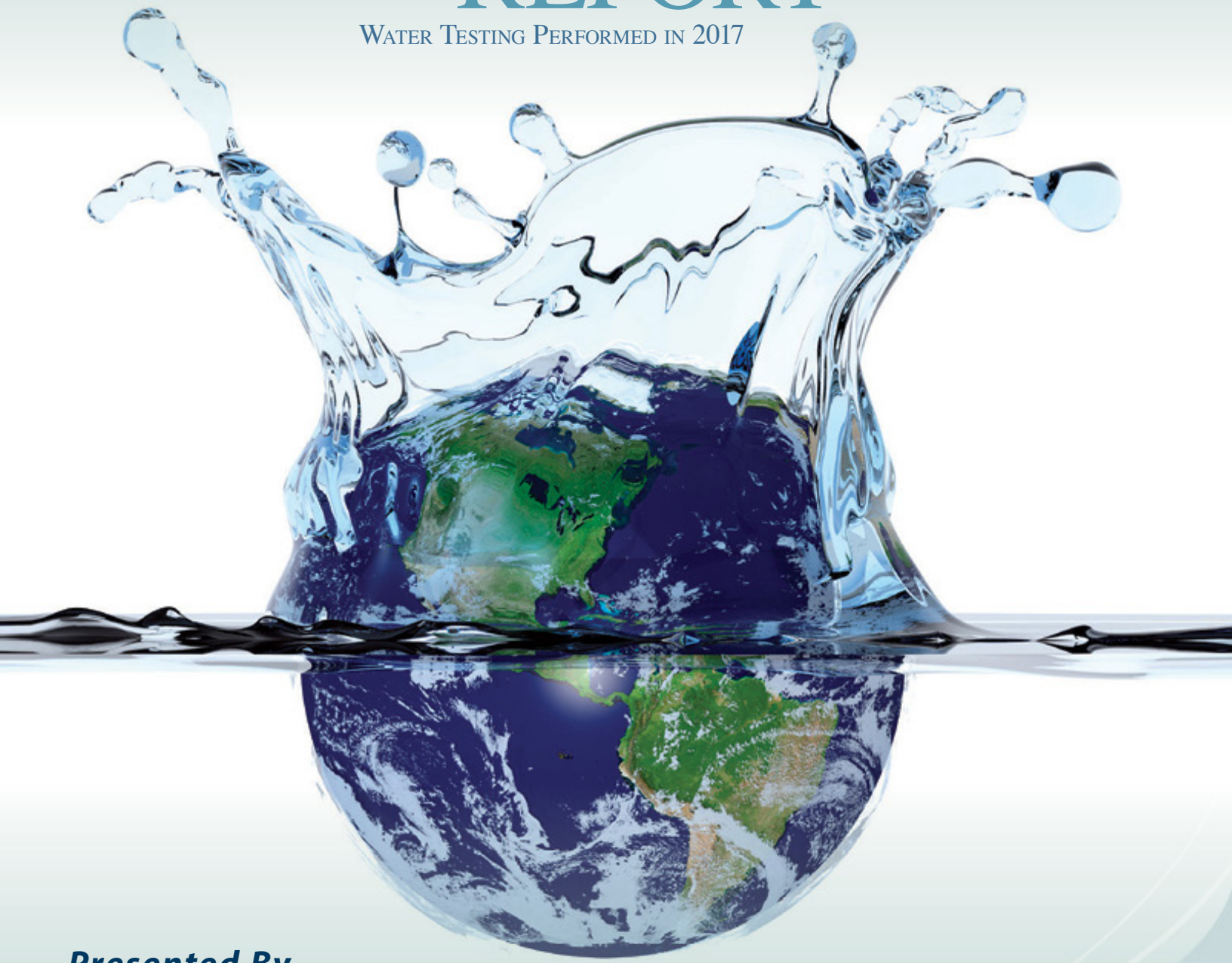
# ANNUAL WATER QUALITY REPORT

WATER TESTING PERFORMED IN 2017



***Presented By***

**Abington/Rockland Joint Water Works**

AR JWW

PWS ID#: 4001000

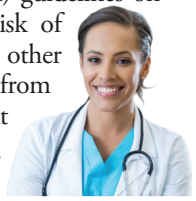
## Quality First

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 of 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.

## 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 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.

## 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 storm-water 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 storm-water 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 storm-water 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.

## 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.

## 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.

## Where Does My Water Come From?

The Towns of Abington and Rockland are supplied with 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.

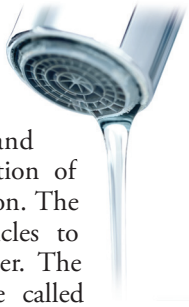
The remainder of the supply is from two surface water bodies: the John F. Hannigan Memorial Reservoir located in the northeast corner of Rockland, and the Great Sandy Bottom Pond located in the town of Pembroke. Both of these sources are treated through a conventional filtration process where the raw 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.

> **Water treatment is a complex, time-consuming process.**

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.

## 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.

## 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 wellfield. 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.mass.gov/eea/docs/dep/water/drinking/swap/sero/4001000.pdf. For more information, contact the water department at (781) 878-0901.

## Water Conservation

You can play a role in conserving water and saving 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 can 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.

## Information on the Internet

The U.S. EPA (https://goo.gl/TFAMKc) and the Centers for Disease Control and Prevention (www.cdc.gov) Web sites provide a substantial amount of information on many issues relating to water resources, water conservation and public health. Also, the DEP has a Web site (https://goo.gl/fg45jY) that provides complete and current information on water issues in Massachusetts, including valuable information about our watershed.

## 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.

## 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, in order to determine if 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 |
|---|---|---|---|---|---|---|---|
| **Chlorine** (ppm) | 2017 | [4] | [4] | 2.70 | 0.01–2.70 | 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) | 2017 | 60 | NA | 33 | 6–45 | No | By-product of drinking water disinfection |
| **Nitrate** (ppm) | 2017 | 10 | 10 | 0.22 | ND–0.22 | No | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits |
| **Perchlorate** (ppb) | 2017 | 2 | NA | 0.13 | ND–0.13 | No | Inorganic chemicals used as oxidizers in solid propellants for rockets, missiles, fireworks, and explosives |
| **TTHMs [Total Trihalomethanes]** (ppb) | 2017 | 80 | NA | 63 | 20–79 | No | By-product of drinking water disinfection |
| **Total Organic Carbon** (ppm) | 2017 | TT | NA | 4.1 | ND–4.1 | No | Naturally present in the environment |
| **Turbidity**[1] (NTU) | 2017 | TT | NA | 0.306 | 0.009–0.306 | No | Soil runoff |
| **Turbidity** (lowest monthly percent of samples meeting limit) | 2017 | TT = 95% of samples meet the limit | NA | 100 | NA | No | Soil runoff |

**Tap Water Samples 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) | 2017 | 200 | NA | 130 | 120–130 | No | Erosion of natural deposits; Residual from some surface water treatment processes |
| **Chloride** (ppm) | 2017 | 250 | NA | 198 | 100–198 | No | Runoff/leaching from natural deposits |
| **Copper** (ppm) | 2017 | 1.0 | NA | 0.06 | 0.05–0.06 | No | Corrosion of household plumbing systems; Erosion of natural deposits |
| **Iron** (ppb) | 2017 | 300 | NA | 20 | ND–20 | No | Leaching from natural deposits; Industrial wastes |
| **Manganese** (ppb) | 2017 | 50 | NA | 13 | ND–13 | No | Leaching from natural deposits |
| **Odor** (TON) | 2017 | 3 | NA | 2 | 1–2 | No | Naturally occurring organic materials |
| **pH** (Units) | 2017 | 6.5–8.5 | NA | 8.0 | 7.7–8.0 | No | Naturally occurring |
| **Silver** (ppb) | 2017 | 100 | NA | 6 | ND–6 | No | Industrial discharges |
| **Sulfate** (ppm) | 2017 | 250 | NA | 53.4 | 38.9–53.4 | No | Runoff/leaching from natural deposits; Industrial wastes |
| **Total Dissolved Solids [TDS]** (ppm) | 2017 | 500 | NA | 450 | 290–450 | No | Runoff/leaching from natural deposits |
| **Zinc** (ppm) | 2017 | 5 | NA | 0.012 | 0.010–0.012 | No | Runoff/leaching from natural deposits; Industrial wastes |

## UNREGULATED SUBSTANCES [2]

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH | TYPICAL SOURCE |
|---|---|---|---|---|
| **Bromodichloromethane** (ppb) | 2017 | 13.1 | 3.6–13.1 | By-product of drinking water disinfection |
| **Bromoform** (ppb) | 2017 | 0.05 | ND–0.05 | By-product of drinking water disinfection |
| **Chlorodibromomethane** (ppb) | 2017 | 6.4 | ND–6.4 | By-product of drinking water disinfection |
| **Chloroform** (ppb) | 2017 | 16.2 | 4.1–16.2 | By-product of drinking water disinfection |
| **Sodium**[3] (ppm) | 2017 | 129 | 55–129 | Naturally present in the environment; Runoff from road salt; By-product of drinking water treatment process |

## UNREGULATED CONTAMINANT MONITORING RULE - PART 3 (UCMR3) [2]

| SUBSTANCE (UNIT OF MEASURE) | YEAR SAMPLED | AMOUNT DETECTED | RANGE LOW-HIGH |
|---|---|---|---|
| **Chlorate** (ppb) | 2014 | 130 | ND–130 |
| **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] 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.

[2] 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.

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

## 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.

**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.