

Sampling Guidelines

OSHA Guidelines:

- Use the following suggested guidelines seen in Table 1. to assess the effectiveness of water system maintenance and to interpret sampling results. These guidelines are based on limited data and are subject to change. They are intended to apply only to water systems being used by healthy individuals and are not necessarily protective for people who are immuno-compromised.

Table 1. Colony forming units (CFU) of LDB per milliliter

Action	Cooling tower/Evaporative Condenser	Potable water	Humidifiers and Misters
1	100	10	1
2	1,000	100	10

The levels requiring action vary for the source of exposure, based on the assumption that some routes of exposure result in a greater dose to the lung. For this reason humidifiers and similar devices (such as misters and evaporative condensers) produce aerosol mists and, therefore, need to be controlled to lower levels than cooling towers and domestic water supplies to minimize the risk of inhalation. Levels of LDB equal to or greater than the values in the table constitute a need for action, as described below:

Action 1

- Cleaning followed by biocide treatment of the system, if appropriate.

Action 2

- Cleaning and or biocide treatment.
- Take immediate steps to prevent employee exposure.

**Remember that these numbers are only suggested guidelines, and the goal is zero detectable LDB in a water source.

[Adapted from George K. Morris and Brian G. Shelton, PathCon Technical Bulletin 1.5, p-2, *Legionella* Bacteria in Environmental Samples: Hazard Analysis and Suggested Remedial Actions, June 1998, Pathogen Control Associates, 270 Scientific Dr., Suite 3, Norcross, GA 30092]

Association of Water Technologies (AWT) Guidelines:

- The action plan seen in Table 2. represents a composite compilation of various AWT member Water Treatment Company LDB actions plans for cooling tower operations. The frequency of tower sampling for LDB varies widely amongst the programs and is generally determined from

specific site and system Legionnaires' disease risk assessments.

Table 2. Cooling Tower Legionella Count, colony forming units (CFU) per milliliter

>0-10	>10-100	>100-1000	>1000
a.	b.	c.	d.

- a. Increase biocide addition/s.
- b. Increase biocides; review program; retest till <10.
- c. Disinfect and clean within 30 days; review program.
- d. Disinfect and clean within 7 days; review program.

For additional information, see:

- [Legionella 2003: An Update and Statement by the Association of Water Technologies \(AWT\) \(PDF\)](#).

Source: "Legionnaires' Disease Section II: E. Water Sampling Guidelines - Sampling Guidelines." Occupational Safety & Health Administration. <https://www.osha.gov/dts/osta/otm/legionnaires/sampling.html#Guidelines>