



Indiana Department of Natural Resources

DIVISION OF WATER

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Water Use Management for Conservation & Efficiency ~Indiana Significant Water Withdrawal Facilities~

Efficient water use can have many environmental, public health, and economic benefits by helping to improve water quality, maintaining aquatic ecosystems, and protecting groundwater and surface water as valuable drinking water resources. Although Indiana appears to have a more than adequate supply of water, increasing demand from all users including: domestic, industrial, energy production, & agricultural use, can begin to put pressure on the available supply. Water conservation programs can result not only in a reduction of this demand, but can also promote awareness of the finite nature of water to encourage more efficient use. Managers may find the utilization of water efficiency programs lower operating costs, which may translate to savings in other areas such as electricity, chemicals, gas, and wastewater disposal.

Suggested Practices for Developing Conservation & Efficiency Programs:

- Appoint a Water Conservation Manager & develop a Water Management Plan.
- Whole System Maintenance—Identification of leaks in delivery and distribution, preservation of optimal operation pressure, maintaining gauges in good working order, testing regularly, system calibration, identification and repair of pressure problems.
- System Controls Improvement—Implementation of a comprehensive water accounting & loss control program including system inspections, universal metering, and leak detection & repair. Processes that use large volumes of water for washing, rinsing or cooling should be outfitted with a dedicated water meter. Accurate metering at all levels is essential.
- Identify and Prioritize opportunities to reduce or reuse water; such as cooler flush water, rinse water, backwash water, floor and gutter wash water, turn off all flows during shutdowns, & use solenoid valves to stop the flow of water when a process stops.
- Water Use Audits—Good conservation programs depend on accurate use data. Conducting water use audits assesses water demand on a system by system or process by process basis; the goal is to generate a set of data profiling water demand at all stages.
- Educate & Involve employees in water conservation initiatives. Invite presentations and seminars by appropriate agencies or organizations.
- Consider a reclaimed wastewater distribution system for non-potable purposes.
- Water Conservation = Energy Savings = \$ Savings



For more information regarding water use, water conservation & energy savings please visit the Division of Water at the following web addresses: www.in.gov/dnr/water/3124.htm
www.in.gov/dnr/water/4856.htm www.in.gov/dnr/water/4847.htm



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Public Water Supply: Conservation

Management & Operations Practices and Policy & Program Practices
for Increased Efficiency

Efficient water use can have many environmental, public health, and economic benefits by helping to improve water quality, maintaining aquatic ecosystems, and protecting groundwater and surface water as valuable drinking water resources. Although Indiana appears to have a more than adequate supply of water, increasing demand from all users including domestic, industrial, agricultural, & energy production can begin to put pressure on the available supply. Water conservation programs can result not only in a reduction of this demand, but can also promote awareness of the finite nature of water and encourage more efficient use. A water supplier's operational and management practices play an important role in conservation; as can adoption of policies aimed at educating the consumer. These types of policies can dramatically enhance consumer participation in, and acceptance of, a water utility's overall conservation strategy.

- System Maintenance and Improvements—Implementation of a comprehensive water accounting & loss control program including system inspections, universal metering, and leak detection and repair. The water industry goal for unaccounted-for-water should be 10 percent.
- Incorporate Technology where possible; such as remote sensors and monitoring software, or telemetry technology that can automatically alert operators to leaks or fluctuation in pressure.
- Reduce excessive water pressure in the distribution system, e.g. system wide pressure management, flow restrictors, and pressure-reducing valves.
- Develop educational programs including informative water bills, inserts in water bills, school programs, and public workshops & seminars that include participation from experts, appropriate agencies, and non-profit organizations.
- Assist customers in performing water-use audits that provide users with information about water use habits and how water use might be reduced voluntarily.
- Implement a rate structure that encourages water efficiency or that at least doesn't discourage it. Charge for water & sewer services based on volume.
- Make retrofit kits for residences available free or at cost. Kits may contain items such as low flow faucet aerators, high efficiency showerheads, leak detection tablets, and replacement valves.

For more information regarding water conservation & energy savings visit the Division of Water website at:

www.in.gov/dnr/water/7113.htm

- Consider a reclaimed wastewater distribution system for non-potable uses.





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Industrial Water Conservation

Management Practices and Policies for Increased Efficiency

Efficient water use can have many environmental, public health, and economic benefits by helping to improve water quality, maintaining aquatic ecosystems, and protecting drinking water resources. Although Indiana appears to have a more than adequate supply of water, increasing demand from all users, including domestic, industrial, agricultural, & energy production, can begin to put pressure on the available supply. Water conservation programs can result not only in a reduction of this demand, but can also promote awareness of the finite nature of water, encouraging more efficient use. Managers may find the utilization of water efficiency programs lower operating costs, which may translate to savings in other areas such as electricity, chemicals, gas, and wastewater disposal.

- Appoint Water Conservation Manager & develop a Water Management Plan.
- System Maintenance and Improvements—Implementation of comprehensive water accounting and loss control program including system inspections, leak identification and repair in distribution lines, & the reduction of overflow throughout processes.
- Perform water-use audit—Good industrial conservation programs depend on accurate use data. Assess water demand on a system by system or process by process basis.
- Processes that use large volumes of water for washing, rinsing or cooling should be outfitted with a dedicated water meter. The goal is to generate a set of data that profiles water demand including individual process uses, utility uses, and all other uses. Accurate metering at all levels is essential.
- Identify and Prioritize opportunities to reduce or reuse water; such as cooler flush water, final tank rinse water, backwash water, floor and gutter wash water, turn off all flows during shutdowns, use solenoid valves to stop the flow of water if production stops.
- Educate and involve employees in water conservation initiatives. Invite presentations and seminars by appropriate agencies or organizations.
- Install high-efficiency plumbing fixtures, appliances, and other equipment such as nozzles, spray washers, and hoses.
- Water Conservation = Energy Savings = \$ Savings

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Irrigation Management Practices For Conserving Water, Nutrients & Energy

Knowledge of irrigation management practices allows you to take a more scientific approach to the irrigation process, achieve greater control, and begin to conserve water without compromising crop yield. Basic to this knowledge is understanding your system's capacity to deliver water. All irrigators need to know the net water application rate of their system, the irrigation guidelines for the specific crop being grown, and how to measure soil moisture levels. Good irrigation management requires one to know how much water the irrigation system delivers to a crop's roots over a given period of time, allowing adjustments to be made to the duration and frequency of application in order to maintain a balance between water and nutrients added to the soil, and the amount plants actually use.

Management Practices for Conservation:

- Whole System Maintenance—Identification of leaks in delivery and distribution, preservation of optimal operation pressure, maintaining gauges in good working order, testing regularly for application uniformity, system calibration, identification and repair of pressure and nozzle problems;
- Consistent Scheduling—Effective timing of applications for reducing evaporation rates;
- Utilize low pressure or low volume irrigation techniques with more efficient application practices;
- Utilize low elevation spray and larger drops settings to prevent drift and evaporation;
- Soil Management—Moisture measurement and monitoring to reduce run-off and increase crop water & nutrient utilization;
- Track seasonal crop water use;
- Repair or replace inefficient pumping plants;
- Provide sufficient soil storage capacity in the event rainfall follows irrigation;
- Know your crop's water needs at different stages of development and irrigate accordingly.



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