PORTSMOUTH WATER AND FIRE DISTRICT
2014
CONSUMER CONFIDENCE REPORT

ADMINISTRATIVE BOARD MEMBERS

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Frederick W. Faerber, III	Tax Collector
Ronald L. Molleur	Moderator
Michael W. Nott	Tax Assessor
Allen J. Shers	Treasurer

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Dear Customer:

We are pleased to present a summary of the quality of the water provided to District customers during the past year. The federal Safe Drinking Water Act (SDWA) requires that water utilities issue an annual "Consumer Confidence" report to customers in addition to other notices that may be required by law. This report details where our water comes from, what it contains, and the risks that our water testing and treatment are designed to prevent. The Portsmouth Water and Fire District is committed to providing you with the safest and most reliable water supply available. Informed consumers are our best allies in maintaining safe drinking water.

About the Portsmouth Water and Fire District

The Portsmouth Water and Fire District is a **quasi-municipal agency** created by the RI General Assembly in 1952. The District is responsible for providing drinking water and water for fire protection for approximately ninety percent of Portsmouth on Aquidneck Island. The District is governed by a seven-member elected Administrative Board and holds an annual election of officers on the second Wednesday in June. **The District is not part of the Town of Portsmouth government.** Nevertheless, the District and Town work cooperatively to best serve their common constituents.

The original District was known as *Island Park and Common Fence Point Fire District* and its water distribution system was constructed in the mid to late 1950's. In 1956, the name of the District was changed to *Portsmouth Water and Fire District*. In 1965, the District boundaries were changed to include the south end of Portsmouth and the water distribution system was expanded to cover this area in the mid to late 1960's. The Redwood Farms and Raytheon areas were excluded from the District's expanded service area as they were already served by Newport Water. Today the District's water system serves over 6,500 customers and consists of over 130 miles of pipe, 4 water storage tanks, 2 pumping stations and 569 fire hydrants.

The District does not own any water supplies, but instead purchases its regular water supply on a wholesale basis from the City of Newport and relies on the Stone Bridge Fire District in Tiverton for emergency water supply.

The Administrative Board's goal is to provide the customers of the District with an adequate supply of the best quality water available. Recent and current efforts to improve water quality and customer service include:

- Installation of a new utility billing system that allows customers to pay their water and tax bills on-line using ACH drafts and credit and debit cards. **Go to portsmouthwater.org and click on the "PAY MY BILL" button.**
- Development of a Geographic Information System (GIS) for water system mapping and data analysis.
- Migration to an Asset Management System web application/server that integrates GIS for record keeping and real-time mobile work orders.
- Commencement of planning and funding for replacement of the 48 year-old Union Street Pumping Station.
- Annual uni-directional water main flushing program based on hydraulic modeling and analysis.
- Looping of new and existing water main extensions whenever possible to avoid dead-ends.

We encourage public interest and participation in our community's decisions affecting drinking water. Regular meetings of the Administrative Board of the Portsmouth Water and Fire District are held on the third Tuesday of every month at 7:00 PM, at the District's office at 1944 East Main Road. The public is welcome and encouraged to attend these meetings. Written minutes of the meetings are available upon request. This Consumer Confidence Report and minutes of Board meetings are also available on the internet at www.PortsmouthWater.org.

Your Water Source

In 2014, the Portsmouth Water and Fire District purchased all of its water from the City of Newport. The majority of the water is treated at the Lawton Valley Water Treatment Plant in Portsmouth. On occasion, the water may be treated at the Station One Water Treatment Plant in Newport. Newport Water draws its raw water supply from a system of nine surface water reservoirs: Lawton Valley Reservoir and St. Mary's Pond in Portsmouth; Nonquit Pond in Tiverton; Watson Reservoir in Little Compton; North and South Easton Ponds in Middletown and Newport; and Paradise Pond and Gardner Pond in Middletown. Both plants and all nine reservoirs are owned and operated by the City of Newport. The emergency supply from the Stone Bridge Fire District is treated at the Stone Bridge Water Treatment Plant in Tiverton, which draws surface water from Stafford Pond in Tiverton.

Source Water Assessments

In 2003, the University of Rhode Island, in cooperation with the RI Department of Health (RIDOH) and other state and federal agencies, assessed the threats within the watersheds of Newport Water's water supply sources. The assessment found that the water sources on Aquidneck Island and in Little Compton and Tiverton are moderately susceptible to contamination. Monitoring and protection efforts are especially important to assure continued water quality. Newport Water updated the 2003 Assessment in 2010. The complete Source Water Assessment Report is available at our office.

RIDOH Special Monitoring Project

In 2013, RIDOH selected the Newport Water System to be part of a special monitoring project. Samples were collected in April, October and December of 2013 and March of 2014. The monitoring program included eight surface reservoirs, four sites in the Newport distribution system, and the two water plant effluents. The parameters tested were 1,4-dioxane, hexavalent chromium and perchlorate. For 2014, all samples were negative. The sampling and analysis was performed by the RID0OH.

RIDOH Voluntary Monitoring

The Rhode Island Department of Health selected the Newport Water Supply System to participate in a special monitoring project for cyanotoxins during the summer of 2014.

Beginning in June 2014, four samples were collected weekly for the next 18 weeks, for a total of 72 samples. Each set included two raw water intakes and two plant effluents from Station #1 and Lawton Valley Treatment Plants. The following is a summary of the results:

Parameter	Period	Unit	Detected Level	Range	Major Sources
Total Microcystins	2014	ppb	1.7	ND - 1.7	A class of toxins produced by certain freshwater cyanobacteria.

This parameter was only detected in the Watson Reservoir raw water on 7/23/2014 and 7/28/2014 prior to treatment. All other raw water samples and plant effluent samples were negative.

RIDEM Voluntary Monitoring

The Rhode Island Department of Environmental Management selected the Newport Water Supply system to participate in a special monitoring program analyzing its nine surface water reservoirs and sediment sampling for background copper data. These samples were taken the first week of May 2014. The Rhode Island Department of Health and ESS Laboratory analyzed these samples. The following table is a summary of the total copper results:

Parameter	Period	Unit	Detected Level	Range	Major Sources
Total copper	2014	ppm	0.0114	0.000951 - 0.0114	Copper is a naturally occurring metal in the aquatic environ-ment and is released into the environ-ment by algaecides.

Health Effects Information for the Water You Drink

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 the Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

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 (800-426-4791).

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 and, in some cases, radioactive material, and 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 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 can also come from gas stations, urban stormwater runoff and septic systems;
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, EPA prescribes regulations which 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, which must provide the same protection for public health.

Water Quality Issues

Concerning Lead in Our Water

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. The Portsmouth Water and Fire District is responsible for providing high quality drinking water, but cannot control the variety of materials used in its customer's plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for thirty (30) seconds to two (2) minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your tap 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 www.epa.gov/safewater/lead.

Although there is no lead in the water supplied by the District, it can enter tap water through corrosion of household plumbing materials. Homes built before 1986 are more likely to have fixtures and solder containing lead. However, new homes are also at risk: even legally "lead-free" plumbing may contain up to 8 percent lead. The most common problem is with brass or chrome-plated brass faucets and fixtures which can leach significant amounts of lead into the water, especially hot water.

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing.

THE DISTRICT CAN HELP YOU OBTAIN A CERTIFIED LEAD TEST FOR YOUR TAP WATER FOR $13. PLEASE CALL 683-2090 FOR MORE INFORMATION.

Concerning Total Trihalomethanes (TTHMs) in Our Water

When chlorine is used in the treatment of drinking water, it combines with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). The EPA sets standards for controlling the levels of DBPs in drinking water, one of which is TTHMs.

Many water systems disinfect their water with chlorine in order to inactivate pathogens that cause disease. The public health benefits of chlorine disinfection practices are significant and well-recognized. One hundred years ago, water borne diseases such as typhoid and cholera were common throughout American cities and disinfection of drinking water was a major factor in reducing these epidemics. However, disinfection poses risks of its own. EPA's health effects language for TTHMs states, "*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 system, and may have an increased risk of getting cancer."* In addition, several reproduction and developmental studies have recently become available, and EPA has completed a more extensive analysis of reproductive and developmental effects associated with DBPs. Both human epidemiology studies and animal toxicology studies have shown associations between chlorinated drinking water and reproductive and developmental endpoints such as spontaneous abortion, stillbirth, neural tube defects, pre-term delivery, intrauterine growth retardation, and low birth weight. New epidemiology and toxicology

studies evaluating bladder and rectal cancers have also increased the weight of evidence linking these health effects to DBP exposure.

Consequently, one of the most complex questions facing water supply professionals is how to reduce risks from disinfectants and DBPs while providing increased protection against microbial contaminants.

The District's high TTHM levels, which resulted in a violation of the standards for DBPs, are the result of the organic content of the raw water, the chlorination and treatment processes at the original Lawton Valley Water Treatment Plant and the hydraulics at the original plant and the District's distribution system; and largely formed prior to purchase by the District.

The District is regulated for TTHMs under the EPA Stage 2 DBPR, which took effect in October 2013. The District received a fifteen month extension of time (to December 31, 2014) from RIDOH to comply with the Stage 2 DBPR Rule. The extension was sought because historical testing showed that the District would not be able to comply with the more stringent Stage 2 DBPR rules without the Advanced Water Treatment. During the time extension the District was subject to compliance with the prior Stage 1 DBPR Rule based on testing results at its four Stage 2 DBPR testing sites.

PLEASE CONTINUE TO INSIDE

The following steps were taken by the District and the Newport Water Department to reduce the TTHM levels during the time extension and prior to the Advanced Water Treatment processes becoming operational:

- The amount of chlorine added to the water from time to time by the District was reduced while still ensuring reliable bacteriological control.
- The Newport Water Department modified its plant operations to the extent possible and permissible by regulations in an effort to minimize the production of TTHMs.
- The District installed hydraulic mixing systems in its four water storage tanks to reduce water age, which can contribute to the formation of TTHMs.
- The District conducts an annual uni-directional flushing program, which helps reduce TTHM formation.
- The District regularly tested for TTHMs to monitor the levels at the purchase point near the Newport treatment plant and in the District's distribution system.

In 2014, the City of Newport completed construction of a new Lawton Valley Treatment Plant in Portsmouth and substantial improvements to the Station One Treatment Plant in Newport. The total project cost was $84 million. Due to the challenging water quality of the City of Newport's nine reservoirs, Advanced Water Treatment processes were incorporated into the improvements at each plant in order to assure compliance with drinking water standards, particularly TTHM standards. The Station One Plant and the Lawton Valley Plant were activated in July and September of 2014, respectively. The new plants have made a significant and measurable improvement in the TTHM levels. Although the District exceeded the maximum contaminant level for TTHMs in August of 2014, the District was back in compliance in November 2014 following activation of the new Lawton Valley Treatment Plant in September 2014.

Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

Questions

The Portsmouth Water and Fire District prepared this report. We'll be happy to answer any questions about the District and our drinking water quality. Please contact William J. McGlinn, General Manager and Chief Engineer (401-683-2090).

Some water customers of the Newport Water Department and the Naval Station Newport water system, particularly in the Redwood Farms, Bay View and Melville areas, in addition to properties in the District with private wells, may receive this consumer notice, even though they are not customers of the District. This over-coverage is unavoidable in our effort to ensure that all potential water users within the District receive this legal notice through a Postal Patron mailing.

The Portsmouth Water and Fire District is a proud member and supporter of the American Water Works Association, the New England Water Works Association and the Rhode Island Water Works Association.

PLEASE REFER TO THE WATER QUALITY TABLE BELOW

How Do I Read This Water Quality Table?

It's easy! Our water is regularly tested to assure that it is safe and healthy. The column marked Detected Level shows the highest test results during the year. The column marked Major Sources in Drinking Water shows where substances usually originate. Footnotes explain important details. Abbreviations and definitions of key terms are shown in the table below:

Abbreviations and Definitions used in the Water Quality Table

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.
MFL	**Million Fibers per Liter**
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.
Mrem	**Millirems:** a measure of radiation absorbed by the body.
N/A	**Not Applicable**.
ND	**Not Detectable:** Not detectable at testing limits.
NTU	**Nephelometric Turbidity Units:** a measure of very small particulate matter in drinking water.
pCi/l	**Picocuries per liter:** a measure of radioactivity.
ppb	**parts per billion**, or micrograms per liter (µg/l).
ppm	**parts per million,** or milligrams per liter (mg/l).
ppt	**parts per trillion,** or nanograms per liter (nanograms/l).
TT	**Treatment Technique:** A required process intended to reduce the level of a contaminant in drinking water.

2014 WATER QUALITY TABLE *

DETECTED CONTAMINANTS	YEAR TESTED	UNIT	MCL / MRDL	MCLG / MRDLG	DETECTED LEVEL (FOR COMPLIANCE)	DETECTEDRANGE	MAJOR SOURCES IN DRINKING WATER	VIOLA-TION
Microorganisms			MCL	MCLG				
Total Coliform Bacteria (1)	2014	% of Positive Samples per Month	5%	0	0.0%	N/A	Naturally present in the environment.	NO
Fecal Coliform (1)	2014			0	1.82%	N/A	Human or animal fecal waste	NO
Total Organic Carbon (2)	2014	Removal ratio	TT	N/A	1.07	0.93 – 1.91	Naturally present in the environment.	NO
Turbidity (2) (8)	2014	NTU	TT = 1.0 TT = 95% of monthly samples ≤ 0.3	N/A	0.29 100% ≤ 0.3	N/A	Soil runoff.	NO

Disinfection Byproducts			MCL	MCLG				
Chlorite (2)	2014	ppm	1.0	0.8	0.603	<0.010 – 0.970	By-product of drinking water chlorination.	NO
Haloacetic Acids (HAA5s)	2014	ppb	60	N/A	20.7	1.30 – 39.0	By-product of drinking water chlorination.	NO
Total Trihalomethanes (TTHMs) (7)	2014	ppb	80	N/A	89.2	3.10 – 168	By-product of drinking water chlorination.	YES (7)
Disinfectants			MRDL	MRDLG				
Chlorine	2014	ppm	4	4	0.74	0.02 – 2.07	Water additive used to control microbes.	NO
Chlorine Dioxide (2)	2014	ppb	800	800	690	ND – 690	Water additive used to control microbes.	NO
Inorganic Chemicals			MCL	MCLG				
Barium (3)	2014	ppm	2	2	0.01	0.004 – 0.01	Erosion of natural deposits; discharge of drilling wastes.	NO
Copper (4)	2012	ppm	AL = 1.3	1.3	0.054	N/A	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives.	NO
Fluoride (2) (5)	2014	ppm	4	4	0.88	0.04 – 0.88	Water additive, which promotes strong teeth.	NO
Lead (6)	2012	ppb	AL = 15	0	ND	ND	Corrosion of household plumbing systems; erosion of natural deposits.	NO
Nitrate (3)	2014	ppm	10	10	0.43	0.06 – 0.43	Runoff from fertilizer use; leaching from septic tanks, sewerage; erosion of natural deposits.	NO
Nitrite (3)	2014	ppm	1	1	0.02	ND – 0.02	Runoff from fertilizer use; leaching from septic tanks, sewerage; erosion of natural deposits.	NO
Synthetic Organic Chemicals including Pesticides and Herbicides			MCL	MCLG				
Alachlor (3)	2014	ppb	2	0	0.1	ND - 0.1	Runoff from herbicide used on row crops.	NO
Benzo(A)Pyrene (3)	2014	ppt	200	0	100	ND – 100	Leaching from linings of water storage tanks and distribution lines.	NO
Di(2-ethylhexyl)phthalate (3)	2014	ppb	6	0	2	ND – 2	Discharge from rubber and chemical factories.	NO
Simazine (3)	2014	ppb	4	4	0.1	ND – 0.1	Herbicide Runoff	NO
Unregulated Contaminant Monitoring Rule 3			MCL					
Metolachlor (3) (9)	2014	ppb	N/A	N/A	0.2	ND – 0.2	Herbicide for weed control on agricultural crops.	N/A
Sodium (2)	2014	ppm	100**	N/A	36.9	24.7 – 36.9	Erosion of natural deposits; road-salt runoff; contained in water treatment chemicals.	N/A
Unregulated Contaminant Monitoring			MCL	MCLG				
Chlorate (3) (11)	2014	ppb	N/A	N/A	400	98 – 400	Used in agriculture as defoliants or desiccants and may occur in drinking water related to use of disinfectants such as chlorine dioxide.	N/A
Chlorate (10)	2014	ppb	N/A	N/A	340	95 – 340		N/A
Chromium, Hexavalent (10)	2014	ppb	N/A	N/A	0.17	0.04 – 0.17		N/A
Chromium, Total (3) (11)	2014	ppb	N/A	N/A	0.2	ND – 0.2	Occurs naturally in the environment and is present in water from the erosion of chromium deposits found in rock and soil.	N/A
Strontium (10)	2014	ppb	N/A	N/A	60	44 – 60	Naturally-occurring element used as strontium carbonate in pyrotechnics, in steel production, as a catalyst and as a lead scavenger.	N/A
Vanadium (10)	2014	ppb	N/A	N/A	0.6	0.2 – 0.6	Naturally-occurring element commonly used as vanadium pentoxide in the production of other substances and as a catalyst.	N/A

* The data presented in this table is from the most recent testing done in accordance with regulations. Test results are from the Portsmouth Water and Fire District's distribution system unless otherwise noted by the footnotes.

** Although not regulated by the EPA, we are required by the Rhode Island Department of Health to test for sodium. There is no MCL for sodium; however the Health Advisory Level is 100 ppm.

Water Quality Table Footnotes

(1) In 2014, the District collected 496 samples that were tested for Total Coliform Bacteria. All samples were negative except for one sample that tested positive for fecal coliform bacteria. Repeat samples within 48-hours at the positive test site and at test sites upstream and downstream were negative.

(2) Measured after treatment at the Newport Water Department Lawton Valley Water Treatment Plant.

(3) Measured in the Newport Water Department raw water reservoirs prior to treatment.

(4) The detected copper level indicates the 90th percentile value of the 30 samples obtained at 30 high-risk homes in June. None of the 30 samples exceeded the Action Level for copper.

(5) Fluoride is added to the water to help prevent tooth decay in children.

(6) The detected lead level indicates the 90th percentile value of the 30 samples obtained from 30 high-risk homes in June. One of the 30 samples exceeded the Action Level for lead. *Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.*

(7) *Some people who drink water containing TTHM's 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 getting cancer.* The detected level indicates the highest four-quarter, running annual average. Please refer to Concerning Total Trihalomethanes (TTHMs) in Our Water elsewhere in this report.

(8) *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.*

(9) The EPA requires that this contaminant be reported, which was tested for by Newport Water in the raw water reservoirs under rules for the Contaminant Candidate List 3.

(10) The EPA requires that this contaminant be reported, which was tested for by the District in its distribution system under rules for the Unregulated Contaminant Monitoring Rule 3.

(11) The EPA requires that this contaminant be reported, which was tested for by Newport Water in its raw water reservoirs under rules for the Unregulated Contaminants Monitoring Rule 3.