

# Annual Drinking Water Quality Report

## CARROLL REGIONAL WATER SYSTEM

### PWSID #1035088

#### INTRODUCTION

This Annual Drinking Water Quality Report for calendar year 2016 is designed to inform you about your drinking water quality. Our goal is to provide you with a safe and dependable supply of drinking water, and we want you to understand the efforts we make to protect your water supply. The quality of your drinking water must meet state and federal requirements administered by the Virginia Department of Health (VDH).

If you have questions about this report, please contact:

Dana Phillips at (276)730-3170 or John Dougill at (276)730-3174.

If you want additional information about any aspect of your drinking water or want to know how to participate in decisions that may affect the quality of your drinking water, please contact:

Dana Phillips at (276)730-3170.

The times and location of regularly scheduled board meetings are as follows:

3:00 PM the second Monday of each month in the Board Room, second floor of the Carroll County Administrative Building.

#### GENERAL INFORMATION

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: (i) microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife; (ii) 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, or farming; (iii) pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses; (iv) organic chemical contaminants, including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and septic systems; (v) radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities. In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA 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 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 Environmental Protection Agency's Safe Drinking Water Hotline (800-426-4791).

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer who are 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 microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

## **SOURCES and TREATMENT OF YOUR DRINKING WATER**

The sources of your drinking water is surface water and groundwater. The surface water source is New River treated by the New River Regional Water Authority water treatment plant. The ground water sources consist of 6 wells located in the Woodlawn community, Gladeville/Cranberry community, along Route No# 52, 221, 100 and 620.

The Virginia Department of Health conducted a source water assessment of our system groundwater sources during 2002. The groundwater sources were determined to be of highly susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report consists of maps showing the source water assessment area, an inventory of known land use activities of concern, and documentation of any known contamination within the last five years. The reports are available by contacting the Carroll County PSA at 276-730-3170 or at the Carroll County PSA office located at 605-2 Pine Street, Hillsville, Virginia 24343.

A New River source water assessment of was conducted in 2002 by the Olver, Inc. The New River was determined to be of high susceptibility to contamination using the criteria developed by the state in its approved Source Water Assessment Program. The assessment report consists of maps showing the source water assessment area, an inventory of known land use activities of concern, and documentation of any known contamination within the last 5 years. The report is available by contacting the Wythe County Water & Wastewater Department.

## **DEFINITIONS**

Contaminants in your drinking water are routinely monitored according to Federal and State regulations. The table on the next page shows the results of our monitoring for the period of January 1<sup>st</sup> to December 31<sup>st</sup>, 2016. In the table and elsewhere in this report you will find many terms and abbreviations you might not be familiar with. The following definitions are provided to help you better understand these terms:

*Maximum Contaminant Level, or 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, or 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.

*Maximum Residual Disinfectant Level Goal or MRDLG*: the level of 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.

*Maximum Residual Disinfectant Level or MRDL*: 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.

*Non-detects (ND)* - lab analysis indicates that the contaminant is not present

*Parts per million (ppm) or Milligrams per liter (mg/l)* - one part per million corresponds to one minute in two years or a single penny in \$10,000.

*Parts per billion (ppb) or Micrograms per liter* - one part per billion corresponds to one minute in 2,000 years, or a single penny in \$10,000,000.

*Picocuries per liter (pCi/L)* - picocuries per liter is a measure of the radioactivity in water.

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

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

*Level 1 assessment* - a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

*Level 2 assessment* - a very detailed study of the waterworks to identify potential problems and determine (if possible) why an *E. coli* PMCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

*Nephelometric Turbidity Unit (NTU)* - nephelometric turbidity unit is a measure of the clarity, or cloudiness, of water. Turbidity in excess of 5 NTU is just noticeable to the average person. Turbidity is monitored because it is a good indicator of the effectiveness of our filtration system.

### WATER QUALITY RESULTS

#### Regulated Contaminants

| Contaminant (units)                 | MCLG      | MCL                                | Level Detected | Violation (Y/N) | Range         | Date of Sample | Typical Source of Contamination   |
|-------------------------------------|-----------|------------------------------------|----------------|-----------------|---------------|----------------|---|
| Nitrate (ppm)                       | 10        | 10                                 | 2.08           | N               | 0.73 – 2.08   | 2016           | Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits                               |
| Fluoride (ppm)                      | 4         | 4                                  | 0.73           | N               | ND – 0.73     | 2016           | Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories |
| Barium (ppm)                        | 2         | 2                                  | 0.108          | N               | 0.016 – 0.108 | 2016           | Discharge of drilling waste; Discharge from metal refineries; Erosion of natural deposits                                 |
| Alpha Emitters (pCi/l)              | 0         | 15                                 | 2.47           | N               | ND – 2.70     | 2014 & 2016    | Erosion of Natural Deposits   |
| Combined Radium (pCi/l)             | 0         | 5                                  | 1.00           | N               | ND – 1.2      | 2014 & 2016    | Erosion of Natural Deposits   |
| Chlorine (ppm)                      | MRDLG = 4 | MRDL = 4                           | 1.41           | N               | 1.1 – 1.7     | 2016           | Water additive used to control microbes   |
| Total Organic Carbon                | NA        | TT, met when $\geq 1$              | 1.15           | N               | 1.00 – 1.61   | 2016           | Naturally present in the environment  |
| Haloacetic Acids (ppb)              | NA        | 60                                 | 27             | N               | 6.6 – 63      | 2016           | By-product of drinking water disinfection   |
| TTHMs [Total Trihalomethanes] (ppb) | NA        | 80                                 | 24             | N               | 5.6 – 44      | 2016           | By-product of drinking water disinfection   |
| Turbidity                           | NA        | TT, 1 NTU Max                      | 0.1            | N               | 0.05 – 0.1    | 2016           | Soil runoff   |
|                                     |           | TT, $\leq 0.3$ NTU 95% of the time | 100%           |                 |               |                |   |

**Lead and Copper Contaminants**

| Contaminant (units) | MCLG | Action Level | 90 <sup>th</sup> Percentile | Date of Sampling | # of Sampling Sites Exceeding Action Level | Typical Source of Contamination                                      |
|---------------------|------|--------------|-----------------------------|------------------|--|--|
| Lead (ppb)          | 0    | AL – 15      | 12.2                        | 9/2/15           | 3  | Corrosion of household plumbing systems; Erosion of natural deposits |
| Copper (ppm)        | 1.3  | AL = 1.3     | 0.268                       | 9/2/15           | 0  | Corrosion of household plumbing systems; Erosion of natural deposits |

The water quality results in the above table are from testing done in 2016. However, the state allows us to monitor for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though accurate, is more than one year old.

MCL's are set at very stringent levels by the U.S. Environmental Protection Agency. In developing the standards EPA assumes that the average adult drinks 2 liters of water each day throughout a 70-year life span. EPA generally sets MCLs at levels that will result in no adverse health effects for some contaminants or a one-in-ten-thousand to one-in-a-million chance of having the described health effect for other contaminants.

**VIOLATION INFORMATION**

We are pleased to inform you that your water system had no MCL or treatment technique violations during 2016.

**VIOLATION INFORMATION**

We are pleased to report that your water system had no monitoring, reporting or other violation during the year 2016.

**ADDITIONAL HEALTH INFORMATION**

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. **Carroll Regional Water System** 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 two 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 (800-426-4791).

In 2016, the New River Regional Water Authority began monitoring for Cryptosporidium in the source water (before treatment) as required by EPA's Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR). Cryptosporidium is a microscopic parasite found in surface water throughout the United States. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot guarantee 100 percent removal. Under the LT2ESWTR, the average Cryptosporidium concentration determines if additional treatment measures are needed. Twenty-four samples are required for analysis over a two-year period. During 2016, the average Cryptosporidium concentration was 0 oocysts per liter for the 3 samples collected. While our monitoring indicates the presence of these organisms in our source water (before treatment), the current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Based on the Cryptosporidium monitoring results so far and the current performance of the treatment plant, we anticipate meeting the future treatment requirements of the LT2ESWTR.