**Supplementary Table 1: Information on water quality of all SWS under study**

| Type of water | Parameters | Newfoundland and Labrador | | Quebec | |
|---|---|---|---|---|---|
| | | Mean* | Coefficient of variation | Mean* | Coefficient of variation |
| Raw water (RW) | pH (5%-95% percent.) | 5.7-8.5 | 14 % | 5.9-7.9 | 9 % |
| | Turbidity (NTU) | 0.78 | 115 % | 1.96 | 154 % |
| | Conductivity ($\mu$S cm$^{-1}$) | 59 | 60 % | 61 | 80 % |
| | UV-254 (cm$^{-1}$) | 0.26 | 50 % | 0.25 | 86 % |
| | DOC (mg/L) | 7.27 | 41 % | 5.78 | 59 % |
| | SUVA (L mg$^{-1}$ m) | 3.60 | 31 % | 3.98 | 110 % |
| | Bromide ($\mu$g L$^{-1}$) | 12.4 | 79 % | 3.8 | 82 % |
| Water before disinfection | pH | *Idem*** | *idem*** | 5.1-7.7 | 12 % |
| | Turbidity (NTU) | *Idem*** | *idem*** | 0.34 | 97 % |
| | Conductivity ($\mu$S cm$^{-1}$) | *idem*** | *idem*** | 83 | 61 % |
| | UV-254 (cm$^{-1}$) | *idem*** | *idem*** | 0.05 | 88 % |
| | DOC (mg L$^{-1}$) | *idem*** | *idem*** | 2.44 | 53 % |
| | SUVA (L mg$^{-1}$ m) | *idem*** | *Idem*** | 1.93 | 54 % |
| Water from the middle of the distribution system | Turbidity (NTU) | 0.57 | 61 % | 0.46 | 179 % |
| | Conductivity ($\mu$S cm$^{-1}$) | 69 | 46 % | 89 | 57 % |
| | UV-254 (cm$^{-1}$) | 0.21 | 48 % | 0.05 | 83 % |
| | DOC (mg L$^{-1}$) | 6.87 | 38 % | 2.51 | 55 % |
| | SUVA (L mg$^{-1}$ m) | 3.19 | 35 % | 1.91 | 50 % |

*: Number of observations per parameter and per season = 75

**: Systems in NL do not present any treatment before disinfection

UV-254: UV absorbance at 254nm

SUVA: Specific UV absorbance (SUVA= (UVA-254 / DOC) * 100)

**Supplementary Table 2: Summer average levels of a) THMs, b) HAAs, c) HANs, d) CPK and e) HKs based on different scenarios (levels in µg/L)**

a)

| SWS | Summer 2012 regulatory level of THMs (Scenario 1) | One value chosen randomly from daily campaigns in July and August 2012 (Scenario 2) | Daily average level of THMs based on a twenty-day average during one month in July and August 2012 (Scenario 6) |
|---|---|---|---|
| NL3 | 80.9 | **82.8** | **63.9** |
| NL5 | 130 | 118 | 123 |
| NL10 | 308 | **229** | **212** |
| QC8 | 86.1 | 94.4 | 81.4 |
| QC11 | 77.1 | 79.6 | 77.4 |
| QC13 | 88.3 | 117 | 104 |

b)

| SWS | One value taken randomly from daily campaigns in July and August 2012 (Scenario 2) | Daily average level of HAAs based on a twenty-day average during one month in July and August 2012 (Scenario 6) |
|---|---|---|
| NL3 | **82.3** | **85.4** |
| NL5 | 188 | 179 |
| NL10 | **218** | **271** |
| QC8 | 37.7 | 33.2 |
| QC11 | 29.6 | 30.6 |
| QC13 | 113 | 118 |

c)

| SWS | One value taken randomly from daily campaigns in July and August 2012 (Scenario 2) | Daily average level of HANs based on a twenty-day average during one month in July and August 2012 (Scenario 6) |
|---|---|---|
| NL3 | **2.95** | **2.85** |
| NL5 | 4.08 | 4.28 |
| NL10 | **7.14** | **8.07** |
| QC8 | 3.66 | 3.22 |
| QC11 | 3.20 | 3.46 |
| QC13 | 2.92 | 3.30 |

d)

| SWS | One value taken randomly from daily campaigns in July and August 2012 (Scenario 2) | Daily average level of CPK based on a twenty-day average during one month in July and August 2012 (Scenario 6) |
|---|---|---|
| NL3 | **0.79** | **0.85** |
| NL5 | 0.43 | 0.50 |
| NL10 | **0.87** | **0.97** |
| QC8 | 1.52 | 1.28 |
| QC11 | 0.75 | 0.31 |
| QC13 | 0.53 | 0.58 |

e)

| SWS | One value taken randomly from daily campaigns in July and August 2012 (Scenario 2) | Daily average level of HKs based on a twenty-day average during one month in July and August 2012 (Scenario 6) |
|---|---|---|
| NL3 | **8.96** | **8.35** |
| NL5 | 19.3 | 16.3 |
| NL10 | **12.5** | **14.0** |
| QC8 | 5.24 | 3.15 |
| QC11 | 4.46 | 5.25 |
| QC13 | 9.60 | 9.91 |

Note 1: Numbers in bold represent values presenting difference (ratio: (Regulatory level - Calculated level)/Regulatory level*100) with annual regulatory average upper than 20%.
Note 2: Grey boxes represent values higher than MAC for THMs and HAAs (respectively 100 and 80 µg/L in NL and 80 and 60 µg/L in QC).