



## ***Legionella* Bacteria Prevention Planning**

*Legionella* bacteria can be found in a variety of naturally occurring sources (i.e., soils, ponds and streams) in addition to man made sources such as cooling towers, potable water systems and heating, ventilation and air-conditioning (HVAC) systems. *Legionella* bacteria are present in public and well water supplies at extremely low concentrations. *Legionella* bacteria grow well in cooling towers and other indoor water systems primarily because of warm water and available nutrients. This warm water can promote the growth of algae, microbiological “slime” and amoebae if not properly treated, which enhance the potential for *Legionella* bacteria amplification.

Following the 1976 American Legion Convention at the Bellevue Stratford Hotel in Philadelphia, 34 attendees died and 221 people became ill from pneumonia caused by the bacterium *Legionella pneumophila*. This disease, now commonly known as Legionnaires’ Disease, is a respiratory infection that strikes susceptible individuals exposed to virulent *Legionella* bacteria. Infection results from inhaling airborne water droplets or mist containing viable, disease causing *Legionella* bacteria, which are small enough to pass deep into the lungs and be deposited in the alveoli, the small pockets in the lungs. The dose of *Legionella pneumophila* and other *Legionella* bacteria required to infect humans is not definitively known. Legionnaires’ Disease can have an incubation period of two to ten days. Although healthy individuals may develop Legionnaires’ Disease, people thought to be at increased risk of infection include smokers, patients with cancer, chronic respiratory diseases, kidney disease, and any immuno-suppressed condition.

The purpose of a Legionella Control Program is to minimize the presence of *Legionella* bacteria and other environmentally associated bacteria in building waterside systems and consequently reduce the potential for illnesses associated with these organisms. The mechanisms to achieve the above are to limit the ecological conditions (temperature range and nutrients) and physical plant (design) operations and maintenance issues that allow the *Legionella* bacteria to grow and amplify. However, please note that the complete elimination of *Legionella* bacteria in building water systems may not be possible. As such, instituting preventive maintenance procedures are a critical aspect of *Legionella* bacteria control. A well designed control program includes the following information:

- **Source Identification** - Review design, operations and maintenance of waterside systems i.e.; hot water tanks, cooling towers, HVAC systems, humidifiers, piping networks, process water and distribution systems for source identification and to perform a risk assessment to determine the likelihood of the system(s) harboring *Legionella* bacteria and the potential for exposure to aerosolized water droplets or mists.

- **Preventive Maintenance** – Develop site specific guidelines for preventative maintenance procedures for each of the waterside systems for cleaning and maintenance of environmental conditions such as temperature ranges and water treatments to reduce the potential for the amplification of *Legionella* bacteria.
- **Sampling and Analytical Procedures, and Data Interpretation** - Determine the best practices for water sampling locations, frequency of sampling and data interpretation in relation to preventative maintenance procedures and risk assessment.
- **Decontamination Guidelines** – Develop site specific guidelines for decontamination of each waterside system including mechanical cleaning, chemical treatment options and heat pasteurization techniques.
- **Emergency Response Procedures** – Identify the appropriate team members from within the facility and outside resources including: facilities/physical plant personnel, safety, medical component, experienced industrial hygiene consultant, environmental laboratory, chemical treatment vendor, and field sample collection to completely respond to high concentrations of *Legionella* bacteria in samples or an Legionnaire's disease outbreak.

For additional information or to request a proposal, please contact Harry M. Neill, CIH, Vice President at 888.873.9983 ext 15, [www.1ssh.com](http://www.1ssh.com), or at [hneill@1ssh.com](mailto:hneill@1ssh.com).

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