



Harwich Water Department

2018 Consumer Confidence Report

Drinking Water Quality Issue 22 PWS ID #4126000

The Harwich Water Department (HWD) is pleased to report that **Harwich water meets or exceeds required water quality standards**. This annual Consumer Confidence Report provides important water source data, monitoring, and test results. If you have questions about this report, please contact Superintendent, Dan Pelletier at 508-432-0304. Additional information is available at www.harwichwater.com and at the HWD office located at 196 Chatham Rd.

IN THE NEWS

The Massachusetts Department of Environmental Protection awarded the Department with **three awards in 2018**: The citation for *Consistent Performance for Continued Excellence* in delivering safe drinking water, the *Public Water System Award for Outstanding Performance and Achievement*, and the *State Senate Citation for Receiving the Public Water System Award for 3 Consecutive Years*.

2018 IN REVIEW

- Water Main Upgrade Project on Lower County Road
 - Increased the diameter of the pipe under the Allen Harbor Bridge from 12" to 16"
 - Moved 76 water services from the 8" water main to the 16" water main
 - Connected all abutting streets to the 16" water main
 - Installed six 16" line gates
 - Installed 9 fire hydrants
 - Abandoned 8" water main
- Completed 20-year Water Management Act permit application
- Continued large meter replacement program
- Implemented quarterly billing
- Installed new well level transducers at all wells
- Revised the Department capital plan & conducted a rate study
- Continued facility upgrades, including but not limited to, remove/replace insulation and ceilings in wells 8 & 9, replace electrical service to Well 2, replace wooden trim with PVC board Stations 1, 2, 4, 8, & 9, re-seal the base of the Oak St. tank, replace lighting throughout department properties fixtures with LEDs

CONSERVATION AND LEAK DETECTION

Water is a precious and limited resource and it should not be wasted. Water conservation reduces the need for developing new water sources and storage facilities, protects both streams and wetlands, and can save you money. Water that is used outdoors during the summer accounts for up to 60% of the Town's total annual water consumption.

Here are suggestions that will help you conserve water in and around your property:

Indoor

- Run your washing machine and dishwasher only when they are full.
- Consider installing low-flow faucets, toilets, and showerheads.
- Keep showers under 5 minutes.
- Fix leaking faucets, pipes, toilets, etc.; a slow drip can waste over 100 gallons a day.
- Turn off the water while you shave and brush your teeth.
- Replace old dishwashers and clothes washers with energy efficient machines that use less water.
- Check your toilets for leaks by placing a few drops of food coloring in the tank. If the coloring shows in the bowl after 15 minutes without flushing, it has a leak. Flush away the coloring when done.

Outdoor

- Adjust sprinklers so only your lawn is watered and not the house, sidewalk, or street.
- Minimize evaporation by watering before 6 a.m. or after 6 p.m.
- Install a rain sensor shut-off device on your automatic sprinklers.
- Plant during the spring or fall when watering requirements are lower.
- Use a layer of organic mulch around trees and plants to reduce evaporation and weed growth.
- Consider planting drought resistant plants and grass to reduce the need of watering.
- Use a broom instead of a hose to clean your driveway or sidewalk.
- Adjust your mower to a higher setting. Longer grass shades root systems and holds soil moisture better

CROSS CONNECTIONS

A cross connection is formed at any point where a drinking water line connects with any equipment or system containing chemicals or water of questionable quality such as irrigation systems or boilers. HWD recommends the installation of backflow prevention devices, such as a hose bib vacuum breaker, for all inside and outside hose connections. Such devices can be found at your local hardware store. This is a great way for you to help protect the water in your home as well as the drinking water supply. For more information on our cross connection program, visit: www.harwichwater.com.

MONOMOY LENS AQUIFER

The large Monomoy ponds (Long, Seymour and Hinckley) receive groundwater discharge from the lens, which then feeds the Herring River so that groundwater ultimately discharges into Nantucket Sound. The Monomoy Lens is the second largest of the six mounds or cells of elevated groundwater that comprise the aquifer. The lens supplies generally excellent drinking water from its porous sand and gravel deposits. The water is considered “soft” due to the lack of calcium and magnesium. Municipal water supplies are treated to neutralize the pH. Naturally occurring iron and manganese can cause staining, odor and taste problems. Sodium chloride can be elevated in coastal areas due to salt spray or saltwater intrusion.

SOURCE WATER ASSESSMENT PROGRAM (SWAP REPORT)

MassDEP prepared a Source Water Assessment (SWAP) Report for the water supply sources serving Harwich. Since there are a number of land uses and activities that are potential sources of contamination, Harwich has a high susceptibility ranking. SWAP notes the following key issues for our sources; inappropriate activities in Zone I areas, residential land uses and activities, storm water pollution, transmission line right-of-way, and transportation corridor within Zone IIs, and comprehensive wellhead protection planning for Zone IIs. The complete SWAP Report is available at the HWD and online at <http://www.mass.gov/eea/docs/dep/water/drinking/swap/sero/swap-sero.pdf>.

LEAD

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. Harwich 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 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 or at <http://www.epa.gov/safewater/lead>.

HARWICH WATER SYSTEM & SOURCE INFORMATION

The drinking water supply for the Town comes from 14 gravel packed wells. Wellfields are located in South, East and North Harwich, and draw water from the Monomoy Lens Aquifer. These 14 wells pumped **772,591,156** million gallons of water in 2018. The sand and gravel act as a huge underground reservoir, which is continually replenished by rainfall and snowmelt. The wells have a high susceptibility to contamination due to the absence of hydro geologic barriers (i.e. clay) that can prevent contaminant migration. After the water is pumped from the ground, it is treated with the

chemicals Potassium Hydroxide (KOH) and Sodium Hypochlorite (Chlorine). KOH is added at very low concentrations to increase the pH of the water and reduce its natural corrosivity. Low pH can stain plumbing fixtures and degrade the water quality by leaching copper and lead out of private services. The water treatment plants improve water quality by removing dissolved iron and manganese from the water supply.

Name	MASSDEP ID	Source Type	Location
Well 1	4126000-01G	Groundwater	off Chatham Rd.
Well 2	4126000-02G	Groundwater	off Chatham Rd.
Well 3	4126000-03G	Groundwater	off Chatham Rd.
Main Station Well 1	4126000-13G	Groundwater	off Chatham Rd.
Main Station Well 2	4126000-14G	Groundwater	off Chatham Rd.
Main Station Well 3	4126000-15G	Groundwater	off Chatham Rd.
Well 4	4126000-05G	Groundwater	off Chatham Rd.
Well 5	4126000-06G	Groundwater	off Depot Rd.
Well 6	4126000-07G	Groundwater	off Depot Rd.
Well 7	4126000-08G	Groundwater	off Depot Rd.
Well 8	4126000-09G	Groundwater	off Bay Rd.
Well 9	4126000-10G	Groundwater	off Bay Rd.
Well 10	4126000-11G	Groundwater	off North Westgate Rd.

REGULATIONS AND LIMITS—DEP, EPA, FDA, DPH

In order to ensure that tap water is safe to drink, the MassDEP and US EPA prescribe regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and the Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that 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 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.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-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 some infants can be particularly at risk for infections. These people should seek advice from their health agents about drinking water. EPA/Centers for Disease Control and Prevention (DC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Drinking Water Hotline 1-800-426-4791.

SUBSTANCES FOUND IN TAP WATER

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 facilities, 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, and farming.

Pesticides and herbicides, which may come from a variety of sources such as agricultural, 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.

UNREGULATED CONTAMINANTS

Unregulated contaminants are those of which the EPA has not established drinking water standards. Monitoring assists the EPA in determining their occurrence in drinking water and whether future regulation is warranted.

IRON & MANGANESE

Iron and manganese are often present in groundwater at levels that can discolor the water or cause it to take on unpleasant odors or tastes. Even though the water may still be safe to drink, it is preferable that the iron and manganese be removed.

MassDEP has reduced the monitoring requirements at T-2 (Fed by Wells 5, 6, & 7), T-3 (Fed by Wells 8 & 9), Well 10, & Well 11 for inorganic contaminants, and Wells 7, 10, & 11 for volatile organic contaminants because the source is not at risk of contamination. The last sample collected for Inorganic Compounds was taken on 2/26/15-3/23/15, and Volatile Organic Compounds was taken on 2/26/15-3/23/15 and was found to meet all applicable US EPA and MassDEP standards.

Inorganic Contaminants							
Contaminant (Units)	Date Collected	Highest Result	Range	MCL	MCLG	Possible Source(s) of Contamination	Violation Y/N
Barium (ppm)	3/8/2018	0.0074	ND-0.0074	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits	No
Nitrite as N (ppm)	2/27/2017	0	0	1	1	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	No
Nitrate as N (ppm)	3/8/2018	3	ND-3.0	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	No
Selenium (ppb)	2/26/2015	0.004	ND-0.004	50	0.05	Erosion of natural deposits; Discharge from metal refineries; Discharge from mines	No
Turbidity (NTU)	11/17/2015	0.22	ND-0.22	5	---	Soil Runoff	No
Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of water quality							
Microbiological Contaminants							
	Date Collected	Highest % Positive in a month	Total # Positive	MCL	MCLG	Possible Source(s) of Contamination	Violation Y/N
Total Coliform Bacteria	Weekly	----	0	5%	0	Naturally present in environment	No
Fecal Coliform or <i>E. Coli</i>	Weekly	----	0	^a	0	Human and animal fecal waste	No
^a Compliance with the fecal coliform/ <i>E.coli</i> MCL is determined upon additional repeat testing.							
Radioactive Contaminants							
Gross Alpha Activity (pCi/l) ²	7/26/2012	15	---	0.4	0.13-1.4	Erosion of natural deposits	No
² If the results of these samples had been above 5 pCi/L, our water system would have been required to do additional testing for radium. Because the results were below 5 pCi/L, no testing for radium was required.							
Radium – 226 & 228 (pCi/l)	7/26/2012	5	---	0.5	0.03-0.85	Erosion of natural deposits	No
Disinfectants and Disinfectant By-products							
Contaminant (Units)	Date Collected	Highest Quarterly Running Annual Average	Range Detected	MCL	MRDLG	Possible Source(s) of Contamination	Violation Y/N
Chlorine (Free) (ppm)	Monthly in 2018	0.33	0.03-1.01	4	4	Water additive used to control microbes	No
Total Trihalomethanes (THMs) (ppb)	Aug 14th&15th 2018	7.7	2.3-15	80	---	Byproduct of drinking water chlorination	No
Haloacetic Acids (HAA5) (ppb)	Aug 14th&15th 2018	1.71	0.68-3.2	60	---	Byproduct of drinking water disinfection	No

Lead & Copper								
Contaminant (Units)	Date Collected	90th Percentile	Action Level	MCLG	# Of Sites Sampled	# Of Sites Above Action Level	Possible Source(s) of Contamination	Violation Y/N
Lead (ppb)	8/1/2018 8/8/2018 8/21/2018	1.7	15	0	34	0	Corrosion of household plumbing systems; Erosion of natural deposits	No
Copper (ppm)	8/1/2018 8/8/2018 8/21/2018	0.29	1.3	1.3	34	0	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives	No
Secondary Contaminants								
Contaminant (Units)	Date Collected	Range Detected	Average Detected	SMCL	OSRG	Possible Source(s) of Contamination		
Manganese (ppb)	12/10/2018	ND-31	17.6	50	300	Erosion of natural deposits		
US EPA and MassDEP have established public health advisory levels for manganese to protect against concerns of potential neurological effects and a one-day and 10-day HA of 1000 ppb for acute exposure.								
Unregulated Contaminants								
Contaminant (Units)	Date Collected	MCL	MCLG	Highest Result Detected	Range Detected	Possible Source(s) of Contamination		Violation Y/N
MTBE - Methyl Tertiary Butyl Ether (ppb) ³ *	3/8/2018 5/16/2018 8/15/2018 8/22/2018 12/10/2018	20-40	70	0.6	ND-0.6	Fuel additive; leads and spills from gasoline storage tanks.		No
³ EPA has established a lifetime Health Advisory (HA) for MTBE of 0.3 mg/L and an acute HA at 1.0 mg/L								
Contaminant (Units)	Date Collected	Result or Range Detected	Average Detected	SMCL	OSRG	Possible Source(s) of Contamination		
Nickel (ppb)**	3/8/2018 5/16/2018 8/15/2018 8/22/2018 12/10/2018	1.1	---	N/A	100	Discharge from domestic wastewater, landfills, and mining and smelting operations		
Sodium (ppm)***		16	---	N/A	20	Discharge from the use and improper storage of sodium-containing de-icing compounds or in water-softening agents		
Bromoform (ppb)		ND-3.6	2.8	N/A	N/A	Trihalomethane; by- product of drinking water chlorination		
Bromodichloromethane (ppb)		ND-4.6	3.567	N/A	N/A	Trihalomethane; by- product of drinking water chlorination		
Chloroform (ppb)		ND-4.2	1.5635	N/A	70	Trihalomethane; by- product of drinking water chlorination		
Chlorodibromomethane (ppb)		ND-7.0	5.467	N/A	N/A	Trihalomethane; by- product of drinking water chlorination		
Health Effects								
MTBE - Methyl Tertiary Butyl Ether (ppb)* - Some people who drink water containing methyl tertiary butyl ether at high concentrations for many years could experience chronic effects on the kidney and liver and possible cancer.								
Nickel (ppb)** - Some people who drink water containing nickel at high concentrations for many years could experience effects on the lung, stomach, blood, liver, kidneys, immune system, reproduction, and development.								
Sodium (ppm)*** - Some people who drink water containing sodium at high concentrations for many years could experience an increase in blood pressure.								

Unregulated Contaminant Monitoring Rule 4			
Contaminant (Units)	Year Sampled	Highest Level Detected	Range Detected
Bromide (ppb)	2018	57.9 µg/L	35.5 - 57.9
HAA5 (ppb)	2018	3.904 µg/L	0.674 - 3.904
HAA6Br (ppb)	2018	3.504 µg/L	1.022 - 3.504
HAA9 (ppb)	2018	5.062 µg/L	1.022 - 5.062
Manganese (ppb)	2018	15.8 µg/L	4.29 - 15.8

UCMR4 Rule: Unregulated contaminants are those that don't yet have a drinking water standard set by US Environmental Protection Agency. The purpose of monitoring for these contaminants is to help US EPA decide whether the contaminants should have a standard.

TABLE DEFINITIONS	TABLE MEASURES
<p>Lead and Copper 90th Percentile - Out of every 10 homes sampled, 9 were at or below this level.</p>	<p>Nephelometric Turbidity Unit (NTU): A measure of the clarity (or cloudiness) of water.</p>
<p>Action Level - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.</p>	<p>Treatment Technique (TT): a required process intended to reduce the level of a contaminant in drinking water.</p>
<p>Massachusetts Office of Research and Standards Guidelines (ORSG): This is the concentration of a chemical in drinking water, at or below which, adverse health effects are unlikely to occur after chronic (lifetime) exposure, with a margin of safety. If exceeded, it serves as an indicator of the potential need for further action.</p>	<p>Maximum Residual Disinfectant Level Goal (MRDLG): The level of drinking water disinfectant (chlorine, chloramines, chlorine dioxide) below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.</p>
<p>Maximum Contaminant Level Goal or MCLG: The level of contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.</p>	<p>Secondary Maximum Contaminant Level (SMCL): These standards are developed to protect the aesthetic qualities of drinking water and are not health based.</p>
<p>Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant (chlorine, chloramines, chlorine dioxide) allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.</p>	<p>ppm = parts per million, or milligrams per liter (mg/l) ppb = parts per billion, or micrograms per liter (ug/l) pCi/l = picoCuries per liter (a measure of radioactivity) ND = Not Detected --- = Not Applicable</p>
<p>Maximum Contaminant Level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MGLGs as feasible using the best available treatment technology.</p>	<p>C.U. = Color Units</p>