

## 1 General

### 1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

### 1.2 Well Information

Well	RWF 431-17	Wellbore No.	OH
Well Name	RWF 431-17	Common Name	RWF 431-17
Project	RU 17-06S-094W	Site	RMV 53-17 Pad
Vertical Section	314.47 (°)	North Reference	
Azimuth		Origin E/W	
Origin N/S		UWI	RWF 431-17
Spud Date	6/12/2009		
Active Datum	KB @5,838.5ft (above Mean Sea Level)		

## 2 Survey Name

### 2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Started	6/12/2009	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)	SLog (°/1000)	Buid (°/1000)	Turn (°/1000)	TFace (°)
6/12/2009	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6/12/2009	NORMAL	100.0	0.70	7.12	100.00	0.61	0.08	0.37	0.70	0.70	0.00	7.12
	NORMAL	166.0	2.90	340.22	165.96	2.58	-0.44	2.12	3.48	3.33	-40.76	-34.82
	NORMAL	257.0	5.45	326.87	256.71	8.36	-3.58	8.41	2.98	2.80	-14.67	-27.61
	NORMAL	349.0	7.21	320.54	348.15	16.48	-9.64	18.42	2.06	1.91	-6.88	-24.80
	NORMAL	441.0	8.71	311.92	439.27	25.59	-18.49	31.12	2.08	1.63	-9.37	-42.84
6/13/2009	NORMAL	533.0	9.94	310.43	530.05	35.40	-29.72	46.00	1.36	1.34	-1.62	-11.84
	NORMAL	625.0	9.50	314.03	620.73	45.82	-41.22	61.52	0.82	-0.48	3.91	127.67
	NORMAL	717.0	9.50	308.67	711.47	55.84	-52.61	76.66	0.96	0.00	-5.83	-92.64
	NORMAL	794.0	10.03	320.36	787.36	64.98	-61.85	89.66	2.66	0.69	15.18	80.84
	NORMAL	886.0	10.63	321.45	877.87	77.78	-72.25	106.05	0.69	0.65	1.18	18.58
	NORMAL	978.0	11.25	319.85	968.20	91.28	-83.32	123.41	0.75	0.67	-1.74	-26.88
	NORMAL	1,071.0	12.11	316.94	1,059.27	105.34	-95.83	142.18	1.12	0.92	-3.13	-35.84
	NORMAL	1,105.0	12.43	316.28	1,092.49	110.59	-100.80	149.40	1.03	0.94	-1.94	-23.99
6/14/2009	NORMAL	1,260.0	11.10	315.10	1,244.23	133.22	-122.86	181.00	0.87	-0.86	-0.76	-170.32
	NORMAL	1,356.0	10.80	315.40	1,338.49	146.17	-135.70	199.23	0.32	-0.31	0.31	169.39
	NORMAL	1,452.0	10.10	311.70	1,432.89	158.17	-148.30	216.63	1.01	-0.73	-3.85	-138.02
	NORMAL	1,548.0	9.50	311.40	1,527.49	169.01	-160.53	232.95	0.63	-0.63	-0.31	-175.28
	NORMAL	1,642.0	9.70	309.70	1,620.18	179.20	-172.44	248.59	0.37	0.21	-1.81	-55.64
	NORMAL	1,738.0	9.10	309.10	1,714.89	189.15	-184.55	264.21	0.63	-0.63	-0.63	-171.02
	NORMAL	1,834.0	9.50	314.90	1,809.63	199.53	-196.05	279.69	1.06	0.42	6.04	69.77

## 2.1.2 Survey Stations (Continued)

Date	Type	MB (ft)	Inc (°)	Azi (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. Set (ft)	DLeg (ft/100ft)	Bofld (ft/100ft)	Turn (ft/100ft)	Face (°)
6/14/2009	NORMAL	1,930.0	9.20	312.50	1,904.35	210.31	-207.32	295.28	0.51	-0.31	-2.50	-128.75
	NORMAL	2,026.0	8.50	311.80	1,999.21	220.22	-218.27	310.04	0.74	-0.73	-0.73	-171.60
6/15/2009	NORMAL	2,123.0	8.90	315.90	2,095.09	230.39	-228.84	324.70	0.76	0.41	4.23	59.22
	NORMAL	2,217.0	8.50	314.40	2,188.01	240.47	-238.86	338.92	0.49	-0.43	-1.60	-151.18
	NORMAL	2,312.0	7.30	312.40	2,282.11	249.46	-248.34	351.97	1.30	-1.26	-2.11	-168.09
	NORMAL	2,407.0	7.70	315.30	2,376.30	258.05	-257.27	364.36	0.58	0.42	3.05	44.86
	NORMAL	2,502.0	8.30	312.60	2,470.37	267.22	-266.79	377.58	0.75	0.63	-2.84	-33.40
	NORMAL	2,596.0	10.80	312.20	2,563.06	277.73	-278.31	393.17	2.66	2.66	-0.43	-1.72
	NORMAL	2,692.0	13.70	314.60	2,656.87	291.75	-293.07	413.53	3.07	3.02	2.50	11.13
	NORMAL	2,788.0	16.50	315.80	2,749.54	309.51	-310.68	438.53	2.93	2.92	1.25	6.95
	NORMAL	2,884.0	19.60	315.40	2,840.81	330.75	-331.49	468.26	3.23	3.23	-0.42	-2.48
	NORMAL	2,979.0	22.10	311.30	2,929.58	353.90	-356.11	502.05	3.05	2.63	-4.32	-32.20
	NORMAL	3,076.0	24.20	311.10	3,018.77	379.01	-384.80	540.12	2.17	2.16	-0.21	-2.24
	NORMAL	3,171.0	25.10	314.50	3,105.11	405.94	-413.85	579.71	1.77	0.95	3.58	59.15
	NORMAL	3,267.0	26.80	314.10	3,191.43	435.27	-443.92	621.71	1.78	1.77	-0.42	-6.06
	NORMAL	3,363.0	29.30	315.20	3,276.15	467.01	-476.02	666.85	2.66	2.60	1.15	12.18
	NORMAL	3,458.0	30.30	315.30	3,358.59	500.54	-509.25	714.06	1.05	1.05	0.11	2.89
	NORMAL	3,554.0	29.30	314.50	3,441.89	534.22	-543.04	761.76	1.12	-1.04	-0.83	-158.66
	NORMAL	3,650.0	29.60	316.10	3,525.49	567.77	-576.24	808.96	0.88	0.31	1.67	69.82
	NORMAL	3,747.0	30.10	315.20	3,609.62	602.29	-609.99	857.22	0.69	0.52	-0.93	-42.25
	NORMAL	3,843.0	29.40	313.70	3,692.97	635.65	-643.99	904.86	1.06	-0.73	-1.56	-133.89
	NORMAL	3,937.0	29.80	313.70	3,774.70	667.73	-677.56	951.28	0.43	0.43	0.00	0.00
	NORMAL	4,033.0	30.00	313.40	3,857.92	700.70	-712.24	999.13	0.26	0.21	-0.31	-36.92
	NORMAL	4,127.0	31.10	313.20	3,938.87	733.46	-747.01	1,046.90	1.18	1.17	-0.21	-5.37
6/16/2009	NORMAL	4,223.0	32.00	313.90	4,020.68	768.08	-783.42	1,097.12	1.01	0.94	0.73	22.44
	NORMAL	4,319.0	30.90	311.60	4,102.58	802.08	-820.18	1,147.18	1.70	-1.15	-2.40	-133.49
	NORMAL	4,416.0	28.30	308.60	4,186.92	832.97	-856.78	1,194.94	3.08	-2.68	-3.09	-151.62
	NORMAL	4,511.0	26.20	304.70	4,271.38	858.96	-891.63	1,238.02	2.90	-2.21	-4.11	-141.35
	NORMAL	4,601.0	26.10	304.50	4,352.16	881.49	-924.28	1,277.09	0.15	-0.11	-0.22	-138.70
6/17/2009	NORMAL	4,697.0	30.70	308.50	4,436.60	908.72	-960.88	1,322.29	5.18	4.79	4.17	24.24
	NORMAL	4,794.0	34.00	315.00	4,518.56	943.33	-999.46	1,374.07	4.94	3.40	6.70	49.29
	NORMAL	4,890.0	33.80	317.10	4,598.24	981.87	-1,036.62	1,427.59	1.24	-0.21	2.19	100.56
	NORMAL	4,986.0	33.50	317.90	4,678.15	1,021.09	-1,072.56	1,480.71	0.56	-0.31	0.83	124.42
	NORMAL	5,082.0	31.60	319.10	4,759.07	1,059.76	-1,106.79	1,532.23	2.09	-1.98	1.25	161.74
	NORMAL	5,178.0	31.30	318.70	4,840.97	1,097.51	-1,139.72	1,582.17	0.38	-0.31	-0.42	-145.35
	NORMAL	5,274.0	29.80	318.30	4,923.64	1,134.05	-1,172.05	1,630.84	1.58	-1.56	-0.42	-172.45
	NORMAL	5,370.0	30.20	318.10	5,006.78	1,169.84	-1,204.04	1,678.74	0.43	0.42	-0.21	-14.12
6/18/2009	NORMAL	5,466.0	27.00	320.60	5,091.06	1,204.66	-1,234.01	1,724.51	3.56	-3.33	2.60	160.59
6/19/2009	NORMAL	5,562.0	26.00	320.60	5,176.97	1,237.76	-1,261.19	1,767.10	1.04	-1.04	0.00	180.00
	NORMAL	5,662.0	25.30	319.50	5,267.11	1,270.94	-1,288.98	1,810.18	0.85	-0.70	-1.10	-146.27
	NORMAL	5,758.0	24.80	318.30	5,354.09	1,301.57	-1,315.70	1,850.71	0.74	-0.52	-1.25	-135.08
	NORMAL	5,854.0	23.30	317.50	5,441.75	1,330.61	-1,341.92	1,889.76	1.60	-1.56	-0.83	-168.10
	NORMAL	5,950.0	21.10	316.42	5,530.63	1,357.13	-1,366.67	1,925.99	2.33	-2.29	-1.13	-169.99
6/20/2009	NORMAL	6,046.0	16.48	312.64	5,621.49	1,378.88	-1,388.61	1,956.89	4.97	-4.81	-3.94	-167.02
	NORMAL	6,140.0	13.32	312.90	5,712.32	1,395.29	-1,406.35	1,981.05	3.36	-3.36	0.28	178.91
	NORMAL	6,235.0	10.86	311.94	5,805.20	1,408.72	-1,421.03	2,000.93	2.60	-2.59	-1.01	-175.80
6/21/2009	NORMAL	6,331.0	9.80	311.94	5,899.65	1,420.23	-1,433.83	2,018.13	1.10	-1.10	0.00	180.00
	NORMAL	6,426.0	8.04	310.88	5,993.49	1,429.98	-1,444.87	2,032.83	1.86	-1.85	-1.12	-175.19
	NORMAL	6,521.0	5.76	317.74	6,087.80	1,437.86	-1,453.10	2,044.23	2.55	-2.40	7.22	163.51
6/22/2009	NORMAL	6,617.0	3.74	319.41	6,183.47	1,443.80	-1,458.38	2,052.16	2.11	-2.10	1.74	176.92
	NORMAL	6,712.0	2.46	318.27	6,278.33	1,447.67	-1,461.75	2,057.28	1.35	-1.35	-1.20	-177.81
	NORMAL	6,809.0	1.98	319.93	6,375.25	1,450.51	-1,464.22	2,061.02	0.50	-0.49	1.71	173.20
	NORMAL	6,905.0	1.63	316.60	6,471.20	1,452.77	-1,466.22	2,064.04	0.38	-0.36	-3.47	-164.98
	NORMAL	7,001.0	1.32	318.20	6,567.17	1,454.59	-1,467.90	2,066.51	0.33	-0.32	1.67	173.23
6/23/2009	NORMAL	7,096.0	1.23	320.02	6,662.15	1,456.18	-1,469.28	2,068.61	0.10	-0.09	1.92	156.68
	NORMAL	7,193.0	0.97	320.46	6,759.13	1,457.61	-1,470.47	2,070.47	0.27	-0.27	0.45	178.36
	NORMAL	7,286.0	0.79	321.87	6,852.12	1,458.73	-1,471.37	2,071.88	0.19	-0.19	1.52	173.84

## 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)	Bulld (%/100ft)	Turn (%/100ft)	TFace (°)
6/23/2009	NORMAL	7,377.0	0.66	315.63	6,943.11	1,459.59	-1,472.12	2,073.03	0.17	-0.14	-6.86	-151.82
	NORMAL	7,472.0	0.92	300.60	7,038.10	1,460.37	-1,473.16	2,074.32	0.35	0.27	-15.82	-46.23
6/24/2009	NORMAL	7,568.0	1.23	281.30	7,134.09	1,460.97	-1,474.84	2,075.93	0.49	0.32	-20.10	-59.35
	NORMAL	7,663.0	0.48	308.33	7,229.08	1,461.41	-1,476.15	2,077.18	0.88	-0.79	28.45	164.79
	NORMAL	7,757.0	0.38	38.69	7,323.07	1,461.90	-1,476.26	2,077.60	0.65	-0.11	96.13	141.77
	NORMAL	7,854.0	0.26	106.71	7,420.07	1,462.09	-1,475.85	2,077.44	0.38	-0.12	70.12	139.54
6/25/2009	NORMAL	7,948.0	0.75	138.53	7,514.07	1,461.57	-1,475.24	2,076.64	0.58	0.52	33.85	46.35
6/26/2009	NORMAL	8,045.0	1.05	155.93	7,611.06	1,460.28	-1,474.46	2,075.18	0.42	0.31	17.94	51.25
	NORMAL	8,141.0	1.05	171.84	7,707.04	1,458.61	-1,473.97	2,073.66	0.30	0.00	16.57	97.95
	NORMAL	8,237.0	1.27	185.55	7,803.02	1,456.68	-1,473.95	2,072.29	0.37	0.23	14.28	58.59
6/27/2009	NORMAL	8,332.0	1.15	178.04	7,898.00	1,454.68	-1,474.02	2,070.94	0.21	-0.13	-7.91	-130.83
	NORMAL	8,429.0	1.05	168.76	7,994.98	1,452.83	-1,473.81	2,069.50	0.21	-0.10	-9.57	-123.89
	NORMAL	8,522.0	1.14	178.96	8,087.97	1,451.07	-1,473.63	2,068.13	0.23	0.10	10.97	70.37
	NORMAL	8,618.0	1.05	184.32	8,183.95	1,449.24	-1,473.68	2,066.89	0.14	-0.09	5.58	133.96
	NORMAL	8,714.0	1.23	186.96	8,279.93	1,447.34	-1,473.87	2,065.69	0.20	0.19	2.75	17.59
	NORMAL	8,814.0	1.85	185.55	8,379.89	1,444.67	-1,474.16	2,064.02	0.62	0.62	-1.41	-4.20
	Projection	8,864.0	1.85	185.55	8,429.87	1,443.06	-1,474.31	2,063.01	0.00	0.00	0.00	0.00