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OFFICE OF THE CORPORATION  
MEETINGS HELD 1ST & 3RD MONDAY OF EACH MONTH

## Village of Warwick

77 MAIN STREET  
P.O. BOX 369  
ORANGE COUNTY

Warwick, NY 10990

May 1, 2014

Dear Water User:

The Village has a multi-source water supply consisting of three reservoirs and two wells. Our infrastructure includes both a purification and distribution system. The purification system consists of a Water Treatment Plant for our reservoirs and a Micro-filtration Plant for Well #2. The distribution system which includes water mains, hydrants and pump stations, has grown with the Village, meaning some of it is very old and some very new.

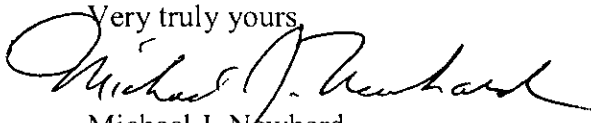
A great deal happens behind the scenes before clean safe water comes out of your tap. It begins with watershed maintenance, dam inspections and safety. The Treatment Plants are under constant observation and consistently being upgraded. The water mains which include fire hydrants are inventoried, monitored and regularly flushed.

Behind these activities are many minds and hands: men and women, engineers, technicians, operators, administrators who dedicate their energy to making a multi-faceted system run smoothly.

Please take a moment to review this report. The narratives by Department Heads will give a glimpse of the good work they do. Insuring that water is delivered readily and pure, maintaining a high level of daily operations and proactive repairs is their commitment to our community.

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 2013  
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](http://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.

## **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 State Health Department's and the FDA's regulations establish limits for contaminants in bottled water which are required to provide the same protection for public health.

### **Reservoir Filtration Plant**

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. In 2012 a system was installed at the plant to inject Orthophosphate into the treated water to provide sequestering of iron and manganese, which are naturally occurring in the water and can cause discoloration of the water without this treatment.

### **Well #1**

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

### **Well #2 / Microfiltration Plant**

Well # 2 is a substantial supply, this well supplies the new Microfiltration Plant, both of which are located in Memorial Park. This facility is the most substantial improvement made to our water system in recent years; this plant is a very complex, state of the art membrane filter system capable of treating 1,000,000 gallons per day. This facility is complete and 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 a 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 supply, and is located off Route 17A 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 2<sup>nd</sup>, 2012, it was able to be taken off line in conjunction with the Microfiltration Facility going on line on April 30<sup>th</sup>, 2012 and having proved its ability to meet system demands. When Well #3 is used, the water is disinfected with chlorine to destroy microorganisms prior to entering the distribution system. The Village is investigating an enhanced treatment system for this source which 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 2,503 service connections. The total water produced in 2013 was 179,956,000 gallons. The daily average of water treated and pumped into the distribution system was 494,385 gallons per day. Our highest single day was 666,000 gallons, which occurred on February 18th, 2013. The total amount of metered water delivered to our customers during 2013 was 160,613,000 gallons. The total amount of village owned metered and unmetered water usage was 2,633,000 gallons. The grand total of accountable water is 163,246,000 gallons. The daily average of accountable water was 448,478 gallons per day. The difference of metered (accountable) water and non-metered (unaccountable) water usage accounts for a total of 16,710,000 gallons. The average daily difference was 45,907 gallons per day. The difference is 10% of the total amount of water produced. This can be attributed to undetected leaks, water main breaks, hydrant flushing, tank flushing, fire use, non-metered water usage in village owned buildings and parks and normal losses through failed meters. There was also water loss attributed to the manual operation of pumping stations which at times overflowed the storage system to maintain fresh water to our residents.

During 2013, all in-village water customers were charged \$3.73 per 1,000 gallons of water used for the first 100,000 gallons. Over 100,000 gallons they were charged \$6.43 per 1,000 gallons. Village commercial and industrial customers were charged \$7.01 per 1,000 gallons used. In addition the village customers pay a land tax based fee. Non-village residential customers were charged \$12.63 per 1,000 gallons used with no land based tax fee. Non-village commercial and industrial customers were charged. \$14.04 per 1,000 gallons.

## **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 Measurement	MCLG	Regulatory Limit (MCL, TT or AL)	Likely Source of Contamination
Barium	No	1/30/2013	.021	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	1/30/2013	1.9	ug/l	N/A	MCL = 100	Erosion of natural deposits
Arsenic	Yes	5/22/2013	54	ug/l	0	MCL = 10	Erosion of natural deposits.
Chromium	No	2/13/2013	7	ug/l	0	MCL = 100	Erosion of natural deposits
Zinc	No	11/13/2013	.029	mg/l	N/A	MCL = 5.0	Naturally occurring.
Nitrate	No	4/9/2013	2.37	mg/l	10	MCL = 10	Runoff from fertilizer use.
Manganese	No	Quarterly	3	ug/l	N/A	MCL = 300	Naturally occurring.
Five Haloacetic Acids** (HAA5)	No	Quarterly	Max=16 Range= 6 to 28	ug/l	N/A	MCL = 60	By-product of drinking water disinfection needed to kill harmful organisms.
Total Trihalo-methanes** (TTHMs)	No	Quarterly	Max=33 Range= 12 to 98	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	6/15/2011 + 6/16/2011	90 <sup>th</sup> = .168 Range = 0.0683-0.6800	mg/l	1.3	AL=1.3	Corrosion of household plumbing
Lead (see note 2)	No	6/15/2011 + 6/16/2011	90 <sup>th</sup> = 7.7 Range = .5-14.6	ug/l	0	AL=15	Corrosion of household plumbing
Radium 226	No	1/24/2013	.16	pCi/L	0	5	Erosion of natural deposits
Radium 228	No	1/24/2013	.67	pCi/L	0	5	Erosion of natural deposits
Gross Alpha	No	Quarterly 2012	1.67 Range = ND - 1.67	pCi/l	0	MCL=15	Erosion of natural deposits
Turbidity MWTP	No	2/13/ 2013	.022	NTU	N/A	TT=< 1	Soil Runoff
Turbidity MWTP	No	Every month of 2013	100%	NTU	N/A	TT=95% of samples< 0.3 NTU	Soil Runoff
Turbidity RWTP	No	4/30/2013	.339	NTU	N/A	TT=< 1	Soil Runoff
Turbidity RWTP	No	Every month of 2013	100%	NTU	N/A	TT=95% of samples< 0.3 NTU	Soil Runoff

\*\* - During 2013 regulations for TTHM's and HAA5's changed from Stage 1 to Stage 2. The values shown in the table represent the running annual average for Stage 1 compliance monitoring; however, the range of values includes Stage 1, Stage 2 and any Health Department surveillance samples.

1. The copper level presented represents the 90<sup>th</sup> 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 90<sup>th</sup> 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 90<sup>th</sup> percentile value was the seventeenth highest value, 0.1680 mg/l with a range of .0683 - .6800 mg/l. The action level for copper was not exceeded at any of the sites tested.
2. The lead level presented represents the 90<sup>th</sup> 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.

**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).

**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 2013, our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements.

### **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.

### **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 2013 has made a substantial investment into its overall water system through multiple improvements and upgrades.

### **Microfiltration Plant**

One of the most critical components of this facility is a "Rotary Screw Type" air compressor. Should the single compressor fail, the entire facility would shut down within 2 minutes. This weak link was indentified and addressed through the purchase and installation of a standby air compressor. A new steel door was installed onto the Caisson Well #2 Building at the Microfiltration Plant, as well as additional lighting, to harden the security of the facility. A spare computer was purchased with delivery and installation to occur in 2014. The staging areas for C.I.P. chemical feeding was changed, to make better use of floor space and reduce the exposure of electronic equipment to chemical fumes.

### **Reservoir Filtration Plant**

A S.C.A.D.A. (Supervisory Control And Data Acquisition) system was installed in Spring 2013. This is a system of monitoring that goes beyond the current alarm activations. This system will be monitoring and harvesting water quality data from various operating and sampling equipment 24/7 as well as allowing an operator to interactively make adjustments and changes to the plant's operation by remote means on a real time basis without having to be present at the plant. It allows an operator to be onsite instantly via an internet connection rather than having time elapse as an operator drives to the facility in response to an activated alarm. A new set of steel doors were installed and exterior lighting was improved to harden the security of the facility.

Reconfigured 4-20 mA loop into two separate loops to control feed of chlorine and orthophosphate during FTW cycles. Installed a new heating system. Purchased and installed a new dehumidifying unit. Purchased "spectrophotometer" type meters for PO<sub>4</sub>, iron and manganese sampling to obtain more accurate readings. Replaced failed backwash meter with a meter that can/will be tied into SCADA system (tying into SCADA will take place when Microfiltration spare pc is delivered). Replaced KMnO<sub>4</sub> with NaMnO<sub>4</sub> and also purchased new feed pumps. Replaced domestic water supply connection with all new equipment including a new RPZ and meter.

The Village submitted plans to the NYS Department of Environmental Conservation to pump the filtered waste product to the Village's sewer system and wastewater treatment facility. This construction is scheduled to take place in 2014.

### **Reservoirs**

Work on the maintenance of the reservoirs this year included tree removal and the exercising of the emergency drain valves on all three reservoirs. Hurricane Irene, in 2011, caused significant damage to the reservoirs. Flow into the Upper Reservoir exceeded the capacity of the spillway to release it and caused the water to flow over the top of the dam and erode soil from the face of the dam. The concrete core was not damaged but the water level had to be lowered until repairs were completed. The storm also damaged the Inlet Stilling Basin, the Inlet and the Spillway. Repair of the dam face, which commenced in 2011, was completed in 2013. A leaking raw water line, which moves water from the Lower Reservoir to the plant, was repaired. A dock from shore to the valve tower has been constructed and will be installed in 2014.

### **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:

- Performed robotic inspection of all six Storage Tanks to develop a long-term tank maintenance plan including painting.
- Removed downed trees within 60' of Main storage tank at Reservoir caused by Superstorm Sandy.

- Surveyed and marked the property line of Village-owned Reservoir property. (in progress)
- Upper and Middle Reservoirs dam area tree removal in response to NYSDEC recommendation (in progress).
- Solicited bids for removal of stumps on Middle Reservoir dam face. Bid exceeded budget. Will be rebid in FY 2014-5.

A spare pump, as well as a spare control panel, that are each capable of working in multiple pumping stations were purchased to lessen pump station downtime during unexpected failures.

The Southern Lane Pump Station received two new pumps. The existing pump at the Galloway Pump Station was replaced with a new larger pump and a second pump was added. Installed air releases on both pumps at the Ridgefield Pump Station to resolve air locking during main breaks and normal flushing.

### **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.

Below is a listing of the projects completed by this Department during 2013:

- Performed system-wide flushing in March, June, and August and selected local flushing in response to discolored water.
- Performed review of PO4 and Cl2 residuals throughout the system and identified locations that receive additional flushing or "bleeder lines" to maintain proper levels.
- Added 15 new service connections (Warwick Grove).
- Updated approximately 65 meters, there are about 100 left to convert.
- Installed 7 new hydrants to replace existing.
- Repaired 6 hydrants that had failed.
- Repaired 7 water main breaks.
- Replaced high flow meters.
- Solicited bids for repair of isolated leak in waterline on South St under railroad tracks. Bid exceeded budgeted amount. Will rebid next fiscal year.

### **General**

The Village in 2010 procured the services of a contract operator to operate the filtration plants, pump stations and storage tanks. Village employees continue to manage the distribution system.

### **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 our office at the Village Hall (845) 986-2031 ext. 110 if you have any questions.

## **ADDENDUM TO ANNUAL DRINKING WATER QUALITY REPORT FOR 2013**

After publishing the 2013 Annual Drinking Water Quality Report the Village became aware of an inaccurate representation of the results of the testing performed on your drinking water. In order to correctly present those results the following replaces that section found on page 4 of the report. We apologize for any concerns the lack of a proper explanation may have created and thank the resident who brought this to the Village's attention.

### **WHAT DOES THIS INFORMATION MEAN?**

According to the table, our system had one violation in 2013. That violation was for Arsenic with one sample taken on May 22, 2013 with a result of 54 µg/l. The Maximum Contaminant Level (MCL) for arsenic is 10 µg/l. This is a raw water sample of the untreated groundwater from Well #2 taken at the Microfiltration Plant prior to treatment. The Village conducts this sampling for arsenic on a quarterly basis and the Village is required to show the highest result in this Annual Water Quality Report. The other three samples taken during 2013 reported the following results which were all well below the MCL of 10 µg/l:

Sample Date	Level Detected (µg/l)
2/13/2013	<1.4
8/14/2013	0.8
11/13/2013	0.9

Groundwater is usually very consistent in its chemical makeup and since the May 22, 2013 sample was a one-time occurrence that deviated significantly from previous and subsequent samples it is the Village's belief that this result was due to sampling or laboratory error and there is no reason to believe that there is an arsenic problem with the Village's drinking water well supply. The Village has reviewed its sampling procedures as conducted by the Contract Operator in an effort to ensure that sampling procedures are not the contributing factor to unusual results.

In general the Village has learned through our testing that some contaminants have been detected; however, these contaminants were in all cases other than that noted above, detected below the level allowed by the State.