2022 WATER QUALITY REPORT FOR BRUCE TOWNSHIP

WATER SUPPLY SERIAL NUMBER: 00951

THIS REPORT COVERS THE DRINKING WATER QUALITY FOR BRUCE TOWNSHIP FOR THE 2022 CALENDAR YEAR. THIS INFORMATION IS A SNAPSHOT OF THE QUALITY OF THE WATER THAT WE PROVIDED TO YOU IN 2022. INCLUDED ARE DETAILS ABOUT WHERE YOUR WATER COMES FROM, WHAT IT CONTAINS, AND HOW IT COMPARES TO UNITED STATES ENVIRONMENTAL PROTECTION AGENCY (USEPA) AND STATE STANDARDS.

YOUR WATER COMES THE LOWER LAKE HURON WATERSHED. THE WATERSHED INCLUDES NUMEROUS, SHORT SEASONAL STREAMS THAT DRAIN TO LAKE HURON. THE STATE PERFORMED AN ASSESSMENT OF OUR SOURCE WATER IN 2004 TO DETERMINE THE SUSCEPTIBILITY OR THE RELATIVE POTENTIAL OF CONTAMINATION. THE SUSCEPTIBILITY RATING IS ON A SEVEN-TIERED SCALE FROM "VERY-LOW" TO "VERY-HIGH" BASED ON GEOLOGIC SENSITIVITY, WELL CONSTRUCTION, WATER CHEMISTRY AND CONTAMINATION SOURCES. THE SUSCEPTIBILITY OF OUR SOURCE IS MODERATELY LOW. IF YOU WOULD LIKE TO KNOW MORE ABOUT THIS REPORT, PLEASE CONTACT: MIKE FILLBROOK 586-752-4585

CONTAMINANTS AND THEIR PRESENCE IN 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 USEPA'S SAFE DRINKING WATER HOTLINE (800-426-4791).

VULNERABILITY OF SUB-POPULATIONS: 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 SYSTEMS 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. USEPA/CENTER FOR DISEASE CONTROL 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).

SOURCES OF DRINKING WATER: THE SOURCES OF DRINKING WATER (BOTH TAP WATER AND BOTTLED WATER) INCLUDE RIVERS, LAKES, STREAMS, PONDS, RESERVOIRS, SPRINGS, AND WELLS. OUR WATER COMES FROM 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.

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 STORMWATER 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 AND RESIDENTIAL USES.

RADIOACTIVE CONTAMINANTS, WHICH CAN BE NATURALLY OCCURRING OR BE THE RESULT OF OIL AND GAS PRODUCTION AND MINING ACTIVITIES.

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 STORMWATER RUNOFF, AND SEPTIC SYSTEMS.

TO ENSURE THAT TAP WATER IS SAFE TO DRINK, THE USEPA PRESCRIBES REGULATIONS THAT LIMIT THE LEVELS OF CERTAIN CONTAMINANTS IN WATER PROVIDED BY PUBLIC WATER SYSTEMS. FEDERAL FOOD AND DRUG ADMINISTRATION REGULATIONS ESTABLISH LIMITS FOR CONTAMINANTS IN BOTTLED WATER WHICH PROVIDE THE SAME PROTECTION FOR PUBLIC HEALTH.

MONITORING AND REPORTING TO THE MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY (EGLE) REQUIREMENTS: THE STATE OF MICHIGAN AND THE USEPA REQUIRE US TO TEST OUR WATER ON A REGULAR BASIS TO ENSURE ITS SAFETY.

VIOLATIONS FROM 2022:

WE RECEIVED MONITORING/REPORTING VIOLATIONS FOR TOTAL TRIHALOMETHANES AND HALOACETIC ACIDS (FIVE) FOR TWO SEPARATE MONITORING PERIODS IN 2022: FEBRUARY AND MAY OF 2022 - FOLLOW-UP SAMPLES WERE COLLECTED DURING AUGUST 2022. 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 SYSTEM, AND MAY HAVE AN INCREASED RISK OF GETTING CANCER. SOME PEOPLE WHO DRINK WATER CONTAINING HALOACETIC ACIDS IN EXCESS OF THE MCL OVER MANY YEARS MAY HAVE AN INCREASED RISK OF GETTING CANCER.

WE WILL UPDATE THIS REPORT ANNUALLY AND WILL KEEP YOU INFORMED OF ANY PROBLEMS THAT MAY OCCUR THROUGHOUT THE YEAR AS THEY HAPPEN. COPIES ARE AVAILABLE AT BRUCE TOWNSHIP HALL 223 EAST GATES ST. BRUCE TWP. 48065. THIS REPORT WILL NOT BE SENT TO YOU.

WE INVITE PUBLIC PARTICIPATION IN DECISIONS THAT AFFECT DRINKING WATER QUALITY. FOR MORE INFORMATION ABOUT YOUR WATER OR THE CONTENTS OF THIS REPORT, CONTACT MIKE FILLBROOK 586-752-4585. FOR MORE INFORMATION ABOUT SAFE DRINKING WATER, VISIT THE USEPA AT HTTP://WWW.EPA.GOV/SAFEWATER.

TYPICAL SOURCE OF CONTAMINANT LEAD:

LEAD SERVICE LINES, CORROSION OF HOUSEHOLD PLUMBING INCLUDING FITTINGS AND FIXTURES; EROSION OF NATURAL DEPOSITS. INFANTS AND CHILDREN WHO DRINK WATER CONTAINING LEAD COULD EXPERIENCE DELAYS IN THEIR PHYSICAL AND 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.

INFORMATION ABOUT 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. BRUCE TWP. 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 SERVICE LINE THAT IS LEAD, GALVANIZED PREVIOUSLY CONNECTED TO LEAD, OR UNKNOWN BUT LIKELY TO BE LEAD, IT IS RECOMMENDED THAT YOU RUN YOUR WATER FOR AT LEAST 5 MINUTES TO FLUSH 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 1-800-426-4791 OR AT HTTP://WWW.EPA.GOV/SAFEWATER/LEAD

2022 Lake Huron Regulated Detected Contaminants Table

2022 Inorganic Chemicals - Annual Monitoring at Plant Finished Tap

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest Level Detected	Range of Detection	Violation	Major Sources in Drinking Water
Fluoride	7-12-2022	ppm	4	4	0.71	n/a	no	Erosion of natural deposit; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	7-12-2022	ppm	10	10	0.51	n/a	no	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Barium	05-16-2017	ppm	2	2	0.01	n/a	no	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.

Lead and Copper Monitoring at the Customer's Tap in 2022

Regulated Contaminant	Unit	Year Sampled	Health Goal MCLG	Action Level AL	90th Percentile Value*	Range of Individual Samples Results	Number of Samples Over AL	Major Sources in Drinking Water
Lead	ppb	2022	0	15	0	0	0	Lead services lines, corrosion of household plumbing including fittings and fixtures; Erosion of natural deposits.
Copper	ppm	2022	1.3	1.3	0	0	0	Corrosion of household plumbing systems; Erosion of natural deposits

* The 90th percentile value means 90 percent of the homes tested have lead and copper levels below the given 90th percentile value. If the 90th percentile value is above the AL additional requirements must be met.

2022 Disinfection Residual - Monitoring in the Distribution System

Regulated Contaminant	Test Date	Unit	Health Goal MRDLG	Allowed Level MRDL	Highest Level RAA	Range of Quarterly Results	Violation	Major Sources in Drinking Water
Total Chlorine Residual	2022	ppm	4	4	0.79	0.64-0.85	no	Water additive used to control microbes

2022 Disinfection By-Products - Stage 2 Disinfection By-Products Monitoring in the Distribution System

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest Level LRAA	Range of Quarterly Results	Violation	Major Sources in Drinking Water
(TTHM) Total Trihalomethanes	2022	ppb	n/a	80	48.9	25.4 -48.9	no	By-product of drinking water chlorination
(HAA5) Haloacetic Acids	2022	ppb	n/a	60	35	16 -35	no	By-product of drinking water chlorination

2022 Turbidity - Monitored Every 4 Hours at the Plant Finished Water Tap

Highest Single Measurement Cannot Exceed 1 NTU	Lowest Monthly % of Samples Meeting Turbidity Limit of 0.3 NTU (minimum 95%)	Violation	Major Sources in Drinking Water
0.35 NTU	98.4%	no	Soil Runoff

Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.

Regulated Contaminant	Treatment Technique	Typical Source of Contaminant
Total Organic Carbon ppm	The Total Organic Carbon (TOC) removal ratio is calculated as the ratio between the actual TOC removal and the TOC removal requirements. The TOC is measured each quarter and because the level is low, there is no requirement for TOC removal.	Erosion of natural deposits

Radionuclides - Monitored at the Plant Finished Tap in 2014							
Regulated Contaminant	Test Date	Unit	MCLG	MCL	Level Detected	Violation	Major Sources in Drinking Water
Combined Radium Radium 226 and 228	5/13/14	pCi/L	0	5	0.86 ± 0.55	no	Erosion of natural deposits

2022 Special Monitoring						
Contaminant	Test Date	Unit	MCLG	MCL	Highest Level Detected	Source of Contaminant
Sodium	7-12-2022	ppm	n/a	n/a	5.4	Erosion of natural deposits

These tables are based on tests conducted by GLWA in the year 2022 or the most recent testing done within the last five calendar years. GLWA conducts tests throughout the year only tests that show the presence of a substance or require special monitoring are presented in these tables. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. The data is representative of the water quality, but some are more than one year old.

About Unregulated Contaminant Monitoring

Unregulated contaminants are those for which EPA has not established drinking water standards. Monitoring helps EPA to determine where these contaminants occur and whether it needs to regulate those contaminants.

Unregulated Contaminant	Average Level Detected	Range	Year Sampled	Comments
[Name of Unregulated Contaminant] (unit)				
[Name of Unregulated Contaminant] (unit)				

2022 Lake Huron Tap Water Mineral Analysis

Parameter	Units	Max.	Min.	Avg.
Turbidity	NTU	0.44	0.04	0.09
Total Solids	ppm	156	98	100
Total Dissolved Solids	ppm	142	108	100
Aluminum	ppm	0.072	0.011	0.027
Iron	ppm	0.4	0.2	0.2
Copper	ppm	0.008	ND	0.001
Magnesium	ppm	8.4	7.2	6.2
Calcium	ppm	27.2	24.3	20.8
Sodium	ppm	5.3	4.5	4.0
Potassium	ppm	1.1	0.9	0.8
Manganese	ppm	0.001	ND	ND
Lead	ppm	ND	ND	ND
Zinc	ppm	0.070	ND	0.008
Silica	ppm	2.5	1.6	1.8
Sulfate	ppm	24.0	18.2	17.7
Chloride	ppm	10.6	8.3	8.0

Parameter	Units	Max.	Min.	Avg.
Phosphorus	ppm	0.48	0.39	0.36
Free Carbon Dioxide	ppm	7.3	4.5	4.8
Total Hardness	ppm	104	80	77
Total Alkalinity	ppm	90	74	66
Carbonate Alkalinity	ppm	ND	ND	ND
Bi-Carbonate Alkalinity	ppm	90	74	66
Non-Carbonate Hardness	ppm	30	ND	11
Chemical Oxygen Demand	ppm	6.6	ND	3.5
Dissolved Oxygen	ppm	14.0	9.2	9.7
Nitrite Nitrogen	ppm	ND	ND	ND
Nitrate Nitrogen	ppm	0.51	0.30	0.31
Fluoride	ppm	0.79	0.62	0.57
pH		7.60	7.36	6.21
Specific Conductance @ 25 °C	µmhos	228	159	170
Temperature	°C	22.2	5.6	10.8

Key to the Detected Contaminants Table

Symbol	Abbreviation	Definition/Explanation
AL	Action Level	The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.
°C	Celsius	A scale of temperature in which water freezes at 0° and boils at 100° under standard conditions.
>	Greater than	
HAA5	Haloacetic Acids	HAA5 is the total of bromoacetic, chloroacetic, Dibromoacetic, dichloroacetic, and trichloroacetic acids. Compliance is based on the total.
Level 1	Level 1 Assessment	A study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in the water system.
LRAA	Locational Running Annual Average	The average of analytical results for samples at a particular monitoring location during the previous four quarters.
MCL	Maximum Contaminant Level	The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.
MCLG	Maximum Contaminant Level Goal	The level of contaminant in drinking water below which there is no known or expected risk to health.
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 a drinking water disinfectant below which there is no known or expected risk to health. MRLDG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.
n/a	not applicable	
ND	Not Detected	
NTU	Nephelometric Turbidity Units	Measures the cloudiness of water.
pCi/L	Picocuries Per Liter	A measure of radioactivity
ppb	Parts Per Billion (one in one billion)	The ppb is equivalent to micrograms per liter. A microgram = 1/1000 milligram.
ppm	Parts Per Million (one in one million)	The ppm is equivalent to milligrams per liter. A milligram = 1/1000 gram.
RAA	Running Annual Average	The average of analytical results for all samples during the previous four quarters.
SMCL	Secondary Maximum Contaminant Level	An MCL which involves a biological, chemical or physical characteristic of water that may adversely affect the taste, odor, color or appearance (aesthetics), which may thereby affect public confidence or acceptance of the drinking water.
TT	Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.
TTHM	Total Trihalomethanes	Total Trihalomethanes is the sum of chloroform, bromodichloromethane, dibromochloromethane and bromoform. Compliance is based on the total.
µmhos	Micromhos	Measure of electrical conductance of water