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IMPORTANT INFORMATION ABOUT YOUR WATER SUPPLY

March 2019

The Onondaga County Water Authority is pleased to provide its customers and consumers with the Authority's ***Annual Water Supply Statement and Consumer Confidence Report*** for the year ending December 31, 2018. Throughout this report, readers will find useful information specifically related to OCWA, as well as information related to water in general. In addition to mailing a notice to all customers of record announcing the availability of the report, the Authority continues its practice of providing copies of the report to local libraries. OCWA also advertises the availability of the report in local print media.

2018 saw the completion of the second year of consolidated operations of the Otisco Lake and Lake Ontario (MWB) systems. Operational efficiencies gained through the consolidation starting in 2017 carried on throughout 2018 with positive impacts on overall system functionality. There were positive impacts for Onondaga County as well. For instance, in the spring of 2018 the former MWB administration building was turned over to Onondaga County for repurposing. The facility is now used for County Environmental Health office space.

2018 also saw the completion of the consolidation of the Lake Ontario water supply operational system controls with OCWA's control system. Operations personnel also completed the conversion of Lake Ontario facilities from the use of gaseous chlorine to a safer method employing liquid disinfectant. Also, during 2018, the Otisco Lake water treatment plant's fluoride feed system was replaced, and the Lake Ontario water treatment plant's fluoride system replacement was nearing completion. Both projects were funded through grants from the New York State Department of Health and saved OCWA customers over $1.4 million.

Late in 2018 OCWA began the evaluation and preliminary design process related to upgrades and improvements needed for the 52-year-old Lake Ontario water treatment plant. The project will address the overall treatment process, review of the Lake Ontario intake structure, on-site water storage and entire electrical services for the plant campus, including the addition for auxiliary power units for both the raw water and treated water pumping facilities. It is anticipated that the plan will be ready in 2019 with some work underway and the project carrying on through completion over the course of the next few years.

Other projects under way in the OCWA system include the replacement of the Oakridge water storage tank in Camillus. The old, leaking tank was demolished in 2018 and construction of the new tank started shortly thereafter. It is anticipated that the new tank will be in service prior to the summer of 2019.

Another major project completed in 2018 involved improved access to and the stabilization of a major Otisco Lake transmission main installed along Nine Mile Creek in Camillus. This project involved the largest creek bank stabilization project completed by OCWA to-date. This unique project was recognized by the Central New York Branch of the American Public Works Association (CNY-APWA) when it presented OCWA the Branch's 2018 Environmental Project of the Year Award.

Another unique project involved the replacement of OCWA's Academy Hill Pump Station in the Town of Manlius. The entire project was completed internally by a team of Authority personnel. The team designed the improvements, procured all needed equipment and material and then proceeded to reconstruct the pump station and install all the mechanical, electric and control equipment. The CNY-APWA Branch once again recognized OCWA's efforts by awarding OCWA the Branch's 2018 Team Project of the Year Award.

Additional 2018 water system improvement projects included major water main replacement projects on Kirsch Drive in the Town of Salina, Kathan Road in the Town of Cicero, Allen Road in the Town of Clay and NYS Route 5 in the Village of Canastota. In total, 14 replacement projects were completed and more than 22,000 feet of old and or undersized water mains were replaced.

In 2018 the Town of Constantia completed construction of its Bernhard's Bay water district. The project included installation of 45,000 feet of water main, 86 hydrants and has the potential for 300 new customers. By year end OCWA had assumed operations of the new system. In addition to the Constantia project the Authority installed over 15,000 feet of new watermains paid for by local developers.

With respect to day to day operations and maintenance, OCWA completed an integrated valve and hydrant maintenance/replacement project and implemented a watermain flushing program in the Village of Fayetteville and surrounding areas in the Town of Manlius. A newly established nighttime operation and maintenance crew was utilized to complete the work during off hours with the intent of decreasing the impact on customer water service.

On the innovation front, the Authority was recognized by the Technology Alliance of Central New York (TACNY) when it presented OCWA its STEM (Science, Technology, Engineering and Mathematics) Project of the Year award recognizing the in-house development and implementation of the Authority's computerized maintenance management system that tracks and maps maintenance of the system's 13,400 hydrants.

With respect to overall water quality, the Otisco Lake Water Treatment Plant was recognized by the United States Environmental Protection Agency for 20 consecutive years of compliance with the Agency's Partnership for Safe Water. Additionally, the Lake Ontario Water Treatment Plant, which recently joined the program was recognized for its 3rd consecutive year of compliance with the Partnership program. It should be noted the Partnership for Safe Water is a voluntary program that holds its program partners to a higher water quality standard than currently required under the Safe Drinking Water Act and is a clear indicator of OCWA's commitment to providing the high-quality water that the Authority customers deserve and demand.

To learn more about the OCWA water system and water supply, you are urged to read the information included in this report. Readers that have questions regarding the report or require additional information can contact OCWA’s Water Quality Manager Lisa Yesensky by calling 315-455-7061, extension 3157.

Michael E. Hooker	**Geoffrey G. Miller, P.E.**	**Curtis R. Marvin**
Executive Director	**Deputy Executive Director**	**Chief Fiscal Officer**

OCWA 2018 Water Supply Statement:

PWS ID # NY 3304336

The Onondaga County Water Authority is a public benefit corporation created in 1951 (and began operating in 1955) in accordance with the Public Authorities Law of the State of New York. The Authority was created to finance, construct, operate and maintain a water supply and distribution system for the benefit of the residents in and around Onondaga County. OCWA is one of the 125 largest publicly owned water suppliers in the United States.

The Distribution System Map (found on Page 6) shows the typical service area for each of the three water sources. Wholesale and retail areas within the county are both included. In retail areas the Authority supplies the water, maintains the distribution system and bills the customer directly. In wholesale areas, a municipality or water district buys some or all of its water from the Authority. Wholesale systems maintain their own distribution and customer billing systems. Some key facts about our operation can be found in the OCWA Statistics Table found below:

OCWA Statistics:

For 2018:

Daily Average System Delivery	37.59 Million Gallons per Day
Maximum Day System Delivery (07/21/18)	54.37 Million Gallons per Day
Average Daily Unmetered Water Use	5.95 Million Gallons per Day
Total Annual Delivered by OCWA	13.72 Billion Gallons
Total Water Treated by OCWA	13.28 Billion Gallons
Total Annual Purchased Water from Syracuse	0.44 Billion Gallons

As of December 31, 2018:

Avg. Cost / Residential & Commercial Consumers	$ 5.00 per 1,000 Gallons
Population Served	500,000 Retail & Wholesale
Accounts	103,330
Miles of Water Main	2,140
Number of Hydrants	13,400
Storage Facilities	61
Pumping Facilities	47

For a more detailed explanation of water sources and the treatment processes employed by the Onondaga County Water Authority and its one wholesale water provider (the City of Syracuse Water Department) please see pages 7 and 8.

For questions about this report, or questions in general related to your water or water supply, a list of phone numbers and contacts can be found on Page 26 of this report.

Water Quality - How do you know your water is safe?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. Under the Safe Drinking Water Act (SDWA), the United States Environmental Protection Agency (EPA) sets national limits on contaminant levels to ensure the safety of your drinking water. These limits are known as Maximum Contaminant Levels (MCLs). For some contaminants, the monitoring techniques may be unreliable, too expensive or too difficult to perform. In these cases, the EPA establishes treatment technique requirements instead of an MCL: if it can not be determined that a contaminant is not there, systems operate as if it is and provide the treatment necessary to produce safe drinking water. The EPA regulations also specify testing and reporting requirements for each contaminant. Something every regulation has in common is a requirement to notify the public if there is a regulation violation. If a regulation is violated the supplier is required to inform the consumers being served by the system. The EPA also requires water suppliers to monitor for unregulated contaminants to provide occurrence data for future regulations.

Currently the EPA has established regulations for 142 individual contaminants. This includes six microbiological contaminants, 4 radionuclides, 26 inorganic chemicals, and 106 organic chemicals. The SDWA requires the EPA to review and revise each regulation on a regular basis. For example, the MCL for trihalomethanes was lowered from 100 to 80 ug/L (parts per billion) as part of a review completed in 1997. The 1996 reauthorization of the SDWA also requires the EPA to consider at least 5 new contaminants for regulation every 5 years.

In New York, the State Health Department is responsible for enforcing EPA's regulations. The State has the option to implement alternative regulations when the alternative is equivalent to or more stringent than the EPA's regulation. In Onondaga County, due to the strength of the local unit, the State Health Department has delegated its primary enforcement and surveillance activities to the Onondaga County Health Department. The County Health Department reviews and approves all treatment plant and distribution system modifications as well as new construction. They also review all our operating and monitoring data for compliance on a monthly basis. The Authority takes a similar, cooperative approach with the Health Departments in Oswego, Oneida, Madison and Cayuga Counties.

The Authority's New York State certified water quality laboratories collect over 4,000-distribution system and 2,000-treatment plant samples each year and performs over 12,000 analyses. We also have about 600 specialized analyses performed by independent laboratories. As part of their surveillance program, the Onondaga County Health Department independently runs additional monthly surveillance monitoring on samples from our distribution system. In 2018, for water delivered to Authority customers, there was one Treatment Technique violation to report. The violation was for water purchased from the City of Syracuse. On December 28, 2018 sustained southerly winds caused Skaneateles Lake water entering the City’s intake to exceeded 5 NTU. The turbidity of Skaneateles Lake reached 5.94 NTU during this event. Other than this exception, OCWA and the City of Syracuse water supplies met all New York State Health Department and EPA drinking water standards. In 2018 there were no Maximum Contamination Level violations for any chemical or bacteriological contaminants.

OCWA's raw water monitoring programs are specifically designed to address concerns about Otisco Lake and Lake Ontario as main sources of supply. In both instances, raw water intakes extend from a mile to a mile and a half out into their respective lakes. This was done by design to minimize the effects of near shore currents and run-off. Lab results consistently confirm that levels of organic compounds and heavy metals do not exceed the MCL. General raw water quality remains high for both Otisco Lake and Lake Ontario. Both sources are monitored more frequently, and for a wider range of compounds than required.

A water quality summary is provided for each of the three supplies in the tables included in the appendix found at the end of this report. More detailed information can be obtained by calling OCWA’s Water Quality Department at 315-455-7061 ext. 3157.

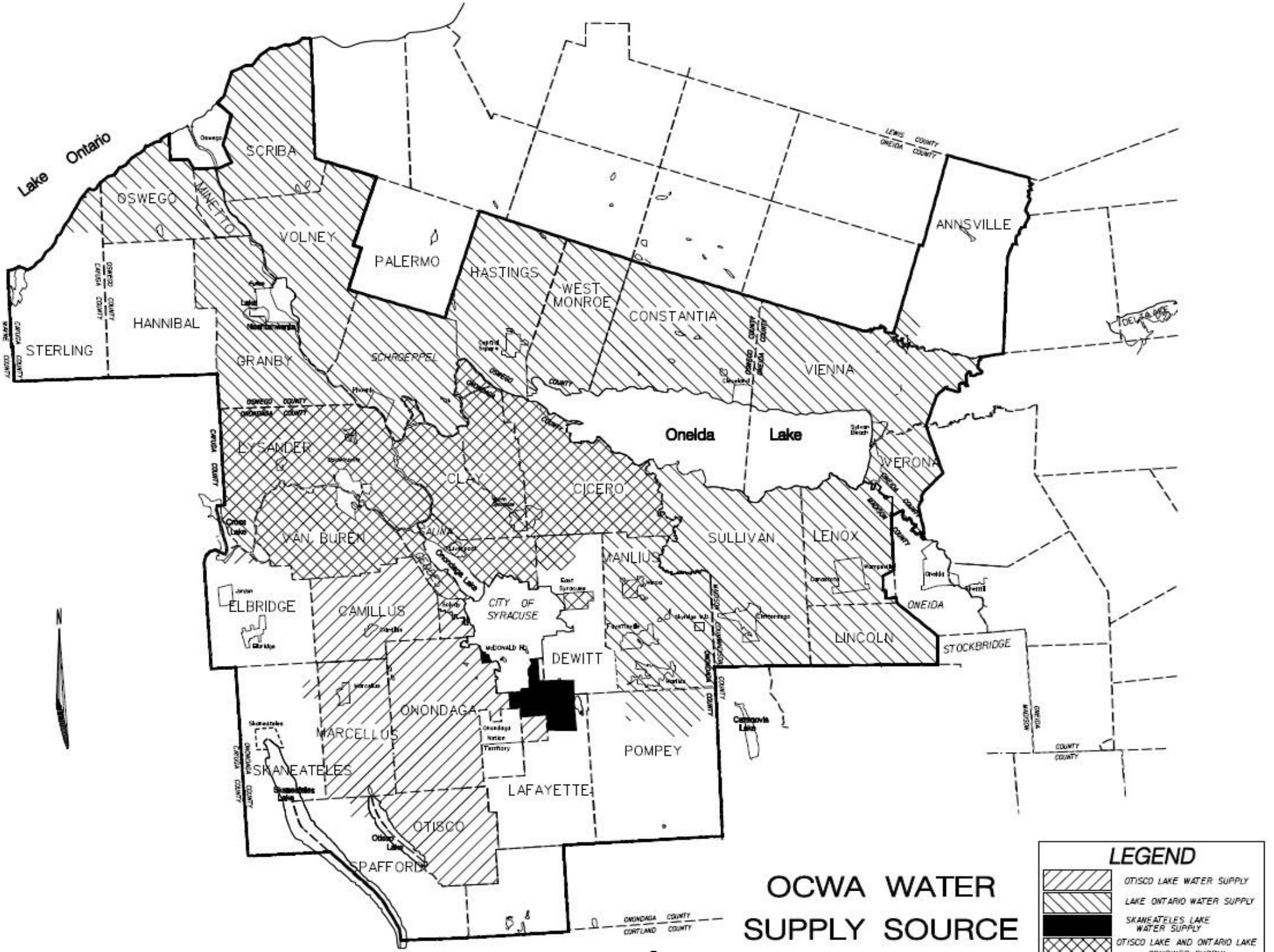
Additional information on contaminants and potential health effects can be obtained by calling EPA's "Safe Drinking Water Hotline" at 1-800-426-4791.

WATER SOURCES

FOR TOWNS & VILLAGES SERVED

COUNTY:	TOWNS / CITIES:	WATER SOURCE:	VILLAGES:	WATER SOURCE:
ONONDAGA:	CAMILLUS	OTISCO	BALDWINSVILLE	ONTARIO***
	CICERO	OTISCO / ONTARIO	CAMILLUS	OTISCO
	CLAY	OTISCO / ONTARIO	E. SYRACUSE	OTISCO/ONTARIO
	DEWITT	OTISCO / ONTARIO / SKANEATELES	FAYETTEVILLE	ONTARIO
	ELBRIDGE	OTISCO	LIVERPOOL	OTISCO/ONTARIO
	GEDDES	OTISCO / ONTARIO / SKANEATELES	MANLIUS	ONTARIO
	LAFAYETTE	ONTARIO	MARCELLUS	OTISCO
	LYSANDER	OTISCO / ONTARIO	MINOA	OTISCO/ONTARIO
	MANLIUS	ONTARIO / SKYRIDGE WELLS	N. SYRACUSE	OTISCO/ONTARIO
	MARCELLUS	OTISCO	SOLVAY	OTISCO
	ONONDAGA	OTISCO / SKANEATELES		
	OTISCO	OTISCO		
	POMPEY	ONTARIO		
	SALINA	OTISCO / ONTARIO		
	SKANEATELES	OTISCO		
	SPAFFORD	OTISCO		
	SYRACUSE	OTISCO / ONTARIO***		
	VAN BUREN	OTISCO / ONTARIO		
MADISON:	LENOX	ONTARIO	CANASTOTA	ONTARIO
	LINCOLN	ONTARIO		
	SULLIVAN	ONTARIO	CHITTENANGO	ONTARIO
	ONEIDA (City)	ONTARIO ***		
ONEIDA:	VERONA	ONTARIO	SYLVAN BEACH	ONTARIO
	VIENNA	ONTARIO		
	ANNSVILLE	ONTARIO		
OSWEGO:	FULTON	ONTARIO ***	CENTRAL SQUARE	ONTARIO
	GRANBY	ONTARIO	PHOENIX	ONTARIO
	CONSTANTIA	ONTARIO		
	HANINBAL	ONTARIO		
	HASTINGS	ONTARIO		
	OSWEGO (Town)	ONTARIO		
	OSWEGO (City)	ONTARIO***		
	SCHROEPPEL	ONTARIO		
	WEST MONROE	ONTARIO		
	VOLNEY	ONTARIO		
	MINETTO	ONTARIO		
	SCRIBA	ONTARIO ***		
CAYUGA:	STERLING	ONTARIO		

*** ***Emergency Connection Only***


Lake Ontario
OSWEGO
SCRIBA
MINETTO
VOLNEY
PALERMO
HASTINGS
WEST MONROE
CONSTANTIA
ANNSVILLE
HANNIBAL
STERLING
GRANBY
SCHROEPPEL
VIENNA
Oneida Lake
LYSANDER
CLAY
CICERO
VERONA
VAN BUREN
SULLIVAN
LENOX
MANLIUS
ELBRIDGE
CAMILLUS
CITY OF SYRACUSE
ONEIDA
LINCOLN
STOCKBRIDGE
DEWITT
ONONDAGA
MARCELLUS
POMPEY
SKANEATELES
LAFAYETTE
OTISCO
SPAFFORD
N
OCWA WATER SUPPLY SOURCE
UPDATED 2-19-19
LEGEND
OTISCO LAKE WATER SUPPLY
LAKE ONTARIO WATER SUPPLY
SKANEATELES LAKE WATER SUPPLY
OTISCO LAKE AND ONTARIO LAKE COMBINED SUPPLY

Water Sources and Treatment

Customers of the Onondaga County Water Authority receive water that originates from Otisco Lake, Lake Ontario, or Skaneateles Lake. Customers located in certain areas may get a mixture of these waters or their source water may vary with changes in seasonal demand. In 2018 OCWA supplied approximately 37.59 million gallons per day to its 340,000 residential customers located in suburban Onondaga County, and parts of Madison, Oneida, Oswego, and Cayuga counties. OCWA also supplies water daily to thirty-four large industrial customers and two municipal wholesale water customers. OCWA can also supply water on an intermittent or emergency basis to seven additional municipal water systems.

OCWA treats and delivers water from Otisco Lake, the easternmost and smallest finger lake. In 2018, approximately 17.4 million gallons per day or 46.3 % of OCWA's water came from Otisco Lake. The customers receiving water originating from Otisco Lake are mostly located in the southern and western half of Onondaga County.

OCWA also treats and delivers water from Lake Ontario. The Ontario Water Treatment Plant treats water originating from Lake Ontario. In 2018, approximately 19.0 million gallons per day or 50.5 % of OCWA's water came from Lake Ontario. The customers receiving water originating from Lake Ontario are mostly located in the northern and eastern half of Onondaga County. OCWA customers in Madison, Oneida, Oswego, and Cayuga counties receive all their water from Lake Ontario.

The City of Syracuse Water Department has the responsibility of treating and delivering water originating from Skaneateles Lake. In 2018, approximately 1.2 million gallons per day or 3.2 % of OCWA's water came from Skaneateles Lake water purchased from the City of Syracuse Water Department through various supply connections. OCWA uses this water to supplement areas close to the city boundary when needed. OCWA customers living in Nedrow, Southwood, and the Jamesville area, get water from Skaneateles Lake exclusively.

The first step in water treatment is to protect the source. OCWA and the City of Syracuse have been conducting ongoing watershed inspection, monitoring, and educational programs for a number of years. These programs are in conjunction with the State and Onondaga County Departments of Health. OCWA and the City of Syracuse all monitor lake conditions on regular intervals prior to treatment.

The New York State Department of Health has completed a Source Water Assessment Program in order to better recognize potential sources of contaminants in every water source used throughout the State. This assessment can be found in this report under the heading **SWAP Summary for OCWA** on Page 9.

OCWA's Otisco Lake Water Treatment Plant has 2 intake pipes located in Otisco Lake. The water entering these pipes is immediately disinfected with either Sodium hypochlorite or Chlorine dioxide to discourage the growth of zebra mussels. The water then travels, by gravity, approximately 5 miles to OCWA's Otisco Water Treatment Plant located in Marcellus, NY. Water first enters the Rapid Mix tank where a coagulant (polyaluminum chloride) is added. After 30 seconds of mixing, the water enters the Contact Basins where the calm conditions allow the coagulant to make the small particles adhere together, forming larger particles. Some of these particles settle and are cleaned out later. The contact time in these basins also allows the powdered activated carbon (used only when

needed) to adsorb organic taste and odor causing chemicals. After about 1 hour of contact time the water enters the filters. Particles are removed as the water passes through one of six multimedia filters. These filters consist of granular activated carbon, silica-sand, and hi-density sand. The filters are washed periodically and the water used to do this is collected in lagoons and allowed to settle. It is then recycled back to the start of the treatment plant to be treated again. After filtration, the water is again disinfected with sodium hypochlorite and fluoride is added. The water is stored in large tanks located at the treatment plant to provide adequate contact time for the chlorine to work. Once the water leaves the tanks orthophosphate is added to provide a coating for the pipes in the distribution system and in your home. This is done in order to prevent the leaching of lead and copper from your pipes into your water.

OCWA's Ontario Water Treatment Plant pumps water from Lake Ontario through an 8-foot diameter intake it shares with the City of Oswego. Upon entering the Raw Water Pumping Station, lake water is treated with carbon dioxide to suppress pH thereby increasing the effectiveness of chemical coagulation. Potassium permanganate is applied seasonally to raw water for taste and odor control and to discourage the growth of zebra mussels. The water is pumped approximately 2 miles to OCWA's Ontario Water Treatment Plant. Water entering the plant is treated with sodium hypochlorite (disinfectant) and polyaluminum chloride (coagulant) and is flash mixed. The water then enters three contact basins where slow mixing allows small particles to accumulate and form larger, more readily filtered particles. After about 2 hours of contact time, the water flows into dual media filters consisting of granular activated carbon and filter sand whereby particulate contaminants are removed. After filtration three treatments are applied: fluoride to reduce tooth decay, sodium hypochlorite to disinfect, and sodium hydroxide for corrosion control.

The City of Syracuse does not filter the water that enters their intakes located in Skaneateles Lake. The city has been granted a waiver to provide its customers with unfiltered water subject to strict conditions set by the New York State Department of Health. These conditions include water quality monitoring, backup disinfection, and watershed protection. The City of Syracuse Water Plant is located in the Village of Skaneateles where they disinfect with chlorine and add fluoride. Water then flows by gravity into the City's storage reservoirs. Orthophosphate is added to the water (for lead and copper control) as it leaves these reservoirs and it is disinfected again by the addition of sodium hypochlorite. In 2013 an Ultraviolet Light Treatment Facility was put into operation at Westcott Reservoir. A UV Light Treatment Facility at Woodland Reservoir was completed in April 2014. Ultraviolet disinfection allows the City to strengthen protection against microbial contaminants, especially targeting cryptosporidium.

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.

SWAP Summary for OCWA

The NYS DOH has evaluated OCWA's susceptibility to contamination under the Source Water Assessment Program (SWAP), and their findings are summarized in the paragraphs 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 OCWA. OCWA provides treatment and regular monitoring to ensure the water delivered to consumers meets all applicable standards.

Otisco Lake Source:

This assessment found a moderate susceptibility to contamination for OCWA's Otisco Lake source of drinking water. The amount of row crops in the assessment area results in a medium susceptibility to pesticides. No permitted discharges are found in the assessment area. There is also noteworthy contamination susceptibility associated with other discrete contaminant sources, and these facility types include: mines. While lakes are not generally considered to have a high natural sensitivity to phosphorus in SWAP, this lake already shows algae problems. Therefore, additional phosphorus contribution would likely result in further water quality degradation.

Lake Ontario Source:

The Great Lakes' watershed is exceptionally large and too big for a detailed evaluation in the SWAP. General drinking water concerns for public water supplies which use these sources include: storm generated turbidity, wastewater, toxic sediments, shipping related spills, and problems associated with exotic species (e.g. zebra mussels- intake clogging and taste and odor problems). The summary below is based on the analysis of the contaminant inventory compiled for the drainage area deemed most likely to impact drinking water quality at this PWS intake.

This assessment found a moderate susceptibility to contamination for this source of drinking water. The amount of agricultural lands in the assessment area results in elevated potential for pesticides contamination. Non-sanitary wastes may increase contamination potential. There is also noteworthy contamination susceptibility associated with other discrete contaminant sources, and these facility types include: mines.

Skaneateles Lake Source (water purchased from the City of Syracuse):

This assessment found a moderate susceptibility to contamination for this source of drinking water. The amount of pasture in the assessment area results in a high potential for protozoa contamination. No permitted discharges are found in the assessment area. There are no likely contamination threats associated with other discrete contaminant sources, even though some facilities were found in low densities.

Frequently Asked Questions

Does my water contain Fluoride?
Yes, OCWA water is fluoridated to a concentration of about 0.7 mg/l.
OCWA is required to fluoridate by the New York State Department of Health.

What is the pH of my water?
OCWA's pH is 7.1 to 8.7, slightly basic.
Alkalinity varies by source ranging from 95 mg/l to 140 mg/l (CaCO3)

Is my water Hard or Soft?
The hardness of OCWA's water ranges from 115 to 190 ppm. That is equal to about 6 to 11 grains per gallon. It is considered moderately hard. Hardness is a measurement of calcium carbonate in the water and is not a health concern.

Will having a water softener installed improve the water quality in my home?
No, softening does not improve the sanitary quality of water. Softeners mostly remove calcium carbonate. They will stop 'spotting' or 'scaling' which may occur on certain surfaces, and under certain conditions, when water puddles or droplets are allowed to evaporate. Water softeners may increase water usage because it takes more soft water to rinse away soap. It is ultimately a matter of personal preference.

What can I do about dirty or rusty water?
Water that is dirty or rusty can be caused by changes in flow inside the pipes. Usually, this is due to a sudden increase in flow, but sometimes, also by a change of direction. Leaks, hydrant usage or, changes in valve positioning can rile things up and cause these problems. If the problem doesn't clear up in a short period of time call us and we will try to help. OCWA will investigate and correct the cause of the problem and flush it's piping if necessary. You may then be instructed to flush the piping in your own home. The water should clear up after running it a bit.

What about Taste or Odor Problems?
Algae most commonly cause tastes and odors, which are; earthy, musty, grassy, or fishy. At the Otisco Lake and Lake Ontario plants water is filtered through granular activated carbon. At times, powdered activated carbon can also be added to adsorb the offensive tastes and odors and then the carbon and the algae both are filtered out. Algae blooms are common in the warm and sunny months and the carbon dosage is always being monitored and adjusted. Occasionally, some tastes and odors do get through. Customer complaints about taste and odor are taken very serious. Tastes and odors originating with algae have no adverse health effects.

What about chlorine taste and odor?
Chlorine dissipates as it travels through a pipeline. In order to ensure that customers living far from the treatment plant get water that is adequately disinfected, the dosage of chlorine received by customers living close to the plant is higher. OCWA tries to accommodate everyone, but in the case of a person very sensitive to chlorine living very close to the plant, this may not be possible. Chlorine can be removed simply by letting a pitcher of water stand overnight in the refrigerator or by running water through an activated carbon filter. Activated carbon filters, if used, need to be replaced regularly as old filters may promote bacterial growth.

Cryptosporidium and Giardia:

New York State law requires water suppliers to notify their customers about the risks of Cryptosporidium and Giardia. These pathogens are of concern because they are found in surface water and ground water under the influence of surface water throughout the United States. Filtration and disinfection are the best methods for use against them, but 100% removal or inactivation cannot be guaranteed. Cryptosporidiosis and Giardiasis are intestinal illnesses caused by these microscopic parasites. Symptoms of infection include nausea, diarrhea, and cramps. Most healthy people can overcome the disease within a few weeks.

In 2018, the presence of Cryptosporidium and Giardia was tested for in Otisco, Ontario, and Skaneateles lakes as part of routine monitoring by OCWA and the City of Syracuse Water Department. Both the raw lake waters and the treated waters were tested. Additionally, OCWA's Otisco Lake Water Treatment Plant tested its recycled wash water, which is water that is reclaimed after filter backwashing and returned to the treatment plant influent stream for retreatment.

OCWA collected a total of 36 Cryptosporidium and Giardia samples in 2018 representing water originating from Otisco Lake. Monthly samples were taken from the Raw (untreated) water, the Finished (treated) water, and the Recycled water. Cryptosporidium was detected in both the Raw water and Recycled water samples from January. Giardia was detected in the Recycled water in February and April. Neither Cryptosporidium or Giardia were detected in the Finished water samples from Otisco Lake.

OCWA collected a total of 24 Cryptosporidium and Giardia samples in 2018 representing water originating from Lake Ontario. Monthly samples were taken from the Raw water and Finished water. Neither Cryptosporidium or Giardia were detected in any of the samples from Lake Ontario.

The City of Syracuse Water Department collected a total of 24 Cryptosporidium and Giardia samples in 2018 representing water originating from Skaneateles Lake. Two Raw water samples (one from each intake) were sampled monthly. Neither Cryptosporidium or Giardia were detected in any of the City of Syracuse's Raw water samples.

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).

Individuals who think they may have Cryptosporidiosis or Giardiasis should contact their health care provider immediately. For additional information on Cryptosporidiosis or Giardiasis you may contact the Onondaga County Health Department, in writing at 421 Montgomery St., 12th Floor, Syracuse, NY 13202 or by calling 315-435-6600.

Bottled water may be a viable alternative, however the same degree of caution applied to your tap water should be used in selecting a bottled water supplier. To that end, a list of certified bottled waters for sale in New York (along with their sources) can be obtained from the New York State Department of Health by calling 1-800-458-1158.

The EPA's Surface Water Treatment Rule (SWTR) established water treatment standards specifically designed to ensure the removal or deactivation of Giardia and other microbial contaminants. The EPA is currently working on enhancing these standards to further ensure protection against exposure to Cryptosporidium from drinking water. The Otisco and Ontario water treatment plants are in full compliance with all current operational, monitoring, and reporting requirements. OCWA's internal performance standards are more stringent than the law currently requires.

For example, the SWTR requires a treatment plant's finished water turbidity (a measure of clarity used to check filtration particulate removal) to be less than 0.30 NTUs 95% of the time. For 2018 the Otisco Filtration Plant finished water turbidity was less than 0.08 NTUs 95% of the time based on continuous four-hour sampling intervals. The Ontario Filtration Plant finished water turbidity for 2018 averaged less than 0.06 NTUs 95% of the time, again based on four-hour sampling intervals. Cryptosporidium regulations contain improved filtration performance requirements to ensure removal of any protozoans that may be present. Part of the enhanced filtration requirements involved lowering the turbidity criteria from the 0.50 to the 0.30 NTU range. Both of OCWA's treatment plants are doing better than the regulated levels.

Pharmaceuticals and Personal Care Products in Drinking Water

In 2008 the Associated Press released a three-piece story on pharmaceuticals and personal care products in drinking water sources. While the Onondaga County Water Authority was not one of the systems covered by the story, the article did stir interest of the Board and Management of OCWA. Accordingly, in 2008 the Authority implemented an annual testing program to learn more about potential pharmaceutical and personal care product contaminants that might be found in the Otisco Lake and Lake Ontario water supplies.

While none of us want to find any contaminants in our drinking water, as zero is the desirable level, it is important to begin the process of gathering occurrence data to allow for researchers to target the most commonly found contaminants. As such the Authority intends to continue to collect data related to pharmaceuticals and personal care products in water and will also continue its process of sharing the data with both the researchers and OCWA's consumers.

The 2008 round of samples involved testing for 34 potential contaminants. All but two out of the thirty-four were found to be non-detectable. From 2009 on, based on the recommendation of researchers studying the occurrence of pharmaceuticals and personal care products, the testing list has been expanded. Presently 98 potential contaminants are tested for. From 2009 to 2017 between 8 and 17 of the contaminants were detected. In 2018 there were 5 potential contaminants found.

To learn more about the test results and related information for 2018, you are encouraged to visit the OCWA web site (www.ocwa.org). Anyone that has questions about results, or any of the other water quality reports posted on the Authority web site, are encouraged to contact OCWA's Water Quality Department at 315-455-7061, extension 3157.

General Information related to Pharmaceuticals and Other Emerging Contaminants

Pharmaceuticals and personal care products, known in the water industry as PPCPs, are a group of compounds consisting of human and veterinary drugs (prescription or over-the-counter) and consumer products, such as fragrances, lotions, sunscreens and housecleaning products.

These compounds have been detected in trace amounts in surface water, drinking water and wastewater effluent sampling because water professionals have the technology today to detect more substances, at lower levels, than ever before.

Many PPCP compounds are being found at extremely low levels, typically single digit parts per trillion (ppt). Drinking-water standards are typically set in the parts per-billion range, which is 1,000 times higher. The fact that the substance is detectable in drinking water does not mean the substance is harmful to humans. To date, research throughout the world has not demonstrated an impact on human health from trace amounts of PPCPs found in drinking water.

The water community is committed to protecting the public's health. Water professional are examining the occurrence of PPCPs in drinking-water supplies and the effectiveness of current treatment techniques on removal, and are paying close attention to health-effects research in this area, including research being conducted by the Water Research Foundation.

In addition, the U.S. Environmental Protection Agency (EPA) maintains an active program called the Contaminant Candidate List to identify contaminants in public drinking water that warrant detailed study. While the 2009 list does not currently include any PPCPs, EPA is considering testing for PPCP compounds in the very near future.

Safer medication disposal: *To help safeguard water quality, discard your unwanted or expired medications in the trash, rather than dumping them down the sink or toilet. Keep prescriptions in their original container, remove or black out personal information on labels, then hide them in an empty, sealable container before placing in your garbage bag. For additional information on disposal and to find Pharmaceutical drop-off locations visit https://www.citizenscampaign.org. Once there, scroll down to Onondaga County, NY residents and click on the blue location icons for specific details.*

Lead in Drinking Water

"If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The Onondaga County Water Authority 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 or at *http://www.epa.gov/safewater/lead*."

Additional Facts on Lead

Lead is a naturally-occurring metal that for most of the 20th century was used regularly as a component of paint, piping (including water service lines), solder, brass, and until the 1980s, as a gasoline additive. We no longer use lead in many of these products, older products – such as paints and plumbing fixtures in older houses – that contain lead remain. EPA and the U.S. Centers for Disease Control (CDC) report that lead paint (and the contaminated dust and soil it generates) is the leading source of lead exposure in older housing.

While lead is rarely present in water coming from a treatment plant, it can enter tap water through corrosion of some plumbing materials. In recent years, several aggressive and successful steps have been taken to reduce the occurrence of lead in drinking water.

In 1986, Congress amended the national Safe Drinking Water Act to prohibit the use of pipe, solder or flux containing high lead levels. The Lead Contamination Control Act of 1988 led schools and day-care centers to repair or remove water coolers with lead-lined tanks. EPA provided guidance to inform and facilitate their action.

Since the implementation of the Lead and Copper Rule in 1991, many community drinking water systems are required to actively manage the corrosivity of water distributed to customers. In addition, community water systems conduct routine monitoring at selected houses with lead service lines and lead solder. If more than 10 percent of the homes tested have elevated lead levels (defined as more than 15 parts per billion), water providers must notify their consumers via several means. They must also take steps to reduce the problem, including improving corrosion control and possibly replacing lead service lines that contribute to lead contamination.

You can't see, smell or taste lead in your water. ***Testing at the tap is the only way to measure the lead levels in your home or workplace.*** If you choose to have your tap water tested, be sure to use a properly certified laboratory. Testing usually costs between $20 and $100. If you currently have a lead service line, OCWA is willing to provide a free, one-time test after inspecting and confirming that the service line is lead. Please contact OCWA's Water Quality Manager at 315-455-7061 extension 3157 for more information.

Table of Detected Contaminants

Lead & Copper in the Distribution System

Contaminant	Violation Yes/No	Date(s) of Sampling	Average Level found (Range)	90th Percentile Value	Units Measured	MCLG	Regulatory Limit (MCL, TT, or AL)	Likely Source of Contamination
Copper	No	Jun-Sept 2016	0.086 (0.0016-0.68)	0.23	mg/l	0	AL = 1.3*	Corrosion of household plumbing systems; Erosion of natural deposits. Leaching from wood preservatives.
Lead	No	Jun-Sept 2016	1.47 (ND- 20)	5.1	*u* g/l	0	AL = 15*	Corrosion of household plumbing systems; Erosion of natural deposits.

*AL (Action Level) – Only 10% of samples can exceed this level.

About Lead and Copper:
In order to deter the leaching of lead and/ or copper from our customers' pipes, OCWA has been mandated to implement corrosion control. Lead & Copper Sampling is required every 3 years. OCWA will sample again in 2019.

The method of corrosion control used on waters originating from Otisco and Skaneateles lakes is the addition of orthophosphate. The adjustment of pH is the method used for Ontario water. OCWA's latest sampling period was in June - Sept of 2016 when OCWA sampled and tested customers' taps to make sure the corrosion controls were effective.

90th Percentile Values for Lead & Copper: The values reported for lead and copper represent the 90th percentile. The 90th percentile value is the concentration that 90% of the taps sampled were at or below. Since the Action Level for Lead is 15 *u* g/l, 90% of the taps tested had to be at or below this value. As you can see from the above chart, 90% of the taps tested were at or below 5.1 *u* g/l in June - Sept. of 2016. The Action Level for Copper is 1.3 mg/l. The observed 90th percentile for Copper was 0.23 mg/l. Of the 107 samples that OCWA tested in June - Sept. of 2016, only two samples exceeded the action level for lead. No samples exceeded the action level for copper.

The testing showed that our methods of corrosion control are working.

Table of Detected Contaminants

Turbidity at Entry Point

Contaminant	Water Source	Violation Yes/ No	Sampling Frequency (highest reading)	Average Level found (Range)	Units Measured	MCLG	Regulatory Limit (MCL, TT, or AL)	Lowest % of Monthly tests meeting limit	Likely Source of Contamination
Turbidity	Otisco	No	Every 4 hrs (7/21/18)	0.055 (0.03-0.11)	NTU	N/A	TT = 0.3 NTU for systems that filter	100%	Soil run off
	Ontario	No	Every 4 hrs (7/13/18)	0.040 (0.02-0.09)	NTU	N/A	TT = 0.3 NTU for systems that filter	100%	
	Skaneateles	Yes*	Every 4 hrs (12/28/18)	0.49 (0.09-5.94)	NTU	N/A	TT = 5.0 NTU for systems that do not filter	N/A	

About Turbidity:

Customers of the Onondaga County Water Authority (OCWA) get their water from one of three sources. Water may originate from Otisco Lake, Lake Ontario, or Skaneateles Lake which is treated by the Syracuse Water Department and sold to OCWA. Customers may also get a mixture of these waters.

Water purveyors are required to measure **turbidity** as water leaves their plants. Turbidity is a measure of the cloudiness of water. Turbidity is monitored because it is a good indicator of water quality. High turbidity can hinder the effectiveness of disinfectants. Treatment plants that filter also measure it because it is a good indicator of filter efficiency. Otisco Lake and Lake Ontario waters are filtered. Skaneateles Lake water is not.

***Treatment Technique Violation for Turbidity;** On December 28, 2018, because of sustained southerly winds, the turbidity levels entering the City of Syracuse's intake exceeded the maximum allowable standard of 5 Nephelometric Turbidity Units (NTU). Turbidity levels reached 5.94 NTU's on this date. Notification of this event was made to the public and to the Onondaga County Health Department .

Health Effects of Turbidity: Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches. Please pay special attention to the additional statements in this document regarding Cryptosporidium.

Table of Detected Contaminants

Bacteria Found in the Distribution System

Contaminant	Sample Source	Violation Yes/ No	Date(s) of Sampling in 2018	Month with Highest % positive samples	Units Measured	MCLG	Regulatory Limit (MCL, TT, or AL)	Likely Source of Contamination
Total Coliform Bacteria*	OCWA Distribution System	No	approx. 82 per week	March 0.61% (2 out of 329)	N/A	0	> 5 % Positive samples in any month	Naturally present in the environment

***** Whenever a positive sample for Total Coliform is found, the sample is further tested for the presence of E.coli., plus 3 additional resamples are taken.
OCWA regularly samples about 82 sites per week located throughout our distribution system. We test these sites for both bacteria and disinfectant residual to make sure that our water is of a safe and sanitary quality.

Disinfectant & Disinfection By-products Found in the Distribution System

Contaminant	Sample Source	Violation Yes/ No	Date(s) of Sampling in 2018	Level found (Range)**	Units Measured	MCLG	Regulatory Limit (MCL, TT, AL, or MRDL)	Likely Source of Contamination
Chlorine Residual	OCWA Distribution System	No	approx. 82 per week	0.48 (ND-1.99)	mg/l	N/A (MRDLG)	4 (MRDL)	Added to water to kill harmful bacteria and to prevent the regrowth of bacteria
Chlorite	Otisco	No	Monthly; April to November	0.17 (ND- 0.28)	mg/l	N/A	1	By-product of drinking water disinfection at plant using chlorine dioxide.
Total Trihalo Methanes ***	OCWA Distribution System	No	Quarterly; Feb, May Aug, Dec	44.3 (21.6- 81.3)	ug/l	N/A	80	By-product of drinking water chlorination. TTHM's form when source water contains large amounts of organic matter.
Haloacetic Acids****	OCWA Distribution System	No	Quarterly; Feb, May Aug, Dec	22.62 (5.0- 32.2)	ug/l	N/A	60	By-product of drinking water chlorination.

Disinfection by-products; During disinfection, certain by-products form as a result of chlorine reacting with naturally occurring organic matter. The disinfection process is carefully monitored so that disinfection is effective, while levels of disinfection by-products are kept low. Trihalomethanes (THM's) and Haloacetic acids (HAA's) are classes of chemicals that OCWA is required to monitor for in its distribution system.

** The reported "Level Found" for Trihalomethanes and Haloacetic acids is the highest recorded quarterly running annual average among all of OCWA's Disinfection By- product sampling locations.
*** See 'Terms & Abbreviations' for the listing of Trihalomethanes contaminants
**** See 'Terms & Abbreviations' for the list of Haloacetic acids contaminants

Table of Detected Contaminants

Inorganic Contaminants Found at Entry Point

Contaminant	Water Source	Violation Yes/ No	Date(s) of Sampling	Average Level found (Range)	Units Measured	MCLG	Regulatory Limit (MCL, TT, or AL)	Likely Source of Contamination
Aluminum	Otisco	No	Mar, Sep 2018	0.066 (0.027- 0.105)	mg/l	N/A	N/A	Erosion of natural deposits; Residual aluminium may be from a chemical used in the treatment process.
	Ontario	No	Mar, Sep 2018	0.084 (0.053- 0.116)	mg/l	N/A	N/A	
Barium	Otisco	No	Mar, Sep 2018	0.033 (0.032- 0.034)	mg/l	2	2	Erosion of natural deposits.
	Ontario	No	Mar, Sep 2018	0.019 (0.018- 0.020)	mg/l	2	2	
	Skaneateles	No	May 2018	0.025	mg/l	2	2	
Calcium	Otisco	No	Mar, Sep 2018	36.7 (31.9-41.6)	mg/l	N/A	N/A	Naturally occurring.
	Ontario	No	Mar, Sep 2018	33.2 (32.7-33.7)	mg/l	N/A	N/A	
Chloride	Otisco	No	Mar, Sep 2018	41.2 (38.5-43.9)	mg/l	N/A	250	Naturally occurring; Road salts.
	Ontario	No	Mar, Sep 2018	27.9 (26.0-29.9)	mg/l	N/A	250	
	Skaneateles	No	May 2018	22	mg/l	N/A	250	
Chlorite	Otisco	No	Daily	0.17 (ND- 0.28)	mg/l	N/A	1	By-product of drinking water disinfection at plant using chlorine dioxide.
Chlorine Dioxide Residual (1)	Otisco	No	Daily	160 (ND- 520)	ug/l	N/A	800 (MRDL)	By-product of drinking water disinfection at plant using chlorine dioxide.
Chlorine Residual (Free)	Otisco	No	Every 4 hrs.	1.13 (0.81- 1.43)	mg/l	N/A	4 (MRDL)	Added to water to kill harmful bacteria and to prevent the regrowth of bacteria
	Ontario	No	Every 4 hrs.	0.89 (0.56- 1.13)	mg/l	N/A	4 (MRDL)	
	Skaneateles	No	Every 4 hrs.	0.96 (0.47- 1.55)	mg/l	N/A	4 (MRDL)	

(1) Chlorine Dioxide and Chlorite were tested for daily for 213 days in 2018. For 212 days in 2018 OCWA was adding Chlorine Dioxide as a preoxidant in order to control Zebra Mussels at the intake, provide adequate disinfection, and control the formation of undesirable disinfection by-products such as Trihalomethanes and Haloacetic acids. OCWA intends to add Chlorine Dioxide again during warm water conditions in 2019.

Table of Detected Contaminants

Inorganic Contaminants Found at Entry Point

Contaminant	Water Source	Violation Yes/ No	Date(s) of Sampling	Average Level found (Range)	Units Measured	MCLG	Regulatory Limit (MCL, TT, or AL)	Likely Source of Contamination
Chromium 6 (2)	Otisco	No	Oct 2018	0.065	ug/l	N/A	N/A	Erosion of natural deposits; Industrial sources.
	Ontario	No	Oct 2018	0.070	ug/l	N/A	N/A	
	Skaneateles	No	Oct 2018	0.031	ug/l	N/A	N/A	
Copper	Otisco	No	Mar, Sep 2018	0.0045 (.0021- .0069)	mg/l	N/A	AL = 1.3	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives.
	Ontario	No	Mar, Sep 2018	0.0040 (.0031-.0049)	mg/l	N/A	AL = 1.3	
Fluoride (3)	Otisco	No	Daily	0.64 (0.06- 0.79)	mg/l	N/A	2.2	Erosion of natural deposits; Water additive that promotes strong teeth; discharge from fertilizer.
	Ontario	No	Daily	0.70 (0.65- 0.85)	mg/l	N/A	2.2	
	Skaneateles	No	Daily	0.73 (0.20- 2.00)	mg/l	N/A	2.2	
Magnesium	Otisco	No	Mar, Sep 2018	10.6 (10.3- 10.9)	mg/l	N/A	N/A	Naturally occurring.
	Ontario	No	Mar, Sep 2018	8.92 (8.88- 8.96)	mg/l	N/A	N/A	

(2) Chromium 6: Although it is not regulated, OCWA took samples from the entrance point of the distribution representing water treated from Otisco, Ontario and Skaneateles Lakes and had them tested for Chromium 6 at low detection levels. The results are shown in the table above. Also in 2015, OCWA took samples representative of all 3 of the source waters and had them tested for Chromium 6. This was done as part of the Unregulated Contaminant Rule. These results can be seen on page 21. For more information on Chromium 6 see page 23.

(3) Information on Fluoride Addition: OCWA is one of many drinking water systems that provide drinking water with a controlled, low level of fluoride for consumer dental health protection. According to the United States Center for Disease Control, fluoride is very effective in preventing cavities when present in drinking water at an optimal dose of 0.7 mg/l. To ensure that the fluoride supplement in your water provides optimal dental protection, the NYS Health Department requires that we monitor fluoride levels on a daily basis. During 2018 monitoring showed fluoride levels in your water were within 0.1mg/l of the optimal dose; 88% of the time for Otisco Lake water, 99% of the time for Lake Ontario water, and 80% for Skaneateles water.

Table of Detected Contaminants
Inorganic Contaminants Found at Entry Point

Contaminant	Water Source	Violation Yes/ No	Date(s) of Sampling	Average Level found (Range)	Units Measured	MCLG	Regulatory Limit (MCL, TT, or AL)	Likely Source of Contamination
Nickel	Otisco	No	Mar, Sep 2018	0.72 (0.67-0.78)	ug/l	N/A	N/A	Erosion of natural deposits.
	Ontario	No	Mar, Sep 2018	0.68 (0.68-0.68)	ug/l	N/A	N/A	
	Skaneateles	No	May 2018	0.76	ug/l	N/A	N/A	
Nitrate	Otisco	No	Mar, Sep 2018	0.38 (0.18-0.59)	mg/l	10	10	Runoff from fertilizer use; leaching from septic tanks, sewage; Erosion of natural deposits.
	Ontario	No	Mar, Sep 2018	0.26 (0.24-0.28)	mg/l	10	10	
	Skaneateles	No	July 2018	0.48	mg/l	10	10	
Sodium (4)	Otisco	No	Mar, Sep 2018	24.2 (23.2-25.3)	mg/l	N/A	See Health Effects	Naturally occurring; Road salts; water softeners; animal wastes.
	Ontario	No	Mar, Sep 2018	17.5 (16.8-18.3)	mg/l	N/A	See Health Effects	
	Skaneateles	No	May 2018	13	mg/l	N/A	See Health Effects	
Sulfate	Otisco	No	Mar, Sep 2018	11.7 (11.3-12.1)	mg/l	N/A	250	Naturally occurring.
	Ontario	No	Mar, Sep 2018	24.1 (23.0-25.2)	mg/l	N/A	250	
	Skaneateles	No	May 2018	12	mg/l	N/A	250	

(4) Health Effects of Sodium: There is no MCL for Sodium. However, 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 diets.

Table of Detected Contaminants

Radionuclides Found at Entry Point

Contaminant	Water Source	Violation Yes/ No	Composite of quarterly sampling	Level found	Units Measured	MCLG	Regulatory Limit (MCL, TT, or AL)	Likely Source of Contamination
Alpha Emitters	Otisco	No	Feb,May, Aug, Nov. 2017	0.62	pCi/l	0	15	Erosion of natural deposits.
	Ontario	No	Feb,May, Aug, Nov. 2018	0.335	pCi/l	0	15	
Beta Emitters	Otisco	No	Feb,May, Aug, Nov. 2017	0.85	pCi/l	0	50	Decay of natural deposits and man made emmissions
	Ontario	No	Feb,May, Aug, Nov. 2018	1.63	pCi/l	0	50	
Radium- 226	Otisco	No	Feb,May, Aug, Nov. 2017	0.47	pCi/l	0	5	Erosion of natural deposits.
	Ontario	No	Feb,May, Aug, Nov. 2018	0.404	pCi/l	0	5	
Radium- 228	Otisco	No	Feb,May, Aug, Nov. 2017	0.08	pCi/l	0	5	Erosion of natural deposits.
Total Uranium	Otisco	No	Feb,May, Aug, Nov. 2017	0.30	ug/l	N/A	30	Erosion of natural deposits.
	Ontario	No	Feb,May, Aug, Nov. 2018	0.356	ug/l	N/A	30	

Organic Contaminants Found at Entry Point

Contaminant	Water Source	Violation Yes/ No	Date(s) of Sampling	Average Level found (Range)	Units Measured	MCLG	Regulatory Limit (MCL, TT, or AL)	Likely Source of Contamination
Dissolved Organic Carbon	Otisco	No	Monthly 2018	2.1 (1.4- 2.3)	mg/l	N/A	N/A	Naturally occurring.
	Ontario	No	Monthly 2018	2.2 (1.9- 2.4)	mg/l	N/A	N/A	
Total Organic Carbon	Otisco	No	Monthly 2018	2.3 (1.8- 3.7)	mg/l	N/A	N/A	Naturally occurring.
	Ontario	No	Monthly 2018	2.3 (2.2- 3.6)	mg/l	N/A	N/A	
Toluene	Skaneateles	No	Feb,May, Aug, Nov. 2018	0.32 (ND- 0.53)	ug/l	N/A	5	Toluene is an additive to gasoline, used to produce benzene, and used as a solvent.
Total Trihalo Methanes	Ontario	No	Monthly 2014	12.6 (8.5-18)	ug/l	N/A	80	By-product of drinking water chlorination. TTHM's form when source water contains large amounts of organic matter.

Table of Detected Contaminants

OCWA's Unregulated Contaminant Monitoring Rule 3 (UCMR3) Sampling

OCWA customers may receive water originating from one of three different sources; Otisco Lake, Lake Ontario, or Skaneateles Lake. Entry points of these source waters into the OCWA system were sampled as well as the Maximum Residence points for these sites.

Unregulated Contaminants Detected During Testing

Contaminant	Water Source	Date(s) of Sampling	Average Level found (Range)	Units Measured	MCLG	Regulatory Limit (MCL, TT, or AL)	Likely Source of Contamination
Chlorate	Otisco Entry Point	Jan, Apr, Jul 2015	102 (43 -210)	ug/l	N/A	N/A	Agricultural defoliant or desiccant; disinfection by product; used in production of chlorine dioxide.
	Ontario Entry Point	Jan, Apr, Jul 2015	61 (33-94)	ug/l	N/A	N/A	
	Skaneateles Entry Point	Jan, Apr, Jul 2015	78 (60-99)	ug/l	N/A	N/A	
	Otisco Max. Res.	Jan, Apr, Jul 2015	133 (39-300)	ug/l	N/A	N/A	
	Ontario Max. Res.	Jan, Apr, Jul 2015	57 (53-58)	ug/l	N/A	N/A	
	Skaneateles Max. Res.	Jan, Apr, Jul 2015	72 (53-95)	ug/l	N/A	N/A	
Chromium-6	Otisco Entry Point	Jan, Apr, Jul 2015	0.03 (ND-0.03)	ug/l	N/A	N/A	Naturally occurring element; used in making steeland other alloys; chromium- 3 and -6 forms are used for chrome platin, dyes, pigments, leather tanning, and wood preservation.
	Ontario Entry Point	Jan, Apr, Jul 2015	0.09 (0.08-0.11)	ug/l	N/A	N/A	
	Skaneateles Entry Point	Jan, Apr, Jul 2015	0.04 (0.03-0.05)	ug/l	N/A	N/A	
	Otisco Max. Res.	Jan, Apr, Jul 2015	0.06 (ND-0.07)	ug/l	N/A	N/A	
	Ontario Max. Res.	Jan, Apr, Jul 2015	0.10 (0.09-0.12)	ug/l	N/A	N/A	
	Skaneateles Max. Res.	Jan, Apr, Jul 2015	0.04 (0.04-0.05)	ug/l	N/A	N/A	

Table of Detected Contaminants

OCWA's Unregulated Contaminant Monitoring Rule 3 (UCMR3) Sampling

OCWA customers may receive water originating from one of three different sources; Otisco Lake, Lake Ontario, or Skaneateles Lake. Entry points of these source waters into the OCWA system were sampled as well as the Maximum Residence points for these sites.

Unregulated Contaminants Detected During Testing

Contaminant	Water Source	Date(s) of Sampling	Average Level found (Range)	Units Measured	MCLG	Regulatory Limit (MCL, TT, or AL)	Likely Source of Contamination
Molybdenum	Ontario Entry Point	Jan, Apr, Jul 2015	1.1 (1.1-1.2)	ug/l	N/A	N/A	Naturally-occurring element found in ores and present in plants, animals and bacteria; commonly used form molybdenum trioxide used as a chemical reagent.
	Ontario Max. Res.	Jan, Apr, Jul 2015	1.2 (1.1-1.2)	ug/l	N/A	N/A	
Strontium	Otisco Entry Point	Jan, Apr, Jul 2015	123 (120-130)	ug/l	N/A	N/A	Naturally-occurring element; historically, commercial use of strontium has been in the faceplate glass of cathode-ray tube televisions to block x-ray emissions.
	Ontario Entry Point	Jan, Apr, Jul 2015	167 (160-170)	ug/l	N/A	N/A	
	Skaneateles Entry Point	Jan, Apr, Jul 2015	82 (79-85)	ug/l	N/A	N/A	
	Otisco Max. Res.	Jan, Apr, Jul 2015	127 (120-130)	ug/l	N/A	N/A	
	Ontario Max. Res.	Jan, Apr, Jul 2015	183 (180-190)	ug/l	N/A	N/A	
	Skaneateles Max. Res.	Jan, Apr, Jul 2015	85 (81-88)	ug/l	N/A	N/A	
Vanadium	Otisco Max. Res.	Jan, Apr, Jul 2015	0.2 (ND-0.3)	ug/l	N/A	N/A	Naturally-occurring elemental metal; used as vanadium pentoxide which is a chemical intermediate and a catalyst.
	Ontario Max. Res.	Jan, Apr, Jul 2015	0.2 (ND-0.3)	ug/l	N/A	N/A	

Unregulated Contaminants Not Detected During Testing

In 2015, the Onondaga County Water Authority was required to collect and analyze drinking water samples for unregulated contaminants. The following contaminants were tested for but not detected; 1,2,3-trichloropropane, 1,3-butadiene, chloromethane (methyl chloride), Chromium, 1,1-dichloroethane, bromomethane (methyl bromide), chloromethane (methyl chloride), 1,1-dichloroethane, chlorodifluoromethane (HCFC-22), bromochloromethane (halon 1011), 1,4-dioxane, cobalt, perfluorooctanesulfonate acid (PFOS), perfluorooctanoic acid (PFOA), perfluorononanoic acid (PFNA), perfluorohexanesulfonic acid (PFHxS), perfluoroheptanoic acid (PFHpA), perfluorobutanesulfonic acid (PFBS), 4-androstene-3,17-dione, 17-β-estradiol, 17-α-ethynylestradiol (ethinyl estradiol), 16-α-hydroxyestradiol (estriol), equilin, estrone, testosterone.

Chromium 6 Health Information

Chromium is a common element in rocks, soil, water, plants, and animals. It gets into surface or groundwater after dissolving from rocks and soil. Chromium is used to manufacture steel, to electroplate metal, and in the textile, tanning, and leather industries. Contamination of drinking water may occur if chromium gets into surface or groundwater after improper waste disposal in landfills or by industrial or manufacturing facilities using chromium.

Chromium is found in the environment in two principal forms: chromium (III) and chromium (VI). Chromium (III) compounds are the most common chromium compounds in the environment. Chromium (VI) compounds are less common in the environment and are typically associated with an industrial source. Depending on the conditions, each form of chromium can be converted into the other form in the environment.

Chromium (VI) is the more toxic form of chromium. There is strong evidence from human studies in many countries that occupational exposures to chromium (VI) in air can cause lung cancer. There is weaker evidence from studies in China that long-term exposure to chromium (VI) in drinking water can cause stomach cancer. Chromium (VI) causes cancer in laboratory animals exposed almost daily to high levels in air (lung cancer) or drinking water (mouth and intestinal cancers) over their lifetimes. Adverse gastrointestinal-tract effects (oral ulcers, stomach or abdominal pain, diarrhea) other than cancer are also associated with long-term human exposures to oral doses of chromium (VI). In laboratory animals, repeated exposures to high oral doses of chromium (VI) has caused blood, liver, and kidney damage in adult animals, and can adversely affect the developing fetus and the male and female reproductive organs. Chemicals that cause cancer or other adverse health effects in people or laboratory animals exposed to high levels also may increase the risk of such effects in people exposed to lower levels over long periods.

Prepared by New York State Department of Health – Bureau of Toxic Substance Assessment, March 14, 2011.

Contaminants Tested for but Not Detected

(Non-Detects Arranged By Source)

Synthetic Organic Contaminants
(Otisco, Ontario, Skaneateles)

Alachlor
Aldicarb
Aldicarb sulfone
Aldicarb sulfoxide
Aldrin
Atrazine
Benzo(a)pyrene
Butachlor
Carbaryl
Carbofuran
Chlorodane
Dalapon
Di(2-ethylhexyl)adipate
Di(2-ethylhexyl)phthalate
Dibromochloropropane
Dicamba
Dieldrin
Dinoseb
Endrin
Ethylene Dibromide
Glyphosate
Heptachlor
Heptachlor epoxide
Hexachlorobenzene
Hexachlorocyclopentadiene
Lindane
Methomyl
Methoxychlor
Metolachlor
Metribuzan
Oxamyl vydate
Pentachlorophenol
Pichloram
Polychlorinatedbiphenyls
Propachlor
Simazine
Toxaphene
2,4 -D
2,4,5-TP (Silvex)
3-Hydroxycarbofuran

Synthetic Organic Contaminants
(Otisco, Ontario)

Diquat
Endopthall
2,3,7,8-TCDD (Dioxin)

Principal Organic Contaminants
(Skaneateles)

Benzene
Bromobenzene
Bromochloromethane
Bromomethane
N-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloromethane
2-Chlorotoluene
4-Chlorotoluene
Dibromomethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorofluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dichloropropane
1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
Hexachlorobutadiene
Isopropylbenzene
p-Isopropyltoluene
Methylene Chloride
MTBE
n-Propylbenzene
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2,-Tetrachloroethane
Tetrachloroethene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,1,1,-Trichloroethane
1,1,2,-Trichloroethane
Trichloroethene
Trichlorofluoromethane
1,2,3,-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl Chloride
o-Xylene
m-Xylene
p-Xylene

Principal Organic Contaminants
(Otisco, Ontario, Skaneateles)

Benzene
Bromobenzene
Bromochloromethane
Bromomethane
N-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
Carbon Tetrachloride
Chlorobenzene
Chloroethane
Chloromethane
2-Chlorotoluene
4-Chlorotoluene
Dibromomethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorofluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
cis-1,2-Dichloroethene
trans-1,2-Dichloroethene
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dichloropropane
1,1-Dichloropropene
cis-1,3-Dichloropropene
trans-1,3-Dichloropropene
Ethylbenzene
Hexachlorobutadiene
Isopropylbenzene
p-Isopropyltoluene
Methylene Chloride
MTBE
n-Propylbenzene
Styrene
1,1,1,2-Tetrachloroethane
1,1,2,2,-Tetrachloroethane
Tetrachloroethene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,1,1,-Trichloroethane
1,1,2,-Trichloroethane
Trichloroethene
Trichlorofluoromethane
1,2,3,-Trichloropropane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Toluene
Vinyl Chloride
o-Xylene
m-Xylene
p-Xylene

Inorganic Contaminants
(Otisco, Ontario, Skaneatles)

Antimony
Arsenic
Beryllium
Cadmium
Chromium
Cyanide
Iron
Lead
Manganese
Mercury
Nitrite
Selenium
Silver
Thallium
Zinc

Physical Characteristics
(Otisco,Ontario, Skaneateles)

Color
Odor

Radiological Contaminants
(Ontario)

Radium 228

Radiological Contaminants
(Skaneateles)

Alpha Emitters
Radium 226
Radium 228

The frequency that various contaminants are tested for is regulated by the State and can vary from source to source. The State allows for some contaminants to be tested for less than once a year because the concentrations of these contaminants do not change frequently. Some of our data, though representative, is more than one year old. Some contaminants are monitored at the various sources more often than required.

Terms & Abbreviations

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

Chlorine Residual – the amount of chlorine in water available for disinfection.

Disinfection By-product (DBP) – Chemical compounds that result from the addition of chlorine to water containing organic substances.

HAA (Haloacetic acids) – the combined concentration of the following five contaminants; Dibromo-, Dichloro-, Monobromo-, Monochloro-, and Trichloro –, acetic acids.

Inorganic Contaminant – chemical substances of mineral origin, such as iron or manganese**.**

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 possible.

Maximum Contaminant Level Goal (MCLG) – the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level (MRDL) – the highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG) – the level of a disinfectant in drinking water 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 contaminants.

mg/l – (milligrams per liter) corresponds to one part of liquid in one million parts of liquid (parts per million or **ppm**).

Microbiological Contaminant – Very small organisms, such as bacteria.

N/A – not applicable.

ND – not detected at testing limits.

ng/l – (nanograms per liter) corresponds to one part of liquid in one trillion parts of liquid (parts per trillion or **ppt**).

NTU – Nephelometric Turbidity Unit - a measurement of particles in water.

Organics – substances containing the element carbon. These can be naturally occurring or man-made, and can include pesticides, solvents, and by-products of disinfection.

pCi/L – Pico curies per liter; units of concentration of radioactive substances.

Radionuclides– Contaminants giving off ionizing radiation**.**

TTHM – (Total Trihalomethanes) – the combined concentration of the following four contaminants; Bromodichloromethane, Bromoform, Chloroform, and Dibromochloromethane.

TON (Threshold Odor Number) – The greatest number dilutions of a sample with “odor-free” water yielding a definitely perceptible odor.

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

ug/l – (micrograms per liter) corresponds to one part of liquid in one billion parts of liquid (parts per billion or **ppb**).

Conservation:

Unlike many areas in the country, OCWA has access to adequate amounts of water that should meet both current and future needs. Otisco Lake can safely yield 25 million gallons of water per day. Lake Ontario is a direct connection to the Great Lakes and the Great Lakes contain 20% of the world's fresh water. However, even with this abundance, water must be used wisely. It takes energy and resources to treat and deliver the water to the consumer. On hot summer days demand can increase by as much as 67% over an average day's production. In an effort to promote the wise use of water and to avoid waste and reduce energy demands, please note the following conservation tips:

- Fix any leaky faucets. A leak streaming at 1/16th at 60 psi can amount to more than 24,000 gallons in one month.
- Water lawns only when necessary. When walking on the grass, does it spring back up? If it does, the lawn does not need watering.
- When watering lawns or gardens, give them a thorough soaking during the most effective time to water. This is after sunset and before 10:00 a.m., this allows more time for water to soak into the ground. Watering during daylight hours results in water loss due to evaporation. Timely watering also helps minimize energy and production peaks during the driest parts of the year.
- When washing a car, use a bucket for washing and turn on the hose only for rinsing. Do not let water run continuously from a hose when not in use.
- By placing a layer of mulch around trees and shrubs the moisture level is maintained for plants. Mulch will also discourage weed growth.
- If you have a swimming pool, fill it during the night when demands on power and production systems are less.

If you're interested in additional water savings tips call our Customer Service Department at 315-455-7061 ext. 3335.

Water Pressure:

Water Pressure: The New York State Department of Health standard indicates that normal water pressure in the distribution system should be approximately 60 to 80 psi and not less than 35 psi while maintaining a minimum pressure of 20 psi under all conditions of flow. OCWA attempts to operate and maintain the system within these parameters as much as possible, however, due to the significantly varying topography in Central New York it is not possible to do so in all areas of the system. In areas that the pressures exceed 80 psi, the New York State Uniform Building Code requires that homes have pressure-reducing valves (PRVs). Customers are responsible for installing the PRVs, and to periodically check/maintain this device; failure to do so may result in water damage and/or damaged water fixtures. When required for meter installation, the PRVs are to be installed either in a meter pit or within the house just before the meter. Customers should check the requirements within their municipality, but some require that a licensed plumber complete the installation.

Other Important Phone Numbers:

Nature of Call:	Contact:	Phone Number:
Inquiries about This Report	Lisa Yesensky, Water Quality Manager	315-455-7061 ext. 3157
After Hours/ Weekend Emergency	**Answering Service**	**315-475-7601**
Water Quality Questions	Water Quality Department	315-455-7061 ext. 3141
Billing Inquiries	Customer Service Dept.	315-455-7061 ext. 3335
Low Pressure / Discolored Water	Operations Dept.	315-455-7061 ext. 3120
Report a Leak	Distribution Maintenance Dept.	315-455-7061 ext. 3127
OCWA Board Meeting Information	Board of Directors Office	315-455-7061 ext. 3112
Onondaga County Dept. of Health		315-435-6600
Oswego County Dept. of Health		315-349-3557
Madison County Dept. of Health		315-366-2526
Oneida County Dept. of Health		315-798-5064
New York State Dept. of Health		1 (800) 458-1158
USEPA	Safe Drinking Water Hotline	1 (800) 426-4791