



## Town of Harwich Water Department 2013 Annual Water Quality Report

The Harwich Water Department (HWD) is pleased to present our annual Water Quality Report. This report provides important water source data, monitoring, and test results. **We are pleased to report that Harwich water meets or exceeds required water quality standards.** If you have questions about this report, contact Superintendent, Craig Wiegand at (508) 432-0304 or visit the Department at 196 Chatham Road. Additional information can be found online at [www.harwichwater.com](http://www.harwichwater.com).

### Harwich Water System & Source

The drinking water supply for the Town comes from 14 gravel packed wells. Our wellfields are located in South, East and North Harwich, and draw water from the Monomoy Lens Aquifer (water-saturated soil is known as the aquifer). These 14 wells pumped **711,486.828 gallons in 2013**. The sand and gravel act as a huge underground reservoir, which is continually replenished by rainfall and snowmelt. After the water is pumped from the ground, it is treated with the chemicals Sodium Hydroxide (NaOH) and Sodium Hypochlorite (Chlorine). NaOH 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 even degrade the drinking water quality by leaching copper and lead out of private service lines. The water treatment plant improves water quality by removing dissolved iron and manganese from the drinking water supply.

Name	ID	Source
Wells 1 thru 3	4126000-01G	Off Chatham Rd
Well 2	4126000-02G	Off Chatham Rd
Well 3	4126000-03G	Off Chatham Rd
Main Station	4126000-04G	Off Chatham Rd
Well 4 (offline)	4126000-05G	Off Chatham Rd
Well 5	4126000-06G	Off Depot Rd
Well 6	4126000-07G	Off Depot Rd
Well 7	4126000-08G	Off Depot Rd
Well 8	4126000-09G	Off Bay Rd
Well 9	4126000-10G	Off Bay Rd
Well 10	4126000-11G	Off North Westgate Rd
Well 11	4126000-12G	Off Pleasant Bay Rd

*Recognition for Excellence!*

- ◆ *The Department of Environmental Protection recognized the Harwich Water Department in 2013 for outstanding performance and achievement for a water public system.*
- ◆ *Harwich water has ranked in the top 5% for drinking water quality in Massachusetts*

### 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 2nd largest of the six mounds or cells of elevated groundwater that comprise the aquifer. The Cape relies on the aquifer for drinking water. 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.

### 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. The Department 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](http://www.harwichwater.com).

### 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.

REGULATED CONTAMINANTS								
Contaminant	Date Tested	Unit	MCL	MCLG	Average Detected Level	Range Lowest to Highest	Major Sources	Violation
Haloacetic Acids [HAA5]	8/14/2013	ppb	60	NA	ND	ND	By-product of drinking water disinfection	No
TTHMs [Total Trihalomethanes]	8/14/2013	ppb	80	NA	5.420	ND – 12.00	By-product of drinking water chlorination	No
UNREGULATED CONTAMINANTS								
Contaminant	Date Tested	Unit	SMCL	ORSG	Average Detected Level	Range Lowest to Highest	Sources	Violation
Bromoform	8/14/2013	ppb	---	---	1.064	ND – 5.90	Trihalomethane; by-product of drinking water chlorination.	No
Chloride	11/5/2013	ppm	250	250	35.091	29 – 44	Chlorides are leached from various rocks into soil and water by weathering.	No
Chloroform	8/15/2013	ppb	---	---	0.798	ND – 2.00	A by-product of drinking water chlorination. (regulated collectively with total TTHMs; in non-chlorinated sources, chloroform may be naturally occurring.	No
Dibromochloromethane	8/14/2013	ppb	---	---	1.500	ND – 3.10	Trihalomethane; by-product of drinking water chlorination.	No
MTBE Methyl Tertiary Butyl Ether	3/6/2013	ppb	20-40	70	ND	ND	Fuel additive; leads and spills from gasoline storage tanks.	No
Sulfate	11/5/2013	ppm	250	---	11.455	10.0 – 12.00	Natural sources.	No
Contaminant	Date Tested	Unit	MRDL	MRDLG	Highest Detected Level	Range Lowest to Highest	Sources	Violation
Chlorine (Free)	Daily	ppm	4	4	0.75	0.01 – 0.75	Water additive used to control microbes	No
SECONDARY CONTAMINANTS								
Secondary Contaminant	Date Tested	Unit	SMCL	SMCLG	Average Detected Level	Range Lowest to Highest	Major Sources	Exceeded "Recommended Level"?
Iron (Total)	11/5/2013	ppm	300 MCL	0.3	0.155	ND – 0.27	Naturally present in the environment	No
Manganese (Total)	11/5/2013	ppm	50*	0.05	0.004	ND- 0.018	Naturally present in the environment	No
* EPA has established a lifetime health advisory (HA) of 300 ppb for manganese to protect against concerns of potential neurological effects, and a one-day and 10-day HA of 1000 ppb for acute exposure.								
LEAD AND COPPER								
Contaminant	Date Tested	90 <sup>th</sup> %	# of Sites Exceeding Action Level	# of Sites Sampled	MCL (Action Level)	MCLG	Major Sources	Violation
Lead (ppb)	8/2/2012	0.00	0	37	15	0	Corrosion of household plumbing; Erosion of natural deposits	No
Copper (ppm)	8/2/2012	0.52	0	37	1.3	1.3	Corrosion of household plumbing; Erosion of natural deposits and leaching of wood preservatives	No

## Source Water Assessment Program (Swap Report)

The Department of Environmental Protection (DEP) prepared a Source Water Assessment Program (SWAP) Report for the water supply sources serving Harwich. The SWAP Report assesses the susceptibility of public water supplies. There are a number of land uses and activities that are potential sources of contamination. The SWAP Report 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. This report can be found at the HWD or at <http://www.mass.gov/dep/water/drinking/swapreps.htm>.

## Drinking Water Contaminants and Sources

One of the biggest threats to groundwater is improperly maintained septic systems. You can help protect your drinking water quality by pumping out your septic system every two years. *Never* dump hazardous substances down drains, septic systems, or storm drains. For information on how to dispose of hazardous substances, visit <http://www.capecodextension.org/>

## Regulations and Limits—DEP, EPA, FDA, DPH

In order to ensure that tap water is safe to drink, the MassDEP and the 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/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are also available from the Safe Drinking Water Hotline (800-426-4791).

## 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>.

## 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.

## WATER QUALITY TESTING RESULTS

### TABLE MEASURES

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

### IRON & MANGANESE

**Test Results:** While some of our wells exceeded iron and manganese levels, the limits were established for aesthetic reasons and **not** for health concerns. Levels above the recommended limits are **not** harmful to drink, they have been known to cause discoloration, taste and odor problems.

### LEAD & COPPER TESTING:

Because of our treatment success with lead and copper, our Department is required to test for these elements every three years.

### TYPES OF CONTAMINANTS FOUND IN DRINKING WATER

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 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, or 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. Based upon successful adoption of land use controls and past sampling results the Harwich Water Department has successfully obtained a waiver for monitoring for Synthetic Organic Compounds (SOC's) Data present in this report is from the most recent testing done in accordance with regulations. Monitoring of some contaminants is less than once per year. The last dates these contaminants were tested are in the table.

### INORGANIC CONTAMINANTS

Regulated Contaminants	Date Tested	Unit	MCL	MCLG	Average Detected Level	Range Lowest to Highest	Major Sources	Violation
Nitrate as N	3/14/2013	ppm	10	10	1.488	0.78–2.0	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits	No
Turbidity	11/5/2013	NTU	5		0.047	ND-0.30	Soil Runoff	No
Sodium	2/26/2013	ppm	No Standard	28 MCLG	26.048	11.00–38.00	Road Salt	No

### RADIOACTIVE CONTAMINANTS

Alpha emitters Activity	07/26/2012	pCi/L	15	---	0.4	0.13 – 1.4	Erosion of natural deposits	No
Radium -226	07/26/2012	pCi/L	5	---	0.2	0.03 – 0.39	Erosion of natural deposits	No
Radium-228	07/26/2012	pCi/L	5	---	0.5	0.10 – 0.85	Erosion of natural deposits	No

### MICROBIOLOGICAL CONTAMINANTS

Regulated Contaminants	Date Tested	Unit	MCL	MCLG	Highest positive # in month	Highest positive % in month	Major Sources	Violation
Total Coliform Bacteria	Weekly	#/100 mL	5%	0	0	0	Naturally present in the environment	No

### How to Read the Water Quality Table Definitions

**Lead and Copper 90th Percentile** - Out of every 10 homes sampled, 9 were at or below this level.  
**Action Level** - The concentration of a contaminant which, if exceeded, triggers treatment or other requirements that a water system must follow.  
**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.  
**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.  
**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.  
**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.  
**Nephelometric Turbidity Unit (NTU):** A measure of the clarity (or cloudiness) of water.  
**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.  
**Secondary Maximum Contaminant Level (SMCL):** These standards are developed to protect the aesthetic qualities of drinking water and are not health based.  
**Treatment Technique (TT):** a required process intended to reduce the level of a contaminant in drinking water.