



# 2014 Port Townsend Annual Drinking Water Report

## Water Sources

The City of Port Townsend's water supply (System ID # 69000R) is surface water from the Big Quilcene and Little Quilcene Rivers (Source # 01 and 02) in the northeast corner of the Olympic National Forest. Water is stored in Lords Lake and City Lake Reservoirs. As with all surface water sources, the Washington Department of Health (DOH) rates the City's source water as highly susceptible to contamination. The City and U.S. Forest Service continue to cooperate in a joint effort to manage and protect the municipal watershed to maintain high quality drinking water as we have for the past 87 years.

## System Operation and Treatment

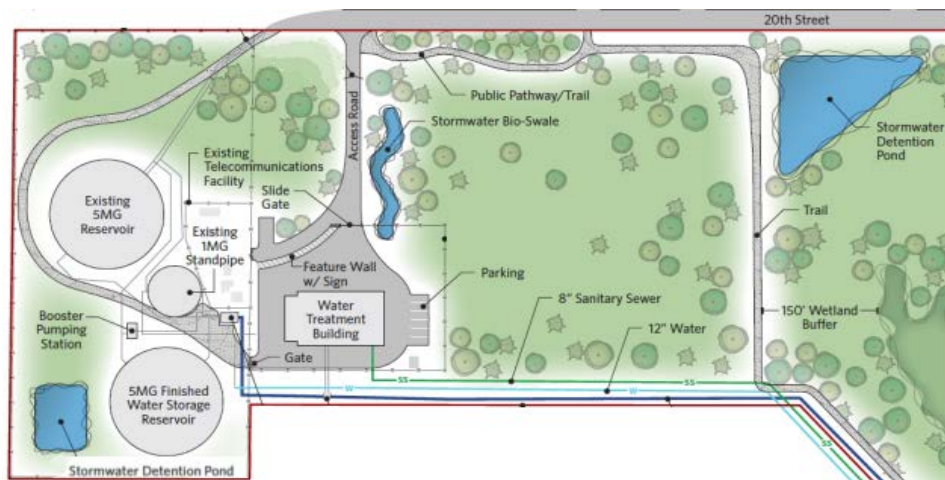
After inspecting the watershed and reviewing control measures in 2013, the Washington State Department of Health (DOH) notified the City that the water system did not have an adequate level of watershed control. While water quality has not changed, the Department of Health determined that the watershed control program did not meet their current expectations for managing public access within the municipal watershed and as a result the water system is considered to be out of drinking water regulatory treatment compliance. Chlorine disinfection continues to provide protection from microbial contaminants, which generally is more than adequate. In response to the DOH determination, the City changed its planned future treatment from ultra violet light disinfection to filtration.

*Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as, nausea, cramps, diarrhea, and associated headaches.*

Our water system is operated and maintained by trained personnel certified by the State. Water quality sampling results are for the monitoring performed January 1 – December 31, 2014. Drinking water quality continues to meet or exceed all federal and state health standards. The DOH has placed Port Townsend in a green operating status, which represents that the water system is substantially in compliance with applicable drinking water requirements.

## Future Water Treatment

The City is finishing the design for a membrane water filtration treatment facility in order to ensure adequate treatment for *Cryptosporidium*, a microscopic parasite that is resistant to chlorine treatment. Construction of the treatment plant is expected to begin later this summer and be operational by October 2016. The membrane system will remove particles larger than 0.04 microns or about 2500 time smaller than the thickness of this paper.



Preliminary site plan for water treatment facility and reservoir

Chlorine will continue to be added to the City's water after filtration to provide an additional safety barrier and maintain the required disinfectant residual throughout the distribution system. In addition to the construction of the water treatment plant, a replacement 5 million gallon reservoir will be built concurrently.



**Planned water treatment building**

## **Water Use Efficiency Report**

Efficient water use benefits the environment, water system operations, and our customers by maintaining more water in the streams and lowering operating costs. Last year an average of 943,000 gallons of water per day was delivered to 9,954 customers as well as thousands of visitors. Total City consumption was 344 million gallons with residential consumption averaging 60 gallons per person per day.

Of the total consumption 7% or 24 million gallons was unaccounted for by customer meters or other measurement, while the 3 year average loss was 6.8%. Unaccounted for water is lost through such things as under-registering meters, use of fire hydrants, and leaking underground pipes. Port Townsend has an ongoing leak detection program to inspect the water system for leaks to reduce unaccounted for water. During 2014, approximately 2.4 miles of distribution system piping were surveyed for leaks.

## **Potential Contaminants**

*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 EPA's Safe Drinking Water Hotline (1-800-426-4791).*

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, protozoans, and bacteria, which may come from wildlife, people and pets visiting the watershed.

**Inorganic contaminants**, such as salts and metals, which can be naturally occurring.

**Pesticides and herbicides**, which may come from sources such as forestry management.

**Organic chemical contaminants**, including synthetic and volatile organic chemicals, which can come from vehicles in the watershed or that result from chlorine combining with naturally occurring organic matter.

*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 (1-800-426-4791).*

In order to ensure tap water is safe to drink, the Department of Health and EPA prescribe regulations that limit the

amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) and the Washington Department of Agriculture regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. While the City tests for more than eighty different contaminants, the substances listed in the following tables are the only ones detected in our drinking water. Sampling for certain contaminants occurs less than once per year because concentrations of these contaminants are not expected to vary significantly from year to year. All data shown were collected during the last calendar year unless otherwise noted in the tables.

### Port Townsend Annual Water Quality Analysis

Inorganic Constituents (Source Water)	MCL	MCLG	Port Townsend Water	Range of Detections	Year Sampled	Meets Standards	Typical Source of Contaminant
Barium (ppm)	2	2	0.003	One sample	2013	Yes	Erosion of natural deposits

- Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

Public water systems must monitor for lead and copper levels in drinking water. Unlike other contaminants, lead and copper do not commonly occur in source water but result from corrosion of building plumbing, faucets, and water fixtures. Monitoring is used to determine if the water system is distributing corrosive water. Regulatory compliance is based on water samples from a number of representative homes most vulnerable to lead and copper corrosion, generally, those built between 1982 and 1987 with copper pipes.

Residential Testing	MCL	MCLG	90 <sup>th</sup> Percentile	Number of Samples Exceeding AL	Year Sampled	Meets Standards	Typical Source of Contaminant
Copper (ppm)	AL=1.3	0	0.69	0 of 20	2013	Yes	Corrosion of household plumbing systems
Lead (ppb)	AL=15	0	7	1 of 20	2013	Yes	Corrosion of household plumbing systems

- 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. Port Townsend 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 thirty seconds to two 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>.
- Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short period of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.

Microbiological Constituents	MCL	MCLG	Range of Detections	Testing Frequency	Meets Standards	Typical Source of Contaminant
Turbidity (NTU)	TT = 5	0	0.15-1.71	Continuous	Yes	Soil runoff

- Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants.

Disinfection Constituents	MCL	MCLG	Range of Detections	Testing Frequency	Meets Standards	Typical Source of Contaminant
Chlorine (ppm)	MRDL=4	MRDLG=4	0.20-1.14	Continuous	Yes	Water additive used to control microbes
Haloacetic Acids (HAAs) (ppb)	60	NA	27.4-39.8	Quarterly	Yes	By-product of drinking water chlorination
Total Organic Carbon (mg/L)	TT	NA	0.65-0.86	Quarterly	NA	Naturally present in the environment
Total Trihalomethanes (TTHMs) (ppb)	80	NA	32.3-73.3	Quarterly	Yes	By-product of drinking water chlorination

- Chlorine is used for microbiological disinfection of the drinking water. Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
- Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects and may lead to an increased risk of getting cancer.
- Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.
- Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

## Definitions

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

**Lead and Copper 90th Percentile:** Out of every 10 homes sampled, 9 were at or below this level.

**Maximum Contaminant Level (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 Contaminant Level Goal (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 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 contaminants.

**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 contaminants.

**NA:** Not Applicable

**ND:** Not Detected or below State Reporting Limit.

**NTU:** Nephelometric Turbidity Units - a measure of the cloudiness of the water.

**ppb:** Parts per billion or micrograms per liter ( $\mu\text{g/L}$ ).

**ppm:** Parts per million or milligrams per liter ( $\text{mg/L}$ ).

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

## Public Comment

The public is invited to participate in decisions that affect drinking water through comment to the Port Townsend City Council. Information about scheduled meetings is available through the City Administration Office (379-5047) or via the City's web site: <http://www.cityofpt.us/calendar/events.asp?action=week&calendar=1>. If you have any additional questions about the drinking water or would like a complete list of substances we test for please call Ian Jablonski at the Port Townsend Department of Water Quality (379-5001). Information is also available on the City's web site: <http://www.cityofpt.us/waterquality.htm>.