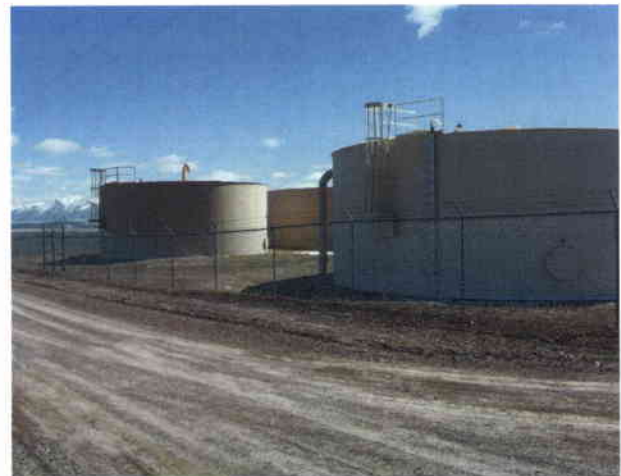
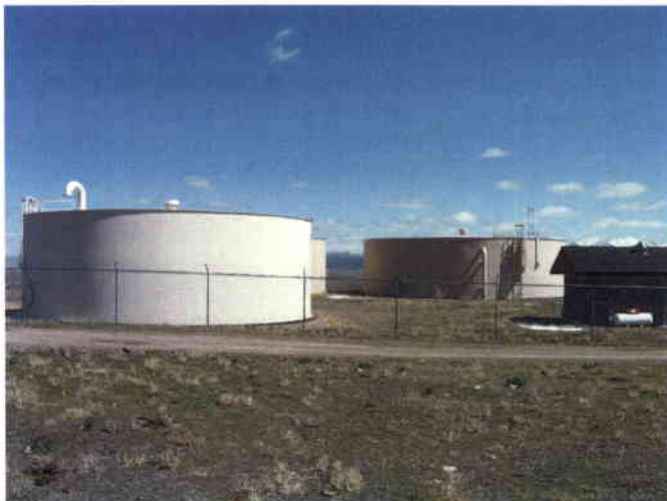


Eureka County

**Joint Water Conservation Plan for
Town of Eureka Water System
Devil's Gate GID District #1 and District # 2
Crescent Valley Town Water System**



Eureka County

Joint Water Conservation Plan for Town of Eureka Water System Devil's Gate GID District #1 and District # 2 Crescent Valley Town Water System

Summary

Eureka County Public Works (ECPW) is dedicated to promoting water conservation through public outreach, customer education and responsible stewardship. ECPW recognizes the benefits of wise water use including:

- Cost savings - Minimizing the amount of water pumped, stored, and distributed saves ECPW and its customers money in reduced operating costs.
- Wastewater treatment benefits – Reduction of interior water use cuts wastewater loads on sewer treatment facilities and customer septic tanks, resulting in reduced treatment costs and lessened environmental impact
- Environmental benefits – Water removed from an aquifer for human consumption could be conserved for other purposes and future use.
- Water supply limitations – Water conservation can help stretch existing groundwater resources
- Energy savings – Reducing water production will save energy and reduce greenhouse gas emissions
- Minimizing the need for water system improvements – Water system expansion or capital improvements projects may be delayed, or the scope of the projects reduced, through water conservation measures
- Regulatory compliance – Nevada Revised Statutes (NRS 540.121 through 540.151) require “suppliers of water” to adopt a water conservation plan
- Customer benefits – Customers who conserve water may enjoy lower water bills and possibly lower wastewater and energy bills

Water systems

Eureka County Public Works (ECPW) manages and maintains three water systems, the Town of Eureka, Devils Gate (District #1 and #2), and Crescent Valley. The Town of Eureka system serves 275 customers, both residential and commercial. The Devil's Gate system serves 56 residential and commercial customers in Diamond Valley. Crescent Valley Town Water serves 280 residential and commercial customers.

The Town of Eureka system is gravity fed by a series of storage tanks. The Town's water source currently includes two wells in Diamond Valley and springs south of town. Water supplied by the wells is pumped into two storage tanks, located on opposite sides of town, with a combined storage capacity of 1.1 million gallons.

Devil's Gate is a residential area located in Diamond Valley, approximately 8 miles from the Town of Eureka, situated north and south of Highway 50. The water system consists of three main wells and one back up well, a water storage tank and booster pump station to pressurize the delivery system.

The Town of Crescent Valley is located 135 miles north of the Town of Eureka, 20 miles south of Interstate 80. The Crescent Valley water is supplied from two main wells with back-up generators. Three tanks store a total of 660,000 gallons of water to supply the gravity-fed system.

Water Conservation Plan Elements

Methods of public education (NRS 540.141 1. (a) (1) and (2))

This water conservation plan will be provided to customers of the Eureka County water systems in an effort to increase public awareness of the limited supply of water in this state and the need to conserve water. The information and educational resources contained herein are intended to give system customers the basic tools to evaluate and improve interior and exterior water use practices. Guidance for determining appropriate lawn watering schedules, checking for household leaks, and estimating how much water can be saved by installing water efficient residential plumbing fixtures is provided in the Appendix. In addition ECPW provides customers with water conservation information in their bills, and a periodic newsletter to provide seasonal water conservation information and to promote effective communication with customers.

ECPW also encourages customers to choose landscape design and planting that promote water conservation, and to redesign existing landscaping to reduce the size of lawn areas and encourage the use of plants that are adapted to arid and semiarid climates.

New construction landscapes and irrigation systems should be designed in accordance with the seven principles of water efficient (xeriscape) landscaping.

- Proper planning and design for local climates
- Soils analysis
- Appropriate plant selection
- Practical turf areas
- Efficient irrigation
- Use of mulches
- Appropriate maintenance

See "The seven principles of xeriscaping" in the Appendix. Information about evapotranspiration rates for Eureka County is included along with a lawn care guide for northern Nevada, and other helpful information related to use of water outdoors.

Specific conservation measures (NRS 540.141 (b))

Each water system is metered. The pump meters are read daily in order to monitor excessive water use and take immediate action. Also by integrating water infrastructure needs into the capital improvement plan, and allocating funds to address the needs, the County works continuously to improve the efficiency of transmission.

Management of water (NRS 540.141 (c))

In an effort to promote water conservation and reduce water waste within these water systems, ECPW has programs in place to identify and reduce system leakage, inaccuracies in water meters and to monitor distribution system pressures. Public Works acts immediately to repair leaks as soon as they are identified. They replace old water mains, service lines as funding is available. Defective meters are replaced immediately. Water operators check each system twice a day, every day, 365 days per year. Defective equipment, when identified, is immediately replaced. Well water levels are measured monthly. Telemetry assists the water operators to monitor tank levels and pump operation.

Drought Contingency Plan (NRS 540.141 (d))

The following contingency plan in the event of drought conditions will help assure the adequate supply of potable water. This plan specifies four stages of water conservation measures to be implemented based on the severity of the need to conserve.

Stage One

During normal water system operating conditions, i.e., no drought, customers should observe every day, “common sense” water conservation measures to help keep customer bills low and reduce the burden on the water systems. Each water system has its own ordinance. The three systems require all residential and commercial customers have a water shutoff valve installed between the water meter and the residence or commercial building. This will allow customers to shut off water service when needed to repair leaks or perform other plumbing maintenance. Eureka Public Works should only be called out to shut off water services during emergencies. All customers are encouraged to perform a home or business water audit and install water saving devices such as low flow showerheads, faucet aerators, toilet tank bags, etc. ECPW will provide information on retrofitting home fixtures to customers on request. Many tips for conserving water and guidelines for performing home water audits are contained in Appendix A.

Stage Two

These measures should be implemented when the water system is experiencing drought conditions. Customers should avoid over watering lawns. Sprinklers should be positioned so that no water is running off of the lawn areas and into curbs or gutters. Guidelines for watering lawns, including how to measure water

applied and determine how many minutes a week to water during each month of the growing season are contained in Appendix B.

Stage Three

These measures will be implemented when the water systems are experiencing water shortages due to a drought, limitations in water storage, or water transmission equipment failures or malfunctions. Restricted watering will use the following “odd/even” system adapted to meet the unique attributes of the water system. Residential and commercial customers with odd addresses will restrict watering lawns and outside landscaping to Tuesdays and Saturdays. Residential and commercial customers with even addresses will water on Wednesdays and Sundays. There will be no landscape watering on Mondays, Thursdays and Fridays. No landscape watering will be permitted between the hours of 11:00 AM and 4:00 PM, or during windy conditions.

Stage Four

These watering restrictions will be implemented in the event of emergencies or cataclysmic failure of water system components or equipment. No outside landscape watering will be permitted. Eureka County Public Works shall restrict other water usage as required. In the event of an emergency, it may be necessary to go immediately from Stage 1 to Stage 4.

Plan schedule, review and revision (NRS 540.141 (e) and (f))

Implementation of this Plan is ongoing. ECPW will periodically review the plan and evaluate the effectiveness of the measures contained herein. The plan may be revised to reflect changing needs and conditions of the water systems. A copy of the plan will be available for inspection by members of the public during normal office hours at the ECPW office. A copy of the plan will be mailed to all customers and provided to new customers at time of application. The Plan will also be posted on the Eureka County Public Works website, and will include links to the web-based references cited. Interested persons may submit written views and recommendations on the plan.

Estimate of amount of water conserved annually (NRS 540.141 1 (g))

The average residential service in Eureka uses 541 gallons per day during the period from April to October. By implementing conservation measures as described, it is estimated that the average residential customer save 54 gallons per day, or about 10% of current use, by implementing the conservation measures in the Plan.

Conservation oriented rate structures analysis (NRS 540.141 2. (a) and (b))

Currently, the rate structure at all three ECPW water systems is the Uniform Block Rate. The current rate structure in each system also provides for an annual escalator for a five year period. The unit price for water used (above the amount of gallons included under the base rate) remains the same, regardless of how much water is consumed. This rate structure encourages a reasonable amount of water conservation, since customers pay

more for higher consumption. However, if changing conditions warrant, ECPW may evaluate water rate structures that promote water conservation more effectively, such as an Increasing Block Rates. With Increasing Block Rates, the unit price for water increases as water consumption increases.

Incentives (NRS 540.151 1. (a),(b), and (c))

The water conservation plan of Eureka County Public Works provides incentives to encourage water conservation in its service area, to retrofit existing structures with plumbing fixtures designed to conserve water, and to install water wise landscaping. The newsletter that is provided to customers on a periodic basis contains information and website references to encourage conservation by customers within the service area. The newsletter also communicates to customers that it is their responsibility to conserve water. The newsletter and website references also contain information on choosing water saving plumbing devices and installing landscaping that uses less water.

Implementation

The Water Conservation Plan was approved by the Eureka County Board of Commissioners and the Devil's Gate GID Board on May 18, 2009. The Water Conservation Plan was approved by the State of Nevada on May 4, 2009. Please see "Appendix" signature page for official adoption documentation.

Appendix

Resolution

Resolution adopted by the Eureka County Commissioners and Devil's Gate GID Board on May 18, 2009

Nevada Division of Water Resources

Approval letter from the Nevada Division of Water Resources relating to the Water Conservation Plan for Eureka County.

Public Education Materials

The following information and educational resources are made part of this plan. The titles are listed below, and they are attached and made part of the Appendix. To the extent possible, these resources will be posted or linked on the Eureka County Public Works website.

Overall water conservation

100 Ways to Conserve Water (www.wateruseitwisely.com)

Indoor water conservation

Household Water Saving Tips
Conducting a Household Water Audit
Water Sense Labeled Toilets (EPA)
Water Sense Labeled Bathroom Sink Faucets (EPA)

Outdoor water conservation

The Seven Principles of Xeriscape
The All Seeing All Knowing Lawn Care Manual (University of Nevada Cooperative Extension)
Notes for customers without sprinkler systems (related to Lawn Care Manual)
Eureka County Lawn Evapotranspiration Rates and Seasonal Distribution
Tips for the Home Gardener for Efficient Water Use
Water Conservation and Washing Vehicles

RESOLUTION

**TO ADOPT A JOINT WATER CONSERVATION PLAN FOR THE
TOWN OF EUREKA WATER SYSTEM,
DEVIL'S GATE GID DISTRICT #1 AND DISTRICT #2,
AND CRESCENT VALLEY TOWN WATER SYSTEM**

WHEREAS, the Board of County Commissioners wish to adopt a joint water conservation plan for the Town of Eureka, Devil's Gate GID District 1 & 2, and the Town of Crescent Valley; and

WHEREAS, Eureka County is dedicated to promoting water conservation through public outreach, customer education and responsible stewardship; and

WHEREAS, the water conservation plan will be provided to customers of the Eureka County water systems in an effort to increase public awareness of the limited supply of water in Nevada and the need to conserve water;

WHEREAS, Eureka County has programs in place to identify and reduce water system leakage, inaccuracies in water meters and to monitor distribution system pressures;

WHEREAS, Eureka County acts immediately to repair leaks as soon as they are identified and water operators check each system twice a day;

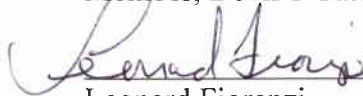
NOW THEREFORE BE IT RESOLVED by the Board of Eureka County Commissioners, who are also the Board of Directors of the Devil's Gate GID Board that:

1. The joint water conservation plan for the Town of Eureka, Devil's Gate GID District #1 & 2, and the Crescent Valley Town be adopted.
2. The joint water conservation plan be available and distributed to users in the Town of Eureka, Devil's Gate GID District 1 & 2 and Crescent Valley Town water systems.

Adopted this 18th day of May, 2009.



J.P. Ithurrealde
Chairman, Eureka County Commissioner
Member, Devil's Gate GID Board



Leonard Fiorenzi
Chairman, Devil's Gate GID Board
Vice-Chair, Eureka County Commissioners

Attest:


County Clerk

Mike Page
Vice Chair, Devil's Gate GID Board
Member, Eureka County Commissioner



DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES
DIVISION OF WATER RESOURCES

901 S. Stewart Street, Suite 2002
Carson City, Nevada 89701
(775) 684-2800 • Fax (775) 684-2811
<http://water.nv.gov>

May 4, 2009

Ronald Damele, Public Works Director
Eureka County Public Works
701 South Main Street
Eureka, NV 89316

Re: Eureka County Water Conservation Plan

Dear Mr. Damele:

This office has finished the review of the draft water conservation plan for the Joint Water Conservation Plan for the Town of Eureka, Devil's Gate GID Districts No. 1 and 2 and the Crescent Valley Town Water Systems. The plan contains all the statutory elements required under Nevada Revised Statutes (NRS) chapter 540. Please submit a final hard copy version of the water conservation plan for our records, as well as a PDF version on a compact disk that can be posted on the Division of Water Resources website.

The next update to the water conservation plan will be due in 2013 as required by NRS § 540.131(4a).

If you have any questions, please call me at (775) 684-2817.

Sincerely,

A handwritten signature in blue ink that reads "K. Hickenbottom P.E.".

Kelvin Hickenbottom, P.E.
Deputy State Engineer

100 Ways To Conserve Water

<http://www.wateruseitwisely.com/100-ways-to- conserve/index.php>

#01



There are a number of ways to save water, and they all start with you.

- **#2**

When washing dishes by hand, don't let the water run while rinsing. Fill one sink with wash water and the other with rinse water.

- **#3**

Some refrigerators, air conditioners and ice-makers are cooled with wasted flows of water. Consider upgrading with air-cooled appliances for significant water savings.

- **#4**

Adjust sprinklers so only your lawn is watered and not the house, sidewalk, or street.

- **#5**

Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.

- **#6**

Choose shrubs and groundcovers instead of turf for hard-to-water areas such as steep slopes and isolated strips.

- **#7**

Install covers on pools and spas and check for leaks around your pumps.

- **#8**

Use the garbage disposal sparingly. Compost vegetable food waste instead and save gallons every time.

- **#9**

Plant in the fall when conditions are cooler and rainfall is more plentiful.

#10



For cold drinks keep a pitcher of water in the refrigerator instead of running the tap. This way, every drop goes down you and not the drain.

- **#11**

Monitor your water bill for unusually high use. Your bill and water meter are tools that can help you discover leaks.

- **#12**

Water your lawn and garden in the morning or evening when temperatures are cooler to minimize evaporation.

- **#13**

Wash your fruits and vegetables in a pan of water instead of running water from the tap.

- **#14**

Spreading a layer of organic mulch around plants retains moisture and saves water, time and money.

- **#15**

Use a broom instead of a hose to clean your driveway and sidewalk and save water every time.

- **#16**

If your shower fills a one-gallon bucket in less than 20 seconds, replace the showerhead with a water-efficient model.

- **#17**

Collect the water you use for rinsing fruits and vegetables, then reuse it to water houseplants.

- **#18**

If water runs off your lawn easily, split your watering time into shorter periods to allow for better absorption.

- **#19**

We're more likely to notice leaks indoors, but don't forget to check outdoor faucets, sprinklers and hoses for leaks.

- **#20**

If you have an automatic refilling device, check your pool periodically for leaks.

- **#21**

Check the root zone of your lawn or garden for moisture before watering using a spade or trowel. If it's still moist two inches under the soil surface, you still have enough water.

- **#22**

When buying new appliances, consider those that offer cycle and load size adjustments. They're more water and energy efficient.

- **#23**

Shorten your shower by a minute or two and you'll save up to 150 gallons per month.

- **#24**

Upgrade older toilets with water efficient models.

- **#25**

Adjust your lawn mower to a higher setting. A taller lawn shades roots and holds soil moisture better than if it is closely clipped.

- **#26**

When cleaning out fish tanks, give the nutrient-rich water to your plants.

- **#27**

Use sprinklers for large areas of grass. Water small patches by hand to avoid waste.



Put food coloring in your toilet tank. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it can save up to 1,000 gallons a month.

- **#29**

When running a bath, plug the tub before turning the water on, then adjust the temperature as the tub fills up.

- **#30**

Walkways and patios provide space that doesn't ever need to be watered. These useful "rooms" can also add value to your property.

- **#31**

Collect water from your roof to water your garden.

- **#32**

Designate one glass for your drinking water each day or refill a water bottle. This will cut down on the number of glasses to wash.

- **#33**

Rather than following a set watering schedule, check for soil moisture two to three inches below the surface before watering.

- **#34**

Install a rain sensor on your irrigation controller so your system won't run when it's raining.

- **#35**

Don't use running water to thaw food. Defrost food in the refrigerator for water efficiency and food safety.



Use drip irrigation for shrubs and trees to apply water directly to the roots where it's needed.

- **#38**

Reduce the amount of lawn in your yard by planting shrubs and ground covers appropriate to your site and region.

- **#39**

When doing laundry, match the water level to the size of the load.

- **#40**

Teach your children to turn off faucets tightly after each use.

- **#41**

Remember to check your sprinkler system valves periodically for leaks and keep the sprinkler heads in good shape.



Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.

- **#43**

Soak pots and pans instead of letting the water run while you scrape them clean.

- **#44**

Don't water your lawn on windy days when most of the water blows away or evaporates.

- **#45**

Water your plants deeply but less frequently to encourage deep root growth and drought tolerance.

- **#46**

Know where your master water shut-off valve is located. This could save water and prevent damage to your home.

- **#47**

To decrease water from being wasted on sloping lawns, apply water for five minutes and then repeat two to three times.

- **#48**

Group plants with the same watering needs together to avoid overwatering some while underwatering others.

- **#49**

Use a layer of organic material on the surface of your planting beds to minimize weed growth that competes for water.

- **#50**

Use a minimum amount of organic or slow release fertilizer to promote a healthy and drought tolerant landscape.

- **#51**

Trickling or cascading fountains lose less water to evaporation than those spraying water into the air.

- **#52**

Use a commercial car wash that recycles water.

- **#53**

Avoid recreational water toys that require a constant flow of water.

- **#54**

Turn off the water while brushing your teeth and save 25 gallons a month.

- **#55**

Use a rain gauge, or empty tuna can, to track rainfall on your lawn. Then reduce your watering accordingly.

- **#56**

Encourage your school system and local government to develop and promote water conservation among children and adults.

- **#57**

Learn how to shut off your automatic watering system in case it malfunctions or you get an unexpected rain.

- **#58**

Set a kitchen timer when watering your lawn or garden to remind you when to stop. A running hose can discharge up to 10 gallons a minute.

- **#59**

If your toilet flapper doesn't close after flushing, replace it.

- **#60**

Make sure there are water-saving aerators on all of your faucets.



Next time you add or replace a flower or shrub, choose a low water use plant for year-round landscape color and save up to 550 gallons each year.

- **#62**

Install an instant water heater near your kitchen sink so you don't have to run the water while it heats up. This also reduces energy costs.

- **#63**

Use a grease pencil to mark the water level of your pool at the skimmer. Check the mark 24 hours later to see if you have a leak.

- **#64**

If your dishwasher is new, cut back on rinsing. Newer models clean more thoroughly than older ones.

- **#65**

Use a trowel, shovel, or soil probe to examine soil moisture depth. If the top two to three inches of soil are dry it's time to water.

- **#66**

If installing a lawn, select a turf mix or blend that matches your climate and site conditions.

- **#67**

When you save water, you save money on your utility bills too. Saving water is easy for everyone to do.

- **#68**

When the kids want to cool off, use the sprinkler in an area where your lawn needs it the most.

- **#69**

Make sure your swimming pools, fountains, and ponds are equipped with recirculating pumps.

- **#70**

Bathe your young children together.

- **#71**

Consult with your local nursery for information on plant selection and placement for optimum outdoor water savings.

- **#72**

Winterize outdoor spigots when temperatures dip below freezing to prevent pipes from leaking or bursting.

- **#73**

Insulate hot water pipes for more immediate hot water at the faucet and for energy savings.

- **#74**

Wash your car on the lawn, and you'll water your lawn at the same time.



Drop your tissue in the trash instead of flushing it and save water every time.

- **#76**

Direct water from rain gutters and HVAC systems toward water-loving plants in the landscape for automatic water savings.

- **#77**

Make suggestions to your employer about ways to save water and money at work.

- **#78**

Support projects that use reclaimed wastewater for irrigation and industrial uses.

- **#79**

Use a hose nozzle or turn off the water while you wash your car. You'll save up to 100 gallons every time.

- **#80**

Share water conservation tips with friends and neighbors.

- **#81**

If your toilet was installed before 1992, reduce the amount of water used for each flush by inserting a displacement device in the tank.

- **#82**

Setting cooling systems and water softeners for a minimum number of refills saves both water and chemicals, plus more on utility bills.

- **#83**

Washing dark clothes in cold water saves both on water and energy while it helps your clothes to keep their colors.

- **#84**

Leave lower branches on trees and shrubs and allow leaf litter to accumulate on the soil. This keeps the soil cooler and reduces evaporation.

- **#85**

Report broken pipes, open hydrants and errant sprinklers to the property owner or your water provider.

- **#86**

Let your lawn go dormant during the summer. Dormant grass only needs to be watered every three weeks or less if it rains.

- **#87**

Plant with finished compost to add water-holding and nutrient-rich organic matter to the soil.

- **#88**

Use sprinklers that deliver big drops of water close to the ground. Smaller water drops and mist often evaporate before they hit the ground.

- **#89**

Listen for dripping faucets and running toilets. Fixing a leak can save 300 gallons a month or more.

- **#90**

Water only when necessary. More plants die from over-watering than from under-watering.

- **#91**

One more way to get eight glasses of water a day is to re-use the water left over from cooked or steamed foods to start a scrumptious and nutritious soup.



Adjust your watering schedule each month to match seasonal weather conditions and landscape requirements.

- **#93**

Turn off the water while you wash your hair to save up to 150 gallons a month.

- **#94**

Wash your pets outdoors in an area of your lawn that needs water.

- **#95**

When shopping for a new clothes washer, compare resource savings among Energy Star models. Some of these can save up to 20 gallons per load, and energy too.

- **#96**

Apply water only as fast as the soil can absorb it.

- **#97**

Aerate your lawn at least once a year so water can reach the roots rather than run off the surface.

- **#98**

When washing dishes by hand, fill the sink basin or a large container and rinse when all of the dishes have been soaped and scrubbed.

- **#99**

Catch water in an empty tuna can to measure sprinkler output. One inch of water on one square foot of grass equals two-thirds of a gallon of water.

- **#100**

Turn off the water while you shave and save up to 300 gallons a month.

- **#101**

When you give your pet fresh water, don't throw the old water down the drain. Use it to water your trees or shrubs.

- **#102**

If you accidentally drop ice cubes when filling your glass from the freezer, don't throw them in the sink. Drop them in a house plant instead.

- **#103**

To save water and time, consider washing your face or brushing your teeth while in the shower.

- **#104**

While staying in a hotel or even at home, consider reusing your towels.

- **#105**

When backflushing your pool, consider using the water on your landscaping.

- **#106**

For hanging baskets, planters and pots, place ice cubes under the moss or dirt to give your plants a cool drink of water and help eliminate water overflow.

- **#107**

Throw trimmings and peelings from fruits and vegetables into your yard compost to prevent using the garbage disposal.

- **#108**

When you have ice left in your cup from a take-out restaurant, don't throw it in the trash, dump it on a plant.

- **#109**

Have your plumber re-route your gray water to trees and gardens rather than letting it run into the sewer line. Check with your city codes, and if it isn't allowed in your area, start a movement to get that changed.

- **#110**

Keep a bucket in the shower to catch water as it warms up or runs. Use this water to flush toilets or water plants.

- **#111**

When you are washing your hands, don't let the water run while you lather.

<http://www.wateruseitwisely.com/100-ways-to-conserve/index.php>

Household Water Saving Tips

Nevadans have access to an abundance of water much of the time, so the importance of clean water is often overlooked. For most of us, water use is a habit. We are accustomed to having water available at the twist of a faucet. We usually do not think about how much water we use.

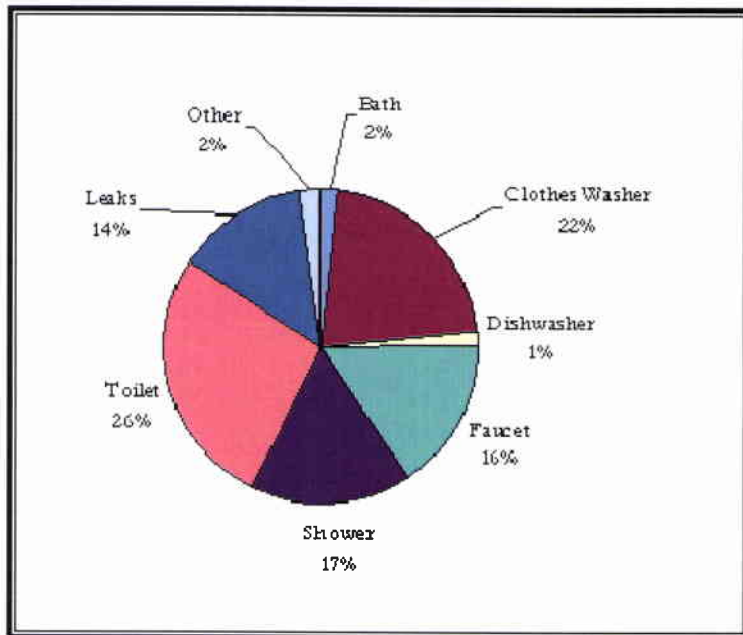
AVERAGE DAILY WATER USE

Be aware of how much water you use! Awareness is the first step in conservation. The average US citizen uses almost **100** gallons of water per person per day on the following activities:

- Toilet
- Bathing & hygiene
- Laundry
- Kitchen
- Housekeeping
- Outdoor Activities

Indoor water use by fixture is shown in the following graph:

Indoor Per Capita Use by Fixture Source: AWWA, 1999



You can determine your average daily water use by conducting a household water audit. See [Conducting a Household Water Audit](#)

WATER SAVINGS

The amount of savings depends on current water consumption habits, water, sewer and energy costs, current flow rates of fixtures and flush volumes of toilets, system pressure, and the amount of water leakage through fittings and toilets. Water can be conserved by making improvements in the home or by modifying behavior.

Retrofit or Replace Water Fixtures

Water-saving devices are economical and permanent. Low-flow showerheads and faucet aerators save valuable water and energy used to heat water without requiring changes in personal water use habits. The following chart highlights how much water can be conserved by installing water-saving equipment in place of conventional plumbing fixtures, fittings and appliances.

Conventional Fixture/Appliance	Water Use (gallons)	Water Saving Fixture/Appliance	Water Use (gallons)	Water Savings (gallons)
Vintage Toilet*	4 - 6 per flush	Low Consumption Toilet***	1.6 per flush	2.4 - 4.4 per flush
Conventional Toilet**	3.5 per flush	Low Consumption Toilet***	1.6 per flush	1.9 gal/flush
Conventional Showerhead*	3-10 per min	Low-Flow Showerhead	2-2.5 per min	0.5 - 8 per min
Faucet Aerator*	3-6 per min	Flow Regulating Aerator	0.5-2.5 per min.	0.5- 5.5 per min
Top-Loading Washer	40-55 per load	Front-Loading Washer	22-25 per load	15 - 33 per load

* Manufactured before 1978

** Manufactured from 1978 to 1993

*** Manufactured since January 1, 1994

Repair All Leaks

A dripping faucet is more than annoying...it is expensive. Even small leaks can waste significant amounts of water. Hot water leaks are a waste of water and of the energy used to heat the water.

Leaks inside the toilet can waste up to 200 gallons of water a day. Toilet leaks can be detected by adding a few drops of food coloring to water in the toilet tank. If the colored water appears in the bowl, the toilet is leaking.

If you have a leaking faucet or toilet, stop pouring money down the drain and repair it.

How to Save Water in The Bathroom

- When constructing a new home or remodeling your bathroom, install low consumption (1.6 gal/flush) toilets.
- Place a weighted plastic one-half gallon jug or a toilet dam in the tanks of conventional toilets to displace and save water with each flush.
- Install low-flow aerators and showerheads. They are inexpensive, easy to install, and save water and energy.
- Do not let the faucet flow while brushing your teeth or shaving. Use a glass of water for rinsing teeth.
- Take showers instead of tub baths. Consider bathing small children together.
- If your shower has a single-handle control or shut off valve, turn off the flow while soaping or shampooing.
- Leaking diverter valves (valves which divert water from the tub spout to the showerhead) should be replaced.

How to Save Water in The Kitchen And Laundry Room

- Refrigerate a pitcher of drinking water instead of letting a faucet flow until the water is cold enough to drink.
- Use a dishpan or plug the sink for washing and rinsing dishes. Install a low-flow aerator on all faucets.
- Do not pre-rinse dishes prior to loading in a dishwasher. Prerinsing is an unnecessary and wasteful use of water.
- Operate the washing machine and dishwasher only when they are fully loaded.
- Use the proper water level or load size selection on the washing machine.
- When purchasing a washing machine or dishwasher, consider water consumption as well as energy efficiency. Most manufacturers now provide this information to consumers.

How to Save Water Outside The Home

Watering of lawns and gardens can double normal household water use during the hot, dry summer months. At standard household water pressures, a garden hose will discharge up to 10 gallons of water per minute. To apply an inch of water to 1,000 square feet of lawn or garden requires close to 1,000 gallons of water.

Watering should be limited to gardens, and newly planted lawns and landscaped areas. Established lawns and landscape plantings will usually survive without watering. Inadequate watering encourages shallow root growth and increases the risk of mortality. When water is scarce, your community or individual water supply should be reserved for your most essential needs.

- Equip your hose with an automatic shut-off nozzle.
- Use a broom, not a hose, to clean driveways, steps and sidewalks.
- Water your garden during the coolest part of the day. Do not water on windy days.
- Use mulch around shrubs and garden plants to reduce evaporation from the soil surface and cut down on weed growth.

Source: Rural Community Assistance Corp.

CONDUCTING A HOUSEHOLD WATER AUDIT

WHAT IS A HOUSEHOLD WATER AUDIT?

A household water audit is an assessment of how much water is used and how much water can be saved in the home. Conducting a water audit involves calculating water use and identifying simple ways for saving water in the home.

WHAT ARE THE BENEFITS OF CONDUCTING A WATER AUDIT?

Conducting a water audit can help you save money by reducing your home water bill (and sewer bill if you are connected to a public sewer system). Conducting a water audit will make you aware of how you use your water and help to identify ways you can minimize water use by implementing certain conservation measures. It is possible to cut your water usage by as much as 30 percent by implementing simple conservation measures and without drastically modifying your lifestyle.

HOW DO I CALCULATE WATER USAGE IN MY HOME?

It is important to realize that water use throughout the year often varies with the season. Most people use more water in the warmer months for gardening, washing cars, and other outdoor uses. If you conduct your water audit in the winter or fall, you should still consider the additional water you use in the summer months. The American Water Works Association (AWWA) estimates that the average indoor water use per person is 94 gallons of water per day; this does not take into account outdoor water use (watering lawns, washing cars).

Calculating Water Use From Your Water Bill



If you obtain water from a community water system, you probably receive a water bill that tells you how much water you use. Many water utilities provide customers with bills that contain information regarding the amount of water consumed and average daily consumption during the billing period. If the average daily consumption is not provided, you can calculate it by dividing the total amount of water used by the number of days in the billing period. Determine whether your water is measured in cubic meters (m^3), cubic feet (ft^3), gallons (gal), or liters (L) and convert to gallons.

For converting into gallons, use the following conversion factors:

$$m^3 \times 264 = \text{gal}$$

$$ft^3 \times 7.48 = \text{gal}$$

$$L \times 0.264 = \text{gal}$$

There are several conversion tools available on the Internet that can be used to make your calculations easier. (<http://www.onlineconversion.com/volume.htm> or <http://www.mathconnect.com/volumel.htm>)

Calculating Water Use With A Meter

If your water bill does not provide water consumption data, then you can read your water meter to obtain this information. Water meters measure the total amount of water used in your home and are usually located at the property line or on the house. The meter may measure in cubic meters, cubic feet, gallons, or liters. To obtain your water use over the course of a 24-hour day, read your meter at the same time on two consecutive days. You may want to measure water use for several days and then calculate a daily average.

Estimating Water Use Without A Meter

If you do not have a water meter you can estimate your water use. It will be important to measure all water use, indoor and outdoor, to accurately estimate the quantity of water used. To determine how much you consume water in your home it is necessary to measure water flow from each fixture in your house:

- To calculate flow for faucets (indoor and outdoor) and showerheads, turn faucet to the normal flow rate that you use, and hold a container under the tap for 10 seconds and measure the quantity of water in the container. Multiply the measured quantity of water by 6 to calculate the gallons per minutes (gpm).
- To calculate flow for toilets, turn off the water supply to the toilet, mark the water line on the inside of the tank, flush, and then fill tank with water from tap. Measure the volume of water that is required to fill water back up to the water line mark on the tank and record this number. Turn water on to the toilet to resume normal use.
- If your appliances or fixtures are relatively new, you may be able to obtain the flow rate from the manufacturer's specifications. Otherwise, use the following averages:
 - Washing machine – 41 gal per use
 - Dishwashing machine – 9 gal per use

Next, measure how many times per day or how many minutes each day you use each fixture or appliance. Multiply the water flow per fixture by the minutes per day the fixture is used. Multiply the flow average for each appliance by the number of times the appliance is used each week. Don't forget to include the amount of time you use outdoor faucets each day. The [water audit spreadsheet](#) is a useful tool to evaluate water use in the home.

HOW DOES MY WATER USAGE RANK?

The average Maryland citizen uses about 100 gallons of water per day. This includes indoor as well as outdoor water usage. To calculate the per person daily water usage rate, divide your daily water usage by the number of people in your home, and then look at the following chart to rate your water usage.