Where Does My Water Come From?

The City of Burlington is fortunate to have Lake Champlain as a source for our raw water. Lake Champlain extends from the Canadian border south along the western side of the state for nearly 120 miles. The City of Burlington is located near the widest portion of the lake. Our point of intake is located well beyond the Burlington Harbor, which prevents our treatment plant from being affected by any contamination of the lake. Our intake is located deep enough to prevent most surface contaminants from entering and to ensure a continuous supply of water even during the most severe drought conditions. The water entering our treatment plant is of high quality, which eliminates the need to treat for large numbers of bacteria can cause illness, it is unacceptable for drinking water is a concern because it indicates that the water may be contaminated with other contaminants to meet safe drinking standards.
**Substances That Might Be in Drinking Water**

To ensure that tap water is safe to drink, the U.S. EPA enforces regulations limiting the amount of certain contaminants in water provided by public water systems. U.S. Food and Drug Administration 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, in some cases, radioactive material; and substances resulting from the presence of animals or from human activity. Substances that may be present in surface 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 production activities, 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.

For more information about contaminants and potential health effects, call the U.S. EPA’s Safe Drinking Water Hotline at (800) 426-4791.

**Combined Sewer Treatment System**

Like many older cities, part of Burlington’s wastewater collection system includes what is known as combined sewers. Before wastewater treatment plants were constructed, cities laid a single pipe in the ground that collected and mixed both wastewater (sewage) and stormwater runoff from streets, rooftops and parking lots together before discharging into the nearest lake, river or stream.

When our first wastewater treatment plant was constructed in 1953, large flows associated with this combined sewer system had to be diverted past the plant to prevent damage. These combined sewer overflows dumped sewage into Lake Champlain that resulted in water quality problems, the most noticeable being beach closures due to high bacteria counts.

While planning for our last plant upgrade in the late 1980s, the city looked at separating the wastewater and stormwater pipes. At that time we were learning like most of the world that stormwater runoff from urban areas has its own mix of pollutants, including trash, sediments, petroleum products, metals, nutrients and bacteria. Burlington decided that instead of separation it would treat this combined sewage at our Main wastewater plant next to Perkins Pier.

Combined in 1994, Main plant has a treatment train that includes screening of large trash and debris, removal of sediment and attached pollutants using a vortex separator and disinfection of the treated combined sewage using bromine. The CSO wet well located before the vortex separator captures over 100 cubic yards (7 dump truck loads) of sediment annually preventing deposition in Lake Champlain.

**Regulated Substances**

<table>
<thead>
<tr>
<th>SUBSTANCE</th>
<th>YEAR</th>
<th>ACTION LEVEL</th>
<th>MCLG</th>
<th>MCL</th>
<th>AMOUNT DETECTED (PPT’S/MT’S/FT’S)</th>
<th>RANGE</th>
<th>VIOLATION</th>
<th>TYPICAL SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manganese (ppb)</td>
<td>2006</td>
<td>50</td>
<td>NA</td>
<td>11</td>
<td>11–11</td>
<td>No</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zinc (ppm)</td>
<td>2006</td>
<td>5</td>
<td>NA</td>
<td>0.26</td>
<td>0.26–0.26</td>
<td>No</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**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 level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLs do not reflect the benefits of the use of disinfectants to control 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.

**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 per billion parts water (or micrograms per liter).

**pCi/L (picocuries per liter):** A measure of radioactivity.

**Sampling Results**

<table>
<thead>
<tr>
<th>Substance</th>
<th>Year</th>
<th>Action Level</th>
<th>MCL</th>
<th>MCL (ppb)</th>
<th>Amount Detected (PPT’s)</th>
<th>Range</th>
<th>Violation</th>
<th>Typical Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al</td>
<td>2006</td>
<td>15</td>
<td>0</td>
<td>2.5</td>
<td>2.5–2.5</td>
<td>No</td>
<td>Erosion of natural deposits</td>
<td></td>
</tr>
<tr>
<td>Fluoride</td>
<td>2006</td>
<td>4</td>
<td>1.25</td>
<td>0.43–1.25</td>
<td>No</td>
<td>Erosion of natural deposits; Water additive which promotes strong teeth</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haloacetic Acids (HAA)</td>
<td>2006</td>
<td>60</td>
<td>NA</td>
<td>58</td>
<td>34.2–86.1</td>
<td>No</td>
<td>By-product of drinking water disinfection</td>
<td></td>
</tr>
<tr>
<td>Nitrate (ppm)</td>
<td>2006</td>
<td>10</td>
<td>0.316</td>
<td>0.316</td>
<td>No</td>
<td>Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TTHMs (Total Trihalomethanes)</td>
<td>2006</td>
<td>80</td>
<td>NA</td>
<td>55</td>
<td>15.8–118</td>
<td>No</td>
<td>By-product of drinking water chlorination</td>
<td></td>
</tr>
</tbody>
</table>

**Secondary Substances**

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