



Annual Drinking Water Quality Report for Calendar Year 2022

Mill Creek Water District

This report is intended to provide you with important information about your drinking water and the efforts made by the water system to provide safe drinking water. This report includes drinking water facts, information on violations (if applicable), and contaminants detected in your drinking water supply during calendar year 2022. Each year, we will provide you a new report. If you need help understanding this report or have general questions, please contact the person listed below.

Este informe contiene información muy importante sobre el agua que usted bebe. Tradúzcalo ó hable con alguien que lo entienda bien.

Contact Name: Darin Huntley
Telephone Number: (217) 224-9343
E-mail (if available) millcreekwater@comcast.net

Sources of Drinking Water

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

Our source of water comes from 4 groundwater wells and a back-up water interconnect with purchased water from Quincy, IL.

Contaminants that may be present in source water include:

- Microbial contaminants, such as viruses and bacteria, which 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 storm water runoff, industrial, or domestic wastewater discharges, oil and gas production, mining, or farming.
- Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban storm water runoff, and residential uses.
- Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also, come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

Other Facts about 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 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.

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

Some people may be more vulnerable to contaminants 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 microbial contaminants are available from the Safe Drinking Water Hotline (800-426-4791).

Source Water Information

Source water name	Type of water	Report Status
CC 02-Meter Quincy (As Needed)	SW	Active
Well 1	GW	Active
Well 2	GW	Active
Well 3	GW	Active
Well 4	GW	Active

Source Water Assessments

Source water protection (SWP) is a proactive approach to protecting our critical sources of public water supply and assuring that the best source of water is being utilized to serve the public. It involves implementation of pollution prevention practices to protect the water quality in a watershed or wellhead protection area serving a public water supply. Along with treatment, it establishes a multi-barrier approach to assuring clean and safe drinking water to the citizens of Illinois. The Illinois EPA has implemented a source water assessment program (SWAP) to assist with wellhead and watershed protection of public drinking water supplies.

We want our valued customers to be informed about their water quality. If you would like to learn more, please feel welcome to attend any of our regularly scheduled meetings. The source water assessment for our supply has been completed by the Illinois EPA. If you would like a copy of this information, please stop by or call our office at (217) 224-9343.

To view a summary version of the completed Source Water Assessments, including: Importance of Source Water; Susceptibility to Contamination Determination; and documentation/recommendation of Source Water Protection Efforts, you may access the Illinois EPA website at <http://www.epa.state.il.us/cgi-bin/wp/swap-fact-sheets.pl>.

Source of Water: MILL CREEK PWD to determine Mill Creek PWD's susceptibility to groundwater contamination, a Well Site Survey, published in 2012 by the Illinois EPA, was reviewed. During the survey of Mill Creek PWD's source water protection area, Illinois EPA staff recorded potential sources, routes, or possible problem sites within the 400 foot minimum setback zones, the 1,000 foot Phase I Wellhead Protection Area (WHPA), and the Phase II WHPA for Wells #1, #2, #3 and #4. The Phase II WHPA, also referred to as the recharge area, is the geographic area surrounding a well or a well field providing potable water to a community water supply as modeled using computer software to determine a five-year time of travel. Fourteen potential sources of groundwater contamination are present that could pose a hazard to groundwater pumped by the Mill Creek PWD community water supply wells. These include a pile of material, a quarrying of material, a mining other than sand/gravel or stone, a below ground fuel storage, a manufacturing process, a septic tank, an electrical generator/substation, a fertilizer warehouse, an exterminator, two lagoons, a well, an above ground fuel storage, and a pesticide/fertilizer commercial application or warehouse. Approximately 60% (110 acres) of the Phase I and Phase II WHPAs is considered "cultivated crops", with the remaining percentage consisting of "urban development" and "deciduous forest" (Figure 2). The United States Department of Agriculture (USDA) describes this Land Resource Region as the Central Feed Grains and Livestock Region. Further, USDA classifies this Major Land Resource Area as the Central Mississippi Valley Wood Slopes, Northern Part. The Cl/Br vs. Cl ratio indicates non-point source agriculture fertilizer, as a possible source of nitrate in the area of the wells. As noted in previous sections, the nitrate concentrations for well #3 ranged from 5.58 – 9.0 mg/L. The sample data is from samples collected bi-monthly starting in November 2014 through November 2016. Figure 3 shows the overall chloride and nitrate concentration during the sample period. The Illinois EPA considers the source water of this system to be susceptible to contamination. This determination is based on a number of criteria including: the land-use activities in the recharge area of the wells, the available hydrogeological data, monitoring conducted at the wells, and monitoring conducted at the entry point to the distribution system. As noted above, the regional and local land use is primarily agriculture with some business, and the area around the wells is considered to have a "very high to moderately high" potential for aquifer recharge. All public water supplies using groundwater are required to sample their wells monthly for bacterial contaminants. Sampling performed to assess for pathogenic contamination (e.g., virus, total coliform, e-coli) has also demonstrated that the source water is not susceptible to these types of contaminants.

Sources of Drinking Water

Quincy's water comes from the Mississippi River, which is surface water. Illinois EPA considers all surface water sources of community water supply to be susceptible to potential pollution problems, hence, the reason for mandatory treatment for all surface water supplies in Illinois. Mandatory treatment includes coagulation, sedimentation, filtration, and disinfection. Within the Illinois portion of the Mississippi River Watershed many commodities, including manufactured goods, petrochemicals, and pesticides are transported along the river system. The production, storage, and transportation of these commodities are a major concern, especially when occurring near surface water intakes. In addition, agricultural runoff within the Illinois portion of the Mississippi River Basin contributes to the susceptibility of the Quincy intakes. With high flow rates and long distances of travel on the Mississippi River, critical areas can be extensive. The critical area for the Quincy intake was determined using data from a joint U.S. Environmental Protection Agency/U.S. Geological Survey project. This project used a computer modeling program (SPARROW) to determine travel times on major rivers in the United States.

Accidental spills of hazardous materials into navigable waterways are a major concern because of their frequency in the United States in recent years. Illinois has access to 1,116 miles of inland waterway that can handle commercial barge traffic. These include the Upper Mississippi River, Illinois River Waterway, and the Ohio River. Along these waterways are numerous facilities that load and unload hazardous materials. Analyses of reported spills indicate that between 1974 and 1989, 794 accidental spills of hazardous materials occurred along Illinois waterways. Approximately 92% of these spills occurred along the Mississippi and/or the Illinois River. A critical area of concern (Zone 1) for the Quincy surface water intake has been defined. Spills occurring in this critical area will travel to the intake in five hours or less, making contingency planning and spill reporting a major

concern in this watershed. Further information concerning spill response planning on the Mississippi River may be found in U.S. EPA's website at www.epa.gov/region5/oil and at U.S. Geological Survey's website [ftp://ftp.umesc.er.usgs.gov/pub/gis_data/oil_spill](http://ftp.umesc.er.usgs.gov/pub/gis_data/oil_spill).

The source water assessment for our supply has been completed by the Illinois EPA. If you would like a copy of this information, please call the Department of Utilities. To view a summary version of the completed Source Water Assessments, including: Importance of Source Water; Susceptibility to Contamination Determination; and documentation/recommendation of Source Water Protection Efforts, you may access the Illinois EPA website at: <http://www.epa.state.il.us/cgi-bin/wp/swap-fact-sheets.pl>.

2022 Regulated Contaminants Detected

Here are a few definitions and scientific terms which will help you understand the information in the contaminant detection tables.

Level 1 Assessment: A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.	
Level 2 Assessment: A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.	
Action Level Goal (ALG) : The level of a containment in drinking water below which there is no known or expected risk to health. ALGs allow for a margin of safety.	
AL	Action Level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
Avg	Regulatory compliance with some MCLs is based on running annual average of monthly samples.
MCL	Maximum Contaminant Level: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the Maximum Contaminant Level Goal (MCLG) as feasible using the best available treatment technology.
MCLG	Maximum Contaminant Level Goal: 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.
MRDL	Maximum Residual Disinfectant Level: The highest level of disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
MRDLG	Maximum Residual Disinfectant Level Goal: The level of disinfectant in drinking water below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
N/A	Not Applicable
NTU	Nephelometric Turbidity Units
pCi/L	picocuries per liter (a measure of radioactivity)
mrem:	millirems per year: (a measure of radiation absorbed by the body)
ppb	Parts per billion or micrograms per liter (ug/L) - or one ounce in 7,350,000 gallons of water.
ppm	Parts per million or milligrams per liter (mg/L) - or one ounce in 7,350 gallons of water.
TT	Treatment Technique: A required process intended to reduce the level of a contaminant in drinking water.

Coliform Bacteria	MCLG	Total Coliform MCL	Highest Number of Positive Samples	Fecal Coliform or <i>E. coli</i> MCL	Total No. of Positive <i>E. coli</i> or Fecal Coliform Samples	Violation	Likely Source of Contamination
	0	0 positive monthly sample.	0	Fecal Coliform or E. Coli MCL: A routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or E. coli positive	0	N	

Lead and Copper								
	Date Sampled	MCLG	Action Level (AL)	90 th Percentile	# Sites Over AL	Units	Violation	Likely Source of Contamination
Copper	2022	1.3	1.3	1.5	10	ppm	N	Corrosion of household plumbing systems; erosion of natural deposits; leaching from wood preservatives

Lead	2022	0	15	2.2	1	ppb	N	Corrosion of household plumbing systems; erosion of natural deposits.
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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. Mill Creek Water District is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at <http://www.epa.gov/safewater/lead>.

Disinfectants & Disinfection Byproducts	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Chlorine	12/31/2022	0.9	0.65 – 2.52	MRDLG = 4	MRDL = 4	ppm	N	Water additive used to control microbes.
Haloacetic Acids (HAA5)	2022	3	3.28 – 3.28	No goal for the total	60	ppb	N	By-product of drinking water disinfection.
Total Trihalomethanes (TTHM)	2022	10	9.82 – 9.82	No goal for the total	80	ppb	N	By-product of drinking water disinfection.
Inorganic Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Barium	04/26/2021	0.1	0.1 – 0.1	2	2	ppm	N	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Chromium	2021	4	4 - 4	100	100	ppb	N	
Fluoride	04/26/2021	0.561	0.561 – 0.561	4	4.0	ppm	N	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Manganese	07/22/2021	8	0 – 8	150	150	ppb	N	This contaminant is not currently regulated by the USEPA. However, the state regulates. Erosion of natural deposits.
Synthetic Organic Contaminants (pesticides and herbicides)	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Simazine	2021	0.45	0 – 0.45	4	4	ppb	N	Herbicide runoff.
Nitrate [measured as Nitrogen] – 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 advice from your health care provider.	2022	11	1.8 – 11	10	10	ppm	N	Runoff from fertilizer use; Leaching from septic tanks, sewage tanks, sewage; Erosion of natural deposits.
Selenium	04/26/2021	2.1	2.1 – 2.1	50	50	ppb	N	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.
Sodium	04/26/2021	20	20 – 20			ppm	N	Erosion from naturally occurring deposits. Used in water softener regeneration.
Zinc	04/26/2021	0.0065	0.0065 – 0.0065	5	5	ppm	N	This contaminant is not currently regulated by the USEPA. However, the state regulates. Naturally occurring; discharge from metal.
Radiological Contaminants	Collection Date	Highest Level Detected	Range of Levels Detected	MCLG	MCL	Units	Violation	Likely Source of Contamination
Combined Radium	7/8/2021	.529	.529 - .610	0		pCi/L	N	Erosion of natural deposits.

226/228		.610						
Gross alpha excluding radon and uranium	7/8/2021	2.72	2.72 – 2.72	0	15	pCi/L	N	Erosion of natural deposits.
Note: The state requires monitoring of certain contaminants less than once per year because the concentrations of these contaminants do not change frequently. Therefore, some of this data may be more than one year old.								

The percentage of Total Organic Carbon (TOC) removal was measured each month and the system met all TOC removal requirements set by IEPA, unless a TOC violation is noted in the violation section.

Per- and Polyfluoroalkyl Substances (PFAS)	In 2021, our public water supply was sampled as part of the <i>State of Illinois PFAS Statewide Investigation</i> . Results from this sampling indicated contaminants were not present in our CWS above the health advisory level. Follow up monitoring is being conducted. For more information about PFAS health advisories please visit the following link https://epa.illinois.gov/topics/water-quality/pfas/pfas-healthadvisory.html .
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2022 Violation Summary Table

<div> <div> Rule or Contaminant : Alkalinity, Total PH Orthophosphate </div> </div>	<div> <div> Violation Type: Monitoring </div> </div>	<div> <div> Violation Duration: 07/01/2023-12/31/2023 </div> </div>
<div> *Summary: Our water system testing requirement was overlooked and necessary testing was done as soon as possible </div>		