
Annual
WATER
QUALITY
REPORT
Reporting Year 2013
Presented By
THE CITY OF
PORTSMOUTH
PWS ID#: 3740600

There When You Need Us

We are proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2013. We take pride in producing drinking water that meets or exceeds all State and Federal standards, while continually striving to adopt new methods for delivering the best-quality drinking water to you. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available to assist you should you ever have any questions or concerns about your water.

Source Water Description

Your tap water comes from surface lakes including Lake Meade and Lake Kilby and five deep wells. Portsmouth's water treatment facility has the capacity to treat 33 million gallons of water each day and serves over 120,000 customers in Portsmouth, Chesapeake, and Suffolk.

Source Water Assessment

The Source Water Assessment Plan (SWAP) is available at our watershed office 539-2201 ex. 222. The SWAP is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area, and a determination of the water supply's susceptibility to contamination by the identified potential sources.

The State drinking water program has found that our drinking water is potentially most susceptible to agriculture, urban, and forestry runoff. However, we have not detected any contaminants from these sources in our drinking water. If you would like to review the Source Water Assessment Plan, please feel free to contact our office during regular office hours.

Substances That Could Be in 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 materials, 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, that may come from sewage treatment plants, septic systems, agricultural livestock operations, or wildlife;

Inorganic Contaminants, such as salts and metals, that 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, that 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, that are by-products of industrial processes and petroleum production and may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, that 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.

Lead in Home Plumbing

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. Lake Kilby Water Treatment Plant is responsible for providing high-quality drinking water, but we 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 at (800) 426-4891 or at www.epa.gov/safewater/lead.

Water Treatment Process

The treatment process consists of a series of steps. First, water is drawn from our lakes at various intakes. It is here that oxidation takes place. We use permanganate to oxidize the source water for iron and manganese removal. In addition, this chemical helps with taste and odor caused by naturally occurring organic matter found in the source water. The water then goes through a rapid mix where a coagulant, aluminum sulfate, is added. The addition of this substance initiates the coagulation process. Coagulation is the process that causes very small suspended particles to attract one another and form larger particles accomplished by the addition of a chemical.

The water is then sent to a contact basin where caustic is added for pH control. From there the water is sent to the clarifiers. At the head of each clarifier, polymer and carbon are added initiating the flocculation process. The flocculation process converts small suspended particles into larger, more settleable clumps, referred to as floc. The clarifiers act as large settling basins in which water is retained to allow the floc to settle out by gravity. The water is then sent to multimedia filters for filtration and where liquid chlorine is added for disinfection. Fluoride is added by the addition of well water that has naturally occurring levels of fluoride. Finally, the water is pumped to one of two clear well holding tanks where ammonia is added before pumping to the distribution system. The ammonia is added to the chlorinated water forming chloramines, which maintain a longer residual in the distribution system and reduce the amount of disinfection by-products formed.

This treatment process has proven to be very effective at producing high-quality drinking water that meets and exceeds all Federal testing standards.

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 or http://water.epa.gov/drink/hotline.

For More Information

At the City of Portsmouth Department of Public Utilities, we value our customers and work hard to ensure your satisfaction. If you have questions or comments about this report or other issues concerning water quality, please call us or the other sources of water quality information listed below:

City of Portsmouth

Water Quality Desk

(757) 539-2201 ext 240 or ext 232

Additional sources of information regarding water quality may be found at:

Virginia Department of Health

Office of Water Programs

(757) 683-2000

U.S. Environmental Protection Agency Safe Drinking Water Hotline

(800) 426-4791

This Water Quality Report as well as other City issues can also be viewed at our Web site. Please visit us at www.portsmouthva.gov.

TipTopTap

The most common signs that your faucet or sink is affecting the quality of your drinking water are discolored water, sink or faucet stains, a buildup of particles, unusual odors or tastes, and a reduced flow of water. The solutions to these problems may be in your hands.

Kitchen sink and drain

Hand washing, soap scum buildup, and the handling of raw meats and vegetables can contaminate your sink. Clogged drains can lead to unclean sinks and backed up water in which bacteria (i.e., pink and black colored slime growth) can grow and contaminate the sink area and faucet, causing a rotten egg odor. Disinfect and clean the sink and drain area regularly. Also, flush regularly with hot water.

Faucets, screens, and aerators

Chemicals and bacteria can splash and accumulate on the faucet screen and aerator, which are located on the tip of faucets and can collect particles like sediment and minerals resulting in a decreased flow from the faucet. Clean and disinfect the aerators or screens on a regular basis.

Check with your plumber if you find particles in the faucet's screen as they could be pieces of plastic from the hot water heater's dip tube. Faucet gaskets can break down and cause black, oily slime. If you find this slime, replace the faucet's gasket with a higher-quality product. White scaling or hard deposits on faucets and shower heads may be caused by hard water or water with high levels of calcium carbonate. Clean these fixtures with vinegar or use water softening to reduce the calcium carbonate levels for the hot water system.

Water filtration/treatment devices

A smell of rotten eggs can be a sign of bacteria on the filters or in the treatment system. The system can also become clogged over time so regular filter replacement is important. (Remember to replace your refrigerator filters!)

Sampling Results

In 2013, we took hundreds of water samples in order to determine the presence of any radioactive, biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in water. The State requires us to monitor for certain substances less often 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.

We participated in the 3rd stage of the EPA's Unregulated Contaminant Monitoring Regulation (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water. The results will enable the EPA to determine if new regulatory standards need to be introduce to improve drinking water quality. Any UCMR3 detections are shown in the data tables in this report. If you would like additional information, please contact the Water Quality Lab at (757) 539-2201 ext.232.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2013	2	2	0.027	NA	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Beta/Photon Emitters[1] (pCi/L)	2013	50	0	4.3	NA	No	Decay of natural and man-made deposits
Chloramines (ppm)	2013	[4]	[4]	2.99	1.76–4.00	No	Water additive used to control microbes
Combined Radium (pCi/L)	2013	5	0	0.3	NA	No	Erosion of natural deposits
Fluoride (ppm)	2013	4	4	0.87	0.61–1.52	No	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories
Haloacetic Acids [HAAs]–Stage 2 (ppb)	2013	60	NA	39	20–46	No	By-product of drinking water disinfection
Nitrate (ppm)	2013	10	10	0.12	NA	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes]–Stage 2 (ppb)	2013	80	NA	43	21–43	No	By-product of drinking water disinfection
Total Organic Carbon (ppm)	2013	TT	NA	1.7	1.4–2.7	No	Naturally present in the environment
Turbidity[2] (NTU)	2013	TT=1 NTU	NA	0.1	0–0.1	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2013	TT=95% of samples <0.3 NTU	NA	100	NA	No	Soil runoff

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2012	1.3	1.3	0.174	0/70	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2012	15	0	<1	0/70	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2013	250	NA	18	NA	No	Runoff/leaching from natural deposits
Corrosivity (Units)	2013	Noncorrosive	NA	-1.41	-1.870–-0.082	No	Natural or industrially influenced balance of hydrogen, carbon, and oxygen in the water; Affected by temperature and other factors
pH (Units)	2013	6.5–8.5	NA	7.52	7.2–8	No	Naturally occurring
Sulfate (ppm)	2013	250	NA	63	NA	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2013	500	NA	198	NA	No	Runoff/leaching from natural deposits

UNREGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Alkalinity (ppm)	2013	63	60–125	Naturally occurring
Ammonia (ppm)	2013	0.37	NA	NA
Calcium [Hardness] (ppm)	2013	17	15–31	Naturally present in sedimentary rocks
Hardness (ppm)	2013	24	16–34	Naturally occurring
Ortho-Phosphate (ppm)	2013	0.07	NA	Naturally occurring in rocks and other minerals
Silica [Reactive] (ppm)	2013	3	NA	Naturally present in the environment
Total Sodium (ppm)	2013	60	56–92	Naturally occurring

UNREGUALTED CONTAMINANT MONITORING RULE 3 (UCMR3)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH
Chlorate (ppb)	2013	416	300–600
Chromium (ppb)	2013	0.51	0.31–1.1
Hexavalent Chromium [Dissolved] (ppb)	2013	0.34	0.15–0.70
Molybdenum (ppb)	2013	1.7	1.3–2.2
Strontium (ppb)	2013	45	34–59
Vanadium (ppb)	2013	0.40	0.26–0.61

[1] The MCL for beta particles is 4 mrem/year. The U.S. EPA considers 50 pCi/L to be the level of concern for beta particles.

[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.

Definitions

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that 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

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.

pCi/L (picocuries per liter): A measure of radioactivity.

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

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

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