

Water Conservation Tips

Water conservation measures are an important first step in protecting our water supply. Such measures not only save the supply of our source water, but can also save you money by reducing your water bill. Here are a few suggestions:

Conservation measures you can use inside your home:

- Fix leaking faucets, pipes, toilets, etc.
- Replace old fixtures; install water-saving devices in faucets, toilets and appliances.
- Wash only full loads of laundry.
- Do not use the toilet for trash disposal.
- Take shorter showers.

You can conserve outdoors as well:

- Water the lawn and garden in the early morning or evening.
- Use mulch around plants and shrubs.
- Repair leaks in faucets and hoses.

Information on other ways that you can help conserve water can be found at www.epa.gov/safewater/publicoutreach/index.html.



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ANNUAL WATER QUALITY REPORT

Water testing performed in 2006



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PLANT

PWS ID#: 7300111

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic or synthetic organic contaminants. The table below shows only those contaminants that were detected in the water. Although all of the substances listed here are under the Maximum Contaminant Level (MCL), we feel it is important that you know exactly what was detected and how much of the substance was present in the water. The state allows us to monitor for certain substances less than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included along with the year in which the sample was taken.

REGULATED SUBSTANCES							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Atrazine (ppb)	2006	3	3	0.38	NA	No	Runoff from herbicide used on row crops
Barium (ppm)	2006	2	2	0.0337	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2006	[4]	[4]	0.86	0.7–0.94	No	Water additive used to control microbes
Fluoride (ppm)	2006	4	4	1.23	0.8–1.23	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAA] (ppb)	2006	60	NA	53.46	21.7–68.4	No	By-product of drinking water disinfection
Nitrate (ppm)	2006	10	10	1.2	0.6–1.2	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Total Organic Carbon [TOC] ¹ (removal ratio)	2006	TT	NA	3.2	2.16–5.75	No	Naturally present in the environment
TTHMs [Total Trihalomethanes] (ppb)	2006	80	NA	59.69	18.76–118.47	No	By-product of drinking water chlorination
Turbidity ² (NTU)	2006	TT	NA	0.29	0.05–0.29	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2006	TT	NA	100	NA	No	Soil runoff

TAP WATER SAMPLES WERE COLLECTED FROM 30 SAMPLE SITES THROUGHOUT THE COMMUNITY							
SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	ACTION LEVEL	MCLG	AMOUNT DETECTED (90TH% TILE)	SITES ABOVE ACTION LEVEL	VIOLATION	TYPICAL SOURCE
Copper (ppb)	2005	1,300	1,300	85	0	No	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
Lead (ppb)	2005	15	0	ND	1	No	Corrosion of household plumbing systems; Erosion of natural deposits

¹ The value reported under Level Found for total organic carbon (TOC) is the lowest ratio between the percentage of TOC actually removed and the percentage of TOC required to be removed. A value of greater than one (1) indicates that the water system is in compliance with TOC removal requirements. A value of less than one (1) indicates a violation of the TOC removal requirements.

² Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system. The turbidity limit set by the U.S. EPA is 0.3 in 95% of the daily samples and shall not exceed 1 NTU at any time. As reported above, the City of Portsmouth's highest recorded turbidity result for 2006 was 0.29 NTU and lowest monthly percentage of samples meeting the turbidity limits was 100%.

Table Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

MCL (Maximum Contaminant Level): 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.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): 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 contaminants.

MRDLG (Maximum Residual Disinfectant Level Goal): 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 contaminants.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

Contamination from Cross-Connections

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems) or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continually jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection.

For more information, review the Cross-Connection Control Manual from the U.S. EPA's Web site at www.epa.gov/safewater/crossconnection.html. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

Substances That Might Be in Drinking Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of these contaminants does not necessarily indicate that the water poses a health risk.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals, in some cases, radioactive material; and substances resulting from the presence of animals or from human activity. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may result from urban stormwater 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 stormwater runoff, and residential uses;

Organic Chemical Contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and which may also come from gas stations, urban stormwater runoff, and septic systems;

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

For more information about contaminants and potential health effects, call the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

TT (Treatment Technique): A required process intended to reduce the level of a contaminant in drinking water.

Naturally Occurring Bacteria

The simple fact is, bacteria and other microorganisms inhabit our world. They can be found all around us: in our food; on our skin; in our bodies; and, in the air, soil, and water. Some are harmful to us and some are not. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern because it indicates that the water may be contaminated with other organisms that can cause disease. Throughout the year, we tested more than 480 samples (40 samples every month) for coliform bacteria. In that time, none of the samples came back positive for the bacteria. Federal regulations now require that public water that tests positive for coliform bacteria must be further analyzed for fecal coliform bacteria. Fecal coliforms are present only in human and animal waste. Because these bacteria can cause illness, it is unacceptable for fecal coliforms to be present in water at any concentration. Our tests indicate no fecal coliform is present in our water.

Continuing Our Commitment

Once again we proudly present our annual water quality report. This edition covers all testing completed from January 1 through December 31, 2006. We are pleased to tell you that our compliance with all state and federal drinking water laws remains exemplary. As in the past, we are committed to delivering the best quality drinking water. To that end, we remain vigilant in meeting the challenges of source water protection, water conservation, and community education while continuing to serve the needs of all of our water users.

For more information about this report, or for any questions relating to your drinking water, please call Sam Sutherland, Public Utilities Director-Water; Ray Akers, Assistant Director; or the laboratory staff at (740) 456-4946.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. Portsmouth City Council meets the second and fourth Monday of each month beginning at 6 p.m. at the Portsmouth Municipal Building, 728 2nd Street, Portsmouth, OH. You are also invited to contact Mayor James Kalb or his staff at the City of Portsmouth Mayor's Office at (740) 354-8807.

Important Health Information

Some people may be more vulnerable to contaminants in drinking water than the general population. **Immunocompromised 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 may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) 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 (800) 426-4791.



Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from the Ohio River. It is then sent to our primary flash mixer, where aluminum sulfate, polymer and potassium permanganate are added. Alum and polymer aid in the flocculation and sedimentation process, which causes small particles to adhere to one another (called floc), making them heavy enough to settle into a basin from which sediment is removed. Potassium permanganate helps control algae as well as taste and odor problems. After spending four to six hours in the sedimentation basins, water returns to secondary flash mixers where it is again introduced to alum, lime (for pH adjustments), and powdered, activated carbon to aid in organics removal. The water is again put through the flocculation and sedimentation process. At this point, the water is filtered through layers of silicate sand. As smaller, suspended particles are removed, turbidity disappears and clear water emerges.

Chlorine is then added as a precaution against any bacteria that may still be present. (We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally, fluoride (used to prevent tooth decay) and zinc orthophosphate (a corrosion inhibitor used to protect distribution system pipes) are added before the water is pumped to sanitized, reservoirs, water towers and into your home or business.

Water Source Assessment

The City of Portsmouth's public water system uses surface water drawn from the Ohio River. Surface waters are by their nature susceptible to contamination, and numerous potential contaminant sources along their banks make them more so. The protection areas around the Ohio River include numerous potential contaminant sources, including municipal and industrial wastewater discharges, combined sewer overflows, runoff from urban, residential, mining, and agricultural areas, and transportation spills related to rail and highway crossings, commercial shipping and recreational boating. As a result Portsmouth's public water system is considered to have a high susceptibility to contamination.

Historically, the Portsmouth public water system has effectively treated this source water to meet drinking water quality standards. The potential for water contamination can be further decreased by implementing measures to protect the Ohio River. More detailed information is provided in the City of Portsmouth's Drinking Water Source Assessment Report, which can be obtained by calling Sam Sutherland, Utilities Director, at (740) 456-4946.

Where Does My Water Come From?

The City of Portsmouth Waterworks customers are fortunate because we enjoy an abundant water supply from the Ohio River. The Ohio River begins at Pittsburgh, Pennsylvania, and then travels approximately 350 miles to Portsmouth. The City of Portsmouth Water Treatment Plant, located at 4862 Gallia Street, was constructed in 1950 to treat water from the Ohio River. The treatment plant currently provides roughly 7 million gallons of clean drinking water every day.

Treated water is pumped from the treatment plant to the east 25 miles, to the west 15 miles, and to the north 8 miles. Our system serves approximately 44,000 customers in the cities of Portsmouth, Sciotoville, Wheelersburg, West Portsmouth, and Rosemount.