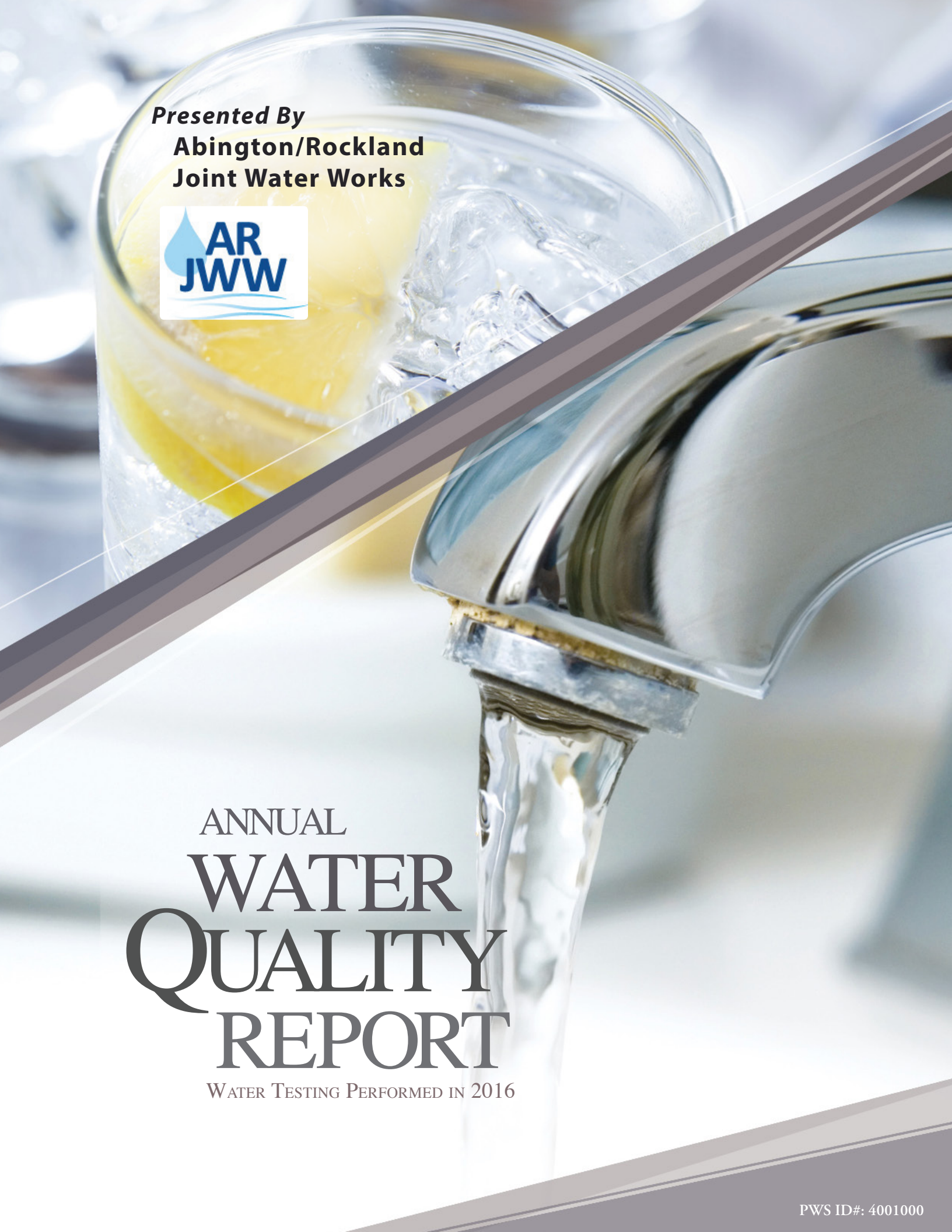


Presented By

Abington/Rockland Joint Water Works

ANNUAL WATER QUALITY REPORT

Water Testing Performed in 2016

PWS ID#: 4001000

We've Come a Long Way

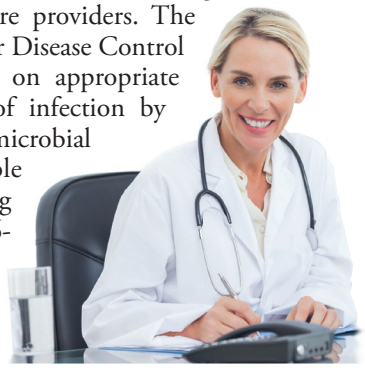
Once again we are proud to present our annual water quality report covering the period between January 1 and December 31, 2016. In a matter of only a few decades, drinking water has become exponentially safer and more reliable than at any other point in human history. Our exceptional staff continues to work hard every day—at any hour—to deliver the highest quality drinking water without interruption. Although the challenges ahead are many, we feel that by relentlessly investing in customer outreach and education, new treatment technologies, system upgrades, and training, the payoff will be reliable, high-quality tap water delivered to you and your family.

Community Participation

You are invited to participate in our public meetings. This participation will provide you with the opportunity to voice your concerns or become actively involved in decisions affecting your drinking water. Please check the town hall bulletin boards, or contact the office at (781) 878-0901, to determine the time and location of the scheduled meetings.

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.



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.

Where Does My Water Come From?

The Towns of Abington and Rockland are supplied water from three different sources. The one ground water source located on Myers Avenue in Abington consists of four gravel-packed wells. The combined effluent from these wells is treated with chlorine for disinfection and filtered through a pressurized filtering system to remove natural elements such as iron and manganese.

The remainder of the supply is from two surface water bodies: the John F. Hannigan Memorial Reservoir, located in the northeast corner of Rockland, and the Great Sandy Bottom Pond, located in the town of Pembroke. Both of these sources are treated through a conventional filtration process where the raw water is chemically adjusted to allow impurities to bond together. The combined weight causes the elements to settle to the bottom. The remaining particles pass through a sand and gravel filter. The combination of sand and gravel removes the particles from the water as well as aids in controlling the taste of the finished product. Finally, similar to the ground water process, chlorine is added for disinfection of the water.

These three sources combined are certified to produce 2.67 million gallons of water per day.

To learn more about our watershed on the Internet, go to the U.S. EPA's Surf Your Watershed at www.epa.gov/surf.

Failure in Flint

The national news coverage of water conditions in Flint, Michigan, has created a great deal of confusion and consternation. The water there has been described as being corrosive; images of corroded batteries and warning labels on bottles of acids come to mind. But is corrosive water bad?

Corrosive water can be defined as a condition of water quality that will dissolve metals (iron, lead, copper, etc.) from metallic plumbing at an excessive rate. There are a few contributing factors but, generally speaking, corrosive water has a pH of less than 7; the lower the pH, the more acidic, or corrosive, the water becomes. (By this definition, many natural waterways throughout the country can be described as corrosive.) While all plumbing will be somewhat affected over time by the water it carries, corrosive water will damage plumbing much more rapidly than water with low corrosivity.

By itself, corrosive water is not a health concern; your morning glass of orange juice is considerably more corrosive than the typical lake or river. What is of concern is that exposure in drinking water to elevated levels of the dissolved metals increases adverse health risks. And there lies the problem.

Public water systems are required to maintain their water at optimal conditions to prevent it from reaching corrosive levels. Rest assured that we routinely monitor our water to make sure that what happened in Flint never happens here. For more information on how corrosivity impacts water quality, download this informative pamphlet: http://goo.gl/KpTmXv.

Water Main Flushing

Distribution mains (pipes) convey water to homes, businesses, and hydrants in your neighborhood. The water entering distribution mains is of very high quality; however, water quality can deteriorate in areas of the distribution mains over time. Water main flushing is the process of cleaning the interior of water distribution mains by sending a rapid flow of water through the mains.

Flushing maintains water quality in several ways. For example, flushing removes sediments like iron and manganese. Although iron and manganese do not pose health concerns, they can affect the taste, clarity, and color of the water. Additionally, sediments can shield microorganisms from the disinfecting power of chlorine, contributing to the growth of microorganisms within distribution mains. Flushing helps remove stale water and ensures the presence of fresh water with sufficient dissolved oxygen, disinfectant levels, and an acceptable taste and smell.

During flushing operations in your neighborhood, some short-term deterioration of water quality, though uncommon, is possible. You should avoid tap water for household uses at that time. If you do use the tap, allow your cold water to run for a few minutes at full velocity before use and avoid using hot water, to prevent sediment accumulation in your hot water tank.

Please contact us if you have any questions or if you would like more information on our water main flushing schedule.

QUESTIONS?

For more information about this report, or for any questions relating to your drinking water, please call Daniel F. Callahan, Water Superintendent, at (781) 878-0901.

The Source Water Assessment and Protection

The Source Water Assessment and Protection program (SWAP) assesses the susceptibility of public water supplies to potential contamination by microbiological pathogens and chemicals. This system was assigned a susceptibility ranking of "high" using the information collected during the assessment by the Massachusetts Department of Environmental Protection. The SWAP report notes the following key area as possible sources of contamination: residential land uses; transportation corridors; transmission lines; hazardous waste generation; industrial parks (including a large quantity toxic chemical user); agriculture; oil or hazardous material contamination sites; aquatic wildlife; sand and gravel mining; road and maintenance depots; and underground storage tanks located in the water supply protection area for the Great Sandy Bottom Pond, the Hannigan Reservoir, and the Myers Avenue well field. The report commends the water system for taking an active role in implementing source water protection measures. The complete SWAP report is available at the water department or online at www.state.ma.us/dep/brp/dws. For more information, contact the water department at (781) 878-0901.

Water Treatment Process

The treatment process consists of a series of steps. First, raw water is drawn from our water source and sent to a mixing tank where aluminum sulfate, potassium permanganate, and sodium hydroxide are added. The addition of these chemicals is referred to as coagulation. The coagulated substances cause small particles to adhere to one another. The adhered particles are called floc, thus the flocculation process. The floc particles that are dense enough settle to the bottom of the settling basin (sedimentation). Settled material is vacuumed off the bottom and deposited into sludge basins. At this point, the processed waters flow into a filter consisting of anthracite (coal) and silica (sand). The remaining particles that had not previously settled are removed through the filtration process. Chlorine is then added for disinfection. This procedure is the four-step treatment process typically referred to as Coagulation, Flocculation, Sedimentation, and Filtration.

The chlorine is added as a precaution against any bacteria that may still be present. (We carefully monitor the amount of chlorine, adding the lowest quantity necessary to protect the safety of your water without compromising taste.) Finally, another addition of sodium hydroxide is injected into the water as it leaves the treatment plant to adjust the pH of the finished water.

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.

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.

Test Results

Our water is monitored for many different kinds of contaminants on a very strict sampling schedule. The information below represents only those substances that were detected; our goal is to keep all detects below their respective maximum allowed levels. The State allows us to monitor 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 the EPA needs to introduce new regulatory standards to improve drinking water quality. Contact us for more information on this program.

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	0.1	ND–0.1	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2016	[4]	[4]	1.556	0.450–1.556	No	Water additive used to control microbes
Giardia lamblia (Units)	2016	TT	0	0.09	ND–0.09	No	Discharged especially where water is contaminated with sewage or animal wastes
Haloacetic Acids [HAA] (ppb)	2016	60	NA	29	5–32	No	By-product of drinking water disinfection
Nitrate (ppm)	2016	10	10	0.42	0.13–0.42	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2016	2	NA	0.10	ND–0.10	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
TTHMs [Total Trihalomethanes][1] (ppb)	2016	80	NA	69	28–93	No	By-product of drinking water disinfection
Total Organic Carbon (ppm)	2016	TT	NA	4.1	ND–4.1	No	Naturally present in the environment
Turbidity[2] (NTU)	2016	TT	NA	0.57	0.009–0.57	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2016	TT = 95% of samples < or = 0.3 NTU	NA	99.13	NA	No	Soil runoff

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)	2015	1.3	1.3	0.14	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2015	15	0	3	0/30	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)	2016	200	NA	20	10–20	No	Erosion of natural deposits; Residual from some surface water treatment processes
Color (Units)	2016	15	NA	5	5–5	No	Naturally-occurring organic materials
Copper (ppm)	2016	1.0	NA	0.03	ND–0.03	No	Corrosion of household plumbing systems; Erosion of natural deposits
Iron (ppb)	2014	300	NA	20	ND–20	No	Leaching from natural deposits; Industrial wastes
Manganese (ppb)	2016	50	NA	10	ND–10	No	Leaching from natural deposits
Odor (TON)	2016	3	NA	4	1–4	No	Naturally-occurring organic materials
pH (Units)	2016	6.5-8.5	NA	8.0	7.6–8.0	No	Naturally occurring
Sulfate (ppm)	2016	250	NA	52.9	39.8–52.9	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2016	500	NA	463	296–463	No	Runoff/leaching from natural deposits
Zinc (ppm)	2016	5	NA	0.007	ND–0.007	No	Runoff/leaching from natural deposits; Industrial wastes

UNREGULATED SUBSTANCES [3]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
1,1-Dichloroethane (ppb)	2014	0.1	ND–0.1	NA
Bromodichloromethane (ppb)	2016	11.4	6.6–11.4	By-product of drinking water disinfection
Bromoform (ppb)	2016	0.9	ND–0.9	By-product of drinking water disinfection
Chlorodibromomethane (ppb)	2016	7.2	3.4–7.2	By-product of drinking water disinfection
Chloroform (ppb)	2016	13.2	9.0–13.2	By-product of drinking water disinfection
Chloromethane (ppb)	2014	1.1	ND–1.1	NA
Sodium (ppm)	2016	108	51.5–117	Naturally present in the environment; Runoff from road salt; By-product of drinking water treatment process

UNREGULATED CONTAMINANT MONITORING RULE - PART 3 (UCMR3)

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH
Chlorate (ppb)	2014	130	ND–130
Chromium, Total (ppb)	2014	1.7	ND–1.7
Chromium-6 (ppb)	2014	1.6	0.12–1.6
Strontium (ppb)	2014	160	96–160
Vanadium (ppb)	2014	1.6	ND–1.6

[1] Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer.

[2] Turbidity is a measure of the cloudiness of the water. It is monitored because it is a good indicator of the effectiveness of the filtration system.

[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 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 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 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.

NTU (Nephelometric Turbidity Units): Measurement of the clarity, or turbidity, of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

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).

TON (Threshold Odor Number): A measure of odor in water.

SMCL (Secondary Maximum Contaminant Level): SMCLs are established to regulate the aesthetics of drinking water like appearance, taste and odor.

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