PACE Technical Bulletin

LEGIONELLA MANAGEMENT SOLUTIONS

Legionnaires' Disease….are you minimizing the risk?

Some steps you can take to minimize the risk of *Legionella* in your Building Water Systems.

Building water systems have the potential to develop infectious concentrations of *Legionella* bacteria, such as domestic hot water tanks, premise plumbing fixtures, ornamental water features, hot tubs/spas and cooling towers & evaporative condensers, all systems that are supplied from the potable water supply. These water systems create a **mist** or **aerosol** that can transmit these disease-causing bacteria.

What is Legionnaires' Disease?
Legionnaires' Disease acquired its name by way of media reference to a mysterious pneumonia like illness that befell many attendees at a convention in U.S. in 1976. This outbreak caused a recorded 226 cases of respiratory illness, resulting in 34 deaths. The Center for Disease Control investigation led to the discovery of the causative agent, ***Legionella pneumophila*** bacteria, which caused ***Legionellosis***. This was not a new disease, just an old one that was finally recognized and named.

How is *Legionella* transmitted?
Legionella pneumophila is a common organism, capable of being present in appreciable numbers in **almost all ground and surface water** sources. *Legionellae* tend to grow in biofilms or slime on the surfaces of lakes, rivers and streams and very adaptively, within building water distribution systems.

The mere presence of *Legionella* does not by itself result in infectious disease. However, when certain *Legionella* are **allowed to amplify**, (increase in population density) and transmit to a susceptible human host, they can cause legionellosis infections.

The primary transmission mode of Legionnaires' Disease then becomes the subsequent **inhalation of such aerosols** that provide entry of the *Legionella* organisms deep into the human respiratory tract. Aspiration has also been shown to be a pathway for legionella infection.

Cooling Tower Water systems continually receive potable make-up water to compensate for the water loss due to evaporation. If *Legionella* is present in the make-up water supply, then there is the potential for the cooling water system to promote an environment for *Legionella* growth and propagation due to warm water temperatures, stagnant water conditions, sediment, scale, deposits and nutrients from other microbiota such as algae and many bacteria.

Minimizing the Risk!
Water quality and system maintenance should be well controlled in these cooling systems as part of the Building Water Management Plan. The water treatment objectives are to maintain corrosion, deposits, fouling, and microbiological control. **Biocide** treatments play an important role in microbiological control programs. **Bio-dispersants** are an important aid for loosening microbial deposits and promoting **system cleanliness.** They enhance biocide effectiveness by penetrating the biofilm.

Scheduled cooling tower cleaning and sanitization procedures, along with regular *Legionella* bacteria testing, are part of an effective *Legionella* risk management plan for cooling towers. For more details, refer to our ***Pace Policy Guideline LEG 2020*** *for "****Cooling Tower Maintenance Plan for Legionella Risk Management****".*

***Pace Policy Guideline LEG 2020* covers:**

- *Legionella* background & general facts
- Water treatment program parameters
- *Legionella* testing
- Routine cleaning & disinfection procedure
- Decontamination procedure
- Maintenance inspections
- *Legionella* publications and resources