

TIPS ON DRIPS

Conserve energy, money, and water by following these water and energy saving tips, and you will see a difference in your next water bill.

1. Make sure water is off while you shave or brush your teeth - 4 to 10 gallons saved per day.
2. Taking a bath? Fill the tub half full - 16 gallons saved per day.
3. Five minute showers - 21 to 26 gallons saved per shower.
4. By washing a full load of dishes in the dishwasher or washing a full load of clothes in the washing machine - 15 gallons saved per day.
5. Install a low flow shower head - 20 gallons saved per day.
6. By filling two (2) plastic one quart bottles with sand or gravel, and placing them in the toilet tank you can reduce the amount of water used per toilet flushing - save 10 or more gallons per day.
7. Repair Leaks as soon as they occur.
 - a. 1/32 inch stream stopped - saved 6,166 gallons per month.
 - b. 1/16 inch stream stopped - saved 24,700 gallons per month.
 - c. 1/8 inch stream stopped - saved approximately 99,000 gallons per month.
 - d. 1/4 inch stream stopped - saved approximately 400,000 gallons per month.

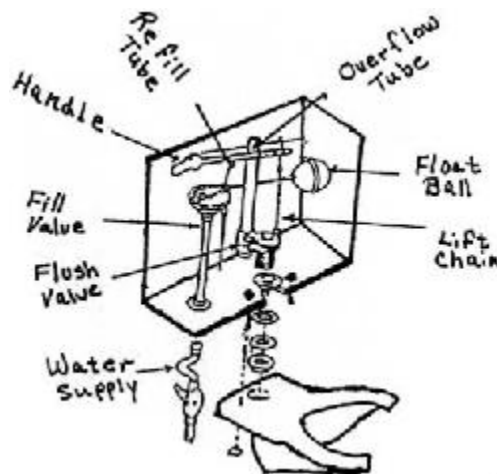
NOTE: Leak sizes and gallons lost per month are at 60 PSI.

ROUTINE TOILET TANK INSPECTION

Check tank water level: If the water in the tank is too high, it will spill over into the overflow tube and be wasted. The correct water level is about 1/2 inch to 1-inch below the top of the tube. To lower the water level either adjust the screw on the ball cock or bend the arm down until the correct level is achieved.

Repairing Toilet Leaks:

1. By removing the lid from the toilet tank, drop in some type of dye into the tank, wait 5 minutes, if the dye appears in the toilet bowl, there is a leak.
2. Check your flap or flush valve to make sure it is reseating properly. If it is worn or corroded, it needs to be replaced.
3. If you have to jiggle the handle to get it to stop running, check the lift chain or guide to make sure it is not hung up or out of alignment.
4. Check the water level in the tank; if the water level is too high in the tank it will spill over into the overflow tube and be wasted.
5. Ball cock runs: If water doesn't shut off at all, replace the ball cock and flapper, or replace toilet with a new 1.6 GPF (gallons per flush) toilet.



GOOD REASONS TO CONSERVE WATER

In attempt to help educate you on how to save water and energy without sacrifice and cut use in your home by up to 50%. Not only do you conserve water, a precious resource, but also you can save energy and money, and it's something every American can do to clean up the environment.

1. Clean up the environment by saving water and energy at home. Using less water means fewer chemicals to process dirty water, less sewage, and less energy required to heat water.
2. Rate increases of taxes and utilities will be held down, allowing your utility system to minimize the wear and tear of its existing plant equipment.
3. Save up to 47,000 gallons of water per year, not to mention money saved on your utility bill.
4. Faucet leaks big or small dribble away water and can be costly. A leaky faucet can waste up to 20 gallons per day. If the water is hot, you are using energy to heat it, which can be expensive.

PUMPS AND MOTORS

Energy Efficiency

Energy efficiency in a treatment plant requires extra effort on part of the staff. It requires a commitment from the management, and the ability to look ahead.

There are several steps to achieving this goal:

- 1) Establish maintenance programs
- 2) Conduct energy audits
- 3) Implement audit recommendations
- 4) Co-generation
- 5) Improve equipment and controls
- 6) Understand electric rates

Energy costs make up about 30% of the budge, and in the next 20 years will increase by 34% to 45%.

Without steps to reduce system consumption now the cost will cripple most small utilities.

Our goal is to lower our dependency on energy and increase our awareness of more effective ways to do the same job more effectively.

Establish Maintenance Programs

Regular and preventive maintenance is one of the first steps of any well-run plant, which allows the operator to know what is happening in his plant. Regular testing of equipment will tell you if the equipment is operating, as it should. The manufacturers recommended maintenance and inspection guidelines are the best information on performance testing.

Testing or running redundant or backup equipment on alternative fuels or at off-peak hours is a way of saving electricity.

Tip #1

When testing emergency generators, instead of letting them run idle use them to power lift stations during testing.

Conduct Energy Audits

Energy audits are not as complex as they sound. They require time and commitment from everyone. Audits may include a review of operating procedures, plant walk through, modification examination, and cost assessment.

These audits are sometimes subsidized by power companies and can be performed by plant personnel.

Audit Recommendations:

- Conduct periodic pump test
- Run generator during testing and peak load
- Install or replace with high efficiency motors
- Replace oversized motors during repairs
- Implement as many changes as possible

Implement Audit Recommendations

Starting the measures outlined by the audit report can be a slow process, particularly if large investments of capital are required.

By prioritizing the list, changes can be made as monies become available.

Rebates or other incentives can be factored in long term financing.

Load management measures and Energy Management Systems are ways of shifting or saving energy usage. These measures require planning. The purpose is to stagger equipment usage, monitor process levels and use alternative fueled equipment.

Co-Generation

The operation of backup generator during peak demand periods and during testing can help reduce energy costs by 20%. Instead of just letting the generators run for 4-6 hours with no load, use them to operate lift stations, pumps, or blowers. This takes a little manpower, but saves on electricity.

Projected Electricity Use for Wastewater Treatment					
1988				2010, When needs are met	
Level of treatment	Unit Electricity use, kW/mil. gal	Flow rate, MGD	Total electricity required, kWh/d	Design capacity, MGD	Total electricity required, kWh/d
Lees than secondary	661	3,840	2,538,200	385	254,500
Secondary	1,212	12,282	14,885,800	18,990	23,015,900
Greater than secondary	1,578	11,825	18,659,900		
	1,726			23,117,39,900,000	
No discharge	400	789	315,600	1,769	707,600
TOTAL			36,399,500		63,878,000

Improve Equipment and Controls

Improving equipment and the controls for that equipment is easier than you think. It does not require replacement, but changes to operation and maintenance. By making the equipment operate properly you also make it operate more efficiently: replace worn belts, adjust belts to proper tension, change to fine pore diffusers, check and replace worn bearings o aerators. Check pump operations for proper operation, replace leaking seals, worn impellers, and restrictions.

Replace burnt motor and pumps with high efficiency units. Check to see if adjustable speed motors and controls would be beneficial, and make sure the pump curve is correct for your application.

- 1) Check for leaks in air system
- 2) Check for leaks in pump seals
- 3) Test pumps for proper operation and sizing
- 4) Replace motors and pumps with high efficiency units
- 5) Make as many improvements as allowed

Understand Electric Rates

Understanding electrical rate structures is probably the toughest part of the job, but there is help. Contact your electric company and ask to have a representative come out and go over your rate structure. Understanding peak loads, time of day rates, KW usage and maximum connected load charges will help reduce your cost. Some utilities have what is called a UTILITY-INITIATED MANAGEMENT PROGRAM. There may be incentives or special rate programs to help reduce energy cost for the plant.