

Annual Water Quality Report for 2009

Binghamton Water Bureau

25 Broome St., Binghamton, New York 13903

Public Water Supply ID# NY0301651

INTRODUCTION

To comply with State and Federal regulations the BINGHAMTON WATER BUREAU will issue an annual report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and of the need to protect our drinking water sources. In 2009, we conducted tests for over 140 contaminants for each of our two sources, our primary source being the Susquehanna River and our back-up source being a well. Water produced from both sources was below maximum contaminant levels for all monitored constituents. Distribution system monitoring sample results were in compliance with State standards. This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards.

If you have any questions about this report or concerning your drinking water, please contact the **Water Department @ 607-772-7210 during normal business hours**. We want you to be informed about your drinking water. If you want to learn more, please feel free to contact the Water Bureau and we will be happy to discuss any drinking water issues with you in person.

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. State Health Department and FDA regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Our primary source of water is the Susquehanna River, from which water is withdrawn and treated at a modern, recently renovated water filtration facility. We also have a back-up groundwater supply, a well of relatively small capacity compared to our normal water demand. The well is typically exercised 8 hours per week, and thus supplies less than one-half of one percent of our water. Water pumped from the well is chlorinated before entering the water distribution system.

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 state source water assessment includes a susceptibility rating based on the risk posed by each potential source of contamination and how easily contaminants can impact the water at the intake. 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. While nitrate and other inorganic contaminants were detected in our surface and ground water source, 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 from natural sources. The presence of contaminants does not necessarily indicate that the water poses a health risk.

SURFACE WATER ASSESSMENT (SUSQUEHANNA RIVER)

The surface water assessment found an elevated susceptibility to microbial contamination for this source of drinking water. The amount of pastureland in the assessment area results in a high potential for protozoa 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. In addition, it appears that the total amount of wastewater discharged to surface water in this assessment area is high enough to further raise the potential for contamination (particularly for protozoa). There are no likely contamination threats associated with other discrete contaminant sources, even though discharge contaminants from some facilities were found in low densities. 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.

GROUND WATER ASSESSMENT (OLMSTEAD WELL)

A ground water assessment has rated the Olmstead Well as having a high susceptibility to nitrate and microbial contamination, specifically enteric bacteria, enteric viruses and protozoa. These ratings are due primarily to the proximity of the well to permitted discharge facilities (industrial/commercial and municipal facilities that discharge wastewater into the environment and are regulated by the state and/or federal government) and private sewage disposal, septic systems and agricultural activities in the upstream area. The well is also rated highly susceptible to chemical contaminants because of several contaminant sources identified in the assessment area and a history of low-level chemical contamination, specifically organic compounds. These ratings are also warranted because the well is relatively shallow and draws from an unconfined productive aquifer that may not provide adequate protection from potential contamination. Please note that as stated above, the Olmstead Well contributes a very limited amount of water to the total amount used in the system. While the source water assessment rates our surface water and ground water sources as being moderately to highly susceptible to microbial contamination, 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.

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.

FACTS AND FIGURES

Our water system serves 44,564 people through 14,200 service connections in the City, and wholesales water to parts of the Towns of Binghamton, Dickinson, and Vestal. The total amount of water pumped out of our production facilities in 2009 was 2,280,000,000 (Two billion two hundred and eighty million gallons of water). The daily average for the year was 7.2 million gallons with our highest daily production being on March 17th with 9,812,800 gallons pumped. The amount of water billed to all customers was 1,490,649,556. This number reflects sales provided to bulk tanker trucks and municipal agreements with NYSEG Stadium. We attribute the remaining 789,350,444 million gallons of water used by the city for firefighting, parks, non-revenue miscellaneous usage, pools and street flushing, a bi-annually hydrant flushing/flow testing program, and water main breaks and leakage. In 2009, water customers within the City boundaries were charged \$2.99 per 100 cubic feet (748 gal.) of water. A typical annual residential water/sewer charge (using 200 gallons/day) for the year 2009, including capital fees, was \$329.82. An outside user would have paid \$477.22 for the same water service.

ARE THERE CONTAMINANTS IN OUR DRINKING WATER?

As the State regulations require, we routinely test your drinking water for numerous contaminants. The contaminants included are: total coliform bacteria (for microbiological quality), turbidity, inorganic group compounds, nitrate, nitrite, lead and copper, volatile organic compounds, total trihalomethanes, haloacetic acids, synthetic organic compounds, and miscellaneous chemical compounds. The contaminants detected in your drinking water are included in the Table of Detected Contaminants.

During 2009, the Binghamton Water Plant performed 843 microbiological tests for coliform in the distribution system. There were no microbiological standard violations. Over 140 other contaminants were tested for during the year with the majority being not detected. A complete listing of contaminants we tested for during 2009 is available for inspection at the Filtration Plant during normal business hours. In the Table of Detected Contaminants is a listing of detected contaminants; all with concentrations below the state regulated maximum contaminant level (MCL).

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, could be more than one year old.

It should be noted that all drinking water, including bottled drinking water, might be reasonably expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 800-426-4791, or the Broome County Health Department at 607-778-2887. Also, the National Sanitation Foundation is a nongovernmental source of free information on water quality issues, with a toll-free consumer hotline at 877-8NSF-HELP.

DEFINITIONS OF TERMS USED IN TABLE

Maximum Contaminant Level (MCL): The highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's 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. MCLG's allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant residual that is allowed in drinking water.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contamination.

Action Level (AL): The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.

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

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

Nephelometric Turbidity Unit (NTU): Turbidity is a measure of the clarity of the water. We use this test as an indicator of the effectiveness of the filtration system as a whole. State regulations in force during 2008 require that our effluent (water leaving the plant) always be below 1.0 NTU, and 95% of the turbidity samples collected from our individual filters must have measurements below 0.3 NTU. These samples from the filters are collected every fifteen minutes utilizing our SCADA system and turbidity monitors located at each filter. 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.

Running Annual Average (RAA): The average result of four consecutive quarterly compliance chemical testing evolutions.

Table of Detected Contaminants

CONTAMINANT	VIOLATION	DATE OF	LEVEL DETECTED (Range)	UNIT	MCLG	Regulatory Limit AI, MRDL, MCL	LIKELY SOURCE OF CONTAMINANT
Primary Inorganics							
Barium Plant	NO	12/08/09	0.014	mg/L	2.0	2.0	Drilling Waste ,Discharge from metal Refineries Erosion of natural deposits
Well	NO	11/12/08	0.086	mg/L	2.0	2.0	
Arsenic Well	NO	11/12/08	0.003	mg/L	0.1	0.1	Natural, orchard runoff, manufacturing
Fluoride Plant	NO	12/08/09	1.04	mg/L	1.0	2.2	Additive for good dental health
Well	NO	11/12/08	0.210	mg/L	1.0	2.2	Erosion of Natural Deposits
Volatile Organic Contaminants							
Trichloroethene (TCE) (*4)	NO	3/13/09	0.5	ug/L	0	5	Discharge from metal degreasing sites and other factories
Secondary Inorganic							
Nitrate Plant	NO	Quarterly	0.05 – 0.39	mg/L	10.0	10.0	Runoff from fertilizer, runoff from septic tanks ,sewage, natural erosion
Well	NO	Quarterly	0.23 – 4.06	mg/L	10.0	10.0	
Sodium Plant	NO	Quarterly	11.0 – 14.4	mg/L	N/A	None	Natural, road salt, water softeners
Well (*1)	NO	Quarterly	137 - 154	mg/L	N/A	None	
Disinfection By Products							
Total Trihalomethanes (*2)	NO	Quarterly	6.6 – 78.4	mg/L	N/A	80.0	By product of disinfection TTHM's form when chlorine meets organic matter
Distribution system							
Halo acetic Acid (*3)	NO	Quarterly	1.1 – 35.5	mg/L	N/A	60.0	By product of disinfection HAA5's form when chlorine meets organic matter
Distribution system							
Chlorite Plant Average	NO	Yearly	0.18	mg/L	N/A	1.0	By product of in plant generation of chlorine dioxide
Daily High	NO	Jul. 12th	0.43	mg/L	N/A	1.0	
Cl. Dioxide Plant Average	NO	Yearly	0.05	mg/L	N/A	0.8	Chemical used in taste and odor control at the water treatment plant
Daily High	NO	Feb. 13th	0.14	mg/L	N/A	0.8	
Sodium Hypochlorite Plant Average	NO	Yearly	1.33	mg/L	N/A	4.0	Chemical Used in the disinfection of drinking water (Measured as Free Chlorine)
Daily High	NO	Aug. 20th	1.77	mg/L	N/A	4.0	
Radiological							
Gross Alpha Plant 2008	NO	Quarterly	0.10 - 2.28	pCi/L	0	15	Erosion of Natural Deposits
Well 2008	NO	Quarterly	2.19 - 3.36	pCi/L	0	15	
Radium 226 Plant 2008	NO	Quarterly	0.02 - 0.14	pCi/L	0	5	Erosion of Natural Deposits
Well 2008	NO	Quarterly	0.04 - 0.23	pCi/L	0	5	
Radium 228 Plant 2008	NO	Quarterly	0.38 - 0.92	pCi/L	0	5	Erosion of Natural Deposits
Well 2008	NO	Quarterly	0.00 - 1.79	pCi/L	0	5	

* Notes:

1 – Water containing more than 20 mg/l of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/l of sodium should not be used for drinking by people on moderately restricted sodium diets.

2 - This level represents the total levels of the following contaminants: Chloroform, Bromodichloromethane, Dibromochloromethane, Bromoform.

3- This level represents the total levels of the following contaminants: Monochloroacetic Acid, Monobromoacetic Acid, Dichloroacetic Acid, Trichloroacetic Acid, & Dibromoacetic Acid.

4 – Some people who drink water containing Trichloroethene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer. (This one positive sample took place in the first quarter of 2009. At no time did it show up in any other quarterly sample collected.)

INFORMATION ON THE ADDITION OF FLUORIDE

Our system is one of many in New York State that provides drinking water with a controlled, low level of Fluoride for consumer dental health protection. Fluoride is added to your water by the Water Filtration Plant and is monitored no less than every four hours by water plant operators and laboratory

personnel. According to the Center for Disease Control, Fluoride is very effective in preventing cavities when present in drinking water at an optimal range from 0.8 – 1.2 mg/L. During 2009 monitoring showed Fluoride levels in your water were in the optimal range 100 % of the time. At no time in 2009 did the Fluoride level exceed the MCL of 2.2 mg/L.

WHAT DOES THIS INFORMATION MEAN?

As you can see by the table, our system had no MCL violations in 2009.

We also learned through our testing that some other contaminants have been detected; however, these contaminants were detected below the level allowed by the State, as indicated in the table.

During January of 2009 we suffered a massive main break on Gillen Drive. This led to a precautionary three day Boil Water Advisory while we conducted required bacteriological testing, all results came back negative. The community served by the Gillen Drive reservoir was then put back in service.

LEAD AND COPPER

In 1994, the City of Binghamton conducted a corrosion optimization study to reduce lead and copper levels in your tap water. The report and study were approved by the New York State Department of Health and the City's corrosion control was deemed optimized. Follow up testing in 1996 and 1999 reaffirmed the study's findings. The City of Binghamton has optimized corrosion control treatment and has had monitoring reduced to once every three years by the New York State Department of Health.

In 2008, the City completed the lead and copper monitoring required under their reduced schedule of a minimum of 30 distribution system (residential) sampling sites every 3 years. The 90th percentile corresponding to 30 samples is the 27th sample in ascending order. In 2011, the City will again sample for lead and copper in the distribution system.

2008 Lead/Copper Results	Violation Yes/No	Date of Sample	Range Results	90 th %tile Results	Unit	MCLG	Reg. Limit 90 th %tile Action Level
Lead	No	2008	<0.0005 – 0.1850	0.0113	mg/l	0	0.015
Copper	No	2008	0.0081 – 0.5720	0.2000	mg/l	1.3	1.3

During the testing in 2008 the City found 3(three) residential homes that were at the action level or higher in the Lead sampling results. At this time we are still working with these homes to help them reduce their Lead residual levels. In all three cases we found the results were due to a very low rate of use or time spent out of town for extended durations. All elevated Lead levels found in area homes are isolated incidents. In each case the results were indicative of an interior plumbing issue rather than a reflection of the source water.

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 your home's plumbing. The City of Binghamton is responsible for providing high quality drinking water, but cannot control the variety of materials used in 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>.

As a result of the optimization report, other parameters are monitored to insure that our water quality remained within the guidelines of the study. These parameters are known as Water Quality Parameters. During 2009, we collected 29 samples that pertained to the study, and the results are compiled below.

Parameter	High Level	Low Level	Mean
	(mg/l)	(mg/l)	(mg/l)
Alkalinity (as CaCO ₃)	76	26	59
Specific Conductance	285	132	221
Calcium Hardness (as CaCO ₃)	84	32	59
Orthophosphate (as PO ₄)	0.560	0.140	0.218
PH	7.6	7.1	7.3
Temperature	80 F	32 F	56 F

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

During 2009 our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements. In 2009 the scheduling for water quality parameter samples was not strictly adhered to due to schedule conflicts during the year.

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

- ◆ Saving water saves energy and some of the costs associated with both of these necessities of life.
- ◆ Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers.
- ◆ 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 aware 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. Repair the appliance 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 Water Meter Department installed or replaced 670 residential and commercial meters during the year.
- ◆ In conjunction with a new transmission main installation to Gillen Drive Reservoir we also installed a new 400 gpm water pump at Hotchkiss street pump station. This much needed pumping upgrade adds a greater level of fire protection and is a boon for the residents served by Gillen Drive Reservoir.
- ◆ The Binghamton Water Bureau, in conjunction with Binghamton's street reconstruction program, installed approx. 8,500 feet of new and replacement water main and 80 various size valves in the distribution network. Additional improvements included replacement of 62 fire hydrants and 162 City water services.
- ◆ The Water Bureau's Distribution Department, in addition to the above system improvements, installed or replaced 13 hydrants, 9 main/hydrant valves, and 23 repaired water service lines. These improvements were completed along with daily activities that included 28 water main break repairs, and general operation and maintenance duties.

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 and our way of life. Please feel free to call the Bureau's office for any questions concerning this report or additional information concerning your water.

In conjunction with the City's Fire Bureau, the Water Department has implemented a color code system for all City fire hydrants. This code system will help the Fire Bureau during emergency conditions to identify maximum water flow for fire fighting. We are also asking all city residents to please call 607-772-7210 if hydrants need repair or painting in their area.

We also ask for your help in maintaining security at any of our unmanned remote facilities. If you ever have any concerns with vandalism or suspicious behavior around any City of Binghamton Water facility, please call the Water Bureau @ 607-772-7221 or the City Police @ 723-5321.