

Water Use Reduction for Businesses

The importance of water as a resource for agriculture, manufacturing and sustaining life has become a prominent issue. This fact sheet outlines some simple strategies and case studies to help your business identify ways to save money and improve performance while helping to conserve our valuable water resources.

The fresh water that is available to meet the world's needs is only a tiny fraction compared to the major oceanic water sources. As world population grows, the demand for fresh water from competing interests will intensify. Water availability may be one of the most critical world policy issues of this century.

Fortunately, there are numerous water use reduction opportunities for Ohio businesses and citizens that can lower costs and provide benefits to Ohio's environment. Reducing water use can save money and increase process quality and productivity. As with any process component, water can only be managed if it is measured and goals are established.



Water users can be divided into two basic groups: system operators (such as municipalities, state and local governments and privately owned suppliers) and system users (such as residential users, industries and farmers). These users can choose many different water use efficiency practices, which fall into two categories:

- engineering practices: practices based on modifications in equipment, plumbing, fixtures or water supply operating procedures; and
- behavioral practices: practices based on changing water use habits.

The Hidden Costs of Water Use

For businesses, water can be used efficiently and strategically. It is important to consider water use as an equally significant process component as any raw material or energy input. Most businesses don't believe that water use is a significant source of lost revenue, but many have found that water conservation and reuse result in significant cost savings.

Many hidden costs can be associated with taking water use for granted. Most companies pay for each gallon of water used a minimum of three times. They pay for the initial purchase, again to treat before and/or after a process and a third time to discharge/dispose of wastewater.

Businesses can often take easy and inexpensive steps to correct or upgrade process conditions to reduce water usage. Some process changes involve no more than measuring and reducing flows to optimal levels. Many facilities have unknown flow rates or established historic rates that current employees never consider changing. Re-evaluating these rates to see if lower water usage can still achieve your production goals is one big step toward identifying efficiency options.

General methods of reducing water consumption include:

- Identify unnecessary uses and fix leaks.
- Use minimum amounts of water to accomplish the task.
- Re-circulate water within a process or a group of processes, or reuse water sequentially.
- Treat and reclaim used water.
- Replace potable water supplies with water from non-potable water supplies when possible.
- Install meters on high-flow processes and equipment to track and reduce water use.
- Identify alternative processes that are less water-intensive.

Water Use Reduction for Businesses

Equipment Modifications

- Eliminate "once-through" cooling of equipment with municipal water by recycling water flow to a cooling tower or replacing with air-cooled equipment.
- Replace appliances or equipment, as they wear out, with water-saving models.
- Install spray nozzle aerators or faucets and high-efficiency shower heads.
- Install ultra-low flow toilets or adjust flush valves on existing toilets.
- Use water-conserving icemakers.

Water Reduction Case Studies

DRS Environmental Systems, Cincinnati

DRS reduced water consumption by 72,000 gallons. This was accomplished by implementing a rain intrusion test environment that allows recycling of all water used to perform the required rain test on all shelter and trailer product lines. The company invested \$184,965 to install the system, including a 3,000-gallon holding tank for filtered water. The goal was to improve the testing capability while reducing the amount of water consumed. Additional water reduction measures include installing a rainwater capture system to provide additional make-up water for the rain test system. The company also replaced water toilets at two locations with reduced water/air assist units that reduce water consumption from 3- to 1.7-gallon tanks.

Kent Elastomer Products, Kent Facility

Kent Elastomer identified that the biggest water usage was city water that was used to cool the latex tanks then routed down the drain. Engineering and maintenance worked to re-pipe the city water lines into the existing chilled water system. Water is now reused in this closed-looped chiller system. The "before" data showed that 21.5 million gallons were consumed; and the "after" data showed that 11 million gallons were used. That is a reduction of 10.5 million gallons – or 49 percent from one project.

Saint-Gobain Performance Plastics, Akron

Saint-Gobain identified an opportunity to reduce their water usage through their corporate global prioritization program. The facility used and was permitted to discharge approximately 81.5 million gallons of water annually as contact and non-contact cooling media for the plastic tubing extrusion process. The process water was then discharged to a small stream external to the manufacturing facility. Through the installation of a semi-closed loop water system, the plant was able to reduce the plant's discharge water by 98 percent annually to 1.63 million gallons. It has also been able to reduce the purchase of city water by 75 percent, saving approximately \$20,000 annually.

Where to Get More Help

Ohio EPA's Office of Compliance Assistance and Pollution Prevention (OCAPP) can help you. OCAPP also offers free on-site P2 assessments and has extensive resources available with technical information to help you identify ways to reduce waste and save money. For more information, visit epa.ohio.gov/defa/ or contact us at (614) 644-3469.

Using Water Efficiently: Keys for Businesses

- Develop a mission statement, goals and a plan for reducing water usage.
- Educate and involve employees in water efficiency efforts.
- Designate a water efficiency coordinator.