

Annual Drinking Water Quality Report for 2009
Town of Halfmoon Consolidated Water District
2 Halfmoon Town Plaza, Halfmoon, NY 12065
Public Water Supply Identification Number NY4519111

INTRODUCTION

We are very pleased to provide you with this year's Annual Drinking Water Quality Report. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. Last year, your drinking water met all State drinking water health standards. This report is a snapshot of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to New York State standards. Our constant goal is and always has been, to provide to you a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and to protect our water resources. If you have any questions concerning this report or concerning your drinking water please contact: *Mr. Frank Tironi Jr., Director of Water, Halfmoon Water Department, 2 Halfmoon Town Plaza, Halfmoon, NY 12065; Telephone (518) 233-7489; or e-mail us at ftironi@Townofhalfmoon.org or visit us at our web site www.TownofHalfmoon.org. The Town of Halfmoon is an Equal Opportunity Provider and Employer. Complaints of discrimination should be sent to USDA, Director, Office of Civil Rights, Washington, DC 20250-9410. TDD# 1-800-662-1220.*

We want our valued customers to be informed about their water service. If you want to learn more, please attend any of our regularly scheduled Town Board meetings. They are held on the 1st and 3rd Wednesday of each month, 7:00 PM at the Halfmoon Town Hall; 2 Halfmoon Town Plaza, Halfmoon, NY 12065; Telephone (518) 371-7410.

WHERE DOES OUR WATER COME FROM?

The Town of Halfmoon draws its water from the Hudson River a "surface water" source. Water is pumped from the river to our 5MGD treatment facility. The water plant utilizes the US Filter Actifloc[®] treatment process. The treatment process combines the Actiflo[®] clarification process and the Microfloc Mixed Media Filter technologies.

Raw water enters the coagulation tank where a chemical coagulant and efficient mixing are used to destabilize the suspended solids and colloidal matter present in the water. Powdered activated carbon is added for organics removal and taste & odor control. Polymer and microsand are then added at the injection tank with the microsand acting as a "seed" enhancing floc formation and settling. The water then goes to a settling tank where the floc quickly settles from the treated water. The clarified water is then filtered to remove any floc particles that were not removed in the settling process. Filtration acts as the final polishing step. Filtered water is then chlorinated to prevent bacterial contamination.

We also purchase water from the Waterford Waterworks under long term contract. The Waterford Water Works draws its water from the Hudson River a "surface water" source. Water is pumped from the river into a complete treatment facility. The treatment process at Waterford Water Works consists of chlorination; coagulation using polyaluminum chloride (PAC) to cause small particles to stick together when the water is mixed, making larger heavier particles; sedimentation allows the newly formed larger particles to settle out naturally; filtration removes smaller particles by trapping them in sand filters; pH adjustment with soda ash for corrosion control; post chlorination to prevent bacterial contamination and fluoridation at low levels to protect teeth. They have modified their coagulation process by using high acid alum when the pH of the raw water is greater than 7.8 pH units. Between January 1, 2009 and May 15, 2009 Halfmoon purchased 42,650,000 gallon of water

During the Environmental Protection Agency Dredging Project, the Town of Halfmoon purchased water from the City of Troy. Halfmoon was on the Troy water system from May 14, 2009 to December 5, 2009. The City of Troy draws its water from a "surface water" supply, the spring fed Tomhannock Reservoir. It is located to the northeast of the City of Troy. Water flows from the Tomhannock Reservoir to the Troy Water Treatment Plant (TWTP), a complete treatment facility. In an effort to lower the formation of

disinfection byproducts (DBBPs), TWTP has started to add potassium permanganate at the Tomhannock Reservoir. Potassium permanganate is a strong oxidant that is used to oxidize iron and manganese, but does not produce the DBBPs that chlorine does. Potassium permanganate is being fed seasonally from mid June to about September or October depending on the iron and manganese levels in the raw water. Additionally chlorine dioxide is added at Melrose Station to oxidize the organic material that leads to the formation of disinfection byproducts when it reacts with chlorine but unlike chlorine, chlorine dioxide does not form DBBPs like THM's or HAA5's. Chlorine dioxide is fed year-round. Like Waterford, Troy has the same water treatment processes and they also add fluoride at low levels to protect teeth against dental cavities. The water from Troy flows through a 24 inch pipe under the Hudson River and branches off to a 16 inch line in front of the Waterford WTP and the runs north to the Halfmoon Water Treatment Plant.

The Halfmoon Water District #1 receives its water through a consecutive connection with the City of Mechanicville water supply. The City of Mechanicville operates a surface water filtration plant. Two reservoirs feed this system: The Mechanicville Reservoir, located in Luther Woods has a storage capacity of 65 million gallons and is the primary source of water; The Terminal Reservoir, located approximately one mile downstream at George Thompson Road and the Treatment Plant has a 2.5 million gallon storage capacity. The Mechanicville Water Treatment Plant is a conventional treatment facility. The treatment process at Mechanicville consists of coagulation using polyaluminum chloride to cause small particles to stick together when the water is mixed, making larger heavier particles; sedimentation allows the newly formed larger particles to settle out naturally; rapid sand filtration removes smaller particles by trapping them in sand filters; and post chlorination to protect against contamination from harmful bacteria and other organisms.

The Mechanicville Water Treatment Plant is a U.S. Filter Modular Aquarius (AQ-300B) which consists of flocculation, clarification and filtration for water treatment. The plant is automatically controlled and packaged in (3) steel tanks producing 2,100 gallons/minute. The treatment process consists of coagulation using polyaluminum chloride to cause small particles to stick together when the water is mixed forming larger heavier particles. Sedimentation allows the newly formed larger particles to settle out naturally in inclined tube settlers. The mixed media filter bed consists of anthracite coal, silica sand and garnet sand which removes smaller particles by trapping them in the spaces between the sand grains. Also used in the treatment process is sodium permanganate which is used for taste and odor control, color reduction and iron and manganese oxidation. The filtered water from the treatment unit is fed into the clearwell. The water is then pumped out of the clearwell and chlorinated with liquid sodium hypochlorite. At this point the water flows into two (2) chlorine contact tanks. They are circular; epoxy coated steel bolted steel and concrete tanks with interior baffling and a storage capacity of 250,000 gallons each. The baffling in the tank provides increased detention time and adequate time for the water to be disinfected by the chlorine. Three (3) distribution water pumps operating in lead lag will draw the water from the two chlorine contact tanks into the distribution system.

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 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.

FACTS AND FIGURES

We provide water through 5,200 service connections to a population of approximately 14,000-15,000 people. Of those 5,200 service connections 156 of those connections comprise the Halfmoon District #1. The Halfmoon District #1 is comprised of about 7 streets. It runs from the Mechanicville/Halmoon border to Columbus Street and from Pruyin Hill Road to Carver Street. Our average daily demand is 1.9 million gallons. Our single highest day was 3,012,061 gallons. The total water produced in 2009 was 641,628,344 gallons. The amount of water delivered to customers was 540,044,750 gallons. Of that amount 42,650,000

gallons was purchased from Waterford between January 1, - May 15 2009. All services are metered. We determined that 15.8% of the water produced is non-revenue producing water. This is water lost due to leaks, main breaks, fire fighting, bi-annual hydrant flushing, under-registering meters and theft of service. The average Town of Halfmoon household is charged approximately \$234.50 per year for water. Residents in the Halfmoon Improvement District #1 are charged \$7.38 per thousand gallons.

ARE THERE CONTAMINANTS IN OUR DRINKING WATER?

In accordance with State regulations, the Town of Halfmoon routinely monitors your drinking water for numerous contaminants. We test your drinking water for inorganic contaminants, lead and copper, nitrate, volatile organic contaminants, and synthetic organic contaminants and disinfection byproducts. In addition, we analyze 15 samples a month for microbiological contaminants. The table presented below depicts which contaminants were detected in your drinking water. The state allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. Some of the data, though representative of the water quality, is more than one year old and is noted. For a listing of the parameters we analyzed that were not detected along with the frequency of testing for compliance with the NYS Sanitary Code, see Appendix A.

It should be noted that all drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily pose 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 New York State Department of Health Glens Falls District Office at (518) 793-3893.

WHAT DOES THIS INFORMATION MEAN?

As you can see by the table, our system had no violations. We have learned through our monitoring and testing that some contaminants have been detected; however, these compounds were detected below New York State requirements. MCL's are set at very stringent levels. To understand the possible health effects described for many regulated contaminants, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one-in-a-million chance of having the described health effect.

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

During 2009, the Halfmoon system was in compliance with applicable State drinking water operating, reporting and monitoring requirements.

IS OUR WATER SAFE FOR EVERYONE?

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 about drinking water 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 microbiological pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbiological pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

INFORMATION ON GIARDIA

Giardia is a microbial pathogen present in varying concentrations in many surface waters and groundwater under the influence of surface water. Giardia is removed/inactivated through a combination of filtration and disinfection or by disinfection. During 2009, as part of our monitoring plan, 12 samples of our Hudson River source water were collected and analyzed for Giardia cysts. Of these samples five were confirmed positive for Giardia in January, February, April, May and December 2009. Therefore, our monitoring indicates the presence of Giardia in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. No Giardia cysts were detected in the other 7 samples. Ingestion of Giardia may cause giardiasis, an intestinal illness. People exposed to Giardia may experience mild or severe diarrhea, or in some instances no symptoms at all. Fever

is rarely present. Occasionally, some individuals will have chronic diarrhea over several weeks or a month, with significant weight loss. Giardiasis can be treated with anti-parasitic medication. Individuals with weakened immune systems should consult with their health care providers about what steps would best reduce their risks of becoming infected with Giardiasis. Individuals who think that they may have been exposed to Giardiasis should contact their health care providers immediately. The Giardia parasite is passed in the feces of an infected person or animal and may contaminate water or food. Person to person transmission may also occur in day care centers or other settings where handwashing practices are poor.

Since we purchase water from the Waterford Waterworks we are required to provide the following information: As part of Waterford's monitoring plan they collected monthly samples for Giardia. Of the 2 samples collected in January and February 2009, Giardia cysts were detected in each sample. Information on Giardia exposure can be found in the above paragraph.

WHAT IS THE SOURCE WATER ASSESSMENT PROGRAM (SWAP)?

To emphasize the protection of surface and ground water sources used for public drinking water, Congress amended the Safe Drinking Water Act (SDWA) in 1996. The amendments require that New York State Department of Health's Bureau of Public Water Supply Protection is responsible for ensuring that source water assessments are completed for all of New York's public water systems.

A source water assessment provides information on the potential contaminant threats to public drinking water sources:

- ◆ each source water assessment will: determine where water used for public drinking water comes from (delineate the source areas)
- ◆ Inventory potential sources of contamination that may impact public drinking water sources
- ◆ Assess the likelihood of a source water area becoming potential contaminated

A SWAP summary for our ground water supply is attached to this report. The SWAP summaries for the surface supplies (Waterford, Mechanicville and Troy) are also attached.

INFORMATION OF FLUORIDE ADDITION

Fluoride is added to the water we purchase, by the Waterford Water Works before it is delivered to us. According to the United States Centers for Disease Control, fluoride is very effective in preventing cavities when present in drinking water at an optimal range from 0.8 to 1.2 mg/l (parts per million). To ensure that the fluoride supplement in your water provides optimal dental protection, the State Department of Health requires that the Waterford Waterworks monitor fluoride levels on a daily basis. During 2009, monitoring showed fluoride levels in your water were in the optimal range 100 % of the time. None of the monitoring results showed fluoride at levels that approach the 2.2 mg/l MCL for fluoride. During the period Jan-May 15, 2009 when we purchased water from Waterford, customers in the southern portion of the town, south of Rt. 146 to the town line and east to Hudson River Road received water that was fluoridated.

During the EPA dredging project all customers in the Halfmoon Consolidated Water District received all of its water from the City of Troy. Since the City of Troy fluoridates their water all customers had fluoridated water. Their daily monitoring showed fluoride to be in the optimal range 100% of the time. When the dredging project concluded and our Halfmoon WTP was in operation all residents received water that was not fluoridated. Additionally, no water was purchased from Waterford during the month of December 2009.

WATER CONSERVATION TIPS

The Town of Halfmoon encourages water conservation. There are a lot of things you can do to conserve water in your own home. Conservation tips include:

- ◆ *Use water saving showerheads*
- ◆ *Repair all leaks in your plumbing system*
- ◆ *Water your lawn sparingly early morning or late evening*
- ◆ *Do only full loads of wash and dishes*
- ◆ *Wash your car with a bucket and hose with a nozzle*
- ◆ *Don't cut the lawn too short; longer grass saves water*

CAPITAL IMPROVEMENTS

- ◆ Construction was completed on the 4.5 mile pipeline designed to bring safe drinking water from Troy to Waterford and Halfmoon residents before dredging begins on the EPA Hudson River Project, from where the towns currently draw their water. The pipeline will transport water from the Tomhannock Reservoir to Waterford where it will then flow north to Halfmoon. This will enable an alternate water source during Hudson River PCB dredging.

Future plans to improve the water system in 2010 include:

- ◆ Replacement of 2, 200 feet of watermain on Button Road and 4,500 feet of new main extended on Button Road.
- ◆ Recoating of interior of Brookwood Tank
- ◆ Installation of a pressure reducing pit at the bottom of Upper Newtown Road.

CLOSING

Thank you for allowing us to continue providing your family with clean, quality water this year. In order to maintain a safe and dependable water supply we sometimes need to make improvements that will benefit our customers. We ask that all our customers help us protect our water sources, which are the heart of our community. Please call our office if you have questions.

TOWN OF HALFMOON CONSOLIDATED WATER DISTRICT TABLE OF DETECTED CONTAMINANTS Public Water Supply Identification Number NY4519111						
Contaminant	Violation Y/N	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Microbiological Contaminants (WTP is abbreviation for Hudson River Water Treatment Plant)						
Turbidity , (WTP) Highest value from 8/30/09	N	0.1.54 ¹ 100 %	NTU		TT=1 NTU TT=95 % samples < 1.0	Soil runoff
Total Coliform	N	1 positive sample on 5/12/09, 8/25/09 & 10/6/09 for a total of 3 positives. All repeat samples were negative	N/A	0	Two or more positive samples ²	Naturally present in the environment.
Inorganic Contaminants samples from 3/24/09 for Hudson River Water Treatment Plant unless otherwise noted)						
Chloride	N	35				
Copper (data from 6/25/08-7/1/08) Range of copper concentrations	N	0.28 ³ ND-0.39	ppm	1.3	AL=1.3	Corrosion of household plumbing systems;
Copper (data from -7/1/08 WD#1) Range of copper concentrations	N	0.285 ³ 0.02-0.54				
Lead (data from 6/25/08-7/1/08) Range of lead concentrations	N	2 ⁴ ND-3	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Manganese	N	20	ppb	N/A	300	Geology; Naturally occurring
Nickel	N	0.8	ppb	N/A	100	Discharge from steel/metal factories
Nitrate	N	0.4	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Odor	N	2	units	N/A	3	natural sources
pH	N	7.2	units		6.5-8.5	
Sodium ⁵	N	19.6	ppm	N/A	N/A	Geology; Road Salt
Sulfate	N	13	ppm	N/A	250	Geology;
Disinfection Byproducts (sample data from 3/2/09, 6/5/0.09, 9/1/0.09 & 12/1/0.09 based on 4 samples per quarter)						
Haloacetic Acids [HAA5](RAA) ⁶ Range of values for HAA5 (Halfmoon Consolidated)	N	39 19-41	ppb	N/A	60	By-product of drinking water disinfection needed to kill harmful organisms
Haloacetic Acids [HAA5](RAA) ⁶ Range of values for HAA5 Halfmoon WD#1	N	38.6 25.9-38.1				
TTHM[Total Trihalomethanes](RAA) ⁶ Range of values for Total Trihalomethanes (Halfmoon Consolidated)	N	63.8 20.3-124	ppb	0	80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
TTHM[Total Trihalomethanes (RAA) ⁶ Range of values for Total Trihalomethanes for HAA5 Halfmoon WD#1	N	64.6 29.4-91.2				
Chlorine (average) based on daily testing Range	N	1.1 0.37-1.90	ppm	MRDLG N/A	MRDL 4	Used in the treatment and disinfection of drinking water

Stage 2 Disinfection Byproducts ⁷ (sample from 2/10/09 & 4/14/09)						
Haloacetic Acids Range of 16 samples (from Halfmoon Consolidated WD)	N	ND-56	ppb	N/A	60	By-product of drinking water disinfection needed to kill harmful organisms
Total Trihalomethanes Range of 16 samples (from Halfmoon Consolidated WD)	N	17.6-48	ppb	0	80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Total Organic Carbon ⁸ (monthly samples from January – May 2009 and Dec 2009)						
Raw Water	N	3.5-4.0	ppm	NA	TT	Organic material both natural and man made; decaying vegetation.
Treated Water		1.5-1.8				
Synthetic Organic Chemicals Polychlorinated Biphenyls (PCBs)						
Aroclor 1221 (5/14/09)	N	17.4	ppt	0	500	Runoff from landfills; Discharge of waste chemicals.
Aroclor 1221 (5/5/09)		7.72				
Aroclor 1221 (4/7/09)		7.58				
Aroclor 1242 (5/14/09)	N	17.3				
<p>1. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Level detected represents the highest level detected</p> <p>2. A violation occurs when 2 or more total coliform samples are positive in one month.</p> <p>3. The level presented represents the 90th percentile of 30 test sites. The action level for copper was not exceeded at any of the 30 sites tested. For WD#1 the level represents the 90th Percentile of the 5 sites tested. The action level for copper was not exceeded at any of the 5 sites tested.</p> <p>4. The level presented represents the 90th percentile of 30 test sites. The action level for lead was not exceeded at any of the 30 sites tested public health. The odor detected on this sample was from chlorine By placing the water in the refrigerator in an uncapped bottle, the odor can be improved.</p> <p>5. Water containing more than 20 mg/l should not be consumed by persons on severely restricted sodium diets</p> <p>6. The average is based on a Running Annual Average (RAA). The average shown is the highest RAA for 2009 Highest TTHM RAA was in the 4th Qtr and Highest RAA HAA5 in the 1st Qtr 2009.</p> <p>7. During Feb. and April 2009, we evaluated our distribution system for the presence of disinfection byproducts. The purpose of this evaluation is to determine future sample locations for routine disinfection byproduct sampling. The study consists of the collection of 8 disinfection byproduct samples once every 60 days. Monitoring was suspended during the EPA dredging project. Monitoring will resume in June 2010 and be completed in August 2010. The data contained herein is for 2009 days. Data from samples collected in 2009 is included in herein." We will be collecting 2 more sets of samples in June and August 2010 to complete the evaluation. These two sample sets were put on hold due to the Hudson River dredging project.</p> <p>8. The Interim Enhanced Surface Water Treatment Rule (IESWTR) requires monitoring of raw and finished water Total Organic Carbon (TOC). Depending on the raw water alkalinity value, proper water treatment should remove between 15% to 35% of the raw water TOC thus reducing the amount of disinfection byproducts produced</p>						

WATERFORD WATERWORKS TABLE OF DETECTED CONTAMINANTS Public Water Supply Identification Number NY4500173						
Contaminant	Violation Y/N	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Microbiological Contaminants						
Turbidity (sample from 1/1/09)	N	0.32 ¹ 100%	NTU	N/A	TT=1.0 NTU TT= 95% samples <0.3	Soil runoff
Total Coliform (samples from 5/28/09 & 10/22/09)	N	2 positive samples	N/A	0	2 or more positive samples ²	Naturally present in the environment
Inorganic Contaminants (sample data from 2/5/09 unless otherwise noted)						
Chloride	N	30	ppm	N/A	25	Geology; Naturally occurring
Copper (samples from 6/5/08-8/4/08)	N	0.28 ³ Range of copper concentrations 0.03-0.54	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Lead (samples from 6/5/08-8/4/08)	N	9 ⁴ Range of lead concentrations ND-28	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Nickel	N	0.6	ppb	N/A	100	Discharge from steel/metal factories
Nitrate (as Nitrogen)	N	0.6	ppb	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
Odor	N	2	units	N/A	3	Organic or inorganic pollutants originating from municipal and industrial waste discharges: natural sources
pH	N	7.8	units		6.5-8.5	
Sodium ⁵	N	23.1	ppm	N/A	N/A	Geology; Road Salt
Sulfate	N	10	ppm	N/A	25	Geology
Disinfection Byproducts (sample data from 3/3/09, 6/2/09, 9/1/09 & 12/1/09)						
Haloacetic Acids (HAA5) ⁶ Range of values for HAA5	N	34.2 19.4-50.5	ppb	N/A	60	By-product of drinking water disinfection needed to kill harmful organisms
TTHM[Total Trihalomethanes](Average) ⁶ Range of values for TTHM	N	50.2 22.5-83.4	ppb	0	80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Stage 2 Disinfection Byproducts ⁷ (sample from 2/3/09, 4/7/09, 6/4/09, 9/1/09 & 12/1/09)						
Haloacetic Acids (average) Range of 33 samples	N	6.5-60.7	ppb	N/A		By-product of drinking water disinfection needed to kill harmful organisms
Total Trihalomethanes (average) Range of 33 samples	N	1.2-110	ppb	0		By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.

Chlorine (continuous monitoring) average	N	1.07	ppm	MRDLG	MRDL	Used in the treatment and disinfection of drinking water
Range of chlorine residuals		0.31-1.72		N/A	4	
Total Organic Carbon⁸ (monthly samples from Jan-May 2009)						
Raw Water	N	2.4-4.3	ppm	NA	TT	Organic material both natural and man made; decaying vegetation.
Treated Water		1.3-1.9				
Synthetic Organic Chemicals (monthly samples raw and finished water Jan-June 2009)						
Poly Chlorinated Biphenyls (PCBs) ⁸ Finished Water Aroclor 1221		ND-9.92	ppt	0	500	Runoff from landfills; Discharge of waste chemicals.
FOOTNOTES-						
1. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Level detected represents the highest level detected. Distribution system turbidity performed 5 times a week with 0.72 NTU being highest level detected and 1.38 NTU being the average level detected.						
2. A violation occurs at systems collecting less than 40 samples per month when two or more samples are total coliform positive in one month All repeat samples were negative for coliform.						
3. The level presented represents the 90 th percentile of 20 test sites. The action level for copper was not exceeded at any of the 20 sites						
4. The level presented represents the 90 th percentile of 20 test sites. The action level for lead was exceeded at 2 of the 20 sites tested.						
5. Water containing more than 20 mg/l should not be consumed by persons on severely restricted sodium diets; Water containing more than 270 mg/l should not be consumed by persons on moderately restricted sodium diets.						
6. The average is based on a Running Annual Average (RAA). The average shown is the highest RAA for 2009, 3 rd Qtr Highest TTHM and 1 st Qtr Highest HAA5.						
7. During of 2009, 8 samples were collected every 60 days (Feb, April & June), and then 4 samples every 90 days June, Sept. & Dec. (to evaluate our distribution system for the presence of disinfection byproducts. The purpose of this evaluation is to determine future sample locations for routine disinfection byproduct sampling. The study will be completed in March 2010. The levels presented herein are the range of detects from the samples collected in 2009.						
8. The Interim Enhanced Surface Water Treatment Rule (IESWTR) requires monitoring of raw and finished water Total Organic Carbon (TOC). Depending on the raw water alkalinity value, proper water treatment should remove between 15% to 35% of the raw water TOC thus reducing the amount of disinfection byproducts produced.						
9. The Waterford Water Works wanted to monitor the Raw and Finished water using the same methodology the NYSDOH was using to monitor PCB levels at concentrations far below the MCL. This was done once per quarter. Those samples showed traces of PCB similar to what NYSDOH obtained on the various water supplies utilizing the Hudson River below Fort Edward, the source of the PCB originating from General Electric.						

As illustrated in the table above, Waterford's monitoring and testing detected some contaminants; all other contaminants were below the maximum levels permitted by the State, known as the maximum contaminant levels (MCL). Many of the test results were **NON DETECTABLE**. The type/group (number of contaminants in each group) tested for were as follows: volatile organic compounds (52) +MTBE, synthetic organic compounds (38), asbestos, color,. The inorganic contaminants tested for and non detectable were, arsenic, barium cadmium, chromium, mercury, silver, zinc, selenium, antimony, beryllium, thallium, and cyanide. Microbiological Contaminants (1) *E. coli*.

CITY OF MECHANICVILLE TABLE OF DETECTED CONTAMINANTS Public Water Supply Identification Number NY4500166						
Contaminant	Violation Y/N	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Microbiological Contaminants						
Turbidity ¹ (sample from 7/4/09)	N	0.27 100%	NTU	N/A	TT=1 NTU TT=95% samples < 0.3	Soil runoff
Inorganic Contaminants (samples from 2/19/09 unless otherwise noted)						
Chloride	N	28	ppm	N/A	250	Naturally occurring or indicative of road salt contamination.
Copper (data from 8/08)	N	0.24 ²	ppm	1.3	AL=1.3	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives
Range of copper concentrations		0.02-0.38				
Lead (data from 8/08)	N	2 ² ND-5	ppb	0	AL=15	Corrosion of household plumbing systems, erosion of natural deposits
Range of lead concentrations						
Manganese	N	20	ppb	N/A	30	Geology; Naturally occurring
Nickel	N	0.7	ppb	N/A	100	Discharge from steel/metal factories
Odor	N	2	units	N/A	3	Organic or inorganic pollutants originating from municipal and industrial waste discharges; natural sources
pH	N	7.1	units		6.5-8.5	
Sodium ⁴	N	13.4	ppm	N/A	N/A	Geology; Road Salt
Sulfate	N	10	ppm	N/A	250	Geology
Zinc	N	20	ppb	N/A	5000	Galvanized pipe; Corrosion inhibitor
Disinfection Byproducts (Quarterly samples from 2/19/09, 5/21/09, 8/20/09 and 11/19/09)						
Haloacetic Acids (HAA5)(Average) ⁵	N	46.3 23.3-48.2	ppb	N/A	60	By-product of drinking water disinfection needed to kill harmful organisms
Range of values for HAA5						
TTHM[Total Trihalomethanes](Average) ⁵	N	59.6 22.7-81.0	ppb	0	80	By-product of drinking water chlorination needed to kill harmful organisms.
Range of values for TTHM						
Stage 2 Disinfection Byproducts (Quarterly samples from 5/21/09, 8/20/09 and 11/19/09)						
Haloacetic Acids (HAA5) ⁶	N			N/A	60	By-product of drinking water disinfection needed to kill harmful organisms
Range of values for HAA5		38.5-55.0				
TTHM[Total Trihalomethanes] Range of values	N	36.3-68.6	ppb	0	80	By-product of drinking water chlorination needed to kill harmful organisms
Chlorine Residual (average) range	N	1.23 0.7-2.02	ppm	MRDLG N/A	MRDL 4	Used in the treatment and disinfection of drinking water
Total Organic Carbon⁷ (monthly samples from 2009)						

Raw Water		4.5-11.0				Organic material both natural and man made;
Treated Water	N	1.7-4.1	ppm	NA	TT	Organic pollutants, decaying vegetation.

FOOTNOTES-

1. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Level detected represents the highest level detected. Distribution system turbidity performed 5 times a week with 1.37 NTU being highest level detected and 0.4 NTU being the average level detected.
2. The level presented represents the 90th percentile of 20 test sites. The action level for copper was not exceeded at any of the 20 sites tested
3. The level presented represents the 90th percentile of 20 test sites. The action level for lead was not exceeded at any of the 20 sites tested
4. Water containing more than 20 mg/l should not be consumed by persons on severely restricted sodium diets.
5. The average is based on a Running Annual Average (RAA). The average shown is the highest RAA for 2009
6. The sample data is for the USEPA Stage 2 Monitoring Requirement for the determination of optimal sample sites for future DBBP sampling. Four sample were collected each quarter Sampling will be completed in the first quarter of 2010. The levels presented herein are the range of detects from the samples collected in 2009
7. The Interim Enhanced Surface Water Treatment Rule (IESWTR) requires monitoring of raw and finished water Total Organic Carbon (TOC). Depending on the raw water alkalinity value, proper water treatment should remove between 15% to 50% of the raw water TOC thus reducing the amount of disinfection byproducts produced

As illustrated in the table above, Mechanicville's monitoring and testing detected some contaminants; all other contaminants were below the maximum levels permitted by the State, known as the maximum contaminant levels (MCL). Many of the test results were NON DETECTABLE. The type/group (number of contaminants in each group) tested for were as follows: volatile organic compounds (52) + MTBE, synthetic organic compounds (38), asbestos, color, The inorganic contaminants tested for and non detectable were, arsenic, cadmium, chromium, iron, mercury, silver, zinc, selenium, antimony, beryllium, thallium, and cyanide. Microbiological Contaminants (2) Total Coliform & E. Coli.

CITY OF TROY TABLE OF DETECTED CONTAMINANTS Public Water Supply Identification Number NY4100050						
Contaminant	Violation Y/N	Level Detected	Unit Measurement	MCLG	MCL	Likely Source of Contamination
Microbiological Contaminants						
Turbidity (Highest turbidity sample from Troy WTP)	N	0.31 ¹ 100%	NTU	N/A	TT=1.0 NTU TT= 95% samples < 0.3	Soil runoff
Inorganic Contaminants (samples from 7/8/09 unless otherwise noted)						
Barium	N	30	ppb	2000	2000	Erosion of natural deposits
Chloride	N	19.0	ppm	N/A	250	Geology; Naturally occurring
Fluoride(average of daily samples) Range	N	970 90-1070	ppb	N/A	2200	Water additive which promotes strong teeth
Iron (average of weekday samples) range	N	30 ND-400	ppb	N/A	300	Geology; Naturally occurring
Manganese(average of weekday samples) range	N	10 ND-80	ppb	N/A	300	Geology; Naturally occurring
Nitrate	N	0.30	ppm	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits
pH (average of daily samples) range	N	8.76 7.57-9.17	units		6.5-8.5	
Sodium ³	N	8.4	ppm	N/A	N/A	Geology; Road Salt
Sulfate	N	17.0	ppm	N/A	250	Geology
Zinc	N	18	ppb	N/A	5000	Galvanized pipe; corrosion inhibitor
Disinfection Byproducts						
Chlorine Dioxide Residual (average daily testing) range	N	ND ND-0.06	ppm	0.8	0.8	Used in the treatment and disinfection of drinking water
Chlorite ⁶ (average based on daily testing) range	N	0.40 0.14-0.75	ppm	0.08	1.0	Byproduct of chlorine dioxide used in disinfection
Chlorine	N	0.77 0.09-1.10	ppm	MRDLG N/A	MRDL 4	Used in the treatment and disinfection of drinking water
Radioactive Contaminants						
Combined Radium (226 & 228 from 2009)	N	1.16	pCi/L	0	5	Erosion of natural deposits
Gross Alpha Particles (sample from 2009)	N	0.38	pCi/L	0	15	Erosion of natural deposits
Gross Beta Particles (sample from 9/30/03)	N	1.73	pCi/L	0	50 ⁴	Decay of natural deposits and man made emissions
<ol style="list-style-type: none"> 1. Turbidity is a measure of the cloudiness of the water. We monitor it because it is a good indicator of the effectiveness of our filtration system. Level detected represents the highest level detected. 3. Water containing more than 20 mg/l should not be consumed by persons on severely restricted sodium diets. 4. The state considers 50 pCi/L to be the level of concern for beta particles 						

As illustrated in the table above, Troy's monitoring and testing detected some contaminants; all other contaminants were below the maximum levels permitted by the State, known as the maximum contaminant levels (MCL). Many of the test results were NON DETECTABLE. The type/group (number of contaminants in each group) tested for were as follows: volatile organic compounds (52) + MTBE, synthetic organic compounds (38), asbestos, color, The inorganic contaminants tested for and non detectable were, arsenic, cadmium, chromium, mercury, silver, zinc, selenium, antimony, beryllium, thallium, nickel and cyanide. Microbiological Contaminants (1) E. coli.

Glossary of Terms

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

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

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

Parts per trillion (ppt) or Nanograms per liter (nanograms/l) - one part per trillion corresponds to one minute in 2,000,000 years, or a single penny in \$10,000,000,000

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

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

90th Percentile Value- The values reported for lead and copper represent the 90th percentile. 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 lead and copper values detected at your water system

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

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

Maximum Contaminant Level - The "Maximum Allowed" (MCL) is the highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal The "Goal" (MCLG) is 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.

Running Annual Average (RAA): The RAA is calculated each quarter by taking the average of the four most recent samples collected.

N/A-Not applicable

Halfmoon Water District
PWSID NY4519111
Source Water Assessment Summary

The NYS DOH has completed a source water assessment for this system, based on available information. Possible and actual threats to this drinking water source were evaluated. The source water assessment includes a susceptibility rating based on the risk posed by each potential source of contamination and how rapidly contaminants can move through the subsurface to the wells. The susceptibility of a water supply well to contamination is dependent upon both the presence of potential sources of contamination within the well's contributing area and the likelihood that the contamination can travel through the environment to reach the well. The susceptibility rating is an estimate of the potential for contamination of the source water, it does not mean that the water delivered to consumers is, or will become contaminated. See section "Are there contaminants in our drinking water?" for a list of the contaminants that have been detected, if any. The source water assessments provide resource managers with additional information for protecting source waters into the future.

Our source of drinking water is derived from both ground water (drilled wells) and surface water (Hudson River) sources. The source water assessment for the surface water source is not yet complete. The results of the surface water assessment will be reported in next year's Annual Water Quality Report.

The source water assessment has rated our ground water source as having an elevated susceptibility to microbial contamination, nitrates, and industrial contaminants. These ratings are due primarily to the close proximity of the wells to a permitted discharge facility (industrial/commercial facilities that discharge wastewater into the environment and are regulated by the state and/or federal government) and the associated industrial activity, as well as residential land use in the assessment area. In addition, the wells draw from fractured bedrock and the overlying soils may not provide adequate protection from potential contamination. While the source water assessment rates our wells as being susceptible to microbials, please note that our water is disinfected to ensure that the finished water delivered into your home meets New York State's drinking water standards for microbial contamination.

The county and state health departments will use this information to direct future source water protection activities. These may include water quality monitoring, resource management, planning and education programs. A copy of the full Source Water Assessment, including a map of the assessment area, is available for review by contacting us at the number provided in this report.

City of Mechanicville
PWSID NY4500166
AWQR SWAP Summary

The NYS DOH has evaluated this Public Water System's (PWS) 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 this PWS. This PWS provides treatment and regular monitoring to ensure the water delivered to consumers meets all applicable standards.

This assessment found an elevated susceptibility to contamination for this source of drinking water. The amount of agricultural lands in the assessment area results in elevated potential for protozoa and pesticides contamination. However, there is reason to believe that land cover data may over estimate the percentage of pasture in the assessment area. No permitted discharges are found in the assessment area.

There are no noteworthy contamination threats associated with other discrete contaminant sources. Finally, it should be noted that hydrologic characteristics (e.g. basin shape and flushing rates) generally make reservoirs highly sensitive to existing and new sources of phosphorus and microbial contamination.

A copy of the full Source Water Assessment, including a map of the assessment area, is available for review by contacting us at the number provided in this report.

**Waterford Water Works
PWSID NY4500173
AWQR SWAP Summary**

The NYS DOH has evaluated this Public Water System's (PWS) 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 this PWS. This PWS provides treatment and regular monitoring to ensure the water delivered to consumers meets all applicable standards.

This assessment found an elevated susceptibility to contamination for this source of drinking water. The amount of agricultural lands in the assessment area results in elevated potential for protozoa and pesticides contamination. While there are some facilities present, permitted discharges do not likely represent an important threat to source water quality based on their density in the assessment area. There is also noteworthy contamination susceptibility associated with other discrete contaminant sources, and these facility types include: Hazardous Substances Emergency Events Surveillance (HSEES) and mines. HSEES facilities and sites do not have regulated discharges to the environment. The potential risks they pose to drinking water quality are associated with accidents and small, unregulated releases over time. Finally, it should be noted that relatively high flow velocities make river drinking water supplies highly sensitive to existing and new sources of microbial contamination.

A copy of the full Source Water Assessment, including a map of the assessment area, is available for review by contacting us at the number provided in this report

**City of Troy
Tomhannock Reservoir
Source Water Assessment Summary**

The NYS DOH has completed a Source Water Assessment for the Tomhannock Reservoir. The assessment is summarized below. The assessment includes a susceptibility rating based on the risk posed by each potential source of contamination and how likely contaminants could enter the reservoir(s). The susceptibility rating is an estimate of the potential for contamination. It does not mean that the water delivered to your home is or will become unsafe to drink. See section "Are there contaminants in our drinking water?" of this report, for information concerning low levels of contaminants in your water.

The assessment found the amount of pasture in the assessment area results in a potential for protozoa contamination. There is also possible contamination susceptibility associated with landfills in the assessment area. It should be noted that hydrologic characteristics (e.g. basin shape and flushing rates) generally make reservoirs sensitive to existing and new sources of phosphorus and microbial contamination.

A copy of the full Source Water Assessment, including a map of the assessment area, is available for review by contacting us at the number provided in this report

