

Annual Drinking Water Quality Report for 2021
Greenfields Water System
Cream Street, Hyde Park, NY 12538
(Public Water Supply ID# 1302794)

INTRODUCTION

To comply with State regulations, Greenfields Water, 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. Last year, we conducted tests for many types of contaminants, we detected Iron, Manganese, Perfluorooctanic Acid and Perfluorooctane Sulfonic Acid at levels higher than the State allows. Additional information on Iron and Manganese can be found under the section "What Does this Information Mean"? This report provides an overview of last year's water quality. Included are details about where your water comes from, what it contains, and how it compares to State standards.

The Greenfields Water System operations were turned over to the Dutchess County Water and Wastewater Authority on January 11, 2016. If you have any questions about this report or concerning your drinking water, please contact **Dutchess County Water & Wastewater Authority at (845)486-3601**. We want you to be informed about your drinking water. If you want to learn more about the Dutchess County Water and Wastewater Authority, please visit our website at WWW.DCWWA.Org

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, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activities. Contaminants that may be present in source water include: microbial contaminants; inorganic contaminants; pesticides and herbicides; organic chemical contaminants; and radioactive contaminants. 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.

Our water system serves approximately 1050 people with 281 service connection. Our water source is four drilled rock wells which are near the water plant off Cream Street. The water is disinfected using sodium hypochlorite. We also add orthophosphate to the water for corrosion control and iron sequestration.

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, inorganic compounds, nitrate, nitrite, lead and copper, volatile organic compounds, total trihalomethanes, haloacetic acids, synthetic organic compounds, and radiologicals. 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, may 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 (800-426-4791) or the Dutchess County Department of Behavioral and Community Health at (845) 486-3404.

Table of Detected Contaminants

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Avg/Max) (Range)	Unit Measurement	MCLG	Regulatory Limit (MCL, AL or TT)	Likely Source of Contamination
Copper (1)	No	8/25 – 8/31/21	0.41 Range (0.053-0.85)	mg/L	1.3	1.3	Corrosion of household plumbing systems; Erosion of natural deposits; leaching from wood preservatives.
Lead (2)	No	8/25 – 8/31/21	0.0018 Range (<0.001 - 0.019)	mg/L	0	0.015	Corrosion of household plumbing systems; Erosion of natural deposits.
Nitrates Entry Point	No	4/12/21	0.24	mg/L	0	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Nitrates Well 12	No	4/12/21	0.24	mg/L	0	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
Barium Entry Point	No	4/12/21	0.096	mg/L	2	2	Discharge of drilling wastes; discharge from metal refineries; Erosion of natural deposits.
Barium Well 12	No	4/12/21	0.15	mg/L	2	2	Discharge of drilling wastes; discharge from metal refineries; Erosion of natural deposits.
Nickel Entry Point	No	4/12/21	0.0042	mg/L	n/a	n/a	Naturally occurring, by product of some manufacturing waste
Nickel Well 12	No	4/12/21	0.0036	mg/L	n/a	n/a	Naturally occurring, by product of some manufacturing waste
Iron Entry Point	No	2/19/21 3/12/21 5/19/21 6/23/21 8/16/21 11/22/21 12/8/21	0.10 Range (0.064-0.16)	mg/L	n/a	0.3	Naturally occurring

Table of Detected Contaminants

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Avg/Max) (Range)	Unit Measurement	MCLG	Regulatory Limit (MCL, AL or TT)	Likely Source of Contamination
Manganese Entry Point	No	2/19/21 3/12/21 5/19/21 6/23/21 8/16/21 11/22/21 12/8/21	0.54 Range (0.46-0.62)	mg/L	n/a	0.3	Naturally occurring; Indicative of landfill contamination.
Iron Well 12	No	2/19/21 5/19/21 6/23/21 8/16/21 11/22/21 12/8/21	0.31 Range (<0.06-0.71)	mg/L	n/a	0.3	Naturally occurring;
Manganese Well 12	No	2/19/21 5/19/21 6/23/21 8/16/21 11/22/21 12/8/21	0.58 Range = (0.51-0.61)	mg/L	n/a	0.3	Naturally occurring; Indicative of landfill contamination.
Iron Well 9	No	12/8/21	0.15	mg/L	n/a	0.3	Naturally occurring;
Manganese Well 9	No	12/8/21	0.98	mg/L	n/a	0.3	Naturally occurring; Indicative of landfill contamination.
Manganese Well 10	No	12/8/21	0.30	mg/L	n/a	0.3	Naturally occurring; Indicative of landfill contamination.
Haloacetic Acids	No	8/2021	3.6	ug/L	n/a	60	By-product of drinking water disinfection needed to kill harmful organisms.
Total Trihalomethanes	No	8/2021	19	mg/l	n/a	80	By-product of drinking water disinfection needed to kill harmful organisms.
Combined Radium 226 & 228 Entry Point	No	4/8/20	1.22	pCi/L	0	5	Erosion of Natural deposits

Table of Detected Contaminants

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Avg/Max) (Range)	Unit Measurement	MCLG	Regulatory Limit (MCL, AL or TT)	Likely Source of Contamination
Gross Alpha Entry Point	No	4/8/20	3.37	pCi/L	0	15	Erosion of Natural deposits
Gross Alpha Well 12	No	4/12/21	4.85	pCi/L	0	15	Erosion of Natural deposits
Gross Beta Well 12	No	4/12/21	1.69	pCi/L		50 (3)	Erosion of Natural deposits
Uranium Well 12	No	4/12/21	0.722	pCi/L	0	30	Erosion of Natural deposits
Combined Radium 226 & 228 Well 12	No	4/12/21	1.72	pCi/L	0	5	Erosion of Natural deposits
Combined Uranium Entry Point	No	4/8/20	0.00235	mg/L	0	30	Erosion of Natural deposits
Total Coliform Bacteria Distribution System	Yes	2 on 7/16/21 10/11/21	Present	N/A	0	TT = 2 or more positive samples after April 1, 2016. MCL= 2 or more positive samples before April 1, 2016 (4)	Naturally present in the environment
E. Coli Well 9	No	10/1/21	Present	N/A	0	Any positive sample (5)	Human and animal fecal waste.
Perfluorooctanoic acid (PFOA) Well #9 (6)	No	2/23/21 5/25/21 9/21/21 10/1/21 12/23/21	4.29 Range (1.67-9.32)	ng/L	10	N/A	Released into the environment from widespread use in commercial and industrial applications.

Table of Detected Contaminants

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Avg/Max) (Range)	Unit Measurement	MCLG	Regulatory Limit (MCL, AL or TT)	Likely Source of Contamination
Perfluorooctane sulfonic acid (PFOS) Well #9 (7)	Yes	2/23/21 5/25/21 9/21/21 10/1/21 12/23/21	7.09 Range (1.64-15.8)	ng/L	10	N/A	Released into the environment from widespread use in commercial and industrial applications.
Perfluorooctanoic acid (PFOA) Well #10 (6)	No	2/23/21 5/25/21 9/21/21 10/1/21 12/23/21	4.53 Range (2.0-7.21)	Ng/L	10	N/A	Released into the environment from widespread use in commercial and industrial applications.
Perfluorooctane sulfonic acid (PFOS) Well #10 (7)	Yes	2/23/21 5/25/21 9/21/21 10/1/21 12/23/21	18.7 Range (1.15-34.5)	ng/L	10	N/A	Released into the environment from widespread use in commercial and industrial applications.
Perfluorooctanoic acid (PFOA) Well #11 (6)	Yes	2/23/21 3/1/21 5/25/21 6/22/21 6/30/21 9/21/21 10/14/21 12/23/21	8.49 Range (5.51-13.7)	ng/L	10	N/A	Released into the environment from widespread use in commercial and industrial applications.
Perfluorooctane sulfonic acid (PFOS) Well #11 (7)	Yes	2/23/21 3/1/21 5/25/21 6/22/21 6/30/21 9/21/21 10/14/21 12/23/21	51.26 Range (7.89-139)	ng/L	10	N/A	Released into the environment from widespread use in commercial and industrial applications.
Perfluorooctanoic acid (PFOA) Well #12 (6)	No	2/23/21 5/25/21 9/21/21 9/29/21 12/23/21	1.84 Range (1.26-2.18)	ng/L	10	N/A	Released into the environment from widespread use in commercial and industrial applications.
Perfluorooctane sulfonic acid (PFOS) Well #12 (7)	No	2/23/21 5/25/21 9/21/21 9/29/21 12/23/21	1.04 Range (0.806-1.34)	ng/L	10	N/A	Released into the environment from widespread use in commercial and industrial applications.

Table of Detected Contaminants

Contaminant	Violation Yes/No	Date of Sample	Level Detected (Avg/Max) (Range)	Unit Measurement	MCLG	Regulatory Limit (MCL, AL or TT)	Likely Source of Contamination
Perfluorooctanoic acid (PFOA) Entry Point (6)	Yes	9/29/21	4.66	ng/L	10	N/A	Released into the environment from widespread use in commercial and industrial applications
Perfluorooctane sulfonic acid (PFOS) Entry Point (7)	Yes	9/29/21	16.8	ng/L	10	N/A	Released into the environment from widespread use in commercial and industrial applications

Footnotes:

1. The level presented represents the 90th percentile of the 10 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, 10 samples were collected at your water system and the 90th percentile value is the reported value. The action level for copper was not exceeded at any of the sites tested.

2. The level presented represents the 90th percentile of the 10 samples collected. The action level for lead was not exceeded at any of the sites tested.

3. The State considers anything greater than 50 pCi/l to be the level of concern for beta particles

4. Before April 1, 2016, a violation occurs at systems collecting 40 or more samples per month when more than 5% of the total coliform samples are positive. A violation occurs at systems collecting less than 40 samples per month when two or more samples are total coliform positive. After April 1, 2016, a Level 1 assessment is triggered if 2 or more routine/repeat samples are total coliform positive in the same month

5. A violation occurs when a total coliform positive sample is positive for E. Coli and a repeat total coliform sample is positive or when a total coliform positive sample is negative for E. Coli but a repeat total coliform sample is positive and the sample is also positive for E. Coli.

6. PFOA caused a range of health effects when studied in animals at high exposure levels. The most consistent findings were effects on the liver and immune system and impaired fetal growth and development. Studies of high-level exposures to PFOA in people provide evidence that some of the health effects seen in animals may also occur in humans. The United States Environmental Protection Agency considers PFOA as having suggestive evidence for causing cancer based on studies of lifetime exposure to high levels of PFOA in animals.

7. PFOS caused a range of health effects when studied in animals at high exposure levels. The most consistent findings were effects on the liver and immune system and impaired fetal growth and development. Studies of high-level exposures to PFOS in people provide evidence that some of the health effects seen in animals may also occur in humans. The United States Environmental Protection Agency considers PFOS as having suggestive evidence for causing cancer based on studies of lifetime exposure to high levels of PFOS in animals.

Definitions:

Non - Detects (ND) - Laboratory analysis indicates that the constituent is not present.

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).

Action Level (AL) - The concentrations 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 MCLG's 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. MCLG's 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

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

Perfluorooctanoic acid (PFOA) - also known as C8, is another man-made chemical. It has been used in the process of making Teflon and similar chemicals (known as fluorotelomers), although it is burned off during the process and is not present in significant amounts in the final products.

Health Effects for Iron- Iron is essential for maintaining good health. However, too much iron can cause adverse health effects. Drinking water with very large amounts of iron can cause nausea, vomiting, diarrhea, constipation and stomach pain. These effects usually diminish once the elevated iron exposure is stopped. A small number of people have a condition called hemochromatosis, in which the body absorbs and stores too much iron. People with hemochromatosis may be at greater risk for health effects resulting from too much iron in the body (sometimes called "iron overload") and should be aware of their overall iron intake. The New York State standard for iron in drinking water is 0.3 milligrams per liter, and is based on iron's effects on the taste, odor and color of the water.

Health Effects for Manganese- Manganese is a common element in rocks, soil, water, plants, and animals. Manganese occurs naturally in water after dissolving from rocks and soil. Contamination of drinking water may occur if manganese gets into surface or groundwater after dissolving from rocks and soil. It may also occur if manganese gets into surface or groundwater after improper waste disposal in landfills or by facilities using manganese in the production of steel or other products.

Manganese is an essential nutrient that is necessary to maintain good health. However, exposure to too much manganese can cause adverse health effects. There is some evidence from human studies that long-term exposure to manganese in drinking water is associated with nervous system effects in adults (e.g., weakness, stiff muscles and trembling of the hands) and children (learning and behavior). The results of these studies only suggest an effect because the possible influences of other factors were not adequately assessed. There is supporting evidence that manganese causes nervous system effects in humans from occupational studies of workers exposed to high levels of manganese in air, but the relevance of these studies to long term drinking water exposure is less clear because the exposures were quite elevated and by inhalation, not by ingestion

WHAT DOES THIS INFORMATION MEAN?

As you can see by the table, the iron and manganese levels were high in some months throughout the year. The Dutchess County Water and Wastewater Authority continues to evaluate the water system and is currently implementing steps to improve the water quality at the plant through a process referred to as Sequestration. This will reduce the amount of dirty water issues that have been present throughout the previous few years. In addition to the process changes at the plant, the operators have been and will continue to do more flushing from the hydrants to remove old sediment from the distribution mains.

Sequestration is a form of treatment in which a chemical, known as a sequestrant, is added to groundwater. The chemical forms a bond with iron and manganese ions, allowing them to remain in solution. Sequestration for drinking water treatment of iron and manganese is generally limited to sources where the iron is less than 0.6 mg/L and the manganese is less than 0.1 mg/L. Sequestration of source water concentrations above these values may result in aesthetic issues in the distribution system and is generally not allowed by regulators.

We are required to present the following information on lead in drinking water.

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 higher than at other homes in the community as a result of materials used in your home's plumbing. Greenfields Water 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 the 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>.

IS OUR WATER SYSTEM MEETING OTHER RULES THAT GOVERN OPERATIONS?

During 2021, our system was not in compliance with all applicable State drinking water operating, monitoring, and reporting requirements. The following violations have been issued to Greenfield's Water in 2021.

1. Failure to collect two (2) required Total Coliform and Escherichia coli during the month of March. This is in violation of the New York State Sanitary Code, Subpart 5-1.52, Table 11
2. Total Coliform Monitoring Violation on April 22, 2021. This is in violation of the New York Sanitary Code, Subpart 5-1.52, Table 11
3. Monthly Operations Report Violation on July 28th, 2021 - Failure to report Well 9 being offline for a number of days during the month of June. This is in violation of Section 5-1.72 of the New York Sanitary Code
4. Perfluorooctane Sulfonic Acid (PFOS) MCL exceedance Violation as of Subpart 5-1.52 Table 3 for Wells number 9,10,11, and Entry Point levels on October 22, 2021.

DO I NEED TO TAKE SPECIAL PRECAUTIONS?

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

WHY SAVE WATER AND HOW TO AVOID WASTING IT?

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

- ◆ Saving water saves energy and some of the costs associated with both 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.

CLOSING

Thank you for allowing us to continue to provide your family with quality drinking water this year. To maintain a safe and dependable water supply we sometimes need to make improvements that will benefit all our customers. The costs of these improvements may be reflected in the rate structure. Rate adjustments may be necessary to address these improvements. We ask that all our customers help us protect our water sources, which are the heart of our community. Please call our office if you have any questions.