

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	RWF 412-25	Wellbore No.	00
Wellbore Legal Name	RWF 412-25	Common Wellbore Name	RWF 412-25
Project	RU 25-06S-094W	Site	RWF 22-25 Pad
Vertical Section Azimuth	276.73 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	9/9/2013	UWI	RWF 412-25
Active datum	KB @6,062.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	9/10/2013	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)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
9/10/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/10/2013	NORMAL	148.0	0.44	226.30	148.00	-0.39	-0.41	0.36	0.30	0.30	0.00	226.30
	NORMAL	239.0	1.23	253.90	238.99	-0.90	-1.60	1.48	0.95	0.87	30.33	41.24
	NORMAL	330.0	3.08	274.38	329.92	-0.99	-4.98	4.83	2.17	2.03	22.51	33.05
	NORMAL	421.0	4.04	281.23	420.75	-0.18	-10.56	10.47	1.15	1.05	7.53	27.34
	NORMAL	512.0	6.59	283.23	511.35	1.64	-18.79	18.85	2.81	2.80	2.20	5.15
	NORMAL	602.0	8.53	279.74	600.56	3.95	-30.40	30.65	2.21	2.16	-3.88	344.95
	NORMAL	693.0	8.88	276.04	690.51	5.83	-44.03	44.41	0.73	0.38	-4.07	300.17
	NORMAL	784.0	8.32	268.03	780.49	6.35	-57.60	57.94	1.45	-0.62	-8.80	241.02
	NORMAL	875.0	8.88	271.74	870.47	6.33	-71.20	71.45	0.87	0.62	4.08	46.58
	NORMAL	966.0	9.30	275.20	960.33	7.21	-85.54	85.80	0.76	0.46	3.80	54.18
	NORMAL	1,056.0	10.46	282.37	1,049.00	9.62	-100.77	101.20	1.88	1.29	7.97	50.25
	NORMAL	1,102.0	10.29	279.47	1,094.24	11.19	-108.90	109.46	1.19	-0.37	-6.30	250.55
9/13/2013	NORMAL	1,198.0	9.10	278.35	1,188.87	13.71	-124.87	125.61	1.25	-1.24	-1.17	188.45
	NORMAL	1,243.0	9.10	279.68	1,233.31	14.82	-131.89	132.72	0.47	0.00	2.96	90.66
	NORMAL	1,334.0	7.91	279.12	1,323.30	17.02	-145.17	146.17	1.31	-1.31	-0.62	183.70
	NORMAL	1,425.0	7.69	276.12	1,413.46	18.67	-157.41	158.51	0.51	-0.24	-3.30	240.13
	NORMAL	1,515.0	7.74	276.40	1,502.65	19.98	-169.42	170.59	0.07	0.06	0.31	37.07
	NORMAL	1,606.0	7.45	276.50	1,592.85	21.33	-181.37	182.62	0.32	-0.32	0.11	177.44
	NORMAL	1,697.0	7.75	276.99	1,683.05	22.75	-193.32	194.65	0.34	0.33	0.54	12.43
	NORMAL	1,787.0	7.45	277.71	1,772.26	24.27	-205.13	206.56	0.35	-0.33	0.80	162.75

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
9/13/2013	NORMAL	1,878.0	7.28	276.94	1,862.51	25.76	-216.70	218.22	0.22	-0.19	-0.85	209.76
	NORMAL	1,969.0	7.21	275.48	1,952.78	27.00	-228.10	229.70	0.22	-0.08	-1.60	248.46
	NORMAL	2,059.0	8.75	278.66	2,041.91	28.57	-240.49	242.18	1.78	1.71	3.53	17.58
	NORMAL	2,150.0	8.92	278.34	2,131.83	30.64	-254.32	256.15	0.19	0.19	-0.35	343.72
	NORMAL	2,241.0	8.82	277.70	2,221.74	32.59	-268.21	270.18	0.15	-0.11	-0.70	224.30
	NORMAL	2,332.0	8.64	279.97	2,311.69	34.71	-281.86	283.98	0.43	-0.20	2.49	118.70
	NORMAL	2,422.0	8.53	278.00	2,400.68	36.81	-295.12	297.40	0.35	-0.12	-2.19	248.52
	NORMAL	2,513.0	8.35	277.52	2,490.69	38.62	-308.36	310.76	0.21	-0.20	-0.53	201.14
	NORMAL	2,604.0	8.09	277.89	2,580.76	40.36	-321.25	323.77	0.29	-0.29	0.41	168.68
	NORMAL	2,694.0	8.27	278.95	2,669.84	42.24	-333.92	336.57	0.26	0.20	1.18	40.48
	NORMAL	2,785.0	8.09	278.77	2,759.92	44.23	-346.71	349.51	0.20	-0.20	-0.20	188.01
	NORMAL	2,876.0	7.84	280.94	2,850.04	46.38	-359.13	362.09	0.43	-0.27	2.38	130.81
	NORMAL	2,967.0	7.66	280.79	2,940.21	48.70	-371.19	374.33	0.20	-0.20	-0.16	186.34
	NORMAL	3,057.0	7.15	279.32	3,029.46	50.73	-382.60	385.91	0.60	-0.57	-1.63	199.65
	NORMAL	3,148.0	7.21	279.30	3,119.75	52.57	-393.83	397.28	0.07	0.07	-0.02	357.60
	NORMAL	3,238.0	6.86	278.33	3,209.07	54.26	-404.72	408.29	0.41	-0.39	-1.08	198.27
	NORMAL	3,329.0	7.82	276.96	3,299.32	55.80	-416.24	419.91	1.07	1.05	-1.51	348.99
	NORMAL	3,420.0	7.91	278.33	3,389.47	57.45	-428.58	432.36	0.23	0.10	1.51	65.04
	NORMAL	3,511.0	7.60	275.84	3,479.63	58.97	-440.77	444.64	0.50	-0.34	-2.74	226.08
	NORMAL	3,601.0	7.45	278.75	3,568.86	60.47	-452.45	456.42	0.45	-0.17	3.23	112.92
	NORMAL	3,692.0	7.03	275.69	3,659.13	61.92	-463.83	467.89	0.63	-0.46	-3.36	221.05
9/14/2013	NORMAL	3,783.0	7.51	281.29	3,749.40	63.63	-475.20	479.38	0.94	0.53	6.15	58.69
	NORMAL	3,874.0	7.30	280.97	3,839.64	65.90	-486.71	491.08	0.24	-0.23	-0.35	190.95
	NORMAL	3,965.0	7.30	280.93	3,929.91	68.09	-498.06	502.61	0.01	0.00	-0.04	269.98
	NORMAL	4,056.0	7.30	278.86	4,020.17	70.08	-509.45	514.15	0.29	0.00	-2.27	268.97
	NORMAL	4,147.0	6.79	278.76	4,110.48	71.79	-520.48	525.30	0.56	-0.56	-0.11	181.33
	NORMAL	4,238.0	7.76	278.40	4,200.75	73.51	-531.87	536.82	1.07	1.07	-0.40	357.13
	NORMAL	4,329.0	7.65	276.15	4,290.93	75.05	-543.97	549.02	0.35	-0.12	-2.47	248.85
	NORMAL	4,421.0	7.40	275.47	4,382.14	76.27	-555.96	561.07	0.29	-0.27	-0.74	199.27
	NORMAL	4,512.0	7.97	279.88	4,472.32	77.91	-568.01	573.22	0.90	0.63	4.85	48.17
	NORMAL	4,603.0	7.74	279.30	4,562.47	79.99	-580.27	585.65	0.27	-0.25	-0.64	198.73
	NORMAL	4,694.0	7.55	276.54	4,652.66	81.66	-592.26	597.75	0.45	-0.21	-3.03	241.28
	NORMAL	4,786.0	7.16	276.03	4,743.90	82.95	-603.96	609.52	0.43	-0.42	-0.55	189.25
	NORMAL	4,877.0	7.65	279.91	4,834.14	84.59	-615.57	621.24	0.77	0.54	4.26	47.52
	NORMAL	4,968.0	7.12	280.53	4,924.39	86.66	-627.08	632.92	0.59	-0.58	0.68	171.76
	NORMAL	5,059.0	6.28	283.63	5,014.77	88.86	-637.46	643.48	1.00	-0.92	3.41	158.24
9/15/2013	NORMAL	5,150.0	5.17	283.58	5,105.31	91.00	-646.29	652.50	1.22	-1.22	-0.05	180.23
	NORMAL	5,241.0	5.19	282.11	5,195.94	92.83	-654.30	660.67	0.15	0.02	-1.62	277.84
	NORMAL	5,333.0	3.78	282.64	5,287.65	94.36	-661.32	667.82	1.53	-1.53	0.58	178.58
	NORMAL	5,424.0	3.52	286.24	5,378.47	95.80	-666.93	673.56	0.38	-0.29	3.96	140.39
9/16/2013	NORMAL	5,515.0	2.81	280.97	5,469.33	97.01	-671.80	678.54	0.84	-0.78	-5.79	199.67
	NORMAL	5,606.0	2.04	301.16	5,560.25	98.27	-675.38	682.24	1.25	-0.85	22.19	141.82
	NORMAL	5,697.0	1.41	352.07	5,651.21	100.22	-676.92	684.00	1.75	-0.69	55.95	136.44
	NORMAL	5,788.0	1.14	54.82	5,742.20	101.85	-676.34	683.61	1.48	-0.30	68.96	131.22
	NORMAL	5,879.0	0.79	82.07	5,833.18	102.45	-674.97	682.33	0.62	-0.38	29.95	140.43
	NORMAL	5,971.0	0.79	21.87	5,925.18	103.13	-674.11	681.55	0.86	0.00	-65.43	239.90
	NORMAL	6,062.0	0.88	18.35	6,016.17	104.38	-673.66	681.25	0.11	0.10	-3.87	328.55
	NORMAL	6,153.0	0.88	17.91	6,107.16	105.70	-673.22	680.97	0.01	0.00	-0.48	269.78
	NORMAL	6,244.0	0.69	3.57	6,198.15	106.92	-672.97	680.86	0.30	-0.21	-15.76	218.94
9/17/2013	NORMAL	6,335.0	0.58	326.88	6,289.14	107.85	-673.19	681.19	0.45	-0.12	-40.32	237.02
	NORMAL	6,426.0	0.65	342.10	6,380.14	108.73	-673.60	681.70	0.19	0.08	16.73	74.54
	NORMAL	6,517.0	0.88	345.83	6,471.13	109.89	-673.93	682.16	0.26	0.25	4.10	14.09
	NORMAL	6,608.0	0.97	348.73	6,562.12	111.33	-674.25	682.65	0.11	0.10	3.19	28.94
	NORMAL	6,699.0	1.03	339.00	6,653.10	112.85	-674.69	683.27	0.20	0.07	-10.69	284.55
	NORMAL	6,791.0	0.70	326.32	6,745.09	114.09	-675.30	684.02	0.41	-0.36	-13.78	203.88
	NORMAL	6,882.0	0.79	298.19	6,836.09	114.84	-676.16	684.96	0.41	0.10	-30.91	269.49

2.1.2 Survey Stations (Continued)

Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
9/17/2013	NORMAL	6,973.0	0.68	298.58	6,927.08	115.40	-677.19	686.05	0.12	-0.12	0.43	177.59
	NORMAL	7,064.0	0.51	288.63	7,018.08	115.79	-678.05	686.95	0.22	-0.19	-10.93	206.38
	NORMAL	7,156.0	0.62	250.87	7,110.07	115.75	-678.91	687.79	0.41	0.12	-41.04	267.01
	NORMAL	7,247.0	1.01	242.33	7,201.06	115.22	-680.08	688.90	0.45	0.43	-9.38	338.40
	NORMAL	7,338.0	1.07	236.67	7,292.05	114.38	-681.50	690.21	0.13	0.07	-6.22	297.44
	NORMAL	7,429.0	0.88	222.34	7,383.03	113.40	-682.68	691.27	0.34	-0.21	-15.75	225.06
9/18/2013	NORMAL	7,520.0	1.28	221.55	7,474.02	112.12	-683.83	692.26	0.44	0.44	-0.87	357.47
	NORMAL	7,612.0	1.85	221.11	7,565.98	110.23	-685.49	693.68	0.62	0.62	-0.48	358.57
	NORMAL	7,703.0	2.20	216.72	7,656.93	107.73	-687.50	695.38	0.42	0.38	-4.82	333.89
	NORMAL	7,794.0	2.46	208.90	7,747.85	104.62	-689.48	696.99	0.45	0.29	-8.59	305.33
	NORMAL	7,885.0	3.08	208.81	7,838.75	100.76	-691.61	698.65	0.68	0.68	-0.10	359.55
	NORMAL	7,976.0	3.78	221.03	7,929.58	96.36	-694.75	701.26	1.11	0.77	13.43	52.45
	NORMAL	8,068.0	3.69	221.03	8,021.39	91.84	-698.69	704.64	0.10	-0.10	0.00	180.00
	NORMAL	8,159.0	4.13	220.50	8,112.18	87.14	-702.74	708.11	0.49	0.48	-0.58	355.04
	NORMAL	8,250.0	5.03	219.75	8,202.88	81.58	-707.42	712.10	0.99	0.99	-0.82	355.82
	NORMAL	8,341.0	5.36	222.96	8,293.51	75.40	-712.87	716.79	0.48	0.36	3.53	42.98
	NORMAL	8,432.0	5.39	226.91	8,384.11	69.37	-718.88	722.06	0.41	0.03	4.34	87.33
	NORMAL	8,523.0	5.80	229.11	8,474.68	63.44	-725.48	727.92	0.51	0.45	2.42	28.71
	NORMAL	8,547.0	5.63	226.83	8,498.56	61.84	-727.26	729.49	1.18	-0.71	-9.50	232.05
9/21/2013	NORMAL	8,604.0	5.63	226.83	8,555.28	58.02	-731.33	733.09	0.00	0.00	0.00	0.00