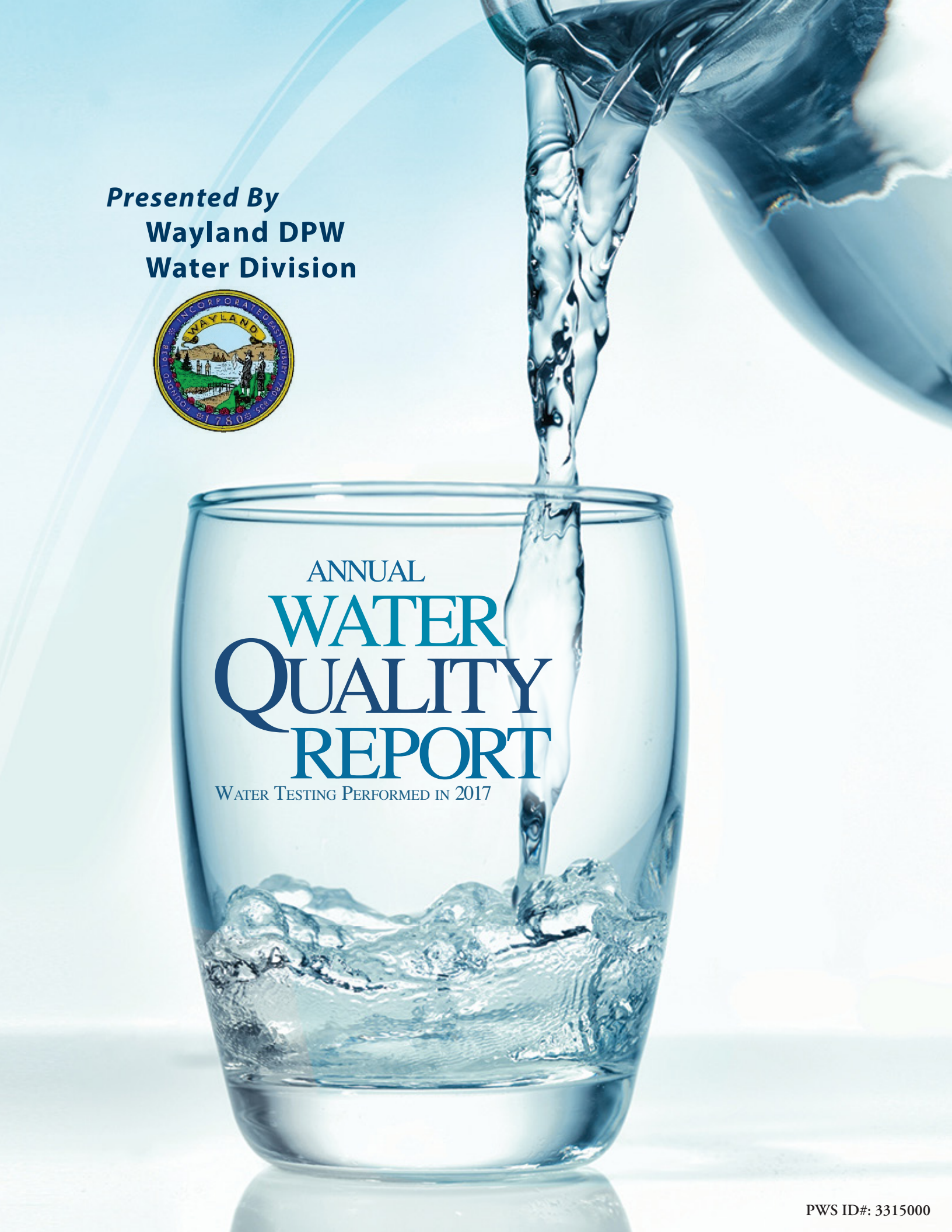

Presented By

Wayland DPW
Water Division

ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2017

PWS ID#: 3315000

Quality First

Once again, we are pleased to present our annual water quality report. As in years past, we are 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 our water users. Thank you for allowing us the opportunity to serve you and your family.

We encourage you to share your thoughts with us on the information contained in this report. After all, well-informed customers are our best allies. For more information about this report, or for any questions relating to your drinking water, please call Don Millette, Water Department Superintendent, at (508) 358-3672.

Important Health Information

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.

Treatment Process

The Baldwin Pond Treatment Plant uses a process called Ultra Filtration. This type of filtration has several advantages over traditional water filtration.

- Removes pathogens and turbidity;
- Provides an absolute barrier for bacteria, virus, and parasites;
- Compared to conventional disinfection treatment, no deactivated pathogens remain in the water.

This process involves a number of steps, starting with ozonation. Raw water is pumped into the treatment plant from a combination of three ground water wells. Once in the plant, the raw water is dosed with ozone to oxidize the iron and manganese that is naturally present in the ground,water. Next, potassium hydroxide is added to adjust the pH of the raw water and polyaluminum chloride to aid in flocculation of the iron and manganese particles. Then, the raw water enters the ozone contact tank where the oxidation and flocculation takes place. After 70 minutes of travel time, the water enters one of two 500-micron prefilters to remove larger particles. Once this process is complete, the raw water enters the Ultra Filtration units. After filtration, the water travels to the clear well where sodium hypochlorite is added for disinfection and sodium fluoride is added to prevent tooth decay.

The Water Division continues to operate five other wells that all have a similar chemical treatment processes, without the filtration step. Water is pumped from the aquifer where potassium hydroxide is added to adjust the pH. Sodium hypochlorite is added for disinfection and sodium fluoride is added to help prevent tooth decay.

Protecting Your Water

Bacteria are a natural and important part of our world. There are around 40 trillion bacteria living in each of us; without them, we would not be able to live healthy lives. Coliform bacteria are common in the environment and are generally not harmful themselves. The presence of this bacterial form in drinking water is a concern, however, because it indicates that the water may be contaminated with other organisms that can cause disease.

In 2016, the U.S. EPA passed a new regulation called the Revised Total Coliform Rule, which requires additional steps that water systems must take to ensure the integrity of the drinking water distribution system by monitoring for the presence of bacteria like total coliform and *E. coli*. The rule requires more stringent standards than the previous regulation, and it requires water systems that may be vulnerable to contamination to have in place procedures that will minimize the incidence of contamination. Water systems that exceed a specified frequency of total coliform occurrences are required to conduct an assessment of their system and correct any problems quickly. The U.S. EPA anticipates greater public health protection under the new regulation due to its more preventive approach to identifying and fixing problems that may affect public health.

Although we have been fortunate to have the highest quality drinking water, our goal is to eliminate all potential pathways of contamination into our distribution system, and this new rule helps us to accomplish that goal.

Substances That Could Be in Water

To ensure that tap water is safe to drink, the Department of Environmental Protection (DEP) and the U.S. Environmental Protection Agency (U.S. EPA) prescribes 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.

Our Water Source

The Wayland DPW Water Division operates eight ground water wells. The three wells located at the Baldwin Pond site are part of the Baldwin Pond Water Filtration Facility. Following are the source names and their DEP ID numbers:

SOURCE NAME	DEP ID#	TYPE/LOCATION
Campbell Well	3315000-02G	gravel-packed well located off of Campbell Road
Chamberlain Well	3315000-08G	gravel-packed well located off of Moore Road
Meadowview Well	3315000-05G	gravel-packed well located off of Oak Hill Road
Happy Hollow #1R	3315000-10G	gravel-packed well located off of Old Conn Path
Happy Hollow #2R	3315000-11G	gravel-packed well located off of Old Conn Path
Happy Hollow #3R	3315000-12G	gravel-packed well located off of Old Conn Path
Baldwin Pond #1R	3315000-09G	gravel-packed well located on Old Sudbury Road
Baldwin Pond #2	3315000-07G	gravel-packed well located on Old Sudbury Road
Baldwin Pond #3	3315000-06G	gravel-packed well located on Old Sudbury Road

Lead in Home Plumbing

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. We are 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 www.epa.gov/lead.

Source Water Assessment

A Source Water Assessment Plan (SWAP) is now available at our office. This plan is an assessment of the delineated area around our listed sources through which contaminants, if present, could migrate and reach our source water. It also includes an inventory of potential sources of contamination within the delineated area and a determination of the water supply's susceptibility to contamination by the identified potential sources.

According to the Source Water Assessment Plan, our water system had a susceptibility rating of "medium." If you would like to review the Source Water Assessment Plan, please feel free to contact our office during regular office hours.

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 industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection.

For more information on backflow prevention, contact the Safe Drinking Water Hotline at (800) 426-4791.

Count on Us

Delivering high-quality drinking water to our customers involves far more than just pushing water through pipes. Water treatment is a complex, time-consuming process. Because tap water is highly regulated by state and federal laws, water treatment plant and system operators must be licensed and are required to commit to long-term, on-the-job training before becoming fully qualified. Our licensed water professionals have a basic understanding of a wide range of subjects, including mathematics, biology, chemistry, and physics. Some of the tasks they complete on a regular basis include:

- Operating and maintaining equipment to purify and clarify water;
- Monitoring and inspecting machinery, meters, gauges, and operating conditions;
- Conducting tests and inspections on water and evaluating the results;
- Maintaining optimal water chemistry;
- Applying data to formulas that determine treatment requirements, flow levels, and concentration levels;
- Documenting and reporting test results and system operations to regulatory agencies; and
- Serving our community through customer support, education, and outreach.

So, the next time you turn on your faucet, think of the skilled professionals who stand behind each drop.

Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water. The Board of Public Works meets the 2nd and 4th Tuesdays of each month beginning at 7 p.m. at the DPW Facility at 66 River Road, Wayland, Massachusetts.

Test Results

Our water is monitored for many different kinds of substances on a very strict sampling schedule. The information in the data tables shows only those substances that were detected between January 1 and December 31, 2017. Remember that detecting a substance does not necessarily mean the water is unsafe to drink; our goal is to keep all detects below their respective maximum allowed levels. The State recommends monitoring for certain substances less 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.

We participated in the 3rd stage of the EPA's Unregulated Contaminant Monitoring Rule (UCMR3) program by performing additional tests on our drinking water. UCMR3 benefits the environment and public health by providing the EPA with data on the occurrence of contaminants suspected to be in drinking water, to determine if EPA needs to introduce new regulatory standards to improve drinking water quality. Contact us for more information on this program.

Fluoride addition was passed by Town meeting vote in 1999 to improve oral health in children. Our water system fluoride level is adjusted to an optimal level averaging 0.70 milligrams per liter. Fluoridation results are reported to the Mass DPH/Office of Oral Health on a monthly basis.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Barium (ppm)	2016	2	2	0.032	0.011–0.032	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2017	[4]	[4]	1.2	0.79–1.2	No	Water additive used to control microbes
Haloacetic Acids [HAA] (ppb)	2017	60	NA	13	ND–13	No	By-product of drinking water disinfection
Nitrate (ppm)	2017	10	10	3.7	1.1–3.7	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
TTHMs [Total Trihalomethanes] (ppb)	2017	80	NA	34	4.3–34	No	By-product of drinking water disinfection

Tap water samples were collected for lead and copper analyses from sample sites throughout the community

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AL	MCLG	AMOUNT DETECTED (90TH%TILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2017	1.3	1.3	0.025	0/41	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2017	15	0	0.005	0/41	No	Corrosion of household plumbing systems; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Aluminum (ppb)	2017	200	NA	0.04	ND–0.04	No	Erosion of natural deposits; Residual from some surface water treatment processes
Chloride (ppm)	2017	250	NA	250	61.6–250	No	Runoff/leaching from natural deposits
Copper (ppm)	2017	1.0	NA	0.007	ND–0.007	No	Erosion of natural deposits
Iron (ppb)	2017	300	NA	0.012	ND–0.012	No	Leaching from natural deposits; Industrial wastes
Manganese[1] (ppb)	2017	50	NA	83	ND–83	No	Leaching from natural deposits
pH (Units)	2017	6.5-8.5	NA	8.1	6.6–8.1	No	Naturally occurring
Sodium[2] (ppm)	2017	NA	NA	104	22.4–104	No	Naturally occurring; Runoff from use of salt on roadways
Sulfate (ppm)	2017	250	NA	27.2	15.7–27.2	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2017	500	NA	358	224–358	No	Runoff/leaching from natural deposits
Zinc (ppm)	2017	5	NA	0.007	0.003–0.007	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED CONTAMINANT MONITORING RULE - PART 3 (UCMR3) [3]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
1,4-Dioxane (ppb)	2014	0.09	0.08–0.09	Used as a solvent, cleaning agent, chemical stabilizer, surface coating, adhesive agent, and an ingredient in chemical manufacturing
Chlorate (ppb)	2014	220	58–220	By-product of drinking water disinfection
Chlorodifluoromethane [HCFC-22] (ppb)	2014	640	420–640	Manufactured chemical historically used as a refrigerant and as an intermediate in the production of fluoropolymers
Chromium [Total] (ppb)	2014	0.27	0.22–0.27	NA
Chromium-6 (ppb)	2014	0.20	0.04–0.20	NA
Strontium (ppb)	2014	170	120–170	NA

OTHER UNREGULATED SUBSTANCES [3]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Acetone (ppb)	2017	210	ND–210	NA
Bromodichloromethane (ppb)	2017	1.93	ND–1.93	By-product of drinking water disinfection
Bromoform (ppb)	2017	0.63	ND–0.63	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2017	2.29	ND–2.29	By-product of drinking water disinfection
Chloroform (ppb)	2017	1.3	ND–1.3	By-product of drinking water disinfection
Nickel (ppm)	2016	0.002	ND–0.002	NA

[1] Manganese is a naturally occurring mineral found in rocks, soil and ground water, 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. U.S. EPA and MADEP have established public health advisory levels for manganese to protect against concerns of potential neurological effects.

[2] The Massachusetts Department of Environmental Protection maintains a guideline level of 20 ppm for sodium.

[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 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. This number is compared to the Action Level to determine lead and copper compliance.

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

LRAA (Locational Running Annual Average): The average of sample analytical results for samples taken at a particular monitoring location during the previous four calendar quarters. Amount Detected values for TTHMs and HAAs are reported as the highest LRAAs.

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.

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): SMCLs are established to regulate the aesthetics of drinking water like appearance, taste and odor.