

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	RWF 533-31	Wellbore No.	
Well Name	RWF 533-31	Common Name	RWF 533-31
Project	RU 31-06S-094W	Site	RWF 34-31 Pad
Vertical Section Azimuth	28.10 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	11/18/2011	UWI	RWF 533-31
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	11/18/2011	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)	Build (°/100ft)	Turn (°/100ft)	TFace (°)
11/18/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11/18/2011	NORMAL	117.0	0.26	308.32	117.00	0.16	-0.21	0.05	0.22	0.22	0.00	308.32
	NORMAL	178.0	1.85	33.57	177.99	1.07	0.23	1.05	3.03	2.61	139.75	93.31
	NORMAL	268.0	3.17	35.86	267.90	4.30	2.49	4.96	1.47	1.47	2.54	5.49
	NORMAL	339.0	4.92	35.20	338.72	8.38	5.39	9.93	2.47	2.46	-0.93	358.15
11/19/2011	NORMAL	430.0	6.57	34.74	429.26	15.84	10.61	18.97	1.81	1.81	-0.51	358.17
	NORMAL	522.0	9.14	21.91	520.40	26.95	16.34	31.47	3.37	2.79	-13.95	319.22
	NORMAL	612.0	9.80	19.84	609.17	40.79	21.60	46.16	0.83	0.73	-2.30	331.68
	NORMAL	703.0	10.22	24.23	698.79	55.44	27.55	61.88	0.96	0.46	4.82	63.34
	NORMAL	795.0	11.20	24.50	789.18	71.01	34.60	78.94	1.07	1.07	0.29	3.06
	NORMAL	886.0	10.65	28.02	878.53	86.47	42.22	96.17	0.95	-0.60	3.87	131.22
	NORMAL	977.0	11.12	27.84	967.90	101.66	50.27	113.35	0.52	0.52	-0.20	355.78
	NORMAL	1,073.0	10.94	30.75	1,062.12	117.67	59.25	131.71	0.61	-0.19	3.03	109.34
11/20/2011	NORMAL	1,162.0	11.34	33.38	1,149.45	132.24	68.38	148.86	0.73	0.45	2.96	53.09
	NORMAL	1,258.0	12.40	32.50	1,243.39	148.81	79.11	168.53	1.12	1.10	-0.92	349.88
	NORMAL	1,353.0	11.52	29.60	1,336.33	165.66	89.28	188.19	1.12	-0.93	-3.05	212.92
	NORMAL	1,448.0	10.11	27.65	1,429.64	181.30	97.83	206.01	1.53	-1.48	-2.05	193.59
	NORMAL	1,543.0	8.53	25.73	1,523.38	195.03	104.76	221.39	1.69	-1.66	-2.02	190.19
	NORMAL	1,639.0	8.97	25.64	1,618.27	208.19	111.09	235.98	0.46	0.46	-0.09	358.17
	NORMAL	1,734.0	9.41	27.14	1,712.05	221.78	117.84	251.14	0.53	0.46	1.58	29.31
	NORMAL	1,830.0	9.79	26.21	1,806.70	236.09	125.02	267.15	0.43	0.40	-0.97	337.34

## 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 (°)
11/21/2011	NORMAL	1,925.0	10.41	26.03	1,900.23	251.05	132.36	283.79	0.65	0.65	-0.19	357.00
	NORMAL	2,020.0	10.90	27.05	1,993.59	266.76	140.21	301.35	0.55	0.52	1.07	21.55
	NORMAL	2,116.0	10.87	26.23	2,087.86	282.96	148.34	319.47	0.16	-0.03	-0.85	258.63
	NORMAL	2,211.0	10.70	28.58	2,181.19	298.74	156.51	337.25	0.50	-0.18	2.47	112.29
	NORMAL	2,306.0	9.84	29.60	2,274.66	313.54	164.74	354.18	0.93	-0.91	1.07	168.56
	NORMAL	2,401.0	8.93	28.63	2,368.39	327.07	172.28	369.67	0.97	-0.96	-1.02	189.38
	NORMAL	2,495.0	9.41	30.21	2,461.19	340.12	179.65	384.64	0.58	0.51	1.68	28.46
	NORMAL	2,590.0	10.37	31.45	2,554.78	354.12	188.02	400.94	1.04	1.01	1.31	13.12
	NORMAL	2,685.0	12.03	32.09	2,647.96	369.81	197.74	419.35	1.75	1.75	0.67	4.60
	NORMAL	2,781.0	13.70	31.43	2,741.55	387.98	208.98	440.68	1.75	1.74	-0.69	354.65
	NORMAL	2,876.0	13.69	30.91	2,833.85	407.23	220.62	463.14	0.13	-0.01	-0.55	265.10
	NORMAL	2,972.0	14.72	29.93	2,926.91	427.55	232.54	486.68	1.10	1.07	-1.02	346.38
	NORMAL	3,067.0	15.90	29.77	3,018.54	449.30	245.03	511.75	1.24	1.24	-0.17	357.87
	NORMAL	3,163.0	17.77	26.77	3,110.42	473.80	258.16	539.55	2.15	1.95	-3.13	333.64
	NORMAL	3,258.0	19.10	25.15	3,200.55	500.81	271.29	569.56	1.50	1.40	-1.71	338.16
	NORMAL	3,353.0	19.84	25.96	3,290.12	529.38	284.95	601.20	0.83	0.78	0.85	20.43
	NORMAL	3,448.0	20.02	25.14	3,379.43	558.59	298.92	633.54	0.35	0.19	-0.86	302.39
	NORMAL	3,543.0	20.01	24.32	3,468.69	588.13	312.52	666.00	0.30	-0.01	-0.86	267.57
	NORMAL	3,638.0	20.07	23.88	3,557.94	617.84	325.81	698.48	0.17	0.06	-0.46	291.49
	NORMAL	3,734.0	20.36	24.68	3,648.02	648.08	339.46	731.58	0.42	0.30	0.83	44.00
	NORMAL	3,829.0	20.40	27.27	3,737.08	677.81	353.94	764.63	0.95	0.04	2.73	88.68
	NORMAL	3,925.0	20.74	27.53	3,826.96	707.76	369.47	798.36	0.37	0.35	0.27	15.16
	NORMAL	4,020.0	19.62	30.34	3,916.13	736.44	385.30	831.12	1.56	-1.18	2.96	140.44
	NORMAL	4,115.0	19.89	30.32	4,005.54	764.16	401.51	863.20	0.28	0.28	-0.02	358.56
	NORMAL	4,210.0	19.66	29.12	4,094.93	792.07	417.45	895.33	0.49	-0.24	-1.26	239.90
	NORMAL	4,305.0	19.44	28.91	4,184.46	819.87	432.87	927.11	0.24	-0.23	-0.22	197.62
	NORMAL	4,401.0	19.47	28.52	4,274.98	847.91	448.23	959.09	0.14	0.03	-0.41	282.82
	NORMAL	4,495.0	19.04	28.37	4,363.72	875.17	463.00	990.08	0.46	-0.46	-0.16	186.49
	NORMAL	4,591.0	17.01	28.37	4,455.00	901.30	477.11	1,019.79	2.11	-2.11	0.00	180.00
	NORMAL	4,686.0	15.97	29.08	4,546.09	924.95	490.06	1,046.75	1.12	-1.09	0.75	169.37
	NORMAL	4,781.0	15.05	30.67	4,637.63	946.98	502.71	1,072.14	1.07	-0.97	1.67	155.96
11/22/2011	NORMAL	4,876.0	14.07	30.70	4,729.58	967.52	514.90	1,096.00	1.03	-1.03	0.03	179.57
	NORMAL	4,971.0	12.92	31.35	4,821.96	986.52	526.32	1,118.14	1.22	-1.21	0.68	172.80
	NORMAL	5,066.0	11.81	32.44	4,914.75	1,003.79	537.06	1,138.43	1.19	-1.17	1.15	168.66
	NORMAL	5,161.0	11.06	28.78	5,007.87	1,019.99	546.66	1,157.24	1.10	-0.79	-3.85	222.27
	NORMAL	5,256.0	9.94	25.88	5,101.27	1,035.35	554.63	1,174.55	1.30	-1.18	-3.05	203.84
	NORMAL	5,351.0	10.03	26.21	5,194.84	1,050.15	561.86	1,191.01	0.11	0.09	0.35	32.61
	NORMAL	5,445.0	10.04	26.69	5,287.40	1,064.81	569.15	1,207.38	0.09	0.01	0.51	83.42
	NORMAL	5,540.0	9.64	25.90	5,381.00	1,079.37	576.35	1,223.61	0.44	-0.42	-0.83	198.26
11/23/2011	NORMAL	5,635.0	9.07	27.25	5,474.74	1,093.18	583.25	1,239.04	0.64	-0.60	1.42	159.61
	NORMAL	5,666.0	8.83	30.00	5,505.36	1,097.41	585.56	1,243.86	1.58	-0.77	8.87	120.65
	NORMAL	5,700.0	8.31	31.66	5,538.98	1,101.77	588.15	1,248.92	1.69	-1.53	4.88	155.38
	NORMAL	5,730.0	7.78	33.25	5,568.68	1,105.31	590.41	1,253.11	1.92	-1.77	5.30	158.01
	NORMAL	5,763.0	7.35	34.82	5,601.40	1,108.91	592.84	1,257.43	1.45	-1.30	4.76	155.10
	NORMAL	5,792.0	6.76	34.38	5,630.18	1,111.84	594.86	1,260.97	2.04	-2.03	-1.52	185.02
	NORMAL	5,826.0	6.04	34.87	5,663.96	1,114.96	597.01	1,264.74	2.12	-2.12	1.44	175.91
	NORMAL	5,859.0	5.10	36.41	5,696.81	1,117.56	598.87	1,267.91	2.88	-2.85	4.67	171.73
	NORMAL	5,890.0	4.13	36.35	5,727.71	1,119.57	600.35	1,270.38	3.13	-3.13	-0.19	180.26
	NORMAL	5,921.0	3.75	33.64	5,758.63	1,121.32	601.58	1,272.49	1.36	-1.23	-8.74	204.76
	NORMAL	5,951.0	2.90	34.06	5,788.58	1,122.76	602.55	1,274.22	2.83	-2.83	1.40	178.57
	NORMAL	5,981.0	2.42	37.66	5,818.55	1,123.89	603.36	1,275.60	1.69	-1.60	12.00	162.60
11/24/2011	NORMAL	6,016.0	1.66	28.77	5,853.53	1,124.92	604.05	1,276.84	2.35	-2.17	-25.40	198.21
	NORMAL	6,046.0	1.28	342.40	5,883.52	1,125.62	604.16	1,277.51	4.03	-1.27	-154.57	230.03
	NORMAL	6,076.0	1.26	305.20	5,913.51	1,126.13	603.79	1,277.78	2.70	-0.07	-124.00	250.06
	NORMAL	6,112.0	1.44	276.35	5,949.50	1,126.41	603.02	1,277.66	1.93	0.50	-80.14	270.11
	NORMAL	6,207.0	3.63	225.03	6,044.41	1,124.42	599.70	1,274.34	3.11	2.31	-54.02	286.33
	NORMAL	6,303.0	3.06	218.76	6,140.25	1,120.27	595.95	1,268.92	0.70	-0.59	-6.53	209.59

## 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 (°)
11/24/2011	NORMAL	6,398.0	3.10	210.22	6,235.11	1,116.07	593.07	1,263.86	0.48	0.04	-8.99	270.71
	NORMAL	6,493.0	2.33	222.08	6,330.01	1,112.42	590.48	1,259.42	1.00	-0.81	12.48	149.71
	NORMAL	6,588.0	1.85	224.86	6,424.94	1,109.90	588.10	1,256.08	0.52	-0.51	2.93	169.46
	NORMAL	6,683.0	1.85	222.93	6,519.89	1,107.69	585.98	1,253.13	0.07	0.00	-2.03	269.04
	NORMAL	6,778.0	1.93	220.83	6,614.84	1,105.36	583.89	1,250.08	0.11	0.08	-2.21	318.06
11/25/2011	NORMAL	6,873.0	1.82	227.45	6,709.79	1,103.13	581.73	1,247.10	0.26	-0.12	6.97	120.21
	NORMAL	6,969.0	0.36	211.14	6,805.77	1,101.84	580.45	1,245.36	1.54	-1.52	-16.99	183.92
	NORMAL	7,064.0	0.31	255.15	6,900.77	1,101.52	580.05	1,244.89	0.27	-0.05	46.33	122.47
	NORMAL	7,159.0	0.34	227.54	6,995.77	1,101.26	579.59	1,244.45	0.17	0.03	-29.06	266.83
	NORMAL	7,255.0	0.51	235.16	7,091.77	1,100.82	579.03	1,243.80	0.19	0.18	7.94	22.23
	NORMAL	7,350.0	0.38	238.38	7,186.76	1,100.42	578.42	1,243.15	0.14	-0.14	3.39	170.72
	NORMAL	7,445.0	0.20	295.80	7,281.76	1,100.32	578.00	1,242.87	0.34	-0.19	60.44	148.25
	NORMAL	7,540.0	0.00	10.26	7,376.76	1,100.40	577.85	1,242.86	0.21	-0.21	0.00	180.00
	NORMAL	7,636.0	0.41	313.08	7,472.76	1,100.63	577.60	1,242.95	0.43	0.43	0.00	313.08
11/26/2011	NORMAL	7,731.0	0.34	324.73	7,567.76	1,101.09	577.19	1,243.17	0.11	-0.07	12.26	138.28
	NORMAL	7,826.0	0.41	8.54	7,662.76	1,101.66	577.08	1,243.61	0.30	0.07	46.12	98.84
	NORMAL	7,922.0	0.69	46.19	7,758.75	1,102.40	577.54	1,244.49	0.46	0.29	39.22	72.08
	NORMAL	8,017.0	1.00	49.51	7,853.74	1,103.33	578.59	1,245.80	0.33	0.33	3.49	10.64
	NORMAL	8,113.0	1.24	59.50	7,949.72	1,104.40	580.12	1,247.47	0.32	0.25	10.41	44.20
	NORMAL	8,208.0	1.20	61.83	8,044.70	1,105.39	581.88	1,249.17	0.07	-0.04	2.45	130.04
	NORMAL	8,220.0	1.33	56.90	8,056.70	1,105.53	582.11	1,249.40	1.41	1.08	-41.08	317.58
	NORMAL	8,275.0	1.33	56.90	8,111.68	1,106.23	583.18	1,250.52	0.00	0.00	0.00	0.00