

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	RWF 421-32	Wellbore No.	OH
Well Name	RWF 421-32	Common Name	RWF 421-32
Project	RU 32-06S-094W	Site	RWF 11-32 Pad
Vertical Section Azimuth	35.73 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	11/27/2011	UWI	RWF 421-32
Active Datum	KB @5,561.2ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	SCIENTIFIC
Date Started	11/27/2011	Ended	12/5/2011
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

5840

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 (°)
11/27/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11/27/2011	NORMAL	85.0	0.26	347.17	85.00	0.19	-0.04	0.13	0.31	0.31	0.00	347.17
	NORMAL	175.0	1.32	40.17	174.99	1.18	0.58	1.30	1.31	1.18	58.89	63.12
	NORMAL	266.0	2.20	26.46	265.95	3.54	2.03	4.07	1.07	0.97	-15.07	327.47
	NORMAL	357.0	5.37	38.23	356.74	8.45	5.45	10.04	3.57	3.48	12.93	19.69
	NORMAL	448.0	9.33	35.24	446.97	17.83	12.34	21.68	4.37	4.35	-3.29	353.00
	NORMAL	538.0	10.91	32.96	535.57	30.93	21.19	37.48	1.81	1.76	-2.53	344.65
11/28/2011	NORMAL	612.0	11.87	34.61	608.11	43.07	29.32	52.09	1.37	1.30	2.23	19.56
	NORMAL	703.0	10.82	37.51	697.33	57.55	39.84	69.98	1.31	-1.15	3.19	152.90
	NORMAL	793.0	8.53	40.41	786.05	69.34	49.31	85.08	2.60	-2.54	3.22	169.41
	NORMAL	884.0	9.06	40.93	875.98	79.89	58.38	98.94	0.59	0.58	0.57	8.79
	NORMAL	977.0	10.02	35.84	967.69	91.98	67.91	114.33	1.37	1.03	-5.47	316.16
	NORMAL	1,069.0	11.17	36.10	1,058.12	105.67	77.85	131.24	1.25	1.25	0.28	2.51
	NORMAL	1,160.0	12.08	37.38	1,147.25	120.36	88.82	149.97	1.04	1.00	1.41	16.45
11/29/2011	NORMAL	1,108.0	12.08	37.78	1,096.32	111.95	82.58	139.10	2.49	2.33	4.31	21.23
	NORMAL	1,252.0	12.71	39.17	1,236.96	136.14	101.81	169.30	0.48	0.44	0.97	26.02
	NORMAL	1,346.0	11.47	35.76	1,328.88	151.74	113.81	189.64	1.52	-1.32	-3.63	208.28
	NORMAL	1,440.0	9.76	32.41	1,421.27	166.05	123.54	206.94	1.93	-1.82	-3.56	198.20
	NORMAL	1,534.0	9.94	32.23	1,513.88	179.64	132.14	222.99	0.19	0.19	-0.19	350.20
	NORMAL	1,629.0	9.50	33.02	1,607.52	193.15	140.78	239.01	0.48	-0.46	0.83	163.53
	NORMAL	1,722.0	9.50	33.20	1,699.24	206.01	149.17	254.34	0.03	0.00	0.19	90.09

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 (°)
11/29/2011	NORMAL	1,816.0	9.15	31.53	1,792.00	218.87	157.32	269.54	0.47	-0.37	-1.78	216.89
	NORMAL	1,909.0	8.88	31.09	1,883.85	231.32	164.90	284.07	0.30	-0.29	-0.47	194.11
	NORMAL	2,003.0	10.29	37.51	1,976.54	244.19	173.76	299.70	1.88	1.50	6.83	40.36
	NORMAL	2,098.0	10.11	39.18	2,070.04	257.39	184.19	316.50	0.36	-0.19	1.76	122.15
	NORMAL	2,191.0	9.76	39.88	2,161.64	269.76	194.40	332.51	0.40	-0.38	0.75	161.31
	NORMAL	2,285.0	9.58	40.85	2,254.31	281.79	204.63	348.25	0.26	-0.19	1.03	138.33
	NORMAL	2,378.0	8.97	41.37	2,346.09	293.09	214.48	363.17	0.66	-0.66	0.56	172.43
	NORMAL	2,472.0	9.67	36.54	2,438.85	304.93	224.02	378.36	1.12	0.74	-5.14	309.43
	NORMAL	2,566.0	9.32	36.28	2,531.56	317.41	233.23	393.86	0.38	-0.37	-0.28	186.86
	NORMAL	2,660.0	9.06	38.03	2,624.36	329.38	242.29	408.87	0.41	-0.28	1.86	133.79
	NORMAL	2,754.0	9.76	36.98	2,717.09	341.57	251.64	424.23	0.77	0.74	-1.12	345.70
	NORMAL	2,849.0	9.67	37.24	2,810.73	354.35	261.32	440.26	0.11	-0.09	0.27	154.14
	NORMAL	2,944.0	9.41	35.84	2,904.42	367.00	270.69	456.00	0.37	-0.27	-1.47	221.06
	NORMAL	3,037.0	9.41	37.33	2,996.17	379.21	279.75	471.20	0.26	0.00	1.60	90.73
11/30/2011	NORMAL	3,130.0	8.79	38.12	3,087.99	390.85	288.75	485.90	0.68	-0.67	0.85	169.00
	NORMAL	3,224.0	9.67	33.02	3,180.78	403.12	297.49	500.96	1.28	0.94	-5.43	314.55
	NORMAL	3,319.0	9.58	33.46	3,274.44	416.40	306.19	516.83	0.12	-0.09	0.46	140.95
	NORMAL	3,414.0	9.06	33.46	3,368.19	429.24	314.68	532.20	0.55	-0.55	0.00	180.00
	NORMAL	3,508.0	10.02	33.99	3,460.89	442.19	323.33	547.77	1.03	1.02	0.56	5.49
	NORMAL	3,602.0	9.94	34.87	3,553.46	455.63	332.54	564.06	0.18	-0.09	0.94	118.11
	NORMAL	3,695.0	9.76	32.85	3,645.09	468.84	341.40	579.96	0.42	-0.19	-2.17	241.49
	NORMAL	3,789.0	9.58	34.43	3,737.76	481.98	350.15	595.74	0.34	-0.19	1.68	124.92
	NORMAL	3,883.0	9.50	35.31	3,830.46	494.76	359.05	611.31	0.18	-0.09	0.94	119.18
	NORMAL	3,977.0	8.88	34.87	3,923.25	507.05	367.68	626.32	0.66	-0.66	-0.47	186.25
	NORMAL	4,070.0	9.06	39.00	4,015.11	518.63	376.40	640.81	0.72	0.19	4.44	76.43
	NORMAL	4,164.0	9.85	37.42	4,107.84	530.76	385.94	656.24	0.88	0.84	-1.68	341.03
	NORMAL	4,258.0	9.76	38.38	4,200.46	543.40	395.77	672.23	0.20	-0.10	1.02	119.31
	NORMAL	4,351.0	9.67	38.38	4,292.13	555.70	405.52	687.91	0.10	-0.10	0.00	180.00
12/1/2011	NORMAL	4,446.0	9.58	42.08	4,385.79	567.82	415.77	703.74	0.66	-0.09	3.89	100.10
	NORMAL	4,539.0	9.58	42.25	4,477.50	579.29	426.16	719.12	0.03	0.00	0.18	90.08
	NORMAL	4,633.0	9.15	37.68	4,570.24	591.00	435.99	734.36	0.91	-0.46	-4.86	237.72
	NORMAL	4,727.0	8.71	38.12	4,663.10	602.51	444.95	748.94	0.47	-0.47	0.47	171.39
	NORMAL	4,822.0	8.35	31.97	4,757.06	614.02	453.04	763.01	1.03	-0.38	-6.47	245.44
	NORMAL	4,916.0	8.18	31.88	4,850.08	625.49	460.19	776.49	0.18	-0.18	-0.10	184.31
	NORMAL	5,011.0	6.95	35.31	4,944.25	635.92	467.08	788.98	1.38	-1.29	3.61	161.53
	NORMAL	5,105.0	6.07	32.14	5,037.64	644.77	473.01	799.63	1.01	-0.94	-3.37	200.65
	NORMAL	5,199.0	4.84	26.96	5,131.22	652.51	477.45	808.51	1.41	-1.31	-5.51	199.25
	NORMAL	5,293.0	4.66	28.72	5,224.89	659.40	481.08	816.22	0.25	-0.19	1.87	141.88
	NORMAL	5,385.0	3.61	34.43	5,316.65	665.06	484.52	822.83	1.22	-1.14	6.21	161.42
	NORMAL	5,479.0	3.69	39.70	5,410.46	669.83	488.12	828.80	0.37	0.09	5.61	79.23
	NORMAL	5,573.0	2.64	56.67	5,504.32	673.35	491.86	833.84	1.49	-1.12	18.05	146.52
	NORMAL	5,666.0	1.76	74.68	5,597.25	674.90	495.03	836.95	1.19	-0.95	19.37	150.61
12/2/2011	NORMAL	5,760.0	0.44	68.97	5,691.23	675.41	496.76	838.38	1.41	-1.40	-6.07	181.90
	NORMAL	5,854.0	0.35	6.39	5,785.23	675.83	497.13	838.93	0.44	-0.10	-66.57	228.09
	NORMAL	5,948.0	0.44	347.06	5,879.23	676.47	497.08	839.42	0.17	0.10	-20.56	294.12
	NORMAL	6,042.0	0.88	7.89	5,973.22	677.53	497.10	840.29	0.53	0.47	22.16	39.29
	NORMAL	6,136.0	0.79	5.07	6,067.21	678.89	497.25	841.49	0.11	-0.10	-3.00	203.14
	NORMAL	6,230.0	0.62	43.48	6,161.21	679.91	497.66	842.55	0.52	-0.18	40.66	128.30
	NORMAL	6,325.0	0.53	288.17	6,256.20	680.42	497.60	842.93	1.02	-0.09	-121.38	209.51
	NORMAL	6,419.0	0.53	308.12	6,350.20	680.82	496.84	842.82	0.20	0.00	21.22	99.97
	NORMAL	6,513.0	0.62	311.29	6,444.19	681.43	496.12	842.88	0.10	0.10	3.37	21.06
	NORMAL	6,607.0	0.35	274.64	6,538.19	681.78	495.45	842.78	0.42	-0.29	-38.99	211.63
	NORMAL	6,701.0	0.35	200.19	6,632.19	681.54	495.07	842.36	0.45	0.00	-79.20	232.78
	NORMAL	6,793.0	0.70	186.30	6,724.19	680.72	494.91	841.60	0.40	0.38	-15.10	332.98
	NORMAL	6,886.0	0.79	157.30	6,817.18	679.56	495.09	840.77	0.41	0.10	-31.18	268.65
	NORMAL	6,981.0	1.14	142.71	6,912.17	678.20	495.92	840.15	0.45	0.37	-15.36	317.49
	NORMAL	7,074.0	0.88	136.82	7,005.15	676.95	496.97	839.74	0.30	-0.28	-6.33	198.84

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)	Bulld Rate (°/100ft)	Turn (°/100ft)	TFace (°)
12/2/2011	NORMAL	7,169.0	0.09	59.57	7,100.15	676.45	497.53	839.67	0.91	-0.83	-81.32	185.83
12/3/2011	NORMAL	7,263.0	0.09	55.08	7,194.15	676.53	497.65	839.81	0.01	0.00	-4.78	267.76
	NORMAL	7,355.0	0.53	123.73	7,286.15	676.34	498.07	839.89	0.55	0.48	74.62	78.22
	NORMAL	7,449.0	0.97	158.97	7,380.14	675.35	498.71	839.47	0.66	0.47	37.49	64.89
	NORMAL	7,543.0	1.41	197.55	7,474.12	673.51	498.65	837.93	0.95	0.47	41.04	81.44
	NORMAL	7,637.0	1.76	205.47	7,568.08	671.10	497.68	835.42	0.44	0.37	8.43	36.04
	NORMAL	7,731.0	2.46	206.52	7,662.02	667.99	496.16	832.00	0.75	0.74	1.12	3.69
	NORMAL	7,824.0	2.81	205.47	7,754.92	664.15	494.29	827.79	0.38	0.38	-1.13	351.62
	NORMAL	7,918.0	2.46	202.21	7,848.82	660.20	492.54	823.56	0.40	-0.37	-3.47	201.56
	NORMAL	7,985.0	2.46	202.21	7,915.76	657.54	491.45	820.77	0.00	0.00	0.00	0.00