

The background of the entire page is a blue-tinted photograph of water splashing upwards, creating a misty, dynamic effect. The text is overlaid on this background.

2005 Water Quality

**City of Portsmouth
Department of Public Utilities**

Testing Your Water From A to Z

Water quality is monitored 24 hours a day 7 days a week for everything from alkalinity to zinc. Chemists, treatment plant operators, and technicians analyze your drinking water more than 55,000 times each year.

These utility employees monitor the drinking water quality to ensure that it meets or exceeds all current state and federal health standards. The water is also continuously monitored in various stages of the treatment process by means of on-line instrumentation.

Once the water reaches the distribution system, it is sampled from 300 specially designed sampling stations located throughout the City. Testing at these stations allows us to determine that the best quality drinking water is reaching our customers.

The City of Portsmouth also has an on-going flushing program designed to help maintain quality drinking water in the distribution system.

What can I do!

Things you can do at home to protect your drinking water quality:

- Run water for a few seconds before drawing a glass to drink.
- Only use approved plumbing devices and repair methods.
- Do not leave garden hoses on & full of water for extended periods. Hose water can be back siphoned into your homes' water pipes.

How can I learn more?

The local library has information regarding water quality. Another good place that has a wealth of information is World Wide Web. A good site to start with is the EPA's ground water and drinking water site at www.epa.gov/safewater/faq/faq.html.



Your tap water comes from both surface lakes and 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.

About source water prior to treatment:

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material and can pick up substances resulting from the presence of animals or from human activity. A Source Water Assessment was conducted in 2001, and is available for review by contacting C.B. Umphlette, Watershed Superintendent at (757) 539-2201 Ext. 222.

In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

Contaminants 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, and wildlife.
- **Inorganic** contaminants, such as salts and metals, that can be naturally occurring or result from urban storm-water 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 storm-water runoff, and residential uses.
- **Organic chemical** contaminants, including synthetic and volatile organic chemicals, that are by-products of industrial processes and petroleum production and can also come from gas stations, urban stormwater runoff, and septic systems.
- **Radioactive** contaminants that can be naturally occurring or the result of oil and gas production and mining activities.

Cryptosporidium is a microbial organism. When ingested, it can cause diarrhea, fever, and other gastrointestinal symptoms. This organism is found in animal wastes and sewage and is washed into rivers and streams when it rains. The best defense against this organism is an effective treatment process, most importantly, filtration. Portsmouth's triple-media filters are successfully removing tiny particles, including particles the same size as these organisms, from our water. Future upgrades to our filtration and treatment process will enable us to achieve even greater particle removal, and thus greater protection from Cryptosporidium.

A word about drinking water...

(1) 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 water poses a health risk. More information about contaminants and potential health effects can be obtained by calling EPA's Safe Drinking Water Hotline (1-800-426-4791).

(2) 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 people, 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 EPA's Safe Drinking Water Hotline (1-800-426-4791).

Definitions:

Maximum Contaminant Level Goal or MCLG: 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 Contaminant Level or MCL: 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 Residual Disinfectant Level or MRDL: The highest level of disinfectant allowed by the EPA, calculated as a running quarterly average of monthly samples.

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

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

ppm = concentration in parts per million, or milligrams per liter (mg/L); this is equivalent to 1¢ in \$10,000

ppb = concentration in parts per billion, or micrograms per liter (µg/L); this is equivalent to 1¢ in \$10,000,000

ppt = concentration in parts per trillion; this is equivalent to 1¢ in \$10,000,000,000

pCi/L = picocuries per liter; a measure of radioactivity

Millirems per year (mrem/yr)=measure of radiation absorbed by the body.

N/A = Not Applicable

NLE = No Level Established

NGE = No Goal Established

NTU = Nephelometric Turbidity Units; units describing how cloudy a water sample appears

< = less than; when seen in a table, it usually refers to below detectable levels

Contaminant: Anything found in water (including microorganisms, minerals, chemicals, radionuclides, etc.) that may be harmful to human health.

Raw Water: Water in its natural state, prior to any treatment for drinking.

Source Water: Water in its natural state, originating from the watershed that supplies a water system with its raw water.

Watershed: The land area from which water drains into a stream, river, or reservoir.

Treated Water: Water to be used by a public water system that has received the application of approved water treatment chemicals.

Drinking Water: Water that has been treated to comply with EPA regulations and is pumped to water customers for their use.

Water Quality Table - 2004 Data

Regulated Parameters	Concentration Units	EPA Goal MCLG	EPA Unit MCL	Portsmouth's Concentration Level	Typical Sources	Violation (Yes/No)	Notes Health Effects	
Microbial Contaminants								
Total Coliform Bacteria	-	0	Presences of coliform bacteria in <5% of monthly samples	1%	Normally present in the environment.	No	This value represents the highest monthly percentage of positive samples during 2004. A minimum of 100 samples are taken each month.	
Fecal Coliform	-	0	A routine sample and a repeat sample are total coliform positive and one is also fecal or e. coli positive.	0	Human and animal fecal waste.	No	This value represents the total number of positive samples taken during 2004.	
Turbidity	NTU	N/A	TT	0.80	Soil runoff.	No	100% of samples taken met turbidity limits.	
Radioactive Contaminants (2003 Data)								
Beta/Photon emitters	pCi/L	0	50	1.8	Decay of natural and manmade deposits.	No	The MCL for Beta particles is 4mrem per year. EPA considers 50pCi/L to be the level of concern for beta particles.	
Combined radium (radium 226 or 228)	pCi/L	0	5	0.4	Erosion of natural deposits.	No	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.	
Inorganic Contaminants								
Barium	ppm	2	2	0.031	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.	No		
Copper	ppm	1.3	AL=1.3	0.16	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.	No	Zero of 96 samples taken exceeded Action Level. Portsmouth's concentration range is <.01-.43 2003 data.	
Fluoride	ppm	4	4	0.78	Erosion of natural deposits; water additive that promotes strong teeth; discharge from fertilizer and aluminum factories.	No		
Lead	ppb	0	AL=15	1	Corrosion of household plumbing systems; erosion of natural deposits.	No	Three of 96 samples taken exceeded Action Level. Portsmouth's concentration range is <1-25. 2003 data.	
Nitrate	ppm	10	10	0.37	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.	No	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.	
Disinfectant								
Regulated Parameters	Concentration Units	EPA Goal MCLG	EPA MRDL	Portsmouth's Concentration Level	Portsmouth's Concentration Range	Typical Sources	Violation (Yes/No)	Notes Health Effects
Total Chlorine	ppm	N/A	4.0	3.2	0.3-4.9	Used as a disinfectant in drinking water treatment.	No	
Volatile Organic Compounds								
THMs	ppb	N/A	80	57	45-72	By-product of drinking water chlorination.	No	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of cancer.
HAAs	ppb	N/A	60	33	25-42	By-product of drinking water chlorination.	No	Some people who drink water containing haloacetic acids in excess of the MCL over many years may experience an increased risk of cancer.
TOC	mg/l	N/A	TT	1.27	1.19-1.42	Normally present in the environment.	No	

Note 1: Pursuant to the Environmental Protection Agency's Unregulated Contaminant Monitoring Rule the City of Portsmouth monitored for unregulated contaminants in 2001. Questions concerning the results of this monitoring should be directed to the Water Quality Specialist at (757) 539-2201 X232.

End compliance table

Non Regulated Parameters	Concentration Units	Portsmouth's Concentration Level	Typical Sources
Additional Water Quality Parameters			
Aluminum	ppm	0.202	
Iron	ppm	<0.010	Erosion of natural deposits; leaching from pipes; residual of drinking water treatment process.
Sodium	ppm	56.9	
pH	-	7.7	
Alkalinity	ppm	69	Erosion of natural deposits.
Chloride	ppm	23	Erosion of natural deposits.
Calcium Hardness	ppm	19.9	
Hardness - Total	ppm	28	Erosion of natural deposits.

Millirems per year (mrem/yr)=measure of radiation absorbed by the body.

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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 Division
(757) 539-2201 X232

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
1-(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:

<http://www.portsmouth.va.us>