



**Water Quality Report
2009**

**Mohawk Valley Water Authority
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Dear Customer:

The Upper Mohawk Valley Regional Water Board is pleased to present our water quality report to you. Today, there is a heightened public awareness concerning our natural resources and environment. The quality of drinking water is understandably a primary interest.

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 Upper Mohawk Valley Regional Water Board is committed to meet all standards and to produce a high quality water for you. Since the opening of our 18 million dollar state-of-the-art water treatment plant in December of 1992, the quality of the water has vastly improved. **We are proud to report that during 2009, the water provided by the Upper Mohawk Valley Regional Water Board (UMVRWB) meets or surpasses all Federal and New York State Drinking Water Standards.**

The Regional Water Board is confident that we will continue to produce high quality water for you at reasonable costs. We are especially anxious to hear your comments concerning this report. Please forward your comments to:

Connie K. Schreppel Ph.D.
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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.

It is in the heart of this sanctuary that the Mohawk Valley Water Authority system is found. The water we drink gathers in the streams and creeks of a remote Adirondack mountain watershed, far from settled areas and farmland, free from 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 Lake, 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.

CHLORINATION AND THMs

Most public water systems have been chlorinated since the turn of the century, when it was recognized that water-borne diseases could be eliminated, or at least greatly reduced, by disinfection. 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 believed to be harmful to health. The treatment plant, through filtration, has eliminated the problem with THMs.

REMEDY - 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 by 1991. The Utica Board of Water Supply and the Utica Common Council approved the project in 1986. After four years of testing, planning, and design, construction on the water treatment filtration plant began in 1990 at a site outside of the Village of Prospect in the Town of Trenton. The water treatment plant became operational in December 1992.

Since the New York State directive, federal legislation has required that all surface water supply systems be filtered.

HOW IT WORKS

The water treatment plant includes a double filtration system to filter out most of the natural organic water. With less organic matter in the water, there is minimal chemical reaction with the chlorine.

The filtering process alone removes 99.9% of bacteria from the water. Therefore, less chlorine is needed to treat the filtered water. Also, due to the elimination of most of the organic matter in our water there is less taste, color and odor.

RESULT - QUALITY

Mohawk Valley Water Authority System customers can be assured that their drinking water is of the highest quality. The system is state-of-the-art and our water can rival the quality of any bottled water. With the water treatment and filtration plant, we have been able to actually improve on nature, by taking fresh Adirondack mountain water, and then through filtration and chlorination, assuring that the water we drink is free from disease causing bacteria.

FACILITY FACTS

SOURCE OF SUPPLY

Adirondack Watershed - 373 square miles

Hinckley Reservoir

WATER TREATMENT PLANT CAPACITY

32 million gallons per day maximum

19 million gallons per day average

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 tanks - 769,000 gallons

Clearwell - 1 tank - 1.5 million gallons

Waste disposal - 3 lagoons, 6.2 acres

CHEMICAL FEED

Soda ash

Alum

Polymers

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 Board 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 and other emergencies.

During normal working hours, crews are involved in preventative maintenance programs on valves and hydrants to insure that the system operates efficiently.

WATER SYSTEM MAINTENANCE AND CAPITAL IMPROVEMENT SUMMARY

System Improvements

During 2009 the MVWA continued its aggressive program of reinvestment in the Regional System. Total capital expenditures were \$2.1 million. Since 1998 over \$30.5 million has been expended on capital improvements to ensure reliable, quality water service.

On-going Projects in 2009 included:

Regulatory Compliance Plan - Water Treatment Plant Deerfield Tank - \$5,600,000

The 10 million gallon Deerfield Tank was brought on-line in the summer of 2009 after two years of construction. The project was required by new EPA/DOH water quality regulations that require all finished water storage to be enclosed. The Deerfield Tank and Regulating Facility will permit the existing uncovered Deerfield Reservoir to be placed on stand-by service.

Regulatory Compliance Plan – Marcy Reservoir and Toby Road Tanks - \$12,400,000

The 3 million gallon Marcy Reservoir Tank and the two 6 million gallon Toby Road Tanks were bid in March 2009 and construction commenced in the summer of 2009. The Marcy Reservoir Tank and Control Building are nearly complete and will be on line in the spring of 2010. The Toby Road Tanks will be erected starting in the spring and will be on line by mid-fall 2010. These tanks are also required by new EPA/DOH water quality regulations and will permit the existing open Marcy Reservoir to be placed on stand-by service.

SCADA, Water Quality Monitoring and Security Enhancements-\$60,000

As part of a long-range program, the MVWA continues to install system monitoring sensors and surveillance instruments at facilities throughout the Regional System. These sensors are connected into the MVWA Supervisory Control and Data Acquisition (SCADA) system for monitoring at Headquarters and the Water Treatment Plant (WTP). A major project completed in 2009 was the addition of in-line water quality monitoring at the Yorkville Meter House which provides real-time information on critical parameters in the distribution system. This effort has vastly improved the system monitoring and operation as well as security. An added benefit is the ability to make adjustments to system pressures quickly in response to emergencies or changing water demands.

Hydraulic Modeling -

The hydraulic model of the Regional System was utilized by MVWA staff to evaluate system deficiencies, identify capital improvements and for emergency response planning. It was also used to analyze improvements at the New Hartford Business Park and the SUNY Institute of Technology water improvement projects.

Leak Detection Program- Phase 5- \$25,000

This phase of the leak detection program was completed in 2009 and 133 leaks were identified and repaired. Repairs are completed by MVWA forces. Identifying and repairing leaks reduces

unaccounted for water, reduces the number of main breaks and improves system pressures. This phase continues the effort to regularly analyze the Regional System for leaks.

Water Main Replacement & Extensions in Whitestown & Utica – \$130,000

Over 1200 feet of new 8-inch & 12-inch water mains along with valves and hydrants, was installed by MVWA's own forces to eliminate dead-end undersized mains in several locations. These areas included Summit Pl. in Utica, Holiday and Highland Drives in Whitestown and Judd Rd., also in Whitestown. The projects improve water quality, pressure and fire protection.

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 1996, the Water Quality Laboratory expanded its capabilities to include a state-of-the-art microbiological testing facility. This effort has continued through 2009. We are active participants in national and international research projects concerning the detection and identification of waterborne parasites and pathogens such as *Giardia* and *Cryptosporidium*. Laboratory equipment includes sophisticated microscopes equipped with sophisticated computerized programs for imaging and archiving. The facility is second to none in New York State and is one of only approximately 35 laboratories nationwide that is approved by the U.S. EPA for protozoan pathogen monitoring. Our laboratory was one of six laboratories nationwide that was chosen by the USEPA to test *Giardia/Cryptosporidium* Method 1623 for the USEPA Supplemental Survey. This was a year-long project that resulted in an improved detection method for Protozoan Pathogens.

In October 1999, the MVWA received a USEPA grant to begin the study and implementation of a comprehensive source water protection program and watershed management plan. The final report was filed with the EPA in 2000 however this project has become incorporated into an ongoing effort to help protect our source water that is the heart of our community and our way of life.

The Water Quality Department is also an active member of the American Water Works

Research Foundation (AWWARF). During 2009, the Water Quality Department staff presented research papers concerning water quality and the MVWA's operations. During 2009, we hope to continue these efforts and make a difference in the water quality field.

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 80 contaminants are regulated in potable water. The U.S. Environmental Protection Agency (USEPA) has begun to regulate additional contaminants during 2001. These federal standards are then 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 by the Water Treatment Plant Operators. These samples are used to test for total coliform bacteria, pH, turbidity, chlorine residuals, fluoride concentration, alkalinity, hardness, and chloride.

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

In July of 1997, a new EPA testing regulation began. This regulation, called the Information Collection Rule (ICR), remained in effect until December of 1998. The MVWA was required to monitor many new chemical parameters as well as protozoan pathogens under this rule. Also during this time period, treatment plant data and distribution system samples and data were compiled. The results of this testing was made available in 1999 by the EPA in the form of a national database available on the Internet.

The Long Term 2 Enhanced Surface Water Treatment Rule (LT2) and the Stage 2 Disinfection/Disinfection Bi-Products (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. 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 Stage 2 DBP Rule requires large water suppliers to systematically identify areas in the distribution system with the worst potential for disinfection by product formation and to select new monitoring sites from this process. Further, this rule requires each new site's running annual average to be in compliance with 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.

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. With 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, Radio nuclides, 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 2009 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 ($\mu\text{g/L}$), but other units are used for some parameters. These are listed in the table. Other information is listed in the table.

Also listed in these 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 and bacterial content. Several types of bacterial tests are performed. These include: the test for Total Coliform Bacteria, and the test for *Escherichia coli*.

Testing in 2009 has revealed less than one coliform per 100 ml in all of our monthly monitoring averages. The water that our customers receive is of a superior bacteriological quality.

TABLE 1. EPA 525.2 SEMI-VOLATILE SOC's (sample taken 9/19/08)

SOC COMPOUNDS	ALLOWABLE CONC (mg/L)	RESULT (mg/L)
Alachlor(1016,1221,1232,1242,1248,1254,1260)	0.002	< 0.0001
Aldrin	NL	< 0.001
Atrazine	0.003	< 0.0006
Benzo(a)pyrene	0.0002	< 0.0002
gamma-BHC (Lindane)	0.0002	< 0.0001
Butachlor	NL	< 0.01
alpha-Chlordane	0.002	< 0.0004
gamma-Chlordane	0.002	< 0.001
Dieldrin	NL	< 0.001
Endrin	0.002	< 0.001
bis(2-Ethylhexyl)adipate	0.4	< 0.01
bis(2-Ethylhexyl)phthalate	0.006	0.0045
Heptachlor	0.0004	< 0.0001
Heptachlor epoxide	0.0002	< 0.0001
Hexachlorobenzene	0.001	< 0.0002
Methoxychlor	0.04	< 0.008
Metolachlor	NL	< 0.01
Metribuzin	NL	< 0.01
Simazine	0.004	< 0.0008

NOTE: **CONC - Concentration**
 < - Less than
 NL – No Limit
 µg/L – Micrograms/per liter
 Mg/L – Milligrams/per liter

TABLE 2. EPA 200.8 TOTAL METALS BY ICP/MS

TOTAL METALS	ALLOWABLE CONC (mg/L)	RESULTS (mg/L)
Antimony	0.006	< 0.001
Arsenic	0.05	< 0.001
Barium	2.00	0.011
Beryllium	0.004	< 0.001
Cadmium	0.005	< 0.001
Chromium	0.10	<0.001
Mercury	0.002	< 0.001
Nickel	0.006	< 0.001
Thallium	0.002	< 0.001
Copper	1.3	0.031
Selenium	0.05	<0.001

TABLE 3. EPA 335.2 TOTAL CYANIDE

TOTAL CYANIDE	ALLOWABLE CONC (mg/L)	RESULTS (mg/L)
Cyanide	0.2	< 0.01

TABLE 4. EPA 524.2 POC'S VINYL CHLORIDE & MTBE

POC's	ALLOWABLE CONC (µg/L)	RESULT (µg/L)
Benzene	5.0	< 0.5
Bromobenzene	5.0	< 0.5
Bromochloromethane	5.0	< 0.5
Bromomethane	5.0	< 0.5
sec-Butylbenzene	5.0	< 0.5

n-Butylbenzene	5.0	< 0.5
tert-Butylbenzene	5.0	< 0.5

TABLE 4. EPA 524.2 POC'S VINYL CHLORIDE & MTBE - (Continued)

POC's	ALLOWABLE CONC (µg/L)	RESULT (µg/L)
Carbon tetrachloride	5.0	< 0.5
Chlorobenzene	5.0	< 0.5
Chloroethane	5.0	< 0.5
Chloromethane	5.0	< 0.5
2-Chlorotoluene	5.0	< 0.5
4-Chlorotoluene	5.0	< 0.5
Dibromomethane	5.0	< 0.5
1, 2-Dichlorobenzene	5.0	< 0.5
1, 3-Dichlorobenzene	5.0	< 0.5
1, 4-Dichlorobenzene	5.0	< 0.5
Dichlorodifluoromethane	5.0	< 0.5
1, 1-Dichloroethane	5.0	< 0.5
1, 2-Dichloroethane	5.0	< 0.5
cis-1, 2-Dichloroethane	5.0	< 0.5
1, 1-Dichloroethane	5.0	< 0.5
Trans-1, 2-Dichloroethane	5.0	< 0.5
1, 2-Dichloropropane	5.0	< 0.5
1, 3-Dichloropropane	5.0	< 0.5
2, 2-Dichloropropane	5.0	< 0.5
1, 1-Dichloropropane	5.0	< 0.5
cis-1, 3-Dichloropropane	5.0	< 0.5
Trans-1, 3-Dichloropropane	5.0	< 0.5
Ethyl benzene	5.0	< 0.5

Hexachlorobutadiene	5.0	< 0.5
Isopropylbenzene (Cumene)	5.0	< 0.5

TABLE 4. EPA 524.2 POC'S VINYL CHLORIDE & MTBE - (Continued)

POC's	ALLOWABLE CONC (µg/L)	RESULT (µg/L)
4-Isopropyl toluene (Cymene)	5.0	< 0.5
Methylene chloride	5.0	< 0.5
N-Propylbenzene	5.0	< 0.5
Styrene	5.0	< 0.5
1,1,1,2-Tetrachloroethane	5.0	< 0.5
1,1,2,2-Tetrachloroethane	5.0	< 0.5
Tetrachloroethane	5.0	< 0.5
Toluene	5.0	< 0.5
1,2,3-Trichlorobenzene	5.0	< 0.5
1,2,4-Trichlorobenzene	5.0	< 0.5
1,1,1-Trichloroethane	5.0	< 0.5
1,1,2-Trichloroethane	5.0	< 0.5
Trichloroethene	5.0	< 0.5
Trichlorofluoromethane (Freon 11)	5.0	< 0.5
1,2,3-Trichloropropane	5.0	< 0.5
1,2,4-Trimethylbenzene	5.0	< 0.5
1,3,5-Trimethylbenzene	5.0	< 0.5
o-Xylene	5.0	< 0.5
m-Xylene	5.0	< 0.5
p-Xylene	5.0	< 0.5
MTBE	5.0	< 0.5

ANNUAL AVERAGES (± s.d.) FOR YEAR 2009
(Raw Water vs. Finished Drinking Water)

PARAMETER	UNIT OF MEASURE	ALLOWABLE CONC	HINCKLEY RESERVOIR (Raw Water)	MARCY OUTFLOW* (Finished)
ALKALINITY	mg/L AS CALCIUM CARB	NL	13	45
TOTAL HARDNESS	mg/L AS CALCIUM CARB	NL	14	19
CALCIUM HARDNESS	mg/L AS CALCIUM CARB	NL	12	16
MAGNESIUM HARDNESS	mg/L AS CALCIUM CARB	NL	3	3
CHLORIDES	mg/L	250	5.7	6.7
TURBIDITY	NTU	5.0	1.4	0.6
pH	pH UNITS	NL	6.62	9.12
COLOR	COLOR UNITS	15	44	11
IRON	mg/L	0.3	0.185	0.031
CONDUCTIVITY	µMHO/cm	NL	38.1	140.0
TOTAL DISSOLVED SOLIDS	mg/L	NL	18.0	66.4
FLUORIDE	--	--	NA	1.10

*Distribution water

PARAMETER	UNIT OF MEASURE	ALLOWABLE CONCENTRATION	RESULT AVERAGE
NITRATE	mg/L	10	0.26

PARAMETER	UNIT OF MEASURE	ALLOWABLE CONC	HINCKLEY RESERVOIR (Raw Water)	FILTRATION PLANT (Finished)
TOC	mg/L	NL	5.54	1.79
UV ₂₅₄	Abs cm ⁻¹	NL	0.198	0.031
SUVA		NL	3.56	1.70
% TOC Removal		NL	-	67.7%

NOTE: CONC – Concentration µg/L – Micrograms/per liter NL- no limit at this time NTU Nephelometric turbidity units
 < - Less than Mg/L – Milligrams/per liter s.d.- Standard deviation

ANNUAL TABLE 6. MICROBIOLOGICAL ANALYSIS

**OTHER ANALYSIS
DISTRIBUTION SYSTEM 2009**

PARAMETER	UNIT OF MEASURE	ALLOWABLE CONCENTRATION	RESULT AVERAGE
TOTAL COLIFORM BACTERIA	BACTERIA PER 100 mL	< 5%	0.5%
<i>E. coli</i>	BACTERIA PER 100 mL	< 1 PER 100 mL	< 1 PER 100 mL

TABLE 7(a), (b), THM/HAA ANALYSIS

(a) - TOTAL TRIHALOMETHANE LEVELS - TTHM

Year 2006	AVERAGE TTHM (µg/L)
4-QUARTER AVERAGE TTHM	63
	Range of: 13-150
ALLOWABLE AVERAGE LIMIT (MCL)	80

(b) - HALOACETIC ACID - HAA

Year 2006	AVERAGE HAA (mg/L)
4 QUARTER AVERAGE HAA	25
	Range of: 10-46
ALLOWABLE AVERAGE LIMIT (MCL)	60

TABLE 8. SAMPLE LEAD MONITORING (samples taken 2000)

SITE NO.	LEAD RESULTS (ppb)	SITE NO.	LEAD RESULTS (ppb)
1	<1.0	27	5.1
2	<1.0	28	5.3
3	<1.0	29	5.6
4	<1.0	30	5.9
5	<1.0	31	5.9
6	1.6	32	6.2
7	1.9	33	6.3
8	2.4	34	6.4
9	2.4	35	7.0
10	2.4	36	7.0
11	3.1	37	7.0
12	3.4	38	7.3
13	3.7	39	7.5
14	3.8	40	7.9
15	3.8	41	7.9
16	4.1	42	8.3
17	4.1	43	8.6
18	4.3	44	9.1
19	4.3	45	9.1
20	4.4	46	9.5
21	4.5	47	11.0
22	5.0	48	13.0
23	5.0	49	16.0
24	5.1	50	16.0
25	5.1	51	29.0
26	5.1	52	33.0
		53	

NOTE:5.6

1) 90.0th percentile is # 47= 0.011 mg/l or 11 ppb lead.

Federal regulations require the 90th percentile lead level to be 15 ppb or lower.
Next required monitoring 2009

RADIOLOGICAL ANALYSIS*

	LEVEL ALLOWED	RESULT
GROSS ALPHA	15 Pci/L	1.16
RADIUM -226		0.204
RADIUM -228		0.176
Combined RADIUM	5 pCi/L	0.380

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 are being monitored on a regular basis.

The best means of controlling the parasite is through a multi-barrier defense of filtration and chlorination. Both of these 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* and Testing Results for 2009

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. During 2009 as part of our routine sampling, 11 samples of Hinckley Reservoir raw source water and 11 samples of our filtered water were collected and analyzed for *Cryptosporidium* oocysts. Of these samples 0 Hinckley Reservoir raw source water samples were positive for the presence of *Cryptosporidium*. However, previous testing indicates *Cryptosporidium* may be present in our source water. No *Cryptosporidium* was detected in our filtered drinking water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. 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* and Testing Results for 2009

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. During 2009, as part of our routine sampling, 11 samples from the Hinckley Reservoir raw source water and 11 samples of our filtered water were collected and analyzed for *Giardia* cysts. Of these samples, from the Hinckley Reservoir raw source water 6 tests were positive for *Giardia*. Therefore, our testing indicates *Giardia* may be present in our raw source water. However, no *Giardia* was detected in our filtered drinking water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. 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 protection by reducing lead and copper levels at consumer's taps. The Rule set an action level of 0.015 parts per million (ppm) for lead and 1.2 parts per million (ppm) for copper and required for the first time that suppliers test for lead and copper at the tap.

Lead is unusual among drinking water contaminants because it seldom occurs naturally in water supplies. It enters drinking water primarily as a result of 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.

During 1992, the Water Board conducted two rounds of testing for lead and copper to comply with this new rule. Samples were taken from high-risk households throughout our service area. One hundred homeowners with lead in their household plumbing volunteered for this program. The homeowner was required to leave the water standing in their household plumbing for eight hours and then a water sample was taken. Over 200 samples were collected and analyzed. The Federal Lead and Copper Rule states that lead levels in the high-risk homes must be below 0.015 ppm (15 ppb) in 90% of the homes tested. 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 were installed in the new Prospect plant and corrosion has been greatly reduced and lead levels have dropped dramatically in these high-risk homes. Lead levels during the first half of 1995 reached a low of 0.010 ppm at the 90th percentile and continued at these levels through 1996. In 1997, the New York State Health Department, being satisfied with the lead testing results, reduced the monitoring requirement for lead to fifty samples per year. These samples were taken during the warm weather months, June - September 1997, when lead could pose a problem in household plumbing. The lead level at the 90th percentile during this period of 1997 was 0.014 ppm. This was well within the federal guidelines.

In addition, during 1993 research activities examined ways to further reduce pipe corrosion in our system and improve the filtration process. These studies indicated that additional corrosion control facilities were needed. Construction of this corrosion control facility was started in the summer of 1995 and completed in early 1996. 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 New York State Health Department is satisfied that the Mohawk Valley Water Authority has achieved optimum corrosion control and compliance lead level monitoring has been reduced to a three-year schedule. Required lead monitoring tests were collected in 2006. Testing results indicate that the lead levels are within federal guidelines. The results are listed in the chemical analysis section were collected and tested during 2009. The next round of testing will occur in 2011. If you are concerned about lead levels at your tap in your home, you can have your water tested at a New York State certified laboratory for approximately \$20.00.

BOTTLED WATER AND HOME TREATMENT SYSTEMS AS AN ALTERNATIVE FOR DRINKING WATER

The bottled water and home treatment system industries experienced a phenomenal growth in the U.S. over the past few years. This is due in part to higher consumer concern about environmental issues including drinking water quality. Coupled with the marketing strategies of both of these 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

1. No one device can correct all water quality problem. 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).
2. **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.

THE COST OF BOTTLED WATER VS. REGIONAL WATER BOARD WATER

One gallon of bottled water is approximately \$ 1.50

One gallon of MVWA's water costs approximately \$ 0.003

ADDITIONAL INFORMATION IS AVAILABLE ON REQUEST

We are pleased to present our water quality report to you. Delivering high quality water to you is the highest priority for the Mohawk Valley Water Authority. Through the meticulous efforts of the Regional Water Board team, the water is now 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. There is a video available explaining our system and the treatment processes that are employed by the Regional Water Board. Also, group tours can be arranged to observe the process first hand.

CONTACTS:

Water Quality Department: 792-0338

M.V.W.A. - Main Office: 792-0301

Sincerely yours,
Mohawk Valley Water Authority

Connie K. Schreppel Ph.D.
Laboratory Director
Water Quality Laboratory

Annual Drinking Water Quality Report for 2009
Upper Mohawk Valley Regional Water Board
(Mohawk Valley Water Authority)
1 Kennedy Plaza Box 345
Utica, New York 13503
(Public Water Supply ID# NY3202411)

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. We are proud to report that last year, the water provided by the MVWA met or surpassed all Federal and New York State Drinking Water Standards. This report provides an overview of last year's (2009) 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 Connie K. Schreppel, Ph.D., Water Quality Laboratory Director, at 792-0338. 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 Regional Water Board Conference Room, third floor, Utica City Hall at 5 P.M.

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

WHERE DOES OUR WATER COME FROM?

In general, the sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. In order to ensure that tap water is safe to drink, the State and the EPA prescribe regulations which limit the amount of certain contaminants in water provided by public water systems. 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 373 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. In fact, 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 600 miles of pipe that brings the water to your home.

Fluoride is added to your water in concentrations of 1.0 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 130,000 people through 38,955 service connections. The total water produced in 2009 was approximately 6.4 billion gallons. The daily average of water treated is 16.2 million gallons per day. Our highest single day of production was 20.4 million gallons. The amount of metered water delivered to customers was 3.8 billion gallons. Unmetered water totaled approximately 2.6 billion gallons or 40.6 % of the total amount produced. Water used for construction projects, flushing water mains, cleaning streets, fire fighting accounted for 18% of the unmetered water while loss due to leaks for 2009 was approximately 22.6 % of the unmetered water. The MVWA has an on going Leak Detection and Repair program. Approximately one third of the system is surveyed by professional Leak Detection Contractors every 18 months. Since 2000, over 650 leaks have been located and repaired. The MVWA also has invested over \$50,000 in electronic leak detection equipment and training for in house personnel. In 2009, residential water customers were charged \$3.32 per 1,000 gallons of water (average family of four).

SYSTEM IMPROVEMENTS

During 2009 the MVWA continued its aggressive program of reinvestment in the Regional System. Total capital expenditures were \$2.1 million. Since 1998 over \$30.5 million has been expended on capital improvements to ensure reliable, quality water service.

ON-GOING PROJECTS IN 2009 INCLUDED:

Regulatory Compliance Plan - Water Treatment Plant Deerfield Tank - \$5,600,000

The 10 million gallon Deerfield Tank was brought on-line in the summer of 2009 after two years of construction. The project was required by new EPA/DOH water quality regulations that require all finished water storage to be enclosed. The Deerfield Tank and Regulating Facility will permit the existing uncovered Deerfield Reservoir to be placed on stand-by service.

Regulatory Compliance Plan – Marcy Reservoir and Toby Road Tanks - \$12,400,000

The 3 million gallon Marcy Reservoir Tank and the two 6 million gallon Toby Road Tanks were bid in March 2009 and construction commenced in the summer of 2009. The Marcy Reservoir Tank and Control Building are nearly complete and will be on line in the spring of 2010. The Toby Road Tanks will be erected starting in the spring and will be on line by mid-fall 2010. These tanks are also required by new EPA/DOH water quality regulations and will permit the existing open Marcy Reservoir to be placed on stand-by service.

SCADA, Water Quality Monitoring and Security Enhancements-\$60,000

As part of a long-range program, the MVWA continues to install system monitoring sensors and surveillance instruments at facilities throughout the Regional System. These sensors are connected into the MVWA Supervisory Control and Data Acquisition (SCADA) system for monitoring at Headquarters and the Water Treatment Plant (WTP). A major project completed in 2009 was the addition of in-line water quality monitoring at the Yorkville Meter House which provides real-time information on critical parameters in the distribution system. This effort has vastly improved the system monitoring and operation as well as security. An added benefit is the ability to make adjustments to system pressures quickly in response to emergencies or changing water demands.

Hydraulic Modeling -

The hydraulic model of the Regional System was utilized by MVWA staff to evaluate system deficiencies, identify capital improvements and for emergency response planning. It was also used to analyze improvements at the New Hartford Business Park and the SUNY Institute of Technology water improvement projects.

Leak Detection Program- Phase 5- \$25,000

This phase of the leak detection program was completed in 2009 and 133 leaks were identified and repaired. Repairs are completed by MVWA forces. Identifying and repairing leaks reduces unaccounted for water, reduces the number of main breaks and improves system pressures. This phase continues the effort to regularly analyze the Regional System for leaks.

Water Main Replacement & Extensions in Whitestown & Utica – \$130,000

Over 1200 feet of new 8-inch & 12-inch water mains along with valves and hydrants, was installed by MVWA's own forces to eliminate dead-end undersized mains in several locations. These areas included Summit Pl. in Utica, Holiday and Highland Drives in Whitestown and Judd Rd., also in Whitestown. The projects improve water quality, pressure and fire protection.

ARE THERE CONTAMINANTS IN OUR 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.

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. During 2009, as part of our routine sampling, 11 samples of Hinckley Reservoir raw source water and 11 samples of our filtered water were collected and analyzed for Cryptosporidium oocysts. Of these samples, 0 Hinckley Reservoir raw source water samples were positive for the presence of Cryptosporidium. However, previous testing indicates Cryptosporidium may be present in our source water. No Cryptosporidium was detected in our filtered drinking water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, a gastrointestinal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome 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. During 2009, as part of our routine sampling, 11 samples from the Hinckley Reservoir raw source water and 11 samples of our filtered water were collected and analyzed for Giardia cysts. Of these samples, from the Hinckley Reservoir raw source water 3 tests were positive for Giardia. Therefore, our testing indicates Giardia may be present in our raw source water. However, no Giardia was detected in our filtered drinking water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Giardia may cause giardiasis, an intestinal illness. People exposed to Giardia 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 hand washing practices are poor.

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).

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 an optimal range from 0.8 to 1.2 mg/l (parts per million). To ensure that the fluoride supplement in your water provides optimal dental protection, the State Department of Health requires that we monitor fluoride levels on a daily basis. During 2009 monitoring showed fluoride levels in your water were in the optimal range 99.5 % of the time. None of the monitoring results showed fluoride at levels that approach the 2.2 mg/l MCL for fluoride.

INFORMATION ON LEAD

If present, elevated levels of lead can cause serious health problems, especially for pregnant women, infants, and young children. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home’s plumbing. MVWA is responsible for providing high quality drinking water, but cannot control the variety of materials used in household plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

WHY SAVE WATER AND HOW TO AVOID WASTING IT?

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

- Saving water saves energy and some of the costs associated with both of these necessities of life;
- Saving water reduces the cost of energy required to pump water and the need to construct costly new wells, pumping systems and water towers; 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 in your home 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 your toilets for leaks by putting a few drops of food coloring in the tank - watch for a few minutes to see if the color shows up in the bowl. It is not uncommon to lose up to 100 gallons a day from one of these otherwise invisible toilet leaks. Fix it and you save more than 30,000 gallons a year.

Table of Detected Contaminants							
Contaminant	Violation Yes/No	Date of Sample	Level Detected (Avg/Max) (Range)	Unit Measurement	MCLG / MRDLG	Regulatory Limit (MCL, MRDL, TT or AL)	Likely Source of Contamination
Microbiological Contaminants– over 100 Coliform Samples Monthly							
Total Coliform	No	Jan, Jul, Oct	13 positive samples (0.5% of total samples)	N/A	N/A	MCL = less than 5% of samples positive	Naturally present in the environment
Physical Parameters							
Turbidity (EP) ⁽²⁾	No	12-22-09	0.18 (highest single measurement) ⁽²⁾	NTU	N/A	TT = <1.0 NTU	Soil Runoff
Turbidity (EP) ⁽²⁾		All months ≤ 0.3	100% ≤ 0.3 (lowest monthly percentage of samples meeting specified limits)			TT = 95% of samples <0.5 NTU	

Turbidity (Distribution)		Daily / monthly	0.74 ⁽³⁾			TT = <5 NTU	
Inorganic Contaminants							
Barium	No	9-24-09	0.011	mg/l	2	MCL = 2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Copper	No	8-09	0.031 ⁽⁴⁾ (range = 0.0037 - 0.095)	mg/l	1.3	AL = 1.3	Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives.
Fluoride (System Entry Point)	No	9-24-09	1.0	mg/l	N/A	MCL = 2.2	Erosion of natural deposits; Water additive that promotes strong teeth (<i>The MVWA water system adds Fluoride to the water</i>);
Fluoride (Distribution System)	No	Daily / Monthly	1.02 ⁽⁵⁾ (range = 0.20 - 1.30)				
Lead	No	8-09	11 ⁽⁶⁾ (range = ND – 33)	ug/l	0	AL = 15	Corrosion of household plumbing systems; Erosion of natural deposits
Sodium	No	9-24-09	26 ⁽⁷⁾	mg/l	N/A	See Note 7 below	Naturally occurring; part of pH adjustment additive
Sulfate	No	9-24-09	15	mg/l	N/A	MCL = 250	Naturally occurring
Disinfection By-Products							
Chlorine Residual	No	Daily/ Monthly	0.9 ⁽⁵⁾ (range = 0.1 - 1.6)	mg/l	N/A	MRDL = 4 ⁽⁸⁾	Water additive used to control microbes.
Haloacetic Acids (mono-, di- and trichloroacetic acid, and mono- and dibromoacetic acid)	No	Quarterly	25 ⁽⁹⁾ (range = 10 - 46)	ug/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	63 ⁽¹⁰⁾ (range = 13 - 150)	ug/l	N/A	MCL = 80	By-product of drinking water chlorination needed to kill harmful organisms. TTHMs are formed when source water contains large amounts of organic matter.
Radioactive Contaminants							
Gross alpha activity (including radium – 226 but excluding radon and uranium)	No	9-16-08	1.16	pCi/L	N/A	MCL = 15	Decay of natural and man-made deposits
Combined radium – 226 and 228	No	9-16-08	0.380	pCi/L	N/A	MCL = 5	Decay of natural and man-made deposits

Notes:

- 1 - In Jan (1 sample), Jul (10) Oct (2) total coliforms were detected in 13 of the 2411 routine monthly compliance samples collected at our system. 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 were subsequently collected after each positive sample and total coliforms were not detected in those samples. Since total coliforms were detected in <5% of the samples collected during the month, the system did not have an MCL violation. It should be noted that E. coli, associated with human and animal fecal waste, was not confirmed in any of the samples collected.
- 2 - 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. Our highest single entry point (pre-distribution system) turbidity measurement (0.18 NTU) for the year occurred on (12-22-09). State regulations require that turbidity must always be below 5 NTU. The regulations also require that 95% of the turbidity samples collected have measurements below 0.5 NTU. All other levels recorded during 2009 were within the acceptable range allowed.
- 3 - Turbidity is measured on a daily basis in the distribution system. The monthly average of the results in the months with highest turbidity levels were all below 5 NTU.
- 4 - The level presented represents the 90th percentile of the 50 sites tested. 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.
- 5 - This level represents the average and range calculated from sample submission results.
- 6 - The level presented represents the 90th percentile of the fifty two samples collected. The action level for lead was exceeded at four (4) of the sites tested (the levels were 16, 16, 29 and 33 ug/l).
- 7 - 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.
- 8 - 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.
- 9 - This level represents the annual quarterly average along with the range of results.

Notes:

10 - This level represents the annual quarterly average along with the range of results. Three samples were collected that indicated elevated levels of TTHMs. However, since the MCL is determined by the annual quarterly average, the MCL was not exceeded during 2009. Since TTHMs were detected at levels higher than the MCL in 4 of the 16 samples collected in 2009 we are including the following information - "Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous systems, and may have an increased risk of getting cancer."

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.
PICOCURIES PER LITER	pCi/l	A measure of the radioactivity in water.
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. It should be noted that the action level for lead was exceeded in four (4) of the samples collected. Based on these exceedances, we are required to present the following information on lead in drinking water:

"Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (1-800-426-4791)."

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 the MVWA and our Water Quality Department

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

During 2009, our system was in compliance with applicable State drinking water operating, monitoring and reporting requirements.

CLOSING

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