

## Annual Startup Procedures for Cooling Towers

### SEASONAL PROCESS SHOULD FOLLOW ASHRAE GUIDELINE 12-2020

Flocks of birds headed north, fresh shoots of grass poking up through melting snow, buds appearing on bare branches, and the sounds of bats smacking baseballs are all signs that Spring is on its way. They're also indicators that it's time to begin preparing to restart your cooling system after its long winter layup, so that you'll be ready for the first warm days of the cooling season.

ASHRAE Guideline 12-2020 requires cooling towers to be "spring cleaned" and disinfected before being placed back into service. The precise steps depend on whether the system was fully drained at the end of the previous season (dry layup) or partially drained (wet layup).

#### RESTARTING FROM A DRY LAYUP

To restart from a dry layup, ASHRAE Guideline 12-2020 mandates the following process:

1. Thoroughly clean the outside of the tower of any dirt or other debris that might affect its operation.
2. Fill the system with water and start the condenser water pumps. Leave the cooling tower fans off to reduce the risk that contaminants might escape while the system is being disinfected.
3. With the fans off, disinfect the system with a biocide or sodium hypochlorite. For the biocide, follow the manufacturer's recommendations to establish and maintain the residual level. For sodium hypochlorite, establish a residual of 4 to 5 mg/L (ppm) at a pH of 7.0 to 7.6 and maintain those levels for six hours.
4. Once the disinfection step is completed, turn the fans on and return the units to service.

#### RESTARTING FROM A WET LAYUP

The Guideline provides a slightly different process for restarting from a wet layup:

1. Remove any accessible solid debris from the sump and from any remote storage tanks.
2. Leave the cooling tower fans and condenser water pumps off to reduce the risk that contaminants might escape while the system is being disinfected.
3. Pretreat the system by adding a biocide or sodium hypochlorite to the stagnant water. For the biocide, follow the manufacturer's recommendations to establish and maintain the residual level. For sodium hypochlorite, establish a residual of 4 to 5 mg/L (ppm) at a pH of 7.0 to 7.6 and maintain those levels for six hours. If the water can be circulated without entering the cooling towers, then the pumps may be turned on. Otherwise, the chemicals will need to be mixed with the water manually or through a sidestream flow. Continue to leave the cooling tower fans off.
4. At the end of the pretreatment period, with the fans still off, turn on the pumps and allow the water to enter the towers. Maintain the recommended chemical residuals for at least six more hours.
5. Turn the cooling tower fans on and return the units to service.

Once the system is returned to service, follow your Water Management Program to reduce health and operational risks. Remember to document these steps in that Program to comply with ANSI/ASHRAE Standard 188-2018. If you need assistance, Solid Blend Technologies is available to help.