ANNUAL WATER QUALITY REPORT

REPORTING YEAR 2019

Presented By

Town of Ipswich
Water Department

PWS ID#: 3144000

Our Mission Continues

We are once again pleased to present our annual water quality report covering all testing performed between January 1 and December 31, 2019. As new challenges to drinking water safety emerge, we remain vigilant in meeting the goals of source water protection, water conservation, and community education while continuing to serve the needs of all our water users.

Please remember that we are always available should you ever have any questions or concerns about your water.

Where Does My Water Come From?

The Town of Ipswich Water Treatment Plant draws water from Dow and Bull Brook Reservoirs, both located in the Parker River Watershed. The town also draws water from five groundwater sources to augment this supply: Mile Lane and Browns Wells (Parker River Watershed) and Essex Road, Fellows Road, and Winthrop Estate Wells (Ipswich River Watershed). The town makes every effort to monitor pumping and minimize withdrawals from the wells in the Ipswich River Watershed because of its fragile ecosystem.

Source Water Assessment

All of the sources in Ipswich have a high susceptibility to contamination due to the absence of hydrological barriers (i.e., a confining clay layer) that can prevent migration of contamination into the water system. A source's susceptibility to contamination, however, does not imply poor water quality.

In brief, Zone II contains potential sources of contamination, which, if present, could migrate and reach our source water. In Ipswich,Zone II is primarily a mixture of forests, agriculture, and residential land.

The State commends the Town's pursuit of purchasing land within the watershed areas, and on receiving a source protection grant through the DEP to develop a comprehensive surface water supply protection plan.

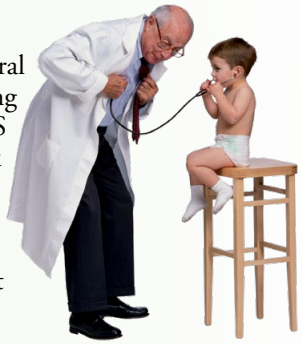
The complete Source Water Assessment Program (SWAP) report is available at the Utilities Department or online at www.mass.gov/eea/docs/dep/water/drinking/swap/nero/3144000.pdf.

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 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 two 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 at (800) 426-4791 or at www.epa.gov/safewater/lead.

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.



Community Participation

You are invited to participate in our public forum and voice your concerns about your drinking water and water supply. Water Subcommittee meetings are held periodically during the year. Please contact Victoria Halmen, W & WW Director, at (978) 356-6635, ext. 2108, for dates and times of meetings. Water issues, including projects and upgrades, are also presented at town meetings in May and October each year.

The Benefits of Fluoridation

Fluoride is a naturally occurring element in many water supplies in trace amounts. In our system, the fluoride level is adjusted to an optimal level averaging 0.7 part per million (ppm) to improve oral health in children. At this level, it is safe, odorless, colorless, and tasteless. Our water system has been providing this treatment since 1971. There are over 3.9 million people in 140 Massachusetts water systems and 184 million people in the U.S. who receive the health and economic benefits of fluoridation.

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) 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.

> We remain vigilant in delivering the best-quality drinking water

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.

Manganese Monitoring

Manganese is a naturally occurring mineral found in rocks, soil, groundwater, 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. The United States Environmental Protection Agency (EPA) and MassDEP have set an aesthetics-based Secondary Maximum Contaminant Level (SMCL) for manganese of 50 ug/L (microgram per liter), or 50 parts per billion (ppb). In addition, MassDEP's Office of Research and Standards (ORS) has set a drinking water guideline for manganese (ORSG), which closely follows the EPA public health advisory for manganese. Drinking water may naturally have manganese and, when concentrations are greater than 50 ug/L, the water maybe discolored and taste bad. Over a lifetime, the EPA recommends that people limit their consumption of water with levels over 1000 ug/L, primarily due to concerns about the possible neurological effects. Children up to one year of age should not be given water with manganese concentrations over 300 ug/L, nor should formula for infants be made with that water for longer than 10 days. The ORSG differs from the EPA's health advisory because it expands the age group to which a lower manganese concentration applies from children less than six months of age to children up to one year of age to address concerns about children's susceptibility to manganese toxicity.

Questions?

For more information about this report, or for any questions relating to your drinking water, please contact Victoria Halmen, W & WW Director, at (978) 356-6635, ext. 2108, or Joseph F. Ciccotelli, Water Superintendent, at (978) 356-6639.

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, 2019. Remember that detecting a substance does not 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 fourth stage of the U.S. EPA's Unregulated Contaminant Monitoring Rule (UCMR4) program by performing additional tests on our drinking water. UCMR4 sampling benefits the environment and public health by providing the U.S. EPA with data on the occurrence of contaminants suspected to be in drinking water in order to determine if U.S. EPA needs to introduce new regulatory standards to improve drinking water quality. Unregulated contaminant monitoring data are available to the public, so please feel free to contact us if you are interested in obtaining that information. If you would like more information on the U.S. EPA's Unregulated Contaminant Monitoring Rule, please call the Safe Drinking Water Hotline at (800) 426-4791.

REGULATED SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	MCL [MRDL]	MCLG [MRDLG]	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Arsenic (ppb)	2015	10	0	2.5	2.0–3.0	No	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium (ppm)	2018	2	2	0.04	0.007–0.075	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chlorine (ppm)	2019	[4]	[4]	0.69	0.25–0.86	No	Water additive used to control microbes
Chlorine Dioxide (ppb)	2019	[800]	[800]	260	170–410	No	Water additive used to control microbes
Chlorite (ppm)	2019	1	0.8	0.32	0.05–0.53	No	By-product of drinking water disinfection
Fluoride (ppm)	2019	4	4	0.98	0.65–1.36	No	Water additive that promotes strong teeth
Haloacetic Acids [HAAs] (ppb)	2019	60	NA	8.8	3.4–22.0	No	By-product of drinking water disinfection
Nitrate (ppm)	2019	10	10	2.4	0.03–4.90	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Perchlorate (ppb)	2019	2	NA	1.2	0.09–0.242	No	Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives
Tetrachloroethylene (ppb)	2019	5	0	1.1	0.5–1.90	No	Discharge from factories and dry cleaners
Total Organic Carbon [TOC] (ppm)	2019	TT[1]	NA	1.11	0.32–1.90	No	Naturally present in the environment
TTHMs [Total Trihalomethanes] (ppb)	2019	80	NA	37	18–61	No	By-product of drinking water disinfection
Turbidity[2] (NTU)	2019	TT	NA	0.24	0.02–0.24	No	Soil runoff
Turbidity (Lowest monthly percent of samples meeting limit)	2019	TT = 100% of samples meet the limit	NA	95	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 %ILE)	SITES ABOVE AL/TOTAL SITES	VIOLATION	TYPICAL SOURCE
Copper (ppm)	2019	1.3	1.3	0.322	0/30	No	Corrosion of household plumbing systems; Erosion of natural deposits
Lead (ppb)	2019	15	0	10	2/30	No	Lead service lines; Corrosion of household plumbing systems, including fittings and fixtures; Erosion of natural deposits

SECONDARY SUBSTANCES

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	SMCL	MCLG	AMOUNT DETECTED	RANGE LOW-HIGH	VIOLATION	TYPICAL SOURCE
Chloride (ppm)	2019	250	NA	97	36–158	No	Runoff/leaching from natural deposits
Color (Units)	2019	15	NA	5	1–10	No	Naturally occurring organic materials
Iron (ppb)	2019	300	NA	19	10–290	No	Leaching from natural deposits; Industrial wastes
Manganese (ppb)	2019	50	NA	23	3–640	No	Leaching from natural deposits
pH (Units)	2019	6.5–8.5	NA	7.38	6.70–7.84	No	Naturally occurring
Sulfate (ppm)	2019	250	NA	19	7–30	No	Runoff/leaching from natural deposits; Industrial wastes
Total Dissolved Solids [TDS] (ppm)	2019	500	NA	315	180–450	No	Runoff/leaching from natural deposits

UNREGULATED AND OTHER SUBSTANCES [3]

SUBSTANCE (UNIT OF MEASURE)	YEAR SAMPLED	AMOUNT DETECTED	RANGE LOW-HIGH	TYPICAL SOURCE
Bromide (ppb)	2019	35	33–38	NA
Bromochloroacetic Acid (ppb)	2019	1.2	0.642–1.73	By-product of drinking water disinfection
Bromodichloroacetic Acid (ppb)	2019	1.3	ND–2.56	By-product of drinking water disinfection
Chlorodibromoacetic Acid (ppb)	2019	1.1	ND–1.89	By-product of drinking water disinfection
Dibromoacetic Acid (ppb)	2019	1.3	0.301–3.63	By-product of drinking water disinfection
Dichloroacetic Acid (ppb)	2019	2.3	0.533–5.36	By-product of drinking water disinfection
HAA5 (ppb)	2019	4.5	4.5–4.5	By-product of drinking water disinfection
HAA6Br (ppb)	2019	3.2	3.2–3.2	By-product of drinking water disinfection
HAA9 (ppb)	2019	6.8	6.8–6.8	By-product of drinking water disinfection
Hardness (ppm)	2019	141	42–241	Normally present in the environment
Manganese (ppb)	2019	76	13–213	Leaching from natural deposits
Monobromoacetic Acid (ppb)	2019	0.52	0.375–0.766	By-product of drinking water disinfection
Monochloroacetic Acid (ppb)	2019	3.4	ND–4.63	By-product of drinking water disinfection
Phosphate (ppm)	2019	0.68	0.58–0.77	Water additive used to control corrosion
Potassium (ppm)	2019	2.6	1.5–3.7	Naturally occurring
Sodium[4] (ppm)	2019	42	19–65	Naturally present in the environment
Total Organic Carbon [TOC] (ppb)	2019	4,933	3,970–6,360	Naturally present in the environment
Trichloroacetic Acid (ppb)	2019	2.6	ND–8.48	By-product of drinking water disinfection

[1] The value reported under Amount Detected for TOC is the lowest ratio of the percentage of TOC actually removed to the percentage of TOC required to be removed. A value of greater than 1 indicates that the water system is in compliance with TOC removal requirements. A value of less than 1 indicates a violation of the TOC removal requirements.

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

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

Definitions

90th %ile: 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.

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).

SMCL (Secondary Maximum Contaminant Level): These standards are developed to protect 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.