



This fact sheet provides a number of ways to assess and reduce phosphorus use in various campus departments.

## Reducing phosphorus on university & college campuses

There are 142 colleges and universities in Minnesota, each with operations such as dining services, physical plant, and janitorial/housekeeping. These operations often require the use of chemicals that can contain phosphorus for cleaning or sanitizing purposes. In excess, phosphorus can stimulate algae growth, speeding up the aging process of lakes and streams. As the algae decomposes, the available oxygen supplies decrease, sometimes threatening the survival of fish and other aquatic organisms. By using alternative products and incorporating best practices, you can reduce the amount of phosphorus used in your campus operations.

The following story highlights how the best practices in this document can be put to use.

During Summer 2007, a MnTAP supported student worker conducted a chemical inventory at Gustavus Adolphus College that included dining services, housekeeping, laundry, and the heating and cooling plant. A total of ten chemicals were identified that contained phosphorus, five of which had non-phosphorus substitutes available. Housekeeping made a complete switch to non-phosphorus containing chemicals resulting in a reduction of 220 pounds of phosphorus annually. This saved the wastewater treatment \$2,900 annually by reducing the chemicals required to remove the phosphorus to meet permit limits.

You can reduce the phosphorus use in your college or university by following the tips in this fact sheet.

### Overall Best Practices

- Review all possible ways phosphorus can enter wastewater. Become familiar with delimers, detergents, floor cleaners, food wastes, etc.
- Determine which of your current products contain phosphorus. This can be accomplished by reading labels and MSDS sheets of your current cleaners and chemicals.
- Ask employees about possible sources of

phosphorus; they may know things about each operation that you may not.

- Provide a brief explanation of your project goals in order to pique employees' interest and help further your project goals.
- Gather baseline data by conducting a chemical use inventory to identify how much phosphorus containing product is being used annually.
- Make contact with department heads or staff members who are able to implement changes to non-phosphorus products.
- Coordinate information between vendors, distributors, and college staff. The more questions you ask, the more possible sources of phosphorus you will identify.
- Access the state's environmentally preferable purchasing product information on cleaning products at [www.pca.state.mn.us/oea/epp/cleaners.cfm](http://www.pca.state.mn.us/oea/epp/cleaners.cfm).

### Custodial Services

- Use phosphorus-free cleaners, descalers, and detergents.
- Use automated dispensing equipment to dispense the proper amount of chemical or cleaner for housekeeping operations.
- Properly train workers on how to use chemicals. Visit with workers and examine how they use chemicals in their daily work. Develop guidelines for proper use of cleaning products.

### Dining Services

- Explore low- or no phosphorus alternatives for dishwashing equipment and delimers.
- Visit with workers and evaluate how food waste and fats/oils/greases (FOG) are being disposed.
- Minimize or avoid putting FOG and food

scraps down the drain. This can be accomplished by working with area composting sites to evaluate the possibilities of composting food waste or feeding it to livestock.

- Always wash a full load of dishes and experiment with using less detergent.

## Physical Plant

- Meet with staff members from various departments such as electrical, automotive, and grounds crew to discuss practices that would minimize phosphorus going down the drain. As an example, if there is a fertilizer spill, use dry clean-up to recover lost product instead of washing it down the drain.
- Inquire about cooling towers related to multiple pass cooling water and use of phosphorus-free maintenance chemicals.
- Provide information on how to dispose of waste chemicals safely using public or private services. Contact your county hazardous waste office for more information on proper disposal of chemicals in your area.
- Use phosphorus-free fertilizers.
- Ensure parts cleaning chemicals are phosphorus free and environmentally friendly.

## Academic Departments

- Meet with art, biology, and chemistry departments to ensure they are practicing proper disposal of chemicals, including those that contain phosphorus.

## Student Housing

- Work with residential life staff members to educate students on the importance of reducing phosphorus loading to the wastewater plant and what they can do to help. Use fliers, information sessions, and articles in the campus newspaper to get the word out.

## For More Information

MnTAP provides a variety of online resources on phosphorus reduction such as:

- Phosphorus reduction opportunities walkthrough checklist
- Source reduction and waste management alternatives in food processing
- Phosphorus: reducing releases from industrial cleaning and sanitizing operations

If you need further assistance you can contact MnTAP at 612.624.1300 or visit our Web site at <[www.mntap.umn.edu](http://www.mntap.umn.edu)>.



## For More Information

MnTAP has a variety of technical assistance services available to help Minnesota businesses implement industry-tailored solutions that maximize resource efficiency, prevent pollution, increase energy efficiency, and reduce costs. Our information resources are available online at <[mntap.umn.edu](http://mntap.umn.edu)>. Please call MnTAP at 612.624.1300 or 800.247.0015 for personal assistance or more information about MnTAP's services.