

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	RWF 42-4	Wellbore No.	00
Wellbore Legal Name	RWF 42-4	Common Wellbore Name	RWF 42-4
Project	RU 04-07S-094W	Site	RMV 108-4 Pad
Vertical Section Azimuth	154.00 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	10/4/2013	UWI	RWF 42-4
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	10/3/2013	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 (°)
10/3/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/3/2013	NORMAL	50.0			50.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10/4/2013	NORMAL	73.0	0.44	158.64	73.00	-0.26	0.10	0.09	0.60	0.60	0.00	158.64
	NORMAL	103.0	0.97	164.09	103.00	-0.61	0.21	0.64	1.78	1.77	18.17	9.94
	NORMAL	134.0	1.67	173.76	133.99	-1.31	0.33	1.33	2.36	2.26	31.19	22.53
	NORMAL	164.0	1.85	162.13	163.97	-2.21	0.53	2.22	1.33	0.60	-38.77	290.85
	NORMAL	195.0	2.35	167.98	194.95	-3.31	0.82	3.33	1.75	1.61	18.87	26.15
	NORMAL	225.0	2.90	163.96	224.92	-4.64	1.15	4.67	1.93	1.83	-13.40	339.48
	NORMAL	255.0	3.61	158.55	254.87	-6.25	1.71	6.36	2.58	2.37	-18.03	333.89
	NORMAL	286.0	4.49	161.98	285.80	-8.31	2.44	8.54	2.94	2.84	11.06	17.11
	NORMAL	317.0	4.93	156.60	316.69	-10.69	3.35	11.07	2.01	1.42	-17.35	312.18
	NORMAL	347.0	5.45	154.51	346.57	-13.15	4.47	13.78	1.84	1.73	-6.97	338.98
	NORMAL	377.0	5.98	155.57	376.42	-15.86	5.73	16.77	1.80	1.77	3.53	11.79
	NORMAL	407.0	6.60	155.65	406.24	-18.86	7.09	20.06	2.07	2.07	0.27	0.85
	NORMAL	438.0	7.48	151.17	437.01	-22.25	8.80	23.85	3.34	2.84	-14.45	325.80
	NORMAL	468.0	7.74	151.87	466.74	-25.74	10.69	27.82	0.92	0.87	2.33	19.97
	NORMAL	498.0	8.18	150.56	496.45	-29.38	12.69	31.97	1.59	1.47	-4.37	336.94
	NORMAL	529.0	8.80	151.79	527.11	-33.39	14.90	36.54	2.08	2.00	3.97	16.93
	NORMAL	559.0	8.71	152.14	556.76	-37.42	17.04	41.10	0.35	-0.30	1.17	149.55
	NORMAL	604.0	9.05	150.72	601.22	-43.52	20.37	48.04	0.90	0.76	-3.16	326.49
	NORMAL	694.0	9.58	149.32	690.04	-56.14	27.65	62.57	0.64	0.59	-1.56	336.16

2.1.2 Survey Stations (Continued)

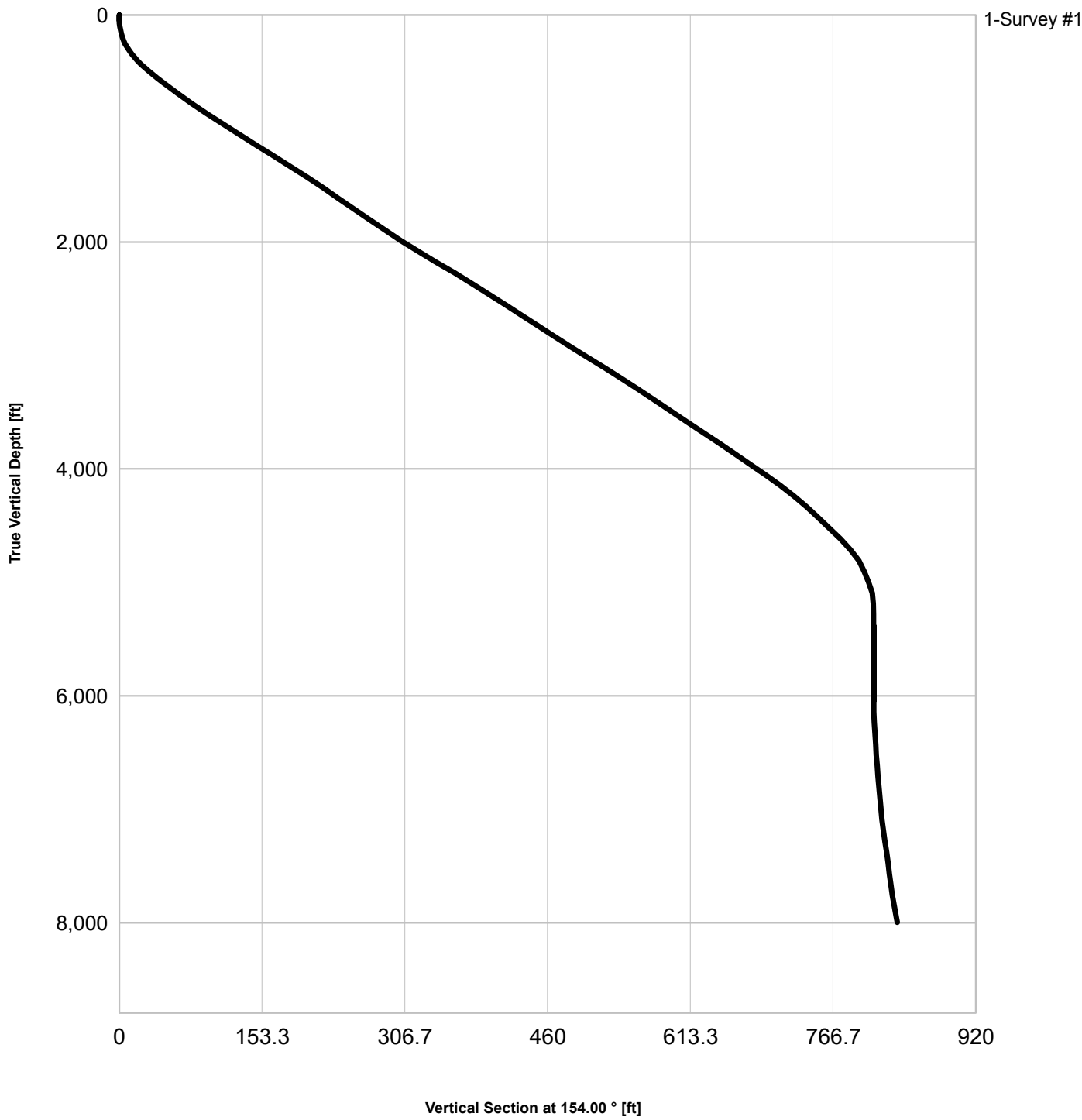
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
10/4/2013	NORMAL	785.0	9.71	154.50	779.75	-69.57	34.82	77.80	0.96	0.14	5.69	84.04
	NORMAL	876.0	10.86	152.39	869.29	-84.10	42.09	94.04	1.33	1.26	-2.32	340.82
	NORMAL	967.0	10.55	155.20	958.71	-99.26	49.56	110.94	0.67	-0.34	3.09	122.08
	NORMAL	1,062.0	11.08	152.92	1,052.02	-115.28	57.36	128.76	0.72	0.56	-2.40	319.97
	NORMAL	1,100.0	11.03	154.15	1,089.31	-121.80	60.61	136.05	0.63	-0.13	3.24	102.57
10/5/2013	NORMAL	1,158.0	11.03	154.15	1,146.24	-131.79	65.45	147.14	0.00	0.00	0.00	0.00
	NORMAL	1,253.0	11.12	155.12	1,239.47	-148.28	73.27	165.39	0.22	0.09	1.02	64.70
	NORMAL	1,349.0	10.91	153.10	1,333.71	-164.78	81.27	183.73	0.46	-0.22	-2.10	240.46
10/6/2013	NORMAL	1,445.0	10.86	149.32	1,427.98	-180.66	90.00	201.83	0.75	-0.05	-3.94	264.14
	NORMAL	1,540.0	9.93	161.01	1,521.43	-196.10	97.23	218.88	2.42	-0.98	12.31	119.47
	NORMAL	1,635.0	10.11	161.97	1,614.98	-211.78	102.48	235.27	0.26	0.19	1.01	43.33
	NORMAL	1,730.0	10.37	160.48	1,708.47	-227.76	107.91	252.02	0.39	0.27	-1.57	313.73
	NORMAL	1,825.0	10.15	159.51	1,801.95	-243.66	113.70	268.85	0.29	-0.23	-1.02	217.67
	NORMAL	1,921.0	10.15	160.57	1,896.45	-259.56	119.48	285.67	0.19	0.00	1.10	90.52
	NORMAL	2,016.0	10.73	159.34	1,989.87	-275.73	125.38	302.79	0.65	0.61	-1.29	338.37
	NORMAL	2,112.0	11.60	149.93	2,084.06	-292.45	133.37	321.32	2.10	0.91	-9.80	290.86
	NORMAL	2,208.0	11.69	148.61	2,178.09	-309.11	143.27	340.63	0.29	0.09	-1.38	288.02
	NORMAL	2,303.0	11.78	147.47	2,271.10	-325.50	153.50	359.84	0.26	0.09	-1.20	290.66
	NORMAL	2,398.0	10.86	152.83	2,364.26	-341.64	162.80	378.43	1.47	-0.97	5.64	133.77
	NORMAL	2,493.0	10.95	152.66	2,457.54	-357.61	171.03	396.40	0.10	0.09	-0.18	340.25
	NORMAL	2,589.0	10.68	154.06	2,551.84	-373.71	179.11	414.41	0.39	-0.28	1.46	136.47
	NORMAL	2,684.0	10.73	154.77	2,645.18	-389.63	186.73	432.05	0.15	0.05	0.75	69.59
	NORMAL	2,779.0	10.73	153.01	2,738.52	-405.51	194.51	449.74	0.34	0.00	-1.85	269.14
	NORMAL	2,874.0	10.64	151.43	2,831.88	-421.09	202.72	467.34	0.32	-0.09	-1.66	252.15
	NORMAL	2,970.0	10.86	151.16	2,926.19	-436.80	211.32	485.23	0.24	0.23	-0.28	346.97
	NORMAL	3,066.0	11.16	151.07	3,020.43	-452.85	220.18	503.54	0.31	0.31	-0.09	356.68
	NORMAL	3,161.0	11.47	151.07	3,113.58	-469.16	229.20	522.15	0.33	0.33	0.00	0.00
	NORMAL	3,257.0	10.59	153.54	3,207.81	-485.41	237.74	540.51	1.04	-0.92	2.57	152.97
	NORMAL	3,352.0	10.51	153.62	3,301.20	-500.99	245.48	557.90	0.09	-0.08	0.08	169.66
	NORMAL	3,448.0	10.33	153.10	3,395.62	-516.51	253.27	575.26	0.21	-0.19	-0.54	207.33
	NORMAL	3,543.0	10.33	151.60	3,489.08	-531.60	261.17	592.29	0.28	0.00	-1.58	269.26
10/7/2013	NORMAL	3,638.0	10.38	156.96	3,582.53	-546.97	268.57	609.35	1.02	0.05	5.64	89.67
	NORMAL	3,734.0	10.64	157.32	3,676.92	-563.10	275.38	626.83	0.28	0.27	0.38	14.35
	NORMAL	3,829.0	10.29	155.03	3,770.34	-578.89	282.34	644.07	0.57	-0.37	-2.41	228.80
	NORMAL	3,924.0	10.07	153.71	3,863.85	-594.03	289.60	660.86	0.34	-0.23	-1.39	226.03
	NORMAL	4,019.0	9.80	153.62	3,957.42	-608.72	296.87	677.25	0.28	-0.28	-0.09	183.25
	NORMAL	4,115.0	10.37	151.25	4,051.94	-623.61	304.66	694.05	0.73	0.59	-2.47	322.77
	NORMAL	4,210.0	8.92	152.13	4,145.59	-637.62	312.21	709.95	1.53	-1.53	0.93	174.63
	NORMAL	4,305.0	8.97	155.56	4,239.44	-650.87	318.72	724.72	0.56	0.05	3.61	86.34
	NORMAL	4,401.0	7.56	148.17	4,334.44	-663.05	325.15	738.48	1.84	-1.47	-7.70	213.38
	NORMAL	4,496.0	7.34	149.23	4,428.64	-673.58	331.55	750.75	0.27	-0.23	1.12	148.53
	NORMAL	4,592.0	7.25	148.17	4,523.86	-683.99	337.88	762.88	0.17	-0.09	-1.10	235.71
	NORMAL	4,687.0	7.21	146.15	4,618.11	-694.03	344.36	774.75	0.27	-0.04	-2.13	260.06
	NORMAL	4,782.0	5.98	148.35	4,712.48	-703.20	350.28	785.58	1.32	-1.29	2.32	169.48
	NORMAL	4,878.0	4.62	154.85	4,808.07	-710.96	354.55	794.43	1.55	-1.42	6.77	159.39
10/8/2013	NORMAL	4,973.0	2.37	148.00	4,902.89	-716.09	357.21	800.21	2.40	-2.37	-7.21	187.11
	NORMAL	5,069.0	3.38	147.82	4,998.76	-720.16	359.77	804.99	1.05	1.05	-0.19	359.40
	NORMAL	5,164.0	1.63	119.70	5,093.67	-723.20	362.44	808.89	2.20	-1.84	-29.60	201.58
	NORMAL	5,258.0	0.22	73.73	5,187.66	-723.82	363.77	810.03	1.58	-1.50	-48.90	186.11
	NORMAL	5,353.0	0.22	150.46	5,282.66	-723.92	364.04	810.24	0.29	0.00	80.77	128.36
	NORMAL	5,449.0	0.18	30.14	5,378.66	-723.95	364.21	810.34	0.36	-0.04	-125.33	206.56
	NORMAL	5,544.0	0.13	85.77	5,473.66	-723.82	364.39	810.30	0.16	-0.05	58.56	134.81
	NORMAL	5,639.0	0.26	240.20	5,568.66	-723.92	364.31	810.35	0.40	0.14	162.56	162.89
	NORMAL	5,735.0	0.13	228.95	5,664.66	-724.10	364.04	810.40	0.14	-0.14	-11.72	190.84
	NORMAL	5,830.0	0.13	217.87	5,759.66	-724.25	363.89	810.47	0.03	0.00	-11.66	264.46
10/9/2013	NORMAL	5,926.0	0.57	259.00	5,855.66	-724.43	363.35	810.40	0.50	0.46	42.84	51.40

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 (°)
10/9/2013	NORMAL	6,021.0	0.75	244.41	5,950.65	-724.79	362.33	810.27	0.26	0.19	-15.36	309.51
	NORMAL	6,116.0	0.61	235.45	6,045.64	-725.34	361.35	810.34	0.18	-0.15	-9.43	212.80
	NORMAL	6,212.0	0.70	227.63	6,141.64	-726.03	360.50	810.58	0.13	0.09	-8.15	311.24
	NORMAL	6,308.0	0.79	208.73	6,237.63	-727.00	359.75	811.13	0.27	0.09	-19.69	280.50
	NORMAL	6,403.0	0.79	212.95	6,332.62	-728.13	359.08	811.84	0.06	0.00	4.44	92.11
	NORMAL	6,498.0	0.70	207.32	6,427.61	-729.19	358.45	812.53	0.12	-0.09	-5.93	216.33
	NORMAL	6,593.0	0.75	205.30	6,522.61	-730.27	357.92	813.26	0.06	0.05	-2.13	331.91
	NORMAL	6,687.0	0.70	186.85	6,616.60	-731.40	357.59	814.13	0.25	-0.05	-19.63	248.79
	NORMAL	6,782.0	0.70	184.56	6,711.59	-732.55	357.47	815.12	0.03	0.00	-2.41	268.86
10/10/2013	NORMAL	6,877.0	0.83	186.93	6,806.58	-733.81	357.34	816.20	0.14	0.14	2.49	14.87
	NORMAL	6,972.0	0.44	165.22	6,901.58	-734.85	357.35	817.13	0.48	-0.41	-22.85	201.13
	NORMAL	7,068.0	0.75	158.54	6,997.57	-735.79	357.68	818.12	0.33	0.32	-6.96	344.03
	NORMAL	7,163.0	0.83	169.88	7,092.56	-737.05	358.03	819.40	0.18	0.08	11.94	68.65
	NORMAL	7,258.0	1.01	171.47	7,187.55	-738.55	358.27	820.86	0.19	0.19	1.67	8.87
	NORMAL	7,354.0	1.10	171.55	7,283.54	-740.30	358.53	822.55	0.09	0.09	0.08	0.98
	NORMAL	7,449.0	1.32	189.31	7,378.51	-742.28	358.49	824.31	0.45	0.23	18.69	68.68
	NORMAL	7,544.0	0.92	191.50	7,473.50	-744.11	358.16	825.81	0.42	-0.42	2.31	174.99
	NORMAL	7,640.0	1.19	193.35	7,569.48	-745.83	357.78	827.19	0.28	0.28	1.93	8.12
	NORMAL	7,733.0	1.32	194.58	7,662.46	-747.81	357.28	828.75	0.14	0.14	1.32	12.32
	NORMAL	7,829.0	1.45	189.39	7,758.43	-750.08	356.81	830.58	0.19	0.14	-5.41	313.41
	NORMAL	7,925.0	1.45	188.69	7,854.40	-752.48	356.43	832.57	0.02	0.00	-0.73	269.65
10/11/2013	NORMAL	8,021.0	1.67	190.80	7,950.36	-755.05	355.98	834.69	0.24	0.23	2.20	15.69
	NORMAL	8,066.0	1.67	190.80	7,995.35	-756.34	355.74	835.74	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

