

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	RWF 33-31	Wellbore No.	
Well Name	RWF 33-31	Common Name	RWF 33-31
Project	RU 31-06S-094W	Site	RWF 34-31 Pad
Vertical Section	10.33 (°)	North Reference	True
Azimuth		Origin E/W	
Origin N/S		UWI	RWF 33-31
Spud Date	12/19/2011		
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	12/19/2011	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

Date	Type	MD (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Sec (ft)	DLeg (°/100ft)	Buid (°/100ft)	Turn (°/100ft)	TFace (°)
12/19/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12/19/2011	NORMAL	117.0	0.44	203.82	117.00	-0.41	-0.18	-0.44	0.38	0.38	0.00	203.82
	NORMAL	178.0	1.41	326.69	177.99	0.00	-0.69	-0.12	2.77	1.59	201.43	135.50
	NORMAL	268.0	4.66	7.91	267.86	4.55	-0.79	4.33	4.13	3.61	45.80	55.67
	NORMAL	359.0	8.01	11.43	358.29	14.43	0.97	14.37	3.70	3.68	3.87	8.37
	NORMAL	450.0	13.46	8.79	447.67	31.12	3.85	31.31	6.01	5.99	-2.90	353.54
	NORMAL	542.0	16.72	9.58	536.48	54.76	7.69	55.25	3.55	3.54	0.86	3.99
	NORMAL	612.0	19.40	8.23	603.03	76.20	11.03	76.94	3.87	3.83	-1.93	350.48
	NORMAL	703.0	23.00	12.65	687.86	108.52	17.09	109.82	4.33	3.96	4.86	26.02
	NORMAL	795.0	23.73	14.61	772.32	143.97	25.69	146.24	1.16	0.79	2.13	47.70
	NORMAL	886.0	25.72	14.69	854.97	180.79	35.32	184.19	2.19	2.19	0.09	1.00
	NORMAL	977.0	25.40	10.56	937.07	219.08	43.91	223.40	1.99	-0.35	-4.54	257.96
	NORMAL	1,073.0	26.67	10.09	1,023.33	260.53	51.45	265.54	1.34	1.32	-0.49	350.56
	NORMAL	1,168.0	26.29	9.54	1,108.36	302.27	58.68	307.89	0.48	-0.40	-0.58	212.59
	NORMAL	1,263.0	24.06	10.40	1,194.33	342.07	65.66	348.30	2.38	-2.35	0.91	171.07
	NORMAL	1,359.0	24.57	10.17	1,281.82	380.96	72.72	387.83	0.54	0.53	-0.24	349.38
	NORMAL	1,454.0	25.78	11.06	1,367.79	420.68	80.17	428.24	1.33	1.27	0.94	17.78
	NORMAL	1,549.0	27.72	11.70	1,452.62	462.60	88.61	470.99	2.06	2.04	0.67	8.73
	NORMAL	1,645.0	26.97	9.47	1,537.90	505.93	96.72	515.08	1.32	-0.78	-2.32	232.80
	NORMAL	1,740.0	24.93	8.61	1,623.31	546.98	103.26	556.63	2.18	-2.15	-0.91	190.07
	NORMAL	1,836.0	25.34	8.82	1,710.22	587.29	109.44	597.39	0.44	0.43	0.22	12.37

## 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)	Buld (°/100ft)	Turn (°/100ft)	TFace (°)
12/19/2011	NORMAL	1,931.0	26.72	9.09	1,795.59	628.47	115.93	639.07	1.46	1.45	0.28	5.03
12/20/2011	NORMAL	2,026.0	25.54	10.44	1,880.88	669.70	123.02	680.90	1.39	-1.24	1.42	153.86
	NORMAL	2,122.0	23.71	11.15	1,968.14	708.99	130.50	720.90	1.93	-1.91	0.74	171.14
	NORMAL	2,217.0	24.44	11.29	2,054.88	747.00	138.04	759.65	0.77	0.77	0.15	4.54
	NORMAL	2,312.0	25.56	11.54	2,140.97	786.36	145.99	799.79	1.18	1.18	0.26	5.50
	NORMAL	2,407.0	26.93	12.98	2,226.18	827.40	154.92	841.77	1.59	1.44	1.52	25.58
	NORMAL	2,501.0	24.57	12.14	2,310.84	867.26	163.82	882.58	2.54	-2.51	-0.89	188.41
	NORMAL	2,596.0	24.54	9.82	2,397.25	906.01	171.34	922.04	1.02	-0.03	-2.44	267.16
12/21/2011	NORMAL	2,685.0	25.44	10.63	2,477.92	943.01	178.01	959.64	1.08	1.01	0.91	21.19
	NORMAL	2,781.0	25.93	8.14	2,564.43	984.05	184.79	1,001.24	1.23	0.51	-2.59	293.29
	NORMAL	2,876.0	26.43	6.85	2,649.69	1,025.60	190.25	1,043.10	0.80	0.53	-1.36	310.72
	NORMAL	2,972.0	24.93	7.76	2,736.21	1,066.87	195.53	1,084.64	1.62	-1.56	0.95	165.68
	NORMAL	3,067.0	24.66	7.39	2,822.45	1,106.36	200.79	1,124.43	0.33	-0.28	-0.39	209.72
	NORMAL	3,163.0	23.82	10.24	2,909.99	1,145.30	206.81	1,163.82	1.50	-0.88	2.97	126.97
	NORMAL	3,258.0	24.67	11.53	2,996.61	1,183.60	214.18	1,202.82	1.05	0.89	1.36	32.52
	NORMAL	3,353.0	26.32	11.56	3,082.35	1,223.67	222.36	1,243.71	1.74	1.74	0.03	0.46
	NORMAL	3,448.0	26.31	11.79	3,167.51	1,264.91	230.89	1,285.81	0.11	-0.01	0.24	95.70
	NORMAL	3,543.0	26.50	11.48	3,252.60	1,306.29	239.41	1,328.04	0.25	0.20	-0.33	323.90
	NORMAL	3,638.0	24.83	11.10	3,338.22	1,346.63	247.47	1,369.18	1.77	-1.76	-0.40	185.46
	NORMAL	3,734.0	25.13	9.60	3,425.24	1,386.51	254.75	1,409.72	0.73	0.31	-1.56	294.66
	NORMAL	3,829.0	26.72	10.97	3,510.68	1,427.37	262.17	1,451.25	1.79	1.67	1.44	21.26
12/22/2011	NORMAL	3,925.0	26.82	10.25	3,596.39	1,469.87	270.14	1,494.49	0.35	0.10	-0.75	286.82
	NORMAL	4,020.0	27.03	9.73	3,681.09	1,512.24	277.60	1,537.50	0.33	0.22	-0.55	311.50
	NORMAL	4,115.0	25.11	9.43	3,766.42	1,553.40	284.55	1,579.25	2.03	-2.02	-0.32	183.79
	NORMAL	4,210.0	24.13	8.78	3,852.79	1,592.48	290.82	1,618.82	1.07	-1.03	-0.68	195.15
	NORMAL	4,305.0	23.75	8.87	3,939.61	1,630.57	296.73	1,657.35	0.40	-0.40	0.09	174.55
	NORMAL	4,401.0	23.17	9.19	4,027.68	1,668.32	302.73	1,695.56	0.62	-0.60	0.33	167.76
	NORMAL	4,495.0	22.69	9.73	4,114.25	1,704.44	308.74	1,732.18	0.56	-0.51	0.57	156.58
	NORMAL	4,591.0	22.48	10.44	4,202.89	1,740.74	315.20	1,769.05	0.36	-0.22	0.74	127.93
	NORMAL	4,686.0	20.24	9.07	4,291.36	1,774.83	321.08	1,803.64	2.42	-2.36	-1.44	191.92
	NORMAL	4,781.0	19.62	8.97	4,380.67	1,806.82	326.16	1,836.02	0.65	-0.65	-0.11	183.10
	NORMAL	4,876.0	16.51	8.15	4,470.97	1,835.94	330.56	1,865.46	3.28	-3.27	-0.86	184.28
	NORMAL	4,971.0	14.96	9.27	4,562.41	1,861.41	334.45	1,891.21	1.66	-1.63	1.18	169.45
	NORMAL	5,066.0	14.20	11.07	4,654.35	1,884.94	338.66	1,915.12	0.93	-0.80	1.89	150.07
	NORMAL	5,161.0	14.60	12.69	4,746.37	1,908.06	343.53	1,938.73	0.60	0.42	1.71	45.99
	NORMAL	5,256.0	14.70	12.93	4,838.28	1,931.49	348.86	1,962.74	0.12	0.11	0.25	31.37
	NORMAL	5,351.0	14.01	14.61	4,930.31	1,954.36	354.46	1,986.25	0.85	-0.73	1.77	149.69
	NORMAL	5,445.0	13.33	11.77	5,021.65	1,975.98	359.54	2,008.43	1.02	-0.72	-3.02	223.25
	NORMAL	5,540.0	11.18	10.93	5,114.48	1,995.75	363.52	2,028.59	2.27	-2.26	-0.88	184.33
	NORMAL	5,635.0	10.11	12.63	5,207.84	2,012.93	367.09	2,046.13	1.17	-1.13	1.79	164.48
	NORMAL	5,730.0	9.18	14.55	5,301.50	2,028.40	370.81	2,062.02	1.04	-0.98	2.02	161.86
	NORMAL	5,826.0	8.43	11.92	5,396.37	2,042.70	374.19	2,076.69	0.89	-0.78	-2.74	206.93
12/23/2011	NORMAL	5,921.0	7.96	13.16	5,490.40	2,055.92	377.13	2,090.22	0.53	-0.49	1.31	160.00
	NORMAL	6,016.0	5.94	13.13	5,584.69	2,067.11	379.74	2,101.70	2.13	-2.13	-0.03	180.09
	NORMAL	6,112.0	5.02	10.91	5,680.26	2,076.07	381.66	2,110.86	0.98	-0.96	-2.31	191.87
	NORMAL	6,207.0	3.00	350.78	5,775.02	2,082.61	382.05	2,117.36	2.56	-2.13	-21.19	205.11
	NORMAL	6,303.0	2.44	346.97	5,870.91	2,087.08	381.19	2,121.60	0.61	-0.58	-3.97	196.00
	NORMAL	6,398.0	2.02	339.93	5,965.84	2,090.62	380.16	2,124.90	0.53	-0.44	-7.41	209.63
	NORMAL	6,493.0	2.07	355.36	6,060.78	2,093.90	379.45	2,128.01	0.58	0.05	16.24	92.55
	NORMAL	6,588.0	0.76	45.24	6,155.75	2,096.06	379.75	2,130.18	1.77	-1.38	52.51	159.81
	NORMAL	6,683.0	0.78	93.36	6,250.75	2,096.46	380.85	2,130.78	0.66	0.02	50.65	112.39
	NORMAL	6,778.0	1.01	109.46	6,345.73	2,096.15	382.28	2,130.72	0.36	0.24	16.95	55.79
12/24/2011	NORMAL	6,873.0	0.99	120.55	6,440.72	2,095.45	383.78	2,130.30	0.20	-0.02	11.67	101.43
	NORMAL	6,969.0	0.61	128.70	6,536.71	2,094.71	384.89	2,129.78	0.41	-0.40	8.49	167.38
	NORMAL	7,064.0	0.57	113.12	6,631.71	2,094.21	385.72	2,129.43	0.17	-0.04	-16.40	248.29
	NORMAL	7,159.0	0.76	83.06	6,726.70	2,094.10	386.78	2,129.51	0.41	0.20	-31.64	282.99
	NORMAL	7,255.0	0.76	49.28	6,822.69	2,094.59	387.89	2,130.20	0.46	0.00	-35.19	253.11

## 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 (°)
12/24/2011	NORMAL	7,350.0	0.73	41.25	6,917.68	2,095.46	388.77	2,131.21	0.11	-0.03	-8.45	249.98
	NORMAL	7,445.0	0.72	59.53	7,012.68	2,096.21	389.68	2,132.12	0.24	-0.01	19.24	101.59
	NORMAL	7,540.0	0.53	62.69	7,107.67	2,096.72	390.59	2,132.77	0.20	-0.20	3.33	171.29
	NORMAL	7,636.0	0.00	10.25	7,203.67	2,096.92	390.98	2,133.04	0.55	-0.55	0.00	180.00
	NORMAL	7,731.0	0.14	234.49	7,298.67	2,096.86	390.89	2,132.96	0.15	0.15	0.00	234.49
12/25/2011	NORMAL	7,826.0	0.43	212.41	7,393.67	2,096.49	390.60	2,132.55	0.32	0.31	-23.24	327.98
	NORMAL	7,922.0	0.81	210.44	7,489.66	2,095.60	390.07	2,131.58	0.40	0.40	-2.05	355.80
	NORMAL	8,017.0	1.21	196.54	7,584.65	2,094.06	389.44	2,129.95	0.49	0.42	-14.63	321.44
	NORMAL	8,113.0	1.45	194.29	7,680.62	2,091.91	388.85	2,127.73	0.26	0.25	-2.34	346.60
	NORMAL	8,208.0	1.49	178.92	7,775.59	2,089.51	388.58	2,125.32	0.42	0.04	-16.18	268.08
	NORMAL	8,304.0	1.41	162.23	7,871.56	2,087.14	388.96	2,123.05	0.45	-0.08	-17.39	251.01
	NORMAL	8,399.0	1.33	161.85	7,966.53	2,084.98	389.66	2,121.05	0.08	-0.08	-0.40	186.29
	NORMAL	8,494.0	1.69	167.08	8,061.50	2,082.56	390.32	2,118.80	0.41	0.38	5.51	23.58
	NORMAL	8,540.0	1.52	164.24	8,107.48	2,081.31	390.64	2,117.63	0.41	-0.37	-6.17	203.66
	NORMAL	8,595.0	1.32	160.84	8,162.46	2,080.01	391.04	2,116.42	0.39	-0.36	-6.18	201.15