ANNUAL WATER QUALITY REPORT
REPORTING YEAR 2019

Presented By
TOWN OF Blacksburg VIRGINIA

PWS ID#: 1121052
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. We are pleased to report your water has not exceeded or violated any water quality standards set by the EPA.

Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. We continually strive to adopt new methods for delivering the best-quality drinking water to you.

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

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.

Where Does My Water Come From?

Blacksburg’s water is taken from the New River and pumped to the NRV Regional Water Authority treatment plant located on Route 114. From there the treated water is transmitted through a series of pipes, tanks, and pump stations located along Routes 114 and 460 to the Town’s water storage tanks, and then to your tap. Last year Blacksburg used an average of 2.76 million gallons of water a day and Virginia Tech used an average of 1.28 million gallons of water a day.

Water Treatment Process

The Water Treatment Facility utilizes a conventional process to treat surface water from the river. Water goes through several treatment processes, including coagulation, flocculation, chlorination, sedimentation, and filtration. Following disinfection, a small amount of ammonia is added to the disinfected water to react with the chlorine to form chloramines (or combined chlorine). This process is called chloramination; it provides a long-lasting disinfectant in the distribution system to provide safe, disinfected water to the outermost parts of the regional distribution system.

Important Notices

Chloramine should be removed from the water used in kidney dialysis machines. However, chloraminated water that meets the EPA standard is safe for kidney dialysis patients to drink.

Chloramine is toxic to fish and amphibians at levels used for drinking water. Therefore, fish owners should neutralize or remove chloramine from water used in aquariums or ponds.

Important Notices

For more information about this report, or for any questions relating to your drinking water, please call Lori Lester, Water Resources Manager, at (540) 443-1357, or Caleb Taylor, Director, NRV Regional Water Authority, at (540) 639-2575.
Substances That Could Be in Water

To ensure that tap water is safe to drink, the U.S. EPA prescribes 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 that 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 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 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.

Table Talk

Get the most out of the Testing Results data table with this simple suggestion. In less than a minute, you will know all there is to know about your water:

- For each substance listed, compare the value in the Amount Detected column against the value in the MCL (or AL, SMCL) column. If the Amount Detected value is smaller, your water meets the health and safety standards set for the substance.

Other Table Information Worth Noting

Verify that there were no violations of the state and/or federal standards in the Violation column. If there was a violation, you will see a detailed description of the event in this report.

- If there is an ND or a less-than symbol (<), that means that the substance was not detected (i.e., below the detectable limits of the testing equipment).

- The Range column displays the lowest and highest sample readings. If there is an NA showing, that means only a single sample was taken to test for the substance (assuming there is a reported value in the Amount Detected column).

- If there is sufficient evidence to indicate from where the substance originates, it will be listed under Typical Source.

Source Water Assessment

A source water assessment was conducted in 2002 by Draper Aden and Associates. It was updated with a Source Water Protection Plan in 2018 by CHA Consulting. The source was determined to be of high susceptibility to contamination using criteria developed by the State of Virginia and its approved Source Water Assessment program. It is important to understand that this susceptibility rating does not imply poor water quality, only the system’s potential to become contaminated within the assessment area. Details of this report may be obtained from the NRV Regional Water Authority or from the Town of Blacksburg Water Resources Manager at (540) 443-1357.

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 Virginia Department of Health, Office of Drinking Water, has a Web site (https://goo.gl/3Tn805) that provides complete and current information on water issues in Virginia, including valuable information about our watershed.
What's a Cross-Connection?

Cross-connections that contaminate drinking water distribution lines are a major concern. A cross-connection is formed at any point where a drinking water line connects to equipment (boilers), systems containing chemicals (air conditioning systems, fire sprinkler systems, irrigation systems), or water sources of questionable quality. Cross-connection contamination can occur when the pressure in the equipment or system is greater than the pressure inside the drinking water line (backpressure). Contamination can also occur when the pressure in the drinking water line drops due to fairly routine occurrences (main breaks, heavy water demand), causing contaminants to be sucked out from the equipment and into the drinking water line (backsiphonage).

Outside water taps and garden hoses tend to be the most common sources of cross-connection contamination at home. The garden hose creates a hazard when submerged in a swimming pool or when attached to a chemical sprayer for weed killing. Garden hoses that are left lying on the ground may be contaminated by fertilizers, cesspools, or garden chemicals. Improperly installed valves in your toilet could also be a source of cross-connection contamination.

Community water supplies are continuously jeopardized by cross-connections unless appropriate valves, known as backflow prevention devices, are installed and maintained. We have surveyed industrial, commercial, and institutional facilities in the service area to make sure that potential cross-connections are identified and eliminated or protected by a backflow preventer. We also inspect and test backflow preventers to make sure that they provide maximum protection.

For more information on backflow prevention, contact the 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 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 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 www.epa.gov/safewater/lead.
**Test Results**

Our water is monitored for many different kinds of substances on a very strict sampling schedule that must meet specific health standards. Here, we show only those substances that were detected in our water at or above the regulatory reporting limit. Contaminants that are not detected or detected below the regulatory defined reporting limit are not included in this table. 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 often 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 4th 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 EPA with data on the occurrence of contaminants suspected to be in drinking water, in order to determine if the 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

<table>
<thead>
<tr>
<th>SUBSTANCE (UNIT OF MEASURE)</th>
<th>YEAR SAMPLED</th>
<th>MCL [MRDL]</th>
<th>MCLG [MRDGL]</th>
<th>AMOUNT DETECTED</th>
<th>RANGE LOW-HIGH</th>
<th>VIOLATION</th>
<th>TYPICAL SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barium (ppm)</td>
<td>2019</td>
<td>2</td>
<td>2</td>
<td>0.0226</td>
<td>NA</td>
<td>No</td>
<td>Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits</td>
</tr>
<tr>
<td>Chlorine (ppm)</td>
<td>2019</td>
<td>[4]</td>
<td>[4]</td>
<td>2.21</td>
<td>1.40–3.70</td>
<td>No</td>
<td>Water additive used to control microbes</td>
</tr>
<tr>
<td>Fluoride (ppm)</td>
<td>2019</td>
<td>4</td>
<td>4</td>
<td>0.60</td>
<td>NA</td>
<td>No</td>
<td>Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories</td>
</tr>
<tr>
<td>Haloacetic Acids [HAAs] (ppb)</td>
<td>2019</td>
<td>60</td>
<td>NA</td>
<td>32</td>
<td>12–51</td>
<td>No</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Nitrate (ppm)</td>
<td>2019</td>
<td>10</td>
<td>10</td>
<td>0.866</td>
<td>NA</td>
<td>No</td>
<td>Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits</td>
</tr>
<tr>
<td>TTHMs [Total Trihalomethanes] (ppb)</td>
<td>2019</td>
<td>80</td>
<td>NA</td>
<td>36</td>
<td>15–54</td>
<td>No</td>
<td>By-product of drinking water disinfection</td>
</tr>
<tr>
<td>Total Organic Carbon¹ (removal ratio)</td>
<td>2019</td>
<td>TT (In compliance if &gt; or = 1.0)</td>
<td>NA</td>
<td>1.06</td>
<td>1.00–1.94</td>
<td>No</td>
<td>Naturally present in the environment</td>
</tr>
<tr>
<td>Turbidity² (NTU)</td>
<td>2019</td>
<td>TT, 1 NTU max</td>
<td>NA</td>
<td>0.13</td>
<td>0.08–0.13</td>
<td>No</td>
<td>Soil runoff</td>
</tr>
<tr>
<td>Turbidity (Lowest monthly percent of samples meeting limit)</td>
<td>2019</td>
<td>TT,&lt; or = 0.3 (95% of the time)</td>
<td>NA</td>
<td>100%</td>
<td>NA</td>
<td>No</td>
<td>Soil runoff</td>
</tr>
</tbody>
</table>

Tap water samples were collected for lead and copper analyses from sample sites throughout the community.

<table>
<thead>
<tr>
<th>SUBSTANCE (UNIT OF MEASURE)</th>
<th>YEAR SAMPLED</th>
<th>AL</th>
<th>MCLG</th>
<th>AMOUNT DETECTED (90TH %ILE)</th>
<th>SITES ABOVE AL/TOTAL SITES</th>
<th>VIOLATION</th>
<th>TYPICAL SOURCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper (ppm)</td>
<td>2017</td>
<td>1.3</td>
<td>1.3</td>
<td>0.085</td>
<td>0/30</td>
<td>No</td>
<td>Corrosion of household plumbing systems; Erosion of natural deposits</td>
</tr>
<tr>
<td>Lead (ppb)</td>
<td>2017</td>
<td>15</td>
<td>0</td>
<td>&lt;2.0</td>
<td>1/30</td>
<td>No</td>
<td>Lead services lines; Corrosion of household plumbing systems including fittings and fixtures; Erosion of natural deposits</td>
</tr>
</tbody>
</table>
### Definitions

90th %ile: The levels reported for lead and copper represent the 90th percentile of the total number of sites tested. The 90th percentile is equal to or greater than 90% of our lead and copper detections.

AL (Action Level): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that 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

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).

removal ratio: A ratio between the percentage of a substance actually removed to the percentage of the substance required to be removed.

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