

Appendix B Legionella Contamination Response

Legionella Contamination Response -For remediation and testing of aquatic venues suspected of being contaminated with Legionella, the following steps shall be taken:

1. Close the spa tub to bathers immediately, and shut down the hydrotherapy jets and circulation pumps, but do not drain the water.
2. Contact the state or local public health agency having jurisdiction for information about laboratory testing for Legionella. If the health department determines that laboratory testing is needed, water and biofilm samples should be taken from the spa tub, hydrotherapy jets, drain, and filters/filter media to test for Legionella by culture before taking the steps below. Sampling and laboratory testing are complicated and should always be done in collaboration with state or local public health agency and a laboratory with Legionella testing expertise.
3. Proceed as directed below after samples have been taken; it is not necessary to wait for laboratory test results. However, the spa should not be reopened to bathers until all test results are negative for Legionella.
4. Scrub vigorously all spa surfaces, skimming devices, and circulation components with free chlorine at a minimum concentration of 5 ppm to remove any biofilm or slime. After scrubbing, rinse the spa with clean water and flush to waste.
5. Drain all water from the spa. Dispose of the water to waste or as directed by the local regulatory authority.
6. Replace filters (for cartridge or DE filters) or filter media (for sand filters). Bag these filters and dispose of as normal solid waste.
7. Inspect the spa thoroughly for any broken or poorly functioning components such as valves, sensors, tubing, or disinfectant feeders. Make any needed repairs.
8. Refill the spa with clean water.
9. Hyperchlorinate using 20 ppm free chlorine.
 - a. Keep the hydrotherapy jets off and let the hyperchlorinated water circulate for 1 hour in all the components of the spa, including the compensation/surge tank, filter housing, and piping.
 - b. Turn on the hydrotherapy jets to circulate the hyperchlorinated water for 9 additional hours. Ensure that 20 ppm of free chlorine is maintained in the system for the entire 10 hours.
10. Flush the entire system to remove the hyperchlorinated water from all equipment prior to repeat sampling.
11. Take repeat samples for culture-based laboratory testing to confirm that Legionella has been eliminated. Water and biofilm samples should be taken from the spa tub, hydrotherapy jets, drain, filters/filter media, and any part of the spa that originally tested positive for Legionella.
12. Keep the spa closed to the bather until this repeat testing has confirmed the elimination of Legionella.
 - a. If laboratory testing is positive for Legionella, repeat steps 4–11 until all testing is negative for Legionella. When all tests are negative, the spa can be reopened to bathers.
13. Ensure that halogen (chlorine or bromine) and pH levels meet local requirements before opening the spa to bathers. Maintain water quality according to local requirements.

If the spa is associated with an outbreak, the following continued laboratory testing schedule shall be conducted: conduct culture-based testing every 2 weeks for 3 months, then every month for 3 months to ensure complete elimination of Legionella. If at any time during this laboratory testing schedule, Legionella is found, disinfect again, and start the testing schedule over. For aquatic venues that continue to grow Legionella, consider hiring a consultant with expertise in Legionella.