

2017 Annual Drinking Water Quality Report
Hardyston Township M.U.A.
Crystal Springs Water System
(NJDEP PW ID No. 1911006)

We are pleased to present to you this year's Annual Water Quality Report. We encourage you to carefully read this report and hope that you find it informative. This report is designed to meet the Federal Safe Drinking Water Act requirements for Consumer Confidence Reports and informs you about the quality water and services we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water.

If you have any questions about this report or concerning your water utility, please contact either Marianne Smith, HTMUA Administrator at (973) 823-7020 or Michael Vreeland, P.E., Authority Engineer at (973) 252-9340. If you want to learn more, please attend any of our regularly scheduled meetings held at the Hardyston Township Municipal Building, 149 Wheatsworth Road. Meetings are held on the first Monday of each month at 7:00 p.m.

MONITORING PROGRAM

We routinely monitor for contaminants in your drinking water according to Federal and State regulations. The water supplied from the Crystal Springs Water System was subjected to more than 100 water quality tests during 2017. This report is a snapshot of recent water quality. Included are details about where your water comes from, what it contains and how it compares to standards set by regulatory agencies.

SOURCES OF WATER

The water source is groundwater drawn from wells. The Crystal Springs water system well field consists of three bedrock groundwater supply wells located in the Wallkill River Watershed. The wells range in depth from 330 feet to 455 feet deep. The wells are completed in and draw groundwater from the Leithsville Formation. After the water comes out of the wells we add sodium hypochlorite for disinfection. The New Jersey Department of Environmental Protection (NJDEP) has permitted a groundwater diversion of approximately 215 million gallons per year from the well field.

Why are there contaminants in my drinking water?

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the (EPA) Safe Drinking Water Hotline at 1-800-426-4791.

The sources of drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally-occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or human activity. Contaminants that may be present include:

Microbiological contaminants, such as viruses and bacteria, that may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife;

Inorganic contaminants, such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic waste water discharges, oil and gas production, mining, or farming;

Pesticides and Herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff, and residential uses;

Organic Chemical Contaminates, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff, and residential uses;

Radioactive Contaminates, can be naturally-occurring or be the result of oil and gas production and mining activities.

In order to ensure that tap water is safe to drink, the EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water which must provide the same protection for public health.

Source Water Assessment and Its Availability

The NJDEP has completed and has issued a Source Water Assessment Report and Summary for Wells No. 1 and 2. The report and summary are available at the NJDEP's source water web site (www.state.nj.us/dep/swap). The source water assessment determined the following:

Susceptibility Rating for Crystal Springs Water System Sources

		Contaminant Category			
	Pathogens	Nutrients	Pesticides	Volatile Organics	
Well 1	Medium	High	Medium	Low	
Well 2	Medium	High	Medium	Low	
	Inorganics	Radionuclides	Radon	Disinfection Byproducts	
Well 1	Low	Medium	Medium	High	
Well 2	Low	Medium	Medium	High	

If a system is rated highly susceptible for a contamination category, it does not mean a customer is or will be consuming contaminated drinking water. The rating reflects the potential for contamination of source water, not the existence of contamination.

Public water systems are required to monitor for regulated contaminants and to install treatment if any contaminants are detected at frequencies and concentrations above allowable levels. Specific information on potential contaminant sources are provided in the source water assessment report. If you have any questions regarding the source water assessment report or summary please contact the Bureau of Safe Drinking water at swap@dep.state.nj.us or 609-292-5550.

Source Water Protection Tips:

Protection of drinking water is everyone's responsibility. You can help protect your community's drinking water source in several ways:

- Eliminate excess use of lawn and garden fertilizers and pesticides – they contain hazardous chemicals that can reach your drinking water source.
- Pick up after your pets.
- Dispose of chemicals properly; take used motor oil to a recycling center.
- Volunteer in your community. Find a watershed or wellhead protection organization in your community and volunteer to help.
- Organize a storm drain stenciling project with your local government or water supplier. Stencil a message next to the street drain reminding people "Dump No Waste - Drains to River" or "Protect Your Water." Produce and distribute a flyer for households to remind residents that storm drains dump directly into your local water body.

Water Conservation Tips:

Did you know that the average U.S. household uses approximately 400 gallons of water per day or 100 gallons per person per day?

Luckily, there are many low-cost and no-cost ways to conserve water. Small changes can make a big difference – try one today and soon it will become second nature.

- Take short showers - a 5 minute shower uses 4 to 5 gallons of water compared to up to 50 gallons for a bath.
- Shut off water while brushing your teeth, washing your hair and shaving and save up to 500 gallons a month.
- Use a water-efficient showerhead. They're inexpensive, easy to install, and can save you up to 750 gallons a month.
- Run your clothes washer and dishwasher only when they are full. You can save up to 1,000 gallons a month.
- Water plants and lawns only when necessary.

- *Fix leaky toilets and faucets. Faucet washers are inexpensive and take only a few minutes to replace. To check your toilet for a leak, place a few drops of food coloring in the tank and wait. If it seeps into the toilet bowl without flushing, you have a leak. Fixing it or replacing it with a new, more efficient model can save up to 1,000 gallons a month.*
- *Adjust sprinklers so only your lawn is watered. Apply water only as fast as the soil can absorb it and during the cooler parts of the day to reduce evaporation.*
- *Teach your kids about water conservation to ensure a future generation that uses water wisely.*
- *Visit www.epa.gov/watersense for more information.*

WATER QUALITY DATA TABLES

The tables below present data from the most recent monitoring done in compliance with regulations that are applicable for the calendar year of this report. The presence of contaminants in the water does not necessarily indicate the water poses a health risk.

Some people may be more vulnerable to contaminant 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 about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by cryptosporidium and other microbiological contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791).

Unless otherwise noted, the data presented in the tables is from testing done in 2017. The EPA or the NJDEP allow us to monitor for certain contaminants less than once per year because the concentration of these contaminants do not change frequently. As such, some of our data, though representative, are more than one year old.

The Safe Drinking Water Act regulations allow monitoring waivers to reduce or eliminate the monitoring requirements for asbestos, volatile organic compounds, radionuclides and synthetic organic compounds. Our system received monitoring waivers for synthetic organic compounds. Additional information relating to contaminants for which the system monitored but did not detect can be obtained by contacting the Authority Engineer.

Definitions: *In the following tables you may find terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:*

Action Level (A.L.) - *the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.*

Maximum Contaminant Level (MCL) - *the highest level of a contaminant that is allowed in drinking water. MCL's are set as close to the MCLGs as feasible using the best treatment technology.*

MCL's are set at very stringent levels. To understand the possible health effects described for many regulated constituents, a person would have to drink 2 liters of water every day at the MCL level for seventy years to have a one-in-a-million chance of having the described health effect.

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.

n/a - not applicable

Parts Per Billion (ppb) or Micrograms per Liter (ug/l) - one part per billion corresponds to one minute in 2,000 years or a single penny in \$10,000,000.

Parts Per Million (ppm) or Milligrams per Liter (mg/l) - one part per million corresponds to one minute in two years or a single penny in \$10,000.

Parts Per Trillion (ppt) or Nanograms per Liter - one part per trillion corresponds to one minute in 2,000,000 years or a single penny in \$10,000,000,000.

Picocuries per liter (pCi/L) - picocuries per liter is a measure of the radioactivity in water.

Primary Drinking Water Standards - enforceable standards established by the EPA designed to protect the public health. Limits on the amount of various substances sometimes found in drinking water are expressed as MAXIMUM CONTAMINANT LEVEL (MCL) and/or MAXIMUM CONTAMINANT LEVEL GOAL (MCLG).

Secondary Drinking Water Standards - unlike PRIMARY DRINKING WATER STANDARDS, these standards are not designed to protect public health. Instead, they are intended to protect "public welfare" by providing guidelines regarding aesthetic aspects of drinking water which do not present a health risk. Currently, there are no MCLs or MCLGs for the secondary drinking water contaminates.

Treatment Technique (TT) - a treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

Primary Drinking Water Standards

Contaminant	MCLG or MRDLG	MCL, AL,TT or MRDL	Your Water	Range Low High	Sample Date	Violation	Typical Source in Drinking Water
Disinfectant & Disinfection By-Products							
Chlorine (ppm)	4	4	0.34 ⁽¹⁾	0.31 0.40	2017	NO	Water additive used to control microbes.
Total Trihalomethanes (ppb)		80	3.1 ⁽²⁾	2.2 4	2017	NO	By-product of drinking water disinfection.
⁽¹⁾ The reported value is the annual average of 24 samples collected from the distribution system. ⁽²⁾ The reported value is the average of 2 samples collected from the distribution system.							

Primary Drinking Water Standards (continued)

Contaminant	MCLG or MRDLG	MCL, AL,TT or MRDL	Your Water	Range Low High		Sample Date	Violation	Typical Source in Drinking Water
Inorganic Contaminants								
Arsenic (ppb)	5	5	0.45 ⁽³⁾	0.31	0.59	2015	NO	Erosion of natural deposits; runoff from orchards, glass and electronics production wastes.
Barium (ppm)	2	2	0.02 ⁽³⁾	0.02	0.02	2015	NO	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Copper (ppm)	1.3	1.3 (A.L)	0.14 ⁽⁴⁾	0.04	0.19	2015	NO	Corrosion of household plumbing systems; erosion of natural deposits.
Lead (ppb)	15	15 (A.L)	1.70 ⁽⁴⁾	0.16	2.0	2015	NO	Corrosion of household plumbing systems; erosion of natural deposits.
Nickle (ppb)		n/a	1.8 ⁽³⁾	1.6	2.0	2015	NO	Erosion of natural deposits.
Nitrate (ppm)	10	10	1.7 ⁽³⁾	1.4	2.0	2017	NO	Runoff from fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Selenium (ppb)	50	50	1.28 ⁽³⁾	0.85	1.70	2015	NO	Discharge from petroleum and metal refineries and mines; erosion of natural deposits.
Radioactive Contaminants								
Alpha Emitters (pCi/L)	0	15	3.5			2015	NO	Erosion of natural deposits.
Combined Radium (pCi/L)	0	5	3.5			2015	NO	Erosion of natural deposits.
Uranium (ppb)	0	30	2.0			2010	NO	Erosion of natural deposits.
<p>⁽³⁾ The reported value is the average of 2 samples collected from the point of entries to the system.</p> <p>⁽⁴⁾ The reported value is the 90th percentile of 10 samples collected from distribution system taps. The analytical results indicate the concentrations did not exceed the action level in any of the samples.</p>								

Secondary Drinking Water Standards

Contaminant	Recommended Upper Limit	Your Water	Range		Sample Date	Exceeds Recommended Upper Limit YES/NO
			Low	High		
Chloride (ppm)	250	23.7 ⁽⁵⁾	17.7	29.6	2015	NO
Fluoride (ppm)	4	0.14 ⁽⁵⁾	0.12	0.15	2015	NO
Hardness (ppm)	250	286 ⁽⁵⁾	263	308	2015	YES
Iron (ppb)	300	33.0 ⁽⁵⁾	13.0	52.9	2015	NO
Manganese (ppb)	50	0.7 ⁽⁵⁾	0.0	1.4	2015	NO
Sodium (ppm)	50	7.54 ⁽⁵⁾	6.51	8.58	2015	NO
Sulfate (ppm)	250	18.0 ⁽⁵⁾	16.3	19.6	2015	NO
Total Dissolved Solids	500	380 ⁽⁵⁾	363	397	2015	NO
Zinc (ppb)	500	16.8 ⁽⁴⁾	15	18.5	2015	NO

⁽⁵⁾ The reported value is the average of 2 samples collected from the point of entries to the system.

HEALTH EFFECTS OF DETECTED CONTAMINANTS

Chlorine - Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.

Haloacetic Acids-HAA5 - Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

Total Trihalomethanes - 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.

Arsenic - Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

Additional Information For Arsenic - While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.

Barium - Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

Copper - Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short period of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should consult their personal doctor.

HEALTH EFFECTS OF DETECTED CONTAMINANTS (continued)

Lead - Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

Additional Information For Lead - If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The HTMUA 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 is available from the Safe Drinking Water Hotline (1-800-426-4791) or at <http://www.epa.gov/safewater/lead>.

Nitrate - Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby syndrome.

Additional Information For Nitrate - Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than six months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant, you should ask for advice from your health care provider.

Selenium - Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.

Alpha emitters - Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

Combined radium - Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increase risks of getting cancer.

Uranium - Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.

Fluoride - Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling also known as dental fluorosis, may include brown staining and/or pitting of the teeth., and occurs only in developing teeth before they erupt from the gums.

Sodium - For healthy individuals, sodium intake from water is not a serious contaminate, because a much greater intake of sodium takes place from salt in the diet. However, sodium levels above the recommended upper limit may be of concern to individuals on a sodium restricted diet.

Special Considerations Regarding Children, Pregnant Women, Nursing Mothers & Others -

Children may receive a slightly higher amount of a contaminant present in the water than do adults, on a body weight basis, because they may drink a greater amount of water per pound of body weight than do adults. For this reason, reproductive or developmental effects are used for calculating a drinking water standard if these effects occur at lower levels than other health effects of concern. If there is insufficient toxicity information for a chemical (for example, lack of data on reproductive or developmental effects), an extra uncertainty factor may be incorporated into the calculation of the drinking water standard, thus making the standard more stringent, to account for additional uncertainties regarding these effects. In the cases of lead and nitrate, effects on infants and children are the health endpoints upon which the standards are based.

STEP YOU CAN TAKE TO REDUCE EXPOSURE TO LEAD AND COPPER IN DRINKING WATER

Anytime the water in a particular faucet has not been used for six hours or longer, "flush" your cold-water pipes by running the water until it becomes as cold as it will get. The more time water has been sitting in your home's pipes, the more lead and copper it may contain.

Use only water from the cold-water tap for drinking, cooking, and especially for making baby formula. Hot water is likely to contain higher levels of lead and copper. Do not boil water to remove lead or copper. Boiling water will not reduce lead or copper.

After you have taken the precautions above, have your water tested by a state certified laboratory.

The actions recommended above will probably be effective in reducing lead and copper levels because most of the lead and copper in household water comes from the plumbing in your house, not from the water supply.

COMPLIANCE WITH OTHER REGULATIONS

In 2016, the NJDEP inspected our facilities and determined that they were in compliance with applicable NJDEP regulations and/or permit conditions.

CONCLUSIONS

*As you can see by the water quality tables, we have learned through our monitoring and testing that some contaminants have been detected. The EPA and NJDEP has determined that your water **IS SAFE** at these levels.*

We at the Hardyston Township M.U.A. work around the clock to provide top quality water to every tap. We ask that all of our customers help us protect our water sources.

Thank you for allowing us to continue providing your family with clean, quality water this year.