KINGSTON WATER DEPARTMENT

Annual Drinking Water Quality Report for 2019
(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 2019. 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.

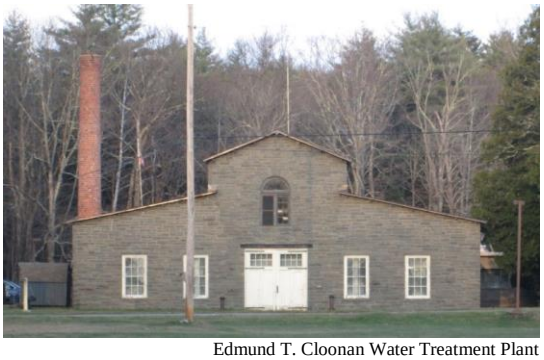
Este informe contiene información muy importante sobre su agua beber. Tradúzcalo ó hable con alguien que lo entienda bien.

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; Harold Bonavita-Goldman 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

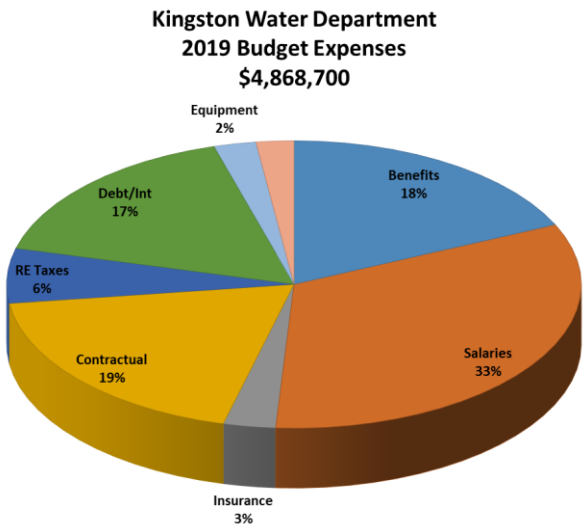
The treatment technologies that are employed by the Kingston Water Department include chlorine disinfection, direct filtration with alum coagulation, corrosion control via the addition of lime and ultraviolet disinfection. The treatment facilities have nominal capacities of 8 MGD.

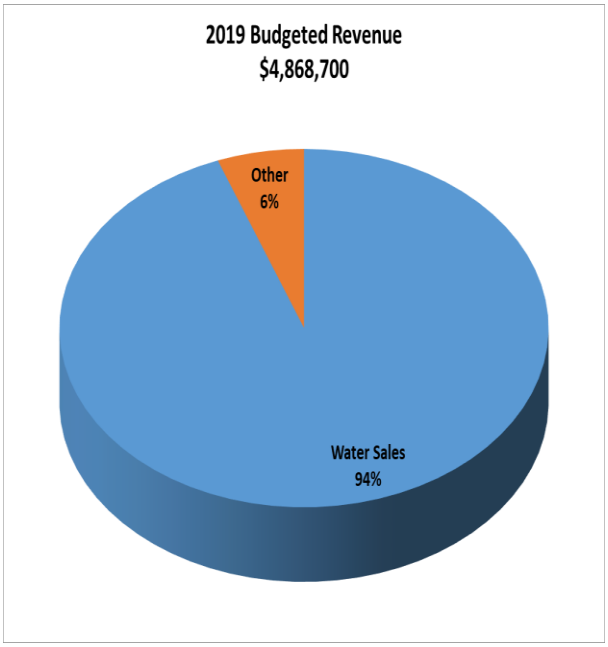
FACTS AND FIGURES

Our water system serves approximately 23,169 people through 7,900 service connections. The total water produced in 2019 was 1,545,837,000 gallons. The total amount of water delivered to the distribution system was 1,413,496,000 gallons and the average flow into the system was 3.9 million gallons per day. The single highest flow was 4.37 million gallons and occurred on November 1, 2019. The amount of water registering through our customer meters was approximately 803 million gallons. The difference between the water entering the distribution system and the amount registering through our customer meters is 644 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. During 2019, water customers were charged according to the following rate schedule:

0 to 4 Units	$46.80
Next 16 Units	$3.31 per
Next 20 Units	$3.01 per
Next 60 Units	$2.71 per
Next 900 Units	$2.11 per
> 1000 Units	$1.82 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 2019, we operated on an annual budget of $4.87 million and water sales accounted for $4.54 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 $4.23. While a sewer usage fee of $6.19 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	3/01/19	0.03	mg/L	10	MCL=10	Runoff from fertilizer use; leaching from septic tank sewage; erosion of natural deposits
Barium[4]	No	03/05/19	0.0041	mg/L	2	MCL = 2	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits
Silver[4]	No	03/03/19	0.0016	mg/L	NA	0.1	Naturally occurring
Lead [1]	No	8/2018	0.009	mg/L	0	AL = 0.015	Corrosion of household plumbing
Copper [1]	No	7/2018	0.02	mg/L	1.3	AL= 1.3	Corrosion of household plumbing
Sulfate	No	3/05/2019	5	mg/L	N/A	MCL = 250	Naturally occurring
Chloride	No	3/05/19	5	mg/L	N/A	MCL = 250	Naturally occurring; indicative of road salt
Sodium	No	3/05/19	3.3	mg/L	N/A	N/A	Naturally occurring; indicative of road salt; animal contamination, water softeners
Bromochloroacetic Acid (BCAA)	N/A	2019	0.554 0.454 – 0.92	ug/L	N/A	N/A	By-product of drinking water chlorination
Bromodichloroacetic Acid (BDCAA)	N/A	2019	0.585 0.537 – 0.674	ug/L	N/A	N/A	By-product of drinking water chlorination
Dichloroacetic Acid (DCAA)	N/A	2019	6.57 4.85 – 9.02	ug/L	N/A	N/A	By-product of drinking water chlorination
Trichloroacetic Acid	N/A	2019	7.87 6.53 – 9.95	ug/L	N/A	N/A	By-product of drinking water chlorination
Total Organic Carbon	N/A	2019	1.500 1.590 – 1.410	mg/L	N/A	N/A	Naturally present in the environment and has no health effects. However TOC provides a medium for the formation of disinfection byproducts
Manganese	N/A	2019	0.0032 0.0012 – 0.0058	mg/L	N/A	N/A	Naturally occurring; indicative of landfill contamination.
THM's [2] Trihalomethanes	No	2018	37.2 2 4.8 – 65.7	ug/L	N/A	MCL =80	By-product of drinking water chlorination
HAA5's [2] Haloacetic Acids	No	2018	17.2 10.0 – 21.8	ug/L	N/A	MCL = 60	By-product of drinking water chlorination
Turbidity[3]	No	12/13/19	0.54	NTU	N/A	TT = <1 NTU	Soil Runoff
Turbidity[3]	No	7/2019	0.12	NTU	N/A	TT = <1 NTU	
Turbidity[3]	No	2019	99.8%	NTU	N/A	TT= 95% of samples <0.3 NTU	
Total Coliform[5]	No	May 14, 2019 July 12, 2019	1 positive sample in each of 2 months at different locations	N/A	N/A	TT = 2 or more positive samples in any given month	Naturally present in the environment

Notes:

1 – The level presented represents the 90th percentile of the 32 samples that were collected in 2018. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

2 – This level represents the highest locational running annual average calculated from data collected in 2019.
3 – We test turbidity levels because it is a good indicator of the effectiveness of our filtration system. Our highest single turbidity measurement for 2019 was 0.54 NTU and occurred on December 13, 2019. 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 2019, the KWD met these requirements and but did have 3 readings over 0.3 NTU. The highest monthly average was 0.12 NTU and occurred in July 2019. During 2019, 2,190 turbidity measurements were taken and the average turbidity reading was 0.09 NTU and 0.998% were below the maximum allowable limit of 0.3 NTU.
4-All of these substances were detected in trace quantities, many times lower than the maximum contaminant levels established for these substances. They were also detected BELOW the reportable detection limit for the substance. As such, KWD could have not listed these substances in this table as they were below the reportable detection limits. The KWD believes that as our consumers, you have a right to know the amount detected and we are reporting it.
5-Total coliforms are non-pathogenic naturally occurring bacteria in our environment that are used as an indicator of potential microbial contamination. We collect about 35 samples each month from the distribution system to check for the presence of total coliform bacteria. In 2019, out of more than 420 samples collected, we had a positive coliform result from samples collected on May 14, 2019 and July 12, 2019. We have never had a positive test result for E. coli. In addition to the distribution samples that are tested for Total Coliform bacteria, we collect and analyze more than 1,500 samples for total coliforms at various points in the treatment process each year as quality control checks.

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 Fourth Unregulated Contaminant Rule (UCMR4) require that every five years water suppliers serving 3,300 or more customers 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 fourth round of this testing beginning in 2019 and will conclude sampling in 2020. In UCMR4, testing was required for two metals, eight pesticides and one pesticide manufacturing byproduct, three brominated haloacetic acid (HAA) byproduct groups, three alcohols, three semi-volitile organic chemicals, and 10 cyanotoxins. 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/ucmr4.com or contact Superintendent Judith Hansen at water@kingston-ny.gov. The Fifth Unregulated Contaminant Monitoring Rule (UCMR5) has not yet been finalized but sampling for the KWD is expected to begin in 2024.

CRYPTOSPORIDIUM AND GIARDIA MONITORING

In 2006, the United States Environmental Protection Agency (EPA) published the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) which, among other provisions required the Kingston Water Department to begin monitoring our source water for E. coli, Crytosporidium, Giardia, and turbidity. As per the requirements of the LT2ESWTR, Kingston began 24 months of monthly sampling in April 2008. A second round of monitoring for these organisms began in October 2016 and continued monthly until September 2018. None of the samples have detected the presence of E. Coli, Cryptosporidium, or Giardia in our source water. As additional safeguards, the KWD practices filtration geared to remove these substances should they occur and chlorine and ultraviolet light disinfection that is specifically designed to inactivate Cryptosporidium and Giardia.

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 4.87 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:

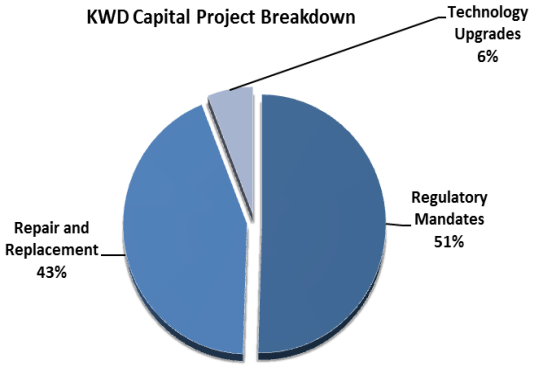
- Turn off the tap when brushing your teeth.
- Check every faucet in your home for leaks. A slow drip can waste 15 to 20 gallons a day, or almost 6,000 gallons per year.
- Check your toilets for leaks by putting a few drops of food coloring in the tank, watch for a few minutes to see if the color shows 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 2019.

- **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 completed in 2017 and bid in 2018. The cost is approximately **$900,000** and is largely being funded through the Storm Mitigation Loan Program (SMLP) It is expected to be completed in early 2020 and 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 the 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, design completed in 2017 and work began in the fall of 2019 with completion expected in 2020. 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.
- **Design of a Water Main Rehabilitation for Quarry St:** The 8-inch main in this street was installed in 1963 to provide water to the J. Watson Bailey School. It was installed directly on the rock substrate, without adequate bedding, and has had many breaks and failures of the intervening years. IN October 2019, the Board hired Brinnier and Larios to design a rehabilitation or replacement of that main. Work is expected to commence in 2020.

Department Goal for 2020: 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 2020, in addition to normal operations, the KWD will complete the system-wide SCADA project and the transmission main rehabilitation project that were begun in 2019



In November 2017, the Board authorized the design work for the mandated improvements to the Cooper Lake Dam. This project is expected to cost $15 million and does not include any provisions for increasing the capacity of the Reservoir. Design and associated testing is expected to be completed in early 2020 with construction expected in 2020 and 2021. The Board of Water Commissioners has looked for various outside funding sources to lessen the impact on our rate-payers. Unfortunately, this type of dam remediation is specifically excluded from most of the existing infrastructure improvement programs. However, we are hopeful that those portions of the project associated with the new intake and associated piping are eligible for funding and the KWD will continue to pursue those funding opportunities to lessen the impact on our rate payers.

In December 2017, the Board reluctantly agreed to replace the water infrastructure under the proposed 587 Roundabout. While the water mains in the project area are among some of our oldest, we have no indication that they are defective or not performing and are in need of being replaced. However, there is a reasonable certainty that the construction of the roundabout will compromise the integrity of these assets and the Board felt that the best course of action would be to replace them during the project. The cost of the proposed water main replacement is approximately $517,000 and all funds for the project were required to be submitted to the NYSDOT in October 2018 even though the water main replacement component will not be done until 2020.

In December of 2019, the Board was pleased to learn that it had been awarded a $900,000 grant to install valves along our transmission mains and continue to expand the SCADA system. Since this grant covers 60 percent of the total project costs, the total project is expected to come in at $1.5 million. Design work for this project will begin in 2020.

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 2020 budget that was adopted by the Board includes a 5 per cent rate hike. The increase in spending is due to the impending Cooper Lake Dam Remediation Project as well as the replacement of our infrastructure in the proposed 587 roundabout project. 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 $1.34 for 250 gallons of water for most of our customers.