



Town of Avon, 2014 Annual Water Quality Report

Quality Drinking Water & the Avon Water Department. The Avon Water Department (PWS No. 4018000) is committed to providing our customers with high quality drinking water that meets or surpasses state and federal standards for quality and safety. To ensure delivery of high quality water, we have made significant investments in treatment facilities, water quality monitoring, and the distribution system. The Water Department has recently completed the development of an Environmental Management System (EMS) in order to minimize the risk to the Town and our customers in the event of an unexpected abnormality. We hope that you are as pleased with the quality of your water as we are. Please feel free to contact us with any questions or concerns you may have.

Avon's Water System. The Town of Avon draws its water from seven groundwater supply wells, seven pump stations, and two water storage tanks. Additionally The Water Department has three water treatment plans for corrosion control and one water filtration plant. The system has interconnections with Randolph, Holbrook, and Brockton.

Required Information. The Town of Avon entered into an Administrative Consent Order with Penalty (ACOP) on January 17, 2014. The Town was required to meet a number of conditions regarding operational improvements, including preparation and implementation of an Environmental Management System (EMS).

Water Quality Summary. The contaminants listed below only represent those which were detected in 2014 or within the past five years. The Water Department regularly tests for many hundreds of contaminants to ensure that only the safest and highest quality water is delivered to our customers. Please refer to the definitions on the back for clarification understanding this table.

Regulated Substances	Year	Units of Measure	MCL [MRDL]	MCLG [MRDL G]	Amount Detected	Range (Low-High)	Violation (Yes/No)	Typical Source
Alpha Emitters	2012	pCi/L	15	N/A	1.36	1.36	No	Erosion of natural deposits
Haloacetic Acids ¹	2014	ppb	60	N/A	8.1	1.0-8.1	No	By-product of drinking water disinfection
Total Trihalomethanes ¹	2014	ppb	80	N/A	59.6	30.5-59.6	No	By-product of drinking water disinfection
Nitrate	2014	ppm	10	10	2.2	1.3-2.2	No	Fertilizer/ Septic Runoff
Fluoride	2014	ppm	4	N/A	0.06	ND-0.06	No	Erosion of natural deposits
Barium	2014	ppb	200	200	7.4	ND-7.4	No	Erosion of natural deposits
Cyanide	2014	ppb	200	200	280	ND-280	Yes	Discharge from metal, plastic and fertilizer factories,
Perchlorate	2014	ppb	2	N/A	0.38	0.31-0.38	No	Blasting agents, munitions

Lead and Copper² <i>(Tap water samples were collected for lead and copper analysis throughout the community)</i>								
Substance	Year	Units	AL	MCLG	Amount Detected (90th %tile)	Sites above AL/ Total Sites	Violation	Typical Source
Copper	2014	ppm	1.3	1.3	0.298	0/23	No	Corrosion of household plumbing & natural deposits
Lead	2014	ppb	15	0	4	0/23	No	Corrosion of household plumbing & natural deposits

Unregulated Substances³	Year	Unit of Measure	Amount Detected	Range (Low-High)	Source
Bromodichloromethane	2014	ppb	1.3	ND-1.3	By product of drinking water disinfection
Chlorodibromomethane	2013	ppb	1.5	ND-1.5	By product of drinking water disinfection
Chloroform	2014	ppb	1.2	ND-1.2	By product of drinking water disinfection
Sodium ⁴	2014	ppm	120	97-120	Road salt, naturally occurring

Footnotes

1. Stage 2 Monitoring Program

2. 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. Avon Water Department 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>.

3. Unregulated contaminants are those for which the U.S. EPA has not established drinking water standards. The purpose of unregulated-contaminant monitoring is to assist the EPA in determining their occurrence in drinking water and whether future regulation is warranted.

4. There is no MCL for sodium however the DEP Office of Research & Standards (ORSG) has established a guideline of 20 mg/L (ppm) based on an 8 oz. serving. Sodium sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the sodium levels where exposures are carefully controlled.

Definitions

Maximum Contaminant Level (MCL) - The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to 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.

90th Percentile- Out of every 10 homes sampled, 9 were at or below this level. **pCi/L**- picocuries per liter (a measure of radioactivity)

ppm- parts per million, or milligrams per liter (mg/l)

ppb- parts per billion, or micrograms per liter (ug/l)

NR- not regulated

ND- not detectable at testing limit

N/A- not applicable

UOM- unit of measure

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

Variances & Exemptions: State or EPA permission not to meet an MCL or a treatment technique under certain conditions.

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

Avon's Water Treatment

In order to meet state and federal requirements for public drinking water, our source water receives the following treatment before it is supplied to our customers.

Primary Disinfection with Chlorine (without filtration): All reservoirs and some ground water contain numerous microorganisms, some of which can cause people to be sick. To eliminate disease-carrying organisms it is necessary to disinfect the water. Disinfection does not sterilize the water, but it does destroy harmful organisms. Sterilization kills all microorganisms, even though most are not harmful, and it is too costly to use on a routine basis. The Avon Water Department uses sodium hypochlorite (chlorine) as its primary disinfectant. Chlorine destroys organisms by penetrating cell walls and reacting with enzymes. Disinfection with chlorine has been proven effective at ensuring that water is free of harmful organisms and is safe to drink. The Memorial Filtration Plant went online Oct. 30, 2009. A carbon filter has been installed to filter out MTBE's at the plant.

Corrosion Control through pH Adjustment: Many drinking water sources in New England are naturally corrosive (i.e. they have a pH of less than 7.0) so the water they supply has a tendency to corrode and dissolve the metal piping it flows through. This not only damages pipes but can also add harmful metals, such as lead and copper, to the water. For this reason, it is beneficial to add chemicals that make the water neutral or slightly alkaline. This is done by adding any one, or a combination of several, approved chemicals. The Avon Water Department adds potassium hydroxide (KOH) to the water. This adjusts the water to a non-corrosive pH. Testing throughout the water system has shown that this treatment has been effective at reducing lead and copper concentrations. All chemicals used for coagulation are approved for water treatment by one or more of the following organizations: National Sanitation Foundation (NSF) now known as NSF International or Underwriters Laboratory (UL), both accredited by the American National Standards Institute (ANSI). Chemicals also have to meet performance standards established by the American Water Works Association.

Iron and Manganese Removal: Iron and manganese is 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 preferred that the iron and manganese be removed. Removal generally requires a two step process of oxidation and filtration. Oxidation is accomplished by adding chlorine to the water. This causes the iron and manganese to form tiny particles. Once this happens, the water passes through special filters consisting of a material that is specifically designed to capture iron and manganese particles. Over time the filters start to clog and need to be cleaned using a high flow backwash process.

Violations - E-Coli - Ground Water Rule (Raw Water at Porter Well)

	Total # Positive	MCL	MCLG	Violation	Possible source of contamination
Total Coliform	5	*	0	No	Naturally present in the environment
E. Coli	1	*	0	Yes	Human and animal fecal waste

*Compliance with the fecal coliform/E. Coli MCL is determined upon additional repeat testing.

During routine monthly bacteria sampling in May, August and November 2014, the raw (untreated) water at Porter well tested positive for E.Coli and or Total Coliform. All finished (treated) water in the distribution system was absent of all bacteria.

The laboratory notification was received by the Avon Water Department on 11/___/14. Porter Well was immediately shut down and isolated from the system pending further testing on 11/___/14. A Tier 1 Public

Notice was issued by the Avon Water Department on 11/10/14. On 11/12/14 five repeat samples were taken, and five tested positive for total coliform and two tested positive for E.Coli. Porter Well was immediately taken out of service and MassDEP consulted. The Water Department made system modifications to enhance chlorination of the treated water from Porter Well and provide 4-log treatment. In March of 2015 MassDEP approved the modifications and Porter Well was placed back into service upon receipt of the state laboratory reports and resultant MassDEP approval.

Fecal coliform and E-coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short- term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose special health risks for infants, young children, and people with severely compromised immune systems.

SWAP

What is SWAP? The Source Water Assessment & Protection Program (SWAP) assesses the susceptibility of public water supplies. *What is my system's ranking?* A susceptibility ranking of high was assigned to this system using the information collected during the assessment by the DEP. *Where Can I See the SWAP Report?* The complete SWAP Report is available at the Avon Water Department and online at <http://www.mass.gov/dep/water/drinking/swapreps.htm>.

Is Our Water Safe for Everyone?

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 some 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 and Prevention (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 at 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	
MICROBIAL	Viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
INORGANIC CONTAMINANTS	Salts and metals, which can be naturally-occurring or result from urban storm water runoff, industrial, domestic wastewater discharges, oil & gas production, mining, and farming.
PESTICIDES AND HERBICIDES	May come from a variety of sources such as agricultural, urban storm water runoff, and residential uses.
ORGANIC CHEMICAL CONTAMINANTS	Synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.
RADIOACTIVE	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, the Department of Environmental Protection (DEP) and U.S. Environmental Protection Agency (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. 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 EPA Safe Drinking Water Hotline at 1-800-426-4791.

Contact Information & Public Meetings

As of July 1, 2014, the Water Department was incorporated into the Avon Department of Public Works. The Board of Selectmen oversees the operations of the Water Department and serves as Water Commissioners for the Avon Water Department. Selectmen include: Francis A. Hegarty, Chairman, Steven P. Rose- Clerk, and Robert F. Brady, Jr.- Associate. If you have any questions please call William Fitzgerald, Director, Department of Public Works (Email: WFitzgerald@avonmass.org), at (508) 588-0414 extension 1032 or 1024 with any questions, comments, or concerns. We are located In Avon Town Offices at 65 E. Main Street in Avon. Board of Selectmen meetings are open to the public and are held 1st and 3rd Thursday of every month at the Town Hall and broadcast live by Avon Cable Access and replayed regularly.