**Bedford Borough Water Authority**
**244 West Penn Street**
**Bedford, PA 15522**

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# 2014 Annual Drinking Water Quality Report

**Bedford Borough Water Authority**
**PWSID: 4050002**
**244 West Penn Street**
**Bedford, PA 15522**
**Telephone: (814) 623-8192**
**E-mail: bedfordborough@bedboro.com**
**Website: www.bedboro.com**

*Este informe contiene información importante acerca de su agua potable. Haga que alguien lo traduzca para usted, ó hable con alguien que lo entienda.* (This report contains important information about your drinking water. Have someone translate it for you, or speak with someone who understands it.)

This report shows our water quality and what it means. IF YOU HAVE ANY QUESTIONS ABOUT THIS REPORT or questions concerning your water utility, please contact Barbara E. Diehl, Bedford Borough Manager, at the above email address or telephone (814) 623-8192, Monday through Friday, 9:00 a.m. to 4:00 p.m. We want our valued customers to be informed about their water utility. If you want to learn more, please attend any of our regularly scheduled meetings. They are held on the third Monday of each month at 4:00 p.m. in the Borough Office on West Penn Street.

# 2014 Annual Drinking Water Quality Report
# Bedford Borough Water Authority

**The Safe Drinking Water Act:** The Safe Drinking Water Act, among other regulations and laws, safeguards the sources and treatment of drinking water. This Act requires that public water systems issue reports to their customers telling them where their water comes from and what it contains.

Through this Annual Water Quality Report, we want to keep you informed about the water quality and services we have delivered to you over the past year. Our goal is to provide to you a safe and dependable supply of drinking water.

**Sources:** Our water sources consist of two (2) reservoirs (Todd Spring and J.C. Smith) and the Raystown Branch of the Juniata River. The reservoirs are located west of the Borough of Bedford. The intake from the Raystown Branch of the Juniata River is located near Wolfsburg, northwest of the Borough of Bedford. In addition to the above, we have two (2) interconnections with the Bedford Township Municipal Authority's water system that can be utilized during emergency situations.

Due to severe drought conditions in 2014, the Bedford Borough Water Authority utilized the emergency interconnect with the Bedford Township Municipal Authority's water system. Because of this utilization, we are providing the Detected Regulated Contaminant Table (provided to the Borough from the Bedford Township Municipal Authority). See Table Below.

**2014 Water Quality Report – Bedford Township Municipal Authority**
**Detected Regulated Contaminant Table**

| Contaminant (Unit of Measure) | MCL | MCLG | Highest Level Detected | Range | Sample Period | Violation | Likely Source of Contamination |
|---|---|---|---|---|---|---|---|
| **Inorganic Contaminants** | | | | | | | |
| Barium (ppm) *[BTMA system]* | 2 | 2 | 0.023 | 0.0102 to 0.023 | 2012 | No | Discharge of drilling waste, discharge from metal refineries, erosion of natural deposits |
| Nitrate (ppm) *[BTMA system]* | 10 | 10 | 0.568 | 0.507 to 0.568 | 2014 | No | Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits |
| **Disinfectant Residuals** | | | | | | | |
| Chlorine (ppm) *[BTMA distribution system]* | MRDL = 4 | MRDL = 4 | Max Level detected= 1.65 | 1.34 to 1.65 | 2014 | No | Water additive used to control microbes |
| Chlorine (ppm) *[BTMA Entry Point – Bowman Wells]* | MinRDL=0.4 | NA | Min Level detected= 1.2 | 1.2 to 1.79 | 2014 | No | |
| Chlorine (ppm) *[BTMA Entry Point – Bedford Springs]* | MinRDL=0.4 | NA | Min Level Detected= 0.91 | 0.91 to 1.3 | 2014 | No | |
| Chlorine (ppm) *[Entry Point – Shaffer Wells System]* | MinRDL=0.4 | NA | Min Level Detected= 1.21 | 1.21 to 1.83 | 2014 | No | |
| **Disinfection Byproducts** | | | | | | | |
| Total Haloacetic Acids (ppb) *Distribution system* | 60 | N/A | 1.48 | ND to 1.48 | 2014 | No | Byproduct of drinking water disinfection |
| **Radioactive Contaminants** | | | | | | | |
| Combined Radium (pCi/L) | 5 | 0 | 1.95 *(Shaffer Wells)* | ND to 1.95 | 2010 | No | Erosion of natural deposits |
| **Lead and Copper** | | | | | | | |
| *Contaminant (Unit of Measure)* | Action Level (AL) | MCLG | 90th Percentile Value | # Sites Above AL of Total Sites | Sample Period | Violation | Likely Source of Contamination |
| Lead (ppb) | 15 | 0 | 2.49[b] | Zero out of 10 samples | 2013 | No | Corrosion of household plumbing systems; Erosion of natural deposits |
| Copper (ppm) | 1.3 | 1.3 | 1.19 | One out of 10 samples | 2013 | No | Corrosion of household plumbing systems; Erosion of natural deposits. Leaching from wood preservatives. |

**Source Water Assessment:** Reports on our system are available at our office which will provide more detailed information such as potential sources of contamination. A summary of our water system's susceptibility to potential sources of contamination follows:

- A Source Water Assessment of the Raystown Branch of the Juniata River watershed, which supplies water to the Bedford Borough Water Filtration Plant, was completed in 2003 by the firm Spotts, Stevens, and McCoy, Inc. for the PA Department of Environmental Protection (PA DEP). The Assessment has found that the Raystown Branch of the Juniata River watershed is potentially most susceptible to road deicing materials, accidental spills along roads, agricultural runoff, logging, on-lot wastewater disposal, disposal from wastewater treatment plants, quarries, cemeteries, leaks in underground storage tanks, and off road recreational vehicle use that may cause a chemical or biological degradation of the watershed and in turn the water being pumped from the river to the water filtration plant. Overall, the Raystown Branch of the Juniata River watershed has a medium to high risk of significant contamination. A Source Water Assessment of the Todd Spring and J.C. Smith Reservoirs' watersheds, which also supply water to the Bedford Borough Water Filtration Plant, was completed in 2003 by the PA DEP. The Assessment has found that the Todd Spring and J.C. Smith Reservoirs' watersheds are potentially most susceptible to logging and off road recreational vehicle use that may cause or increase erosion in the watershed and in turn increase sedimentation loads and the turbidity of the raw water collected by the reservoirs.
- Overall, the Todd Spring and J.C. Smith Reservoirs' watersheds have little risk of significant contamination. Summary reports of the Assessments are available by writing to the Bedford Borough Water Authority, 244 West Penn Street, Bedford, PA 15522. Copies of the complete reports are also available for review at the PA DEP Southcentral Regional Office, Records Management Unit at (717) 705-4700. Additional information regarding Source Water Assessments is also available from the PA DEP website at www.dep.state.pa.us (Keyword: DEP Source Water). Complete reports were distributed to municipalities, water supplier, local planning agencies, and PA DEP offices.

**System Security:** As a result of the September 11, 2001 terrorism, we have all been made aware of how vulnerable we are to the actions of others. In the past, we were only affected by vandalism. Now we have much greater concerns. The Authority will do all it can to protect the water supplies, but we alone cannot safeguard them. We need your help. Please report any suspicious activity observed in the vicinity of the Water Authority's reservoirs, water intake plant, water treatment plant and water storage tanks to the Authority at 623-8192, Monday through Friday, 9:00 a.m. to 4:00 p.m. or the Bedford County Communication Center at 623-1105.

**Educational Information:**

**"All drinking water, including bottled water**, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791."

**IN ORDER TO ENSURE THAT TAP WATER IS SAFE TO DRINK,** EPA and DEP prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration and DEP regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

**The Sources of Drinking Water:** (tap and bottled water) include rivers, reservoirs, springs, and wells. As water travels over or through the ground, it dissolves naturally occurring minerals and, sometimes, radioactive material. It can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:

- **Microbial Contaminants,** such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.

- **Inorganic Contaminants**, such as salts and metals, which can be naturally-occurring or result from urban storm runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming.

- **Pesticides and Herbicides**, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.

- **Organic Chemical Contaminants**, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

- **Radioactive Contaminants**, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the *Safe Drinking Water Hotline* at (1-800-426-4791).

In order to maintain a safe and dependable water supply we need to make improvements that will benefit some or all of our customers. These improvements are sometimes reflected as rate structure adjustments. Thank you for your understanding.

**The Bedford Borough Water Authority is pleased to report that our water meets all Federal and State requirements.**

**MONITORING YOUR WATER:**

We routinely monitor for contaminants in your drinking water according to Federal and State laws. The following tables show the results of our monitoring for the period of January 1 to December 31, 2014. The State allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data is from prior years in accordance with the Safe Drinking Water Act. The date has been noted on the sampling results table. Only those contaminants found in the Authority's treated water are listed in the table and all were found to be below allowable levels.

In these tables, you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

- *Action Level (AL)* – The concentration of a contaminant which, if exceeded, triggers treatment or other requirement which a water system must follow.
- *CDC* – Center for Disease Control.
- *DEP* – Pennsylvania Department of Environmental Protection
- *EPA* – US Environmental Protection Agency.
- *Level Detected* – This column contains an average of all sample results obtained for the contaminant during the year.
- *Maximum Contaminant Level* – The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
- *Maximum Contaminant Level Goal* – The "Goal" (MCLG) is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.
- *Maximum Residual Disinfectant Level (MRDL)* – The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contamination.
- *Maximum Residual Disinfectant Level Goal (MRDLG)* – The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
- *Minimum Residual Disinfectant Level (MinRDL)* − The minimum level of residual disinfectant required at the entry point to the distribution system.
- *Mrem/year* = millirems per year (a measure of radiation absorbed by the body)
- *Nephelometric Turbidity Unit (NTU)* – Nephelometric Turbidity Unit is a measure of the clarity of water. A Turbidity of 5 NTU is just noticeable to the average person.
- *N/A* – Not Applicable.
- *Parts per million (ppm)* or milligrams per liter (mg/L).
- *Parts per billion (ppb)* or micrograms per liter (µg/L).
- *Picocuries per liter (pCi/L)* – Picocuries per liter is a measure of the radioactivity in water.
- *Range* – This column contains the lowest value and highest value obtained for the contaminant during the year.
- *Treatment Technique (TT)* – A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

| *Microbiological Contaminants* | | | | | | |
|---|---|---|---|---|---|---|
| **Contaminant** | **MCL** | **MCLG** | **Level Detected** | **Sample Date** | **Violation Y/N** | **Source of Contamination** |
| Turbidity | TT=1 NTU for a single measurement | 0 | .100 NTU | 6/27/14 | N | Soil runoff. |
| | TT= at least 95% of monthly samples≤0.3 NTU | | 100% | | N | |

| *Inorganic Contaminants* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Contaminant** | **MCL in CCR Units** | **MCLG** | **Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Barium | 2.0 | 2.0 | 0.054 ppm | ** | ppm | 2011 | N | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits. |
| Fluoride | 2.0 | 2.0 | 0.654 ppm | ** | ppm | 2011 | N | Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories. |

| *Entry Point Disinfectant Residual* | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Contaminant** | **Minimum Disinfectant Residual** | **Lowest Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Chlorine | 0.2 | 0.760 | 0.760 - 1.834 | ppm | 2014 | N | Water additive used to control microbes. |

| *Disinfection Byproducts (DBPs)* | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **Contaminant** | **MCL in CCR Units** | **MCLG** | **Level Detected** | **Range of Detections** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Total Trihalomethanes | 80 | N/A | 47.39 | 18.2 – 80.7 | ppb | 2014 | N | Byproduct of drinking water chlorination. |
| Haloacetic Acid | 60 | N/A | 34.3 | 23.6 – 51.0 | ppb | 2014 | N | Byproduct of drinking water disinfection. |
| Chlorine (Distribution System) | 4 | 4 | 1.61 | 0.55 – 1.61 | ppm | 2014 | N | Water additive used to control Microbes. |

| *Lead and Copper* | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Contaminant** | **Action Level (AL)** | **MCLG** | **90th Percentile Value** | **Units** | **Sample Date** | **Violation Y/N** | **Sources of Contamination** |
| Lead | 15 | 0 | 0 | ppb | 2013 | N | Corrosion of household plumbing systems; erosion of natural deposits. |
| Copper | 1.3 | 1.3 | 0.127 | ppm | 2013 | N | Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives. |

| *Radioactive Contaminants* | | | | | |
|---|---|---|---|---|---|
| **Contaminant** | **MCL** | **MCLG** | **Sample Date & Level Detected** | **Violation Y/N** | **Sources of Contamination** |
| Radium - 226 | 5.0 | 0 | 02/05/2003<br>0.2 pCi/L | N | Erosion of natural deposits. |

| *Total Organic Carbon (TOC)* | | | | | |
|---|---|---|---|---|---|
| **Contaminant** | **Range of % Removal Required** | **Range of percent removal achieved** | **Number of quarters out of compliance** | **Violation Y/N** | **Sources of Contamination** |
| TOC | 25% – 35% | 16.0% – 34.5% | 0 | N | Naturally present in the environment. |

| *Microbial* | | | | | |
|---|---|---|---|---|---|
| **Contaminant** | **MCL** | **MCLG** | **Highest # or % of Positive Samples** | **Violation Y/N** | **Sources of Contamination** |
| Total Coliform Bacteria | For systems that collect <40 samples/month:<br>• Sample Retested | 0 | 0 | N | Naturally present in the environment. |
| Fecal Coliform Bacteria or *E. coli* | 0 | 0 | 0 | N | Human and animal fecal waste |

***Information about Lead:*** If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. Bedford Borough Water Authority is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at *http://www.epa.gov/safewater/lead.*

**Information Relating to the Tables:** The contaminants shown in the tables above were detected through monitoring and laboratory testing. To understand the possible health effects of regulated contaminants, a person would have to drink approximately one half gallon of water containing contaminants at their MCL ***every day for 70 years*** to have a ***one-in-a-million*** chance of having the associated health effect.

Turbidity is the cloudy appearance of water caused by tiny particles. Turbidity has no health effects, but it can interfere with disinfection and provide a medium for microbial growth. Turbidity may show the presence of disease-causing organisms, such as bacteria, viruses, and parasites. 1989 Regulations recognize reducing turbidity as one way to measure the removal of microorganisms such as *Cryptosporidium.*

The annual average and daily range for turbidity at Bedford Borough's Water Treatment Plant are below the limit of 0.3 NTU. Turbidity in the finished water is better than what PA DEP requires.

**Testing for Other Contaminants:** The Bedford Borough Water Authority monitored several other contaminants in addition to those listed in the Tables. Tests for twenty (20) Volatile Organic Contaminants (VOCs) have been conducted on the finished water from the Bedford Borough Water Treatment Plant with no contaminants being detected.

**Progress in 2014 & Authority Plans for Year 2015:** We will continue to make other upgrades to the Water System as are deemed necessary to remain in compliance with Federal and Commonwealth requirements.

**Water Loss Control and Conservation:** The Authority continues to utilize the services of a professional leak detection consultant in an ongoing effort to eliminate unaccounted for water. Customers can help to conserve water by repairing leaks within homes and places of employment and also by immediately reporting leaking water mains to the Authority at 623-8192 or the Bedford County Communication Center at 623-1105.

**Please help the Bedford Borough Water Authority find leaks, save water and reduce water service costs …**

**Because water lines are located underground, leaks may go unnoticed for days and even years resulting in a considerable waste of our valuable water resource and additional costs for all customers. Please help us locate these leaks by reporting to the Authority office any occurrences of: water running in locations that are normally dry; wet spots in yards and streets; the sound of water running in your home when water is not in use; the sound of water trickling or running in a storm inlet when it is not raining; sudden or unusually low water pressure; and slugs of discolored or cloudy water.**

**When an occurrence such as this is reported, a representative of the Authority will make contact and investigate the situation.**

**PLEASE CONSERVE OUR WATER RESOURCES** … The Bedford Borough Water Authority (BBWA) requests that customers conserve our water resources by conserving water in the home and at places of work. ***The following tips and suggestions provided by Eartheasy.com can help you conserve water, save money and protect and preserve our water resources:***

- **Check faucets and pipes for leaks.** A small drip from a worn faucet washer can waste 20 gallons of water per day. Larger leaks can waste hundreds of gallons.

- **Don't use the toilet as an ashtray or wastebasket.** Every time you flush a cigarette butt, facial tissue or other small bit of trash, up to five to seven gallons of water is wasted.

- **Check your toilets for leaks.** Put a little food coloring in your toilet tank. If, without flushing, the color begins to appear in the bowl within 30 minutes, you have a leak that should be repaired immediately. Most replacement parts are inexpensive and easy to install.

- **Use your water meter to check for hidden water leaks.** Read the house water meter before and after a two-hour period when no water is being used. If the meter does not read exactly the same, there is a leak.

- **Install water-saving shower heads and low-flow faucet aerators.** Inexpensive water-saving low-flow shower heads or restrictors are easy for the homeowner to install. Also, long, hot showers can use five to ten gallons every unneeded minute. Limit your showers to the time it takes to soap up, wash down and rinse off. "Low-flow" means it uses less than 2.5 gallons per minute. Also, all household faucets should be fit with aerators. This single best home water conservation method is also the cheapest!

- **Put plastic bottles or float booster in your toilet tank.** To cut down on water waste, put an inch or two of sand or pebbles inside each of two plastic bottles to weigh them down. Fill the bottles with water, screw the lids on, and put them in your toilet tank, safely away from the operating mechanisms. Or, buy an inexpensive tank bank or float booster. This may save ten or more gallons of water per day. Be sure at least 3 gallons of water remain in the tank so it will flush properly. If there is not enough water to get a proper flush, users will hold the lever down too long or do multiple flushes to get rid of waste. Two flushings at 1.4 gallons is worse than a single 2.0 gallon flush. A better suggestion would be to buy an adjustable toilet flapper that allows for adjustment of its per-flush use. Then the user can adjust the flush rate to the minimum per flush setting that achieves a single good flush each time. For new installations, consider buying "low flush" toilets, which use 1 to 2 gallons per flush instead of the usual 3 to 5 gallons. Replacing an 18 liter per flush toilet with an ultra-low volume (ULV) 6 liter flush model represents a 70% savings in water flushed and will cut indoor water use by about 30%.

- **Insulate your water pipes.** It's easy and inexpensive to insulate your water pipes with pre-slit foam pipe insulation. You'll get hot water faster plus avoid wasting water while it heats up.

- **Take shorter showers.** One way to cut down on water use is to turn off the shower after soaping up, then turn it back on to rinse. A four-minute shower uses approximately 20 to 40 gallons of water.

- **Turn off the water after you wet your toothbrush.** There is no need to keep the water running while brushing your teeth. Just wet your brush and fill a glass for mouth rinsing.

- **Rinse your razor in the sink.** Fill the sink with a few inches of warm water. This will rinse your razor just as well as running water, with far less waste of water.

- **Use your dishwasher and clothes washer for only full loads.** Automatic dishwashers and clothes washers should be fully loaded for optimum water conservation. Most makers of dishwashing soap recommend not pre-rinsing dishes which is a big water savings. With clothes washers, avoid the permanent press cycle, which uses an added 20 liters (5 gallons) for the extra rinse. For partial loads, adjust water levels to match the size of the load. Replace old clothes washers. New Energy Star rated washers use 35 - 50% less water and 50% less energy per load. If you're in the market for a new clothes washer, consider buying a water-saving frontload washer.

- **Minimize use of kitchen sink garbage disposal units.** In-sink 'garburators' require lots of water to operate properly, and also add considerably to the volume of solids in a septic tank which can lead to maintenance problems. Start a compost pile as an alternate method of disposing food waste.

- **When washing dishes by hand, don't leave the water running for rinsing.** If your have a double-basin, fill one with soapy water and one with rinse water. If you have a single-basin sink, gather washed dishes in a dish rack and rinse them with a spray device or a pan full of hot water. Dual-swivel aerators are available to make this easier. If using a dishwasher, there is usually no need to pre-rinse the dishes.

- **Don't let the faucet run while you clean vegetables.** Just rinse them in a stoppered sink or a pan of clean water. Use a dual-setting aerator.

- **Keep a bottle of drinking water in the fridge.** Running tap water to cool it off for drinking water is wasteful. Store drinking water in the fridge in a safe drinking bottle.

- **Plant drought-resistant lawns, shrubs and plants.** If you are planting a new lawn, or overseeding an existing lawn, use drought-resistant grasses. Many beautiful shrubs and plants thrive with far less watering than other species. Replace herbaceous perennial borders with native plants. Native plants will use less water and be more resistant to local plant diseases. Consider applying the principles of xeriscape for a low-maintenance, drought resistant yard. Plant slopes with plants that will retain water and help reduce runoff. Group plants according to their watering needs.

- **Put a layer of mulch around trees and plants**. Mulch will slow evaporation of moisture while discouraging weed growth. Adding 2 - 4 inches of organic material such as compost or bark mulch will increase the ability of the soil to retain moisture. Press the mulch down around the drip line of each plant to form a slight depression which will prevent or minimize water runoff.

- **Don't water the gutter.** Position your sprinklers so water lands on the lawn or garden, not on paved areas. Also, avoid watering on windy days.

- **Water your lawn only when it needs it.** A good way to see if your lawn needs watering is to step on the grass. If it springs back up when you move, it doesn't need water. If it stays flat, the lawn is ready for watering. Letting the grass grow taller (to 3") will also promote water retention in the soil. Most lawns only need about 1" of water each week. During dry spells, you can stop watering altogether and the lawn will go brown and dormant. Once cooler weather arrives, the morning dew and rainfall will bring the lawn back to its usual vigor. This may result in a brown summer lawn, but it saves a lot of water.

- **Deep-soak your lawn.** When watering the lawn, do it long enough for the moisture to soak down to the roots where it will do the most good. A light sprinkling can evaporate quickly and tends to encourage shallow root systems. Put an empty tuna can on your lawn - when it's full, you've watered about the right amount.

- **Water during the early parts of the day; avoid watering when it's windy.** Early morning is generally better than dusk since it helps prevent the growth of fungus. Early watering, and late watering, also reduce water loss to evaporation. Watering early in the day is also the best defense against slugs and other garden pests. Try not to water when it's windy - wind can blow sprinklers off target and speed evaporation.

- **Add organic matter and use efficient watering systems for shrubs, flower beds and lawns.** Adding organic material to your soil will help increase its absorption and water retention. Areas which are already planted can be 'top dressed' with compost or organic matter. You can greatly reduce the amount of water used for shrubs, beds and lawns by the strategic placement of soaker hoses, installing a rain barrel water catchment system, or installing a simple drip-irrigation system. Avoid over-watering plants and shrubs, as this can actually diminish plant health and cause yellowing of the leaves. When hand watering, use a variable spray nozzle for targeted watering.

- **Don't run the hose while washing your car.** Clean the car using a pail of soapy water. Use the hose only for rinsing - this simple practice can save as much as 150 gallons when washing a car. Use a spray nozzle when rinsing for more efficient use of water.

- **Check for leaks in pipes, hoses, faucets and couplings.** Leaks outside the house may not seem as bad since they're not as visible. But they can be just as wasteful as leaks indoors. Check frequently to keep them drip-free. Use hose washers at spigots and hose connections to eliminate leaks. Water conservation comes naturally when everyone in the family is aware of its importance, and parents take the time to teach children some of the simple water-saving methods around the home which can make a big difference.

# ~ Water Conservation Summary ~

In 1990, 30 states in the US reported 'water-stress' conditions. In 2000, the number of states reporting water-stress rose to 40. In 2009, the number rose to 45. There is a worsening trend in water supply nationwide. Taking measures at home to conserve water not only saves you money, it also is of benefit to the greater community.

Saving water at home does not require any significant cost outlay. Although there are water-saving appliances and water conservation systems such as rain barrels, drip irrigation and on-demand water heaters which are more expensive, the bulk of water saving methods can be achieved at little cost. For example, 75% of water used indoors is in the bathroom, and 25% of this is for the toilet. The average toilet uses 4 gallons per flush (gpf). You can invest in a ULF (ultra-low flush) toilet which will use only 2 gpf. But you can also install a simple tank bank, costing about $2, which will save .8 gpf. This saves 40% of what you would save with the ULF toilet. Using simple methods like tank banks, low-flow showerheads and faucet aerators you can retrofit your home for under $50.


By using water-saving features you can reduce your in-home water use by 35%. This means the average household, which uses 130,000 gallons per year, could save 44,000 gallons of water per year. On a daily basis, the average household, using 350 gallons per day, could save 125 gallons of water per day. The average individual, currently using 70 gallons per day, could save 25 gallons of water per day.

When buying low-flow aerators, be sure to read the label for the actual 'gpm' (gallons per minute) rating. Often, the big box retailers promote "low-flow" which are rated at 2.5 gpm, which is at the top of the low-flow spectrum. This may be needed for the kitchen sink, but we find that a 1.5 gpm aerator works fine for the bathroom sink and most water outlets, delivering the same spray force in a comfortable, soft stream. Finally, it should be noted that installing low-flow aerators, showerheads, tank banks and other water-saving devices usually is a very simple operation which can be done by the homeowner and does not even require the use of tools. Water conservation at home is one of the easiest measures to put in place, and saving water should become part of everyday family practice.

*(Source of the preceding conservation information: http://eartheasy.com/live_water_saving.htm)*