1,423.56	156.77	169.75	231.04	2.45	-2.40	2.11	169.82
	NORMAL	1,543.0	11.56	47.68	1,516.59	169.66	184.07	250.31	0.34	-0.31	-0.69	204.46
	NORMAL	1,639.0	11.87	47.97	1,610.59	182.75	198.52	269.80	0.33	0.32	0.30	10.90
	NORMAL	1,734.0	12.23	46.77	1,703.50	196.18	213.11	289.63	0.46	0.38	-1.26	324.58
	NORMAL	1,830.0	12.77	46.55	1,797.22	210.45	228.22	310.41	0.56	0.56	-0.23	354.85

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
11/10/2011	NORMAL	1,925.0	11.79	48.75	1,890.05	224.07	243.14	330.61	1.14	-1.03	2.32	155.55
	NORMAL	2,020.0	10.81	49.75	1,983.20	236.22	257.23	349.22	1.05	-1.03	1.05	169.18
	NORMAL	2,116.0	10.64	51.00	2,077.53	247.62	270.99	367.07	0.30	-0.18	1.30	126.77
	NORMAL	2,211.0	10.05	52.88	2,170.98	258.14	284.42	384.09	0.72	-0.62	1.98	151.14
	NORMAL	2,306.0	11.36	48.88	2,264.33	269.29	298.08	401.70	1.58	1.38	-4.21	328.46
	NORMAL	2,401.0	11.29	49.03	2,357.48	281.54	312.15	420.36	0.08	-0.07	0.16	157.25
	NORMAL	2,495.0	12.83	47.00	2,449.40	294.70	326.73	439.99	1.70	1.64	-2.16	343.61
	NORMAL	2,590.0	13.49	48.06	2,541.91	309.30	342.68	461.62	0.74	0.69	1.12	20.60
	NORMAL	2,685.0	12.69	46.31	2,634.44	323.91	358.47	483.13	0.94	-0.84	-1.84	205.50
	NORMAL	2,781.0	11.05	46.35	2,728.38	337.54	372.75	502.87	1.71	-1.71	0.04	179.73
	NORMAL	2,876.0	11.04	48.30	2,821.62	349.88	386.13	521.06	0.39	-0.01	2.05	92.49
11/11/2011	NORMAL	2,972.0	11.30	47.88	2,915.80	362.30	399.97	539.66	0.28	0.27	-0.44	342.42
	NORMAL	3,067.0	11.31	47.69	3,008.96	374.81	413.76	558.28	0.04	0.01	-0.20	284.94
	NORMAL	3,163.0	10.98	48.77	3,103.15	387.18	427.60	576.84	0.41	-0.34	1.13	148.21
	NORMAL	3,258.0	10.61	48.14	3,196.47	398.98	440.92	594.63	0.41	-0.39	-0.66	197.38
	NORMAL	3,353.0	10.27	48.09	3,289.89	410.47	453.74	611.84	0.36	-0.36	-0.05	181.50
	NORMAL	3,448.0	9.93	48.45	3,383.42	421.56	466.17	628.50	0.36	-0.36	0.38	169.66
	NORMAL	3,543.0	11.49	49.94	3,476.76	433.08	479.54	646.15	1.67	1.64	1.57	10.80
	NORMAL	3,638.0	12.09	49.09	3,569.76	445.69	494.30	665.56	0.66	0.63	-0.89	343.44
	NORMAL	3,734.0	12.26	49.24	3,663.60	458.93	509.62	685.80	0.18	0.18	0.16	10.61
	NORMAL	3,829.0	12.10	50.35	3,756.46	471.86	524.93	705.83	0.30	-0.17	1.17	124.88
	NORMAL	3,925.0	12.78	51.19	3,850.21	484.94	540.95	726.49	0.73	0.71	0.88	15.31
	NORMAL	4,020.0	12.82	50.65	3,942.85	498.21	557.29	747.51	0.13	0.04	-0.57	288.22
	NORMAL	4,115.0	13.03	49.30	4,035.44	511.87	573.55	768.75	0.39	0.22	-1.42	304.16
	NORMAL	4,210.0	13.43	49.19	4,127.92	526.07	590.02	790.49	0.42	0.42	-0.12	356.35
	NORMAL	4,305.0	13.53	50.31	4,220.30	540.38	606.93	812.62	0.29	0.11	1.18	69.59
	NORMAL	4,401.0	13.73	48.96	4,313.60	555.03	624.16	835.24	0.39	0.21	-1.41	301.50
	NORMAL	4,495.0	13.61	47.87	4,404.94	569.77	640.78	857.45	0.30	-0.13	-1.16	244.49
	NORMAL	4,591.0	11.37	46.93	4,498.66	583.81	656.07	878.21	2.34	-2.33	-0.98	184.73
	NORMAL	4,686.0	10.62	46.11	4,591.91	596.28	669.22	896.32	0.81	-0.79	-0.86	191.38
	NORMAL	4,781.0	10.18	46.21	4,685.35	608.15	681.59	913.46	0.46	-0.46	0.11	177.70
	NORMAL	4,876.0	9.11	47.12	4,779.01	619.08	693.16	929.37	1.14	-1.13	0.96	172.34
	NORMAL	4,971.0	7.67	49.38	4,872.99	628.33	703.48	943.23	1.55	-1.52	2.38	168.22
	NORMAL	5,066.0	6.67	50.16	4,967.25	635.99	712.53	955.08	1.06	-1.05	0.82	174.83
11/12/2011	NORMAL	5,161.0	6.25	51.40	5,061.64	642.75	720.81	965.76	0.47	-0.44	1.31	162.24
	NORMAL	5,256.0	4.06	38.73	5,156.26	648.60	726.95	974.24	2.58	-2.31	-13.34	201.25
	NORMAL	5,351.0	2.09	27.70	5,251.11	652.76	729.86	979.18	2.16	-2.07	-11.61	191.26
	NORMAL	5,445.0	1.45	27.28	5,345.07	655.33	731.21	981.90	0.68	-0.68	-0.45	180.95
	NORMAL	5,540.0	0.84	40.22	5,440.05	656.93	732.21	983.71	0.69	-0.64	13.62	163.41
	NORMAL	5,635.0	0.61	51.03	5,535.04	657.78	733.05	984.91	0.28	-0.24	11.38	154.59
	NORMAL	5,730.0	0.38	37.02	5,630.04	658.35	733.63	985.72	0.27	-0.24	-14.75	200.87
	NORMAL	5,826.0	0.13	220.13	5,726.04	658.52	733.75	985.92	0.53	-0.26	-184.26	180.79
	NORMAL	5,921.0	0.79	40.09	5,821.04	658.94	734.11	986.47	0.97	0.69	189.43	179.97
	NORMAL	6,016.0	1.10	52.21	5,916.02	660.00	735.25	988.02	0.39	0.33	12.76	38.97
11/13/2011	NORMAL	6,112.0	0.63	71.72	6,012.01	660.73	736.48	989.43	0.57	-0.49	20.32	157.43
	NORMAL	6,207.0	0.87	102.31	6,107.00	660.74	737.68	990.33	0.48	0.25	32.20	74.96
	NORMAL	6,303.0	0.85	105.79	6,202.99	660.39	739.08	991.14	0.06	-0.02	3.63	112.69
	NORMAL	6,398.0	0.87	103.35	6,297.98	660.03	740.46	991.92	0.04	0.02	-2.57	297.42
	NORMAL	6,493.0	0.81	119.10	6,392.97	659.54	741.74	992.55	0.25	-0.06	16.58	112.35
	NORMAL	6,588.0	0.64	116.95	6,487.96	658.97	742.80	992.96	0.18	-0.18	-2.26	188.02
	NORMAL	6,683.0	0.45	145.67	6,582.96	658.43	743.49	993.11	0.34	-0.20	30.23	138.61
	NORMAL	6,778.0	0.40	165.01	6,677.96	657.80	743.78	992.91	0.16	-0.05	20.36	118.72
	NORMAL	6,873.0	0.48	161.49	6,772.95	657.10	744.00	992.60	0.09	0.08	-3.71	339.56
	NORMAL	6,969.0	0.50	164.79	6,868.95	656.31	744.23	992.25	0.04	0.02	3.44	56.33
	NORMAL	7,064.0	0.77	120.67	6,963.95	655.59	744.89	992.26	0.57	0.28	-46.44	275.62
	NORMAL	7,159.0	0.58	102.92	7,058.94	655.16	745.91	992.73	0.30	-0.20	-18.68	219.10
	NORMAL	7,255.0	0.53	122.80	7,154.94	654.81	746.76	993.12	0.21	-0.05	20.71	114.35

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
11/13/2011	NORMAL	7,350.0	0.70	111.62	7,249.93	654.35	747.66	993.50	0.22	0.18	-11.77	319.11
11/14/2011	NORMAL	7,445.0	1.29	109.44	7,344.91	653.78	749.21	994.27	0.62	0.62	-2.29	355.24
	NORMAL	7,540.0	0.85	163.72	7,439.90	652.75	750.42	994.48	1.11	-0.46	57.14	138.99
	NORMAL	7,636.0	0.32	148.95	7,535.90	651.84	750.76	994.12	0.57	-0.55	-15.39	188.58
	NORMAL	7,731.0	0.40	57.58	7,630.89	651.79	751.17	994.40	0.55	0.08	-96.18	230.51
	NORMAL	7,826.0	0.18	325.93	7,725.89	652.09	751.37	994.75	0.47	-0.23	-96.47	203.94
	NORMAL	7,922.0	0.54	286.68	7,821.89	652.35	750.85	994.53	0.43	0.38	-40.89	304.88
	NORMAL	8,017.0	0.27	234.17	7,916.89	652.34	750.24	994.07	0.46	-0.28	-55.27	209.70
	NORMAL	8,113.0	0.43	243.46	8,012.89	652.05	749.74	993.50	0.18	0.17	9.68	24.21
	NORMAL	8,195.0	0.43	243.46	8,094.88	651.77	749.18	992.91	0.00	0.00	0.00	0.00