

Legionnaires' Disease....are you minimizing the risk?

Some steps you can take to minimize the risk of *Legionella* in your Cooling Tower and Condenser water system.

Cooling towers and evaporative condensers have the potential to develop infectious concentrations of *Legionella* bacteria. Cooling tower drift (water loss) creates the **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. This was not a new disease, just an old one that was finally recognized and named.

How is *Legionella* transmitted?

Legionella pneumophila is a very common organism, capable of being present in appreciable numbers in **almost all ground and surface water** sources. *Legionella* tend to grow in biofilms or slime on the surfaces of lakes, rivers and streams and very adaptively, within water distribution systems such as **cooling towers** and **evaporative condensers**.

In addition, *Legionella* live uniquely within certain free-living amoeba and ciliated protozoa, as endosymbionts. This allows them to **survive typical potable water chlorination** and appear in many finished water supplies to homes, buildings and industry. 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.

Cooling tower systems can 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. The water treatment objectives are to maintain corrosion, deposit, 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.

A cooling tower disinfection procedure is **recommended at least 1-2 times per year** in addition to your regular treatment program to help promote system cleanliness and disease prevention.

Please refer to **PACE Policy Guideline LEG 2015-07** for our "**Cooling Tower Maintenance Plan for Legionella Awareness & Risk Management**".

PACE Policy Guideline LEG 2015-07 covers:

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