

1 General

1.1 Customer Information

Company	PICEANCE VLY
Representative	
Address	

1.2 Well/Wellbore Information

Well	RWF 341-4	Wellbore No.	00
Wellbore Legal Name	RWF 341-4	Common Wellbore Name	RWF 341-4
Project	RU 04-07S-094W	Site	RMV 108-4 Pad
Vertical Section Azimuth	142.73 (°)	North reference	True
Origin N/S		Origin E/W	
Spud date	9/25/2013	UWI	RWF 341-4
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	9/25/2013	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 (°)
9/25/2013	Tie On	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9/25/2013	NORMAL	73.0	0.18	184.39	73.00	-0.11	-0.01	0.09	0.25	0.25	0.00	184.39
	NORMAL	103.0	0.26	307.97	103.00	-0.12	-0.07	0.06	1.30	0.27	411.93	146.22
	NORMAL	123.0	0.26	87.01	123.00	-0.09	-0.06	0.04	2.44	0.00	695.20	159.52
	NORMAL	146.0	0.09	143.09	146.00	-0.10	0.01	0.08	0.97	-0.74	243.83	160.40
	NORMAL	164.0	0.18	118.12	164.00	-0.13	0.04	0.12	0.59	0.50	-138.72	313.92
	NORMAL	195.0	0.53	119.79	195.00	-0.22	0.21	0.30	1.13	1.13	5.39	2.53
	NORMAL	225.0	1.23	127.35	225.00	-0.48	0.58	0.74	2.36	2.33	25.20	13.21
	NORMAL	255.0	1.67	148.80	254.99	-1.05	1.07	1.48	2.30	1.47	71.50	62.02
	NORMAL	286.0	2.29	148.18	285.97	-1.97	1.63	2.55	2.00	2.00	-2.00	357.71
	NORMAL	317.0	2.55	144.23	316.94	-3.05	2.36	3.86	1.00	0.84	-12.74	325.34
	NORMAL	347.0	3.08	139.39	346.90	-4.21	3.27	5.33	1.93	1.77	-16.13	333.41
	NORMAL	377.0	4.05	138.87	376.85	-5.61	4.49	7.19	3.24	3.23	-1.73	357.83
	NORMAL	407.0	4.57	144.05	406.76	-7.38	5.89	9.44	2.16	1.73	17.27	39.42
	NORMAL	438.0	5.54	143.17	437.64	-9.58	7.51	12.17	3.14	3.13	-2.84	354.99
	NORMAL	468.0	6.16	137.20	467.48	-11.92	9.47	15.22	2.89	2.07	-19.90	312.54
	NORMAL	513.0	6.90	139.65	512.19	-15.75	12.87	20.32	1.76	1.64	5.44	21.85
	NORMAL	604.0	7.34	138.24	602.49	-24.25	20.28	31.58	0.52	0.48	-1.55	337.64
	NORMAL	694.0	6.81	142.02	691.81	-32.75	27.39	42.65	0.78	-0.59	4.20	140.57
	NORMAL	785.0	7.65	142.55	782.08	-41.81	34.39	54.10	0.93	0.92	0.58	4.80
	NORMAL	876.0	6.24	146.07	872.41	-50.72	40.84	65.09	1.62	-1.55	3.87	164.94

2.1.2 Survey Stations (Continued)

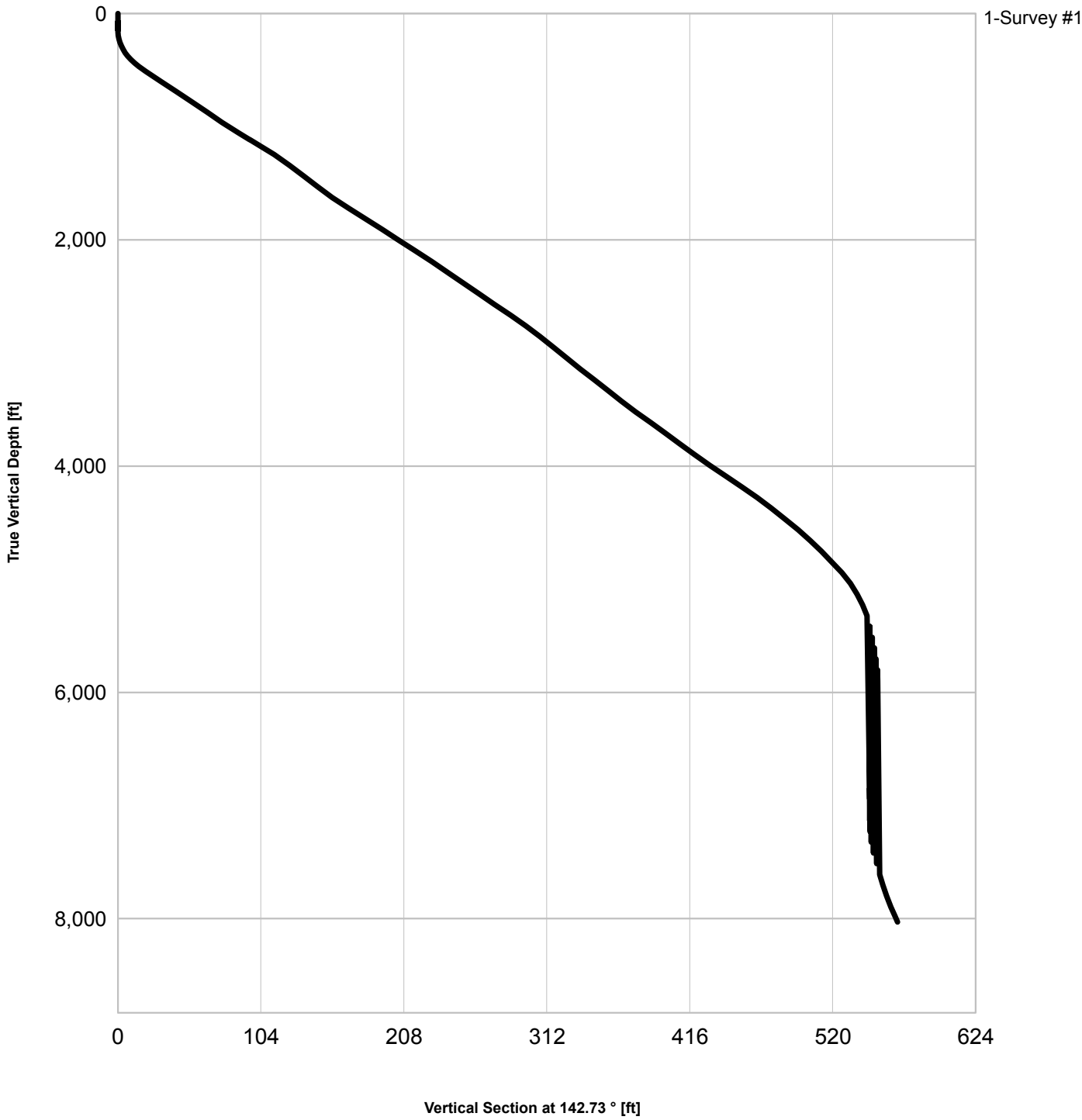
Date	Type	MD (ft)	Inc. (°)	Azi. (°)	TVD (ft)	N/S (ft)	E/W (ft)	V. sec. (ft)	DLS (°/100usft)	Build Rate (°/100usft)	Turn (°/100usft)	Tface (°)
9/26/2013	NORMAL	967.0	7.17	141.85	962.79	-59.29	47.10	75.71	1.16	1.02	-4.64	329.98
	NORMAL	1,062.0	7.60	146.86	1,057.00	-69.21	54.20	87.90	0.81	0.45	5.27	58.77
	NORMAL	1,121.0	8.31	145.36	1,115.43	-75.99	58.76	96.05	1.25	1.20	-2.54	342.96
9/27/2013	NORMAL	1,121.0	8.13	145.36	1,115.43	-75.99	58.76	95.96	0.00	0.00	0.00	0.00
	NORMAL	1,253.0	7.12	143.08	1,246.27	-90.21	68.98	113.76	0.80	-0.77	-1.73	195.55
	NORMAL	1,349.0	6.37	142.55	1,341.60	-99.19	75.79	124.83	0.78	-0.78	-0.55	184.48
	NORMAL	1,444.0	6.20	141.41	1,436.03	-107.39	82.19	135.23	0.22	-0.18	-1.20	215.72
	NORMAL	1,540.0	5.80	139.82	1,531.50	-115.14	88.56	145.26	0.45	-0.42	-1.66	201.77
	NORMAL	1,635.0	7.21	139.12	1,625.89	-123.32	95.56	156.00	1.49	1.48	-0.74	356.43
	NORMAL	1,730.0	7.25	136.13	1,720.14	-132.15	103.61	167.91	0.40	0.04	-3.15	274.58
	NORMAL	1,825.0	7.52	146.24	1,814.35	-141.64	111.22	180.07	1.40	0.28	10.64	83.31
	NORMAL	1,920.0	7.30	145.36	1,908.56	-151.77	118.11	192.30	0.26	-0.23	-0.93	206.85
	NORMAL	2,016.0	7.30	146.07	2,003.78	-161.85	124.98	204.48	0.09	0.00	0.74	90.35
	NORMAL	2,111.0	7.30	144.57	2,098.01	-171.78	131.85	216.54	0.20	0.00	-1.58	269.26
	NORMAL	2,207.0	6.90	144.66	2,193.27	-181.45	138.72	228.40	0.42	-0.42	0.09	178.45
	NORMAL	2,303.0	6.90	142.11	2,288.58	-190.70	145.59	239.93	0.32	0.00	-2.66	268.73
	NORMAL	2,398.0	6.99	140.97	2,382.88	-199.70	152.74	251.41	0.17	0.09	-1.20	302.57
	NORMAL	2,493.0	6.64	137.45	2,477.21	-208.24	160.09	262.66	0.57	-0.37	-3.71	228.30
	NORMAL	2,588.0	7.12	144.92	2,571.53	-217.10	167.19	274.01	1.07	0.51	7.86	65.53
	NORMAL	2,684.0	6.90	144.04	2,666.81	-226.64	174.00	285.72	0.26	-0.23	-0.92	205.58
	NORMAL	2,779.0	6.50	143.87	2,761.16	-235.60	180.52	296.80	0.42	-0.42	-0.18	182.75
	NORMAL	2,874.0	6.02	142.90	2,855.60	-243.91	186.69	307.16	0.52	-0.51	-1.02	191.94
	NORMAL	2,970.0	5.80	141.58	2,951.09	-251.73	192.75	317.05	0.27	-0.23	-1.38	211.05
	NORMAL	3,065.0	5.67	140.61	3,045.61	-259.12	198.71	326.53	0.17	-0.14	-1.02	216.23
	NORMAL	3,161.0	6.11	147.38	3,141.11	-267.09	204.47	336.37	0.86	0.46	7.05	61.05
	NORMAL	3,256.0	6.07	145.19	3,235.57	-275.47	210.06	346.42	0.25	-0.04	-2.31	259.14
	NORMAL	3,352.0	5.98	144.22	3,331.04	-283.69	215.88	356.49	0.14	-0.09	-1.01	228.04
	NORMAL	3,447.0	5.80	142.02	3,425.54	-291.49	221.73	366.24	0.30	-0.19	-2.32	230.34
	NORMAL	3,543.0	6.77	141.67	3,520.96	-299.75	228.23	376.75	1.01	1.01	-0.36	357.56
	NORMAL	3,638.0	6.42	141.85	3,615.33	-308.32	234.98	387.66	0.37	-0.37	0.19	176.71
9/28/2013	NORMAL	3,733.0	6.46	139.74	3,709.73	-316.58	241.71	398.31	0.25	0.04	-2.22	278.54
	NORMAL	3,828.0	6.24	138.95	3,804.15	-324.55	248.56	408.79	0.25	-0.23	-0.83	201.27
	NORMAL	3,923.0	6.64	138.51	3,898.55	-332.56	255.59	419.42	0.42	0.42	-0.46	352.75
	NORMAL	4,019.0	6.90	146.50	3,993.88	-341.52	262.45	430.71	1.02	0.27	8.32	78.56
	NORMAL	4,114.0	7.12	144.39	4,088.17	-351.07	269.03	442.29	0.36	0.23	-2.22	309.46
	NORMAL	4,210.0	6.81	143.69	4,183.47	-360.49	275.86	453.93	0.33	-0.32	-0.73	194.97
	NORMAL	4,305.0	6.68	141.05	4,277.81	-369.33	282.67	465.08	0.35	-0.14	-2.78	245.95
	NORMAL	4,400.0	5.89	138.51	4,372.24	-377.28	289.37	475.47	0.88	-0.83	-2.67	198.13
	NORMAL	4,496.0	6.02	142.29	4,467.72	-384.95	295.71	485.42	0.43	0.14	3.94	73.55
	NORMAL	4,591.0	5.45	143.08	4,562.24	-392.50	301.47	494.91	0.61	-0.60	0.83	172.51
	NORMAL	4,687.0	5.10	139.21	4,657.84	-399.37	307.00	503.73	0.52	-0.36	-4.03	223.55
	NORMAL	4,782.0	4.70	137.45	4,752.49	-405.44	312.39	511.82	0.45	-0.42	-1.85	199.72
	NORMAL	4,878.0	4.48	143.25	4,848.18	-411.34	317.29	519.48	0.53	-0.23	6.04	118.23
	NORMAL	4,973.0	4.31	141.49	4,942.90	-417.10	321.73	526.76	0.23	-0.18	-1.85	217.55
9/29/2013	NORMAL	5,068.0	3.30	153.18	5,037.70	-422.34	325.19	533.02	1.34	-1.06	12.31	148.21
	NORMAL	5,164.0	2.46	147.82	5,133.57	-426.55	327.53	537.79	0.92	-0.88	-5.58	195.11
	NORMAL	5,258.0	2.50	148.00	5,227.49	-429.99	329.70	541.84	0.04	0.04	0.19	11.11
	NORMAL	5,353.0	1.32	161.09	5,322.43	-432.79	331.15	544.94	1.32	-1.24	13.78	166.17
	NORMAL	5,448.0	1.19	156.26	5,417.41	-434.72	331.90	546.94	0.18	-0.14	-5.08	216.74
	NORMAL	5,544.0	1.19	147.82	5,513.39	-436.48	332.83	548.90	0.18	0.00	-8.79	265.78
	NORMAL	5,639.0	0.75	148.88	5,608.38	-437.85	333.68	550.50	0.46	-0.46	1.12	178.19
	NORMAL	5,734.0	0.79	187.57	5,703.37	-439.03	333.91	551.58	0.54	0.04	40.73	105.11
	NORMAL	5,830.0	0.83	177.44	5,799.36	-440.38	333.86	552.63	0.15	0.04	-10.55	280.50
	NORMAL	5,926.0	0.75	274.03	5,895.35	-441.03	333.26	552.78	1.23	-0.08	100.61	140.88
9/30/2013	NORMAL	6,021.0	0.75	260.24	5,990.34	-441.09	332.03	552.08	0.19	0.00	-14.52	263.11
	NORMAL	6,117.0	0.57	21.26	6,086.34	-440.75	331.58	551.55	1.20	-0.19	126.06	154.92

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 (°)
9/30/2013	NORMAL	6,212.0	0.66	22.14	6,181.34	-439.81	331.96	551.02	0.10	0.09	0.93	6.43
	NORMAL	6,308.0	0.75	9.13	6,277.33	-438.67	332.27	550.31	0.19	0.09	-13.55	292.74
	NORMAL	6,404.0	0.44	349.71	6,373.32	-437.69	332.30	549.54	0.38	-0.32	-20.23	203.59
	NORMAL	6,499.0	0.40	7.64	6,468.32	-437.00	332.28	548.98	0.14	-0.04	18.87	115.76
	NORMAL	6,594.0	0.26	328.70	6,563.32	-436.49	332.21	548.53	0.27	-0.15	-40.99	219.57
	NORMAL	6,688.0	0.44	305.67	6,657.32	-436.10	331.81	547.98	0.24	0.19	-24.50	310.10
	NORMAL	6,783.0	0.40	285.81	6,752.32	-435.80	331.19	547.36	0.16	-0.04	-20.91	244.85
	NORMAL	6,878.0	0.40	247.40	6,847.31	-435.83	330.57	547.01	0.28	0.00	-40.43	250.80
	NORMAL	6,973.0	0.22	230.26	6,942.31	-436.08	330.12	546.94	0.21	-0.19	-18.04	198.86
10/1/2013	NORMAL	7,069.0	0.48	228.77	7,038.31	-436.46	329.68	546.97	0.27	0.27	-1.55	357.25
	NORMAL	7,164.0	0.53	234.13	7,133.31	-436.98	329.02	546.99	0.07	0.05	5.64	46.08
	NORMAL	7,259.0	0.70	206.71	7,228.30	-437.75	328.41	547.23	0.35	0.18	-28.86	285.82
	NORMAL	7,355.0	1.23	199.59	7,324.29	-439.25	327.80	548.05	0.56	0.55	-7.42	343.68
	NORMAL	7,450.0	2.02	186.93	7,419.25	-441.87	327.25	549.81	0.91	0.83	-13.33	329.14
	NORMAL	7,545.0	1.58	178.14	7,514.20	-444.84	327.09	552.08	0.55	-0.46	-9.25	207.77
	NORMAL	7,641.0	1.71	179.99	7,610.16	-447.60	327.14	554.30	0.15	0.14	1.93	23.15
	NORMAL	7,734.0	2.11	188.60	7,703.11	-450.68	326.88	556.60	0.53	0.43	9.26	40.01
	NORMAL	7,830.0	2.33	185.88	7,799.04	-454.37	326.42	559.25	0.25	0.23	-2.83	333.05
	NORMAL	7,926.0	2.46	177.79	7,894.96	-458.37	326.30	562.36	0.38	0.14	-8.43	286.96
	NORMAL	8,015.0	2.59	178.23	7,983.87	-462.29	326.43	565.56	0.15	0.15	0.49	8.70
	NORMAL	8,060.0	2.59	178.23	8,028.83	-464.32	326.49	567.22	0.00	0.00	0.00	0.00

3 Charts

3.1 Vertical Section View



3.2 Plan View

