



Town of Avon, 2013 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 is also in the process of developing 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.

Water Quality Summary

The contaminants listed below only represent those which were detected in 2013 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 [MRDLG]	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	2013	ppb	60	N/A	3.1	ND-3.1	No	By-product of drinking water disinfection
Total Trihalomethanes ¹	2013	ppb	80	N/A	45.1	24.4-45.1	No	By-product of drinking water disinfection
Nitrate	2013	ppm	10	10	1.88	1.53-2.22	No	Fertilizer/ Septic Runoff
Perchlorate ²	2013	ppb	2	N/A	0.25	0.25	No	Blasting agents and munitions

Lead and Copper³ (Tap water samples were collected for lead and copper analysis throughout the community)

Substance	Year	Units	AL	MCLG	Amount Detected (90 th %tile)	Sites above AL/ Total Sites	Violation	Typical Source
Copper	2011	ppm	1.3	1.3	0.35	0/22	No	Corrosion of household plumbing & natural deposits
Lead	2011	ppb	15	0	3	0/22	No	Corrosion of household plumbing & natural deposits

Secondary Substances	Year	Unit of Measure	SMCL	Amount Detected	Range (Low-High)	Exceedance	Source
Iron	2011	ppb	300	17.5	ND-80	No	Leaching from natural deposits/ industrial waste
Manganese ⁴	2011	ppb	50	195	ND-821	Yes	Leaching from natural deposits/ industrial waste

Unregulated Substances ⁵	Year	Unit of Measure	Amount Detected	Range (Low-High)	Source
Bromodichloromethane	2013	ppb	0.9	ND-1.6	By product of drinking water disinfection
Bromoform	2013	ppb	0.8	ND-0.8	By product of drinking water disinfection
Chlorodibromomethane	2013	ppb	1.1	0.7-1.4	By product of drinking water disinfection
Chloroform	2013	ppb	0.9	ND-1.5	By product of drinking water disinfection
Sodium ⁶	2012	ppm	70	66-80	Road salt, naturally occurring

Footnotes

1. Stage 1 Monitoring Program

2. The Avon Water Department failed to comply with the MassDEP monitoring schedule for Perchlorate. We did not take raw water samples at the Theater #3 Well, Trout Brook Well, or Memorial #1 Well. Treated water samples did however indicate Perchlorate levels to be within the MassDEP standard. Perchlorate can disrupt normal function of the thyroid gland, which is especially dangerous to pregnant women, infants, children, or anyone with thyroid problems.

3. 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>.

4. Manganese is a naturally occurring mineral found in rocks, soil and groundwater, and surface water. Manganese is necessary for proper nutrition and is part of a healthy diet, but can have undesirable effects on certain sensitive populations at elevated concentrations. The United States Environmental Protection Agency (EPA) and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 50 µg/L (micrograms per liter), or 50 parts per billion, and health advisory levels. In addition, EPA and MassDEP have also established public health advisory levels. Drinking water may naturally have manganese and, when concentrations are greater than 50 µg/L, the water may be discolored and taste bad. Over a lifetime, EPA recommends that people drink water with manganese levels less than 300 µg/L and over the short term, EPA recommends that people limit their consumption of water with levels over 1000 µg/L, primarily due to concerns about possible neurological effects. Children up to 1 year of age should not be given water with manganese concentrations over 300 µg/L,

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nor should formula for infants be made with that water for longer than 10 days. See: http://www.epa.gov/safewater/ccl/pdfs/reg_determine1/support_cc1_magnese_dwreport.pdf

5. 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.

6. 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.

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

NR- not regulated

N/A- not applicable

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.

pCi/L- picocuries per liter (a measure of radioactivity)

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

ND- not detectable at testing limit

UOM- unit of measure

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.

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 occurring minerals, and in some cases, radioactive material. It can pick up substances resulting from the presence of animals or from human activity. Contaminants that may be present in source water include:	
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 & Water Commissioner Meetings

Meetings are open to the public and are held 1st and 3rd Thursday of every month in the Water Department office. Water Commissioners for the Avon Water Department are: Peter Marinelli- Chairman, Charles Comeau, Jr. - Clerk, Charles Linfield- Associate. If you have any questions please call Paul Provost (Email: pprovost@avonmass.org), Interim Avon Water Superintendent at (508) 588-0414 with any questions, comments, or concerns. We are located in Avon Town Offices at 65 E. Main Street in Avon.