Town of Friday Harbor

2016 Consumer Confidence Report on Water Quality

Surface water is the sole source of water for those served by the Town of Friday Harbor. Trout Lake, the primary source, is about five and a half miles west of Town in an isolated, undeveloped pocket fed by a steep drainage basin. The Town owns 600 acres of the surrounding 840 acre watershed.

Distribution System: detected levels of Primary Standards

(see Acronyms and Definitions on page 2)

Parameter	MCL	MCLG	Maximum Reported Value	Range	Likely Source	Meets Regs?
Copper ([1])	Action Level: 90% of the homes tested must have copper levels less than 1.3 ppm	1.3 ppm	.41 ppm 2014 levels, tests required every 3 years	.028 to .412 ppm	Corrosion of household plumbing systems	Yes
Lead ([1])	Action Level: 90% of the homes tested must have lead levels less than .015 ppm	0 ppm	.002 ppm 2013 levels, tests required every 3 years	Not detected to .002 ppm	Corrosion of household plumbing systems	Yes
Total Trihalo-methanes (THMs)	80 ppb	0 ppb	34.1 average for 2015([2])	6.4 to 85.7 ppb	By-products of chlorination process	Yes([3])

[1]) Copper and lead are both naturally-occurring metals. Lead and copper have never been detected in the Town's source water. Both have been used to make household plumbing fixtures for many years, although Congress banned the installation of lead solder, pipes and fittings in 1986. The two contaminants get into drinking water when water reacts with these metals in pipes and fixtures. This is particularly likely to happen when water sits in pipes for more than a few hours. When lead or copper reach the action level in ten percent of the homes sampled, the water provider must begin certain water treatment steps.

The pH range of Friday Harbor water is 7.78 to 7.95 which lessens the corrosive potential of copper and lead. Until July 1998, WA State DOH required a random testing of ten homes once a year for the presence of copper and lead. The detection rates have been so low that these tests are now required every three years. The next testing date is July, 2016.

[2]) This test is performed once a quarter in the distribution system. Because the test results are averaged over four consecutive quarters, some values in the range may be higher than the maximum reported value.

[3]) In 2015 the THM yearly average was below the MCL. Some people who drink water containing THMs over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer. THM's are formed when organics in the water come in contact with chlorine. We have lowered chlorine levels and have made treatment changes to enhance removal of organics. **Please see page 4 for Friday Harbor's efforts regarding Trihalomethane Removal.** If you would like more information about THM's please call us at 360-378-2154.

Acronyms and Definitions

Action Level
The concentration of a contaminant which, if exceeded, triggers a treatment technique or other requirement which a water system must follow.

Cryptosporidium
A tiny organism that is associated with the disease cryptosporidiosis. This disease can be transmitted by swallowing the organism in contaminated water or food, person-to-person contact, or other exposure routes.

EPA
Environmental Protection Agency. A federal level agency.

Fecal Coliform
Fecal coliforms and *E.coli* are bacteria whose presence indicates that the water may be contaminated with human or animal wastes.

Giardia
A tiny organism that is associated with the disease giardiasis. Swallowing this organism in contaminated food or water, exposure from person-to-person contact, and other exposure routes may cause this disease.

Hardness
Hardness is an indication of the amount of dissolved minerals in water. Friday Harbor water has a range of hardness values from 80-100 ppm, which is considered "medium soft."

Inorganic Chemicals
Examples include things like metals, minerals and salts.

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 treatment technology.

MCLG
Maximum Contaminant Level Goal. The level of a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

ND Not Detected.

NTU
Nephelometric Turbidity Unit. Unit of measure used to describe water clarity.

PAH
Polyaromatic Hydrocarbons. A group of Synthetic Organic Compounds that are tested for.

pH
Indicates whether a liquid is acidic or basic. Friday Harbor water has a pH range of 7.0 to 8.3 which lessens the corrosive potential of copper and lead.

ppb
parts per billion. One ppb is approximately equal to 1 drop of water in a 22,000 gallon swimming pool.

ppm
parts per million. The same as mg/l (milligram per liter). One ppm is approximately equal to 1 drop of water in 22 gallons.

Primary Standards
Legally-enforceable standards that apply to public water systems. Primary standards limit the levels of specific contaminants that can adversely affect public health and are known or are anticipated to occur in water.

Secondary Standards
Non-enforceable guidelines regarding contaminants that may cause cosmetic effects, such as tooth discoloration, or aesthetic effects, such as taste, color or odor, in drinking water.

SRL
State Regulatory Level. Standards that are set by WA State DOH and may supersede federal levels.

SOC
Synthetic Organic Chemicals. Examples include such things as weed killers, fertilizers and bug spray.

Total Coliform
A group of bacteria that can be naturally present in the environment and are used as an indicator that other, potentially harmful bacteria may be present.

Treatment Technique
A required process intended to reduce the level of a contaminant in drinking water. A treatment technique may be required by the EPA or WA State DOH.

Turbidity
Describes how cloudy the water is. The smaller the number, the clearer the water. Turbidity has no health effects, however, it can interfere with disinfection and provide a medium for microbial growth.

VOC
Volatile Organic Chemicals. Examples include things like petroleum-based chemicals, industrial by-products and dry cleaning solvents.

WA State DOH
Washington State Department of Health.

CCR Contact:

Mike Deegan
Water System Manager
360-378-8353
tfhwater@fridayharbor.org

In 2015 the Town's water system produced 110,057,000 gallons with system leakage of 3,530,761 gallons. Unaccounted-for water at the end of 2015 was 3.21%. This was accomplished by early leak detection technology and meter replacement. The Town of Friday Harbor's goal is to reduce unaccounted-for water. Authorized consumption will be reduced through consumer education and our low flush toilet rebate program. Estimated saving is 9 million gallons. We estimate that we saved 9.2 million gallons of water in 2015 with meter replacement, leak detection, and replacement of old pipe prone to breakage. The Town of Friday Harbor Waste Water Treatment Facility completed an effluent water recovery system in the Spring of 2008. Water consumption at the Waste Water Treatment Facility is down from 12.7 million gallons in 2013 to 1.04 million gallons in 2015. We are currently implementing leak detection, meter replacement, a low flush toilet rebate program, consumer education, and replacement of aging mains in the distribution system. In 2014 we replaced 1,500 feet of 8 inch water main prone to failure.

The DOH advises that all 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 drinking water contaminants than the general population. Immuno-compromised persons, such as people 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/ Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available at www.epa.gov/safewater or from the Safe Drinking Water Hotline (800) 426-4791.

Improvements to the Town Water System

The Town of Friday harbor is replacing 5 miles of asbestos pipe. Although this type of pipe does not pose a health threat, after 50 years of service the time has come to upgrade to newer virtually indestructible high density polyethylene or HDPE (PE) pipe. PE pipe's outstanding performance means that consumers get the very best, cleanest water possible. Other pipes leak, which means more electricity is needed to process and pump additional water into households. With PE pipe, there is no leakage. Therefore, less electricity is needed, which means consumers save on rising utility costs. PE pipe is nonconductive polymer and does not rust or corrode, assuring long service and effective use of municipal dollars. Due to PE's flexibility and joint-less construction, installation costs are lower compared to other types of pipe. In addition, because PE does not leak, this simultaneously reduces repair & maintenance costs.

Three platforms known as solar bees were deployed in Trout Lake in 2006. Solar Bee's use long distance circulation to solve water quality problems in fresh water lakes and reservoirs providing significant energy savings while relying on solar power and eliminating the need for toxic chemicals. The Solar Bee is a floating solar-powered pond, dam, lake, and reservoir circulator. The Solar Bee draws water up from below and spreads it gently across the top of the water body for continuous surface renewal.

Each solar-powered Solar Bee unit can displace high horsepower aeration/mixing equipment in freshwater reservoirs. The energy savings from each unit is the equivalent to about 220,000 kW hrs per year, or the annual energy requirements for about 20 homes or 25 passenger cars, thereby reducing equivalent carbon dioxide emissions (the leading Greenhouse Gas, GHG) by about 150 tons per year. Solar Bee's long distance circulation greatly accelerates the biological and chemical processes that clean up freshwater, and potable water. The high efficiency Solar Bee circulation can reduce up to 80% of the chemical requirements in potable water systems. Solar bees eliminate the need for algaecides and herbicides, as well as phosphorus-binding compounds such as alum.

This year the water department repaired leaks in the dam. The Dam was losing approximately 10 gallons a minute. With the newly repaired dam we are now losing approximately 2 gallons per minute. This will save about 4,208,400 gallons a year. Also, significant upgrades to the treatment plants Pro Logic SCADA system will provide a more dependable and smoother operating treatment plant. New radio telemetry technology has been installed to upgrade the old telemetry which will insure the dependability of the distribution systems ability to operate automatically and efficiently, this allows the supply tanks to talk back and forth when they need to be filled or shut down.

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The Town of Friday Harbor received top honors for providing some of the clearest drinking water in the state for three consecutive years. The Washington State Department of Health (DOH) presents the Treatment Optimization Program (TOP) Award to water operators that meet significantly higher water quality standards than those set by the government. Steve Deem of the Washington State DOH presented the award at Town Hall. The Town is one of only eleven systems in the state to receive this year's award.

The Town's water department voluntarily participates in the stringent DOH program which challenges operators to exceed the minimum legal standards for three consecutive years. According to Town Public Works Director Wayne Haefele, the DOH has set an extremely difficult goal. "It requires that water systems make the TOP goal a priority in everything we do and every decision we make," said Haefele. TOP Award winners must maintain extreme water clarity, known as low "turbidity", while simultaneously complying with every other measurement of water quality without exception for three consecutive years. Turbidity is considered one of the most dependable tests for confirming the removal of potential pathogenic organisms from water.

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Trout Lake Treatment Plant: detected levels of Primary Standards

(see Acronyms and Definitions on page 2)

Parameter	MCL	MCLG	Maximum Reported Value	Range	Likely Source	Meets Regs?
Turbidity ([4])	0.5 NTU	Not applicable	.07 NTU Highest monthly average occurred 04 & 06/ 2015	.04 to 0.15 NTU Based on daily samples	Erosion of soils	Yes 100% of samples met turbidity limits

[4]) Turbidity has no health effects, however, turbidity can interfere with disinfection and provide a medium for microbial growth. Washington State Department of Health requires treatment facilities to provide full filtration and disinfection.

Trihalomethane Removal Status

Since the new granular activated carbon (GAC) filters were put on line in 2011 the Friday Harbor Water Utility has successfully achieved the goal of significantly reducing the amount of trihalomethane (THM) acids to well below the maximum contaminate levels or MCL, as required by the Department of Health. With this highly effective organic removal system, the Water Utility now reports a yearly average of only 34.1 ppb while the current maximum allowance is 80 ppb. The average is now low enough that the State allows us to sample only once a year for compliance. The GAC filter's purpose is to capture organics in the water, preventing a chemical reaction with chlorine that could create a disinfected by-product such as trihalomethane acids. The GAC filters should keep our water supply at its highest quality for years to come.

The Town participated in voluntary Unregulated Contaminant Monitoring (UCMR2). Results: N-nitroso-dimethylamine (NDMA) 0.002ug/L (>MRL on 03/09, 06/09, 09/09) and N-nitroso-methylethylamine (NMEA) 0.003 ug/L (>MRL on 09/09). UCMR results are available.

All other levels of Primary Standards were so low in Trout Lake Treatment Facility water that the Washington State Department of Health waived reporting through December, 2016. Primary standards limit the levels of specific contaminants that can adversely affect public health and are known or are anticipated to occur in water.

The following substances were tested for but not detected or below the MCL:

Volatile Organics - In 2013 these substances were not detected. The Town received a waiver until 10/17 of no need to test. Herbicides are tested once every 3 years. The results from 01/14 warranted a state waiver for no testing for Synthetic Organic testing through 2016. Inorganics are tested every 9 years per State waiver based on the results from 12/11. The Town continues to test for other substances including pesticides, microbiological, and radiological substances which are nonexistent in our water.

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