Introduction

Welcome to Week 7 of CGLP! This week, we will conclude the Conservation portion of our program with Elective Action #6. If you need to catch up on any other Conservation actions, or the Required Actions, you can find those instructions here.

6. Review water cooling systems and report any once-through-cooling equipment to F&S.

As a reminder, completion of five Elective Actions beyond the Required Actions will earn you Bronze level certification, completion of ten will earn Silver level certification, and fifteen Elective Actions will earn Gold level certification.

Instructions

Elective Action #6: Review water cooling systems and report any once-through-cooling equipment to F&S.

So far, all of our Conservation actions have been focused on saving electricity. However, the conservation of water is another highly critical endeavor that often doesn't get quite as much attention these days.

In a chemistry lab, the biggest risk for water loss are once-through or single pass cooling systems. In this type of cooling system, a single stream of water continuously flows in order to cool solvent distillations, icemaker condensers, and other instruments. According to the University of California-Santa Barbara, a single pass cooler in a lab can waste 50,000 liters of water a year if it is left on for just a few hours everyday.

Fortunately, there are a few options to combat this wanton water consumption. The first is to switch to a closed loop cooling system where the water is not immediately flushed down the drain. The other is to install timers on single pass systems that will shut the water off. So, having a single pass cooling system in your lab is not an impossible problem to overcome -- you can work with F&S to determine which solution is the best for your lab.

Extra: *Water Crisis Information*

In the United States, we are very lucky to have abundant access to freshwater in most (though certainly not all) parts of the country. However, though we are currently fortunate enough not to have to walk for hours each day for water like

many do in other parts of the world, we are still very much impacting the global water crisis.

Because of our abundance of water, our main problem is overuse. The planet actually would not be able to sustain us if every person on it used water at the rate that Americans do. And this is just considering individual use, which isn't even our biggest problem. That would be our use of water in agriculture, the industry which is by far the greatest consumer of water in both the country and the world.

As our supplies of freshwater shrink, the dangers for everyone across the globe grow. These articles discuss some of these dangers:

- https://www.weforum.org/agenda/2015/01/5-risks-from-water-overuse/
- https://blogs.ei.columbia.edu/2017/05/08/study-overuse-of-water-threatens-global-food-supply/

Though lessening our individual water consumption can't stop this global water crisis by ourselves, it is still a good practice to learn how to reduce the amount of water we use everyday. Consider Cape Town, South Africa -- had wealthy citizens stopped using water frivolously when they learned of the drought, the city may not have come so close so fast to completely running out of water. Take a look at these articles to learn how to reduce your personal water consumption:

- https://www.care2.com/greenliving/20-ways-to-conserve-water-at-home.html
- https://wateruseitwisely.com/100-ways-to-conserve/