**SUPPLEMENTARY MATERIAL**

**OVER THE WEEKEND: WATER STAGNATION AND CONTAMINANT EXCEEDANCES IN A GREEN OFFICE BUILDING**

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**Tables and Figures**

**Table SI-A**: Limit of detection and Limit of Quantification for metals quantified with ICP.

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**Table SI-D**: 2019 CCR Report for PWS

**Table SI-E:** Utility Report during sampling at surrounding stations. The average total Chlorine level entering the distribution system to the downtown area was 2.39 Chlorine mg/L.

**Figure SI-A:** pH levels detected at each location (locations 1-12) on the six days of sampling. Fridays (black) and the following Mondays (white) are presented in order. The first bar is sampling event 1 (black), then 2 (white), and so on. Location descriptions can be found in Table 1, and sample events are described in Table 2

**Figure SI-:** Measured residual chlorine versus hours stagnant at the individual taps, for locations 2-1**2**2.

**Figure SI-C:** Total cell concentration versus hours stagnant at the individual taps, for locations 2-12.

**Figure SI-D**: Copper concentration versus hours each fixture was stagnant, for locations 2-12.

**Table SI-A**: Limit of detection and Limit of Quantification for metals quantified with ICP.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Aluminum | Arsenic | Beryllium | Cadmium | Cobalt | Chromium | Copper | Iron | Mercury | Manganese | Nickel | Lead | Selenium | Zinc |
| LOQ (ppb) | 0.96 | 6.42 | 0.49 | 0.39 | 1.43 | 2.88 | 4.66 | 2.63 | 1.25 | 0.6 | 1.71 | 3.49 | 9.43 | 0.91 |
| LOD (ppb) | 0.29 | 1.93 | 0.15 | 0.12 | 0.43 | 0.86 | 1.4 | 0.79 | 0.38 | 0.18 | 0.51 | 1.05 | 2.83 | 0.27 |

**Table SI-B.** Primers and probes used for the detection of *Legionella* spp. and *Legionella pneumophila* using qPCR.

|  |  |  |
| --- | --- | --- |
| **Target** | **Oligo name** | **Sequence (5’ – 3’)** |
|
| *Legionella* spp.  (23S rRNA) | Leg23SF | CCCATGAAGCCCGTTGAA |
| Leg23SR | ACAATCAGCCAATTAGTACGAGTTAGC |
| Leg23SP | HEX-TCCACACCTCGCCTATCAACGTCGTAGT- BHQ1 |
| *Legionella*  *pneumophila*  (*mip* gene) | LPmipF | AAAGGCATGCAAGACGCTATG |
| LPmipR | GAAACTTGTTAAGAACGTCTTTCATTTG |
| LPmipP | FAM-TGGCGCTCAATTGGCTTTAACCGA-BHQ1 |

**Table SI-C:** Select water quality ranges (n=3 samples per location) averaged at point of entry and for each floor, as measured on Friday evening and Monday morning. ND indicates the parameter was not detected.

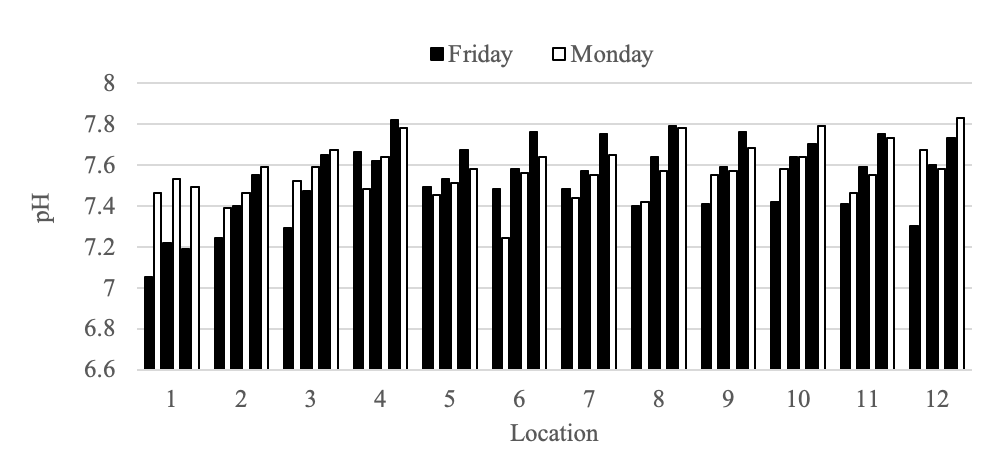
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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Parameter** | **Point of Entry** | | **Basement**  **(locations 2 - 4)** | | **First Floor**  **(locations 5 - 10)** | | **Second Floor**  **(locations 11 and 12)** | |
| Friday | Monday | Friday | Monday | Friday | Monday | Friday | Monday |
| **General** | | | | | | | | |
| Temp (ºC) | 12.2 - 14.1 | 17.6 - 19.2 | 19.9 - 25.3 | 20.4 - 21.6 | 19.0 - 23.1 | 20.4 - 22.1 | 14.6 - 26.7 | 21.1 - 22.0 |
| pH | 7.05 - 7.22 | 7.46 - 7.53 | 7.29 - 7.82 | 7.45 - 7.78 | 7.40 - 7.79 | 7.24 - 7.79 | 7.30 - 7.75 | 7.46 - 7.83 |
| Total Cl2 (mg/L)  MCL: 4 mg/L | 0.77 - 0.8 | 0.39 - 0.51 | 0.03 - 0.14 | 0.01 - 0.07 | 0.01 - 0.28 | 0.00 - 0.09 | 0.04 - 0.10 | 0 - 0.04 |
| **Organics** | | | | | | | | |
| TOC (mg/L) | 1.6 - 3.2 | 1.6 - 3.2 | 1.6 - 3.2 | 1.4 - 4.1 | 1.5 - 3.4 | 1.3 - 3.5 | 1.5 - 3.3 | 1.4 - 3.5 |
| DOC (mg/L) | 1.6 - 2.8 | 1.7 - 3.1 | 1.4 - 3.9 | 1.4 - 3.1 | 1.4 - 3.7 | 1.3 - 3.0 | 1.4 - 3.3 | 1.3 - 3.0 |
| **Biological** | | | | | | | | |
| TCC (Log10 cells/mL) | 3.72 - 4.90 | 4.03 - 4.56 | 4.47 - 5.07 | 4.91 - 5.31 | 4.28 - 5.05 | 4.73 - 5.55 | 4.38 - 4.54 | 4.82 - 4.96 |
| *Legionella* spp.  (Log10 gene copy # / 100 mL) | 1.94 - 2.36 | 2.14 - 2.26 | 2.15 - 2.84 | 1.86 - 2.95 | 1.92 - 4.15 | 2.34 - 4.25 | 2.08 - 2.72 | 2.16 - 2.94 |
| **Nitrogen** | | | | | | | | |
| NH4 –N (mg/L) | 0.44 - 0.48 | 0.38 - 0.43 | 0.19 - 2.7 | 0.31 - 2. 31 | 0.12 - 2.37 | 0.09 - 2.67 | 0.14 - 0.92 | 0.08 - 2.24 |
| NO2 –N (mg/L)  MCL: 1 mg/L | ND | ND | ND | ND | 0.0 - 0.02 | 0 - 0.06 | ND | ND |
| NO3-N (mg/L)  MCL: 10 mg/L | 2.58 - 2.84 | 2.59 - 2.90 | 2.53 - 2.79 | 2.51 - 2.8 | 2.67 - 3.29 | 2.35 - 3.29 | 2.66 - 2.86 | 2.51 - 2.80 |

**Table SI-D:** The 2019 CCR for the PWS.

|  |  |
| --- | --- |
| Parameter | **Concentration** |
| Cl2 | 1.7 mg/L |
| NO2-N | 0.79 mg/L |
| pH | 7.7 |
| TOC | 3.8 mg/L |

**Table SI-E:** Utility Report during sampling at surrounding stations. The average total Chlorine level entering the distribution system to the downtown area was 2.39 Chlorine mg/L.

|  |  |
| --- | --- |
| **Parameter** | **Concentration** |
| Cl2 | 1.4 to 2.38 mg/L |
| NO3-N | 1.57 to 3.15 mg/L |
| NO2-N | 0.04 mg/L |
| NH4-N | 0.05 to 0.16 mg/L |



**Figure SI-A:** pH levels detected at each location (locations 1-12) on the six days of sampling. Fridays (black) and the following Mondays (white) are presented in order. The first bar is sampling event 1 (black), then 2 (white), and so on. Location descriptions can be found in Table 1, and sample events are described in Table 2

**Figure SI-B:** Measured residual chlorine versus hours stagnant at the individual taps, for locations 2-12. Hours stagnant are estimated from recorded use data, with 60 hrs remaining constant Monday sampling events (last sampled Friday evening). Symbols categorize floor (color) and riser (shape). Full location descriptions can be found in Table 1.

**Figure SI-C:** Total cell concentration versus hours stagnant at the individual taps, for locations 2-12. Hours stagnant are estimated from recorded use data, with 60 hrs remaining constant Monday sampling events (last sampled Friday evening). Symbols categorize floor (color) and riser (shape). Full location descriptions can be found in Table 1.

**Figure SI-D:** Copper concentration versus hours each fixture was stagnant, for locations 2-12. Hours stagnant are estimated from recorded use data, with 60 hrs remaining constant Monday sampling events (last sampled Friday evening). Symbols categorize floor (color) and riser (shape). Full location descriptions can be found in Table 1.