Annual

Water Quality Report

Water testing performed in 2010

Presented By

Town of Medfield

PWS ID#: 2175000

Quality First

The Medfield Public Works Department is proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2010. The Town of Medfield is committed to delivering the best-quality drinking water possible. To that end, we remain vigilant in meeting the challenges of new regulations, source water protection, water conservation, and community outreach and education while continuing to serve the needs of all of our water users. Thank you for allowing us to continue providing you and your family with high-quality drinking water.

We encourage you to share your thoughts with us on the information contained in this report. Should you ever have any questions or concerns, we are always available to assist you.

Where Does My Water Come From?

The origin of our water is five groundwater supply wells referred to as Wells 1, 2, 3, 4, and 6. (Note: Well 5 was not fully constructed due to high levels of iron and manganese in its water.) The groundwater supply is not exposed to air and is not subject to direct pollution and contamination like a river or reservoir (surface water). In fact, groundwater is the highest quality of water available to meet the public health demand of water intended for human consumption. Wells 1, 2, and 6 are located in the Charles River Aquifer, while Wells 3 and 4 are located in the Neponset River Aquifer. The water system also includes five pumping facilities for the distribution of water, two water storage tanks, and approximately 76 miles of water main.

Important Health Information

Manganese is a naturally occurring mineral. At a level greater than 50 ppb, the water will appear brown, taste unpleasant, and may leave black stains on fixtures or on laundry. While manganese is part of a healthy diet, it can be harmful if consumed in large concentrations; infants should not drink water that contains Manganese above this level, especially if they are bottle fed.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immunocompromised 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 infants may be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The U.S. EPA/CDC (Centers for Disease Control and Prevention) 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 (800) 426-4791 or http://water.epa.gov/drink/hotline.

Community Participation

The Board of Water and Sewerage meetings are held on the third Thursday of each month at 7:00 p.m. at the Medfield Town House, 459 Main Street, Medfield, MA. Meetings are posted with the Town Clerk and are posted on the Medfield Web Site at www.town.medfield.net.

Water Conservation

You can play a role in conserving water and save yourself money in the process by becoming conscious of the amount of water your household is using and by looking for ways to use less whenever you can. It is not hard to conserve water. Here are a few tips:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it and you can save almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank. Watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from an invisible toilet leak. Fix it and you save more than 30,000 gallons a year.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water-using appliances. Then check the meter after 15 minutes. If it moved, you have a leak.

SWAP

The Source Water Assessment and Protection (SWAP) program, established under the Federal Safe Drinking Water Act, requires every state to inventory land uses within the recharge areas of all public water supply sources; assess the susceptibility of drinking water sources to contamination from these land uses; and publicize the results to provide support for improved protection. A susceptibility ranking of high was assigned to the Medfield Water System using the information collected during the water system assessment by the Massachusetts Department of Environmental Protection (MassDEP). The complete SWAP report is available at the Water Department and online at www.mass.gov/dep/water/drinking/3175000.pdf. For more information, contact Ken Feeney at (508) 906-3002.

Questions?

For more information about this report, or for any questions relating to your drinking water, please call Kenneth Feeney, Superintendent of Public Works, at (508) 906-3002 or send him email at kfeeney@medfield.net.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the Massachusetts Department of Environmental Protection (MassDEP) and the U.S. Environmental Protection Agency (U.S. EPA) prescribe regulations limiting the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water, which 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 these contaminants does not necessarily indicate that the water poses a health risk.

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. Substances 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, or wildlife;

Inorganic Contaminants, such as salts and metals, which can be naturally occurring or may 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 agriculture, 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 which may also come from gas stations, urban stormwater runoff, and septic systems;

Radioactive Contaminants, which can be naturally occurring or may be the result of oil and gas production and mining activities.

More information about contaminants and potential health effects can be obtained by calling the U.S. EPA's Safe Drinking Water Hotline at (800) 426-4791.

What's a Cross-connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed all industrial, commercial, and institutional facilities in the service area to make sure that all potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test each backflow preventer to make sure that it is providing maximum protection.

For more information, review the Cross-Connection Control Manual from the U.S. EPA's Web site at http://water.epa.gov/infrastructure/drinkingwater/pws/crossconnectioncontrol/index.cfm. You can also call the Safe Drinking Water Hotline at (800) 426-4791.

About Our Violation

During routine water sampling on September 4, 2010, October 6, 2010, and November 3, 2010, more than one sample or greater than five percent of the samples collected showed the positive presence of coliform bacteria. This exceeds acceptable drinking water regulations. Therefore, the MassDEP issued a Notice of Non-Compliance (NON), NON-CE-10-5D159 and NON-CE-11-5D002.

What does this mean?

This was not an emergency. If it had been and emergency, you would have been notified immediately. Total coliform bacteria are generally not harmful themselves. Coliforms are bacteria which are naturally present in the environment; their presence is 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.

What is being done?

The Medfield Water Department chlorinated and flushed the water system. We increased our sampling for coliform bacteria. On-going sampling has not detected any of these bacteria, which shows that the problem has been resolved.

Lead and Drinking Water

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. The Town of Medfield is responsible for providing high-quality drinking water, but we 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 www.epa.gov/safewater/lead.

Radon

Radon is a radioactive gas that occurs naturally in some ground water. It may pose a health risk when the gas is released from water into air, as occurs during showering, bathing, or washing dishes and clothes. Radon gas released from drinking water is a relatively small part of the total radon in air. Radon is released into homes and ground water from soil. Inhalation of Radon gas has been linked to lung cancer; however, the effects of Radon ingested in drinking water are not yet clear. If you are concerned about Radon in your home, tests are available to determine the total exposure level. For additional information on how to have your home tested, call (800) SOS-RADON.

Sampling Results

During the past year we have taken hundreds of water samples in order to determine the presence of any biological, inorganic, volatile organic, or synthetic organic contaminants. The tables below show only those contaminants that were detected in the water. The State requires us to monitor for certain substances less often than once per year because the concentrations of these substances do not change frequently. In these cases, the most recent sample data are included, along with the year in which the sample was taken.

The following results were from sampling done in 2010 or during the most recent monitoring period for each contaminant group.

INORGANIC CONTAMINANTS	YEAR COLLECTED	HIGHEST RESULT OR HIGHEST RAA*	RANGE DETECTED	MCL [MRDL]	MCLG OR MRDLG	VIOLATION (Y/N)	POSSIBLE SOURCES
Nitrate (ppm)	2010	3.78	0.46–3.78	10	10	N	Runoff from fertilizer use; leaching from septic tanks; natural deposits
Fluoride (ppm)	2007	0.12	–	4**	4	N	Erosion of natural deposits
Perchlorate (ppb)	2010	0.18	0.05–0.18	2	–	N	Rocket propellants, fireworks, munitions, flares, blasting agents
Volatile Organic Contaminants							
Tetrachloroethylene (PCE) (ppb)	2010	2.9	ND–2.9	5	0	N	Discharge from factories and dry cleaners
Disinfectants and Disinfection Contaminants							
Chlorine (ppm)	Monthly in 2010	0.04	ND - 0.34	4	4	N	Water additive used to control microbes
Haloacetic Acids (HAA5s) (ppb)	Quarterly in 2010	2	ND–1.5	60	–	N	Byproduct of drinking water chlorination
Total Trihalomethanes (TTHMs) (ppb)	Quarterly in 2010	0	ND–0.6	80	–	N	Byproduct of drinking water chlorination

* Highest RAA = highest running annual average of four consecutive quarters.

** Fluoride also has a secondary maximum contaminant level of 2 ppm.

BACTERIA IN 2010	HIGHEST # POSITIVE SAMPLES IN A MONTH	MCL	MCLG	VIOLATION (Y/N)	POSSIBLE SOURCES
Total Coliform	7	1	0	Y	Naturally present in the environment
E. Coli	0	*	0	N	Human and animal fecal waste

* Compliance with the E. coli MCL is determined upon additional repeat testing.

LEAD AND COPPER	DATE COLLECTED	90TH PERCENTILE	ACTION LEVEL (AL)	MCLG	# OF SITES SAMPLED	# OF SITES ABOVE AL	EXCEEDS AL (Y/N)	POSSIBLE SOURCES
Lead (ppb)	2010	13	15	0	30	2	N	Corrosion of household plumbing
Copper (ppm)	2010	0.8	1.3	1.3	30	0	N	Corrosion of household plumbing

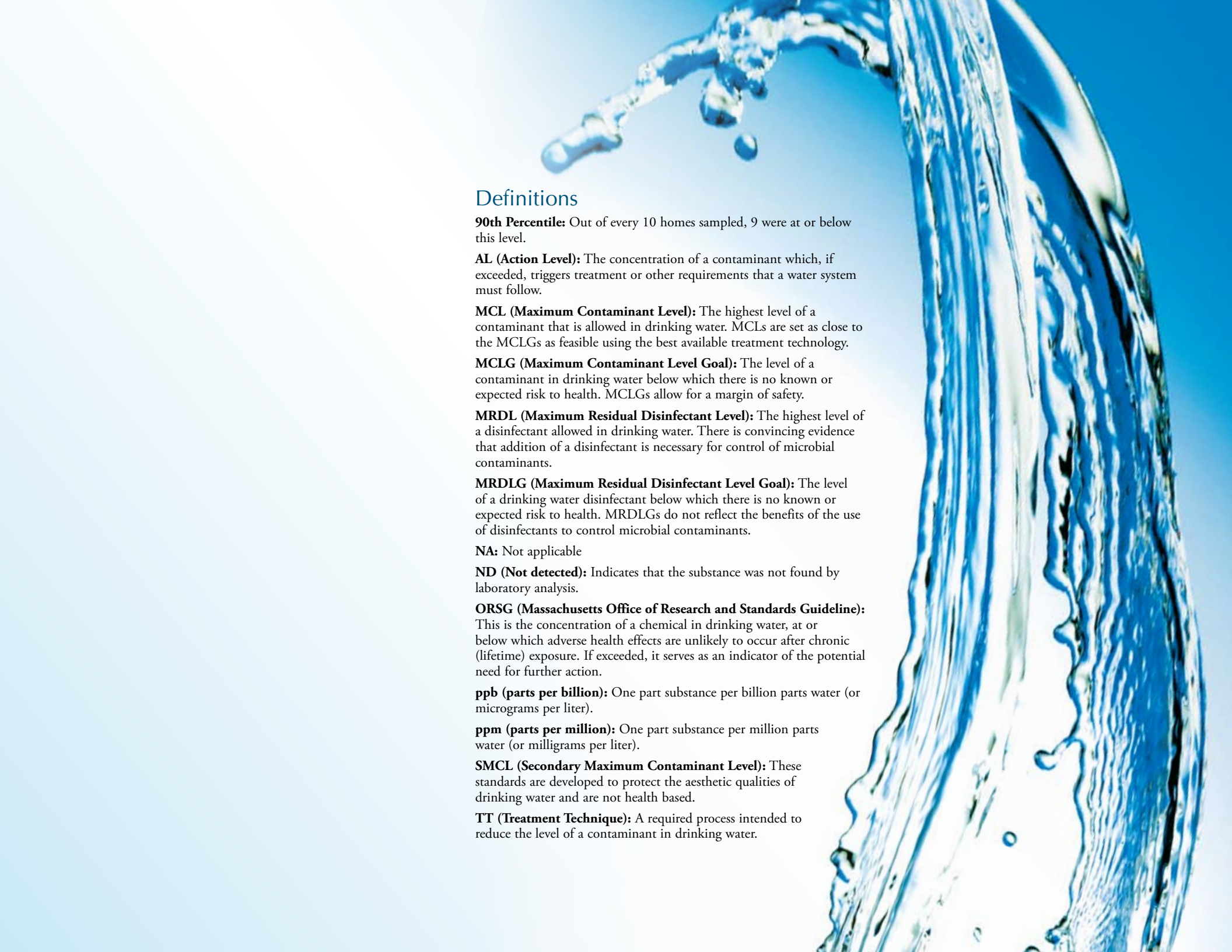
* Lead and copper compliance is based on the 90th percentile value, which is the highest level found in 9 out of every 10 homes sampled. This number is compared to the action level for each contaminant.

UNREGULATED[1] AND SECONDARY CONTAMINANTS	DATE COLLECTED	RANGE DETECTED	AVERAGE	SMCL	ORSG	POSSIBLE SOURCES
Sulfate (ppm)	2010	ND – 17.6	7.7	250	--	Natural sources
Sodium (ppm)	2008	27 - 35	29	--	20*	Natural sources; runoff from road salt
Iron (ppb)	2010	ND - 50	12.5	300	--	Naturally occurring; corrosion of cast iron pipes
Manganese (ppm)	2010	ND – 137	34	50**	--	Erosion of natural deposits
Radon (pCi/l)	2007	12 - 746	368	--	10,000	Natural sources

* Sodium-sensitive individuals, such as those experiencing hypertension, kidney failure, or congestive heart failure, should be aware of the levels of sodium in their drinking water where exposures are being carefully controlled.

** EPA has also established a lifetime health advisory (HA) value of 0.3 mg/l (300 ppb) for manganese to protect against concerns of potential neurological effects and a one-day and 10-day HA of 1 mg/l (1000 ppb) for acute exposure.

[1] 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 U.S. EPA in determining their occurrence in drinking water and whether future regulation is warranted.



Definitions

90th Percentile: Out of every 10 homes sampled, 9 were at or below this level.

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

MCL (Maximum Contaminant Level): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

MCLG (Maximum Contaminant Level Goal): 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.

MRDL (Maximum Residual Disinfectant Level): 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.

MRDLG (Maximum Residual Disinfectant Level Goal): 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.

NA: Not applicable

ND (Not detected): Indicates that the substance was not found by laboratory analysis.

ORSG (Massachusetts Office of Research and Standards Guideline): 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. If exceeded, it serves as an indicator of the potential need for further action.

ppb (parts per billion): One part substance per billion parts water (or micrograms per liter).

ppm (parts per million): One part substance per million parts water (or milligrams per liter).

SMCL (Secondary Maximum Contaminant Level): These standards are developed to protect the aesthetic qualities of drinking water and are not health based.

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