SOLID BLEND
WATER MANAGEMENT SOLUTIONS

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# Cooling Tower Processes for End-of-Season Layup

## ENSURE YOUR PROCESS COMPLIES WITH ANSI/ASHRAE STANDARD 188-2018

### DRAINING ALONE IS NOT ENOUGH

When warm summer days begin to give way to cool autumn evenings, then it's time to prepare for the end-of-season layup for your cooling tower system. For seasonal layups, ASHRAE Guideline 12-2020 recommends that the entire system be drained to waste ("dry layup"). But draining by itself isn't enough to protect the system during the long winter months. Even though the system has been drained, Legionellosis and other water-borne pathogens can still be thriving inside. The equipment needs to be properly disinfected to ensure these microbes don't reappear when the system is restarted. The same is true with corrosion. It can continue to develop in the system, creating solid buildup that can restrict the flow of water or flake away and cause blockages and other issues. Problems like these can lead to unplanned maintenance costs and reduce the expected life of a cooling tower.

### SIX STEPS FOR A SAFE AND COMPLIANT LAYUP

The solution is to disinfect the system just before shutting it down. Here are six steps that will ensure your cooling towers are properly treated and disinfected:

1. During the week prior to the shutdown, adjust your conductivity set point to lower the cycles of concentration. This will increase the frequency of blowdowns and reduce the amounts of solids and suspended matter in the water.
2. Disinfect the system by adding a bio-dispersant and an oxidizing biocide to kill bacteria, remove biofilms and break up microbiological fouling. Circulate the water for 4-8 hours.
3. Drain the tower and physically clean it to remove any remaining solids from the fill, basin and sump.
4. Refill the system with water and begin circulating.
5. Add a lay-up chemical and a heavy dosage of non-oxidizing biocide. Allow the tower to circulate for 24 to 48 hours
6. Drain the system completely, taking care to eliminate water from dead legs. As the system dries, the pretreatment chemicals will stimulate a process called *passivation*, which will cause the internal surfaces to be coated with an oxide layer that will protect them from corrosion.

If you expect that you might have a sudden need to restart the system during the off-season, then you might need to consider a "wet layup." The first five steps of the process remain the same, but instead of draining the system completely, it would only be drained to a level right below the roofline. This allows some water to remain in the system without posing a risk that the equipment might be damaged if the water were to freeze. If you choose a wet layup, the Association of Water Technologies recommends that the system should be circulated at least once a month and that chemical levels are checked throughout the off-season.

Whichever solution you choose, remember that you need to document both the pretreatment and shutdown steps as part of your Water Management Plan in order to be compliant with ASHRAE Standard 188-2018.