Electronic Supplementary Material (ESI) for Environmental Science: Water Research & Technology.

SUPPLEMENTARY INFORMATION

KEY	Fixture location
1	Municipal service line
2	Kitchen sink (cold)
3	Bathroom sink (cold)
4	Water heater
5	Kitchen sink (hot)
6	Bathroom sink (hot)
7	Shower

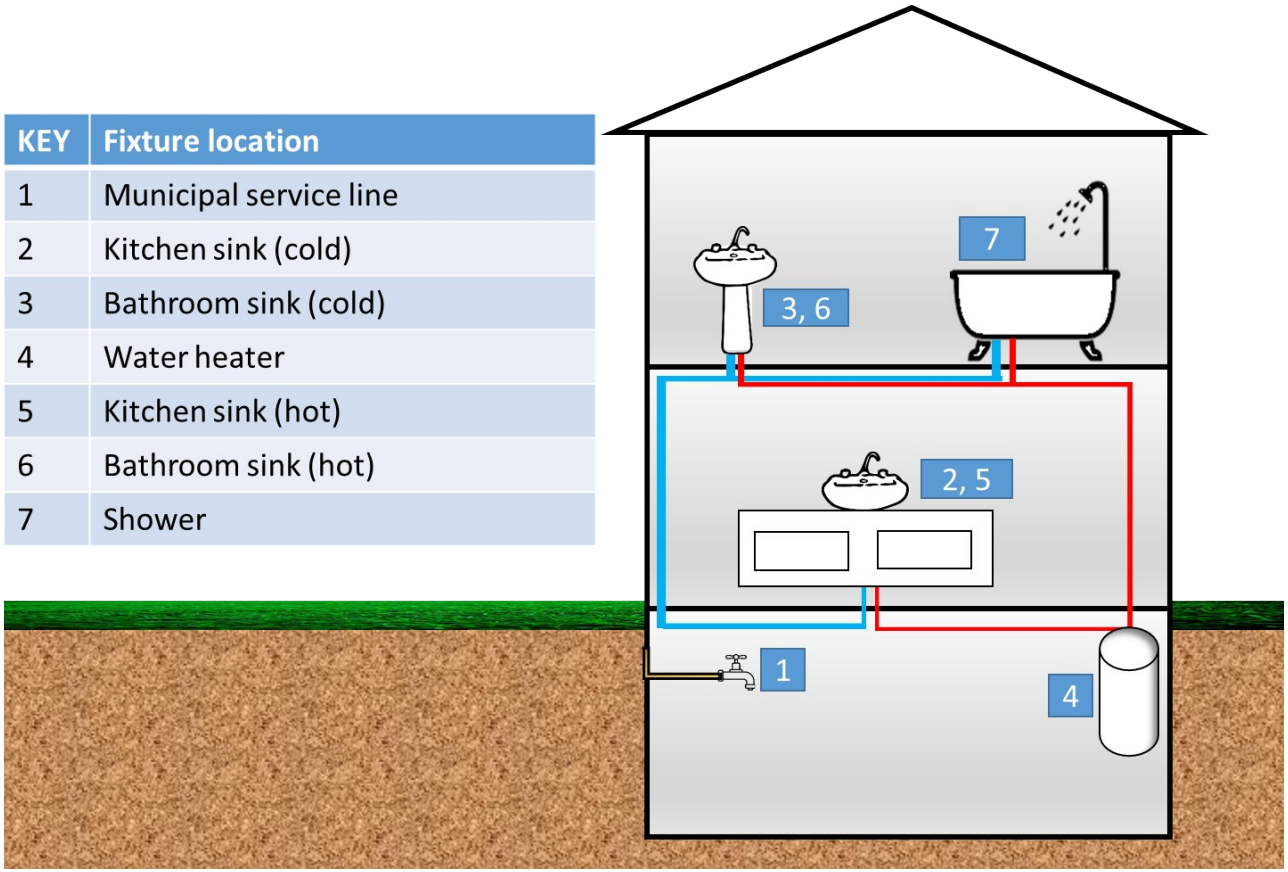

Figure S1: Plumbing diagram including all fixtures sampled during municipal water test periods.

TABLE S1: *Flow rates of ReNEWW house fixtures vs. conventional residential plumbing*

	ReNEWW Flow rate[19] *(LPM)*	*ReNEWW Flow rate*[19] *(GPM)*	*Conventional Flow rate*[49] *(LPM)*	*Conventional Flow rate*[49] *(GPM)*
Kitchen sink	6.81	1.80	8.33	2.20
Bathroom sink	4.54	1.20	8.33	2.20
Shower	6.62	1.75	9.46	2.50

TABLE S2: Metal concentrations (µg/L) by season and fixture locations

Service Line		**Cu**	**Fe**	**Mn**	**Pb**	**Zn**
Winter	avg	75.5	16.7	2.87	<1.10	14.1
	min	15.1	5.83	<0.13	<1.10	<0.17
	max	175.0	40.3	5.38	<1.01	42.0
Spring	avg	72.7	6.20	1.50	<1.10	26.6
	min	17.4	<0.37	<0.13	<1.10	10.5
	max	135.0	12.8	5.78	<1.01	52.1
Summer	avg	32.2	6.99	2.02	<1.10	10.4
	min	14.1	2.67	<0.13	<1.10	<0.17
	max	66.9	23.1	5.34	<1.01	24.2
Fall	avg	81.2	19.1	3.12	<1.10	14.3
	min	*13.0*	1.02	<0.13	<1.10	<0.17
	max	204.0	66.7	9.93	3.06	52.6
Water Heater		**Cu**	**Fe**	**Mn**	**Pb**	**Zn**
Winter	avg	143.4	9.05	2.16	3.48	25.8
	min	101.0	7.54	1.58	1.66	0.32

	max	178.0	11.7	5.34	5.24	68.6
Spring	avg	92.9	5.33	1.55	2.23	32.8
	min	78.4	4.36	1.35	<1.10	20.8
	max	116.0	6.82	1.74	3.96	62.2
Summer	avg	92.5	3.81	2.70	1.79	46.1
	min	68.4	<0.37	1.96	<1.10	18.3
	max	119.7	12.47	3.74	2.05	81.9
Fall	avg	149.2	7.24	3.06	2.05	46.8
	min	63.4	<0.37	2.70	2.05	<0.17
	max	204.0	14.7	3.56	2.06	112.8
Kitchen cold		**Cu**	**Fe**	**Mn**	**Pb**	**Zn**
Winter	avg	79.8	13.6	1.44	3.04	128.7
	min	20.2	7.46	<0.13	1.61	<0.17
	max	172.0	28.7	3.83	4.20	352.0
Spring	avg	56.88	19.2	1.74	2.20	165.8
	min	12.6	2.07	<0.13	<1.10	25.7
	max	148.0	132.0	4.84	3.68	602.0
Summer	avg	56.7	6.07	1.08	<1.10	155.9
	min	20.7	3.32	<0.13	<1.10	6.79
	max	282.7	13.5	3.36	2.05	676.0
Fall	avg	86.2	14.6	1.86	1.58	34.8
	min	28.6	3.92	<0.13	<1.10	<0.17
	max	180.0	43.8	8.14	2.05	92.6
Kitchen hot		**Cu**	**Fe**	**Mn**	**Pb**	**Zn**

Winter	avg	112.2	9.29	1.22	2.78	<0.17
	min	61.6	6.89	<0.13	1.14	<0.17
	max	180	13.0	1.68	4.58	2.20
Spring	avg	65.8	4.41	1.35	1.27	14.6
	min	40.4	2.38	1.10	<1.10	<0.17
	max	94.5	8.77	1.67	3.38	22.2
Summer	avg	84.7	2.53	0.53	<1.10	40.6
	min	48.4	<0.37	<0.13	<1.10	17.2
	max	249.7	3.93	1.41	<1.10	225.4
Fall	avg	104.4	8.00	1.37	<1.10	<0.17
	min	46.0	3.40	<0.13	<1.10	<0.17
	max	153.0	16.3	3.81	<1.10	2.06
Bathroom cold		**Cu**	**Fe**	**Mn**	**Pb**	**Zn**
Winter	avg	23.4	12.6	0.63	2.11	132.5
	min	8.60	<0.37	<0.13	<1.10	<0.17
	max	110.0	33.6	2.39	3.90	679.0
Spring	avg	21.7	11.9	3.54	1.19	198.0
	min	5.61	3.63	<0.13	<1.10	14.1
	max	48.9	29.9	16.2	3.26	492.0
Summer	avg	10.9	5.62	1.28	<1.10	139.1
	min	7.04	<0.37	<0.13	<1.10	17.4
	max	24.0	21.2	4.28	<1.10	1010.0
Fall	avg	26.9	13.9	1.24	<1.10	49.7
	min	16.3	3.02	<0.13	<1.10	<0.17

	max	43.8	29.1	3.85	<1.10	130.6
Bathroom hot		**Cu**	**Fe**	**Mn**	**Pb**	**Zn**
Winter	avg	92.4	8.51	1.40	2.67	21.6
	min	60.0	6.16	1.13	1.25	<0.17
	max	143.0	11.0	1.68	3.97	36.6
Spring	avg	55.4	4.49	0.90	1.20	109.9
	min	28.1	2.00	<0.13	<1.10	15.3
	max	102	12.0	1.39	3.09	1030.0
Summer	avg	58.6	2.03	0.49	<1.10	37.6
	min	44.9	<0.37	<0.13	<1.10	17.4
	max	77.9	3.40	1.29	8.64	129.2
Fall	avg	96.2	5.96	1.01	<1.10	37.1
	min	37.0	<0.37	<0.13	<1.10	<0.17
	max	139	10.7	2.06	<1.10	62.6
Shower		**Cu**	**Fe**	**Mn**	**Pb**	**Zn**
Winter	avg	112	12.0	0.59	3.76	244.8
	min	59.0	5.67	<0.13	1.68	14.9
	max	194	22.5	1.41	6.15	1190
Spring	avg	67.5	5.04	6.45	2.02	346.5
	min	39.9	3.46	<0.13	<1.10	32.9
	max	108	10.2	29.6	6.10	858.0
Summer	avg	132	3.58	1.06	2.16	306.7
	min	61.6	<0.37	<0.13	<1.10	27.3
	max	252	12.0	4.65	8.48	1350.0

Fall	avg	134	18.5	2.19	3.93	162.4
	min	82.5	4.34	<0.13	<1.10	18.3
	max	198	51.8	8.82	13.2	286.0

BQL = below quantification limits; All samples for Be, Cr, Co were below quantification limits

TABLE S3: Ion concentrations by season and fixture location (mg/L)

Service line		**F^-**	**Cl^-**	**Br^-**	**NO_3^-**	**PO_4^{3-}**	**SO_4^{2-}**	**Na^+**	**K^+**	**Ca^{2+}**	**Mg^{2+}**
WINTER	avg	0.55	37.8	0.08	2.28	0.77	48.6	20.2	2.71	89.1	32.2
	min	0.49	21.8	0.03	0.28	0.69	32.2	14.8	2.30	79.1	29.6
	max	0.61	49.2	0.15	3.68	0.80	59.6	22.7	2.89	94.2	35.7
SPRING	avg	0.52	46.3	0.08	2.97	0.84	55.9	21.6	3.04	94.0	32.8
	min	0.46	33.3	<0.013	0.39	0.67	37.3	17.6	2.75	82.4	28.8
	max	0.62	63.2	0.16	8.06	1.13	77.1	27.8	3.52	100.5	37.1
SUMMER	avg	0.55	53.7	0.09	2.16	0.66	101.9	22.4	5.67	107.1	35.8
	min	0.48	43.3	<0.013	0.32	0.07	54.4	<0.06	<0.024	99.3	33.4
	max	0.60	67.1	0.14	6.49	0.85	583.7	28.8	45.7	115.1	38.5
FALL	avg	0.57	49.1	0.04	1.43	0.63	68.4	19.0	3.08	106.1	35.4
	min	0.46	37.0	<0.013	0.11	0.48	61.9	<0.06	2.73	103.1	32.6
	max	0.63	67.3	0.08	3.60	0.89	81.8	27.9	3.80	109.5	38.5
Water heater		**F^-**	**Cl^-**	**Br^-**	**NO_3^-**	**PO_4^{3-}**	**SO_4^{2-}**	**Na^+**	**K^+**	**Ca^{2+}**	**Mg^{2+}**
WINTER	avg	0.54	40.3	0.08	2.67	0.81	49.80	153.7	0.35	2.18	2.34
	min	0.45	39.0	0.03	1.62	0.68	47.15	144.6	0.25	1.81	2.10
	max	0.56	44.2	0.10	3.54	0.86	65.07	157.5	0.46	2.77	2.67
SPRING	avg	0.49	50.8	0.08	2.32	0.84	61.24	188.3	0.16	2.29	4.68
	min	0.46	49.6	<0.013	2.12	0.73	59.90	185.1	0.12	2.18	3.87

	max	0.56	51.8	0.11	3.14	1.14	65.23	193.6	0.22	2.47	5.63
SUMMER	avg	0.58	52.5	6.47	1.12	0.82	99.07	186.9	0.30	2.77	7.96
	min	0.48	48.8	<0.013	0.09	0.72	62.11	98.3	0.22	0.51	3.40
	max	0.64	62.3	101.9	2.11	0.93	617.8	209.0	0.68	3.63	10.0
FALL	avg	0.46	41.1	0.05	1.44	0.59	57.17	140.3	0.74	3.47	2.44
	min	0.09	11.9	0.01	0.42	0.27	13.83	24.66	0.40	1.96	1.31
	max	0.59	60.8	0.09	3.42	0.75	73.91	199.6	2.85	4.48	3.60
Kitchen cold		**F^-**	**Cl^-**	**Br^-**	**NO_3^-**	**PO_4^{3-}**	**SO_4^{2-}**	**Na^+**	**K^+**	**Ca^{2+}**	**Mg^{2+}**
WINTER	avg	0.54	41.2	0.09	2.33	0.78	50.05	158.3	0.41	1.94	1.11
	min	0.49	32.8	0.05	0.41	0.70	34.26	130.5	0.22	0.50	0.39
	max	0.59	53.1	0.16	3.63	0.84	59.46	175.9	0.82	19.59	7.43
SPRING	avg	0.52	51.0	0.27	2.85	0.84	58.90	188.7	0.31	0.80	1.70
	min	0.46	39.6	<0.013	0.81	0.68	48.44	180.3	0.22	0.27	0.82
	max	0.66	78.1	0.96	5.76	1.24	75.23	204.1	0.40	0.99	6.71
SUMMER	avg	0.55	55.7	0.13	1.93	0.80	71.18	189.7	0.34	1.04	1.18
	min	0.49	45.9	<0.013	0.43	0.59	62.96	19.98	0.07	0.31	0.45
	max	0.62	69.0	0.35	4.11	1.03	81.10	220.9	1.05	1.45	1.64
FALL	avg	0.56	48.7	0.11	1.40	0.67	68.31	183.1	0.67	1.29	0.97
	min	0.39	37.5	0.03	0.13	0.06	51.67	146.1	0.31	0.47	0.24
	max	0.63	64.6	0.73	3.76	0.89	81.60	220.4	1.36	1.77	1.37
Kitchen hot		**F^-**	**Cl^-**	**Br^-**	**NO_3^-**	**PO_4^{3-}**	**SO_4^{2-}**	**Na^+**	**K^+**	**Ca^{2+}**	**Mg^{2+}**
WINTER	avg	0.42	40.6	0.09	2.57	0.84	50.43	161.9	0.36	1.06	2.59
	min	<0.015	36.7	0.06	1.58	0.79	46.61	139.4	0.22	0.50	BQL
	max	7.13	46.1	0.16	3.53	0.88	64.64	170.2	0.47	3.90	4.17

SPRING	avg	<0.015	50.5	0.14	2.33	0.83	61.44	188.5	0.19	0.78	8.82
	min	<0.015	48.7	0.02	1.83	0.68	58.94	186.0	0.14	0.67	6.19
	max	<0.015	52.6	0.27	3.02	1.07	63.46	190.7	0.24	0.90	12.12
SUMMER	avg	0.59	52.9	0.12	1.11	0.67	65.16	198.1	0.31	1.65	12.18
	min	0.51	48.6	<0.013	0.25	0.46	61.86	180.1	0.20	0.81	5.45
	max	0.65	63.4	0.15	1.82	0.83	71.02	222.3	0.69	8.05	19.12
FALL	avg	0.60	47.9	0.05	1.34	0.67	59.14	165.6	0.60	1.34	3.41
	min	<0.015	14.5	0.01	0.43	0.31	16.77	35.60	0.42	1.04	1.16
	max	1.45	108.0	0.09	3.46	1.47	74.41	210.0	0.97	2.11	4.69
Bathroom cold		**F^-**	**Cl^-**	**Br^-**	**NO_3^-**	**PO_4^{3-}**	**SO_4^{2-}**	**Na^+**	**K^+**	**Ca^{2+}**	**Mg^{2+}**
WINTER	avg	0.55	38.6	0.08	2.34	0.79	49.70	138.0	0.47	5.10	2.18
	min	0.44	21.6	0.03	0.24	0.73	31.40	17.67	0.13	0.42	0.24
	max	0.62	49.2	0.15	4.21	0.85	66.38	158.1	2.28	77.29	28.86
SPRING	avg	0.51	49.4	0.33	2.57	0.90	59.95	188.6	0.36	1.25	0.85
	min	0.44	36.8	<0.013	0.10	0.77	46.14	170.4	0.22	1.11	0.68
	max	0.68	74.4	1.39	5.92	1.51	76.66	202.8	0.46	1.33	0.97
SUMMER	avg	0.55	55.9	0.12	2.11	0.85	103.9	199.9	0.37	1.67	1.01
	min	0.48	43.9	<0.013	0.43	0.64	57.69	184.7	0.12	0.16	0.17
	max	0.63	69.4	0.26	5.59	1.43	602.7	217.8	0.98	5.16	2.03
FALL	avg	0.57	49.4	0.08	1.31	0.73	72.44	185.9	0.76	1.50	0.83
	min	0.42	37.0	0.03	0.12	0.59	58.88	165.6	0.38	0.35	0.13
	max	0.65	67.8	0.26	3.85	1.06	81.45	201.9	1.51	2.45	1.67
Bathroom hot		**F^-**	**Cl^-**	**Br^-**	**NO_3^-**	**PO_4^{3-}**	**SO_4^{2-}**	**Na^+**	**K^+**	**Ca^{2+}**	**Mg^{2+}**
WINTER	avg	0.55	40.6	0.08	2.63	0.86	50.03	160.0	0.38	1.70	3.54

	min	0.53	37.2	0.06	1.53	0.79	46.48	136.2	0.26	0.59	2.59
	max	0.58	48.5	0.10	3.49	0.89	65.31	170.9	0.56	14.19	7.65
SPRING	avg	0.50	50.6	0.12	2.23	0.79	61.15	188.2	0.19	0.79	9.31
	min	0.47	49.1	<0.013	1.86	0.03	58.70	184.9	0.14	0.72	7.93
	max	0.58	52.1	0.23	2.84	1.04	63.53	190.6	0.26	0.86	11.82
SUMMER	avg	0.56	53.2	0.12	1.19	0.71	65.5	198.4	0.32	1.26	12.0
	min	<0.015	49.3	<0.013	0.34	0.57	61.9	186.6	0.22	0.37	5.63
	max	0.66	63.9	0.16	2.01	0.83	71.7	226.9	0.69	2.50	18.92
FALL	avg	0.47	42.7	0.05	1.36	0.62	59.2	167.6	0.62	1.15	3.86
	min	0.17	19.8	<0.013	0.41	0.35	22.0	64.59	0.48	0.94	1.67
	max	0.60	56.7	0.07	3.47	0.76	74.0	213.2	0.83	1.60	5.67
Shower		**F^-**	**Cl^-**	**Br^-**	**NO_3^-**	**PO_4^{3-}**	**SO_4^{2-}**	**Na^+**	**K^+**	**Ca^{2+}**	**Mg^{2+}**
WINTER	avg	0.55	39.9	0.08	2.51	0.79	50.3	158.2	0.38	0.67	1.13
	min	0.49	22.6	0.03	0.46	0.69	33.4	142.8	0.23	0.39	0.60
	max	0.61	54.1	0.14	4.46	0.86	63.0	172.3	0.50	1.61	2.65
SPRING	avg	0.52	47.8	0.22	2.47	0.83	61.9	186.6	0.32	0.40	1.85
	min	0.45	37.6	<0.013	0.30	0.61	44.7	176.4	0.17	0.31	1.10
	max	0.66	55.8	0.49	5.14	1.14	77.3	199.6	0.43	0.49	4.78
SUMMER	avg	0.57	52.9	0.11	1.96	1.13	67.6	198.6	0.31	0.74	1.76
	min	0.49	41.1	0.07	0.52	0.52	54.7	173.2	0.08	0.46	0.60
	max	0.64	63.8	0.20	5.06	7.40	78.9	219.9	0.94	2.38	5.91
FALL	avg	0.55	50.2	0.07	1.41	0.68	69.9	184.9	0.70	0.71	1.95
	min	0.36	43.5	0.02	0.23	0.36	46.9	139.5	0.35	0.46	0.31
	max	0.64	64.0	0.26	3.80	1.03	81.8	208.8	1.32	0.90	3.84

BQL = below quantification limits

TABLE S4-a: *Spearman correlation rank analysis between stagnation, microbial growth, and OPP occurrence*

All Samples	*Log TCC*	*Log HPC*	*Log Legionella spp.*	*Log Mycobacterium spp*	*Total Chlorine*
Stagnation, r_s	0.216**	0.395**	0.356**	0.287**	-0.312**
p	*<0.001*	*<0.001*	*<0.001*	*<0.001*	*<0.001*
N	*376*	*361*	*246*	*244*	*377*

TABLE S4-b *Spearman correlation rank analysis between stagnation, microbial growth, and OPPs at Service line*

Service Line	*Log TCC*	*Log HPC*	*Log Legionella spp.*	*Log Mycobacterium spp*	*Total Chlorine*
Stagnation, r_s	0.115	0.152	-0.252	0.093	-0.048
p	*0.403*	*0.277*	*0.144*	*0.588*	*0.728*
N	*55*	*53*	*35*	*36*	*55*

TABLE S4-c: *Spearman correlation rank analysis between stagnation, microbial growth, and OPPs at 1st floor kitchen sink cold line*

Kitchen sink cold	*Log TCC*	*Log HPC*	*Log Legionella spp.*	*Log Mycobacterium spp*	*Total Chlorine*
Stagnation, r_s	0.326*	0.575**	0.498**	0.414*	-0.142
p	*0.017*	*<0.001*	*0.002*	*0.013*	*0.311*
N	*53*	*51*	*35*	*35*	*53*

TABLE S4-d: *Spearman correlation rank analysis between stagnation, microbial growth, and OPPs at 2nd floor bathroom cold*

2nd Floor Bathroom sink cold line	*Log TCC*	*Log HPC*	*Log Legionella spp.*	*Log Mycobacterium spp*	*Total Chlorine*
Stagnation, r_s	0.601**	0.564**	0.545**	0.460*	-0.062
p	*<0.001*	*<0.001*	*0.001*	*0.05*	*0.657*
N	*53*	*51*	*35*	*35*	*53*

TABLE S4-e: *Spearman correlation rank analysis between stagnation, microbial growth, and OPPs at 2nd floor distal end shower*

2nd Floor Shower	*Log TCC*	*Log HPC*	*Log Legionella spp.*	*Log Mycobacterium spp*	*Total Chlorine*
Stagnation, r_s	0.560**	0.471**	0.148	0.327	-0.142
p	*<0.001*	*<0.001*	*0.395*	*0.067*	*0.304*
N	*54*	*50*	*35*	*32*	*54*

** Correlation is significant at the 0.01 level (2-tailed).

.*Correlation is significant at the 0.05 level (2-tailed).

TABLE S5: Log mean heterotrophic plate count (log CFU/100 mL) by season

Sample Location	**Fall** Min (mean) max	**Winter** Min (mean) max	**Spring** Min (mean) max	**Summer** Min (mean) max
Service Line	1.34 (3.16) 4.37	-0.52 (2.08) 4.07	0.63 (2.74) 4.34	1.26 (2.88) 4.06
Water Heater	5.53 (6.37) 7.06	1.81 (3.09) 5.60	5.72 (6.49) 7.05	6.77 (7.37) 7.83
Kitchen sink – Cold	1.68 (3.24) 5.75	-0.52 (1.89) 4.01	3.71 (4.72) 6.37	2.30 (4.01) 7.00
Kitchen sink – Hot	2.68 (4.08) 5.02	2.55 (3.51) 4.34	4.40 (6.14) 7.08	2.96 (6.48) 7.76
Bathroom sink – Cold	2.81 (3.58) 4.84	0.48 (1.74) 3.18	3.17 (4.77) 7.28	2.58 (4.35) 6.67
Bathroom sink – Hot	2.51 (4.67) 5.80	2.01 (3.69) 4.59	5.14 (6.27) 7.48	5.54 (6.28) 7.52
Shower	2.81 (3.67) 4.92	2.23 (4.54) 6.71	5.23 (6.40) 7.70	2.21 (4.21) 7.24

TABLE S6: Mean total cell counts (log cell/mL) vary by fixture and season

	Season (number of sampling events)			
	Fall (n=13) Min (mean) max	*Winter (n=17) Min (mean) max*	*Spring (n=12) Min (mean) max*	*Summer (n=16) Min (mean) max*
Service line	3.78 (4.70) 5.51	2.97 (4.17) 5.07	3.66 (4.76) 5.62	4.06 (4.54) 5.19
Water Heater	5.56 (5.77) 6.01	3.44 (3.94) 5.31	4.36 (5.73) 6.08	5.84 (6.11) 6.25
Kitchen sink cold	3.23 (4.61) 5.84	2.87 (3.49) 4.45	3.63 (4.32) 5.96	3.44 (4.55) 5.57
Kitchen sink hot	3.55 (4.99) 5.78	3.34 (3.84) 5.10	4.90 (5.59) 6.03	4.73 (5.82) 6.22
Shower	3.59 (4.27) 5.07	3.10 (3.70) 4.90	3.51 (5.19) 6.04	3.72 (4.71) 6.13

TABLE S7-a: Seasonal total water use and stagnation

Season			Fixture Locations						
			SL	*KC*	*BC*	*SH*	*WH*	*KH*	*BH*
Fall	*Total Volume (m^3/person)**		9.11	0.32	0.14	2.89	3.11	0.36	1.25
	Stagnation (hr)	*90^{th}*	0	2.2	7.3	3.6	0.9	2	2.5
		Max	37.5	153	102.7	120	152	153	150.2
Winter	*Total Volume (m^3/person)**		10.73	0.36	0.18	3.32	3.77	0.45	0.45
	Stagnation (hr)	*90^{th}*	0.6	2.2	9.7	9.3	0.8	2	2.2
		Max	16	99.4	69.9	72.3	50.7	72.9	72.6
Spring	*Total Volume (m^3/person)**		13.13	0.33	0.13	3.13	3.93	0.53	0.53
	Stagnation (hr)	*90^{th}*	1.0	4.1	11.6	13.8	1.1	2.8	3.0
		Max	25.8	114.1	123.1	60.7	68.9	116.2	67.0
Summer	*Total Volume (m^3/person)**		8.81	0.33	0.07	1.37	1.59	0.26	0.26
	Stagnation (hr)	*90^{th}*	0.1	2.2	7.6	15.6	1.2	2.6	3
		Max	47	118.6	145.1	79	95.4	142.5	65.8

SL: service line, KC: kitchen cold, BC: bathroom cold, SH: shower, WH: water heater, KH: kitchen hot, BH: bathroom hot (Mean seasonal occupancy: Fall: 2.8, Winter: 2.2, Spring: 1.5, Summer 2.7 occupants). *Total volume of water used normalized to occupancy (m^3/capita).

TABLE S7-b: Hydraulic retention time in water heating system

	Fall	**Winter**	**Spring**	**Summer**
Hydraulic retention time (days)	14.4	15.1	21.3	29.2

TABLE S8: Spearman correlation matrix for microbial parameters and metals

		Cu	Fe	Mn	Pb	Zn
Log TCC	r_s	0.024	-.492**	-0.008	0.195	0.186**
	p-value	0.625	<0.001	0.883	0.020	<0.001
	N	404	376	305	143	348
Log HPC	r_s	0.161**	-0.453**	-0.008	0.195	0.186**
	p-value	0.001	<0.001	0.883	0.020	<0.001
	N	389	376	305	143	348
Log *Legionella*	r_s	0.047	-0.337**	-0.195*	0.359*	0.058
	p-value	0.451	<0.001	0.024	0.016	0.373
	N	257	246	185	62	238
Log *Mycobacterium*	r_s	0.065	-0.305**	-0.196	0.461**	0.134
	p-value	0.299	<0.001	0.024	<0.001	0.080
	N	255	244	183	60	235

** Correlation is significant at the 0.01 level. *Correlation is significant at the 0.05 level (2-tailed).

TABLE S9: Spearman correlation matrix for microbial metrics and ions

		Br	Ca	Cl	K	Na	Mg	NO_3
Log TCC	r_s	0.262**	0.222**	0.401**	-0.234**	0.398**	0.399**	-0.227**
	p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
	N	387	405	405	404	402	405	405
Log HPC	r_s	0.334**	-0.083	0.347**	-0.429**	0.441**	0.174**	-0.085
	p-value	<0.001	0.101	<0.001	<0.001	<0.001	0.001	0.094
	N	372	390	390	389	387	390	390
Log *Legionella*	r_s	0.318**	-0.083	0.271**	-0.407**	0.567**	0.162	-0.259**
	p-value	<0.001	0.185	<0.001	<0.001	<0.001	0.009	<0.001
	N	249	258	258	257	255	258	256
Log *Mycobacterium*	r_s	0.279**	-0.046	0.265**	-0.387**	0.643**	0.089	-0.358**
	p-value	<0.001	0.464	<0.001	<0.001	<0.001	0.158	<0.001
	N	247	256	256	255	253	256	256

** Correlation is significant at the 0.01 level (2-tailed).