Water Quality Report
2020

Mohawk Valley Water Authority
Water Quality Department
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TABLE OF CONTENTS

WELCOME

Dear Customer:

The Mohawk Valley Water Authority (MVWA) is pleased to present to you our annual water quality report. Today, there is a heightened public awareness concerning our natural resources and environment and the quality of drinking water is understandably a primary interest. We remain a committed partner within the drinking water industry in evaluating new technologies and innovative practices, striving to better serve our growing customer base. MVWA is committed to ensuring we deliver quality water to your taps while maintaining responsible use of this sustainable resource.

This report includes information on the tests we perform on our water both to comply with State and Federal regulations and to test for some compounds which are not regulated. Also addressed are some of the most commonly asked questions by our customers. We have also included information on bottled water, lead and copper, *Cryptosporidium*, and other topics.

The Authority is committed to meet all standards and to produce high quality water for you. Since the opening of our water treatment plant in December of 1992, the quality of the water has vastly improved. **MVWA is proud to report that during 2020, the water provided by the Mohawk Valley Water Authority (MVWA) meets or surpasses all Federal and New York State Drinking Water Standards.** We continually strive to educate our customers on the balance between advanced technologies affording lower detection limits versus the meaning of a detection. While “absolute zero” is the public’s perception of safe water, it must be understood that number simply does not exist. As improved methodologies for analytical testing continues to lower detection levels, analytes previously reported as non-detectable may now have a value associated with them. This does not necessarily equate to an increased risk to public health. Further, costs associated with treatment and technologies to meet these low levels can be extremely high, and a cost-benefit analysis must be conducted to demonstrate that the financial burdens provide an added benefit to water customers.

The MVWA is confident that we will continue to produce high quality water for you at reasonable costs. We encourage you to review this detailed report and forward any comments or concerns to the following:

Philip A. Tangorra
Director of Water Quality
Mohawk Valley Water Authority
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Utica, New York 13502

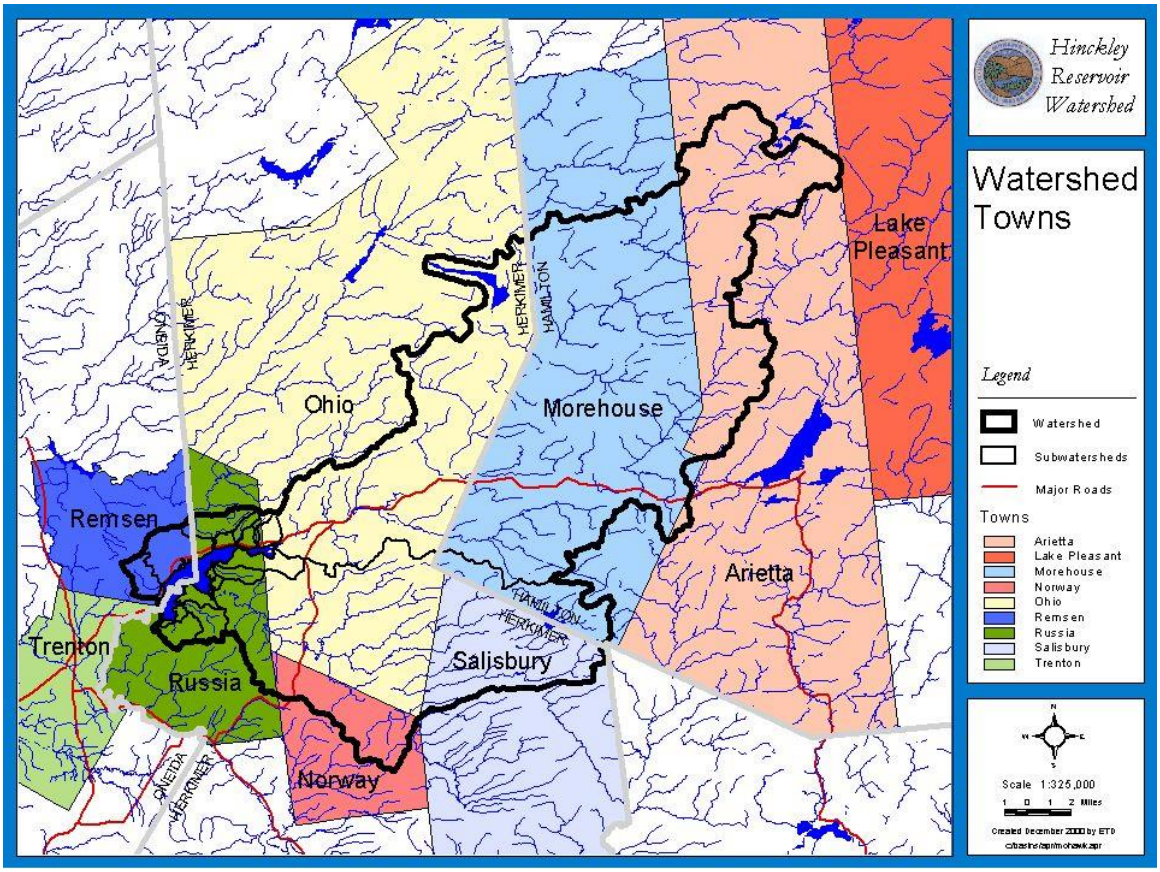
HOW WE TREAT YOUR DRINKING WATER

SOURCE

Pure Adirondack Mountain Water

North of the Mohawk and Hudson Rivers is the largest public parkland in the forty-eight contiguous United States: the Adirondack Park. Covering one-third of New York State - and containing an area approximately the size of the state of Vermont - the 6 million acre Adirondack Park contains thousands of acres of mountain and forestland. Over half of this land is protected by New York State legislation, which assures it will remain forever wild.

The Mohawk Valley Water Authority watershed can be found within this land. The 374 square mile watershed is 89% forested, and much of it falls within the Adirondack Park. The water we drink gathers in the streams and creeks of this remote Adirondack mountain watershed, far from settled areas and farmland, limiting the chance of pollution from people or agricultural runoff. These tributaries drain into the West Canada Creek, which carries our water to the New York State - owned Hinckley Reservoir, our water-supply reservoir. It is here that our water begins its journey through the pipes of the Mohawk Valley Water Authority system to thousands of homes and businesses.

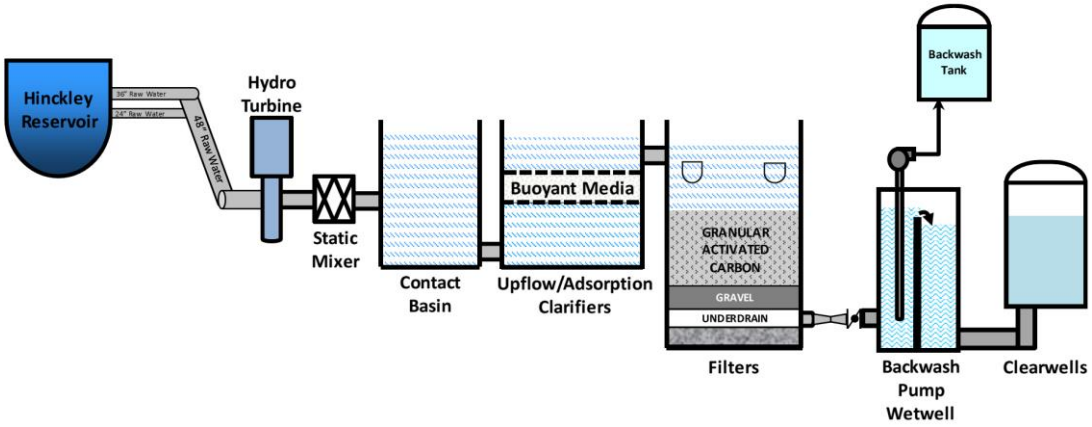


Hinckley Reservoir Watershed

FILTRATION

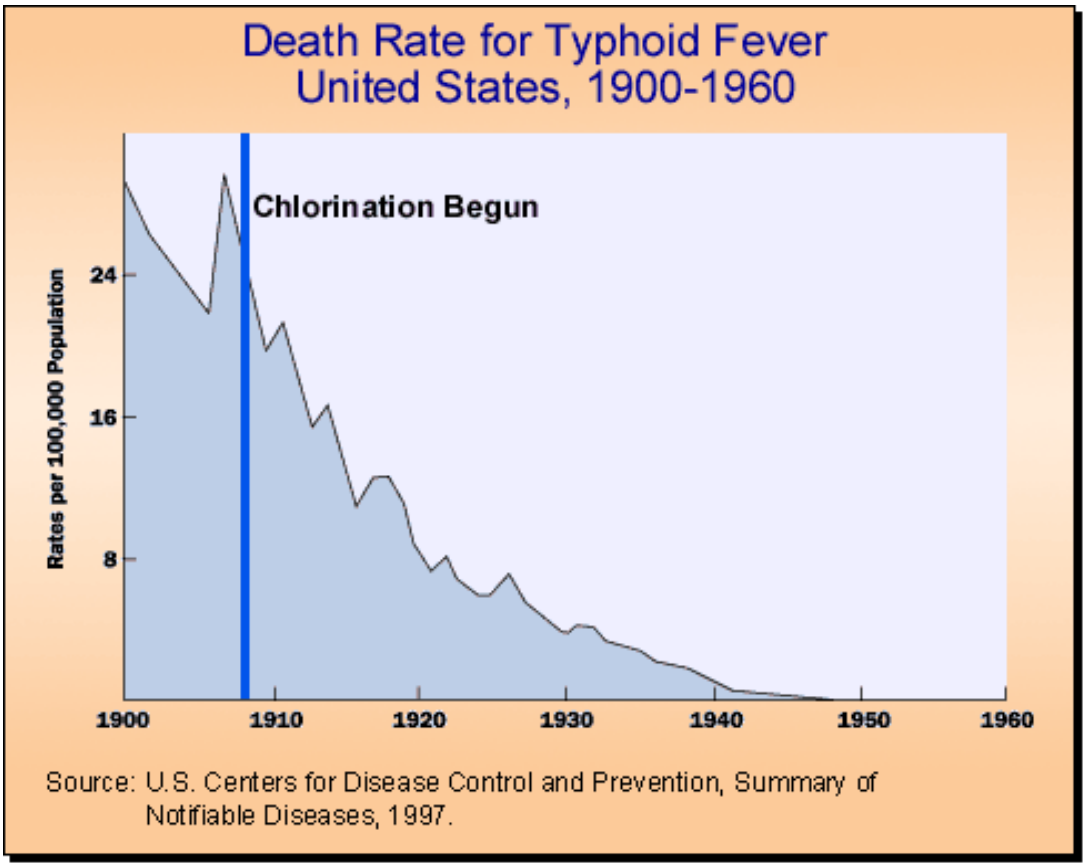
In 1986, the New York State Department of Health (NYSDOH) directed the City of Utica to construct a water treatment plant to ensure quality drinking water. After four years of testing, planning, and design, construction on an $18 million dollar drinking water treatment facility began in 1990 at a site in the Town of Trenton. The facility became operational in December 1992. The 32 million gallon per day (MGD) treatment plant is a direct filtration facility with upflow clarifiers. This process filters out most of the natural organic water and 99.9% of bacteria from the water. Also, due to the elimination of most of the organic matter in our water there is less taste, color and odor.

The water must now be disinfected through a process of chlorination. With less organic matter in the water, there is minimal chemical reaction with the chlorine. Once the water is chlorinated, any remaining potentially harmful bacteria are destroyed. MVWA keeps a small residual amount of chlorine in the distribution system to act as a protective barrier against contamination.



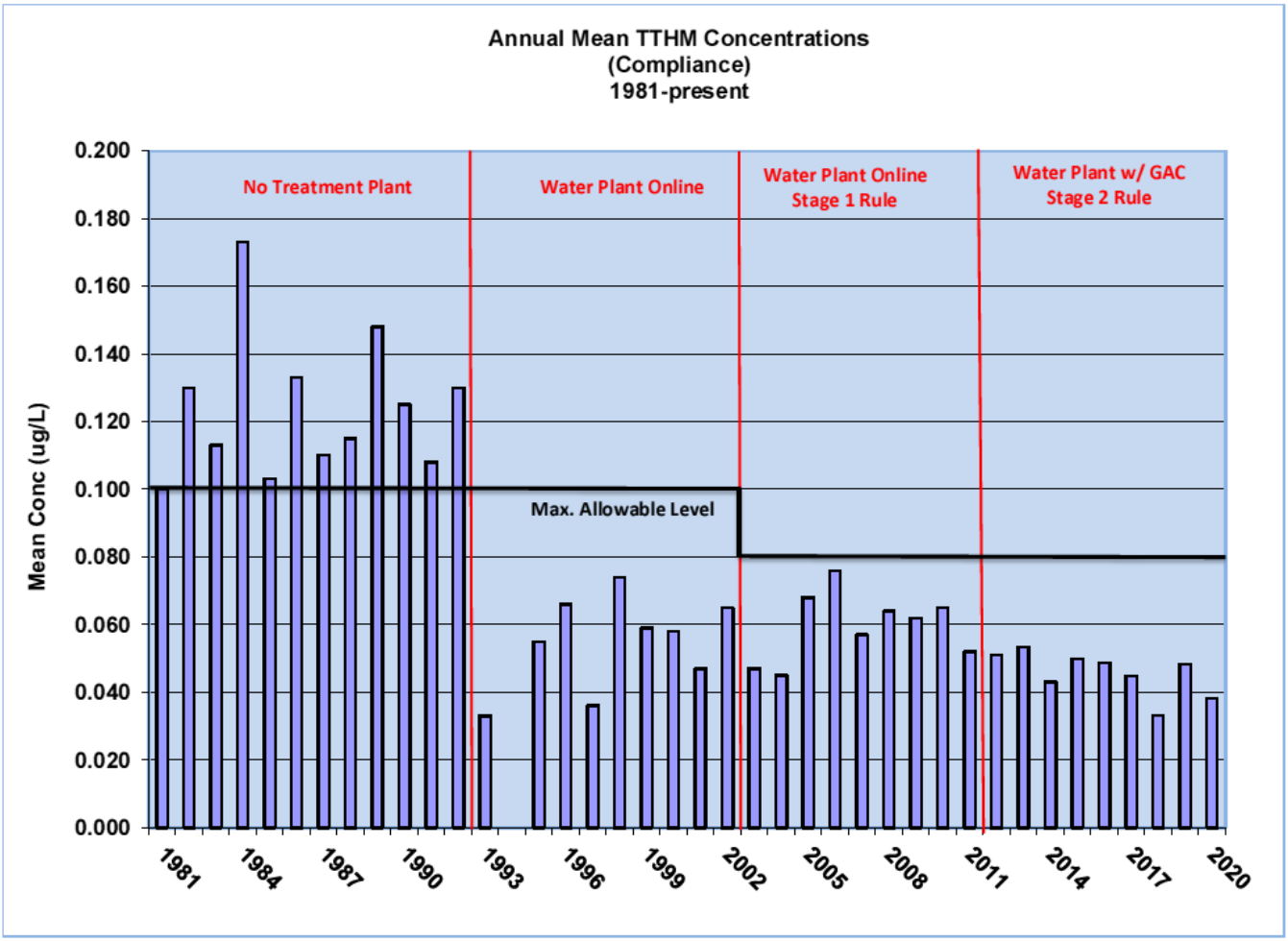
CHLORINATION AND THMs

Most public water systems have been chlorinated since the turn of the century, when it was recognized that waterborne diseases could be eliminated, or at least greatly reduced, by disinfection. The first city to use chlorination in the United States was Jersey City, NJ, when Dr. John Leal began adding sodium hypochlorite to the water supply in 1908. The effect of chlorination on waterborne disease is easily demonstrated using death rate statistics for typhoid fever, a waterborne disease caused by the bacteria *Salmonella typhi*, as death rates for typhoid fever were virtually eliminated as communities began to chlorinate the drinking water. Ironically, while chlorination protects us from bacterial disease, it caused a problem of another nature.



Our Adirondack water is rich with the organic elements pure mountain streams are made of silt, tree twigs, bark and leaves. When chlorine mixes with the naturally-decaying organic matter found in most lakes and streams, compounds of trihalomethanes (THMs) are created. Above certain concentrations, THMs are carcinogenic. The treatment plant, through filtration, has eliminated the problem with THMs.

In 2012, the regulations on THMs were again tightened. In anticipation of the changes, MVWA spent several years and significant dollars to find an appropriate solution to remain compliant. Granular activated carbon (GAC) was determined to be the best available technology and since 2011, MVWA has annual swapped out its filter media with new GAC to remain within regulatory limits. The bar graph that follows demonstrates how MVWA has remained in compliance as regulations related to disinfection byproducts and trihalomethanes have evolved and become more stringent over the past 40 years.



Average annual concentrations of all regulatory samples collected per year for trihalomethanes.

RESULT - QUALITY

Mohawk Valley Water Authority provides its customers with a drinking water that meets the demands of the community and the standards of the federal, state, and local government. The water system, its processes, and most importantly, our staff of nearly 85 employees provide assurance that the water we serve is of sufficient quantity and superior quality. Through routine preventative maintenance, online and daily laboratory analysis, an active capital program, and continuing education opportunities for our staff, MVWA is truly invested in the quality of water we provide. The challenges the drinking water industry faces continue to change, and MVWA is well-positioned to adapt and respond to continue the high level of service and water quality that our customers deserve.

FACILITY FACTS

SOURCE OF SUPPLY

Adirondack Watershed - 374 square miles

Hinckley Reservoir

WATER TREATMENT PLANT CAPACITY

32 million gallons per day maximum

19 million gallons per day average

Hinckley Water Treatment Plant, circa 2000.

RAW WATER PIPELINES

36" and 24"

PROCESS

Rapid mix - in-line static mixer
Contact basins - 2 basins - 50' x 150'
Absorption clarifiers - 4 clarifiers - 626 sq. ft. each
Filters - 4 filters - 1248 sq. ft. each
Backwash tank - 769,000 gallon
Clearwells - 2 tanks – 2.2 million gallons
Waste disposal - 3 lagoons, 6.2 acres

CHEMICAL FEED

Soda ash
Alum
Polymer
Chlorine
Lime
Fluoride

SITE SIZE

62.6 acres total

THE TEAM THAT DISTRIBUTES WATER TO YOUR DOOR

The Mohawk Valley Water Authority operates and maintains a distribution system of more than 650 miles of pipeline ranging in size from 3/4" to 36" in diameter. The system also includes approximately 8,500 valves, 3,600 hydrants, and 38,975 service connections that are all maintained by Water Authority forces.

In any given year, our crews respond to an average of 300 leaks. The MVWA's repair crew is on call 24-hours a day to respond to leaks, water quality inquires, and other emergencies.

During normal working hours, crews are involved in preventative maintenance programs on valves and hydrants to ensure that the system operates efficiently. In the Water Quality Lab, technicians analyze samples from the source, treatment plant, and distribution systems to evaluate the treatment process and overall system quality daily. In 2020, over 28,500 tests were performed in the laboratory on the water that we serve.

WATER SYSTEM MAINTENANCE AND CAPITAL IMPROVEMENT SUMMARY

The Engineering, Distribution and Maintenance Departments continued to implement major physical and operational improvements throughout the Regional Transmission and Distribution System and Facilities in 2020. Nearly $4,000,000 in Improvements were completed with another $15,000,000 in various stages of design or construction. The Departments were able to accomplish these projects despite the loss of significant staff resources due to COVID work force reduction in the Spring and various personnel quarantined throughout the year.

MVWA utilizes system management tools to improve water service reliability and ensure sustainability throughout the Regional Water System. These management tools include the system–wide all pipe hydraulic model that is continually updated as improvements are completed. The model can also be utilized for water quality modeling. Real- time remote monitoring of pressure, flow and water quality parameters is accomplished utilizing the MVWA SCADA System. A system-wide replacement program of the SCADA system (electronic remote monitoring) is underway starting at the water Treatment Plant. The GIS/Mapping system and annual Leak Detection Survey allows the tracking and reporting of water accountability for

reducing unaccounted for water.

The Departments are also responsible for preparing, bidding, and administering routine annual contracts for commodities and services including: Water Main Materials, Leak Detection, Generator Maintenance, Fence Repairs, Tree Removals, Backflow Testing, Asphalt Paving and Concrete repairs and numerous other System needs. There is also an annual Tank Diving contract that permits the cleaning and inspection of the tanks while they remain in service thus eliminating lengthy service interruptions.

A program to begin replacement of key valves in chambers with packaged PRV Chambers was undertaken in 2020. These types of valves automatically regulate system flow and pressure. Failures can cause pressure fluctuations and cause main breaks. Repairs and upgrades to the chambers to improve access and safe working conditions also continue.

Department staff are active members of several professional associations and their governing Boards. While activity was reduced due to COVID, MVWA staff remained involved remotely. Presentations have typically been made the, the NY Section American Water Works meeting, at the ESRI Annual Conference, the Mohawk Valley Environmental Information Exchange, the NYS Geo-Con Fall meeting and the American Academy of Environmental Engineers and Scientists meeting among others.

PROJECTS AND OPERATIONS IN FY 2020 INCLUDED:

FACILITIES – PUMPSTATIONS, CHEMICAL TREATMENT BUILDINGS, WATER STORAGE TANKS AND KEMBLE ST. MAINTENANCE FACILITY

Significant work has been undertaken in the past several years to upgrade Pump Stations and Tanks ranging in age from 40 to 100+ years old. This included constructing the new 1,200,000-gallon Snowden Hill Rd. High Service Zone Tank and preparing plans and bidding the rehabilitation of the Welsh Bush Rd. concrete tank. General building Improvements including lighting and access related safety upgrades, security door replacements and exterior wall repairs. Motors, Pumps and Control Drives were replaced at two (2) Pump Stations. Plans were advanced for further building renovations, electrical upgrades and new generators at several locations. Improvements continued at the Kemble St. Maintenance Facility to provide a new two (2) bay material storage bunker, access stairs, concrete floor replacements, and install an industrial capacity rack storage system. One liquid chlorine feed facility was decommissioned since it was no longer required due to improved system residuals.

WATER MAIN REPLACEMENT & EXTENSIONS, LARGE VALVE REPLACEMENTS, TRANSMISSION MAINS, NYSDOT RT. 5S, & MVHS WATER MAIN IMPROVEMENTS COORDINATION

The MVWA continued to support the NYSDOT as they completed their Rt. 5S reconstruction project with replacement water main design and field services for nearly 7,000 feet of new and relocated mains up to 20” in diameter including hydrants, and services. The MVWA also supported the MVHS new downtown hospital and the NEXXUS project that replaced

approximately 4,000 feet of older downtown mains and numerous aged services. The cost of these mains was paid for by the DOT or MVHS and are not included in the $4,000,000 noted above. Two (2) 24“ valves were installed on Transmission Mains in Marcy and 1,800 feet of new 24 “ diameter main was installed on the Cavanaugh Rd. Tank site along with a new metering chamber and multiple isolation valves. Topographic survey was also completed for 3,500 feet of replacement main in New Hartford that is under design for construction in 2021

HYDRAULIC CONTROL VALVES MAINTENANCE AND IMPROVEMENTS

Hydraulic control valves include: Pressure Reducing Valves (PRVs), Pump Control Valves and Altitude Valves. The MVWA has over 150 of these types of valves in the system. These stations were inspected/adjusted and significant PRV improvement work was undertaken at several sites including repair of the Cavanaugh Rd. Tank 18” Altitude valve and the Trenton Rd. Tank 12” Valve. A new prefabricated PRV Chamber was specified and bid, and installation was completed in early 2020 replacing an aging, very constricted one in East Utica. Two more are planned for 2021 as are 10+ replacement remote pressure monitors were approved.

RAW WATER MAINS & NORTH AND SOUTH PIPE BRIDGES

Easements maps for the Phase 1 Raw Water Main (RWM) Pipe Bridge were prepared and the Phase 2 RWM Topographic and Environmental surveys were completed, and the Soil Borings were bid for early 2021 field work. A WIIA grant for Phase 2 of the Raw Water Mains at $3m was received in late 2019 and the balance of the project cost, $7m was included in the 2020 bonding. A 50% Design Package for the New Bridge is complete. A Geotech Report was completed the North Pipe Bridge which is designated for renovations and coating in the next several years.

FEMA PROGRAM to REPAIR “HALLOWEEN 2019 STORM” DAMAGE

FEMA has approved a number of water main and stormwater facilities repairs, and for consideration under their funding program for storm damage repairs and improvements. The MVWA has identified four (4) separate project types in multiple locations for a total of 24 projects estimates at over $5,000,000 in project costs. All of these projects may qualify for the 87.5% funding. The MVWA has included $500,000 in the 2020 Bonding to cover MVWA’s share of the funding in anticipation of significant FEMA awards. The new FEMA policy is to incorporate resiliency wherever practical to accommodate future storm events without a repeat of significant damages. To approve these types of improvements, FEMA requires engineered plans and studies which were commenced in late 2020.

WATER QUALITY DEPARTMENT

The Water Quality Department is responsible for monitoring and ensuring that the water produced and delivered by the Mohawk Valley Water Authority meets or exceeds the water quality standards set by New York State and the Federal government. The department operates

the in-house laboratory, obtains outside analytical services, sets standards for water treatment operations and conducts research projects. The research projects are used to solve problems and to prepare to meet future regulatory requirements. As new requirements are put into effect, the Mohawk Valley Water Authority will have to alter its treatment process to meet these standards. Our research activities will allow us to determine which treatment processes are the most effective for achieving the highest quality water in a cost-effective manner and make sure that we are ready to meet new standards as they are proposed and implemented.

In 2020, the laboratory continued to expand its accredited offering for water analysis by initiating a request for additional certifications for total organic carbon, dissolved organic carbon, sulfate, and turbidity. It is anticipated full accreditation will be granted in 2021. This builds upon the sound platform of testing the water quality department MVWA is proud to have a NELAC accredited laboratory for process control to serve the needs of our customers. Customers of MVWA can be assured that the testing offered in our laboratory meets the quality standard established by the NYS Environmental Laboratory Approval Program.

In 1996, as MVWA emerged from the former City of Utica Water Board, the Water Quality Laboratory expanded its capabilities to include a pathogenic protozoan testing facility. This effort was discontinued in 2019 as the regulatory requirements for this testing ceased. If the need should arise, we are well positioned to re-start the monitoring program.

Since 1999, the department has had an active watershed monitoring program. Each month of the sampling season, samples are collected from several tributaries feeding our source, Hinckley Reservoir, as well as the intakes that send water to the WTP. This data is analyzed to trending and to monitor for changes in the watershed. A great benefit of a well-protected watershed such as ours is that water quality remains relatively consistent over time, which tends to help stabilize the treatment process.

The Water Quality Department is also an active member of the Water Research Foundation (WRF) and continues to participate in research projects with colleagues globally. Current research initiatives include:

- Analysis of Corrosion Control Treatment for Lead and Copper, (WRF#: 5032; Cornwell Engineering Group / Arcadis US Inc.).

- Leading Water Utility Innovation, (WRF#: 4907; Arcadis US Inc.).

Due to the pandemic, in 2020, the Water Quality Department staff was limited in its ability to present research papers concerning water quality and operations. Many events were postponed or cancelled while others moved to a virtual format. In keeping with our strategic plan and company goals, we will continue these efforts and make a difference in the water quality field in 2021. Staff have also been proactive in providing opportunities for students in the community to observe, job-shadow, or intern within the department. Additionally, our staff will resume presentations to classes at all age levels, speaking on various topics including water quality, job opportunities, and environmental stewardship.

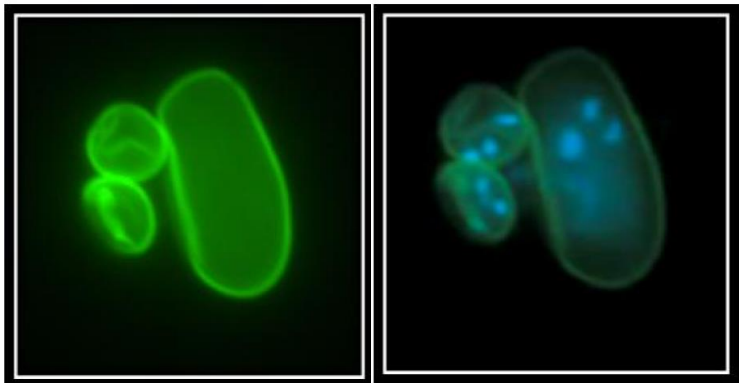
Beginning in August of 2017, MVWA entered into a partnership with Suez for the daily operation and maintenance of the Water Treatment Plant and related facilities. This 5-year contract provides the on-site leadership and technical support to enhance employee health & safety for those staffing the WTP and provides additional perspectives to remain in compliance with regulations. This unique relationship has MVWA well positioned for the future.

WATER QUALITY REGULATIONS

In 1974, Congress passed the Safe Drinking Water Act, which set federal standards for drinking water. At that time, 22 contaminants were regulated. In 1986, the Act was amended to regulate many more contaminants and to further reduce acceptable levels of some contaminants. Currently more than 90 contaminants are regulated in potable water. The U.S. Environmental Protection Agency (USEPA) continually evaluates contaminant risk and occurrence as well as the need to regulate additional contaminants through various programs, including the Contaminant Candidate List (CCL) and the Unregulated Contaminant Monitoring Rule (UCMR). These federal standards can be adopted (and occasionally made more stringent) by the New York State Sanitary Code.

The Water Quality Laboratory ensures compliance with the federal and state regulations in part by continuous in-house sampling and testing. Samples are taken around the clock every day through our SCADA system, by the water treatment plant operators, and by MVWA staff. These samples are used to test for total coliform bacteria, pH, turbidity, chlorine residuals, fluoride concentration, and several other parameters as well.

Many of the regulated contaminants are tested less frequently on a schedule established in state and federal regulations. These include inorganics (metals and non-metals), organics (chemical solvents, pesticides, herbicides, hydrocarbons), asbestos, and radioactive compounds. For most of these substances, testing shows no detectable amounts present in our water.



Microscopic (1000x) images of *Cryptosporidium* sp. (circular-shape; left side of images) & *Giardia* sp. (oval-shape; right side of images).

The Long Term 2 Enhanced Surface Water Treatment Rule (LT2) and the Stage 2 Disinfection/Disinfection Byproducts (Stage 2 DBP) Rule were enacted by EPA in January 2006. The LT2 rule requires most systems to monitor their raw source water for *Cryptosporidium* for a period of 2 years and then provide additional treatment of the water if levels are greater than

threshold limits established by the rule. Levels established during the required monitoring periods for MVWA determined that no additional treatment was needed for *Cryptosporidium* control. The LT2 Rule also requires all systems with uncovered finished water reservoirs (UFWR) to remove those reservoirs from service, cover them, or treat the effluent leaving the UFWR. The uncovered finished water reservoirs were completely taken offline during the summer of 2008. A 10-million-gallon tank is now located north of the Deerfield Reservoir, two 6 million-gallon tanks were constructed at the Marcy Summit and a 3-million-gallon tank has been located on the Marcy Reservoir property.

The Stage 2 DBP Rule requires large water suppliers to systematically identify areas in the distribution system with the worst potential for disinfection byproduct formation (DBP) and to select new monitoring sites from this process. Further, this rule requires each new site's running annual average to follow federal limits of 0.080ppm for Total Trihalomethanes (TTHM) and 0.060ppm for Haloacetic Acids (HAAs). Prior to this rule all monitoring sites were averaged to achieve an overall distribution average for regulatory compliance. Since 2011, MVWA has used GAC to enhance organics removal from the water and meet the Stage 2 rule requirements.

The Water Quality Department continually researches treatment techniques to ensure compliance with these regulations and to prepare for any potential compliance issues for contaminants on the regulatory horizon. In 2018, from results of research conducted and analyzed onsite by MVWA personnel, the NYS DOH granted the Authority permission to use reactivated GAC in our filter beds. This process of removing spent filter media and reactivating it offsite and then returning it for use equated to a $284,000 annual savings for our customers and provided equivalent removals of disinfection byproduct precursors. The use of GAC in the filters serves to more effectively remove natural organic matter that can serve as the precursors for DBP formation in the distribution system after chlorination.

The results of the testing required by the Safe Drinking Water Act are submitted regularly to the Oneida County and New York State Health Departments. Since the opening of the new water treatment plant in 1992, the water quality has vastly improved and the water is either meeting or exceeding the water quality standards.

WHAT CHEMICAL COMPOUNDS AND BACTERIA DO WE FIND IN THE DRINKING WATER?

Drinking water contains many different chemical compounds, many of which occur in nature. Some of these, such as minerals, impart a flavor to the water and prevent it from tasting bland. Other chemicals, such as heavy metals or pesticides, are contaminants that can affect health if ingested and must be removed or reduced to acceptable levels set by the US Environmental Protection Agency (USEPA) and the New York State Health Department. Most of these contaminants do not appear in nature. We test for many groups of compounds. These include: Volatile Organic Chemicals, Synthetic Organic Chemicals, Inorganic chemicals including metals and non-metals, Pesticides, Radionuclides, Asbestos, Trihalomethanes, and some unregulated compounds.

Many of the compounds that we test for have maximum contaminate levels (MCLs), which

are established by state and federal regulation. The maximum level for these compounds is based on health-related information. The presence of these compounds at levels exceeding the maximum allowable level requires immediate public notification to our customers and state officials. The USEPA has not yet set standards for some unregulated compounds. Additional information about any compound on the following list can be obtained from the Water Quality Department.

The 2020 results of testing for the compounds are listed in the following tables. The frequency and amount of testing is mandated by the NYS Health Department and all results are reported to that agency. Parameters such as pH, turbidity, fluoride, and bacterial tests are monitored several times per day. The allowable concentration is the maximum contaminate level or MCL. The MCL is generally in units of milligrams per liter (mg/L) or micrograms per liter (µg/L), but other units are used for some parameters. These and additional information are listed in the tables.

Also listed in the tables is a summary of the bacterial analysis that is performed daily by the Water Quality Laboratory. Testing is done throughout the entire distribution system to monitor for disinfectant residuals, pH, and bacterial content. Several types of bacterial tests are performed. These include: the test for Total Coliform and the test for *Escherichia coli* and Heterotrophic (standard) Plate Counts.

Testing in 2020 has revealed less than one coliform per 100ml in all our monthly monitoring averages. The water that our customers receive is of a superior bacteriological quality.

2020 ANALYTICAL RESULTS

TABLE 1. EPA 200.7 / 200.8 TOTAL METALS BY ICP/MS

TOTAL METALS	MCL (mg/L)*	RESULTS (mg/L)
Antimony	0.006	< 0.001
Arsenic	0.010	< 0.001
Barium	2.00	0.0077
Beryllium	0.004	< 0.001
Cadmium	0.005	< 0.001
Chromium	0.100	< 0.002
Iron	0.300	< 0.100
Manganese	0.300	<0.010
Mercury	0.002	< 0.0002
Selenium	0.05	< 0.002
Silver	0.1	< 0.001
Sodium	NL**	18.0
Thallium	0.002	< 0.001
Zinc	5.0	< 0.005

*MCL = Maximum Contaminant Level
**Water containing more than 20 mg/L of sodium should not be used for drinking by people on severely restricted sodium diets.
**Water containing more than 270 mg/L of sodium should not be used for drinking by people on moderately restricted sodium diets.

TABLE 2. EPA 335.4 TOTAL CYANIDE

TOTAL CYANIDE	MCL (mg/L)	RESULTS (mg/L)
Cyanide	0.2	< 0.005

TABLE 3. MISCELLANEOUS PARAMETERS

Parameter	MCL	Results	Units
Chloride	250	6.3	mg/L
Fluoride	2.2	0.7	mg/L
Color	15	4	Color units
Odor	3	ND	Odor units
Sulfate	250	14.6	mg/L

TABLE 4. SECONDARY CHARACTERISTICS

ANNUAL AVERAGES FOR YEAR 2020
(Raw Water vs. Finished Drinking Water)

PARAMETER	UNIT OF MEASURE	ALLOWABLE CONC	HINCKLEY RESERVOIR (Raw Water)	CAVANAUGH TANK* (Finished)
ALKALINITY	mg/L AS CALCIUM CARB	NL	18	45
TOTAL HARDNESS	mg/L AS CALCIUM CARB	NL	22	27
CALCIUM HARDNESS	mg/L AS CALCIUM CARB	NL	17	21
CHLORIDES	mg/L	250	3.6	5.4
TURBIDITY	NTU	5.0	1.2	0.3
pH	pH UNITS	NL	7.02	9.43
COLOR	COLOR UNITS	15	27	0.6
IRON	mg/L	0.3	0.172	0.017
CONDUCTIVITY	µMHO/cm	NL	52.7	129
TOTAL DISSOLVED SOLIDS	mg/L	NL	24.7	60.8
FLUORIDE	mg/l	4.0	0.07	0.68

***Distribution water - site is representative of distribution water throughout system**

TABLE 5. NITRATE

PARAMETER	UNIT OF MEASURE	ALLOWABLE CONCENTRATION	RESULT
NITRATE	mg/L	10	0.19

TABLE 6. TOTAL ORGANIC CARBON

PARAMETER	UNIT OF MEASURE	ALLOWABLE CONC	HINCKLEY RESERVOIR (Raw Water)	FILTRATION PLANT (Finished)
TOC	mg/L	NL	4.23	0.97
UV_{254}	Abs cm^{-1}	NL	0.148	0.013
SUVA		NL	3.49	1.41
% TOC Removal		NL	--	77.2%

TABLE 7. VOLATILE ORGANIC COMPOUNDS, PESTICIDES, HERBICIDES

VOLATILE ORGANICS		
Parameters	Results	Units
Acetone	3.8*	µg/L
1,1,1,2-Tetrachloroethane	0.50 U	µg/L
1,1,1-Trichloroethane (TCA)	0.50 U	µg/L
1,1,2,2-Tetrachloroethane	0.50 U	µg/L
1,1,2-Trichloroethane	0.50 U	µg/L
1,1-Dichloroethene (1,1-DCE)	0.50 U	µg/L
1,1-Dichloropropene	0.50 U	µg/L
1,2,3-Trichlorobenzene	0.50 U	µg/L
1,2,3-Trichloropropane	0.50 U	µg/L
1,2,4-Trichlorobenzene	0.50 U	µg/L
1,2,4-Trimethylbenzene	0.50 U	µg/L
1,2-Dichlorobenzene	0.50 U	µg/L
1,2-Dichloroethane	0.50 U	µg/L
1,3,5-Trimethylbenzene	0.50 U	µg/L
1,3-Dichlorobenzene	0.50 U	µg/L
1,3-Dichloropropane	0.50 U	µg/L
1,4-Dichlorobenzene	0.50 U	µg/L
2,2-Dichloropropane	0.50 U	µg/L
2-Chlorotoluene	0.50 U	µg/L
4-Chlorotoluene	0.50 U	µg/L
p-Isopropyltoluene	0.50 U	µg/L
Benzene	0.50 U	µg/L
Bromobenzene	0.50 U	µg/L
Bromochloromethane	0.50 U	µg/L
Bromomethane	0.50 U	µg/L
Carbon Tetrachloride	0.50 U	µg/L
Chlorobenzene	0.50 U	µg/L
Chloroethane	0.50 U	µg/L
Chloromethane	0.50 U	µg/L

VOLATILE ORGANICS		
Parameters	Results	Units
Dibromomethane	0.50 U	µg/L
Dichlorodifluoromethane (CFC 12)	0.50 U	µg/L
Methylene Chloride	0.50 U	µg/L
Ethylbenzene	0.50 U	µg/L
Hexachlorobutadiene	0.50 U	µg/L
Isopropylbenzene (Cumene)	0.50 U	µg/L
Methyl tert-Butyl Ether	0.50 U	µg/L
Styrene	0.50 U	µg/L
Tetrachloroethene (PCE)	0.50 U	µg/L
Toluene	0.50 U	µg/L
Trichloroethene (TCE)	0.50 U	µg/L
Trichlorofluoromethane (CFC 11)	0.50 U	µg/L
Vinyl Chloride	0.50 U	µg/L
cis-1,2-Dichloroethene	0.50 U	µg/L
cis-1,3-Dichloropropene	0.50 U	µg/L
m,p-Xylenes	0.50 U	µg/L
n-Butylbenzene	0.50 U	µg/L
n-Propylbenzene	0.50 U	µg/L
o-Xylene	0.50 U	µg/L
sec-Butylbenzene	0.50 U	µg/L
tert-Butylbenzene	0.50 U	µg/L
trans-1,2-Dichloroethene	0.50 U	µg/L
trans-1,3-Dichloropropene	0.50 U	µg/L
1,1-Dichloroethane (SPCC)	0.50 U	µg/L
1,2-Dichloropropane (CCC)	0.50 U	µg/L
1,2-Dibromo-3-chloropropane	ND	µg/L
1,2-Dibromoethane	ND	µg/L

SEMIVOLATILES		
Parameters	**Results**	**Units**
Aldrin	ND	µg/L
gamma-BHC	ND	µg/L
Chlordane	ND	µg/L
Dieldrin	ND	µg/L
Endrin	ND	µg/L
Heptachlor	ND	µg/L
Heptachlor Epoxide	ND	µg/L
Hexachlorobenzene	ND	µg/L
Hexachlorocyclopentadiene	ND	µg/L
Methoxychlor	ND	µg/L
Polychlorinated Biphenyls	ND	µg/L
Toxaphene	ND	µg/L
Aroclor-1016	ND	µg/L
Aroclor-1221	ND	µg/L
Aroclor-1232	ND	µg/L
Aroclor-1242	ND	µg/L
Aroclor-1248	ND	µg/L
Aroclor-1254	ND	µg/L
Aroclor-1260	ND	µg/L
Alachlor	ND	µg/L
Atrazine	ND	µg/L
Benzo(a)pyrene	ND	µg/L
Butachlor	ND	µg/L
Di(2-Ethylhexyl)adipate	ND	µg/L
bis(2-Ethylhexyl)phthalate	ND	µg/L
Metolachlor	ND	µg/L
Metribuzin	ND	µg/L
Propachlor	ND	µg/L
Simazine	ND	µg/L
2,3,7,8-TCDD (Dioxin)	ND	pg/L

CARBAMATES - EPA 531.1		
Parameters	**Results**	**Units**
Aldicarb	< 0.50	µg/L
Aldicarb Sulfone	< 0.80	µg/L
Aldicarb Sulfoxide	< 0.50	µg/L
Carbaryl	< 1.0	µg/L
Carbofuran	< 0.90	µg/L
3-Hydroxycarbofuran	< 1.0	µg/L
Methomyl	< 1.0	µg/L
Oxamyl	< 1.0	µg/L

PESTICIDES		
Parameters	**Results**	**Units**
Acifluoren	ND	µg/L
2,4-D	ND	µg/L
Dalapon	ND	µg/L
Dicamba	ND	µg/L
Dinoseb	ND	µg/L
Diquat	ND	µg/L
Endothall	ND	µg/L
Glyphosate	ND	µg/L
Pentachlorophenol	ND	µg/L
Picloram	ND	µg/L
2,4,5-T	ND	µg/L
2,4,5-TP	ND	µg/L

NOTES: Conc: Concentration
ND – Non-detected
NL- no limit at this time
NTU Nephlometric turbidity units
< or U – less than or undetected
*MCL is 50 µg/L for acetone

TABLE 8. MICROBIOLOGICAL ANALYSIS

DISTRIBUTION SYSTEM 2020

PARAMETER	UNIT OF MEASURE	ALLOWABLE CONCENTRATION	RESULT AVERAGE
TOTAL COLIFORM BACTERIA	**BACTERIA PER 100 mL**	**< 5%**	**0.0%**
E. coli	**BACTERIA PER 100 mL**	**< 1 PER 100 mL**	**< 1 PER 100 mL**

- MVWA averaged 199 Total Coliform samples per month in 2020. A minimum of 100 samples/month are required to be collected.
- Zero (0) samples out of 2,383 total routine samples collected in 2020 were found to contain Total Coliform.
- Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful bacterium may be present.
- It should be noted that *E. coli*, associated with human and animal fecal waste, was also not found in any of the samples collected.

TABLE 9 (a), (b). THM/HAA ANALYSIS

(a) - TOTAL TRIHALOMETHANE LEVELS (TTHM) - 2020 Monitoring Results

Year 2020	AVERAGE TTHM (µg/L)
Stage 2 D/DBP Samples	**38.2 (RANGE 4.9 – 91.4)**
ALLOWABLE AVERAGE LIMIT (MCL)	**80**

(b) - HALOACETIC ACID LEVELS (HAA) - 2020 Monitoring Results

Year 2020	AVERAGE HAA (µg/L)
Stage 2 D/DBP Samples	**14.2 (RANGE 0.0 – 26.9)**
ALLOWABLE AVERAGE LIMIT (MCL)	**60**

TABLE 10. RADIOLOGICAL ANALYSIS
(Sample Date: 09/29/2020; Sampling Frequency = Once every 9 years)

	LEVEL ALLOWED	RESULT
GROSS ALPHA	**15 pCi/L**	**1.58**
GROSS BETA		**0.455**
RADIUM -226		**0.150**
RADIUM -228		**0.642**
COMBINED RADIUM	**5 pCi/L**	**0.792**
TOTAL URANIUM	**30 µg/L**	**0.051**

TABLE 11. ASBESTOS ANALYSIS
(Sample Date: 03/20/2017; Sampling Frequency = Once every 9 years)

	LEVEL ALLOWED	RESULT
CHRYSOTILE		**<AS**
AMOSITE		**<AS**
CROCIDOLOTE226		**<AS**
ACT-TREMOLITE		**<AS**
ANTHOPHYLLITE		**<AS**
TOTAL ASBESTOS	**7.0 million fibers/liter (MFL; longer than 10 microns)**	**<AS**

<AS = LESS THAN ANALYTICAL SENSITIVITY

TABLE 12. SAMPLE LEAD MONITORING
(2018; Sampling requirement = 50 samples every 3 years).

SITE NO.	LEAD RESULTS (ppb)	SITE NO.	LEAD RESULTS (ppb)
1	<1.0	**27**	5.2
2	<1.0	**28**	5.3
3	<1.0	**29**	5.5
4	<1.0	**30**	5.7
5	<1.0	**31**	5.7
6	<1.0	**32**	5.8
7	0.0	**33**	5.9
8	1.6	**34**	6.4
9	1.8	**35**	6.6
10	1.9	**36**	6.6
11	2.2	**37**	6.7
12	2.3	**38**	6.9
13	2.7	**39**	7.5
14	2.9	**40**	8.7
15	3.1	**41**	8.8
16	3.1	**42**	8.9
17	3.1	**43**	8.9
18	3.2	**44**	9.3
19	3.2	**45**	9.4
20	3.8	**46**	12.4
21	4.0	**47**	13.0
22	4.2	**48**	13.1
23	4.3	**49**	16.3
24	4.9	**50**	17.4
25	4.9	**51**	20.7
26	5.1	**52**	41.9

N0TE:
1) 90th percentile: Sample #47 = 0.130 mg/l or 13.0 ppb lead.

Federal regulations require the 90th percentile lead level to be 15 ppb or lower. Next required monitoring: 2021

TABLE 13. UNREGULATED CONTAMINANT MONITORING RULE (UCMR4) - CYANOTOXINS

Sample Date	CYANOTOXINS		
	Total Microcystin (µg/L)	Anatoxin-a (µg/L)	Cylindrospermopsin (µg/L)
8/6/2018	<MRL*	<MRL	<MRL
8/20/2018	<MRL	<MRL	<MRL
9/4/2018	<MRL	<MRL	<MRL
9/17/2018	<MRL	<MRL	<MRL
10/1/2018	<MRL	<MRL	<MRL
10/15/2018	<MRL	<MRL	<MRL
11/5/2018	<MRL	<MRL	<MRL
11/19/2018	<MRL	<MRL	<MRL
*MRL = Minimum Reporting Level	MRL = 0.3	MRL = 0.03	MRL = 0.09

TABLE 14. UNREGULATED CONTAMINANT MONITORING RULE (UCMR4) – DETECTED ANALYTES FROM DISTRIBUTION SYSTEM*

*ND – Not detected. Empty cells indicate analyte not detected in any sample event. Samples Collected: 6/18/2019; 9/17/2019; 12/17/2019; 3/16/2020

		Distribution Sites								Raw Source	Entry Point
	Analyte	**LRAA1 – Judd Rd., Oriskany**	**LRAA2 – Mapledale, Barneveld**	**LRAA3 – Burrstone Rd., Utica**	**LRAA4 – Oneida St., Chadwicks**	**LRAA5 – Bell Hill Rd., Deerfield**	**LRAA6 – Higby Rd., New Hartford**	**LRAA7 – Middle Settlement Rd., New Hartford**	**LRAA8 – Herkimer Rd., Utica**	**Hinckley Reservoir**	**WTP Finished Water**
Haloacetic Acids	Bromochloroacetic Acid	• ND • 0.58 µg/L (9/17/19) • ND • 0.49 µg/L (3/16/20)	• 0.49 µg/L (6/18/19) • 0.54 µg/L (9/17/19) • 0.33 µg/L (12/17/19) • 0.32 µg/L (12/17/19)	• 0.35 µg/L (6/18/19) • 0.60 µg/L (9/17/19) • 0.32 µg/L (12/17/19) • 0.42 µg/L (3/16/20)	• 0.31 µg/L (6/18/19) • 0.50 µg/L (9/17/19) • ND • 0.49 µg/L (3/16/20)	• ND • 0.53 µg/L (9/17/19) • ND • 0.41 µg/L (3/16/20)	• ND • 0.55 µg/L (9/17/19) • 0.32 µg/L (12/17/19) • 0.61 µg/L (3/16/20)	• ND • 0.52 µg/L (9/17/19) • 0.36 µg/L (12/17/19) • 0.41 µg/L (3/16/20)	• 0.32 µg/L (6/18/19) • 0.60 µg/L (9/17/19) • 0.44 µg/L (12/17/19) • 0.43 µg/L (3/16/20)		
	Bromodichloroacetic Acid										
	Chlorodibromoacetic Acid										
	Dibromoacetic Acid										
	Dichloroacetic Acid	• 7.7 µg/L (6/18/19) • 6.2 µg/L (9/17/19) • 8.8 µg/L (12/17/19) • 9.1 µg/L (3/16/20)	• 17.6 µg/L (6/18/19) • 5.4 µg/L (9/17/19) • 8.7 µg/L (12/17/19) • 5.3 µg/L (3/16/20)	• 12.0 µg/L (6/18/19) • 6.3 µg/L (9/17/19) • 7.7 µg/L (12/17/19) • 6.0 µg/L (3/16/20)	• 7.7 µg/L (6/18/19) • 4.9 µg/L (9/17/19) • 5.8 µg/L (12/17/19) • 6.3 µg/L (3/16/20)	• 7.0 µg/L (6/18/19) • 5.1 µg/L (9/17/19) • 4.8 µg/L (12/17/19) • 6.9 µg/L (3/16/20)	• 8.1 µg/L (6/18/19) • 5.1 µg/L (9/17/19) • 8.1 µg/L (12/17/19) • 9.7 µg/L (3/16/20)	• 7.9 µg/L (6/18/19) • 5.4 µg/L (9/17/19) • ND • 7.2 µg/L (3/16/20)	• 10.9 µg/L (6/18/19) • 6.9 µg/L (9/17/19) • ND • 7.5 µg/L (3/16/20)		
	Monobromoacetic Acid										
	Monochloroacetic Acid										
	Tribromoacetic Acid										
	Trichloroacetic Acid	• 17.9 µg/L (6/18/19) • 3.8 µg/L (9/17/19) • 12.4 µg/L (12/17/19) • 8.2 µg/L (3/16/20)	• 15.4 µg/L (6/18/19) • 3.2 µg/L (9/17/19) • 7.5 µg/L (12/17/19) • 4.6 µg/L (3/16/20)	• 15.0 µg/L (6/18/19) • 3.4 µg/L (9/17/19) • 7.7 µg/L (12/17/19) • 4.8 µg/L (3/16/20)	• 15.7 µg/L (6/18/19) • 3.7 µg/L (9/17/19) • 9.6 µg/L (12/17/19) • 8.3 µg/L (3/16/20)	• 17.9 µg/L (6/18/19) • 3.9 µg/L (9/17/19) • 11.0 µg/L (12/17/19) • 5.4 µg/L (3/16/20)	• 19.3 µg/L (6/18/19) • 3.2 µg/L (9/17/19) • 10.3 µg/L (12/17/19) • 7.4 µg/L (3/16/20)	• 15.7 µg/L (6/18/19) • 3.7 µg/L (9/17/19) • 9.6 µg/L (12/17/19) • 6.8 µg/L (3/16/20)	• 15.7 µg/L (6/18/19) • 3.7 µg/L (9/17/19) • 8.8 µg/L (12/17/19) • 5.5 µg/L (3/16/20)		
	Bromide										
	Total Organic Carbon									• 4580 µg/L (6/18/19) • 5240 µg/L (9/17/19) • 4670 µg/L (12/17/19) • 3550 µg/L (3/16/20)	
Semi-volatiles	Butylated Hydroxyanisole										
	Quinoline										
	O-Toluidine										
Alcohols	n-Butanol										
	2-Methoxyethanol										
	2-Propen-1-ol (Allyl alcohol)										
Metals	Germanium										
	Manganese										• 5.2 µg/L (6/18/19) • 4.4 µg/L (9/17/19) • 10.5 µg/L (12/17/19) • 8.5 µg/L (3/16/20)
Pesticides	alpha-BHC										
	Chlorpyrifos										
	Dimethipin										
	Ethoprop										
	Merphos-Oxone										
	Oxyfluorfen										
	Permethrin										
	Profenofos										
	Tebuconazole										

CRYPTOSPORIDIUM/GIARDIA INFORMATION

Cryptosporidium is a disease caused by the parasite *Cryptosporidium parvum*, which as late as 1976 was not known to cause disease in humans. Until 1993, when over 400,000 people in Milwaukee, Wisconsin, became ill with diarrhea after drinking water contaminated with the parasite, few people had heard of either *Cryptosporidiosis* or the single-celled protozoan that causes it.

Since the Milwaukee outbreak, concern about the safety of drinking water in the United States has increased, and new attention has been focused on determining and reducing the risk from *Cryptosporidiosis* from community and municipal water supplies.

Under the new Safe Drinking Water Act that has not been finalized, the U.S. Environmental Protection Agency will require all public water systems over 10,000 people to start looking for *Cryptosporidium* in the sources of their drinking water. Those systems that find the parasite will also have to test their finished water - the water that comes out of the tap for *Cryptosporidium*.

The Mohawk Valley Water Authority's Water Quality Laboratory has recognized the importance of monitoring for this parasite. The Water Quality Laboratory has expanded to become a state of the art facility capable of monitoring for waterborne parasites and pathogens. Both the raw (Hinckley Reservoir) and finished waters were monitored on a regular basis for over 20 years. There is currently no regulatory requirement to continue this monitoring. In fact, we have not been required to sample since 2017. MVWA is satisfied that the data collected during this extensive period is adequate to justify the effectiveness of our treatment process in removing these protozoans. Therefore, MVWA has suspended our protozoan monitoring program effective May 2019.

The best means of controlling the parasite is through a multi-barrier defense of filtration and chlorination. Both processes are performed and monitored at the Water Treatment Plant located in Prospect, New York.

A New York State Health Department Fact Sheet concerning *Cryptosporidiosis* is included with this water quality report. Further questions concerning *Cryptosporidium* can be addressed by contacting the Water Quality Laboratory or the Oneida County Department of Environmental Health.

Information on *Cryptosporidium*

Cryptosporidium is a microbial pathogen found in surface water and groundwater under the influence of surface water. Although filtration removes *Cryptosporidium*, the most commonly-used filtration methods cannot guarantee 100 percent removal. Ingestion of *Cryptosporidium* may cause cryptosporidiosis, a gastrointestinal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy

individuals can overcome this disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their health care provider regarding appropriate precautions to take to avoid infection. *Cryptosporidium* must be ingested to cause disease, and it may be spread through means other than drinking water.

Information on *Giardia*

Giardia is a microbial pathogen present in varying concentrations in many surface waters and groundwater under the influence of surface water. *Giardia* is removed/inactivated through a combination of filtration and disinfection or by disinfection. Ingestion of *Giardia* may cause Giardiasis, an intestinal illness. People exposed may experience mild or severe diarrhea, or in some instances no symptoms at all. Fever is rarely present. Occasionally some individuals will have chronic diarrhea over several weeks or a month, with significant weight loss. Giardiasis can be treated with anti-parasitic medication. Individuals with weakened immune systems should consult with their health care providers about what steps would best reduce their risks of becoming infected with Giardiasis. Individuals who think that they may have been exposed to Giardiasis should contact their health care providers immediately. The *Giardia* parasite is passed in the feces of an infected person or animal and may contaminate water or food. Person to person transmission may also occur in day care centers or other settings where handwashing practices are poor.

CRYPTOSPORIDIOSIS: FACT SHEET

FROM: New York State Health Department

Cryptosporidiosis (krip-toe-spo-rid-e-o-sis) is the disease, often called crypto, caused by a one-celled animal, *Cryptosporidium parvum*, which is too small to be seen without a microscope. When people get infected with *Cryptosporidium*, they can have diarrhea, stomach cramps, an upset stomach, or a slight fever. The first symptoms of *Cryptosporidiosis* may appear 2 to 10 days after a person becomes infected. In a healthy person with a normal immune system, symptoms normally will last for about two weeks or less, although individuals may recover then get worse again. Some people with *crypto* may not get sick, but they can still pass the disease to others. After infection, an individual can pass *Cryptosporidia* in the stool for months and may give the disease to other people. Individuals with severely weakened immune systems may have *Cryptosporidiosis* for a longer time and should talk with their health care providers to learn how to avoid the disease. They can also call the CDC AIDS Hotline at 1-800-342-2437 for more information on *cryptosporidiosis.*

Cryptosporidium infection can be caused by swallowing only a small amount of *Cryptosporidium* oocysts.

Some sources of infection are:

Water

Water in lakes, rivers, streams, pools and jacuzzis may be contaminated with *Cryptosporidium* oocysts. Swallowing this water when swimming or drinking it may cause *cryptosporidiosis.*

Drinking water or ice may also contain *Cryptosporidium. Cryptosporidium* is in many of the lakes and rivers that provide drinking water in the United States. Unlike most germs and one-celled animals, *Cryptosporidium* is not killed by the chlorine used to treat drinking water. Boiling water is the best method of killing *Cryptosporidium*. Water should be brought to a rolling boil for one full minute. After the boiled water cools, it can be stored in a clean, sealed bottle or pitcher with a lid and used normally. Individuals should be careful not to touch the inside of their water bottles. Water can also be filtered to remove *Cryptosporidium*. Only filters labeled as reverse osmosis, and /or tested and certified by NSF Standard 53 for cyst reduction and/or absolute micron size of one micron or smaller are guaranteed to remove *Cryptosporidium.* Persons drinking bottled water should look for evidence of these treatments on the bottled water label or buy distilled water. Canned and bottled bubbly drinks, such as sodas and beer, are usually heated and filtered enough in the factory to remove or kill *Cryptosporidium.* Hot tea and coffee also have no live *Cryptosporidia.*

Stool

Cryptosporidium can be found on clothing, bedding or other things used by infected persons, such as persons with diarrhea or children in diapers. Individuals should always wash their hands after touching these things and before touching food or the mouth. Sex that may involve contact with stool, especially oral sex, can also pass *Cryptosporidia.* The stool of domestic and farm animals, especially animals less than six months old or animals with diarrhea, can contain *Cryptosporidium*. Individuals should always wash their hands after touching animals or cleaning up their stool or visiting barns and areas where these animals live.

Food

Vegetables and fruit that touch dirt might be contaminated. Washing vegetables and fruit that will not be cooked, with water that has been boiled or filtered to remove *Cryptosporidium*, or bottled water that does not contain *Cryptosporidium*, can make them safer. Fruit that will not be cooked can also be peeled to make them safer. Fruit that will not be cooked can also be peeled to make it safer. Cooked and packaged foods are probably safe if they are not handled by an infected person after cooking or processing. Unpasteurized milk or dairy products may not be safe.

Objects

Dirt in the garden and other places can become contaminated when an animal with *Crypto* leaves its stool there. Any object, such as a faucet handle, diaper changing table or bed pan, that is touched by an infected person who did not wash well after using the toilet can be contaminated. Individuals should always wash their hands well after working in dirt or touching anything that could have been contaminated by a person with *Crypto*.

There is no known drug that can cure *Cryptosporidiosis.* Healthy individuals will recover on their own. Persons with diarrhea should drink plenty of fluids and may want to drink an oral rehydration therapy mix, to avoid dehydration. These mixes are available at drug stores and sports stores. They may also wish to take anti-diarrhea medicine. Persons with weakened immune systems should consult their health care provider if they think they have *Cryptosporidium*.

If someone is infected with *Cryptosporidium,* they should wash their hands regularly, especially before preparing food and after going to the toilet; avoid close contact with anyone who may have a weakened immune system; and avoid swimming in public bathing areas (swimming pools, water parks, etc.) while they have diarrhea and for at least two weeks after it clears up.

THE LEAD AND COPPER RULE

The U.S. Environmental Protection Agency (USEPA) enacted the Lead and Copper Rule in 1991 to provide human health protection by reducing lead and copper levels at consumer's taps. The rule set a 90th percentile action level of 0.015 parts per million (ppm) for lead and 1.3 parts per million (ppm) for copper for homes tested (*i.e.* lead levels in the high-risk homes must be below 0.015 ppm (15 ppb) in 90% of the homes tested) and required for the first time that suppliers test for lead and copper at the tap.

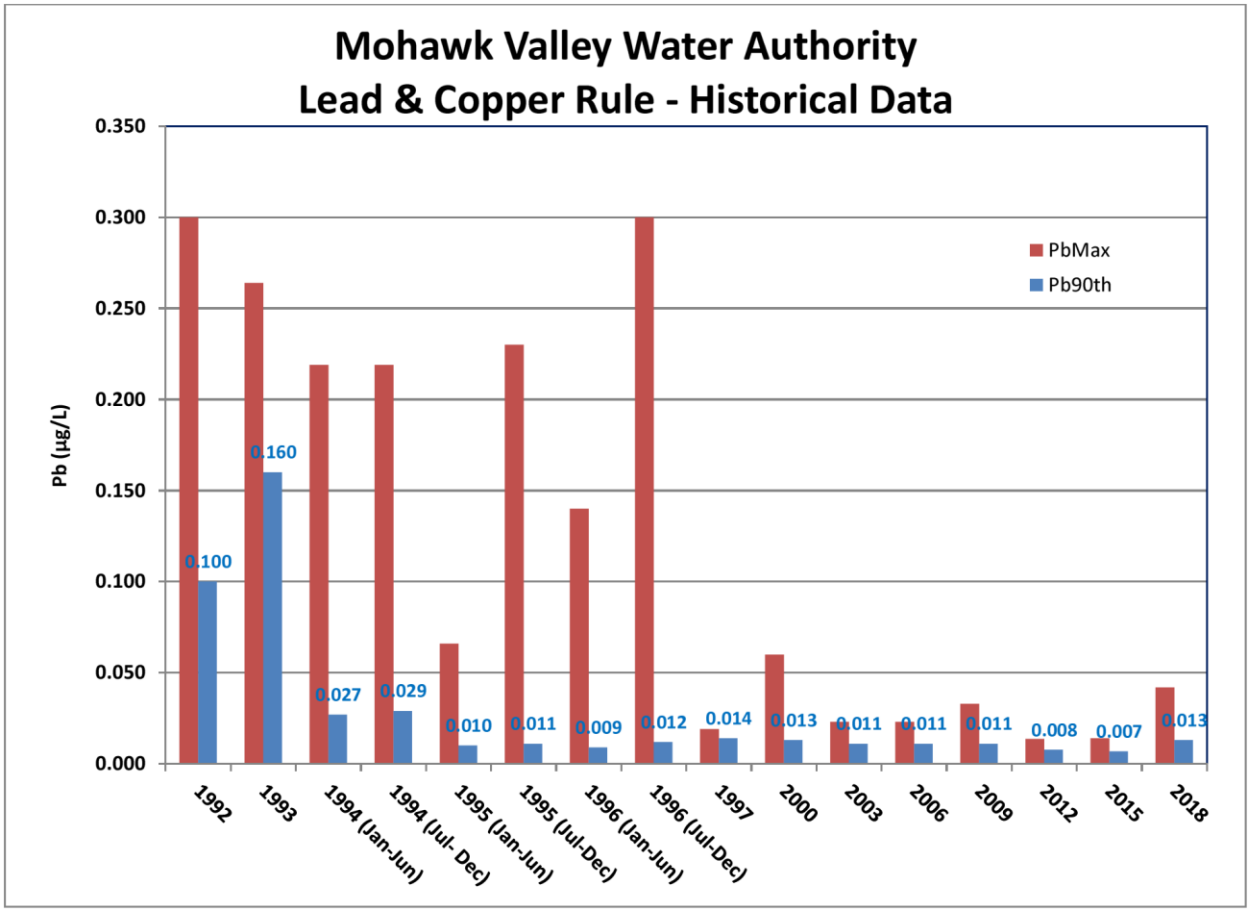
Lead is unusual among drinking water contaminates because it seldom occurs naturally in water supplies. It enters drinking water primarily due to corrosion or wearing away of materials containing lead such as lead service lines, solder, or brass plumbing fixtures in the home. Ingestion of lead can pose significant health risks, especially for young children (under 6) and pregnant women.

Today there is an increased focus across the U.S. on lead in drinking water. Recent drinking water issues in Flint, MI, as well as in Washington, DC have finally brought stakeholders to a consensus; there is no safe level of lead. While service-line pipe material may be a source of lead, other sources including premise plumbing, lead-based paint, and lead in soils may provide a greater impact to blood lead levels. Regardless, MVWA is committed to educating its customers on the potential hazards associated with lead service lines. It is anticipated that revisions to the EPA's Lead and Copper Rule will be promulgated within the next 24 months and those changes may have a significant impact on water utilities' rates and services.

During 1992, the City of Utica Water Board initially conducted two rounds of testing for lead and copper to comply with the Lead and Copper Rule. Results of these tests in 1992 showed that the lead level in our drinking water was above the maximum allowable level. However, this first round of testing had to be completed before the new treatment plant was fully operational. Corrosion control chemical feeders installed in the treatment plant significantly reduced corrosion in the distribution system and lead levels decreased dramatically over the next few sample events (see graph below). In 1997, the New York State Health Department, reduced the monitoring requirement for lead to fifty samples per year and then further reduced compliance lead level monitoring to a three-year schedule.

The effective use of this corrosion control facility has drastically reduced the lead levels at the high-risk consumers tap to levels acceptable to the State and Federal government. The NYS DOH schedule required lead monitoring tests again in 2018. MVWA made an extensive effort to validate the service line material of homes sampled. Test results indicate that the lead levels are within federal guidelines. The results from the 2018 lead sampling effort are listed in Table 12 of the chemical analysis section. We are grateful for the support and cooperation of the homes that participated in this sampling event. The next round of testing is scheduled to occur in 2021. If you are concerned about lead levels at your tap in your home, please contact the Water Quality Department for more information. MVWA provides free lead testing for its customers who are

concerned about lead in the water entering their home.



Historical average lead levels from LCR compliance monitoring.

BEST PRACTICES TO REDUCE RISKS OF LEAD EXPOSURE IN DRINKING WATER

What Are The Health Effects of Lead?

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.

What Are The Sources of Lead?

The primary sources of lead exposure for most children are deteriorating lead-based paint, lead-contaminated dust, and lead-contaminated residential soil. Lead is found is some toys, some playground equipment, some children's metal jewelry, and some traditional pottery. Exposure to lead is a significant health concern, especially for young children and infants whose growing bodies tend to absorb more lead than the average

adult. If you are concerned about lead exposure, parents should ask their health care providers about testing children for high levels of lead in the blood.

What Can I Do To Reduce Exposure to Lead in Drinking Water?

- **Run your water to flush out lead.** If water hasn't been used for several hours, run water for 15-30 seconds to flush lead from interior plumbing or until it becomes cold or reaches a steady temperature before using it for drinking or cooking.
- **Use cold water for cooking and preparing baby formula.**
- **Do not boil water to remove lead.**
- **Look for alternative sources or treatment of water** (such as bottled water or water filters).
- **Re-test your water for lead periodically.**
- **Identify and replace plumbing fixtures containing lead.**
- **Remove faucet strainers** and rinse them to remove any debris. This can be done periodically to remove accumulated debris as well.
- **Make sure lead-free materials** are used when building any new home.
- **Consider replacing lead service lines**. Find out from a certified plumber or your utility if your home has lead service lines, because these pipes can be a source of lead at the tap. A service line is the pipe between the curb stop and the water meter. It is typically at least partly under the control/ownership of the homeowner.
- **Recent data suggests** that replacing just part of the line can increase lead levels. If your utility is replacing its part of the line, it's a good idea for the homeowner to do the same.
- **MVWA can test the water in your home for lead and copper.** Please contact the Water Quality Department for additional information. MVWA is required to test for lead in homes with lead services on a schedule set by New York State and has been in compliance with the Lead and Copper Rule for over 20 years

For additional information please contact MVWA at 315-792-0301, www.mvwa.us or visit: http://www.drinktap.org/. For more information on reducing lead exposure around your home and the health effects of lead, visit EPA's Web site at www.epa.gov/lead, call the National Lead Information Center at 800-424-LEAD, or contact your health care provider.

UNREGULATED CONTAMINANT MONITORING RULE

The Safe Drinking Water Act requires that occurrence data for up to 30 unregulated contaminants be monitored every five years by public water utilities. The rule requires all systems serving >10,000 people and a subset of smaller systems monitor for these contaminants. The contaminants are selected from the Contaminant Candidate List (CCL), a list of contaminants known or anticipated to occur in public water systems and that may warrant regulation. The UCMR program provides the EPA with nationally representative data on contaminant occurrence in drinking water,

exposure rates and levels. The data is then evaluated to determine if EPA should regulate any of those based on the results of the testing.

In 2018, MVWA began its required monitoring for the fourth Unregulated Contaminant Monitoring Rule (UCMR4) by sampling for the presence of nine cyanotoxins and one cyanotoxin group in our finished drinking water (Table 13). This effort continued in 2019 and concluded with a last round of sampling in March 2020. This included additional testing for three (3) haloacetic acid disinfection byproducts groups from the distribution system; total organic carbon and bromide from the source water; and two (2) metals, three (3) alcohols, three (3) semi-volatile organics, and eight (8) pesticides and one (1) pesticide byproduct from the WTP entry point (Table 14).

PREMISE PLUMBING ISSUES

While MVWA is pleased to provide a high-quality water and we are proactive in educating customers on lead service lines and its impact on the water you drink, it is important to note that there is an emerging focus on additional issues that may be present in the plumbing within your home, business, or institutional buildings. Utilities, public health agencies, property owners, and other stakeholders need to proactively work to develop outreach activities and educate water consumers about the risks associated with degraded water quality within buildings. Information on the proliferation, exposure, and modes of transmission for organisms such as *Legionella pneumophila, Mycobacterium avium,* and *Pseudomonas aeruginosa* needs to be communicated to water consumers so appropriate measures can be developed and implemented to increase awareness and decrease infectivity. In the drinking water industry, these organisms are called Opportunistic Premise Plumbing Pathogens (OPPP).

The three OPPP mentioned above have similar traits including the ability to survive in high temperatures, resistance to disinfectants, and an ability to grow within distribution pipes (known as a biofilm). Within the premise plumbing, especially in larger buildings where the water has long residence times and complex water piping networks, the risk for exposure to OPPP is elevated. Typically, the exposure isn't from drinking water but through aerosolization of the microbes in showers or air conditioning units. Unfortunately, there is no commonly accepted practice for prevention of the proliferation of these organisms. While intensive research is currently being funded, and several control strategies are being tested with limited effectiveness, currently the best strategy for decreasing exposure is educating consumers, building owners, and facility managers on the risks associated with premise plumbing water quality. If you would like more information on these issues, contact the water quality department or your local health department.

THE BOTTLED WATER ALTERNATIVE

The bottled water and home treatment system industries have experienced a phenomenal growth in the U.S. in recent years. This is due in part to higher consumer concern about environmental issues including drinking water quality. Coupled with the marketing strategies of both industries, sales of bottled water and home treatment devices continue to increase rapidly. Consumers want high quality water and often feel that bottled water or additional in-home purification will provide higher quality water than that directly from the tap. **This is generally not true.**

In New York, bottled water is produced under State regulation. There are currently no federal standards for bottled water and in many states, it is unregulated. Quality of bottled water varies greatly due to minimal oversight of production, general lack of more stringent chemical and microbiological testing required for public water suppliers and long shelf times which the product often encounters. Tests of bottled water by the Suffolk and Nassau County Health Department have found traces of volatile organic chemicals and other contaminants in some brands. To our knowledge, no tests on bottled water have been conducted in Oneida County.

Home water treatment devices should only be used when an obvious water quality problem is demonstrated. Water quality testing to determine the existence of a problem in your home should be performed in a New York State certified (ELAP) laboratory using the sampling procedures and bottles supplied by the laboratory. If a problem is identified, the homeowner should consult with a reputable water quality scientist on how to deal with this problem. Ideally the consultant should not be in the business of selling home treatment equipment. Homeowners should be aware of two critical points when considering purchase of a home water treatment device.

WHEN CONSIDERING A HOME WATER TREATMENT DEVICE

- No one device can correct all water quality problems. Each type of device has a specific function. There is no such thing as a one-device-cures-all treatment. For example: carbon filters can remove some organic chemical contaminants, but are not effective against inorganic chemical contaminants, (nitrate or heavy metals or microorganisms).

- All home water treatment devices require continuous maintenance for proper operation. Failure to properly maintain these devices can result in poorer water quality.

Public water suppliers like the Mohawk Valley Water Authority and across the United States must meet strict Federal and State water quality standards. If a supply fails to meet any primary standard, the supplier must notify the State and the American public that the public water supply is not safe to drink throughout the United States. **Assertions that Mohawk Valley Water Authority's water is or may be unsafe to drink are not true.** The use of bottled water and home treatment devices often lead consumers to

increased sense of security when no problem existed in the first place and no improvement in quality has been achieved.

Cost Comparison of MVWA's Tap Water

One gallon of bottled water is approximately $ *1.50*
One gallon of MVWA's tap water costs approximately *$ 0.005*

Product	Average Price $ USD / Gallon
Tap Water	$0.005
Cola Product	$ 3.00
Gasoline	$2.70
Laundry Detergent	$8.50
Imported Beer	$12.00
Imported Bottled Water	$25.00
Designer coffee latte	$22.00
Cough Syrup	$100.00
American Whiskey	$150.00
Eye Drops	$750.00
Good French Wine	$1,000.00

ADDITIONAL INFORMATION IS AVAILABLE ON REQUEST

We are pleased to present our water quality report to you. Delivering quality water to you in the appropriate quantity is the highest priority for the Mohawk Valley Water Authority. Through the meticulous efforts of the Authority's team, the water is meeting or exceeding federal and state water quality standards.

It is our pleasure to serve you and keep you informed about the quality of your drinking water. Questions or comments can be directed to our Water Quality Department. We encourage the public to be better informed about this important resource. MVWA's personnel are happy to provide additional information on the regional water system and will gladly speak to individuals, groups, or organizations to enhance understanding of the goals and challenges of drinking water utilities. Please contact Customer Service with any concerns or questions, they can direct you to the proper department within the Authority and provide prompt answers to any concerns that need addressing.

Sincerely,

Philip A. Tangorra
Director of Water Quality

- *The short form AWQR is detailed below, which includes all required reporting as defined in the regulations guiding annual water quality reports. Much of the information below is included in the above document.*

ANNUAL DRINKING WATER QUALITY REPORT FOR 2020

Upper Mohawk Valley Regional Water Board
(Mohawk Valley Water Authority)

1 Kennedy Plaza
Utica, New York 13502
(Public Water Supply ID# NY3202411)

MVWA Report – Use with Supplemental System reports for required reporting information

MOHAWK VALLEY WATER AUTHORITY
Quality water... for life.

INTRODUCTION

To comply with State and Federal regulations, the Mohawk Valley Water Authority (MVWA) will be annually issuing a report describing the quality of your drinking water. The purpose of this report is to raise your understanding of drinking water and awareness of the need to protect our drinking water sources. All Federal and New York State Drinking Water Standards were met. This report provides an overview of last year's (2020) water quality. Included are details about where your water comes from, what it contains, and how it compares to State and Federal standards.

If you have any questions about this report or concerning your drinking water, please contact Philip Tangorra, Director of Water Quality, at 792-0301. We want you to be informed about your drinking water. If you want to learn more, please attend any of our regularly scheduled Water Board meetings. The meetings are held on the third Monday of each month at the Mohawk Valley Water Authority Conference Room, third floor, Utica City Hall at 5 P.M.

For non-English speaking / reading population:

"This report contains important information about your drinking water. Translate it or speak with someone who understands it."

Bosnian – Ovaj izvještaj sadrži važne informacije o vodi za piće. Prevesti, ili razgovarati s neko ko razumije.

Russian - Этот отчет содержит важную информацию о вашей питьевой воды. Перевести его, или поговорить с кем-то, кто понимает его.

Somali – Warbixintani waxay ku qoran macluumaad muhiim ah oo ku saabsan biyo aad u cabbo. Fasiri karaa ama ula hadasho qof fasiri karaa adiga.

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

Vietnamese - Báo cáo này chứa thông tin quan trọng về nước uống của bạn. Dịch nó, hoặc nói chuyện với một ai đó hiểu nó.

Simplified Chinese - 该报告包含有关饮用水的重要信息。翻译它，或者与别人谁了解它说话。

Traditional Chinese - 該報告包含有關飲用水的重要信息。翻譯它，或者與別人誰了解它說話。

WHERE DOES YOUR 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 source water include microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. To ensure that tap water is safe to drink, the State and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. 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.

The water we drink gathers in the streams and creeks of a remote 374 square mile Adirondack Mountain watershed, far from settled areas and farmland. These tributaries drain into the West Canada Creek, which carries our water to the New York State-owned Hinckley Reservoir, the source of our water supply.

SOURCE WATER ASSESSMENT INFORMATION

A Source Water Assessment has been completed for our water system. Possible and actual threats to drinking water source(s) were evaluated. The source water assessment includes a susceptibility rating based on the risk posed by each potential source of contamination and how easily contaminants can move through the subsurface to the source(s). The susceptibility rating is an estimate of the potential for contamination of the source water, it does not mean that the water delivered to consumers is or will become contaminated. The Source Water Assessment Program

(SWAP) is designed to compile, organize and evaluate information to make better decisions regarding protecting sources of public drinking water. The report does not address the safety or quality of treated finished potable tap water. The source water assessment report is based on reasonably available information. Although efforts have been made to check the source water assessment report for accuracy, the large scope of this program and the nature of the available data make the elimination of all errors from these reports nearly impossible. It is important to note that source water assessment reports estimate the potential for untreated drinking water sources to be impacted by contamination. A copy of the assessment, including a map of the assessment area, can be obtained by contacting us, as noted above.

During 2005 a source water assessment was completed under the NYS Department of Health's Source Water Assessment Program (SWAP). This assessment found a low to moderate susceptibility to contamination of our source water. Land cover and its associated activities within the assessment area did not increase the potential for contamination. Permitted discharges from facilities in the watershed do not represent an important threat to source water quality, based on their density 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. Additional sources of potential contamination include the roadways in the watershed. In conclusion, it was noted that hydrologic characteristics (basin shape and flushing rates) generally make reservoirs highly sensitive to existing and new sources of phosphorus and microbial contamination.

See section "*Are there contaminants in our drinking water?*" for a list of the contaminants that have been detected. The source water assessments provide resource managers with additional information for protecting source waters into the future.

Based upon the SWAP Report determinations, good judgment should be used, and caution should be exercised when determining land use near the source. We work hard to ensure that the source of water for our system is protected from contamination. MVWA has an established water quality monitoring program within the Hinckley watershed. In addition, the MVWA has existing Watershed Rules and Regulations (10NYCRR Chapter III Part 130.2) that regulate the land use and potential contamination sources around the water source. This is accomplished through a combination of land ownership and policing of the watershed area.

HOW IS YOUR WATER TREATED?

In 1990, after four years of careful testing, planning and design, construction of a water treatment and filtration plant began at a site near the village of Prospect. The facility became operational in 1992. The treatment plant includes a double filtration system designed to remove most of the organic matter and contaminants.

After our water has been filtered it is chlorinated. Chlorine is a disinfecting agent and kills bacteria present in the water. Chlorine levels are continuously monitored throughout our 650 miles of pipe that brings the water to your home.

Fluoride is added to your water in concentrations of 0.7 mg/l. Fluoride has been shown to reduce tooth decay and cavities.

Our water is treated to control corrosion of household plumbing that may contain metals such as lead. Calcium hydroxide (lime) and sodium carbonate (soda ash) are used in small amounts to buffer the water so that it is rendered non-corrosive to your home's plumbing. Lime and soda ash are naturally occurring substances, which pose no threat to human health. Lead levels measured in our customer's homes are in compliance with the Federal Lead Monitoring Program action levels.

FACTS AND FIGURES

Our water system presently serves approximately 126,250 people through over 38,900 service connections. The daily average amount of water treated was 17.4 million gallons per day. Our highest single day of production was 21.9 million gallons. The total water produced in 2020 was approximately 6.4 billion gallons. Some of the water was used for flushing water mains, filter backwashing, plant processes, equipment and hydrant testing, fighting fires, training firefighters, street cleaning and water main breaks and leakage. Approximately 3.3 billion gallons were sold to our customers. MVWA has an ongoing Leak Detection and Repair program. All distribution mains within the MVWA system are surveyed by professional Leak Detection Contractors annually. In the past 3 years, approximately 1.5 to 2 mgd of non-revenue water demand has been eliminated through this aggressive program. The MVWA recently invested over $30,000 in updated electronic leak detection equipment and training for in house personnel.

In 2020, residential water customers were charged approximately $4.97 per 1,000 gallons of water (average family of four).

SYSTEM IMPROVEMENTS - During 2020 the MVWA continued its aggressive program of reinvestment in the Regional System.

WATER SYSTEM MAINTENANCE AND CAPITAL IMPROVEMENT SUMMARY

The Engineering, Distribution and Maintenance Departments continued to implement major physical and operational improvements throughout the Regional Transmission and Distribution System and Facilities in 2020. Nearly $4,000,000 in Improvements were completed with another $15,000,000 in various stages of design or construction. The Departments were able to accomplish these projects despite the loss of significant staff resources due to COVID work force reduction in the Spring and various personnel quarantined throughout the year.

MVWA utilizes system management tools to improve water service reliability and ensure sustainability throughout the Regional Water System. These management tools include the system–wide all pipe hydraulic model that is continually updated as improvements are completed. The model can also be utilized for water quality modeling. Real- time remote monitoring of pressure, flow and water quality parameters is accomplished utilizing the MVWA SCADA System. A system-wide replacement program of the SCADA system (electronic remote monitoring) is underway starting at the water Treatment Plant. The GIS/Mapping system and annual Leak Detection Survey allows the tracking and reporting of water accountability for reducing unaccounted for water.

The Departments are also responsible for preparing, bidding and administering routine annual contracts for commodities and services including; Water Main Materials, Leak Detection, Generator Maintenance, Fence Repairs, Tree Removals, Backflow Testing, Asphalt Paving and Concrete repairs and numerous other System needs. There is also an annual Tank Diving contract that permits the cleaning and inspection of the tanks while they remain in service thus eliminating lengthy service interruptions.

A program to begin replacement of key valves in chambers with packaged PRV Chambers was undertaken in 2020. These types of valves automatically regulate system flow and pressure. Failures can cause pressure fluctuations and cause main breaks. Repairs and upgrades to the chambers to improve access and safe working conditions also continue.

Department staff are active members of several professional associations and their governing Boards. While activity was reduced due to COVID, MVWA staff remained involved remotely. Presentations have typically been made the, the NY Section American Water Works meeting, at the ESRI Annual Conference, the Mohawk Valley Environmental Information Exchange, the NYS Geo-Con Fall meeting and the American Academy of Environmental Engineers and Scientists meeting among others.

PROJECTS AND OPERATIONS IN FY 2020 INCLUDED:

FACILITIES – PUMPSTATIONS, CHEMICAL TREATMENT BUILDINGS, WATER STORAGE TANKS AND KEMBLE ST. MAINTENANCE FACILITY

Significant work has been undertaken in the past several years to upgrade Pump Stations and Tanks ranging in age from 40 to 100+ years old. This included constructing the new 1,200,000 gallon Snowden Hill Rd. High Service Zone Tank and preparing plans and bidding the rehabilitation of the Welsh Bush Rd. concrete tank. General building Improvements including lighting and access related safety upgrades, security door replacements and exterior wall repairs. Motors, Pumps and Control Drives were replaced at two (2) Pump Stations. Plans were advanced for further building renovations, electrical upgrades and new generators at several locations. Improvements continued at the Kemble St. Maintenance Facility to provide a new two (2) bay material storage bunker, access stairs, concrete floor replacements, and install an industrial capacity rack storage system. One liquid chlorine feed facility
was decommissioned since it was no longer required due to improved system residuals.

WATER MAIN REPLACEMENT & EXTENSIONS, LARGE VALVE REPLACEMENTS, TRANSMISSION MAINS, NYSDOT RT. 5S, & MVHS WATER MAIN IMPROVEMENTS COORDINATION

The MVWA continued to support the NYSDOT as they completed their Rt. 5S reconstruction project with replacement water main design and field services for nearly 7,000 feet of new and relocated mains up to 20" in diameter including hydrants, and services. The MVWA also supported the MVHS new downtown hospital and the NEXXUS project that replaced approximately 4,000 feet of older downtown mains and numerous aged services. The cost of these mains was paid for by the DOT or MVHS and are not included in the $4,000,000 noted above. Two (2) 24" valves were installed on Transmission Mains in Marcy and 1,800 feet of new 24" diameter main was installed on the Cavanaugh Rd. Tank site along with a new metering chamber and multiple isolation valves. Topographic survey was also completed for 3,500 feet of replacement main in New Hartford that is under design for construction in 2021

HYDRAULIC CONTROL VALVES MAINTENANCE AND IMPROVEMENTS

Hydraulic control valves include; Pressure Reducing Valves (PRVs), Pump Control Valves and Altitude Valves. The MVWA has over 150 of these types of valves in the system. These stations were inspected/adjusted and significant PRV improvement work was undertaken at several sites including repair of the Cavanaugh Rd. Tank 18" Altitude valve and the Trenton Rd. Tank 12" Valve. A new prefabricated PRV Chamber was specified and bid and installation was completed in early 2020 replacing an aging, very constricted one in East Utica. Two more are planned for 2021 as are 10+ replacement remote pressure monitors were approved.

RAW WATER MAINS & NORTH AND SOUTH PIPE BRIDGES

Easements maps for the Phase 1 Raw Water Main (RWM) Pipe Bridge were prepared and the Phase 2 RWM Topographic and Environmental surveys were completed, and the Soil Borings were bid for early 2021 field work. A WIIA grant for Phase 2 of the Raw Water Mains at $3m was received in late 2019 and the balance of the project cost, $7m was included in the 2020 bonding. A 50% Design Package for the New Bridge is complete. A Geotech Report was completed the North Pipe Bridge which is designated for renovations and coating in the next several years.

FEMA PROGRAM to REPAIR "HALLOWEEN 2019 STORM" DAMAGE

FEMA has approved a number of water main and stormwater facilities repairs, and for consideration under their funding program for storm damage repairs and improvements. The MVWA has identified four (4) separate project types in multiple locations for a total of 24 projects estimates at over $5,000,000 in project costs. All of these projects may qualify for the 87.5% funding. The MVWA has included $500,000 in the 2020 Bonding to cover MVWA's share of the funding in anticipation of significant FEMA awards. The new FEMA policy is to incorporate resiliency wherever practical to accommodate future storm events without a repeat of significant damages. In order to approve these types of improvements, FEMA requires engineered plans and studies which were commenced in late 2020.

ARE THERE CONTAMINANTS IN YOUR DRINKING WATER?

As the State regulations require, we routinely test your drinking water for numerous contaminants. These contaminants include: total coliform, turbidity, inorganic compounds, nitrate, nitrite, lead and copper, volatile organic compounds, disinfection byproducts, 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 per 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 at 800-426-4791 or the Oneida County Health Department at 315-798-5064.

Table of Detected Contaminants

Contaminant	Is System in Violation?	Date of Sample	Level Detected Average / Maximum (Range)	Unit Measurement	MCLG / MRDLG	Regulatory Limit (MCL, MRDL, TT or AL)	Likely Source of Contamination
Microbiological Contaminants– over 100 Coliform Samples Monthly (2,383 collected in 2020)							
Total Coliform	No	N/A	N/A (1)	N/A	0 N/A	Any positive sample (2)	Naturally present in the environment.
Physical Parameters							
Turbidity (Filtered Water) (3a)	No	07/20/2020	0.26 (highest single measurement) (3a)	NTU	N/A	TT = <1.0 NTU	Soil Runoff
Turbidity (Filtered Water) (3b)		All months ≤ 0.3	99.9% ≤ 0.3 (lowest monthly percentage of samples meeting specified limits)			TT = 95% of samples <0.3 NTU	
Turbidity (Distribution)		Daily	0.31 (4) (range = 0.01 – 3.88)			TT = <5 NTU (Monthly Average)	
Total Organic Carbon (Raw Water)	No	Monthly	4.2 (5) (range = 3.0 – 6.3)	mg/l	N/A	TT (relative to removal rates)	Naturally present in the environment.
Total Organic Carbon (Filtered Water)			1.0 (5) (range = 0.1 – 1.5)				
Organic Contaminants							
Acetone	No	1/31/2020	3.8	µg/l		MCL = 50	Acetone occurs naturally and is used in production of paints, varnishes, plastics, adhesives, organic chemicals and alcohol Also used to clean and dry parts of precision equipment.
Inorganic Contaminants							
Barium	No	9/29/2020	0.0077	mg/l	2	MCL = 2	Erosion of natural deposits.
Chloride	No	9/29/2020	6.3	mg/l	N/A	MCL = 250	Naturally occurring.
Copper	No	2018	0.023 (6) (range = ND – 0.050)	mg/l	1.3	AL = 1.3	Corrosion of household plumbing systems; Erosion of natural deposits.

Table of Detected Contaminants

Contaminant	Is System in Violation?	Date of Sample	Level Detected Average / Maximum (Range)	Unit Measurement	MCLG / MRDLG	Regulatory Limit (MCL, MRDL, TT or AL)	Likely Source of Contamination
Fluoride (System Entry Point)	No	Daily	0.7 [7] (range = 0.2 – 0.8)	mg/l	N/A	MCL = 2.2	Erosion of natural deposits; Water additive that promotes strong teeth (*The MVWA water system adds Fluoride to the water*).
Fluoride (Distribution System)	No	Monthly	0.7 [8] (range = 0.2 – 0.9)	mg/l	N/A	MCL = 2.2	Erosion of natural deposits; Water additive that promotes strong teeth (*The MVWA water system adds Fluoride to the water*).
Lead	No	2018	13.0 [9] (range = ND – 41.9)	µg/l	0	AL = 15	Corrosion of household plumbing systems; Erosion of natural deposits.
Magnesium	No	9/29/2020	1.4	mg/l	N/A	N/A	Naturally occurring.
Nitrate	No	2/6/2020	0.19	mg/l	N/A	MCL=10	Run off from fertilizer use, leaching of septic tanks, erosion of natural deposits.
Sodium	No	9/29/2020	18.0 [10]	mg/l	N/A	See Note 11 below	Naturally occurring; part of pH adjustment additive.
Sulfate	No	9/29/2020	14.6	mg/l	N/A	MCL = 250	Naturally occurring.
Disinfectants / Disinfection Byproducts							
Chlorine Residual	No	Daily/ Monthly	1.0 [11] (range = 0.2 – 2.2)	mg/l	N/A	MRDL = 4 [12]	Water additive used to control microbes.
Haloacetic Acids (mono-, di- and trichloroacetic acid, and, mono- and dibromoacetic acid)	No	Quarterly	15.1 [13] (range = 0 – 26.9)	µg/l	N/A	MCL= 60	By product of drinking water disinfection needed to kill harmful organisms.
Total Trihalomethanes (TTHMs – chloroform, bromodichloromethane, dibromochloromethane and bromoform)	No	Quarterly	42.9[14] (range = 4.9 – 91.4)	µg/l	N/A	MCL = 80	Byproduct of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Unregulated Contaminants (UCMR4 Data)							
Bromochloroacetic Acid	No	June, September, & December 2019; March 2020	ND – 0.61 [15]	µg/l	N/A	N/A	By product of drinking water disinfection needed to kill harmful organisms.
Dichloroacetic Acid	No		ND – 17.6 [15]	µg/l	N/A	N/A	
Trichloroacetic Acid	No		3.2 – 19.3 [15]	µg/l	N/A	N/A	
Total Organic Carbon	No		3550 – 5240 [16]	µg/l	N/A	N/A	Naturally occurring.
Manganese	No		4.4 – 10.5 [17]	µg/l	N/A	N/A	Naturally occurring.

Additional Detected Water Quality Parameters Collected Monthly (MVWA)

Contaminant	Level Detected - Average or Maximum (Range)	Unit Measurement	Importance of Parameter Measurement for Treatment
pH	9.4 (range = 7.1 – 10.0)	units	pH is a measure of the acidity or basicity of water. Solutions with a pH less than 7 are said to be acidic and solutions with a pH greater than 7 are basic or alkaline. The pH of our water has an effect on our water treatment and the efficiency of chemical treatment (*e.g.* coagulants, chlorine).

Notes:

1 - We averaged 199 Total Coliform samples per month in 2020. No samples out of 2,383 total routine samples collected in 2020 were found to contain Total Coliform. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially harmful bacteria may be present. Additional samples would be subsequently collected after each positive sample for total coliforms. Since total coliforms were detected in <5% of the samples collected during each month when detected, the system did not have an MCL violation. It should be noted that E. coli, associated with human and animal fecal waste, was not found in any of the samples collected.

2 - A Level 1 assessment is triggered at systems collecting 40 or more samples per month when more than 5% of the total coliform samples are positive or at systems collecting less than 40 samples per month when two or more samples are total coliform positive. A Level 1 assessment can also be triggered if the system fails to take every required repeat sample after any single total coliform-positive sample.

3a - This value represents the highest daily average number reported.

3b - Turbidity is a measure of the cloudiness of the water. We test it because it is a good indicator of the effectiveness of our filtration system. The regulations require that 95% of the turbidity samples collected have measurements below 0.3 NTU. 99.9% recorded during 2020 were within the acceptable range allowed.

4 - Turbidity is measured daily in the distribution system. State regulations require that the monthly turbidity average must always be below 5 NTU. The monthly average of the results in the months with highest turbidity levels were all below 5 NTU. May 2020 had the highest monthly average of Distribution Turbidity measurements (0.39 NTU).

5 - This level represents the average and range of values calculated from monthly sample submission results.

6 - The level presented represents the 90th percentile of the 50 sites tested in 2018. A percentile is a value on a scale of 100 that indicates the percent of a distribution that is equal to or below it. The 90th percentile is equal to or greater than 90% of the copper values detected at your water system. In this case, fifty-two samples were collected at your water system and the 90th percentile value was the 6th highest value. The action level for copper was not exceeded at any of the sites tested. The next scheduled round of copper sampling is 2021.

7 - This level represents the average and range calculated from daily measurements.

8 - This level represents the average and range calculated from over 800 sample submission results.

9 - The level presented represents the 90th percentile of the fifty samples collected in 2018. In this case, fifty-two samples were collected at your water system and the 90th percentile value was the 6th highest value. The next scheduled lead sampling is 2021.

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

11 - This level represents the average and range calculated from sample submission results.

12 - Value presented represents the Maximum Residual Disinfectant Level (MRDL) which is a level of disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. MRDLs are currently not regulated but in the future, they will be enforceable in the same manner as MCLs.

13 - This level represents the highest Locational Running Annual Average along with the range of results for samples collected in compliance with the Stage 2 DBP Rule. Compliance with the MCL (60 ug/l) for HAAs is determined by the Locational Running Annual Average.

14 - This level represents the highest Locational Running Annual Average along with the range of results for samples collected in compliance with the Stage 2 DBP Rule. Compliance with the MCL (80 ug/l) for TTHMs is determined by the Locational Running Annual Average.

15 - These levels represent the range of all samples collected in compliance with the Unregulated Contaminates Monitoring Rule 4 (UCMR4)

16 - These levels represent the range of all samples collected in compliance with the Unregulated Contaminates Monitoring Rule 4 (UCMR4)

17 - These levels represent the range of all samples collected in compliance with the Unregulated Contaminates Monitoring Rule 4 (UCMR4)

Definitions:

Action Level	**AL**	The concentration of a contaminant that, if exceeded, triggers treatment or other requirements that a water system must follow.
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 Disinfectant Level	**MRDL**	The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
Maximum Residual Disinfectant Level Goal	**MRDLG**	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contamination.
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).
Nephelometric Turbidity Unit	**NTU**	A measure of the clarity of water. Turbidity in excess of 5 NTU is just noticeable to the average person.
Non-Detected	**ND**	Laboratory analysis indicates that the constituent is not present.
Treatment Technique	**TT**	A required process intended to reduce the level of a contaminant in drinking.

What does this information mean?

As you can see by the table, our system had no violations. We have learned through our testing that some contaminants have been detected; however, these contaminants were detected below New York State requirements.

UNREGULATED CONTAMINANT INFORMATION

From 2018-2020, we are required to collect and analyze drinking water samples for the following unregulated contaminants: Cyanotoxins (Total microcystins, Anatoxin, Cylindrospermopsin), germanium, manganese, alpha-hexachlorocyclohexane, profenofos, chlorpyrifos, tebuconazole, dimethipin, total permethrin (cis & trans-), ethoprop, tribufos, oxyfluoren, HAA5, HAA6Br, HAA9, 1-butanol, 2-propen-1-ol, 2-methoxyethanol, butylated hydroxyanisole, o-toluidine, quinoline. We collected samples semi-monthly from August 1, 2018 through November 30, 2018 for cyanotoxins (8 total samples) from the entry point to the distribution system. The rest of the contaminants were sampled quarterly in June, September, & December 2019 and again in March 2020 per the EPA mandated schedule from either the source water, entry point, or pre-determined sites in the Distribution System. Detections are noted in the Table of Detected Contaminants. *You may obtain the monitoring results by calling Philip Tangorra, Director of Water Quality, at 315-792-0301.*

ADDITIONAL TESTING

In addition to the testing we are required to perform; our water system voluntarily tests hundreds of additional substances and microscopic organisms to make certain our water is safe and of high quality. If you are interested in a more detailed report, contact the Water Quality Department at 315-792-0338; visit us on the web at www.mvwa.us. We'll be happy to answer any questions about MVWA and its Water Quality Department.

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

Although our drinking water met or exceeded state and federal regulations, 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).

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

Last year, our system was in general compliance with State drinking water operating, monitoring and reporting requirements.

CLOSING

To maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all our customers. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary to address these improvements.

Thank you for allowing us to continue to provide your family with quality drinking water this year. We ask that all our customers help us protect our water sources, which are the heart of our community and our way of life. Please call our office if you have questions.

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 several reasons why it is important to conserve water:

- Saving water saves energy and some of the costs associated with both of these necessities of life;
- Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers; and
- 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:

- Automatic dishwashers use 15 gallons for every cycle, regardless of how many dishes are loaded. So, get a run for your money and load it to capacity.
- Turn off the tap when brushing your teeth.
- Check every faucet for leaks. Just a slow drip can waste 15 to 20 gallons a day. Fix it up and you can save almost 6,000 gallons per year.
- Check toilets for leaks by putting a few drops of food coloring in the tank - watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from one of these otherwise invisible toilet leaks. Fix it and you save more than 30,000 gallons a year.
- Use Heat Tape to protect your pipes from freezing. This will save water AND protect septic systems from overuse.
- Use your water meter to detect hidden leaks. Simply turn off all taps and water using appliances, then check the meter after 15 minutes, if it moved, you have a leak.

Do I Need To Take Special Precautions?

Some people may be more vulnerable to disease causing microorganisms or pathogens in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice from their health care provider about their drinking water. EPA/CDC guidelines on appropriate means to lessen the risk of infection by Cryptosporidium, Giardia and other microbial pathogens are available from the Safe Drinking Water Hotline (800-426-4791).

Lead Information

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. Our water system 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.

Information On Fluoride Addition

Our system is one of the many drinking water systems in New York State that provides drinking water with a controlled, low level of fluoride for consumer dental health protection. According to the United States Centers for Disease Control, fluoride is very effective in preventing cavities when present in drinking water at a properly controlled level. To ensure that the fluoride supplement in your water provides optimal dental protection, we monitor fluoride levels on a daily basis to make sure fluoride is maintained at a target level of 0.7 mg/l (the CDC's "interim" target level). During the last year monitoring showed that fluoride levels in your water were within 0.1 mg/l of the target level for 99% of the time. None of the monitoring results showed fluoride at levels that approach the 2.2 mg/l MCL for fluoride. Our fluoride addition facility is designed and operated to provide drinking water with this beneficial fluoride treatment. Additional reliable information regarding fluoridation in public water systems can be found online at: http://www.cdc.gov/FLUORIDATION/ and http://www.health.state.ny.us/prevention/dental/fluoridation/.

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Water Treatment Plant Operations

In August of 2017, MVWA entered into a partnership with SUEZ for the daily operation and maintenance of the Water Treatment Plant and related facilities. This 5-year contract provides the on-site leadership and technical support to enhance employee health & safety for those staffing the WTP and provides additional perspectives to remain in compliance with regulations. This unique relationship has MVWA well positioned for the future.