

2022 WATER QUALITY REPORT

Public Water System ID (PWSID) VA6107650



The Town of Round Hill is proud to present our annual water quality report covering all testing performed between January 1 and December 31, 2022. Over the years, we have dedicated ourselves to producing drinking water that meets all state and federal standards. The Town is steadily upgrading facilities and treatment methods to achieve and or exceed all public drinking water standards. If you have a question or concern that are not addressed in this report, please contact the Town Administrator, Mrs. Melissa Hynes at: 540-338-7878 or the Utility Department at 540-338-4772.



Round Hill town staff is also available for assistance Monday through Friday, between the hours of 8:30 a.m. and 4:30 p.m.

USEFUL DEFINITIONS

Action Level: The concentration of a contaminant that, if exceeded, triggers a treatment or other requirements that a water system must follow. This term is primarily associated with lead and copper values.

Maximum Contaminant Level (MCL): The highest level of a contaminant that EPA allows in drinking water. MCLs are set as close to the MCLGs as possible using the best available treatment technology.

Maximum Contaminant Level Goal (MCLG): The level of a contaminant in drinking water below that there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL): The maximum permissible level of disinfectant residual in drinking water, based on a running annual average.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below to which there are no known or anticipated health or safety effects occur. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

ND: Non-detect. The concentration of contaminant levels is below the limits of detection.

Ninetieth (90th) Percentile: Represents the highest value found out of 90 percent of the samples taken in a representative group. If the 90th percentile is greater than the action level, it will trigger a treatment or other requirement that a water system must follow.

pCi/L: Picocuries per liter. The curie is a standard measure for the intensity of radioactivity contained in a sample of radioactive material. It was named after French scientists Marie and Pierre Curie for their landmark research into the nature of radioactivity. The basis for the curie is the radioactivity of one gram of radium. Radium decays at a rate of about 2.2 trillion disintegrations (2.2×10^{12}) per minute. A picocurie is one-trillionth off a curie.

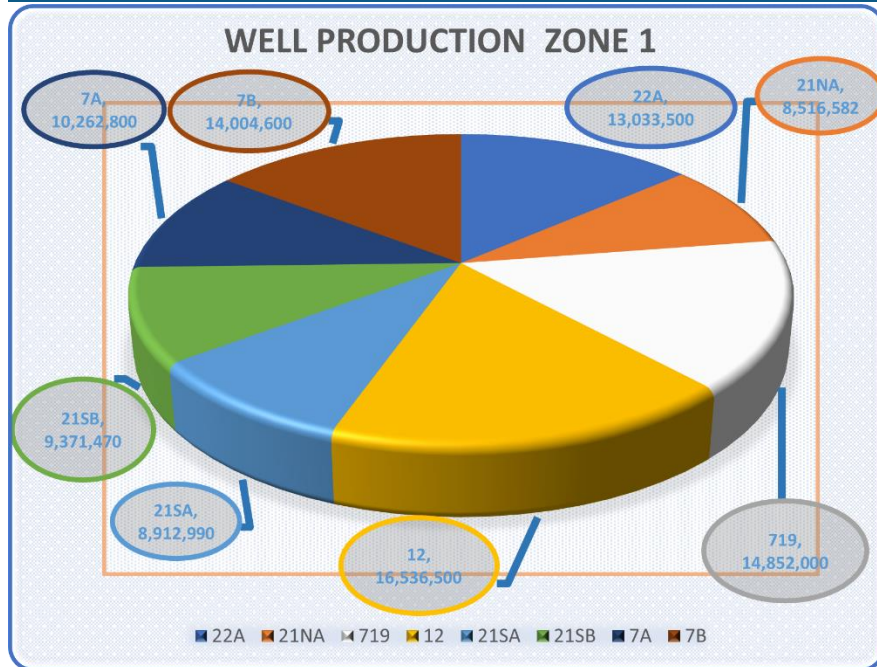
ppb: Parts per billion. One ppb is equal to one microgram per liter. (ug/L)

ppm: Parts per million. One ppm is equal to one milligram per liter. (mg/L)

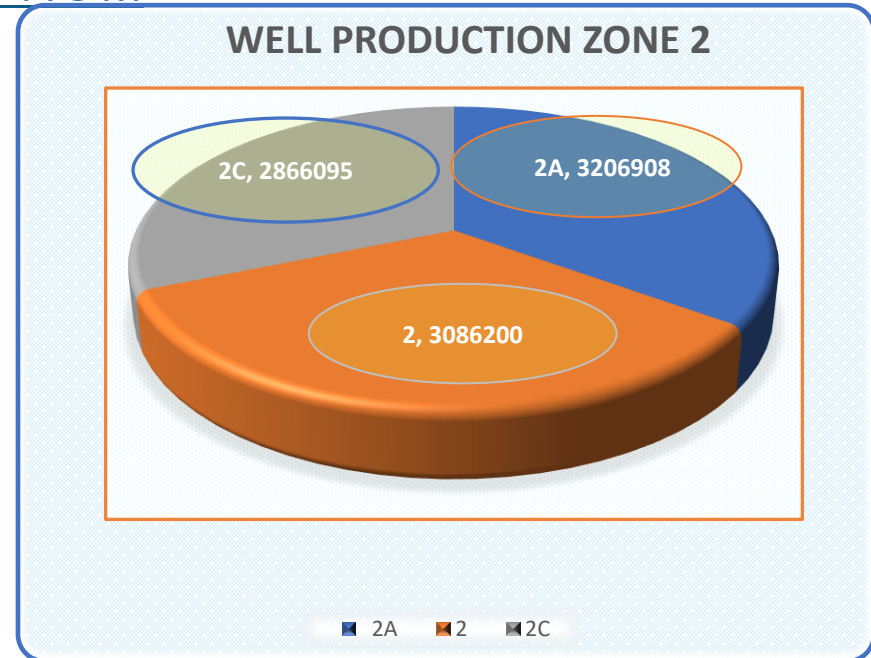
Source water: is untreated water from lakes, rivers, streams, ponds, reservoirs, aquifers, and springs that serve as a community's water source. Protecting these water sources is an easy way to prevent drinking water from becoming polluted by managing possible sources of contamination.

Total Coliform: Bacteria that indicates whether other potentially harmful bacteria may be present.

WHERE DOES YOUR WATER COME FROM



Annual Water Production by Well Zone 1 (In Town)

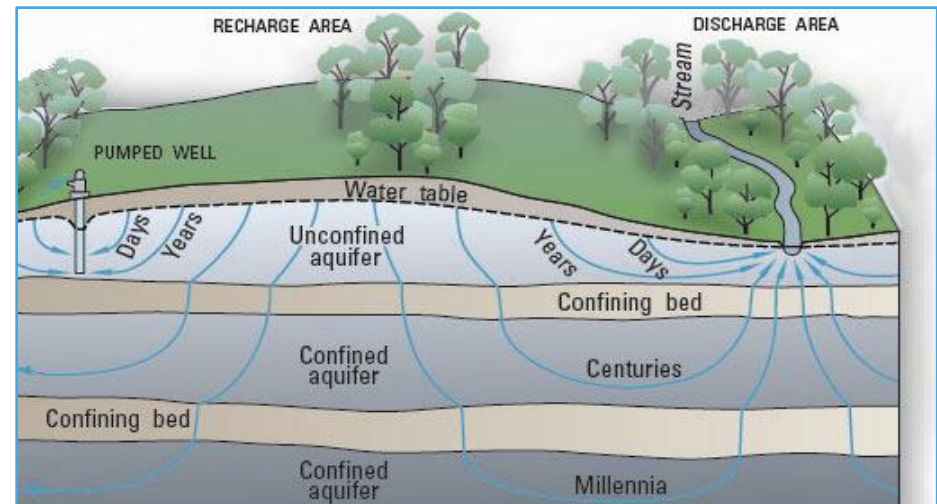


Annual Water Production by Well Zone 2 (Stoneleigh)

The Town of Round Hill sources its water supply exclusively from groundwater wells.

Groundwater originates from precipitation sinking into the ground from the surface to the water table.

Groundwater occurs in the open spaces between silt, sand, and gravel particles or in natural fractures within the bedrock called aquifers. These trapped stores of groundwater are pumped from the aquifer by a series of wells located at strategic points within and around The Town Of Round Hill. The water is then treated (using a chemical physical process), disinfected and stored within elevated towers for customer use.



WHAT IS IN YOUR WATER

The U.S. Environmental Protection Agency (EPA) is authorized by Congress to enforce the Safe Drinking Water Act Amendments of 1996 in regulating water systems for public health protection and establishing water standards. The 1996 Amendments require all water suppliers to issue a water quality report, called a consumer confidence report (CCR), to consumers on an annual basis. The Virginia Department of Health (VDH) has the responsibility for enforcing the Federal Water Quality Standards in the Commonwealth.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune 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 infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbiological contaminants are available from the Safe Drinking Water Hotline.

All 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 the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the **Environmental Protection Agency EPA Safe Drinking Water Hotline (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 across the surface of the land or permeates through the ground, it dissolves naturally occurring minerals and radioactive material. It can also pick up substances resulting from the presence of animals or human activity.



The **Safe Drinking Water Act of 1974 (SDWA)** has been amended most significantly in 1986 and 1996. These regulations govern drinking water quality. It sets the limits for contaminants in drinking water. These limits are represented in this report as MCLs, or the Maximum Contaminant Levels. The Food and Drug Administration (FDA) establishes limits for contaminants in bottled water, which must provide the same protection for public health as tap water. The Town of Round Hill is required to test for the presence of several organic as well as chemical contaminants. We submit the results to the Virginia Department of Health.

Contaminants that may be present in the water include:

- **Microbes:** (viruses or bacteria) from septic systems, agricultural livestock operations, local wildlife, and wastewater treatment plants
- **Inorganics:** such as salts and metals, which can occur naturally or result from storm water runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming
- **Pesticides and herbicides:** from agriculture, urban runoff, and residential uses
- **Organics:** synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production; and can also come from gas stations, urban storm water runoff and septic systems
- **Radioactive:** radioactive Radium and Uranium are found in small amounts in almost all rock and soil and can dissolve in water.
- **Bacteriological analysis of the treated water** is a *monthly* monitoring requirement. The analysis is reported based on the presence or absence of Total and Escherichia coliform. Total coliform bacteria may not be present in more than one monthly sample and E.coli may not be present in any sample.
- **Bacteriological analysis of untreated water** (raw water) varies from a monthly to yearly monitoring requirement. This analysis is an important indicator of raw water quality and can trigger additional treatment requirements.
- **Volatile Organic Compounds** is a test for 56 different chemicals such as fuel derivatives and solvents. The analysis is initially performed quarterly and is reduced to annually and eventually every three years as repeated results show no detections of the chemicals.
- **Radiological analyses** are performed for alpha and beta emitters. Samples are initially conducted quarterly and may eventually be reduced to once every six years after sufficient data shows low levels of results.
- **Total Trihalomethanes (TTHM) and Haloacetic Acids (HAA5)** are disinfection byproducts that can form in the water supply as chlorine reacts with organic matter. When ingested in large quantities, these chemicals are suspected human carcinogens, so these constituents are monitored closely. The legal limit for TTHMs is an annual average of 80 parts per billion (ppb). For HAA5 the limit is an annual average of 60 ppb. They are initially measured annually in small groundwater systems and eventually reduced every three years.
- **Lead and copper** are measured at the point of use (generally a homeowner's kitchen sink). In small community water systems, five to 10 homes are sampled initially every six months. The frequency of sample collection is reduced to annually and subsequently to three years based upon consistently meeting the action limit unless a new water source is added to the system. If a new source is put into service, the sampling period is again changed to more frequently.
- **Nitrite and nitrate** analysis is performed annually at each well source. The combined concentration of nitrate and nitrite may not exceed 10 ppm from any source.
- **Inorganic and metals** are analyzed every three years in groundwater systems to assure that none of the parameters exceed the respective MCLs.

PFAS

EPA is proposing a National Primary Drinking Water Regulation (NPDWR) to establish legally enforceable levels, called Maximum Contaminant Levels (MCLs), for six PFAS in drinking water. PFOA and PFOS as individual contaminants, and PFHxS, PFNA, PFBS, and HFPO-DA (commonly referred to as GenX Chemicals) as a PFAS mixture. EPA is also proposing health-based, non-enforceable Maximum Contaminant Level Goals (MCLGs) for these six PFAS. Learn more about proposed PFAS regulations as well as tips for reducing the risk of exposure [to PFAS here](#).



LEAD IN DRINKING WATER

What is the EPA standard for lead in drinking water?

EPA has established an Action Level for lead in water of 15 parts per billion. When lead testing is performed as required by EPA, 90 percent of the samples must contain less than 15 ppb. This is usually referred to as the 90th percentile results being less than 15 ppb. The Action Level was not designed to measure health risks from water represented by individual samples. Rather, it is a statistical trigger value that, if exceeded, may require more treatment, public education, and possibly lead service-line replacement where such lines exist. The Town is not aware of any lead service lines currently located in the system.



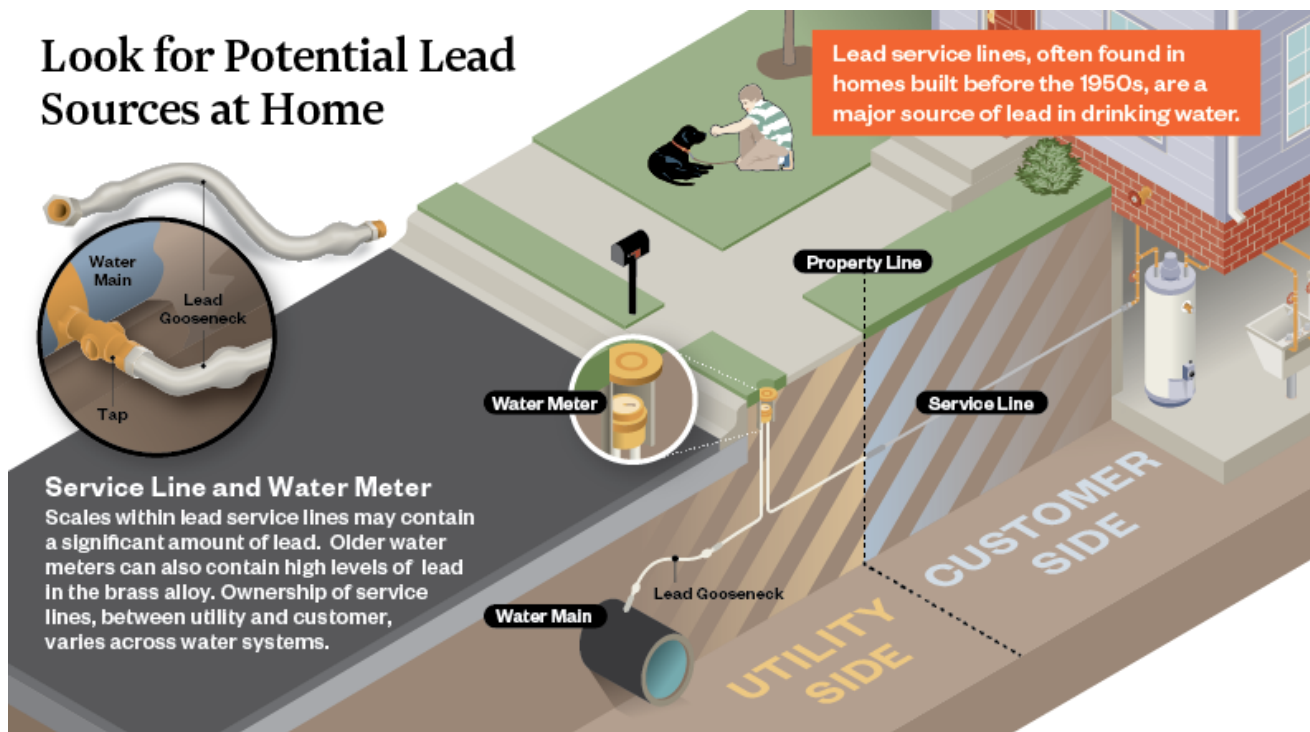
Lead in drinking water, where does it come from?

In 1986, lead was banned from pipes and solder used for residential construction. However, in older homes, where lead is still present in pipe and solder connections, lead can be dissolved into the water when it remains in contact with lead containing pipes or fixtures within your home for extended periods. It is very rare for lead to be found in the water supply itself.

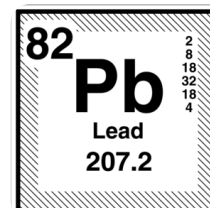
Lead Service Line Inventory

All public water systems must submit an inventory of every service line in their territory - **including the material type for both the customer- and utility-owned portions of the line**. This inventory will be made available to the public and used as the basis for other initiatives, like Lead Service Line Replacement. Over time, systems will continue to refine the inventory by verifying information in the field and identifying the material of unknown lines. If you would like to find more information, please follow the link for [Lead Service Line Inventory](#) information.

Look for Potential Lead Sources at Home



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 Round Hill is responsible for providing high-quality drinking water, but cannot control the variety of materials used in plumbing components in home construction. When your water has been sitting for several hours, **you can minimize the potential for lead exposure by flushing your tap for 15 to 30 seconds before use**, or until it becomes cold or reaches a steady temperature before using the water for drinking or cooking. Use only cold water for drinking, cooking and making baby formula. If you are concerned about lead in your water, you may wish to have your water tested. Information about lead in drinking water, testing methods and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline at [EPA Lead Reduction](#), or you can call the Hotline at **1-800-426-4791**.



HOW YOUR WATER IS TREATED

Ground water is disinfected with Sodium Hypochlorite “chlorine bleach”. Sodium Hypochlorite is also utilized for maintaining minimum chlorine residual within the water distribution system. This is to ensure that adequate disinfection is constantly maintained throughout the entire system. The town also provides Iron and manganese treatment in all **Zone 1** water sources. Within Round Hill and much western Loudoun County there is a natural presence of iron and manganese within many of the ground water sources. While Iron and Manganese in groundwater is not inherently unsafe to consume, these contaminants can cause issues with appearance, taste, and odor. Iron and Manganese may also be responsible for the staining of household plumbing. By utilizing thorough sampling and testing, the town has identified water sources that contain elevated levels of these minerals. A chemical/physical treatment process utilizing **Greensand Filtration** is used for Iron and Manganese removal within these identified sources. Some of the wells utilized by the town, however, are not being treated for Iron and Manganese removal. The Well that is not treated does not contain significant natural levels of Iron and Manganese in the source water.

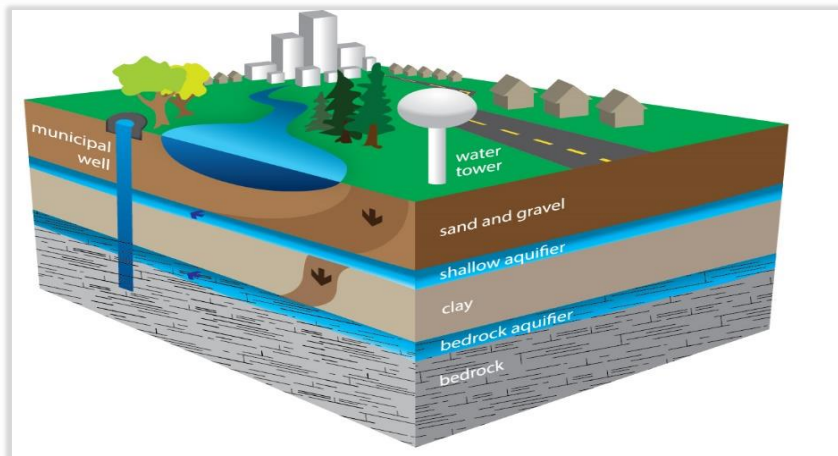
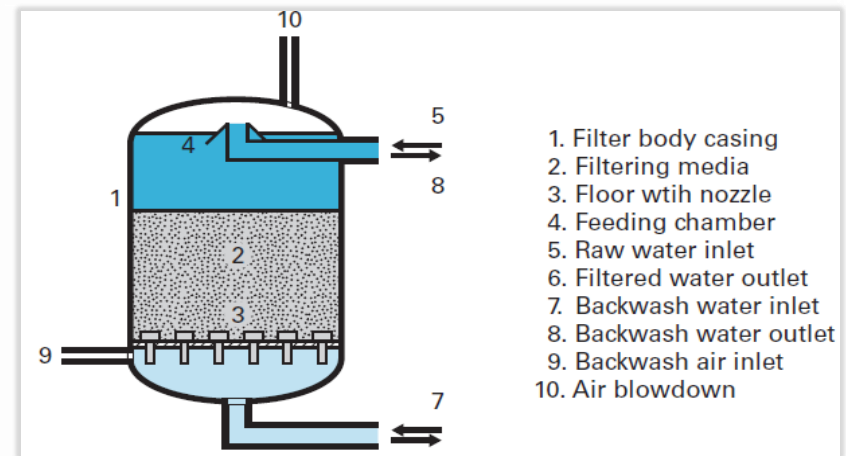


Diagram of Greensand Filter



Overview of Groundwater Sources

The town also does not add Fluoride to **any** of its water sources. This is due to a natural presence of Fluoride in the town's water supply.

Some customers may choose to install filtration systems in their homes. If you do choose to use a water filter, please follow these three rules:

1. Choose one designed for the specific type of filtration desired (i.e., chlorine, lead, Cryptosporidium, etc.).
2. Make sure to use a filter that has been approved by the National Sanitation Foundation (www.nsf.org).
3. Clean and maintain the filter per manufacture recommendations.

Substances NOT detected in your drinking water

Your water was tested for several Regulated Volatile (VOC) and Synthetic Organic Chemicals (SOC) including petroleum-based products, pesticides, herbicides, and industrial chemicals. Additionally, your water was monitored for a number of inorganic chemicals for which the EPA has set MCLs. Contaminants other than those listed in the included table were not detected.



SOURCE WATER PROTECTION

Under the provisions of the federal Safe Drinking Water Act, states are required to develop comprehensive source-water assessment programs that meet the following requirements:

- Identify watersheds that supply public tap water.
- Provide an inventory of contaminants present in the watershed.
- Assess the susceptibility of potential contamination within the watershed.

Source-water assessments for the watersheds are conducted by the Virginia Department of Health. The assessment consists of maps of the evaluated watershed area, an inventory of known land-use activities, and documentation of any known source-water contamination within the last five years.

HOW SOURCE WATER PROTECTION BENEFITS ME

1. **Public health protection** - Reduced threats to public health due to acute or chronic illness from exposure to contaminated water.
2. **Economic benefits** - Minimizes cost for water treatment, emergency replacement of water, and finding new supplies.
3. **Environmental stewardship** - Protection of rural lands, wildlife habitats, recreational areas and water quality of streams and wetlands.

HOW CAN YOU HELP PROTECT SOURCE WATER

Because human activity has such a profound impact on the quality of the water found in our streams, rivers, lakes and even subterranean sources, It is important for all of us to avoid activities that can potentially degrade water quality.

There are a few simple things that you can do in your yard and in your home.

- Please refrain from swimming in known drinking water sources.
- Do not dump anything in creeks or lakes.
- If you like boating, please consider participating in passive boating such as rowing, canoeing, or kayaking in place of motorized boating.
 - Compost yard waste and use natural fertilizers. Leave grass clippings on lawn as a natural fertilizer, mow grass to proper height, three inches is recommended.
 - Use less fertilizer. The average homeowner uses ten times more fertilizer than is necessary. Test your soil before application.
 - Apply fertilizer in the fall instead of spring to help reduce nitrogen and phosphorus runoff/leaching often caused by heavy rains.
 - Plant trees along creeks or other natural water sources. Plants that are native or well adapted likely will require less water, fertilizer, and pesticides.
 - Pick up after your pet. Flush pet waste down the toilet or wrap securely and place in trash.
- Check and repair vehicle fluid levels.
- Reduce your use of household chemicals. Look for non-toxic cleaners.
- Do not pour chemicals down the drain! Please dispose of household chemicals through a hazardous waste recycling program.

Properly dispose of household cleaning products, paint, fertilizers, pesticides, and expired/unused medications. Don't flush unused pharmaceuticals! Ask your pharmacist about proper disposal or contact Loudoun County Sheriff's office to inquire of about a proper disposal facility.

Cross Connection Potential

The Town of Round Hill would like to make all customers aware that cross connections can occur when you leave a garden hose in a container or swimming pool. A backsiphonage event can arise and cause the water to enter into the home's plumbing if a pressure drop occurs from the system or within your home. The Town of Round Hill has backflow prevention devices that are located within your meter setter or contained within the meter itself in some cases. These are mechanical devices that serve to isolate and prevent potential contaminants from entering the water system via the route of your cross connection.

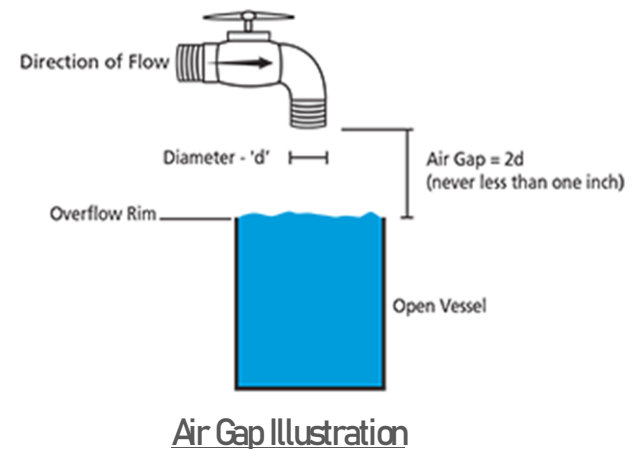

Please be aware that all backflow prevention devices are mechanical in nature, as such they could potentially fail to activate upon a backflow occurrence. Remember to **always** keep connected hoses out of chemical sprayers, swimming pools and basins of water. If a pressure drop was to occur within your home; contaminants from the vessel could be siphoned into your house plumbing. It is the homeowners' responsibility to make sure to provide an "**air gap**" between the ends of the hose and the actual water level. The air gap is required to be twice the diameter of the pipe or hose supplying the water. We also recommend using atmospheric vacuum breakers that can be attached to a hose bib for the prevention backsiphonage through the attached hose.

WHAT IS A CROSS-CONNECTION

A CROSS-CONNECTION IS ANY EXISTING OR POSSIBLE INTERCONNECTION BETWEEN A PUBLIC WATER SYSTEM OR CONSUMER'S POTABLE (I.E., DRINKING) WATER SYSTEM AND ANY OTHER SYSTEM CONTAINING SUBSTANCES OF UNKNOWN OR UNCERTAIN QUALITY. A CROSS CONNECTION IS DESCRIBED AS THE LINK THAT CAN BRING TWO SYSTEMS TOGETHER.

Typical Residential Cross-Connections

- Hose Bibs
- Lawn Irrigation
- Jacuzzis
- Swimming Pools
- Toilet Ball-cocks



If you have any questions on backflow prevention or cross connection, please call the Utility Department at 540-338-4772.

LOSS OF WATER PRESSURE IN YOUR HOME WATER LINES

Loudoun County has required the installation of a **Pressure Reducing Valve (PRV)** or regulator for several years. All new Loudoun County water service construction is required to include such a device. A PRV is a type of safety valve used to control or limit the pressure in a system; pressure that might otherwise build up and risk failure of piping or plumbing fixtures. Using these valves reduces the pressure of the water going through it and is used to maintain a regulated and constant value at its outlet. It is installed on the water main for the house, usually near your main water line shutoff valve. It protects the whole installation from problems due to excess pressure; noises in the pipes, water hammer, and premature wear of household electrical appliances and taps. Pressure reducing valves are completely automatic, as such they do wear over time and may become clogged. If this occurs you may experience low volume, low pressure, or no water at all. These devices are the responsibility of the homeowner and should be checked by a responsible plumber should you find that your water supply pressure or volume has changed.



Ongoing Water System Improvements

The Town consistently works to improve both production and quality of the municipal drinking water provided. In the past year, the town finished a substantial upgrade of the Goose Creek WTP. This upgrade will improve both reliability and production. The town is also actively repairing and replacing fire hydrants and valves that have been determined to not be functioning as they should.

A Costly Oversight

Dude, you are wasting
our precious water!



One of the most common causes of water loss within the home is a leaking toilet and should **never** be ignored. As allowing a leaky toilet to go unchecked could become a very costly oversight. A "Dye Test" is easy to do and is a useful tool for saving money on your water and sewer bill, because a leak inside of a toilet is often not visible or audible. Many people find it hard to believe their high-water bills are due to a leaky toilet. Make sure you add this simple test to your periodic home maintenance to-do list. If you are unsure of how to perform these simple tests, please use the following link. [EPA Leak Tests](#)

Emergency Contact Information

If you have a Utility emergency, contact the Town of Round Hill, [Utility Department at 540-338-4772 ext. 1](#), or the Town Office at **540-338-7878** Monday through Friday between the hours of **8:30 am and 4:30 pm** for all emergencies and general questions on rates, cutoffs and payments. For **True "emergency"** situations, contact the **Utility On-Call** operator for water or sewer issues. [After 3pm and before 7am](#) contact the [On-Call operator at 540-454-1975](#), please leave a message if asked to do so. If no one returns a call within 20 minutes, please contact the [Utility Supervisor at 540-359-2567](#) and a staff member will be contacted immediately.

Water Quality for Town of Round Hill

Data collected in 2022 unless otherwise noted

Microbiological	Number of Present Samples	**MCLG	Typical Source	MCL*	Violation	Testing Frequency
Total Coliform Bacteria	0	0	Naturally present in environment	N/A	N/A	Four Monthly
E.Coli Bacteria	0	0	Occurs naturally in human and animal fecal waste	> 1	No	Monthly

*MCL - Presence in more than one sample each month

Lead and Copper	90th Percentile	Range of Detections at Sampling Sites	**MCLG	Sites above Action Level	Typical Source	Action Level	Violation	Frequency Testing
Copper (ppm) ⁽²⁰²¹⁾	0.38	ND - 0.55	1.3	0	Corrosion of household plumbing	1.3	No	3 Years
Lead (ppb) ⁽²⁰²¹⁾	7.54	ND - 15.50	0	1	Corrosion of household plumbing	15	No	3 Years

Testing for L&C normally performed every 3 years unless a new source of water is added.

Other Chemicals & Radiologicals	Highest Level Detected	Range of Detections at Sampling Points	**MCLG	Typical Source	*MCL	Violation	Testing Frequency
Nitrate & Nitrite as Nitrogen, (ppm)	1.85	ND - 1.85	10	Runoff of fertilizer; leaching of septic tanks, sewage, Erosion of natural deposits	10	No	Annually
Gross Alpha (pCi/L) ^{(2021), (2022)}	4.70	ND - 4.7	0	Erosion of natural deposits	15	No	3 - 6 Years
Gross Beta (pCi/L) ^{(2021), (2022)}	11.40	0.8 - 11.40	0	Decay of natural and man-made deposits	50	No	3 - 6 Years
Combined Radium (pCi/L) ^{(2021), (2022)}	1.9	ND - 1.9	0	Erosion of natural deposits	5	No	3 - 6 Years
Fluoride (ppm) ^{(Naturally occurring) (2021)}	1.38	0.26 - 1.38	4	Erosion of natural deposits. Fluoride is not added by the Town	4	No	3 Years

These constituents are collected at each entry point on a routine cycle designated byVDH-ODW

Disinfectant	Running Annual Average	Range of Detections	***MRDLG	Typical Source	***MRDL	Violation	Testing
Chlorine, free (ppm) ^(Running Avg)	1.42	0.21 - 2.84	4	Water additive used to control microbes	4	No	Daily

Disinfectant By-Products	Highest Level Detected	**MCLG	Typical Source	*MCL	Violation	Testing Frequency
Total Haloacetic Acids (ppb)	28	N/A	By-product of drinking water disinfection	60	No	Annually
Total Trihalomethanes (ppb)	16	N/A	By-product of drinking water disinfection	80	No	Annually

Non-Regulated Contaminants	Highest Level Detected	Range of Detection at Sampling Points	**MCLG	Typical Source	*MCL	Violation	Testing Frequency
Hardness (ppm) ⁽²⁰²¹⁾	283	113 - 283	N/A	Erosion of natural deposits. Naturally present	N/A	No	3 Years
Sodium (ppm) ⁽²⁰²¹⁾	26.8	9.69 - 26.8	N/A	Erosion of natural deposits. Naturally present	N/A	No	3 Years

ND = Not Detected

ppm = Parts per Million

ppb = Parts per Billion

pCi/L = Pico curies per liter are a measurement of the radioactivity in water.

*MCL = Maximum Contaminant Level

**MCLG - Max Contaminant Level Goal

***MRDL - Maximum Residual Detection Level

***MRDLG = Max Residual Detection Level Goal