KINGSTON WATER DEPARTMENT

Annual Drinking Water Quality Report for 2016
(Public Water Supply ID# 5503374)

DEAR CUSTOMER:
The Kingston Water Department is pleased to present a summary of the quality of the water provided to you during 2016. The purpose of this report is to raise your understanding of drinking water and your awareness of the need to protect our drinking water sources. Last year, we conducted tests for over 80 contaminants and we are proud to report that our system did not violate a maximum contaminant level or any other water quality standard. 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.

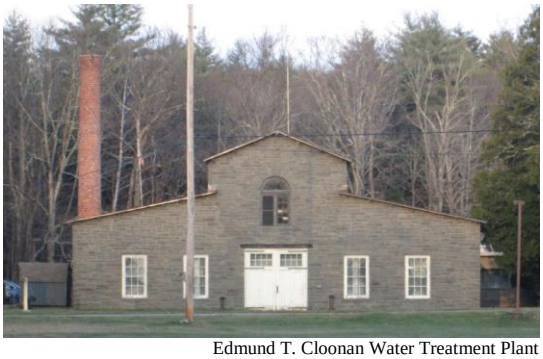
Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

We want you to be informed about your drinking water. If you want to learn more, Water Board meetings are held on the second Wednesday of each month in the offices of the Kingston Water Department, 111 Jansen Avenue, Kingston, NY 12401. The meetings begin at 5:00 PM and the public is welcome. The current Board includes: Dennis Croswell, President; Robert Niedzielski, Secretary; Joanne V. Seche; Margaret Gruner; and Mayor Steven Noble. If you have any questions about this report or your drinking water, please contact Judith Hansen, Superintendent at 845-331-0175, fax 845-340-9209, or e-mail at water@kingston-ny.gov. You may also mail inquiries to the Kingston Water Department at PO Box 1537, Kingston, NY 12402.

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 can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in surface water include: microbial contaminants; inorganic contaminants, including phosphorus; 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 that 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.

Kingston gets its water from a Catskill stream. From there, it is piped into our Cooper Lake Reservoir. From the Reservoir, water flows by gravity through a transmission main to our Edmund T. Cloonan Water Treatment Plant. The NYS DOH conducted source water assessments for Cooper Lake and our emergency sources (Reservoirs 1, 2, and 4). These assessments evaluate the possible and actual threats to our sources and, although it includes a susceptibility rating which estimates the risk posed by each potential source of contamination, it does not mean that the water delivered to consumers is, or will become contaminated. The NYS DOH has found that Cooper Lake contains no discrete potential contaminant sources, and the land cover contaminant prevalence ratings are low. The NYS DOH has not conducted a source water assessment for the Mink Hollow stream which is our principal source of supply. Those assessments that have been completed are available for inspection by calling the Water Department at 331-0175.

Cooper Lake Reservoir



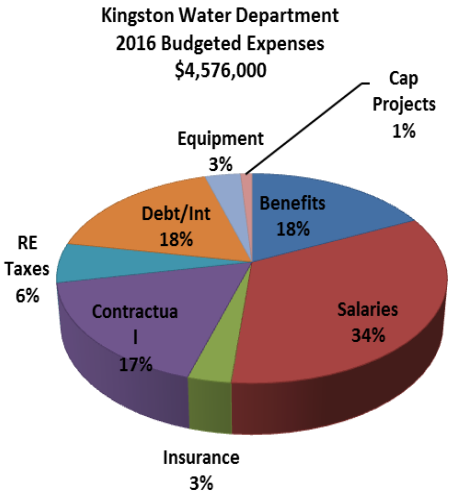
Edmund T. Cloonan Water Treatment Plant

The treatment technologies that are employed by the Kingston Water Department include chlorine disinfection, direct filtration with alum coagulation, corrosion control via the addition of lime and ultraviolet disinfection. The treatment facilities have nominal capacities of 8 MGD.

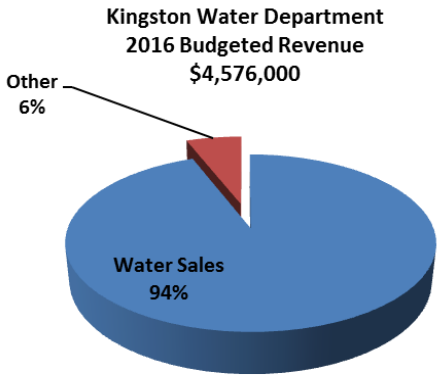
FACTS AND FIGURES

Our water system serves approximately 23,893 people through 7,900 service connections. The total water produced in 2016 was 1,629,603,000 gallons. The total amount of water delivered to the distribution system was 1,490,688,000 gallons and the average flow into the system was 4.07 million gallons per day. The single highest flow was 4.7 million gallons and occurred on February 17, 2016. The amount of water registering through our customer meters was approximately 844 million gallons. The difference between the water entering the distribution system and the amount registering through our customer meters is 646 million gallons. Of that total, some was estimated to be used to flush mains, fight fires, and maintain sewers and streets. In addition, some of that water was lost through known meter inaccuracies and water main breaks. The balance is assumed to be lost to leakage. In March 2016, a significant leak on the 6-inch main in Abeel St. was repaired that was estimated to be about 250,000 gallons per day. During 2016, water customers were charged according to the following rate schedule:

0 to 4 Units	$44.67
Next 16 Units	$3.15 per
Next 20 Units	$2.87 per
Next 60 Units	$2.58 per
Next 900 Units	$2.01 per
> 1000 Units	$1.49 per



Meters record usage in cubic feet and a unit of water is equal to 100 cubic feet (748 gallons). All revenues from water rents remain within the Department to fund our operation. In 2016, we operated on an annual budget of $4.57 million and water sales accounted for $4.3 million or 94 percent of the total budget and the balance is derived from water-related fees. The average rate per unit of water delivered was $3.82. While a sewer usage fee of $5.89 per unit of water consumed was collected with the water bills, the Water Department does not set or determine the sewer rate or administer the funds. The Department merely acts as collection agent for the sewer fund and turns over all moneys to the City's Comptroller weekly.



ARE THERE CONTAMINANTS IN OUR DRINKING WATER?

As New York State regulations require, we routinely test your drinking water for more than 80 contaminants. These contaminants include total coliform bacteria, turbidity, inorganic compounds, nitrate, nitrite, lead and copper, volatile organic compounds, total trihalomethanes, and synthetic organic compounds. The table presented below depicts which compounds were detected in your drinking water. The State allows us to test for some contaminants less than once each year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, are 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 (800-426-4791) or the Ulster County Health Department at 845-340-3010.

Table of Detected Contaminants							
Contaminant	**Violation Yes/No**	**Date of Sample**	**Result**	**Unit**	**MCLG**	**Regulatory Limit (MCL, TT or AL)**	**Likely Source of Contamination**
Nitrate as N	No	2/22/2016	0.02	mg/L	10	MCL=10	Runoff from fertilizer use; leaching from septic tank sewage; erosion of natural deposits
Barium	No	02/22/2016	0.004	mg/L	2	MCL = 2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Lead [1]	No	7/2015	0.004	mg/L	0	AL = 0.015	Corrosion of household plumbing
Copper [1]	No	7/2015	0.04	mg/L	1.3	AL= 1.3	Corrosion of household plumbing
Sulfate	No	02/28/2015	4.93	mg/L	N/A	MCL = 250	Naturally occurring
Manganese	No	2/28/2015	0.0024	mg/L	N/A	0.3	Naturally occurring; indicative of landfill contamination.
Chloride	No	2/26/15	4.00	mg/L	N/A	MCL = 250	Naturally occurring; indicative of road salt
Sodium	No	2/26/15	2.8	mg/L	N/A	N/A	Naturally occurring; indicative of road salt; animal contamination, water softeners
Strontium	N/A	2014	0.0148 0.013 – 0.017	mg/L	N/A	N/A	Naturally occurring
Vanadium	N/A	2014	0.00045 0.00027-0.00069	mg/L	N/A	N/A	Naturally occurring
Chromium-6	N/A	2014	0.000045 0.000038-0.000050	mg/L	N/A	N/A	Naturally occurring
Chromium (Total)	0.100	2014	0.00028 ND – 0.00028	mg/L	N/A	N/A	Naturally occurring
Chlorate	N/A	2014	0.048 0.028 – 0.076	mg/L	N/A	N/A	By-product of drinking water disinfection using sodium hypochlorite
THM's [2] Trihalomethanes	No	2016	38.525 30.0 – 45.4	ug/L	N/A	MCL =80	By-product of drinking water chlorination
HAA5's [2] Haloacetic Acids	No	2016	19.025 13.7 – 25.0	ug/L	N/A	MCL = 60	By-product of drinking water chlorination
Turbidity[3]	No	07/24/2016	0.23	NTU	N/A	TT = <1 NTU	Soil Runoff
Turbidity[3]	No	1/2016 and 7/2016	0.11	NTU	N/A	TT = <1 NTU	
Turbidity[3]	No	2016	99.7%	NTU	N/A	TT= 95% of samples <0.3 NTU	

Notes:

1 – The level presented represents the 90th percentile of the 32 samples that were collected in 2015.

2 – This level represents the highest locational running annual average calculated from data collected in 2016.

3 – We test turbidity levels because it is a good indicator of the effectiveness of our filtration system. Our highest single turbidity measurement for 2016 occurred on July 24th (0.23). State regulations require that 95% of the turbidity samples collected have measurements below 0.3 NTU and that **all** turbidities are below 1 NTU. During 2016, the KWD met these requirements and did not have any exceedances. The highest monthly average was 0.11 NTU and occurred in the months of January 2016 and July 2016. During 2016, 2,196 turbidity measurements were taken and the average turbidity reading was 0.09 NTU and 100% were below the maximum allowable limit of 0.3 NTU.

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 Disinfection Level (MRDL): The highest level of a disinfectant that is allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants. The Kingston Water Department disinfects with chlorine. The MRDL for chlorine is 4.0 mg/L. Kingston has never exceeded the MRDL and the annual average for 2013 was 0.35 mg/L

Maximum Residual Disinfection 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 contaminants. The MRDLG for chlorine is 4 mg/L.

Action Level (AL): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Treatment Technique (TT): A required process intended to reduce the level of a contaminant in drinking water.
Nephelometric Turbidity Unit (NTU): A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
Milligrams per liter (mg/l): Corresponds to one part of liquid in one million parts of liquid (parts per million - ppm).
Micrograms per liter (ug/l): Corresponds to one part of liquid in one billion parts of liquid (parts per billion - ppb).

UNREGULATED CONTAMINANT MONITORING
The 1996 amendments to the Safe Drinking Water Act and the Third Unregulated Contaminant Rule (UCMR3) require that every five years water suppliers monitor for up to 30 unregulated contaminants. The purpose of the rule is to provide baseline occurrence data that EPA can use to make decisions about future regulations. The Kingston Water Department participated in the third round of this testing in 2014. The data from this most recent sampling can be found in Table of Detected Contaminants in this report. For more information about the Unregulated Contaminant Rule and to obtain a list of the unregulated contaminants, go to: http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3 or contact Superintendent Judith Hansen at water@kingston-ny.gov

WHAT DOES THIS INFORMATION MEAN?
We have learned through our testing that some substances have been detected; however, these contaminants were detected well below the level allowed by New York State.

OPERATIONS
The Water Department consists of a staff of 24 fulltime employees whose responsibilities include the maintenance of approximately 100 miles of water mains, treatment and distribution of over 4 million gallons of water daily, and performance of business operations that accounts for an annual 4.57 million dollar budget. The Water Department can be contacted 24 hours per day, 7 days per week by customers encountering water problems or emergencies at (845)331-0205. To be notified in the event of an emergency or a service interruption involving the water supply, we urge you to sign up for direct notification via phone, email, or text via the Department's SwiftReach system by going to: www.kingston-ny.gov/Swift911. This will enable us to provide you with quick and efficient notification of any water related emergency impacting you or your family.

The Business Office and Maintenance Shop are located at 111 Jansen Ave., Kingston, NY, (845)331-0175. Business Office hours are Monday thru Friday from 8:30 am to 4:30 pm except in July and August, when hours of operation are from 9:00 am to 4:00 pm. Payments for water bills can be mailed, paid in person at the Business Office, deposited in a Night Drop Box located in the front of our Business Office, or by signing up for automatic deduction by Electronic Funds Transfer payment option or by debit or credit card using the website; http://kingston-ny.gov/waterpayments .

Water bills are mailed out on a quarterly basis. Customers are assigned a particular zone designated by the location of their water account. To maintain a positive cash flow, mailing dates for Water Bills are staggered by zone. A mailing schedule may be requested from our Business Office by phone or by email at water@kingston-ny.gov Please supply a fax number, mailing address, or email address.

DO I NEED TO TAKE PRECAUTIONS?
Some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population. Immune-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 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:
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. A slow drip can waste 15 to 20 gallons a day, or 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 (30,000 gallons a year) from one of these invisible toilet leaks.

SYSTEM IMPROVEMENTS

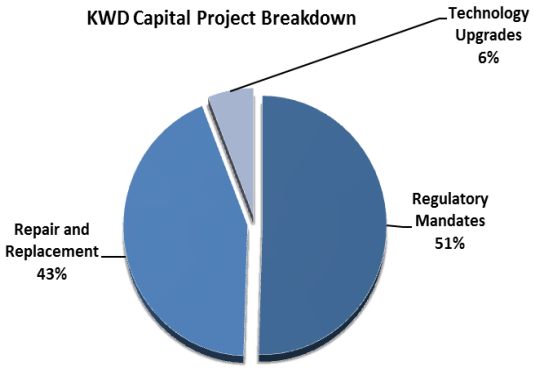
Several significant projects aimed at the repair and maintenance of critical infrastructure were completed in 2016.

- **Phase 1 B Treatment Plant Improvements:** This is the last of a multi-phase project that calls for the installation of new underdrains and media in all filters, installation of an air scour system in the filters, as well as an upgrade to the Plant's instrumentation and control systems. This **project will effectively restore the Plant capacity to 8 MGD and will reduce the amount of** backwash water needed to maintain the filters. The cost of this phase of the project was **$2,196,819** and was completed in late 2016. The majority of the project was funded through $1,870,050 from the Storm Mitigation Loan Program (SMLP). This is a competitive award that provides for 25% of the project ($467,512) to be provided in a grant with the remaining 75% provided in a no interest loan from NYS DWSRF. The remainder ($326,769) was funded from KWD operations.
- **New Elevated Backwash Tank:** The backwash tank was replaced at the Edmund T. Cloonan Water Treatment Plant at a cost of **$1,510,800**. Work began in late 2015 and was completed in early 2016. The new tank is a maintenance-free glass lined composite tank and replaces a bolted steel tank that was installed in the late 1930's.
- **Mink Hollow Intake:** The Mink Hollow Intake is the KWD's main source of supply. Significant flood events in 2010 seriously compromised its integrity and an engineering assessment determined that it required immediate replacement. The cost was just over **$1,000,000**, with approximately $750,000 coming from a DWSRF loan and the balance coming from operations since any construction associated with the dam is prohibited from being funded from the drinking water revolving loan fund (DWSRF). In 2016, additional improvements were made, funded from operations, which increased the capacity of the intake. The total cost of both the Mink Hollow remediation and the increased capacity work was **$1,410,000.**
- **Foxhall Pump Station Automatic Generator:** Unlike all of the KWD's other facilities, the Foxhall Avenue Pump Station lacked a back-up power source. This project was funded in its entirety from the Storm Mitigation Loan Program (SMLP) which provides 25% as an outright grant and 75% as a zero interest loan. The total cost was **$68,900** and the project was completed in late 2016.
- **Installation of UPS at Binnewater**: Fluctuation in the incoming power at this facility has plagued its operation from the outset and caused brief interruptions in the water supply to the City on 2 occasions. Since the last event, we have instituted programing changes that have hopefully resolved this situation. However, the fluctuations continue to cause reactors to shut down as well as other issues. Since we cannot be certain that the programming changes have addressed all of the circumstances that might cause valve closure, the facility has been operating manually. This causes maximum power consumption, reduced bulb life in the reactors and is not how the system was designed to operate. In 2016, the Board hired a consultant, at a cost of $15,000, to investigate the cause of the problem and recommend a solution. The implementation of the solution is slated for 2017 and is expected to cost about **$100,000.**
- **Installation of a System-wide SCADA System:** SCADA systems (Supervisory Control and Data Acquisition Systems) allow for the remote monitoring and control of water system components. The KWD has two stand-alone systems at each of the treatment facilities. However, they are not integrated and the balance of the system lacks any remote monitoring or control capability. This is especially important in the Distribution System since our monitoring capability is limited to alarm sensors and personnel have to be onsite to make any control changes. Design of the project was begun in 2016 with implementation scheduled for 2017. This project is expected to cost **$780,000** and is being funded through the Storm Mitigation Loan Program (SMLP) When completed it will improve our efficiency, level of service, and safety for our employees
- **Transmission Main Project**: The transmission mains which convey water from the source through treatment to the distribution system are the life-blood of our water system. There are critical locations where this system lacks redundancy, poses a hydraulic restriction to flow, or needs to be rehabilitated. In addition, some of the control valves need to be replaced. Design work for this project was authorized by the Board of Water Commissioners in 2016, with the actual construction slated to start in 2017. The total cost of the project is estimated to be $3,400,000 and some $2,034,000 for this project is provided by the competitive NYS Infrastructure Grant Program which provides up to 60% of the cost of this project. The balance will be funded through a low interest DWSRF loan.
- **Repair of the Abeel Street Leak**: In late 2015, the KWD conducted a system-wide leak detection survey in the hopes of reducing its non-revenue water. Several leaks were found and subsequently repaired for an overall savings of some 200,000 gpd. During the survey, it was determined that there was a substantial leak along Abeel Street in the area between Block Park and Wilbur Ave. However, the location could not be pinpointed with any degree of confidence due to the proximity of other utilities near our mains. Late in 2015, a customer alerted us to a large amount of water running constantly in a storm line on their property and we were able to locate the leak. In early 2016, the repair was made, with the assistance of a contractor working in conjunction with our personnel. The repair cost approximately $65,000 and we ultimately realized a savings of some 300,000 gallons per day from the repair.

A lack of precipitation during the late summer and fall of 2016 caused Cooper Lake Reservoir to be depleted to 65 percent of its capacity. As a result, the Board of Water Commissioners declared a Drought Alert in October and a Drought Warning in November. Both called for voluntary conservation from our customers and, upon the declaration of the Drought Warning, the Board asked the Town of Ulster to

cut their purchase of water from us by 200,000 gallons per day. Two significant storm events occurred in the later part of November and, by the end of December the Lake had increased to 76% of its total capacity and was full by the end of the year. The Drought Warning was lifted Board by the in December.

Department Goal for 2017: Residents of the City of Kingston enjoy water of the highest quality and the Department's infrastructure network is vital to our water system. Throughout its history the Board has continued to invest in our infrastructure and, over the past 15 years, has increased our asset valuation three-fold. This investment must continue so that this resource can be passed on to future generations. In addition, new regulations and security concerns dictate that we continue to upgrade our technology and improve capabilities. For 2017, in addition to normal operations, the KWD will continue to advance and implement the system-wide SCADA project, the Binnewater UPS project, and the transmission main rehabilitation project that were begun in 2016 and are expected to be constructed in 2017. In addition, work is expected to begin on the design of mandated improvements to the Cooper Lake Dam. This project is expected to cost between $5,000,000 and $10,000,000 depending on which design alternative is selected by the Board. Making just the mandated repairs will cost $5,000,000 and increasing the capacity of the Reservoir a maximum of 5 feet could double that cost.



The Board of Water Commissioners struggles to fulfill the Department's mandate to provide the residents and businesses of the City with high quality water while keeping the rates affordable. The 2017 budget that was adopted by the Board does not include a rate hike. This was the first time in several years that there was no rate increase and was largely attributable to having the majority of several projects funded through grants and no interest loans. Kingston's tap water delivers public health protection, fire protection, support for the economy, and the overall quality of life that we enjoy at a cost of about $1.30 for 250 gallons of water for most of our customers.

Thank you for allowing us to continue to provide you 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 call our office if you have questions.