

## INTERPRETATION OF LEGIONELLA RESULTS FROM UTILITY WATER SOURCES

### Recommended Corrective Actions Based on Concentration-Based Targets\*

Test Result (CFU or MPN/mL) <sup>1</sup>	Corrective Action(s)
No Detection/Growth ( $< 10$ CFU or MPN/mL)	<ol style="list-style-type: none"> <li>1. No response required. Maintain water treatment program; continue PM activities (i.e., flushing, cleaning, monitoring, etc.) in accordance with established protocols.</li> </ol>
For Levels $\geq 10$ but $< 1,000$ CFU or MPN/mL	<ol style="list-style-type: none"> <li>1. Investigate               <ol style="list-style-type: none"> <li>a. Review water treatment program.</li> <li>b. Perform online disinfection<sup>2</sup> to help with control.</li> </ol> </li> <li>2. Retest the water 3-7 days post-disinfection.               <ol style="list-style-type: none"> <li>a. If not detected, resume routine maintenance program and plan.</li> <li>b. If retest is <math>\geq 10</math> but <math>&lt; 100</math> CFU or MPN/mL, repeat online disinfection and retest until <math>&lt; 10</math> CFU or MPN/mL is attained.</li> <li>c. If retest is <math>\geq 100</math> but <math>&lt; 1,000</math> CFU or MPN/mL, further investigate the water treatment program and repeat online disinfection<sup>2</sup>. Retest and repeat control strategy until <math>&lt; 10</math> CFU or MPN/mL is attained.</li> <li>d. If retest is <math>\geq 1,000</math> CFU or MPN/mL, undertake control strategy as described below.</li> </ol> </li> </ol>
For levels $\geq 1,000$ CFU or MPN/mL	<ol style="list-style-type: none"> <li>1. Investigate               <ol style="list-style-type: none"> <li>a. Review water treatment program.</li> <li>b. Perform online decontamination<sup>3</sup> to help with control.</li> </ol> </li> <li>2. Retest the water 3-7 days post-decontamination.               <ol style="list-style-type: none"> <li>a. If not detected, resume routine maintenance program and plan.</li> <li>b. If retest is <math>\geq 10</math> but <math>&lt; 100</math> CFU or MPN/mL, perform online disinfection<sup>2</sup> and retest until <math>&lt; 10</math> CFU or MPN/mL is attained.</li> <li>c. If retest is <math>\geq 100</math> but <math>&lt; 1,000</math> CFU or MPN/mL, further investigate the water treatment program and repeat online disinfection<sup>2</sup>. Retest and repeat control strategy until <math>&lt; 10</math> CFU or MPN/mL is attained.</li> <li>d. If retest is <math>\geq 1,000</math> CFU or MPN/mL, repeat online decontamination<sup>3</sup> and retest until <math>&lt; 10</math> CFU or MPN/mL is attained.</li> </ol> </li> </ol>

\* This information is based on the control strategies as described in Part 4- Protection Against Legionella, New York, Codes, Rules and Regulations, Public Health Law, Section 225(5)(a).

<sup>1</sup> Colony Forming Units per milliliter (CFU/mL) or Most Probable Number per milliliter (MPN/mL).

<sup>2</sup> Online Disinfection: Dose the system with either a similar or different biocide at an increased concentration than currently used.

<sup>3</sup> Online Decontamination: Dose the system with a halogen-based compound (chlorine or bromine) equivalent to at least 5 ppm free residual halogen for at least one hour. Maintain between 5 to 10 ppm free residual halogen for a minimum of one hour; drain and flush with disinfected water; clean wetted surface; refill and dose to 1-5 ppm free residual halogen and circulate for a minimum of 30 minutes. For chlorine treatment the pH range should be 7.0 to 7.6; for bromine treatment the pH range should be 7.0 to 8.7. At higher pH values the treatment times may need to be extended. Consult a water treatment professional to assist in the decontamination process, as needed. If problems continue, consult HP Environmental, Inc. for assistance with identifying and resolving issues and/or to request additional Legionella sampling supplies, as needed.



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## INTERPRETATION OF LEGIONELLA RESULTS FROM DRINKING WATER SOURCES

### Recommended Corrective Actions Based on Concentration-Based Targets\*

Test Result (CFU or MPN/mL) <sup>1</sup>	Corrective Action(s)
No Detection/Growth < 10 CFU or MPN/mL	<ol style="list-style-type: none"> <li>1. No response required. Maintain water treatment program; continue PM activities (i.e., flushing, cleaning, monitoring, etc.) in accordance with established protocols.</li> </ol>
For Levels $\geq 10$ but < 100 CFU or MPN/mL	<ol style="list-style-type: none"> <li>1. Investigate               <ol style="list-style-type: none"> <li>a. Review water treatment program.</li> <li>b. Perform preventive maintenance<sup>2</sup> to help with control.</li> </ol> </li> <li>2. Retest the water 3-7 days post-disinfection.               <ol style="list-style-type: none"> <li>a. If not detected, resume routine maintenance program and plan.</li> <li>b. If retest is <math>\geq 10</math> but &lt; 100 CFU or MPN/mL, repeat service/preventive maintenance and retest until &lt; 10 CFU or MPN/mL is attained.</li> <li>c. If retest is <math>\geq 100</math> CFU or MPN/mL, undertake control strategy as described below.</li> </ol> </li> </ol>
For levels $\geq 100$ CFU or MPN/mL	<ol style="list-style-type: none"> <li>1. Investigate               <ol style="list-style-type: none"> <li>a. Review water treatment program.</li> <li>b. Perform online decontamination<sup>3</sup> to help with control.</li> </ol> </li> <li>2. Retest the water 3-7 days post-decontamination.               <ol style="list-style-type: none"> <li>a. If not detected, resume routine maintenance program and plan.</li> <li>b. If retest is <math>\geq 10</math> but &lt; 100 CFU or MPN/mL, perform preventive maintenance<sup>2</sup> and retest until &lt; 10 CFU or MPN/mL is attained.</li> <li>c. If retest is <math>\geq 100</math> CFU or MPN/mL, repeat online decontamination<sup>3</sup> and retest until &lt; 10 CFU or MPN/mL is attained.</li> </ol> </li> </ol>

\* This information is based on the control strategies as described in ASHRAE Guideline 12-2020, Managing the Risk of Legionellosis Associated with Building Water Systems.

<sup>1</sup> Colony Forming Units per milliliter (CFU/mL) or Most Probable Number per milliliter (MPN/mL).

<sup>2</sup> Preventive Maintenance: Review system to identify potential maintenance problems/conditions likely to result in the buildup of biofilm or debris; corrective actions should include, at a minimum, check and clean the reservoir for the hot water tank; check aerators and clean to remove sediment/biofilm; check in-line filters (if present) and replace, as needed; check the hot water temperature and the chlorine level at the point of use to ensure acceptability (i.e.,  $\geq 120$  °F,  $\geq 0.2$  ppm) and adjust, as required.

<sup>3</sup> Online Decontamination: Immediately perform a thorough flushing, cleaning and/or treatment of the system to discharge any biofilm or debris in the system; perform preventive maintenance actions listed above. Consult a water treatment professional to assist in the decontamination process, as needed. If problems continue, consult HP Environmental, Inc. for assistance with identifying and resolving issues and/or to request additional Legionella sampling supplies, as needed.



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