

Controlling *Legionella* in Other Devices

Purpose

Use this document to:

1. Help evaluate hazardous conditions associated with devices that use water
2. Implement *Legionella* control measures for devices that use water per [ASHRAE Guideline 12](#)
3. Complement existing resources for water management programs
4. Support environmental assessments conducted during public health investigations

Key Points

- Any system or equipment containing nonsterile water can grow *Legionella*.
- Keep all plumbed devices clean and well maintained.

Sediment and biofilm, Temperature, water Age, and disinfectant Residuals (STAR) are the key factors that affect *Legionella* growth in devices that use water.

Any Device that Contains Nonsterile Water Can Grow *Legionella*

In the absence of control, *Legionella* can grow in almost any system or equipment containing nonsterile water, such as tap water, at temperatures favorable to *Legionella* growth. Devices that may grow *Legionella* in the absence of control include the following:

- All types of secondary water collection, storage, and use for recycled water, gray water, rainwater, and groundwater
- Water storage for high-demand or emergency use and expansion tanks
- Lawn sprinklers and irrigation systems
- Solar water heating systems
- Fire suppression systems
- Safety showers and eyewash stations
- Produce and recreational misters
- Evaporative air coolers
- Spray and pressure washing equipment
- Machine/metal working lubrication and coolant systems
- Dental and medical equipment (e.g., scalers, CPAP, bronchoscopes, heater-cooler units)
- Ice machines
- Humidifiers



Operation, Maintenance, and Control Limits

Use control methods to protect building operators, staff, and visitors from exposure to *Legionella* in devices that use nonsterile water. Certain devices that use water can generate aerosolized water droplets or otherwise present a unique risk and should have specific control measures in place to prevent exposure. These are highlighted below and are followed by general guidelines for *Legionella* control in a wide variety of devices.

Produce and Recreational Mistlers

- Insulate pipes to maintain water temperatures outside the *Legionella* growth range.
- Avoid stagnation by running regularly or draining when not in use.
- If recreational misting equipment has a reservoir, drain and clean it regularly; consider using a disinfectant appropriate for the system.

Ice Machines

- Clean regularly and replace filters per manufacturer recommendations.
- Consider routine *Legionella* testing of ice machines in settings that serve people at increased risk of Legionnaires' disease.

Humidifiers

- Tanks on humidifiers should be emptied and cleaned daily.

Remediation

If an outbreak or illness is suspected, test in conjunction with public health in order to:

- Confirm the presence of *Legionella* before performing remediation.
- Confirm elimination of *Legionella* after remediation activities.

If control measures are ineffective, if routine test results indicate poor *Legionella* control, or if an outbreak or illness is suspected by the authority having jurisdiction (AHJ), consider remediation options.

Sprinklers and Irrigation Equipment

- Operate these devices outside of normal business hours to limit bystanders' exposure.

Dental and Medical Equipment

- Clean regularly per manufacturer recommendations.
- Use sterile water or the type specified by the manufacturer in respiratory equipment such as CPAP, heater-cooler units, and bronchoscopes.

General Guidelines:

- Regularly clean and maintain all water system components, such as spray nozzles, sprinkler heads, and hoses.
- Ensure evaporative coolers are functioning properly with managed airflow across condensate pans.
- Store and maintain water at temperatures outside the favorable growth range for *Legionella* (77–113°F, 25–45°C); note that *Legionella* may grow at temperatures as low as 68°F (20°C).
- Keep collection basins, condensate pans, cooling coils, and other components clean and free from dirt, debris, corrosion, and biofilm.
- Flush low-flow piping runs, dead legs, and low-use fixtures regularly.
- Consider testing for *Legionella* in accordance with Routine Testing for *Legionella* (Page F1), or if indicated by a WMP.

Note: The public health AHJ determines whether there are associated illness(es) or an outbreak. Water system managers should choose a remedial treatment procedure after considering the system infrastructure, water quality parameters, and available sampling results. Certain procedures should only be undertaken in consultation with a water treatment professional. **Following a successful *Legionella* remediation procedure, recolonization of the water system is likely unless the underlying conditions supporting *Legionella* growth are addressed.**

Table 5. *Legionella* Control Measures for Other Devices

Water Parameter		Control Measure	Recommendations
S	Sediment and Biofilm	Flushing, cleaning, and maintenance	<ul style="list-style-type: none"> Clean and maintain water system components regularly in accordance with manufacturer recommendations.
T	Temperature	Control limits	<ul style="list-style-type: none"> Store and maintain water at temperatures outside the favorable growth range for <i>Legionella</i> (77–113°F, 25–45°C); Note that <i>Legionella</i> may grow at temperatures as low as 68°F (20°C).
A	Water Age	Flushing and water replacement	<ul style="list-style-type: none"> Flush and replace water according to manufacturer recommendations.
R	Disinfectant Residual*	Control limits	<ul style="list-style-type: none"> Consider using a disinfectant appropriate for the system and in accordance with manufacturer recommendations.

* Residual disinfectant recommendations apply to disinfectant delivered by the municipal water authority. Supplemental disinfection system control limits are not prescribed here and must be dictated by the water treatment professional, water management program, and/or manufacturer's instructions.

Resources

- Toolkit for Controlling *Legionella* in Common Sources of Exposure: <https://www.cdc.gov/control-legionella/php/toolkit/control-toolkit.html>
- Toolkit: Developing a Water Management Program to Reduce *Legionella* Growth and Spread in Buildings: <https://www.cdc.gov/control-legionella/php/toolkit/wmp-toolkit.html>
- *Legionella* Environmental Assessment Form: <https://www.cdc.gov/investigate-legionella/Legionella-Environmental-Assessment-Form.pdf>
- PreventLD Training: <https://www.cdc.gov/control-legionella/php/training/index.html>
- ASHRAE Guideline 12: <https://www.ashrae.org/technical-resources/standards-and-guidelines/guidance-for-water-system-risk-management>
- Considerations for Reducing Risk: Water in Healthcare Facilities: <https://www.cdc.gov/healthcare-associated-infections/php/toolkit/water-management.html>
- Dental Unit Water Quality: <https://www.cdc.gov/dental-infection-control/hcp/summary/dental-unit-water-quality.html>