77 Main Street
Post Office Box 369
Warwick, New York 10990
www.villageofwarwick.org

(845) 986-2031
FAX (845) 986-6884
mayor@villageofwarwick.org
clerk@villageofwarwick.org

VILLAGE OF WARWICK
INCORPORATED 1867

June 1, 2016

Dear Water User:

The recent headlines concerning Flint, Michigan's lead levels in its drinking water drives home the fact that water is one of our most vulnerable resources. Included in this report is a table of detected contaminants including copper and lead. We have also included a sub-paragraph on lead in our drinking water and the precautions and testing done by our Water Department.

The Village's water resources include the three reservoirs and two wells. Water infrastructure is made up of purification and distribution systems. The purification system includes a Water Treatment Plant for the reservoirs and a Micro-filtration Plant for Well #2. The distribution system includes water mains, hydrants and pump stations.

Much goes into delivering clean, safe, water to your home. Some of these activities include watershed protection, dam inspections and safety. The Treatment Plants are under continued scrutiny and continually upgraded for greater efficiency. Our water mains which include over 340 hydrants are inventoried, monitored and regularly flushed.

To keep this complex system running smoothly we rely on engineers, technicians, operators and administrators. These men and women are dedicated and understand the level of responsibility to our community.

Please take a moment to review this report. It is compiled by the Department Head and speaks of their commitment to insure the delivery and purity of our drinking water.

If you have any questions, please call our Water Department at 986-2031 extension 110.

Very truly yours,

Michael J. Newhard
Mayor

MJN:jr

*Annual Drinking Water Quality Report for 2015*
*Village of Warwick*
*77 Main Street*
*Warwick, N.Y. 10990*
*(Public Water Supply ID# 3503561)*

# INFORMATION FOR NON-ENGLISH SPEAKING RESIDENTS

**Spanish**

Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

# INTRODUCTION

To comply with State and Federal regulations, the Village of Warwick annually issues a report describing the quality of your drinking water. The purpose of this report is to raise your understanding and awareness of the need to protect our drinking water sources. This report provides an overview of last year's water quality results. Included are details about where your water comes from, what it contains, and how it compares to state and federal standards.
If you have any questions regarding your drinking water or this report, please consult the Village website www.villageofwarwick.org. If you need further information contact Cathy Schweizer, Village DPW office at (845) 986-2031 ext. 110, between the hours of 8:30 am and 4:00 p.m. Monday through Friday. We want you to be informed about your drinking water. If you want to learn more, please attend any of the regularly scheduled Village Board meetings. These meetings are held on the first and third Monday of each month at 7:30 PM.

# 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, in some cases, radioactive material, 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 New York State Health Department's (NYSDOH) and the FDA's regulations establish limits for contaminants in bottled water which are required to provide the same protection for public health.

### Reservoirs

Our main surface water source is the Village of Warwick's three reservoirs located on Village owned property north of Black Rock Road in the Town of Warwick. The water from these reservoirs is gravity fed into the Reservoir Filtration Plant where it is treated with Sodium Permanganate for taste and odor control, treated with a Pacl coagulant, then filtered to remove particulate matter; it is then chlorinated to destroy microorganisms prior to distribution. The plant also injects Orthophosphate into the treated water to sequester naturally occurring iron and manganese, which can otherwise cause discoloration of the water without this treatment.

### Well #1

Well #1 is located in Memorial Park and is a supply source that has not been in service for many years primarily because of its hydraulic connection to Well #2.

### Well #2

Well # 2 is a substantial supply, which is treated at the Microfiltration Plant. Both are located in Memorial Park. This facility is the most substantial improvement made to our water system in recent years; this plant is state of the art membrane filter system with a rated capacity to treat 1,000,000 gallons per day. This facility went into service in April 2012. The plant has been producing water of outstanding quality from a source that previously had no filtration and was determined to be Groundwater Under Direct Influence (G.W.U.D.I.) of surface water. Chlorine for disinfection and Ortho Phosphate for sequestering are the only chemicals added to the water at this plant.

**Well # 3**

Well #3 is a backup source, and is located north of Route17A at the east end of the Village. The water from Well #3 has been determined to be G.W.U.D.I. Because of this determination, this supply is only used in a very limited fashion, generally under emergency situations. Well #3 has been off line since May 2nd, 2012. It was able to be taken off line when the Microfiltration Plant came on line on April 30th, 2012 and was determined to be able to meet system quantity demands. When Well #3 is used, the water is disinfected with chlorine to destroy microorganisms prior to entering the distribution system. However, were the well to be used without filtration the Village would issue a Boil Water Order. The Village will be conducting an engineering evaluation of an enhanced treatment system for this source that will meet Federal requirements.

# SOURCE WATER ASSESSMENT PROGRAM SUMMARY

The NYS DOH has evaluated this Public Drinking Water Sources (PWS)'s susceptibility to contamination under the Source Water Assessment Program (SWAP), and their findings are summarized in the paragraph 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 the 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 (PCS)'s, and the amount of pastureland in the watershed results in this reservoir system having a high susceptibility to protozoa. However, the high mobility of microbial contaminants in reservoirs results in this drinking water intake also having medium-high susceptibility ratings for enteric bacteria and viruses. Furthermore, reservoirs are highly susceptible to water quality problems caused by phosphorus additions. A copy of this assessment, including a map of assessment area, can be obtained by contacting the Village of Warwick.

# FACTS AND FIGURES

Our water system serves approximately 6,800 people and numerous businesses through 2,535 service connections. The total water produced in 2015 was 232,433,000 gallons. The daily average of water treated and pumped into the distribution system was 638,552 gallons per day. The highest single day was 1,095,000 gallons, which occurred on August 8th, 2015. The total amount of metered water delivered to our customers during 2015 was 157,557,000 gallons. The total amount of village owned metered water usage was 2,245,000 gallons. Village unmetered usage is estimated to be 8,400,000 gallons and includes water main breaks, hydrant flushing, storage tank overflows, cemetery usage, park usage, wastewater treatment plant hydrant, and Fire Department tanker filling. The grand total of accountable water is 168,202,000 gallons. This leaves an unaccounted total of 64,231,000 gallons (27% of the total amount of water produced). The unaccounted for water can be attributed to undetected leaks, fire fighting, losses through failed meters and estimating accuracy.

| Village Of Warwick<br>Water Rates 2015 | Residential/ Commercial Customer In Village | Industrial Customer In Village | Residential/ Commercial Customer Outside Village | Industrial Customer Outside Village |
|---|---|---|---|---|
| Minimum Service Charge per Quarter | $12.25 | $12.25 | $14.68 | $18.15 |
| 1000-25,000 gallons (per 1000 gallons) | $4.82 | $8.31 | $14.19 | $18.15 |
| 26,000-75,000 gallons (per 1000 gallons) | $6.05 | $8.31 | $15.73 | $18.15 |
| Over 76,000 gallons (per 1000 gallons) | $8.31 | $8.31 | $18.15 | $18.15 |

## 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, haloacetic acids, radiological and synthetic organic compounds. The table presented below depicts the results of that testing. 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 drinking water, might be reasonably expected to contain 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 Drinking Water Hotline (800-426-4791) or the Orange County Health Department at (845-291-2331).

**Table of Detected Contaminants**

| Contaminant | Violation Yes/No | Date of Sample | Level Detected | Unit Measure-ment | MCLG | Regulatory Limit (MCL, TT or AL) | Likely Source of Contamination |
|---|---|---|---|---|---|---|---|
| Barium | No | 1/14/2015 | .024 | mg/l | 2.0 | MCL = 2.0 | Erosion of natural deposits. |
| Sulfate | No | 1/30/2013 | 17.7 | mg/l | 250 | MCL = 250 | Naturally occurring |
| Nickel | No | 1/14/2015 | 2.0 | ug/l | N/A | MCL = 100 | Erosion of natural deposits |
| Cyanide | No | 1/14/2015 | 7.0 | ug/l | 200 | MCL = 200 | Discharge from steel / metal factories; discharge from plastic and fertilizer factories. |
| Chromium | No | 2/25/2015 | 24 | ug/l | 100 | MCL = 100 | Erosion of natural deposits |
| Nitrate | No | 4/8/2015 | 1.98 | mg/l | 10 | MCL = 10 | Runoff from fertilizer use. |
| Five Haloacetic Acids** (HAA5) | No | Quarterly | Max=26.3 Range= 8.4 to 43 | ug/l | N/A | MCL = 60 | By-product of drinking water disinfection needed to kill harmful organisms. |
| Total Trihalo-methanes** (TTHMs) | No | Quarterly | Max=36.5 Range= 8.3 to 50 | ug/l | N/A | MCL = 80 | By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter. |
| Copper (see note 1) | No | 6/10/2014 | $90^{th}$=.2860 Range = 0.0404 - .7660 | mg/l | 1.3 | AL=1.3 | Corrosion of household plumbing |
| Lead (see note 2) | No | 6/10/2014 | $90^{th}$= 1.1 Range =0.5 - 3.7 | ug/l | 0 | AL=15 | Corrosion of household plumbing |
| Turbidity MWTP | No | 3/14/ 2015 | .028 | NTU | N/A | TT=< 1 | Soil Runoff |
| Turbidity MWTP | No | Every month of 2015 | 100% | NTU | N/A | TT=95% of samples< 0.3 NTU | Soil Runoff |
| Turbidity RWTP | No | 12/3/2015 | .215 | NTU | N/A | TT=< 1 | Soil Runoff |
| Turbidity RWTP | No | Every month of 2015 | 100% | NTU | N/A | TT=95% of samples< 0.3 NTU | Soil Runoff |
| Total Coliform Bacteria | No | 9/16/2015 | 1 Positive Sample | N/A | 0 | MCL= 2 Positive Samples/Month | Naturally Present in the Environment |

** The values shown in the table represent the highest locational running annual average calculated from data collected for Stage 2 compliance monitoring; however, the range of values includes Stage 2 and any Health Department surveillance samples.

1. The copper level presented represents the 90th percentile of the 20 customer locations tested. 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 copper values detected at your water system. In this case, 20 samples were collected at your water system and the 90th percentile value was the eighteenth highest value, 0.2860 mg/l with a range of .0404 - .7660 mg/l. The action level for copper was not exceeded at any of the sites tested.
2. The lead level presented represents the 90th percentile of the 20 customer samples collected. The Action level for lead was not exceeded at any of the 20 sites tested. If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants, and young children. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in customers plumbing components. The Village of Warwick is responsible for providing high quality drinking water, but cannot control the variety of materials used in a customer's 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 (1-800-426-4791) or at http://www.epa.gov/safewater/lead.

**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.

***Maximum Residual Disinfectant Level (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.

***Maximum Residual Disinfectant Level Goal (MRDLG)***: 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 contamination.

***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.

***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).

***Micrograms 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 no violations. We have learned through our testing that some contaminants have been detected; however, these contaminants were detected below the level allowed by the State.

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

During 2015, our system experienced a major water transmission main failure on August 2nd 2015, this caused the village system to lose pressure and necessitate a "Boil Water Order" 34 Total Coliform / E-Coli samples were drawn over the following three days, all of which returned from the laboratory with passing results. The "Boil Water Order" was then lifted in cooperation with the Orange County Department of Health.

## DO I NEED TO TAKE SPECIAL PRECAUTIONS?

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). Please note that after May 2, 2012 all water delivered to customers was treated to remove these microorganisms.

## LEAD IN DRINKING WATER

Lead in drinking water is due to leaching from lead service lines and lead solder joints in service lines and interior building piping. The Village does not believe that it has any lead water lines and in replacing service lines between the main and the curb stop has no history of finding lead lines. The customer is responsible for the line from the curb stop to the structure and all internal piping. If lead is a concern you should check the materials in your system.. The Village of

Warwick is responsible for providing high quality drinking water, but cannot control the variety of materials used in a customer's plumbing components. When water has been sitting in the pipes for several hours, the potential for lead exposure can be minimized by flushing the tap for 30 seconds to 2 minutes before using water for drinking or cooking.

Further the Village of Warwick injects Orthophosphate into the treated water prior to it entering the distribution system. Orthophosphate works as a sequestering agent which provides a coating on the inside of the pipes creating a shield that prevents corrosion and minimizes leaching of lead and other metals. Scientific American has a brief explanation about how this chemical works: http://www.scientificamerican.com/video/corrosive-chemistry-how-lead-ended-up-in-flint-s-drinking-water1/

The Village of Warwick tests for lead at 20 locations in the system. Samples are taken from tap water inside customer locations and are taken as a first draw after the water has remained in the internal piping for __ hours. The Action level for lead was not exceeded at any of the 20 sites tested. 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 (1-800-426-4791) or at http://www.epa.gov/safewater/lead.

## WHY SAVE WATER AND HOW TO AVOID WASTING IT?

Although the Village's 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 after 15 minutes. If it moved, you have a leak.

# SYSTEM IMPROVEMENTS

The Village of Warwick during 2015 made a substantial investment into its overall water system through multiple improvements and upgrades.

### Microfiltration Plant

Installed spare computer.

### Reservoir Filtration Plant

Received NYSDEC approval of design for pump station to pump lagoon to sewer, which was submitted in 2013 and will be constructed in 2016-17. Due to delay in approval funds were not included in 2015-16 budget.
Replaced Chlorine and PACL chemical feed pumps with new Grundfos pumps
Purchased two new raw water flow meters to be installed early 2016 during low consumption.
Increased cold storage area and security with a gate, wall and door structure.
Repaired deteriorated concrete block in corners of the building.

### Reservoirs

Raw water sources in the reservoirs; as well as our well supply were approaching low levels by late fall which brought about a concern that we would need to impose water restrictions and possibly explore "other source water options".

Fortunately precipitation late in the year alleviated these concerns and all sources returned to normal levels by the calendar year's end. Listed below are the accomplishments made during 2015 to our reservoir system.

- Completed removal of stumps on Upper and Middle reservoir dam faces.
- Middle reservoir has been found to have a crack in concrete spillway, engineers have determined this is not currently an emergency which will be addressed in 2016.

## Pump Stations and Storage Tanks

During Hurricane Sandy the Village was able to provide water to customers without interruption. To do so required the use of stationary and rented portable auxiliary power. This event demonstrated the importance of auxiliary power and the Village is working toward additional stationary supplemental power systems at critical facilities.
The Village has made application for a state sponsored grant to install backup power generation to most of our pumping stations. Should we be awarded these grants, we will be able to strengthen our ability to deliver a safe and reliable supply of drinking water to your homes and businesses during long-term power outages.

Improvements were made to the following:

- Laura Lane pump station experienced damage to one of its pumps during the August water main break, repairs were promptly made and pump placed back into service.
- Installed air releases on pumps at five Pump Stations to resolve air locking during main breaks and normal flushing. Hilltop PS did not require an installation.

## Distribution

Our Village Water Department is responsible for maintaining approximately 45 miles of water main, much of it originally installed during the early 1900's, understanding the volume of pipe maintained and age it becomes easy to see why breaks occur from time to time. Performed System Wide Leak Detection Survey thru Orange County Water Authority in December 2014 which found 12 hydrants with suspected leaks. Ten of the hydrants were found to not be leaking or were corrected without replacement, one hydrant was replaced and one hydrant with a very slight leak requires further investigation. There were no suspected leaks in the water main.

On August 2 a major leak in the 18" water line which connects the Reservoir Storage Tank to the Galloway and Oakland intersection resulted in the Reservoir Tank losing its contents. Once the tank emptied the Village contacted the Orange County Health Department and a Boil Water Notice was issued to Village customers. Repairs were completed on August 3, the distribution system was refilled and pressure throughout the Village was restored. The Boil Water Notice was rescinded at 5 PM on August 6.

Below is a listing of the projects completed by the Distribution Department during 2015:

- Performed system-wide flushing in April and October.
- Added 30 new service connections.
- Updated approximately 50 residential water meters to Sensus iPERL meter.
- Completed changeover to radio read meters
- Installed 4 new hydrants to replace existing.
- Repaired 8 hydrants that had failed.
- Repaired 5 water main breaks.
- Completed repair of isolated leak in waterline on South St under railroad tracks.
- Completed Capital Improvement Plan for Water Storage Tanks.
- Replaced cover on Pond Hill PRV vault to provide functional access.

## General

Created a GIS-based system for inventory, management and maintenance of water infrastructure. Located 324 hydrants, 655 water main valves, 51 meter pits and 787 curb shut-off valves.

# CLOSING

Thank you for allowing us to continue to provide your family with quality drinking water this year. We ask that all our customers help us protect our water sources, which are the heart of our community. Please call the Village Hall (845) 986-2031 ext. 110 if you have any questions.