

2010 Town of Avon Massachusetts Drinking Water Quality Report

Avon Water Department
Town Offices-Buckley Center, Avon, MA

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Visit us at Avon Water Dept.'s website: www.avonmass.org
PWS ID 4018000

AVON WATER SOURCES		
Well	Source ID	Type
Memorial Well No. 1	4018000-01G	This is a 24" diameter gravel packed well that is 57' deep.
Memorial Well No. 2	4018000-02G	This gravel packed well is inactive due to high levels of manganese, which causes discolored water. This well is scheduled to be redeveloped and put back in service.
Well No. 4	4018000-05G	Well No. 4 is a 6" diameter gravel packed well that is 34' deep.
Trout Brook Well Field	4018000-06G	This well field is a series of seven 8" tubular wells, 31' to 38' deep interconnected together by ductile iron piping.
Well No. 3	4018000-04G	Well No. 3 is a 12" diameter gravel packed well that is 27' deep and is adjacent to Trout Brook well field.
Porter Well	4018000-03G	This well is a dug well that is 30' in diameter and 22' deep.
Wellfield No. 3	4018000-07G	This is a new replacement well field.

SOURCE WATER ASSESSMENT & PROTECTION PROGRAM

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/swareps.htm>.

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 CONTAMINANTS	Such as viruses and bacteria, which may come from sewage treatment plants, 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 & 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.

The Avon Water Department has six pump stations and three water treatment plants for corrosion control that were completed in December of 1999. We have interconnections with Randolph, Holbrook, and Brockton. Additionally, the Memorial Filtration Plant went online October 30, 2009.

WATER COMMISSIONERS 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 Dept. are: Peter Marinelli-Chairman, Eugene Guilbault and Charles Linfield.

HEALTH INFORMATION

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. 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 (1-800-426-4791).

TREATMENT TECHNIQUES

Primary Disinfection with Chlorine (with 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. The Avon Water Department uses sodium hypochlorite (chlorine) as its primary disinfectant. Chlorine destroys organisms by penetrating cell walls and reacting with enzymes. When combined with proper filtration, disinfection with chlorine has been proven effective at ensuring that water is free of harmful organisms and 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.

CROSS CONNECTION

A cross connection is a connection between a drinking water pipe and a polluted source. The pollution can come from your own home. For instance, you're going to spray fertilizer on your lawn. You hook up your hose to the sprayer that contains the fertilizer. If the water pressure drops (say because of fire hydrant use in the town) while the hose is connected to the fertilizer, the fertilizer may be sucked back into the drinking water pipes through the hose. Using an attachment on your hose called a backflow prevention device can prevent this problem. The Avon Water Department recommends the installation of backflow prevention devices, such as a low cost bib vacuum breaker, for all inside and outside hose connections. You can purchase this at a hardware store or plumbing supply store. This is a great way for you to help protect the water in your home as well as the drinking water system in your town. For additional information on cross connections and on the status of your water system's cross connection program, please contact the Avon Water Department.

During the past year we have taken hundreds of water samples in order to determine the presence of any contaminants. The table below shows only those contaminants that were detected in the water.

REGULATED CONTAMINANTS

WATER QUALITY TESTING RESULTS							
INORGANIC CHEMICALS (uom)	Date(s) Collected	Highest Detected	Range Detected	Highest Level Allowed MCL [MRDL]	Ideal Goal MCLG [MRDLG]	Violation (Y/N)	Possible Source of Contamination
Nitrate (ppm)	5/3/10	2.15	1.16-2.15	10.0	10.0	N	Fertilizer, Septic Run-off
Nitrite (ppm)*	4/1/08	ND	ND	1.0	1.0	N	Fertilizer, Septic Run-off
Perchlorate (ppb)1	7/7/10	<19 est.	NA	2.0	NA	N	Blasting agents & munitions
Cyanide(ppb)2 *	4/2/09	<10	NA	200	200	N	Discharge from metal factories; Discharge from plastic and fertilizer factories.
Barium (ppm)*	6/6/06	.14	ND-.14	2.0	2.0	N	Discharge of drilling wastes; Discharge from metal refineries; erosion of natural deposits.
Fluoride (ppm)*	6/6/06	<10	NA	4.0	4.0	N	Erosion of natural deposits; discharge from fertilizer and aluminum factories.
Total Coliform Bacteria (ppm)	Monthly	14	0 - 14	1	0	Y	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

1Perchlorate is positively present, but tentatively quantified. 2Source waiver granted, only Well #4 required to be tested.

We are committed to providing you with the best water quality available. However some contaminants that were tested last year did not meet all applicable health standards regulated by the state and federal government. Due to contaminant violations of coliform bacteria during the period of November 2010 our system took the following corrective actions. We collected additional samples. We announced public notification by newspaper, posting notice at Avon Town Offices and we disinfected and flushed the distribution system to eliminate coliform bacteria. Our water system and MassDEP monitor and record the effectiveness of actions taken in response to contaminant violations. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

Disinfection By-Products	Date(s) Collected	Highest Detected	Range Detected	Highest Level Allowed MCL [MRDL]	Ideal Goal MCLG [MRDLG]	Violation (Y/N)	Possible Source of Contamination
Total Trihalomethanes (TTHM) (ppb)	8/2/10	29.1	20.5-29.1	80	NA	N	By-product of drinking water disinfection.
Total Haloacetic Acids (HAA5) (ppb)	8/2/10	2.5	ND-2.5	60	NA	N	By-product of drinking water disinfection.

Highest Resultor RAA**

Free Chlorine (ppm)	Monthly	.43	.27-1.4	[4.0]	[4.0]	N	Water additive used to control microbes.
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**Highest Resultor RAA is the highest running annual average of all testing sites.

UNREGULATED CONTAMINANTS	Date	Highest	Range	Typical Source
Chlorodibromomethane (ppm)	10/4/10	0.6	ND-0.6	By-product of drinking water chlorination
Chloroform (ppm)	10/4/10	0.6	ND-0.6	By-product of drinking water chlorination
Sodium (ppm)3*	4/2/09	105	11.5-105	Naturally present in the environment, runoff from road salt; by-product of drinking water treatment process

3There is no MCL for sodium however the DEP Office of Research & Standards (ORS) has established a guideline of 20 mg/L based on an 8 oz. serving.

RADIONUCLIDE*	Date Collected	Result	Std. Dev. (+/-)	MCL	Violation	Possible Source of Contamination
Gross Alpha Activity (pCi/L)	11/2/09	-0.50	1.38	15	N	Naturally occurring or result of oil & gas production & mining activities

LEAD AND COPPER	Date Collected	90 th Percentile	Action Level	MCLG	# of Sites Sampled	# of Sites above AL	Possible Source of Contamination
Lead (ppb)*	8/26/08, 9/19/08	5	15	0	20	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper (ppm)**	8/26/08, 9/19/08	0.25	1.3	1.3	20	0	Corrosion of household plumbing systems; Erosion of natural deposits, leaching from wood preservatives

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>.

*MassDEP has reduced the monitoring requirements for this contaminant to less often than once per year because the source is not at risk of contamination.

**The water quality information presented in the above tables is from the most recent round of testing done in accordance with the regulations. All data shown were collected during the last calendar year unless otherwise noted. Listed in the tables above are all of the contaminants detected in 2010, NONE of which exceeded the allowed levels. We monitor for some contaminants less than once per year, because the concentrations for those contaminants are not expected to vary significantly from year to year. As a result, some of our data though representative is more than a year old. For those contaminants, the date of the last sample is shown in the table.

IMPORTANT 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 (ex. chlorine, chloramines, chlorine dioxide).
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
NA: Not applicable
UOM: Unit of Measure
Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
Variations & Exemptions: State or EPA permission not to meet and MCL or a treatment technique under certain conditions.