

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well Information

Well	RWF 321-32	Wellbore No.	
Well Name	RWF 321-32	Common Name	RWF 321-32
Project	RU 32-06S-094W	Site	RWF 11-32 Pad
Vertical Section Azimuth	38.53 (°)	North Reference	True
Origin N/S		Origin E/W	
Spud Date	11/17/2011	UWI	RWF 321-32
Active Datum	KB @5,561.2ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	11/17/2011	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

5899

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 (°)
11/17/2011	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11/17/2011	NORMAL	159.0	2.33	34.03	158.96	2.68	1.81	3.22	1.47	1.47	0.00	34.03
	NORMAL	250.0	3.37	41.90	249.84	6.20	4.63	7.74	1.22	1.14	8.65	24.58
11/18/2011	NORMAL	341.0	6.95	36.89	340.46	12.60	9.72	15.91	3.96	3.93	-5.51	350.32
	NORMAL	432.0	11.56	45.32	430.25	23.42	19.52	30.48	5.27	5.07	9.26	20.58
	NORMAL	522.0	12.69	45.51	518.25	36.69	32.98	49.25	1.26	1.26	0.21	2.12
	NORMAL	612.0	13.45	39.84	605.92	51.65	46.74	69.52	1.66	0.84	-6.30	297.87
	NORMAL	703.0	13.95	35.66	694.33	68.69	59.92	91.06	1.22	0.55	-4.59	294.76
	NORMAL	793.0	14.93	34.64	781.49	87.05	72.83	113.46	1.12	1.09	-1.13	344.96
	NORMAL	884.0	14.39	35.74	869.52	105.87	86.10	136.45	0.67	-0.59	1.21	153.26
	NORMAL	977.0	14.25	38.65	959.63	124.19	100.00	159.44	0.79	-0.15	3.13	102.41
	NORMAL	1,069.0	14.42	37.23	1,048.77	142.15	114.00	182.22	0.42	0.18	-1.54	295.12
	NORMAL	1,165.0	15.56	38.65	1,141.50	161.73	129.27	207.04	1.25	1.19	1.48	18.54
11/19/2011	NORMAL	1,252.0	17.06	37.15	1,225.00	181.01	144.27	231.47	1.79	1.72	-1.72	343.59
	NORMAL	1,346.0	15.12	41.29	1,315.32	201.22	160.69	257.51	2.40	-2.06	4.40	151.38
	NORMAL	1,439.0	13.89	38.91	1,405.35	219.02	175.70	280.78	1.47	-1.32	-2.56	204.71
	NORMAL	1,533.0	14.54	38.74	1,496.47	237.00	190.18	303.87	0.69	0.69	-0.18	356.24
	NORMAL	1,628.0	13.37	39.26	1,588.67	254.81	204.59	326.77	1.24	-1.23	0.55	174.13
11/20/2011	NORMAL	1,722.0	13.63	38.56	1,680.07	271.88	218.37	348.72	0.33	0.28	-0.74	327.51
	NORMAL	1,815.0	14.42	38.21	1,770.30	289.55	232.36	371.26	0.85	0.85	-0.38	353.70
	NORMAL	1,908.0	13.28	35.92	1,860.59	307.30	245.79	393.51	1.36	-1.23	-2.46	204.57

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 (°)
11/20/2011	NORMAL	2,002.0	13.10	35.05	1,952.11	324.76	258.25	414.92	0.29	-0.19	-0.93	227.38
	NORMAL	2,097.0	12.88	36.11	2,044.68	342.13	270.67	436.25	0.34	-0.23	1.12	133.23
	NORMAL	2,190.0	11.78	36.72	2,135.53	358.12	282.45	456.09	1.19	-1.18	0.66	173.54
	NORMAL	2,284.0	13.22	39.74	2,227.30	374.07	295.06	476.43	1.68	1.53	3.21	25.89
	NORMAL	2,378.0	14.52	37.10	2,318.56	391.74	309.04	498.96	1.54	1.38	-2.81	332.76
	NORMAL	2,471.0	14.10	36.73	2,408.68	410.12	322.85	521.94	0.46	-0.45	-0.40	192.10
	NORMAL	2,566.0	13.72	35.75	2,500.89	428.53	336.35	544.76	0.47	-0.40	-1.03	211.32
	NORMAL	2,660.0	14.25	39.35	2,592.11	446.53	350.20	567.46	1.08	0.56	3.83	60.41
	NORMAL	2,754.0	14.33	38.74	2,683.20	464.55	364.82	590.66	0.18	0.09	-0.65	297.69
	NORMAL	2,849.0	14.06	37.98	2,775.30	482.81	379.27	613.96	0.35	-0.28	-0.80	214.25
	NORMAL	2,943.0	13.81	38.65	2,866.53	500.57	393.31	636.59	0.32	-0.27	0.71	147.49
	NORMAL	3,037.0	13.72	38.21	2,957.83	518.10	407.21	658.96	0.15	-0.10	-0.47	229.10
	NORMAL	3,130.0	14.07	39.18	3,048.11	535.52	421.17	681.29	0.45	0.38	1.04	34.12
	NORMAL	3,224.0	14.16	38.91	3,139.27	553.33	435.61	704.21	0.12	0.10	-0.29	323.68
	NORMAL	3,319.0	14.69	37.42	3,231.28	571.94	450.23	727.88	0.68	0.56	-1.57	324.27
	NORMAL	3,413.0	13.24	40.98	3,322.50	589.53	464.54	750.55	1.79	-1.54	3.79	151.07
	NORMAL	3,508.0	13.19	40.85	3,414.98	605.94	478.76	772.25	0.06	-0.05	-0.14	210.66
	NORMAL	3,601.0	13.72	41.02	3,505.43	622.29	492.94	793.87	0.57	0.57	0.18	4.35
	NORMAL	3,695.0	13.54	40.85	3,596.78	639.02	507.45	816.00	0.20	-0.19	-0.18	192.46
	NORMAL	3,789.0	13.87	38.68	3,688.11	656.14	521.69	838.26	0.65	0.35	-2.31	301.64
	NORMAL	3,883.0	13.94	38.71	3,779.35	673.77	535.81	860.85	0.07	0.07	0.03	5.89
	NORMAL	3,977.0	14.25	38.38	3,870.52	691.68	550.08	883.74	0.34	0.33	-0.35	345.31
	NORMAL	4,070.0	13.28	37.68	3,960.85	709.10	563.71	905.87	1.06	-1.04	-0.75	189.40
	NORMAL	4,163.0	12.97	36.70	4,051.42	725.93	576.48	926.98	0.41	-0.33	-1.05	215.20
	NORMAL	4,258.0	12.84	35.66	4,144.02	743.05	589.00	948.18	0.28	-0.14	-1.09	240.26
	NORMAL	4,351.0	12.57	35.40	4,234.74	759.69	600.89	968.60	0.30	-0.29	-0.28	191.83
	NORMAL	4,445.0	12.66	35.57	4,326.47	776.41	612.81	989.11	0.10	0.10	0.18	22.50
11/21/2011	NORMAL	4,539.0	13.37	36.54	4,418.06	793.52	625.27	1,010.25	0.79	0.76	1.03	17.57
	NORMAL	4,633.0	13.89	37.33	4,509.41	811.23	638.58	1,032.40	0.59	0.55	0.84	20.08
	NORMAL	4,727.0	12.05	38.82	4,601.01	827.84	651.58	1,053.49	1.99	-1.96	1.59	170.42
	NORMAL	4,821.0	10.38	41.11	4,693.21	841.87	663.30	1,071.76	1.84	-1.78	2.44	166.19
	NORMAL	4,915.0	8.71	38.74	4,785.91	853.80	673.32	1,087.34	1.82	-1.78	-2.52	192.08
	NORMAL	5,010.0	7.47	36.19	4,879.96	864.40	681.47	1,100.71	1.36	-1.31	-2.68	194.88
	NORMAL	5,104.0	7.36	36.87	4,973.17	874.15	688.69	1,112.83	0.15	-0.12	0.72	141.75
	NORMAL	5,199.0	5.01	42.43	5,067.62	882.08	695.14	1,123.05	2.55	-2.47	5.85	168.45
	NORMAL	5,293.0	4.48	47.17	5,161.29	887.60	700.60	1,130.78	0.70	-0.56	5.04	145.85
	NORMAL	5,384.0	4.66	44.30	5,252.00	892.66	705.79	1,137.97	0.32	0.20	-3.15	306.77
	NORMAL	5,479.0	3.43	44.98	5,346.77	897.44	710.49	1,144.63	1.30	-1.29	0.72	178.11
	NORMAL	5,572.0	3.96	51.48	5,439.57	901.40	714.97	1,150.52	0.73	0.57	6.99	41.59
	NORMAL	5,666.0	2.37	66.07	5,533.43	904.21	719.29	1,155.41	1.88	-1.69	15.52	160.29
	NORMAL	5,760.0	2.37	67.21	5,627.35	905.75	722.86	1,158.84	0.05	0.00	1.21	90.57
11/22/2011	NORMAL	5,854.0	2.73	70.55	5,721.25	907.25	726.76	1,162.44	0.41	0.38	3.55	24.10
	NORMAL	5,947.0	1.93	39.00	5,814.18	909.21	729.83	1,165.89	1.59	-0.86	-33.92	222.94
	NORMAL	6,042.0	2.11	39.09	5,909.12	911.81	731.94	1,169.24	0.19	0.19	0.09	1.05
	NORMAL	6,136.0	1.23	1.38	6,003.08	914.16	733.06	1,171.77	1.45	-0.94	-40.12	213.50
	NORMAL	6,230.0	1.58	280.79	6,097.06	915.41	731.81	1,171.97	1.95	0.37	-85.73	238.07
	NORMAL	6,324.0	1.85	275.87	6,191.02	915.81	729.03	1,170.55	0.33	0.29	-5.23	328.92
	NORMAL	6,418.0	1.58	269.63	6,284.98	915.96	726.22	1,168.92	0.35	-0.29	-6.64	211.58
11/23/2011	NORMAL	6,512.0	1.41	270.68	6,378.95	915.96	723.77	1,167.39	0.18	-0.18	1.12	171.37
	NORMAL	6,606.0	1.58	272.26	6,472.91	916.03	721.32	1,165.92	0.19	0.18	1.68	14.42
	NORMAL	6,700.0	0.62	258.90	6,566.90	915.98	719.52	1,164.76	1.05	-1.02	-14.21	188.34
	NORMAL	6,792.0	0.44	256.44	6,658.89	915.80	718.69	1,164.11	0.20	-0.20	-2.67	185.98
	NORMAL	6,886.0	0.53	221.55	6,752.89	915.39	718.05	1,163.39	0.32	0.10	-37.12	269.01
	NORMAL	6,980.0	0.79	112.65	6,846.88	914.82	718.36	1,163.13	1.15	0.28	-115.85	223.56
	NORMAL	7,074.0	1.14	114.94	6,940.87	914.17	719.81	1,163.53	0.37	0.37	2.44	7.43
	NORMAL	7,168.0	1.49	124.08	7,034.85	913.09	721.67	1,163.84	0.43	0.37	9.72	35.56
	NORMAL	7,262.0	1.85	118.63	7,128.81	911.68	724.01	1,164.20	0.42	0.38	-5.80	333.45

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 (°)
11/24/2011	NORMAL	7,355.0	1.76	115.29	7,221.76	910.35	726.62	1,164.78	0.15	-0.10	-3.59	227.79
	NORMAL	7,449.0	1.58	124.25	7,315.72	909.01	729.00	1,165.21	0.34	-0.19	9.53	129.00
11/25/2011	NORMAL	7,542.0	0.35	21.25	7,408.71	908.55	730.16	1,165.58	1.82	-1.32	-110.75	191.62
	NORMAL	7,636.0	0.62	43.13	7,502.71	909.19	730.61	1,166.36	0.34	0.29	23.28	45.72
	NORMAL	7,730.0	0.35	230.34	7,596.70	909.38	730.74	1,166.58	1.03	-0.29	-183.82	182.60
	NORMAL	7,823.0	0.44	209.07	7,689.70	908.88	730.35	1,165.95	0.18	0.10	-22.87	290.61
	NORMAL	7,917.0	0.35	238.34	7,783.70	908.42	729.93	1,165.33	0.23	-0.10	31.14	128.20
	NORMAL	7,986.0	0.18	98.41	7,852.70	908.29	729.85	1,165.18	0.73	-0.25	-202.80	193.36
	NORMAL	8,040.0	0.18	98.41	7,906.70	908.26	730.02	1,165.27	0.00	0.00	0.00	0.00