2020 Annual Drinking Water Quality Report

For

HAMILTON DEPARTMENT OF PUBLIC WORKS

MASSDEP PUBLIC WATER SYSTEM IDENTIFICATION NUMBER 3119000

This report is a snapshot of drinking water quality that we provided to you last year. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards. We are committed to providing you with information because informed customers are our best allies

1. PUBLIC WATER SYSTEM INFORMATION

The public water supply for the Town of Hamilton is managed by the Department of Public Works located at: Town Hall, 2nd floor, 577 Bay Road, Hamilton, MA 01936. Phone number: (978) 626-5226, Fax number: (978) 468-5582, (Emergency only: (978) 468-1212). Office hours: Monday, Wednesday, Thursday 8:00 am to 4:30 pm, Tuesday 8:00am to 6:30 pm, and Friday 8:00 am to 12:30 pm. The Town's website is: www.hamiltonma.gov

Water System Improvements

Our water system is routinely inspected by the Massachusetts Department of Environmental Protection (MassDEP). MassDEP inspects our system for technical, financial, and managerial capacity to provide safe drinking water to you. To ensure that we provide the highest quality of water available, your water system is operated by a Massachusetts certified operator who oversees the routine operation of our system. In November 2018, DEP performed a Sanitary Survey on our system; no violations were found and we have addressed any issues that were noted.

Governing Body:

- Town Manager – Joseph J. Domelowicz, Jr.
- Board of Selectmen: Chairman – Shawn Farrell, Darcy Dale, Jamie Knudsen, Rosemary Kennedy, and Bill Olson.
- Director of Public Works & CCR Contact Person: Timothy J. Olson, 978-626-5226
- Personnel: Primary Treatment Plant Operator - David Dolan, Secondary Treatment Plant Operator – Brian Ruane, Distribution Foreman - Jeff Mazzetta, and Office Administrator - Gail Hannable.

Important Phone Numbers:

- Massachusetts Department of Public Health 617-292-5500 Department of Environmental Protection 24 Hours Emergency Line 1-888-304-1133

Town of Hamilton Website: http://www.hamiltonma.gov/government/water-department

2. YOUR DRINKING WATER SOURCES

Our drinking water sources include:

- **School St. Well (SSW)**, source number 3119000-02G, located behind the School St. Park. This is an active, year round source.
- **Gordon "Tiny" Thompson Water Filtration Plant (WTP)**, source number 3119000-10, located at the end of Pine Tree Drive. This source is an active, year round source and consists of Idlewood I Wells, Idlewood II Well, Caisson Satellite Well and Plateau Well. Iron and Manganese are filtered out of the water at this location.

How are these sources protected? In 2001 the Mass DEP prepared a Source Water Assessment Program (SWAP) report for the water supply sources serving the Town. The SWAP report assesses the susceptibility of contamination of a public water source. In the SWAP report, the DEP has given the town a susceptibility rating of "high" based upon the information collected during the assessment by the Mass DEP. Some of the key issues identified are: (1) Inappropriate activities in Zone I, (2) Residential land use, (3) Manure storage or spreading and (4) Storm water catch basins within the Zone II. The full SWAP report can be found online at https://www.mass.gov/source-water-protection#7

Although our Zone I and Zone II areas (the areas that contribute water to our wells) are fairly well protected by bylaws and regulations, we continue to monitor land use activities such as paddocks, farming and construction storage areas to assure that our groundwater is protected. We also encourage those living in these areas not to dispose of toxins, cleaners or chemicals down their plumbing drains and to minimize the use of pesticides and fertilizers. Even organic fertilizers have nitrates in them which can affect water quality. You should also monitor fuel and heating oil storage tanks carefully to assure they are not leaking.

Our water system makes every effort to provide you with safe and pure drinking water. To improve the quality of water delivered to you all sources are treated with chlorine for disinfection, fluoride for dental health and hygiene, and phosphates as a metal sequestering agent to assure water quality leaving the stations. Our water is also chemically treated to remove iron and manganese. The water quality of our system is constantly monitored by the Town and MassDEP to determine the effectiveness of existing water quality and to determine if any additional treatment is required.

We also have interconnections with the Towns of Ipswich at Waldingfield Road, Essex at Essex Street, Wenham at Woodbury Street, and Highland Street in the event of an emergency situation.

3. EDUCATIONAL STATEMENTS

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's Safe Drinking Water Hotline at 1-800-426-4791

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. Contaminants 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, 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 and gas production, mining, and 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 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.

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. The EPA and the Centers for Disease Control and Prevention (CDC) guidelines on lowering the risk of infection by cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 1-800-426-4791.

In order to ensure that tap water is safe to drink, the Department of Environmental Protection (MassDEP) 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 Massachusetts Department of Public Health (DPH) regulations establish limits for contaminants in bottled water that must provide the same protection for public health.

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 Hamilton DPW 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

4. IMPORTANT DEFINITIONS

Maximum Contaminant Level (MCL) – 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.

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

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

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

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

Unregulated Contaminants – Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated monitoring is to assist EPA in determining their occurrence in drinking water and whether future regulation is warranted.

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

Maximum Residual Disinfectant Level (MRDL) -- The highest level of a disinfectant (chlorine, chloramines, chlorine dioxide) 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 (chlorine, chloramines, chlorine dioxide) below which there is no known expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.

Variances and Exceptions – State or EPA permission not to meet a MCL or a treatment technique under certain conditions.

Massachusetts Office of Research and Standards Guideline (ORSG) – 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.

5. WATER QUALITY TESTING RESULTS

DEFINITIONS TABLE KEY

ppm = parts per million, or milligrams per liter (mg/L)

ppb = parts per billion, or micrograms per liter (ug/L)

ND = Not Detected

N/A = Not Applicable

What does this data represent?

The water quality information presented in the table(s) is from the most recent round of testing done in accordance with the regulations. All data shown was collected during the last calendar year unless otherwise noted in the tables. Only the detected contaminants are shown. The MassDEP only recommended annual testing for secondary contaminants.

MassDEP has reduced the monitoring requirements for inorganic contaminants at the School Street Well because the source is not at risk of contamination. The last sample collected for these contaminants was taken during the second quarter of calendar year 2015 and was found to meet all applicable US EPA and MassDEP standards.

Water Quality Summary: Listed below are contaminants detected in Hamilton's drinking water in 2020. ***The presence of contaminants does not necessarily indicate that the water poses a health risk***. Not listed are contaminants for which we tested but were not detected.

SAMPLES COLLECTED FROM HAMILTON'S WATER SYSTEM						
Substance	**Units**	**Highest Level Detected**	**Range Detected**	**Highest Level Allowed MCL**	**Ideal Goals MCLG**	**Possible Source of Contamination**
INORGANIC CONTAMINANTS						
Nitrate	ppm	5.24	0-5.24	10	10	Erosion of natural deposits, septic systems, fertilizers
Fluoride	ppm	0.8	0.4-0.8	4 (MRDL)	4	Water additive which promotes strong teeth
Perchlorate	ppb	0.08	0.07-0.08	2	-	Fireworks, blasting agents
VOLATILE ORGANIC CONTAMINANTS						
Tetrachloroethylene – PCE	ppb	0.57	0-0.57	5	0	Discharge from factories, dry cleaners, AC pipe
UNREGULATED VOLATILE CONTAMINANTS						
Chloroform	ppb	65	0-65	N/A	70 (ORSG)	By-product of drinking water chlorination
Bromodichloromethane	ppb	18	0-18	N/A	N/A	By-product of drinking water chlorination
Bromochloroacetic Acid	ppb	4.2	0-4.2	N/A	N/A	By-product of drinking water chlorination
Dichloroacetic Acid	ppb	15	0-15	N/A	N/A	By-product of drinking water chlorination
Monochloroacetic Acid	ppb	2.3	0-2.3	N/A	N/A	By-product of drinking water chlorination
Trichloroacetic Acid	ppb	28	0-28	N/A	N/A	By-product of drinking water chlorination
DISINFECTION BY-PRODUCTS						
Haloacetic Acids (HAA5)	ppb	47.2	0-47.2	60	N/A	By-product of drinking water disinfection
Total Trihalomethane (TTHMs)	ppb	75	0-75	80	N/A	By-product of drinking water disinfection
DISINFECTANTS						
Substance	**Units**	**Highest Quarterly Average**	**Range Detected**	**MRDL**	**MRDLG**	**Possible Sources of Contaminant**
Free Chlorine	ppm	0.22	0.13-0.27	4	4	Water additive to inactivate harmful organisms
UNREGULATED CONTAMINANTS						
Substance	**Units**	**Dates Collected**	**Range Detected**	**Avg. Detected**	**Suggested MCL**	**Health Advisory**	**Possible Sources of Contaminant**
Manganese	ppb	Daily	2-70	28	50	300	Erosion of natural deposits
Iron	ppb	Daily	0-200	20	300	-	Natural sources and corroding distribution and household pipes
pH		Daily	6.5-8.1	7.4	N/A	N/A	
PFAS						
Substance	Units	Dates Collected	Highest Level Detected	Avg. Detected	Mass. MCL		**Possible Sources of Contaminant**
Perfluorooctane Sulfonic Acid (PFOS)	ppt	2/11/2020	3	3	20		Surfactant or emulsifier; used in fire-fighting foam, circuit board etching acids, alkaline cleaners, floor polish, and as a pesticide active ingredient for insect bait traps
Perfluorobutane Sulfonic Acid (PFBS)	ppt	2/11/2020	2	2	N/A		Manmade chemical; used in products to make them stain, grease, heat and water resistant

SAMPLES COLLECTED FROM YOUR FAUCETS						
Substance	**Units**	**Highest Level Detected**	**Range Detected**	**Highest Level Allowed MCL**	**Ideal Goals MCLG**	**Possible Sources of Contaminants**
MICROBIOLOGY						
Total Coliform Bacteria (Highest Number Detected per Month)		0	-	0	0	Naturally present in the environment
Fecal Coliform or E.coli (Highest Number Detected per Month)		0	-	0	0	Human and animal fecal waste
LEAD AND COPPER						
Substance	**Units**	**90th Percentile**	**Range Detected**	**Action Level MCL**	**Ideal Goals MCLG**	**Possible Sources of Contaminant**
Copper	ppm	0.829	0.033-0.895	1.3	1.3	Corrosion of household plumbing systems; erosion of natural deposits
(0 samples exceeded action level)						
Lead	ppm	0.0025	0-0.0044	0.015	0	Corrosion of household plumbing systems
(0 samples exceeded action level)						

Educational Information

- **Lead**: 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 Hamilton 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 at 800-426-4791. or at http://www.epa.gov/safewater/lead

- **Copper:** Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short period of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action levels for long periods of time could suffer liver or kidney damage. People with Wilson's Disease should consult their physician.

- **Sodium:** Is a naturally occurring common element found in soil and water. It is necessary for the normal functioning of regulating fluids in human systems. Some people, however, have difficulty regulating fluid volume as a result of several diseases, including congestive heart failure, kidney failure and hypertension. The guideline of 20 mg/L for sodium represents a level in water that physicians and sodium sensitive individuals should be aware of in cases where sodium exposures are being carefully controlled. For additional information, contact your health care provider, your local board of health or the Massachusetts Department of Public Health, Bureau of Environmental Health Assessment at 617-624-5757.

- **Total Coliform:** Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other potentially harmful bacteria may be present.

- **Fluoride:** Added daily to the treated water to help prevent tooth decay/cavities in young children. All sampling results have shown levels below the MCL of 4.0 ppm.

- **Manganese:** Manganese in drinking water is a naturally occurring mineral found in rocks, soil and 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 and an aesthetics-based Secondary Contaminant Level (SMCL) for manganese at 50 micrograms per Liter (ug/L), or 50 parts per billion (ppb), and health advisory levels. In addition, EPA and MassDEP have also established public health advisory levels. Drinking water may naturally have manganese and, when concentrations are greater than 50 ug/L, the water may be discolored and taste bad. Over a lifetime, EPA recommends that people drink water with manganese levels less than 300 ug/L and over the short term, EPA recommends that people limit their consumption of water with levels over 1000 ug/L, primarily due to concerns about possible neurological effects. Children up to 1 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.

6. COMPLIANCE WITH DRINKING WATER REGULATIONS

Does My Drinking Water Meet Current Health Standards?

We are committed to providing you with the best water quality available. We are proud to report that last year your drinking water met all applicable health standards regulated by the state and federal government.

7. 2020 WATER SYSTEM PROJECTS.

Water Treatment Plant (WTP) GAC and Pre-Treatment Feasibility Studies

Based on the findings of the treatment evaluation report, the most favorable strategy recommended to mitigate TTHM formation at the plant was to reduce TOCs within the raw water through a new GAC adsorption system. This new system would be installed at the head of the plant to remove as much TOCs from the Idlewood wells as possible prior to being treated for iron and manganese removal. The findings of the report were presented to the Board of Selectman at the 06/08/20 meeting who voted to support the design and construction of the recommended GAC adsorption system. Upon BOS approval, the Town contracted the services of Dewberry Engineers Inc. for the design and construction of the new GAC adsorption system in August 2020. As of December 2020, the draft design for the new facility including the GAC adsorption system, pre-engineered metal building, process work and related systems has been completed. Work on the final design will continue with the intent to submit final documents to MassDEP for approval to construct in March 2021. Upon MassDEP approval, the project will be bid for construction by late April or early May 2021.

New Satellite Replacement Well – Idlewood #2

A test well drilling program to identify a satellite replacement well location for Idlewood #2 was performed over the period from March 9th through March 13th, 2020. Four (4) locations for sampling and developing a test well were selected in total. The first two sites were located with 250 feet of the existing Idlewood #2 well. Based on noted soil conditions encountered with these first two test sites, it was determined that two areas outside the 250-foot radius with the existing well may have more favorable conditions for supporting a new satellite well. The intent was to find a well site that was hydraulically connected to the aquifer for production capacity but had a physical separation with the low-lying wet area to provide some natural filtration of the organics present within the No. 2 well.

Based on the initial developing, two test well locations were selected for further testing by performing a two (2) hour pumping test to estimate potential well yield and obtain water samples for laboratory analysis. Based on the water quality sampling results, one of the pumped test wells showed more favorable conditions for a new replacement well with minimal TOCs but had high iron concentrations which was a concern. Given the possibility that performing a longer duration pump test could result in better raw water quality, an extended 8-hour pump test was conducted at this site. Unfortunately, the results of the extended pump test were not favorable to support the installation of a new satellite replacement well for the Idlewood No. 2 well. Although the site could potentially yield the required production rate, the concentrations of iron and TOCs within the well were still high to be considered an adequate replacement well. It was recommended to cease any further testing at this time. An area along the ridge beyond the well site where the extended pump test was conducted was identified for future testing if needed.

Phase 4 Water Distribution Design

The Town of Hamilton replaced approximately 5,500 LF of water main and services throughout the Town of Hamilton as Phase 4 of the Water System Distribution Improvement Project. Roads that received new water main and services were: Forest Street, Village Lane, and Beech Street. Originally the plan was also to replace the water mains along Woodbury Street, between Essex Street and the Hamilton/Wenham Town line, and Partridgeberry Lane. Due to the bids received and current market pricing, we were unable to fund and complete this work. These two roads will be included in future phasing.

* CONSERVATION INFORMATION *

Water Ban

The Town of Hamilton Board of Selectmen enacted the required annual seasonal water ban on May 1, 2020, detailed below, however in June 2020 the Ipswich River flows dropped below the discharge rate of 52.5 cfs for three (3) consecutive days, which triggered additional restrictions on outdoor water use MassDEP **mandatory** water ban, starting with eliminating the use of all outdoor irrigation systems progressing to a ban on all non-essential outdoor use which lasted through December of 2020.

Annual Seasonal Conservation

The Hamilton Department of Public Works would like to remind residents that we have an **annual** Outdoor Water Use By-Law that does not allow mechanical watering of lawns between the hours of 8:00 a.m. and 8:00 p.m. from May 1st to September 30th of each year. The most wasteful act of water use is over watering your lawn at night or watering during the heat of the day. Up to 80% of the water used during the day is evaporated which means 80 cents on every dollar you spend watering is wasted along with the same outcome with over-watering at night.