



# TOWN OF AVON

## 2011 Water Quality Report

### The Quality of Your Drinking Water

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 a quality product, we have made significant investments in treatment facilities, water quality monitoring, and the distribution system. In 2011, a new water main and residential services were installed on Everett Street. We are pleased to report the results of our 2011 water testing to inform you about your drinking water. Each year we will be either mailing a water quality report directly to you or printing a water quality report in the newspaper, with copies available to you upon request.

### Avon's Water System

The Avon Water Department has seven groundwater supply wells, seven pump stations, two water storage tanks, 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.

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.

### Cross Connection Education

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.

### Water Quality Summary

Listed below are the contaminants detected in Avon's drinking water in 2011 or within the last 5 years if we were not required to test in 2011 for a previously detected contaminant. Not listed are over 100 other contaminants for which we tested but did not detect.

### REGULATED CONTAMINANTS

INORGANIC CHEMICALS	Units of Measurement (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	4/4/11	1.74	1.63-1.74	10	10	N	Fertilizer, Septic Run-off
Perchlorate	ppb	7/6/11	.59	.12-.59	2	NA	N	Blasting agents & munitions

### Disinfection By Products:

Total Trihalomethanes (TTHM)	ppb	8/1/11	46.4	36.8-46.4	80	NA	N	By-product of drinking water disinfection.
Total Haloacetic Acids (HAA5)	ppb	8/1/11	10.7	3.2-10.7	60	NA	N	By-product of drinking water disinfection.

### Highest Resultor RAA\*\*

Free Chlorine	ppm	Monthly	.51	.04-2.74	[4]	[4]	N	Water additive used to control microbes.
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\*\*Highest Resultor RAA is the highest running annual average of all testing sites.

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	uom	Date Collected	90 <sup>th</sup> Percentile	Action Level	MCLG	# of Sites Sampled	# of Sites above AL	Possible Source of Contamination
Lead***	ppb	9/13/11-9/16/11	3	15	0	20	0	Corrosion of household plumbing systems; Erosion of natural deposits
Copper***	ppm	9/13/11-9/16/11	0.35	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.

### UNREGULATED CONTAMINANTS

	uom	Dates Collected	Highest Detected	Range	Typical Source
Chlorodibromomethane	ppb	2/7/11, 4/4/11 7/6/11, 11/9/11	1.0	ND-1.0	By- product of drinking water chlorination
Chloroform	ppb	2/7/11, 4/4/11 7/6/11, 11/9/11	2.2	ND-2.2	By- product of drinking water chlorination
Bromodichloromethane	ppb	2/7/11, 4/4/11 7/6/11, 11/9/11	0.7	ND-0.7	By- product of drinking water chlorination
Bromoform	ppb	2/7/11, 4/4/11 7/6/11, 11/9/11	0.7	ND-0.7	By- product of drinking water chlorination
Sodium	ppm	2/7/11, 4/4/11 7/6/11, 11/9/11	109	57.1-109	Naturally present in the environment; runoff from road salt; by-product of drinking water treatment process
There is no MCL for sodium however the DEP Office of Research & Standards (ORSG) has established a guideline of 20 mg/L 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.					

The water quality information presented in the 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 are all of the contaminants detected in 2011, 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.

#### 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.

**90<sup>th</sup> 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.

**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.

#### Water Rates

Water rates increased for the first time in 14 years in October of 2011. The rates are as follows: Usage: 0 to 1400 cu. Feet= \$50 minimum bill, 1401 to 8000 cu. Ft.= \$2.75 per every 100 cu. Feet, 8001 + cu. Feet= \$3.75 per every 100 cu. Feet. A meter service fee of \$7.50 semi-annually helps to defray the cost of maintaining our meter replacement program. Meters are replaced as they age at no cost to customers.

#### 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>.

#### 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 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 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.

#### 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.

#### Violations

##### E-Coli

Ground Water Rule (Raw Water At Porter Well)

Contaminant	Dates Collected	Total Positive Samples
E. Coli	9/12/2011	1
E. Coli	9/14/2011	4

	Total # Positive	MCL	MCLG	Violation	Possible source of contamination
E. Coli	1	0	0	Y	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 September 2011, the raw (untreated) water at Porter well tested positive for E.Coli. **All finished (treated) water in the distribution system was absent of all bacteria.**

The laboratory notification was received by the Avon Water Department on 9/13/11. On 9/13/11 Porter Well was immediately shut down and isolated from the system pending further testing on 9/14/11. A Tier I Public Notice was issued by the Avon Water Department on 9/14/11. On 9/14/11 five repeat samples were taken, and four tested positive for E.Coli. Porter Well was chlorinated, flushed and re-tested. Six additional samples were taken, and all samples were absent of all bacteria. On 9/28/11 Porter Well was placed back into service upon receipt of the state laboratory reports and resultant DEP approval.

Fecal coliforms 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.

#### 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 found in drinking 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.

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.

#### Water Commissioners Meetings

Meetings are open to the public and are held 1<sup>st</sup> and 3<sup>rd</sup> Thursday of every month in the Water Department office. Water Commissioners for the Avon Water Dept. are: Peter Marinelli-Chairman, Charles Comeau, Jr.-Clerk, Charles Linfield-Associate.

#### Any questions?

Please call John Tetreault, 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. Email: [jtetreault@avonmass.org](mailto:jtetreault@avonmass.org). Visit the town website at [www.avonmass.org](http://www.avonmass.org).