

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	RWF 414-18	Wellbore No.	
Well Name	RWF 414-18	Common Name	RWF 414-18
Project	RU 19-06S-094W	Site	RWF 11-19 Pad
Vertical Section	308.00 (°)	North Reference	
Azimuth		Origin E/W	
Origin N/S		UWI	RWF 414-18
Spud Date	2/26/2010		
Active Datum	KB @5,998.0ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	2/26/2010	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

6436

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 (°)
2/26/2010	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2/26/2010	NORMAL	100.0	0.44	248.12	100.00	-0.14	-0.36	0.19	0.44	0.44	0.00	248.12
	NORMAL	177.0	1.67	309.81	176.99	0.47	-1.49	1.46	1.96	1.60	80.12	76.53
	NORMAL	269.0	3.96	308.23	268.87	3.29	-5.02	5.98	2.49	2.49	-1.72	357.27
2/27/2010	NORMAL	362.0	5.81	314.47	361.53	8.57	-10.90	13.87	2.07	1.99	6.71	19.15
	NORMAL	453.0	7.39	308.14	451.92	15.42	-18.79	24.30	1.91	1.74	-6.96	332.11
	NORMAL	544.0	7.65	307.71	542.14	22.74	-28.19	36.21	0.29	0.29	-0.47	347.57
	NORMAL	636.0	8.80	306.65	633.19	30.68	-38.68	49.37	1.26	1.25	-1.15	351.96
	NORMAL	728.0	7.48	304.01	724.26	38.23	-49.29	62.38	1.49	-1.43	-2.87	194.51
	NORMAL	821.0	7.74	303.49	816.44	45.07	-59.53	74.66	0.29	0.28	-0.56	344.91
	NORMAL	896.0	6.83	309.51	890.84	50.70	-67.18	84.15	1.58	-1.21	8.03	142.97
	NORMAL	988.0	6.66	309.00	982.20	57.54	-75.55	94.95	0.20	-0.18	-0.55	199.16
	NORMAL	1,069.0	6.96	306.53	1,062.63	63.41	-83.14	104.56	0.52	0.37	-3.05	314.46
2/28/2010	NORMAL	1,170.0	6.96	307.03	1,162.89	70.74	-92.94	116.79	0.06	0.00	0.50	90.25
	NORMAL	1,266.0	6.80	304.83	1,258.20	77.49	-102.25	128.28	0.32	-0.17	-2.29	237.65
	NORMAL	1,361.0	6.73	304.10	1,352.53	83.82	-111.48	139.45	0.12	-0.07	-0.77	230.49
	NORMAL	1,456.0	6.62	308.15	1,446.89	90.33	-120.39	150.48	0.51	-0.12	4.26	105.16
3/1/2010	NORMAL	1,552.0	6.38	307.73	1,542.27	97.01	-128.96	161.35	0.25	-0.25	-0.44	191.00
	NORMAL	1,646.0	6.51	317.98	1,635.68	104.16	-136.66	171.82	1.23	0.14	10.90	88.66
	NORMAL	1,741.0	6.11	321.14	1,730.11	112.10	-143.44	182.05	0.56	-0.42	3.33	140.60
	NORMAL	1,837.0	6.26	314.53	1,825.55	119.75	-150.38	192.22	0.76	0.16	-6.89	278.60

## 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 (°)
3/1/2010	NORMAL	1,932.0	6.50	301.99	1,919.97	126.23	-158.63	202.72	1.49	0.25	-13.20	273.50
	NORMAL	2,027.0	6.37	301.69	2,014.37	131.85	-167.67	213.30	0.14	-0.14	-0.32	194.35
	NORMAL	2,122.0	6.21	303.28	2,108.80	137.44	-176.45	223.66	0.25	-0.17	1.67	133.36
	NORMAL	2,218.0	5.45	306.00	2,204.30	142.97	-184.48	233.39	0.84	-0.79	2.83	161.37
	NORMAL	2,313.0	6.04	305.94	2,298.82	148.55	-192.18	242.90	0.62	0.62	-0.06	359.39
	NORMAL	2,408.0	5.67	303.20	2,393.33	154.05	-200.15	252.57	0.49	-0.39	-2.88	215.71
	NORMAL	2,502.0	7.22	308.63	2,486.73	160.29	-208.65	263.10	1.77	1.65	5.78	24.18
	NORMAL	2,598.0	7.13	312.97	2,581.98	168.11	-217.73	275.07	0.57	-0.09	4.52	101.58
	NORMAL	2,692.0	6.75	310.75	2,675.29	175.69	-226.18	286.40	0.49	-0.40	-2.36	214.12
	NORMAL	2,788.0	6.46	313.17	2,770.65	183.07	-234.39	297.41	0.42	-0.30	2.52	137.37
	NORMAL	2,884.0	6.01	312.38	2,866.08	190.15	-242.04	307.80	0.48	-0.47	-0.82	190.40
	NORMAL	2,980.0	6.44	310.51	2,961.52	197.04	-249.85	318.19	0.50	0.45	-1.95	333.82
	NORMAL	3,075.0	6.40	314.49	3,055.92	204.21	-257.68	328.78	0.47	-0.04	4.19	97.11
	NORMAL	3,171.0	6.66	308.20	3,151.30	211.40	-265.87	339.66	0.79	0.27	-6.55	286.83
	NORMAL	3,267.0	6.74	309.41	3,246.65	218.42	-274.60	350.86	0.17	0.08	1.26	61.06
	NORMAL	3,362.0	6.30	310.32	3,341.03	225.33	-282.88	361.64	0.48	-0.46	0.96	167.24
	NORMAL	3,458.0	6.71	302.18	3,436.42	231.73	-291.64	372.48	1.05	0.43	-8.48	289.89
	NORMAL	3,554.0	6.51	297.87	3,531.78	237.26	-301.20	383.42	0.56	-0.21	-4.49	245.91
	NORMAL	3,650.0	7.62	309.01	3,627.05	243.81	-310.96	395.14	1.83	1.16	11.60	56.61
	NORMAL	3,746.0	7.56	311.64	3,722.21	252.01	-320.62	407.81	0.37	-0.06	2.74	101.10
	NORMAL	3,842.0	6.89	310.17	3,817.45	259.92	-329.74	419.87	0.72	-0.70	-1.53	194.70
	NORMAL	3,938.0	6.81	313.76	3,912.76	267.58	-338.25	431.28	0.45	-0.08	3.74	102.36
	NORMAL	4,034.0	6.57	311.62	4,008.11	275.16	-346.47	442.43	0.36	-0.25	-2.23	225.03
	NORMAL	4,129.0	6.57	308.24	4,102.49	282.13	-354.80	453.29	0.41	0.00	-3.56	268.32
	NORMAL	4,225.0	7.02	304.41	4,197.81	288.85	-363.95	464.63	0.66	0.47	-3.99	312.89
3/2/2010	NORMAL	4,321.0	6.37	303.69	4,293.16	295.12	-373.22	475.80	0.68	-0.68	-0.75	187.00
	NORMAL	4,416.0	7.26	308.74	4,387.49	301.80	-382.29	487.06	1.13	0.94	5.32	36.48
	NORMAL	4,511.0	6.89	310.48	4,481.76	309.25	-391.31	498.75	0.45	-0.39	1.83	150.78
	NORMAL	4,607.0	6.88	308.37	4,577.07	316.56	-400.20	510.25	0.26	-0.01	-2.20	266.69
	NORMAL	4,703.0	6.16	313.51	4,672.45	323.68	-408.44	521.13	0.96	-0.75	5.35	143.51
	NORMAL	4,799.0	6.38	316.49	4,767.88	331.09	-415.85	531.53	0.41	0.23	3.10	57.43
	NORMAL	4,895.0	6.46	309.68	4,863.27	338.41	-423.68	542.21	0.80	0.08	-7.09	272.61
	NORMAL	4,991.0	5.91	311.28	4,958.72	345.12	-431.55	552.54	0.60	-0.57	1.67	163.39
3/4/2010	NORMAL	5,087.0	4.89	311.19	5,054.29	351.07	-438.34	561.56	1.06	-1.06	-0.09	180.43
	NORMAL	5,183.0	5.80	310.21	5,149.87	356.90	-445.12	570.49	0.95	0.95	-1.02	353.78
	NORMAL	5,279.0	6.65	301.96	5,245.30	362.97	-453.54	580.87	1.28	0.89	-8.59	309.39
	NORMAL	5,375.0	6.03	302.32	5,340.72	368.61	-462.52	591.41	0.65	-0.65	0.38	176.51
	NORMAL	5,471.0	5.26	300.67	5,436.25	373.55	-470.57	600.79	0.82	-0.80	-1.72	191.08
	NORMAL	5,567.0	4.73	299.66	5,531.89	377.75	-477.79	609.07	0.56	-0.55	-1.05	188.92
	NORMAL	5,663.0	4.30	297.17	5,627.59	381.36	-484.43	616.53	0.49	-0.45	-2.59	203.27
	NORMAL	5,759.0	3.10	293.00	5,723.39	384.01	-490.03	622.57	1.28	-1.25	-4.34	190.56
	NORMAL	5,854.0	2.53	292.14	5,818.27	385.81	-494.33	627.07	0.60	-0.60	-0.91	183.81
	NORMAL	5,950.0	2.54	306.27	5,914.18	387.87	-498.01	631.23	0.65	0.01	14.72	96.15
3/5/2010	NORMAL	6,046.0	2.12	307.18	6,010.10	390.20	-501.14	635.13	0.44	-0.44	0.95	175.42
	NORMAL	6,142.0	1.95	319.16	6,106.04	392.51	-503.62	638.51	0.48	-0.18	12.48	117.70
	NORMAL	6,238.0	1.89	308.36	6,201.99	394.72	-505.93	641.70	0.38	-0.06	-11.25	255.22
	NORMAL	6,334.0	1.64	316.71	6,297.94	396.71	-508.12	644.64	0.37	-0.26	8.70	138.31
	NORMAL	6,429.0	1.03	343.37	6,392.91	398.51	-509.29	646.68	0.90	-0.64	28.06	147.29
	NORMAL	6,525.0	1.19	349.42	6,488.90	400.32	-509.72	648.13	0.21	0.17	6.30	39.27
	NORMAL	6,621.0	0.94	327.36	6,584.88	401.96	-510.33	649.62	0.50	-0.26	-22.98	227.92
	NORMAL	6,717.0	0.76	0.80	6,680.87	403.26	-510.75	650.75	0.54	-0.19	34.83	126.14
	NORMAL	6,813.0	0.98	32.98	6,776.86	404.59	-510.29	651.20	0.55	0.23	33.52	82.42
	NORMAL	6,909.0	0.70	41.17	6,872.85	405.72	-509.46	651.24	0.32	-0.29	8.53	160.85
	NORMAL	7,005.0	0.44	90.86	6,968.84	406.15	-508.70	650.92	0.56	-0.27	51.76	141.07
	NORMAL	7,101.0	0.93	91.30	7,064.84	406.13	-507.55	650.00	0.51	0.51	0.46	0.84
	NORMAL	7,197.0	1.01	114.72	7,160.82	405.76	-506.01	648.55	0.42	0.08	24.40	90.46
3/6/2010	NORMAL	7,293.0	0.14	73.29	7,256.82	405.44	-505.13	647.66	0.95	-0.91	-43.16	185.84

## 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)	Build Rate (%/100ft)	Turn (%/100ft)	TFace (°)
3/6/2010	NORMAL	7,389.0	0.22	281.19	7,352.82	405.51	-505.19	647.76	0.36	0.08	-158.44	197.11
	NORMAL	7,485.0	0.28	251.46	7,448.82	405.47	-505.60	648.05	0.15	0.06	-30.97	279.46
	NORMAL	7,580.0	0.42	133.44	7,543.82	405.16	-505.57	647.83	0.64	0.15	-124.23	217.84
3/7/2010	NORMAL	7,676.0	0.77	151.44	7,639.81	404.35	-505.00	646.89	0.41	0.36	18.75	37.30
	NORMAL	7,772.0	0.47	149.80	7,735.81	403.44	-504.49	645.93	0.31	-0.31	-1.71	182.57
	NORMAL	7,868.0	0.65	341.33	7,831.80	403.62	-504.47	646.02	1.16	0.19	-175.49	186.69
	NORMAL	7,964.0	0.81	301.72	7,927.80	404.49	-505.22	647.15	0.54	0.17	-41.26	267.12
	NORMAL	8,060.0	0.57	261.09	8,023.79	404.77	-506.27	648.15	0.55	-0.25	-42.32	224.52
	NORMAL	8,156.0	0.34	240.38	8,119.79	404.56	-506.99	648.59	0.29	-0.24	-21.57	205.51
	NORMAL	8,252.0	1.54	325.43	8,215.77	405.48	-507.97	649.92	1.61	1.25	88.59	97.69
	NORMAL	8,348.0	1.21	322.10	8,311.75	407.34	-509.33	652.14	0.35	-0.34	-3.47	191.95
	NORMAL	8,444.0	0.44	302.52	8,407.74	408.34	-510.26	653.49	0.84	-0.80	-20.40	190.50
	NORMAL	8,539.0	0.24	8.49	8,502.74	408.73	-510.54	653.95	0.43	-0.21	69.44	147.36
3/8/2010	NORMAL	8,635.0	0.07	40.91	8,598.73	408.98	-510.47	654.05	0.19	-0.18	33.77	168.28
	NORMAL	8,731.0	0.38	354.33	8,694.73	409.34	-510.46	654.26	0.35	0.32	-48.52	304.71
	NORMAL	8,827.0	0.76	71.21	8,790.73	409.86	-509.89	654.13	0.80	0.40	80.08	105.66
	NORMAL	8,923.0	0.78	106.92	8,886.72	409.87	-508.66	653.17	0.49	0.02	37.20	105.54
	NORMAL	8,986.0	0.84	94.30	8,949.72	409.71	-507.79	652.39	0.30	0.10	-20.03	282.21
3/10/2010	NORMAL	9,062.0	0.84	94.30	9,025.71	409.63	-506.68	651.46	0.00	0.00	0.00	0.00
3/15/2010	NORMAL	9,100.0	0.70	74.91	9,063.70	409.67	-506.18	651.09	0.77	-0.37	-51.03	232.29
	NORMAL	9,200.0	0.59	75.45	9,163.70	409.96	-505.09	650.41	0.11	-0.11	0.54	177.11
	NORMAL	9,300.0	0.63	96.89	9,263.69	410.02	-504.05	649.63	0.23	0.04	21.44	90.89
	NORMAL	9,400.0	0.63	111.58	9,363.69	409.75	-502.99	648.63	0.16	0.00	14.69	97.34
	NORMAL	9,483.0	1.12	121.86	9,446.68	409.16	-501.88	647.39	0.62	0.59	12.39	22.95
3/15/2010	NORMAL	9,560.0	1.12	121.86	9,523.66	408.36	-500.60	645.89	0.00	0.00	0.00	0.00