Annual Drinking Water Quality Report for 2011
Village of Warwick
77 MainStreet
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 will be annually issuing 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. Included are details about where your water comes from, what it contains, and how it compares to state standards.

If you have any questions regarding your drinking water or this report, please contact the Village Hall office at (845) 986-2031 ext. 105, 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 our 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 must provide the same protection for public health.

Our main surface water source is the Village of Warwick's three reservoirs located on Black Rock Road in Warwick, NY. The water from these reservoirs is gravity fed into the Reservoir Filtration Plant where it is treated with potassium permanganate for taste and odor control, treated with a coagulant then filtered to remove particulate matter; it is then chlorinated to destroy microorganisms prior to distribution. During 2010, our system experienced a mandatory restriction on water usage due to a leak that was discovered in the pipe that passes beneath the dam from the Lower Reservoir (#1) to the plant. As a result the Lower Reservoir was taken offline and water was drawn from the Middle Reservoir (#2). The Village is currently working on a solution to repair this leak.

During 2011 our reservoir system experienced violent flooding caused by Hurricane Irene, which was then immediately followed by Tropical Storm Lee. The flooding from these storms caused an overflow of our highest elevation Reservoir (#3) which in turn washed a large amount of earth from that dam into Reservoir (#2), this compromised Reservoir #3's dam integrity and made Reservoir #2's water very difficult to treat. F.E.M.A. and specialized Impoundment Engineers were contacted promptly and emergency measures were put into place to ensure the public's safety and water supply. Substantial work on these reservoirs has been completed and the remaining work on these reservoirs is ongoing and expected to be completed in 2012.

The Village is also served by three groundwater wells. Wells # 2 and # 3 served as sources for the Village's drinking water during 2010.

Well #1 is located in Memorial Park and is a small supply that has not been in service for many years.

Well # 2 is a substantial supply, and is located in Memorial Park.

Well # 3 is a substantial supply, and is located off Route17A at the east end of the Village.

The water from the wells is disinfected with chlorine to destroy microorganisms prior to distribution.

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), 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 contain no discrete Potential Contaminant Sources (PCS)'s, and the amount of pastureland in the watershed results in this reservoir 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 2011 was 259,280,000 gallons. The daily average of water treated and pumped into the distribution system was 719,356 gallons per day. Our highest single day was 1,361,000 gallons, which occurred on June 15th, 2011. The total amount of metered water delivered to our customers during 2011 was 169,582,000 gallons. The total amount of village owned metered and unmetered water usage was 5,810,000 gallons. The grand total of accountable water is 175,382,000 gallons. The daily average of accountable water was 481,819 gallons per day. The difference of metered (accountable) water and non-metered (unaccountable) water usage accounts for a total of 83,898,000 gallons. The average daily difference was 230,489 gallons per day. The difference is 32% 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.

In the fiscal year running from June 1, 2010 through May 31st, 2011, all in-village water customers were charged $3.30 per 1,000 gallons of water used for the first 100,000 gallons. Over 100,000 gallons they are charged $5.69 per 1,000 gallons. Village commercial and industrial customers were charged $6.20 per 1,000 gallons used. In addition the village customers pay a land tax based fee. Non village residential customers were charged $12.42 per 1,000 gallons used with no land based tax fee. Non village commercial and industrial customers were charged $12.42 per 1,000 gallons.

In the fiscal year running from June 1, 2011 through May 31st, 2012, all in-village water customers are charged $3.73 per 1,000 gallons of water used for the first 100,000 gallons. Over 100,000 gallons they are 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 Measure -ment**	**MCLG**	**Regulatory Limit (MCL, TT or AL)**	**Likely Source of Contamination**
Barium	No	12/28/2011	.0178	mg/l	2.0	MCL = 2.0	Erosion of natural deposits.
Nickel	No	2/23/2011	.0018	mg/l	N/A	MCL = 100	Erosion of natural deposits
Chromium	No	1/5/2011	2.3	ug/l	100	MCL = 100	Discharge from steel and pulp mills; Erosion of natural deposits.
Sulfate	No	11/17/2011	10.4	mg/l	N/A	MCL = 250	Naturally occurring
Arsenic	No	4/13/2011	.7	ug/l	N/A	MCL = 10	Erosion of natural deposits.
Zinc	No	1/5/2011	.012	mg/l	N/A	MCL = 5.0	Naturally occurring; Mining waste.
Nitrate	No	4/27/2011	3.2	mg/l	10	MCL = 10	Runoff from fertilizer use.
Manganese	No	4/13/2011	2	ug/l	N/A	MCL = 300	Naturally occurring; Indicative of landfill contamination.
HAA-5	No	Quarterly	33	ug/l	N/A	MCL = 60	By-product of drinking water disinfection needed to kill harmful organisms.
TTHM	No	Quarterly	51	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^{th}=.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^{th}= 7.7 Range = .5-14.6	ug/l	0	AL=15	Corrosion of household plumbing
ALPHA (radiological)	No	5/25/2011 8/24/2011 10/19/2011	2.88 Range = .72 – 2.88	pCi/l	0	MCL=15	Erosion of natural deposits
Radium 226	No	5/25/2011 8/24/2011 10/19/2011	.09 Range = .04 - .09	pCi/l	0	MCL=5	Erosion of natural deposits
Radium 228	No	5/25/2011 8/24/2011 10/19/2011	.42 Range = .16 - .42	pCi/l	0	MCL=5	Erosion of natural deposits
Turbidity	Yes	8/29/2011 and 8/30/2011	2.0>	N.T.U.	N/A	TT = 1	Soil runoff

1. The level presented represents the 90^{th} 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^{th} 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^{th} 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 level presented represents the 90^{th} 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.

3. 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 turbidity measurements (2.0 NTU) for the year occurred on (8/29/2011 and 8/30/2011). State regulations require that turbidity must always be below 1 NTU. The regulations require that 95% of the turbidity samples collected have measurements below 0.3 NTU. August was the only month when we had less than 100% below .3 NTU. Of all of the samples collected in August, 97% of the levels were within the acceptable range allowed).

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?

The table shows that our system encountered some minor problems this year.

During the month of August 2011 our Reservoir system was struck by Hurricane Irene which left in its wake two severely damaged raw water impoundments. This damage created raw water so dirty that it was beyond the capabilities of our water plant to treat. During the following two days the raw water had settled out to the degree that we were able to meet the regulatory standards once again. The events precipitated by Hurricane Irene are the direct cause of the August 2011 turbidity failures. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

Treatment Technique Filtration and Disinfection Violations

The Village of Warwick is in violation of the Surface Water Treatment Rule, in relation to Well #3 for not providing filtration, or developing a new source of water within 18 months of being declared a G.W.U.D.I. source (ground water under direct influence of surface water). This deadline was to be met by May 30th, 2010. The Village of Warwick needed to continue to use Well #3 while Well #2 was offline for the construction of the Microfiltration Plant and was not able to meet the deadline. As a result the village is required to include the following statement in this report:
"Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches." The Village is in the process of actively seeking funding and has hired design engineers to comply with the Surface Water Treatment Rule.
This source will continue to be used as the village's water demands require it, until such time as Well #2 Microfiltration Plant construction is completed in 2012. It is important to understand that the water quality from Well #3 hasn't changed since it was first put into service in 1957, only the water quality standards and levels of required testing have changed. The village has addressed a similar situation with Well #2 by constructing a state of the art micro-filtration plant. This plant is due to go online in the first half of 2012.

Administrative Order:

The Village of Warwick was issued an Administrative Order from the E.P.A. on October 29th, 2010 in regards to a failure to provide raw water monitoring of its Surface and G.W.U.D.I. sources in a timely manner. The original E.P.A. mandated sampling was to commence no later than October 1st, 2008. This encompassed a 12 month sampling cycle to be completed no later than October 1st, 2009. Sampling was commenced on December 1st, 2010 and was completed on December 14th, 2011 in satisfaction of the requirements of the Administrative Order.

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).

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

Well #2

The most substantial improvement made to our water system is the new micro filtration plant located in Memorial Park; this facility is a state of the art membrane filter capable of treating 1,000,000 gallons per day. This facility is almost complete and is expected in first half of 2012 to begin producing an outstanding water quality from a source that previously had no filtration and was determined to be G.W.U.D.I.

Reservoir Filtration Plant

A great deal of improvement has been made to our Reservoir Filtration Plant over the past year. A filter to waste addition was recently made which has improved the overall water quality through greater turbidity reduction.

Another improvement at this facility is the installation of a new master control panel. This is the heart of the logic and operations of the facility; it is also a state of the art computerized system that has replaced the 40 year old technology that previously operated that facility. This upgrade now brings our plant into current industry standards and allows it to operate automatically without an on-site attendant. The water now provided by this facility is of an outstanding quality. Plans are currently being developed to incorporate the filtered waste product into the village's wastewater treatment facility, doing this would allow the village to treat the waste "in-house" and would reduce waste treatment costs substantially.

Reservoirs

Work on the maintenance of the reservoirs this year included the clearing of growth of trees on the dam faces. This work was performed by a contractor and is critical to the safe operation of water system impoundments. The Village purchased a new tractor which will be used to effectively control the vegetation on the dam face. The Village completed inspections of all three dams including an Engineering Assessment of the Lower Reservoir Dam and updating the Emergency Action Plan in 2011. The stilling basin at the head of the Upper Reservoir (#3) which is used to keep sediment from entering the reservoir was cleaned of accumulated sediment. In August Hurricane Irene 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. Repairs to the dam face were substantially completed in December and work on the other damage will carry forward into 2012.

Pump Stations and Storage Tanks

Improvements were made to the following:

Maple Ave PS- Installed new aboveground control panel; replaced existing pump and added a new second pump

Galloway PS, Chelsea Gardens PS and Southern Lane PS- contracted for the installation of new control panels, installation in 1st Quarter 2012.
Hilltop PS and Storage Tank- installed security fence

Distribution

Through a grant from the Orange County Water Authority a leak detection survey was performed on the water distribution system in 2010 which located eleven leaks. The survey exposed six water line leaks of various sizes, as well as four hydrant leaks. The total loss of water discovered during this survey approximated 145 gallons per minute. Repairs of the leaks were completed in 2011.

The Village purchased a trailer mounted hydraulic valve exerciser which will be used to exercise (safely open and close) the valves in the system and minimize valves breaking or being stuck in position. This will facilitate proper operation of valves and hydrants.

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 it becomes easy to see why breaks occur from time to time. The Village experienced six significant water main breaks in 2011. One occurred as a result of Hurricane Irene in August when the Parkway box culvert collapsed and broke the water main beneath it. A second break attributable to Irene occurred on Colonial Avenue at the culvert crossing which received damage during the Hurricane. A third major break was discovered in a service line which proved difficult to find since it was on private property in a grassed area. The other three were less complicated to repair; even so, they interrupted service and were note worthy projects.

Below is a brief listing of the work completed by this Department during 2011:

- Four new service lines were installed.
- 10 service line leaks were repaired.
- 12 service line valve boxes were repaired.
- 6 hydrants were repaired.
- 3 new hydrants were installed.
- 100 mark outs were performed; these identify our underground utilities to avoid damage by excavating equipment.
- 250 service calls were responded to.
- Water meter readings were performed every six weeks.
- 200 water meter repairs / upgrades to radio read were completed; there remains approximately 100 radio read upgrades needed in 2012.
- An inventory program has been instituted to accurately track parts needed for emergency repairs.
- Maintenance of over 800 acres of our Reservoir Water Shed, this includes the mowing, plowing, tree and brush removal. Additionally, we perform annual onsite inspections of private property located within the water shed; these are required by the New York State Department of Health to assure water shed compliance rules are adhered to. This year only 1 violation was written and the issue was promptly brought back into compliance.
- Grounds maintenance of 5 water storage tanks and 2 well sites.

General

The Village in 2010 procured the services of a contract operator to operate the filtration plants, pump stations and storage tanks. Village employees will continue to manage the distribution system. All the hydrants were inspected and a program is underway to correct any deficiencies.

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. 105 if you have any questions.