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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 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 byproducts 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.

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. Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.

Source Water Assessment: The State performed an assessment of our Lake Michigan source water in 2003 and completed it in 2004 to determine the susceptibility or the relative potential of contamination. The susceptibility rating is on a six-tiered scale from “very-low” to “high” based primarily on geologic sensitivity, water chemistry and contaminant sources.

The susceptibility of our source is “moderate”. A copy of the report can be obtained by contacting the Water Facilities Manager at 847-3487.

<p>EnviroScape Environmental Education Models</p>	<p>These models are available as tools that demonstrate sources of water pollution and prevention. The good news is that they are <u>free of charge</u> to borrow and use. Below are example organizations that have used these models:</p> <ul style="list-style-type: none"> • Schools (3rd thru 6th Graders) • Church’s • Environmental Groups • Cub/Boy/Girl Scouts <p>All models have setup instructions and a teacher’s guide.</p>
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Methyl Tertiary-Butyl Ether (MTBE): This gasoline additive has contaminated some drinking water supplies across the country. Our drinking water does not contain MTBE.

PFAS: PFAS are widely used, long lasting chemicals, components of which break down very slowly over time. Because of their widespread use and their persistence in the environment, many PFAS are found in the blood of people and animals all over the world and are present at low levels in a variety of food products and in the environment.. PFAS are found in water, air, fish, and soil at locations across the nation and the globe. Scientific studies have shown that exposure to some PFAS in the environment may be linked to harmful health effects in humans and animals. There are thousands of PFAS chemicals, and they are found in many different consumer, commercial, and industrial products. This makes it challenging to study and assess the potential human health and environmental risks.

For more PFAS information go to: <http://michigan.gov/pfasresponse>

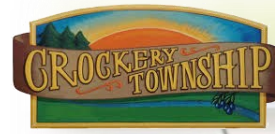


Source: American Water Works Association Research Foundation, End Uses of Water

In a world where an estimated 3 million people die every year from preventable waterborne disease, our water systems allow us to drink from virtually any public tap with a high assurance of safety. Each community water supply meets rigorous federal and state health-protective standards.

FACT:

The Northwest Ottawa Water System Provided More Than 2.40 Billion Gallons of Drinking Water in 2022



2022 Annual Drinking Water Quality Report

Northwest Ottawa Water System—City of Grand Haven, Grand Haven Charter Township, Village of Spring Lake, City of Ferrysburg, Spring Lake Township, Crockery Township & Robinson Township

The Northwest Ottawa Water System (NOWS) is pleased to present this year’s Drinking Water Quality Report.

This report is designed to inform you about the quality of the water we deliver to you everyday. Our goal is to provide you with a safe and dependable supply of drinking water. We are committed to ensuring the quality of your drinking water.

Water is collected through submerged intakes located several feet under the bottom of Lake Michigan and is pre-filtered as it enters the treatment facility. The natural sand above the intakes provides a pre-filter barrier which complements the plant’s direct filtration process.



We are pleased to report that your drinking water is safe and meets the Federal and State of Michigan drinking water health standards.

The Northwest Ottawa Water System (NOWS) treatment plant and the City of Grand Haven routinely monitors for a variety of dissolved mineral and organic substances in your drinking water pursuant to state and federal laws.

This report is designed to give you detailed information which will ensure you of the quality of your drinking water. The tables in this brochure show the results of the monitoring completed from January 1st through December 31st, 2021.

If you have any questions about this report or your drinking water, please contact the Water Facilities Manager Eric Law at 847-3487 or email elaw@grandhaven.org

Moreover, to provide you with an opportunity for public participation in decisions, some of which might affect drinking water quality. The public is invited to attend the quarterly NOWS Administrative Committee meetings held at the Grand Haven City Hall Council Chambers. You may call the City of Grand Haven for an up-to-date meeting schedule.

All drinking water, including bottled water, may reasonably be expected to contain at least a small amount of some contaminants. It is important to remember that the presence of these substances 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’s Safe Drinking Water Hotline at:

1-800-426-4791

To download or view this on-line go to: www.grandhaven.org/departments/water-filtration/

Some in our community 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 may be 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 cryptosporidium and other microbial contaminants are also available from the Safe Drinking Water Hotline.

The sources of drinking water (both tap and bottled water) include rivers, streams, lakes, 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 activity.

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Crockery Township



Lead and Copper

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 Northwest Ottawa Water Treatment Plant 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 have a lead service line it is recommended that you run your water for at least 5 minutes to flush water from both your home plumbing and the lead service line. 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 at 1-800-426-4791 or at <http://water.epa.gov/drink/info/lead>.

Health Effects of Lead & Copper

Elevated lead result above the Action Level (AL) – Infants and children who drink water containing lead 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.

Elevated copper result above the Action Level (AL) - Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount 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.

Too be completed by consecutive water systems associated with Nows

Lead Service Lines	0
Service Lines of Unknown Material	0
Total Number of System of Service Lines	767

DEFINITIONS

◆ ppm - Parts Per Million

A measurement of concentration. One part per million corresponds with one minute in two years.

◆ ppb - Parts Per Billion

A measurement of concentration. One part per billion corresponds with one minute in 2000 years.

◆ ppt - Parts Per Trillion

A measurement of concentration. One part per trillion is equivalent to 1 drop in an Olympic sized swimming pool - (660,000 gals).

◆ MCL - Maximum Contaminant Level

The "maximum allowed". MCL is the highest level of a contaminant allowed in drinking water.

◆ AL - Action Level

The concentration of a contaminant, which if exceeded, triggers treatment or other requirements, which water systems must follow.

◆ MCLG - Maximum Contaminant Level Goal

The "Goal" (MCLG) is the level of contaminant in drinking water below, which there is no known expected risk to health. MCLG's allow for a margin of safety

◆ TT - Treatment Technique

A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

◆ NTU - Nephelometric Turbidity Unit

This is a measurement of suspended material that is found in water. We monitor because it is a good indicator of the effectiveness of our treatment process.

◆ pCi/l - Pico Curries Per Liter

A measure of radioactivity.

◆ LRAA - Locational Running Annual Average

Locational Running Annual Average (LRAA) is the average of sample analytical results for samples taken at a particular monitoring location during the previous 4 calendar quarters.

◆ MRDL - Maximum Residual Disinfectant Goal

The highest level of disinfectant allowed in the drinking water.

◆ MRDLG - Maximum Residual Disinfection Level Goal

The level of drinking water disinfectant below which there is no known or expected risk to health .

◆ RAA—Running Annual Average

Running Annual Average is a simple calculation using laboratory results from the monthly sampling events within a rolling twelve month period.

PROVIDED BELOW IS A LIST OF THE REGULATED AND UNREGULATED CONTAMINANTS DETECTED IN THE NORTHWEST OTTAWA WATER SYSTEM

REGULATED AND UNREGULATED MONITORING AT THE WATER TREATMENT PLANT & DISTRIBUTION SYSTEM

Regulated Contaminant	MCL	MCL G	Highest Level Detected	Range	Year Sampled	Violation Yes/No	Typical Source of Contaminant
Turbidity Shall not exceed 0.3 NTU in 95% of samples / monthly	1.0 (TT)	N/A	0.12	0.02 to 0.12	2022	No	Soil runoff (Turbidity is a measure of the cloudiness of the water)
E.coli Bacteria (total number or % of positive samples/month)	See E. coli note	0	0% System Wide	Not Detected	2022	No	Human and animal fecal waste
Total Coliform (total number or % of positive samples/month)	TT	0	0% System Wide	Not Detected	2022	No	Naturally present in the environment
Bromodichloromethane (ppb)	80	N/A	3.9	N/A	2022	No	A byproduct of drinking water disinfection
Bromoform (ppb)	80	N/A	0.5	N/A	2022	No	A byproduct of drinking water disinfection
Chlorodibromomethane (ppb)	80	N/A	3.1	N/A	2022	No	A byproduct of drinking water disinfection
Chloroform (ppb)	80	N/A	3.5	N/A	2022	No	A byproduct of drinking water disinfection
Chlorine (ppm)	4	4	0.73 (RAA)	0.20 to 1.23	2022	No	Water additive used to control microbes
Chloride (ppm)	N/A	N/A	17	N/A	2022	No	Runoff from road de-icing, fertilizers and Leaching from septic tanks
Fluoride (ppm)	4	4	0.60	N/A	2022	No	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Sodium (ppm)	N/A	N/A	11	N/A	2022	No	Erosion of natural deposits
Perfluorooctanoic Acid (PFOA) (ppt)	8	N/A	RAA = 0.92	0 to 4	2022	No	Chemicals used to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water
Perfluorooctane Sulfonic Acid (PFOS) (ppt)	16	N/A	RAA = 0.28	0 to 3.3	2022	No	Chemicals used to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water
Perfluorohexanoic Acid (PFHxA) (ppt)	400,000	N/A	RAA = 0.17	0 to 2	2022	No	Chemicals used to make fluoropolymer coatings and products that resist heat, oil, stains, grease, and water
Boron (ppb)	N/A	N/A	20.5	N/A	2022	No	
Barium (ppb)	200	200	20	N/A	2022	No	Discharge of drilling wastes; Discharge of metal refineries; Erosion of natural deposits.

REGULATED MONITORING IN THE DISTRIBUTION SYSTEM

Regulated Contaminant	MCL	MCLG	Highest Level Detected	Range	Year Sampled	Violation Yes/No	Typical Source of Contaminant
Total Trihalomethanes (TTHM) (ppb)	80	N/A	LRAA = 38	27 to 41	2022	No	A byproduct of drinking water disinfection
Haloacetic Acids (HAA5) (ppb)	60	N/A	LRAA = 28	11 to 46	2022	No	A byproduct of drinking water disinfection

REGULATED MONITORING AT THE CUSTOMER TAP - Completed by Consecutive System

Regulated Contaminant	MCL	MCLG	90 th Percentile	Range	Number of Samples above AL	Year Sampled	Violation Yes/No	Typical Source of Contaminant
Lead (ppb)	15	0	1	0 - 9	0	2022	No	Lead service lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits
Copper (ppm)	1.3	1.3	0.1	0-0.1	0	2022	No	Corrosion of household plumbing systems; Erosion of natural deposits.