



How to Develop a *Legionella* Water Management Program

Developing and maintaining a water management program is a multi-step process that requires continuous review^[1]. Below are seven steps to building an effective *Legionella* water management program. Every building is different (depending on factors such as the structure, age, location, occupants of the building, or surrounding conditions), so each one needs a tailored program.

1. **Establish a water management program team**

Your team needs members with certain skills to develop and implement your *Legionella* water management program. In some cases, you may need to train your in-house personnel or consider hiring professionals with specific environmental and *Legionella* experience. Consider who among your employees, partners, and outside experts can provide these skills so you can develop the most effective program possible.

2. **Describe the building water systems using flow diagrams and a written description**

Include details like where the building connects to the municipal water supply, how water is distributed, and where hot tubs, water heaters or boilers, and cooling towers are located.

3. **Identify areas where *Legionella* could grow and spread**

Identify where potentially hazardous conditions could occur in your building water systems, such as areas where water temperature could promote *Legionella* growth or where water flow might be low.

4. **Decide where you need to apply control measures and how to monitor them**

Establish control measures and limits for each hazardous condition, as well as plans for where and how to monitor them. Control measures are actions you take in your building water systems to limit growth and spread of *Legionella*, such as heating, adding disinfectant, or cleaning. Control limits are the maximum value, minimum value, or range of values that are acceptable for the control measures that you are monitoring to reduce the risk for *Legionella* growth and spread. Control points are locations in the water systems where you can apply control measures.

5. **Establish ways to intervene when control limits are not met**

Determine what corrective actions or contingency responses to take when control measures are outside of the control limits you established.

6. **Make sure the program is running as designed and is effective**

Establish procedures, both initially and on an ongoing basis, to verify that your team is implementing the water management program as designed. Also, validate that the program



effectively controls the hazardous conditions throughout the building water systems. Update the program when necessary.

7. Document and communicate all activities

Document all the activities and communicate with building occupants, employees, and colleagues on a continual basis. If an event triggers you to review or update your water management program, remember to

- Update the flow diagrams, associated control points, control limits, and corrective actions
- Update the written description of your building water systems
- Train those responsible for implementing and monitoring the updated program

Environmental Monitoring and Program Validation

Monitoring

- Water quality parameters such as disinfectant and temperature levels should be monitored regularly to ensure that building water systems are operating in a way to minimize hazardous conditions that can promote growth of *Legionella* and other germs that grow well in drinking water distribution systems.

Validation

- It is up to the team to determine how to validate the effectiveness of the program (i.e., confirm that the program is working as intended). One option for validation is to perform environmental sampling for *Legionella*. If the team decides to sample for *Legionella*, they should not sample in isolation but as a part of a comprehensive water management program. They should make specific decisions about sampling frequency, location, and methodology. Sampling plans are unique to each building and based on many contributing factors, such as
 - Findings from the environmental assessment (steps 2 and 3 above) and any baseline *Legionella* test results
 - Overall performance of the water management program, trend analysis of *Legionella* test results, and water quality parameters (e.g., disinfectant, temperature)
 - In healthcare facilities, correlation of environmental test results with clinical surveillance data
 - Building characteristics (e.g., size, age, complexity, populations served)
 - Sites of possible exposure to aerosolized water
 - Available resources and supplies to support testing