

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	RWF 32-4	Wellbore No.	0
Wellbore Legal Name	RWF 32-4	Common Wellbore Name	RWF 32-4
Project	RU 04-07S-094W	Site	RMV 108-4 Pad
Vertical Section Azimuth	190.82 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	10/23/2013	UWI	RWF 32-4
Active datum	KB @5,820.0ft (above Mean Sea Level)		

2 Survey Name

2.1 Survey Name: Survey #1

Survey Name	Survey #1	Company	
Date Started	10/22/2013	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 (°)
10/22/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/23/2013	NORMAL	103.0	2.20	215.86	102.97	-1.60	-1.16	1.79	2.14	2.14	0.00	215.86
	NORMAL	132.0	2.73	217.00	131.95	-2.61	-1.90	2.92	1.84	1.83	3.93	5.86
	NORMAL	163.0	2.82	218.67	162.91	-3.79	-2.82	4.25	0.39	0.29	5.39	42.77
	NORMAL	194.0	3.08	217.35	193.87	-5.05	-3.80	5.67	0.87	0.84	-4.26	344.70
	NORMAL	224.0	3.34	219.29	223.82	-6.36	-4.84	7.16	0.94	0.87	6.47	23.65
	NORMAL	254.0	3.52	222.28	253.77	-7.72	-6.02	8.71	0.85	0.60	9.97	46.32
	NORMAL	285.0	3.70	217.53	284.71	-9.22	-7.27	10.42	1.13	0.58	-15.32	298.66
	NORMAL	315.0	3.87	222.10	314.64	-10.74	-8.54	12.15	1.15	0.57	15.23	62.89
	NORMAL	346.0	4.05	221.48	345.57	-12.33	-9.96	13.99	0.60	0.58	-2.00	346.31
	NORMAL	376.0	4.22	220.34	375.49	-13.97	-11.38	15.86	0.63	0.57	-3.80	333.63
	NORMAL	406.0	4.40	220.52	405.41	-15.69	-12.84	17.82	0.60	0.60	0.60	4.39
	NORMAL	437.0	4.66	223.15	436.31	-17.51	-14.47	19.91	1.07	0.84	8.48	39.94
	NORMAL	447.0	4.92	220.15	446.27	-18.13	-15.03	20.63	3.61	2.60	-30.00	314.56
10/24/2013	NORMAL	477.0	5.89	217.51	476.14	-20.34	-16.80	23.13	3.34	3.23	-8.80	344.30
	NORMAL	508.0	6.68	212.12	506.95	-23.13	-18.72	26.23	3.18	2.55	-17.39	320.54
	NORMAL	538.0	7.50	208.11	536.73	-26.33	-20.57	29.72	3.19	2.73	-13.37	326.88
	NORMAL	568.0	8.09	203.62	566.45	-29.99	-22.34	33.65	2.82	1.97	-14.97	311.85
	NORMAL	599.0	9.15	199.14	597.10	-34.32	-24.02	38.22	4.05	3.42	-14.45	325.42
	NORMAL	629.0	10.38	192.20	626.66	-39.21	-25.38	43.28	5.67	4.10	-23.13	312.80
	NORMAL	659.0	11.52	189.56	656.12	-44.81	-26.45	48.98	4.15	3.80	-8.80	334.96

2.1.2 Survey Stations (Continued)

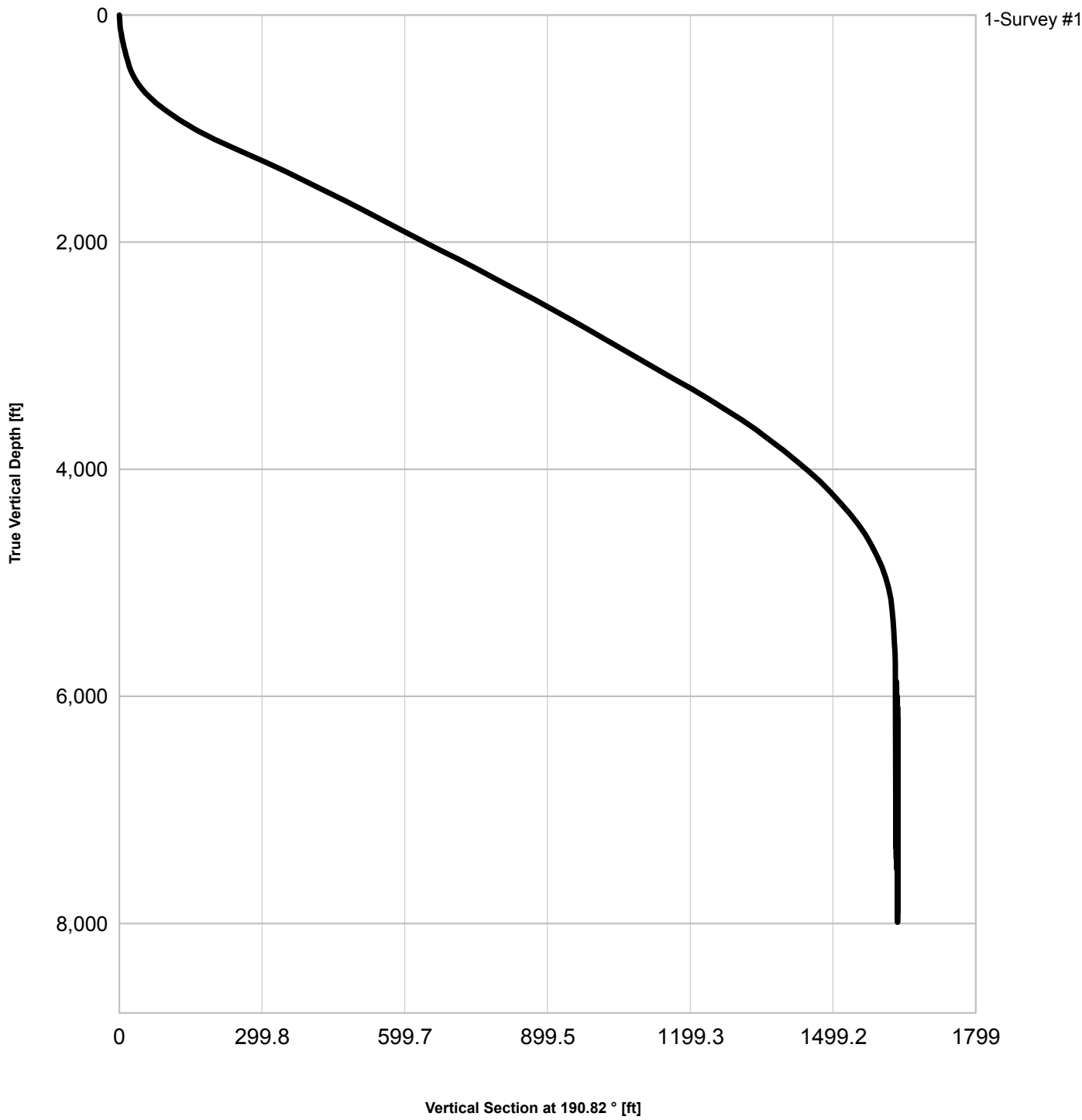
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/24/2013	NORMAL	689.0	12.04	185.87	685.49	-50.88	-27.26	55.09	3.05	1.73	-12.30	302.80
	NORMAL	720.0	13.72	184.02	715.71	-57.76	-27.85	61.96	5.58	5.42	-5.97	345.31
	NORMAL	750.0	14.68	181.04	744.79	-65.11	-28.17	69.24	4.02	3.20	-9.93	321.26
	NORMAL	780.0	16.18	176.64	773.71	-73.09	-27.99	77.04	6.34	5.00	-14.67	319.89
	NORMAL	811.0	17.94	175.05	803.34	-82.15	-27.33	85.82	5.87	5.68	-5.13	344.39
	NORMAL	841.0	18.99	175.32	831.80	-91.62	-26.53	94.97	3.51	3.50	0.90	4.78
	NORMAL	871.0	19.07	176.64	860.16	-101.38	-25.85	104.43	1.46	0.27	4.40	80.09
	NORMAL	901.0	20.14	179.10	888.42	-111.44	-25.48	114.24	4.50	3.57	8.20	38.81
	NORMAL	932.0	20.34	181.13	917.51	-122.16	-25.50	124.78	2.36	0.65	6.55	75.06
	NORMAL	962.0	21.02	183.06	945.57	-132.75	-25.89	135.25	3.21	2.27	6.43	45.97
	NORMAL	994.0	22.09	184.08	975.33	-144.48	-26.63	146.91	3.54	3.34	3.19	19.78
	NORMAL	1,025.0	23.04	185.52	1,003.96	-156.33	-27.62	158.74	3.55	3.06	4.65	30.85
	NORMAL	1,057.0	23.96	187.50	1,033.31	-169.01	-29.07	171.46	3.79	2.88	6.19	41.55
	NORMAL	1,089.0	25.07	189.35	1,062.42	-182.14	-31.02	184.72	4.22	3.47	5.78	35.51
	NORMAL	1,126.0	26.38	191.58	1,095.76	-197.93	-33.95	200.78	4.40	3.54	6.03	37.47
10/26/2013	NORMAL	1,253.0	28.92	192.46	1,208.24	-255.56	-46.24	259.70	2.03	2.00	0.69	9.52
	NORMAL	1,349.0	28.00	191.00	1,292.64	-300.35	-55.55	305.44	1.20	-0.96	-1.52	216.46
	NORMAL	1,444.0	26.73	190.70	1,377.01	-343.24	-63.77	349.10	1.34	-1.34	-0.32	186.06
	NORMAL	1,540.0	25.45	189.56	1,463.23	-384.79	-71.20	391.32	1.43	-1.33	-1.19	200.88
	NORMAL	1,635.0	25.98	188.68	1,548.82	-425.49	-77.73	432.52	0.69	0.56	-0.93	323.83
	NORMAL	1,730.0	25.32	189.47	1,634.46	-466.10	-84.22	473.62	0.78	-0.69	0.83	152.97
	NORMAL	1,825.0	24.92	190.35	1,720.47	-505.82	-91.15	513.94	0.58	-0.42	0.93	137.35
10/27/2013	NORMAL	1,920.0	24.16	193.16	1,806.89	-544.45	-99.18	553.38	1.47	-0.80	2.96	124.34
	NORMAL	2,016.0	24.61	191.93	1,894.33	-583.13	-107.78	593.00	0.71	0.47	-1.28	310.98
	NORMAL	2,112.0	24.75	190.62	1,981.56	-622.44	-115.62	633.08	0.59	0.15	-1.36	283.76
	NORMAL	2,207.0	25.45	189.21	2,067.59	-662.14	-122.55	673.37	0.97	0.74	-1.48	318.85
	NORMAL	2,303.0	25.06	191.14	2,154.42	-702.45	-129.78	714.32	0.95	-0.41	2.01	116.21
	NORMAL	2,398.0	23.96	191.14	2,240.86	-741.12	-137.39	753.73	1.16	-1.16	0.00	180.00
	NORMAL	2,493.0	23.96	191.14	2,327.67	-778.97	-144.85	792.31	0.00	0.00	0.00	0.00
	NORMAL	2,588.0	24.75	189.91	2,414.22	-817.48	-152.00	831.49	0.99	0.83	-1.29	326.74
	NORMAL	2,684.0	23.74	192.99	2,501.75	-856.11	-159.80	870.89	1.69	-1.05	3.21	130.01
	NORMAL	2,779.0	22.86	192.46	2,589.00	-892.77	-168.08	908.45	0.95	-0.93	-0.56	193.16
	NORMAL	2,874.0	23.52	192.11	2,676.33	-929.32	-176.04	945.84	0.71	0.69	-0.37	348.04
	NORMAL	2,970.0	22.11	192.29	2,764.81	-965.70	-183.90	983.06	1.47	-1.47	0.19	177.25
	NORMAL	3,065.0	22.59	192.02	2,852.68	-1,001.02	-191.51	1,019.17	0.52	0.51	-0.28	347.80
	NORMAL	3,161.0	22.69	191.58	2,941.28	-1,037.19	-199.06	1,056.12	0.20	0.10	-0.46	300.35
	NORMAL	3,257.0	22.20	191.32	3,030.01	-1,073.11	-206.34	1,092.77	0.52	-0.51	-0.27	191.33
	NORMAL	3,352.0	22.68	190.44	3,117.81	-1,108.72	-213.18	1,129.03	0.62	0.51	-0.93	324.61
	NORMAL	3,447.0	22.77	190.00	3,205.44	-1,144.84	-219.69	1,165.73	0.20	0.09	-0.46	297.70
	NORMAL	3,543.0	22.81	190.09	3,293.94	-1,181.46	-226.18	1,202.91	0.06	0.04	0.09	41.12
	NORMAL	3,638.0	20.97	188.68	3,382.09	-1,216.39	-231.97	1,238.32	2.01	-1.94	-1.48	195.29
	NORMAL	3,733.0	21.19	189.12	3,470.73	-1,250.15	-237.26	1,272.47	0.29	0.23	0.46	35.93
	NORMAL	3,829.0	20.00	189.74	3,560.60	-1,283.46	-242.79	1,306.22	1.26	-1.24	0.65	169.90
	NORMAL	3,924.0	18.07	191.14	3,650.40	-1,313.93	-248.38	1,337.20	2.09	-2.03	1.47	167.35
	NORMAL	4,019.0	17.50	189.38	3,740.86	-1,342.48	-253.56	1,366.22	0.82	-0.60	-1.85	222.49
	NORMAL	4,115.0	17.27	190.26	3,832.48	-1,370.75	-258.45	1,394.89	0.36	-0.24	0.92	131.60
	NORMAL	4,210.0	15.65	191.76	3,923.58	-1,397.17	-263.57	1,421.81	1.76	-1.71	1.58	166.02
	NORMAL	4,305.0	15.65	191.14	4,015.06	-1,422.29	-268.66	1,447.43	0.18	0.00	-0.65	269.70
10/28/2013	NORMAL	4,305.0	15.65	191.14	4,015.06	-1,422.29	-268.66	1,447.43	0.00	0.00	0.00	0.00
	NORMAL	4,401.0	14.07	190.18	4,107.84	-1,446.48	-273.22	1,472.05	1.67	-1.65	-1.00	188.39
	NORMAL	4,496.0	12.35	189.30	4,200.33	-1,467.87	-276.91	1,493.76	1.82	-1.81	-0.93	186.24
	NORMAL	4,591.0	12.44	190.53	4,293.11	-1,487.96	-280.42	1,514.15	0.29	0.09	1.29	71.78
	NORMAL	4,687.0	11.56	191.67	4,387.02	-1,507.54	-284.25	1,534.10	0.95	-0.92	1.19	165.48
	NORMAL	4,782.0	9.98	192.55	4,480.34	-1,524.90	-287.97	1,551.85	1.67	-1.66	0.93	174.49
	NORMAL	4,878.0	8.40	193.25	4,575.10	-1,539.85	-291.38	1,567.17	1.65	-1.65	0.73	176.30
	NORMAL	4,973.0	7.21	189.30	4,669.22	-1,552.49	-293.94	1,580.06	1.37	-1.25	-4.16	202.32

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 (°)
10/28/2013	NORMAL	5,068.0	6.99	190.88	4,763.49	-1,564.05	-295.99	1,591.80	0.31	-0.23	1.66	139.19
	NORMAL	5,164.0	5.54	189.65	4,858.92	-1,574.35	-297.87	1,602.28	1.52	-1.51	-1.28	184.68
	NORMAL	5,258.0	3.91	183.32	4,952.60	-1,582.02	-298.82	1,609.99	1.82	-1.73	-6.73	194.60
	NORMAL	5,353.0	3.43	192.81	5,047.40	-1,588.03	-299.64	1,616.05	0.81	-0.51	9.99	132.99
	NORMAL	5,448.0	2.07	186.31	5,142.29	-1,592.51	-300.45	1,620.60	1.47	-1.43	-6.84	189.68
	NORMAL	5,544.0	1.27	183.85	5,238.25	-1,595.29	-300.72	1,623.38	0.84	-0.83	-2.56	183.89
	NORMAL	5,639.0	1.10	181.47	5,333.23	-1,597.25	-300.81	1,625.33	0.19	-0.18	-2.51	194.96
	NORMAL	5,734.0	0.97	158.62	5,428.22	-1,598.91	-300.54	1,626.91	0.45	-0.14	-24.05	241.31
	NORMAL	5,830.0	1.14	145.53	5,524.20	-1,600.46	-299.70	1,628.27	0.31	0.18	-13.64	298.54
10/29/2013	NORMAL	5,926.0	0.88	142.80	5,620.18	-1,601.83	-298.72	1,629.43	0.28	-0.27	-2.84	189.12
	NORMAL	6,021.0	0.83	142.89	5,715.17	-1,602.96	-297.86	1,630.38	0.05	-0.05	0.09	178.51
	NORMAL	6,177.0	1.23	130.76	5,871.15	-1,604.96	-295.91	1,631.97	0.29	0.26	-7.78	325.25
	NORMAL	6,212.0	1.58	143.42	5,906.14	-1,605.59	-295.34	1,632.49	1.33	1.00	36.17	48.01
	NORMAL	6,308.0	1.54	153.44	6,002.10	-1,607.81	-293.97	1,634.41	0.29	-0.04	10.44	103.33
10/30/2013	NORMAL	6,404.0	0.26	29.67	6,098.09	-1,608.77	-293.29	1,635.23	1.77	-1.33	-128.93	187.31
	NORMAL	6,498.0	0.35	346.36	6,192.09	-1,608.31	-293.25	1,634.76	0.26	0.10	-46.07	268.73
	NORMAL	6,594.0	0.35	325.79	6,288.09	-1,607.78	-293.48	1,634.29	0.13	0.00	-21.43	259.72
	NORMAL	6,687.0	0.35	343.72	6,381.09	-1,607.27	-293.72	1,633.84	0.12	0.00	19.28	98.96
	NORMAL	6,783.0	0.44	20.02	6,477.09	-1,606.64	-293.68	1,633.21	0.27	0.09	37.81	88.99
	NORMAL	6,878.0	0.40	306.37	6,572.09	-1,606.10	-293.82	1,632.71	0.53	-0.04	-77.53	229.54
	NORMAL	6,973.0	0.18	329.39	6,667.08	-1,605.78	-294.17	1,632.45	0.26	-0.23	24.23	163.28
	NORMAL	7,068.0	0.09	326.58	6,762.08	-1,605.59	-294.28	1,632.29	0.09	-0.09	-2.96	182.80
	NORMAL	7,164.0	0.35	349.08	6,858.08	-1,605.24	-294.38	1,631.96	0.28	0.27	23.44	29.85
	NORMAL	7,259.0	0.53	297.67	6,953.08	-1,604.75	-294.82	1,631.56	0.44	0.19	-54.12	267.32
	NORMAL	7,354.0	0.57	301.09	7,048.08	-1,604.30	-295.62	1,631.27	0.05	0.04	3.60	41.09
10/31/2013	NORMAL	7,449.0	0.48	296.17	7,143.07	-1,603.88	-296.38	1,631.00	0.11	-0.09	-5.18	204.16
	NORMAL	7,545.0	0.66	264.18	7,239.07	-1,603.76	-297.29	1,631.06	0.37	0.19	-33.32	282.85
	NORMAL	7,639.0	0.83	271.30	7,333.06	-1,603.80	-298.51	1,631.32	0.21	0.18	7.57	32.16
	NORMAL	7,735.0	1.19	244.14	7,429.05	-1,604.22	-300.10	1,632.03	0.61	0.38	-28.29	292.84
	NORMAL	7,830.0	1.05	236.76	7,524.03	-1,605.12	-301.72	1,633.23	0.21	-0.15	-7.77	222.21
	NORMAL	7,926.0	1.05	258.64	7,620.01	-1,605.78	-303.32	1,634.17	0.42	0.00	22.79	100.94
	NORMAL	8,022.0	0.70	250.91	7,716.00	-1,606.15	-304.73	1,634.80	0.38	-0.36	-8.05	194.80
	NORMAL	8,117.0	0.53	289.84	7,811.00	-1,606.19	-305.69	1,635.02	0.46	-0.18	40.98	130.82
	NORMAL	8,213.0	0.57	294.15	7,906.99	-1,605.84	-306.55	1,634.84	0.06	0.04	4.49	48.13
	NORMAL	8,250.0	0.44	314.19	7,943.99	-1,605.67	-306.82	1,634.72	0.59	-0.35	54.16	136.09
	NORMAL	8,295.0	0.44	314.19	7,988.99	-1,605.42	-307.06	1,634.53	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

