

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	RWF 343-31	Wellbore No.	
Well Name	RWF 343-31	Common Name	RWF 343-31
Project	RU 31-06S-094W	Site	RWF 34-31 Pad
Vertical Section Azimuth	46.65 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	10/15/2011	UWI	RWF 343-31
Active Datum	KB @5,733.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	10/15/2011	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

6594

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 (°)
10/15/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/15/2011	NORMAL	90.0	0.26	60.12	90.00	0.10	0.18	0.20	0.29	0.29	0.00	60.12
	NORMAL	175.0	2.02	57.66	174.98	1.00	1.61	1.86	2.07	2.07	-2.89	357.18
	NORMAL	266.0	3.78	49.75	265.86	3.80	5.25	6.43	1.98	1.93	-8.69	343.22
	NORMAL	357.0	7.21	48.43	356.43	9.52	11.82	15.13	3.77	3.77	-1.45	357.23
	NORMAL	448.0	10.38	45.53	446.35	19.06	21.94	29.04	3.52	3.48	-3.19	350.60
	NORMAL	538.0	12.40	42.45	534.57	31.87	34.25	46.79	2.34	2.24	-3.42	341.73
	NORMAL	631.0	14.52	49.39	625.02	46.83	49.85	68.39	2.86	2.28	7.46	40.72
	NORMAL	721.0	17.95	47.81	711.42	63.49	68.69	93.54	3.84	3.81	-1.76	351.90
	NORMAL	812.0	20.94	43.42	797.22	84.73	90.26	123.80	3.66	3.29	-4.82	331.87
	NORMAL	902.0	21.95	45.77	880.99	108.14	113.37	156.68	1.47	1.12	2.61	41.48
	NORMAL	976.0	24.45	48.56	949.00	127.93	134.77	185.82	3.69	3.38	3.77	25.02
	NORMAL	1,068.0	29.68	48.85	1,030.90	155.54	166.21	227.63	5.69	5.68	0.32	1.57
	NORMAL	1,165.0	32.14	49.43	1,114.12	188.13	203.90	277.41	2.55	2.54	0.60	7.16
	NORMAL	1,260.0	32.63	48.40	1,194.34	221.57	242.25	328.25	0.78	0.52	-1.08	311.18
10/16/2011	NORMAL	1,356.0	32.17	45.56	1,275.40	256.65	279.85	379.68	1.66	-0.48	-2.96	251.99
	NORMAL	1,451.0	31.59	44.76	1,356.07	292.02	315.43	429.83	0.76	-0.61	-0.84	215.73
	NORMAL	1,546.0	32.45	45.27	1,436.62	327.63	351.06	480.18	0.95	0.91	0.54	17.67
	NORMAL	1,641.0	32.45	45.13	1,516.78	363.54	387.23	531.14	0.08	0.00	-0.15	269.94
	NORMAL	1,737.0	32.46	44.71	1,597.79	400.02	423.61	582.63	0.24	0.01	-0.44	272.36
	NORMAL	1,832.0	32.76	44.88	1,677.81	436.35	459.68	633.80	0.33	0.32	0.18	17.05

## 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 (°)
10/16/2011	NORMAL	1,928.0	31.43	46.18	1,759.14	472.09	496.07	684.80	1.56	-1.39	1.35	153.10
	NORMAL	2,023.0	32.11	47.09	1,839.91	506.43	532.43	734.81	0.88	0.72	0.96	35.56
	NORMAL	2,119.0	32.76	48.50	1,920.93	541.02	570.57	786.29	1.04	0.68	1.47	49.92
	NORMAL	2,214.0	32.80	49.59	2,000.81	574.73	609.42	837.68	0.62	0.04	1.15	86.58
	NORMAL	2,309.0	31.58	49.52	2,081.20	607.56	647.93	888.22	1.28	-1.28	-0.07	181.72
	NORMAL	2,404.0	30.08	48.05	2,162.78	639.62	684.56	936.87	1.77	-1.58	-1.55	206.04
	NORMAL	2,498.0	30.66	47.59	2,243.88	671.54	719.78	984.38	0.66	0.62	-0.49	337.95
	NORMAL	2,593.0	30.81	47.22	2,325.53	704.40	755.52	1,032.93	0.25	0.16	-0.39	308.26
	NORMAL	2,655.0	31.11	46.35	2,378.70	726.24	778.76	1,064.82	0.87	0.48	-1.40	303.46
10/18/2011	NORMAL	2,776.0	30.72	45.78	2,482.51	769.37	823.53	1,126.98	0.40	-0.32	-0.47	216.66
	NORMAL	2,871.0	31.41	44.89	2,563.88	803.83	858.39	1,175.99	0.87	0.73	-0.94	325.97
	NORMAL	2,967.0	32.01	45.30	2,645.55	839.45	894.13	1,226.43	0.66	0.63	0.43	19.93
	NORMAL	3,062.0	32.45	45.40	2,725.91	875.05	930.18	1,277.08	0.47	0.46	0.11	6.95
	NORMAL	3,157.0	32.96	45.20	2,805.85	911.16	966.66	1,328.40	0.55	0.54	-0.21	347.95
	NORMAL	3,253.0	31.62	46.01	2,887.01	947.04	1,003.30	1,379.67	1.47	-1.40	0.84	162.45
	NORMAL	3,347.0	31.42	45.52	2,967.14	981.32	1,038.51	1,428.81	0.35	-0.21	-0.52	231.81
	NORMAL	3,442.0	31.65	46.62	3,048.11	1,015.79	1,074.29	1,478.49	0.65	0.24	1.16	68.68
	NORMAL	3,538.0	32.08	45.13	3,129.64	1,051.08	1,110.67	1,529.16	0.93	0.45	-1.55	298.03
	NORMAL	3,633.0	32.24	45.99	3,210.07	1,086.48	1,146.77	1,579.72	0.51	0.17	0.91	71.10
	NORMAL	3,729.0	32.08	47.70	3,291.34	1,121.43	1,184.04	1,630.81	0.96	-0.17	1.78	100.69
	NORMAL	3,824.0	32.62	47.06	3,371.59	1,155.85	1,221.45	1,681.64	0.67	0.57	-0.67	327.35
	NORMAL	3,919.0	31.86	46.64	3,451.95	1,190.51	1,258.42	1,732.32	0.83	-0.80	-0.44	196.25
	NORMAL	4,014.0	31.40	46.85	3,532.83	1,224.65	1,294.71	1,782.14	0.50	-0.48	0.22	166.63
	NORMAL	4,110.0	30.49	47.57	3,615.17	1,258.19	1,330.93	1,831.50	1.02	-0.95	0.75	158.17
	NORMAL	4,205.0	31.03	47.40	3,696.80	1,291.02	1,366.74	1,880.08	0.58	0.57	-0.18	350.78
	NORMAL	4,300.0	32.14	46.37	3,777.73	1,325.03	1,403.06	1,929.84	1.30	1.17	-1.08	333.64
10/19/2011	NORMAL	4,395.0	31.55	46.44	3,858.43	1,359.59	1,439.36	1,979.96	0.62	-0.62	0.07	176.45
	NORMAL	4,490.0	30.26	46.80	3,939.94	1,393.11	1,474.82	2,028.75	1.37	-1.36	0.38	172.00
	NORMAL	4,585.0	29.10	46.77	4,022.48	1,425.32	1,509.10	2,075.79	1.22	-1.22	-0.03	180.72
	NORMAL	4,680.0	27.74	47.01	4,106.02	1,456.22	1,542.11	2,121.01	1.44	-1.43	0.25	175.30
	NORMAL	4,776.0	26.39	48.41	4,191.51	1,485.62	1,574.41	2,164.67	1.55	-1.41	1.46	155.36
	NORMAL	4,870.0	25.52	48.14	4,276.03	1,513.00	1,605.11	2,205.80	0.93	-0.93	-0.29	187.61
	NORMAL	4,966.0	24.32	48.96	4,363.09	1,539.78	1,635.43	2,246.22	1.30	-1.25	0.85	164.31
	NORMAL	5,061.0	22.05	49.93	4,450.41	1,564.10	1,663.83	2,283.58	2.42	-2.39	1.02	170.90
	NORMAL	5,155.0	20.01	47.43	4,538.15	1,586.34	1,689.18	2,317.28	2.37	-2.17	-2.66	202.58
	NORMAL	5,250.0	18.21	46.86	4,627.91	1,607.49	1,711.98	2,348.38	1.90	-1.89	-0.60	185.65
	NORMAL	5,346.0	16.17	46.95	4,719.62	1,628.87	1,732.70	2,376.75	2.13	-2.13	0.09	179.30
	NORMAL	5,440.0	12.71	46.96	4,810.63	1,642.87	1,749.83	2,400.18	3.68	-3.68	0.01	179.96
	NORMAL	5,535.0	10.03	46.28	4,903.76	1,655.72	1,763.45	2,418.91	2.82	-2.82	-0.72	182.53
	NORMAL	5,629.0	9.55	48.10	4,996.39	1,666.59	1,775.17	2,434.89	0.61	-0.51	1.94	148.08
	NORMAL	5,725.0	7.79	53.30	5,091.29	1,675.80	1,786.31	2,449.32	2.01	-1.83	5.42	158.55
10/20/2011	NORMAL	5,821.0	7.03	50.00	5,186.49	1,683.46	1,796.03	2,461.64	0.91	-0.79	-3.44	207.62
	NORMAL	5,916.0	7.37	41.58	5,280.74	1,691.76	1,804.53	2,473.52	1.17	0.36	-8.86	283.65
	NORMAL	6,011.0	7.39	42.89	5,374.96	1,700.79	1,812.73	2,485.68	0.18	0.02	1.38	83.87
10/21/2011	NORMAL	6,107.0	6.54	39.67	5,470.25	1,709.52	1,820.42	2,497.27	0.97	-0.89	-3.35	203.08
	NORMAL	6,202.0	5.43	28.72	5,564.73	1,717.63	1,826.04	2,506.92	1.67	-1.17	-11.53	220.45
	NORMAL	6,298.0	3.55	16.71	5,660.43	1,724.46	1,829.07	2,513.82	2.18	-1.96	-12.51	200.67
	NORMAL	6,393.0	1.74	20.72	5,755.33	1,728.63	1,830.43	2,517.66	1.91	-1.91	4.22	176.16
	NORMAL	6,487.0	0.90	24.96	5,849.30	1,730.63	1,831.25	2,519.63	0.90	-0.89	4.51	175.48
10/22/2011	NORMAL	6,582.0	0.95	24.52	5,944.29	1,732.02	1,831.89	2,521.05	0.05	0.05	-0.46	351.69
	NORMAL	6,678.0	1.01	18.98	6,040.28	1,733.55	1,832.49	2,522.54	0.12	0.06	-5.77	299.55
	NORMAL	6,773.0	0.23	4.13	6,135.27	1,734.53	1,832.78	2,523.42	0.83	-0.82	-15.63	184.28
	NORMAL	6,868.0	0.52	4.84	6,230.27	1,735.15	1,832.83	2,523.88	0.31	0.31	0.75	1.27
	NORMAL	6,964.0	0.33	27.19	6,326.27	1,735.83	1,832.99	2,524.47	0.26	-0.20	23.28	149.71
	NORMAL	7,059.0	0.14	43.09	6,421.26	1,736.16	1,833.20	2,524.84	0.21	-0.20	16.74	168.89
	NORMAL	7,154.0	0.13	106.12	6,516.26	1,736.21	1,833.38	2,525.01	0.15	-0.01	66.35	124.97
	NORMAL	7,249.0	0.59	80.32	6,611.26	1,736.26	1,833.96	2,525.48	0.50	0.48	-27.16	327.38

## 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 (°)
10/24/2011	NORMAL	7,345.0	1.05	77.46	6,707.25	1,736.54	1,835.31	2,526.64	0.48	0.48	-2.98	353.48
	NORMAL	7,440.0	1.33	104.38	6,802.23	1,736.45	1,837.23	2,527.98	0.85	0.29	28.34	77.28
	NORMAL	7,536.0	0.98	131.45	6,898.21	1,735.63	1,838.92	2,528.65	0.67	-0.36	28.20	135.72
	NORMAL	7,631.0	0.31	231.93	6,993.21	1,734.94	1,839.33	2,528.47	1.14	-0.71	105.77	163.61
	NORMAL	7,726.0	0.82	228.20	7,088.20	1,734.33	1,838.62	2,527.53	0.54	0.54	-3.93	354.01
	NORMAL	7,821.0	1.43	231.47	7,183.18	1,733.13	1,837.19	2,525.67	0.65	0.64	3.44	7.64
	NORMAL	7,917.0	1.30	239.20	7,279.16	1,731.83	1,835.31	2,523.41	0.23	-0.14	8.05	129.04
	NORMAL	8,012.0	0.64	255.97	7,374.14	1,731.15	1,833.87	2,521.90	0.75	-0.69	17.65	164.96
	NORMAL	8,108.0	0.40	261.89	7,470.14	1,730.97	1,833.02	2,521.16	0.26	-0.25	6.17	170.33
	NORMAL	8,203.0	0.86	215.77	7,565.13	1,730.35	1,832.28	2,520.19	0.68	0.48	-48.55	287.56
10/25/2011	NORMAL	8,299.0	1.37	226.05	7,661.12	1,728.97	1,831.03	2,518.33	0.57	0.53	10.71	26.61
	NORMAL	8,394.0	1.82	229.84	7,756.08	1,727.21	1,829.06	2,515.69	0.49	0.47	3.99	15.09
	NORMAL	8,490.0	2.21	230.89	7,852.02	1,725.05	1,826.46	2,512.32	0.41	0.41	1.09	5.93
	NORMAL	8,585.0	2.40	229.65	7,946.94	1,722.61	1,823.52	2,508.51	0.21	0.20	-1.31	344.67
	NORMAL	8,653.0	2.25	232.38	8,014.89	1,720.87	1,821.38	2,505.76	0.27	-0.22	4.01	144.92
	NORMAL	8,710.0	2.25	232.38	8,071.84	1,719.51	1,819.61	2,503.53	0.00	0.00	0.00	0.00