

Annual Drinking Water Quality Report for 2018
The Villages of Carthage and West Carthage
And The Town of Wilna Water Dist. #1
61 High Street West Carthage NY 13619
(Public Water Supply ID #2202334)

INTRODUCTION

To comply with State and Federal regulations, we will be issuing a report annually describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards. If you have any questions about this report or your drinking water, please contact Ernie Prievo at (315) 493-2210 or Tim Turck at (315) 493-1718. We want you to be informed about your drinking water and all we do to provide our customers with safe potable water. If you want to learn more, please attend any of our regularly scheduled monthly Joint Water meetings. Your Village clerk's office can provide you with the location of each of these meetings as well as the date and time.

WHERE DOES OUR WATER COME FROM?

In general, 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 can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. The State Health Department's and the FDA's regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Our water source is a clean and plentiful spring fed source known as the Indian River located in Belfort, New York. The Village's own 1,500 acres of uninhabited forest land that surrounds our drinking water supply. The water from this source flows into a manmade reservoir approximately two miles downstream. Once the water enters the reservoir a process of settling occurs before it enters the screen house. In the screen house the water passes through a fine screen prior to entering the 15 miles of transmission line. The water travels through the transmission pipe via gravity to the Village's Slow Sand Filtration Plant located on West Street Road. The filter plant is operated 365 days a year by employees from Carthage and West Carthage, who are New York State Licensed Operators. The Operators conduct water quality testing, routine plant maintenance, as well as record daily water consumption. It should be noted that the reservoir is drained and cleaned once a year and the screens in the screen house are cleaned weekly. During 2018, our system did not experience any restriction of our water source.

At the water filtration plant, the raw water flows into three filter beds and passes through a sand aggregate prior to being treated. Once the water is filtered, it is disinfected with sodium hypochlorite (chlorine). Sodium hypochlorite kills bacteria that may be present in the water. The amount of sodium hypochlorite added to the water is continuously monitored at the plant to achieve the desired 1.4 mg/L concentration. The chlorine residual in the distribution system is measured at various locations at least four times each week.

Turbidity is a measure of the water's clarity and both the raw and filtered water turbidity is continuously monitored at the plant. Turbidity measurements are also collected throughout the distribution system at least four times each week.

Before entering the distribution system, hydrofluosilic acid, zinc orthophosphate and Caustic soda are added to the water. Hydrofluosilic acid adds fluoride to the water at a concentration of 0.80 mg/L and is monitored at the filter plant. Fluoride has been shown to reduce tooth decay and dental cavities. The New York State Department of Health also analyzes the fluoride concentration once per month. Zinc orthophosphate is added to provide a coating on the interior of the pipes to help reduce the solubility of lead and copper that may be present in the distribution plumbing. This is continuously monitored at the filter plant. The target zinc orthophosphate concentration is 1.0 mg/L. Caustic Soda is added to increase the pH level of the finished water to a target of 7.60. This level as determined by the Department of Health is most effective at preventing corrosion in the distribution system and the consumer's internal plumbing and appliances.

FACTS AND FIGURES

Our water system serves approximately 6,500 individuals through an estimated 1,800 service connections. This number includes the entire population of the two Villages as well as a small number of customers in the Town of Wilna and the Town of Denmark. The total amount of water treated at the filter plant in 2018 was 132,665,158 gallons. This was an increase of 12,433,428 gallons of water from last year. The daily average of water treated and pumped into the distribution system was 363,466 gallons, an increase from last year of 34,064 gallons per day. Our highest single day was October 16th, when we pumped 576,641 gallons in 24 hours. During this 24 hour period, Carthage was flushing fire hydrants in their distribution system. Carthage billed a daily average of 200,777 gallons while pumping 222,078 gallons. This represents a difference of 19,301 gallons of water per day not billed or 8.7%. West Carthage billed a daily average of 126,845 gallons while pumping 141,388 gallons. This represents a difference of 14,543 gallons of water a day not billed or 10.29%. System wide we recorded a 9.8% unaccounted for water usage, which is well below the national average of 20%. Some of this unaccounted for water loss was used to fight fires, clean streets, flush fire hydrants and other community provided services that require the use of water where metering or calculating this usage would be very difficult. The water rate for residents in the Village of Carthage is \$4.86 per 100 cubic feet (748 gallons), and the Town of Wilna District #1 is charged \$4.90 per 100 cubic feet. Residents of the Village of West Carthage pay \$4.80 per 100 cubic feet, and residents outside the Village of West Carthage pay \$5.80 per 100 cubic feet. The Town of Wilna District #1 have additional cost associated with operations, maintenance and debt reduction that is not represented in this report.

ARE THERE CONTAMINANTS IN OUR DRINKING WATER?

As the State regulations require, we routinely test your drinking water for numerous contaminants. These contaminants include: total coliform, turbidity, inorganic compounds, nitrate, nitrite, lead and copper, volatile organic compounds, total trihalomethanes, and synthetic organic compounds. The table presented below depicts which compounds were detected in your drinking water. The State allows us to test for some contaminants less than once per year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, is more than one year old.

It should be noted that all drinking water, including bottled water, may be reasonably 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 EPA's Safe Water Drinking Hotline (800-426-4791) or the Jefferson County Health Department at 315-785-2277.

Table of Detected Contaminants							
Contaminant	Violation Yes/No	Date of Sample	Level Detected (Average) (Range)	Unit Measurement	MCLG	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Microbiological Contaminants/Turbidity							
Total Coliform	NO	all samples were negative	Negative	N/A	0	2 or more positive samples/month (MCL)	Naturally present in the environment

Turbidity ¹	NO	9/27/17	1.95 NTU	NTU	N/A	< 5 NTU (TT)	Soil Runoff
Turbidity ¹	NO	2018	100 %	NTU	N/A	95 % of samples < 1.0 NTU (TT)	Soil Runoff

Inorganic Contaminant

Chloride	NO	6/24/03	3.13	mg/L	N/A	250 (MCL)	Naturally occurring or indicative of road salt contamination
Copper ²	NO	9/17/17	90 th percentile ³ 0.263 mg/L Low- 0.006 High – 0.332 mg/L	mg/L	0	1.3 (mg/L)	Corrosion of household plumbing systems
Fluoride	NO	7/21/2015	0.578 mg/L	mg/L	N/A	2.2 (MCL)	Erosion of natural deposits. Water additive that promotes strong teeth. Discharge from fertilizer and aluminum factories.
Iron	NO	6/24/03	0.06mg/L	mg/L	N/A	300 (MCL)	Naturally occurring
Lead ²	NO	9/17/17	90 th percentile ³ ND Low - ND High – 0.001 mg/L	mg/L	0	15 (AL)	Corrosion of household plumbing systems.
Nitrate	NO	8/7/18	0.298	mg/L	10	10 (MCL)	Runoff from fertilizer use; Leaching from septic tanks, sewage; erosion of natural deposits
Radiological Combined 226 / 228 Gross Alpha	No No	Annual Running average 2017	0.637 0.716	pCi/L pCi/L		5.0 pCi/L 15.0 pCi/L	Naturally occurring when ground water travels through rock formations.
Sodium ⁴	NO	6/24/03	3.26	mg/L	N/A	N/A	Naturally occurring; road salt; water softeners; animal waste
Sulfate	NO	6/24/03	6.66	mg/L	N/A	250 (MCL)	Naturally occurring

Disinfection Byproducts

Total Trihalomethanes ⁵ (TTHMs)	NO	2018	<u>49.85</u> (29.0 – 74.82)	ug/L	N/A	80 ug/L	By-product of drinking water chlorination
Haloacetic Acids (HAA5's)	Yes	2018	<u>62.19</u> (47.2 – 77.57)	ug/L	N/A	60 ug/L	

Definitions:

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible.

Maximum Contaminant Level Goal (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.

Action Level (AL): The concentration of a contaminant which, if exceeded, triggered 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.

Non - Detects (ND): Laboratory analysis indicates that the constituent is not present.

Nephelometric Turbidity Unit (NTU): a measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.

Milligrams per liter (mg/L): Corresponds to one part of liquid in one million parts of liquid (parts per million -ppm).

Micograms per liter (ug/L): Corresponds to one part of liquid in one billion parts of liquid (parts per billion - ppb).

Picocuries per liter (pCi/l): A measure of the Radioactivity in water.

WHAT DOES THIS INFORMATION MEAN?

As you can see by the table, our system had a violation where we exceeded our MCL for Halocetic Acids. Please refer to “ SYSTEM IMPROVEMENTS “ to learn what action we have taken to mitigate this issue.

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS? YES

During 2018, our system was in compliance with all applicable State drinking water operating, monitoring and reporting requirements.

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Although our drinking water met or exceeded state and federal regulations, some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population. Immuno-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 from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

WHY SAVE WATER AND HOW TO AVOID WASTING IT?

Although our system has an adequate amount of water to meet present and future demands, there are a number of reasons why it is important to conserve water:

- ◆ *Saving water saves energy and some of the costs associated with both of these necessities of life;*
- ◆ *Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers; and*
- ◆ *Saving water lessens the strain on the water system during a dry spell or drought, helping to avoid severe water use restrictions so that essential fire fighting needs are met.*

You can play a role in conserving water 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. Conservation tips include:

- ◆ *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 one of these otherwise invisible toilet leaks. Fix it and you 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, record the consumption number then wait 15 minutes, If it changed (increased), you have a leak.*

SYSTEM IMPROVEMENTS

Water System Maintenance: Village employees from both Carthage and West Carthage operate the joint water system cooperatively, while operating their respective distribution systems. Each village has employees that are New York State Licensed operators, which share the day to day operations of the filter plant including weekends and holidays. These operators are always attending training seminars and required classroom studies to learn ways to improve the quality of water they deliver to you, the consumer. This past fall the Water Department personnel drained each water tank in Carthage and then re-filled each one with fresh water. Once both tanks were full they conducted a system wide flushing of the distribution system. Once this was completed we moved to the Village of West Carthage where we drained that tank to ½ capacity and then overflowed it for about 6 hours. The following days the distribution system in West Carthage was flushed. It is our belief that this program has provided higher quality water to all our customers. We have also increased our budget for routine water sampling, which we hope provides us with the information we need to make operational changes that will lower our Disinfection Byproduct results. We have also hired an Engineering Firm to evaluate our water storage tanks and conduct a study as to the benefits of adding a mixing system within the tanks to reduce stagnant water and improve our Disinfection Byproduct results.

Routine maintenance at the filter plant and booster pump station is conducted by these same employees. The water dept. employees from both villages spend a great deal of time conducting leak detection throughout the distribution system as well as replacing old fire hydrants, valves and water lines. During the winter months we spend a lot of time trying to keep the fire hydrants cleaned out in case of an emergency. We encourage all residents who have a fire hydrant near their property to take the few extra minutes and clear the snow away from it. By doing so, you will be helping the fire department perform their role and may possibly SAVE A LIFE. A summary of our work can be obtained from the Clerk's Office of each Village.

The business of providing the public with water of excellent quality is a full time task. The next time you pour a glass of water, wash a load of clothes, or just water your garden take a minute and consider what it takes to receive this service. When you open your faucet you only see the end results, clean potable water that meets and exceeds the requirements established by the D.O.H. and the E.P.A. What you don't see is the many hours of hard work and dedication that the employees of both villages have put into keeping the water flowing to you. Systems of this magnitude do not operate without problems and these problems don't always occur during normal working hours. Many times the water dept. employees are working late at night in less than favorable conditions repairing a problem so that the service to you, the customer, is maintained. All too often we take for granted the little things in life. Our abundant water source is the life blood of our community and needs to be protected and appreciated.

Thank you for allowing us to continue to provide you and your family with quality drinking water. We ask all our customers to help us protect our water sources. Should you have any questions about the information in this report or want to learn more about the service we provide please feel free to contact Ernie Prievo at (315) 493-2210, Tim Turck at (315) 493-1718, or the New York State Department of Health at (315) 785-2277.

This report was compiled with the assistance of the New York State Rural Water Association and the New York State Department of Health.

¹ Turbidity is a measure of the cloudiness of the water. We test it because it is a good indicator of the effectiveness of our filtration system. Our highest single turbidity measurement of 1.95 NTU occurred on September 27th. State regulations require that turbidity must always be below 5.0 NTU. The regulations require that 95% of the turbidity samples collected have measurements less than or equal to 1.0 NTU. All of our test results in 2018 were less than 1.0 NTU. Our daily average measurement for this year was 0.15 NTU.

² During 2017, twenty samples were collected from our distribution system and analyzed for lead and copper. The number presented represents the lowest and highest levels detected. (The Department of Health requires these samples to be collected every 3 years.)

³ The level presented represents the 90th percentile of the 20 sites tested for lead and copper in the distribution system. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the values detected in your water system. In this case, 20 samples were collected in the system and the 90th percentile value was the 18th highest value. The action levels for lead and copper were not exceeded in any of the samples collected.

⁴ Water containing more than 20 mg/L of sodium should not be used for drinking by people on very restricted sodium diets. Water containing more than 270 mg/L of sodium should not be used for drinking by people on moderately restricted sodium diets.

⁵ Stage 2 DBP Rule sampling began in 2013. Stage 2 average represents the highest locational running average of all the sites sampled for THM's and/or HAA5's. Data is collected quarterly and averaged to calculate the Annual Running Average. Stage 2 sample ranges represents the array of results from all collected samples.

The NYS DOH has evaluated this PWS's susceptibility to contamination under the Source Water Assessment Program (SWAP), and their findings are summarized in the paragraph(s) below. It is important to stress that these assessments were created using available information and only estimate the potential for source water contamination. Elevated susceptibility ratings do not mean that source water contamination has or will occur for this PWS. This PWS provides treatment and regular monitoring to ensure the water delivered to consumers meets all applicable standards.

The assessment area for this drinking water source contains no discrete potential contaminant sources, and none of the land cover contaminant prevalence ratings are greater than low. However, the high mobility of microbial contaminants in reservoirs results in this drinking water intake having medium-high susceptibility ratings for protozoa and enteric bacteria and viruses.

The Twin villages are committed to source water protection of the 1500 acre watershed. A copy of the assessment can be obtained by contacting the supplier of water.