

2019
RESULTS

DETROIT WATER QUALITY REPORT



**Water & Sewerage
Department**

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NOTICE: This 2019 Water Quality Report contains important information about your drinking water. Please have someone translate this document for you if you are unable to read the report.

AVISO: Este Informe de calidad del agua de 2019 contiene información importante sobre su agua potable. Haga que alguien le traduzca este documento si no puede leer el informe.

إشعار : يحتوي تقرير جودة المياه لعام
على معلومات مهمة حول مياه الشرب. يرجى 2019
أن يقوم شخص ما بترجمة هذا المستند
لك إذا كنت غير قادر على قراءة التقرير

The Detroit Water & Sewerage Department does not discriminate on the basis of race, color, national origin, sex, age or disability in any of our services, programs or activities.



How to Report an Emergency

To report emergencies, such as water main breaks, flooded streets, missing manhole covers or leaking fire hydrants, call the DWSD 24-hour service line at **313-267-8000**. Mobile users may download the **Improve Detroit app** to take a photo and report an issue, or report it online at detroitmi.gov/DWSD.



Public Participation

The Board of Water Commissioners meets on the third Wednesday of each month at 2 p.m. at the Water Board Building, located at 735 Randolph Street, unless otherwise noticed. All meetings are open to the public. Due to the COVID-19 pandemic that began in March 2020, these meetings may be virtual to follow local, state and federal guidelines. For more information, please contact the DWSD board secretary at **313-224-4704** or visit detroitmi.gov/DWSD for meeting dates, times, locations and agendas.

CITY OF DETROIT

Mike Duggan, Mayor

DETROIT CITY COUNCIL

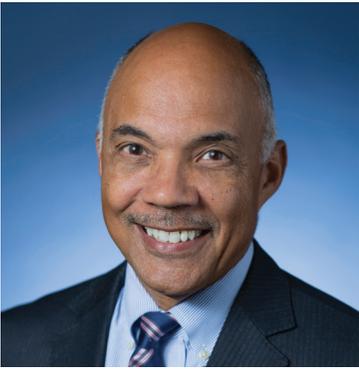
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DETROIT WATER AND SEWERAGE DEPARTMENT

Gary A Brown, Director
Palencia Mobley, P.E., Deputy Director and Chief Engineer



GARY A BROWN, DIRECTOR Detroit Water and Sewerage Department

Dear Valued Customers,

We are pleased to inform you that Detroit's drinking water continues to be some of the best in the nation. The Detroit Water and Sewerage Department (DWSD) will continue working hard for you to improve service delivery and compassionate customer service. In this 2019 Water Quality Report, you will find that we have met or exceeded both state and federal drinking water standards.

In 2018, the State of Michigan implemented the most stringent Lead and Copper Rule in the nation to protect every Michigander by reducing the lead content in drinking water. The revised Rule requires annual samples for lead testing in drinking water, a new testing process (effective in 2019) to take the first and fifth liter at a customer tap in the sample group, replacement of lead service lines within 20 years (Detroit is requesting 40 years due to an estimated 77,197 lead pipes), and a reduction of the lead maximum threshold by 2025 (see page 8 for more information).

We want to assure Detroiters the water supplied by DWSD is safe for drinking. The water leaving Detroit's water treatment plants, operated by the Great Lakes Water Authority, does not contain lead. The primary sources of lead in water are lead service lines, lead solder, and/or faucets containing lead in the home.

Even before the State of Michigan enacted the most stringent Lead and Copper Rule in the nation, DWSD began replacing lead service lines during water main replacement projects and providing pitcher filters to those residents and businesses as a precautionary measure. We have replaced more than 500 lead service lines in 2018-2019. While the lead in drinking water test results are higher than in 2016, as indicated in this report, they are due to a change in state regulated testing methods.

In addition to the lead test results for 2019, additional water quality data required by federal regulations is provided in this report.

DWSD sees our important role in upgrading the water and sewer systems, improving stormwater management in the city of Detroit, and providing help through assistance programs for customers to maintain water service.

Thank you for allowing us to serve you.



A Message to Our Customers

Drinking water quality is important to our community and the region. The Detroit Water and Sewerage Department (DWSD) and the Great Lakes Water Authority (GLWA) are committed to meeting state and federal water quality standards including the Lead and Copper Rule. This 2019 Water Quality Report highlights the performance of GLWA and DWSD water professionals in delivering some of the nation's best drinking water.

Together, we are committed to protecting public health and maintaining open communication with the community about our drinking water.

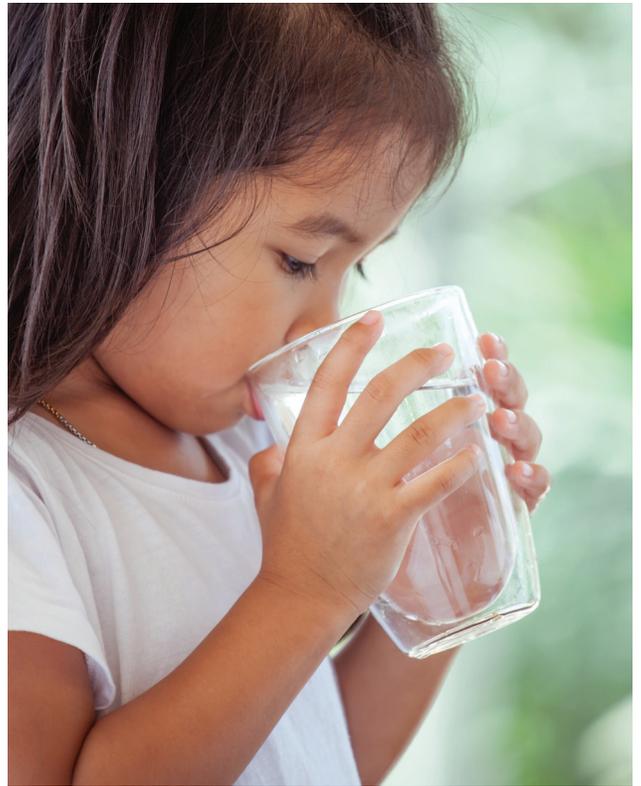
To stay informed, we encourage you to register for water alerts via email at detroitmi.gov/DWSD. Our water quality standards are mandated by the Environmental Protection Agency (EPA) and the Michigan Department of Environment, Great Lakes, and Energy (EGLE).

HOW WE PROVIDE WATER SERVICES TO YOU

The Great Lakes Water Authority (GLWA) treats drinking water and transports it to the City of Detroit's distribution system through transmission lines. The Detroit Water and Sewerage Department (DWSD) delivers the treated water to the community through more than 2,700 miles of water mains within the city to the service line of your home or business.

The system uses source water drawn from three intakes. Two source water intakes are located in the Detroit River: one to the north, near the inlet of Lake St. Clair, and one to the south, near Lake Erie. The third intake is located in Lake Huron.

Four of the plants treat source water drawn from the Detroit River intakes. The fifth water treatment plant, located in St. Clair County, uses source water drawn from Lake Huron. Detroit customers are provided service from four plants that treat source water drawn from the Detroit River.



DID YOU KNOW?

Did you know FOGs (fats, oils and greases) can build up in your drains and cause sewer backups?

The buildup of fats, oils and greases put into the drains from homes and businesses can also cause the City's sewer collection pipe to back up. The good news is that this is preventable. Below are some of the steps you can take to avoid a potential backup.

- **DO NOT** pour liquid fats, oils or greases into sink drains or toilets. This includes dairy fats, cosmetic oils and any other type of grease.
- **DO NOT** flush wipes, wrappers, cat litter, medicine and other garbage in toilets. Just because it says it is disposable does not make it flushable. And, a package that has the word, "flushable," does not mean it won't clog during the wastewater treatment process.
- Collect excess fats and oils in a sealed container and recycle.



- Scrape food from dirty dishes and pans into the trash before washing.
- Use a paper towel or scraper to remove residual grease from dishes and pans and place in a trash can prior to washing.
- Your garbage disposal does not eliminate grease. Keep drains clean by using vinegar and warm water or appropriate commercial products to dissolve grease.



Did you know there are ways you can reduce your water usage?

Fix dripping faucets as soon as you notice them. Don't rinse dishes with running water – use one tub or basin to wash and the other to rinse. Use the same glass all day for drinking water or other beverages in order to reduce water needed for washing. Find more tips at www.detroitmi.gov/watertips.

CUSTOMER ASSISTANCE PROGRAMS

10/30/50 Plan

The 10/30/50 Plan is developed for Detroit water customers who experience difficulty in paying their past-due bills. There are no income restrictions to qualify. Customers must make a down payment of either 10%, 30% or 50% of the past due balance. The balance of the past due amount is equally spread over 6-24 months, which the customer pays in addition to the normal monthly bill. All payments must be made in full and on time to stay enrolled in the plan.



Water Residential Assistance Program (WRAP)

The Water Residential Assistance Program (WRAP) is a two-year program that provides funding to eligible, low-income homeowners and renters to assist with water bills, water conservation, and self-sufficiency initiatives through the Wayne Metropolitan Community Action Agency. WRAP offers many benefits including up to \$1,000 annually in bill assistance and minor plumbing repairs up to \$1,000 for eligible households (as of July 1, 2020, the amount will increase to \$1,500). You must be at or below 150% of the federal poverty level (as of July 1, 2020, this will move to 200% at or below the federal poverty level). Since WRAP was launched in 2016, more than 16,000 households have been assisted in Detroit.

To find additional assistance programs through DWSD's community partners, visit www.detroitmi.gov/water.

DWSD offers convenient ways to pay

We're working hard to deliver clean water to nearly 700,000 residents just like you. It's what we do in the community, every day! Here are four easy ways to pay your water bill, including using convenient, self-service options.



Pay online at detroitmi.gov/PayMyWaterBill and set up auto-pay, enroll in a payment arrangement, if needed, and track your real-time usage.



Visit one of the more than 50 no-fee kiosks in and around Detroit and use cash, check or debit/credit card to pay your bill. Find your nearby kiosk at detroitmi.gov/DWSDkiosk.



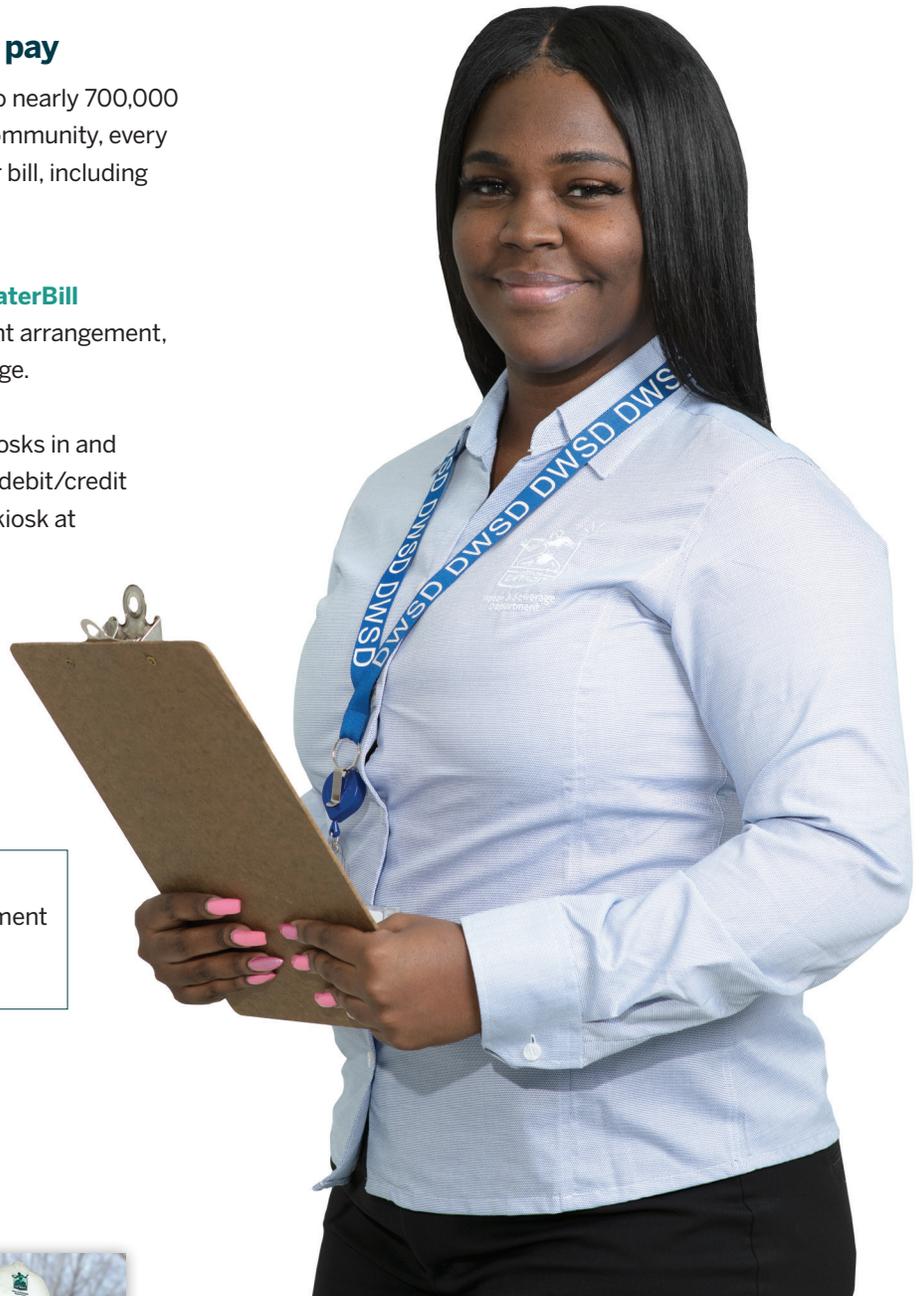
Call our automated pay-by-phone system at **313-267-8000**.



Send your payment by mail with check or money order payable to the "Board of Water Commissioners."

Mail to:

Board of Water Commissioners
Detroit Water and Sewerage Department
PO Box 554899
Detroit, MI 48255-4899



CLEAN WATER. DELIVERED.



Communications to Detroit Residents

DWSD has reached out to Detroiters via many advertisement platforms – billboards, radios, print and digital, for example – to ensure customers are staying updated and informed.



DWSD Director Gary Brown talks with contractors on the site of a water and sewer upgrade project, which includes lead service line replacement.

MICHIGAN'S REVISED LEAD & COPPER RULE AND DETROIT'S TEST RESULTS

DWSD reported in November 2019 that its results for the revised Lead and Copper Rule compliance testing is 10 parts per billion (ppb), which is under the state action level for lead remediation.

All communities with lead service lines — Detroit has an estimated 77,197 (311,000 total service lines which includes 28,922 with unknown pipe material and 77,197 likely lead) — must sample tap water in homes with lead service lines as required by EGLE and the EPA. In Summer 2019, DWSD collected water samples from 55 homes with lead service lines. The 90th percentile of samples was 10 ppb, which is under the action level of 15 ppb. It increased from DWSD's last report of 4 ppb in 2016. A water supply exceeds the action level if more than 10% of all samples is over the action level.

Due to the procedural changes in Michigan's revised Lead and Copper Rule, most communities are expected to see an increase in the results in 2019 compared with previous years.

Fifty-four homes tested in Detroit had lead results below the action level of 15 ppb. Only one home tested above the action level. The first liter sampled from the home exceeding the action level was at 114 ppb. The fifth liter sample at the same home was 6 ppb. The resident was notified, and provided flushing instructions, a pitcher filter with a replacement cartridge, instruction on cleaning faucet aerators monthly, and a plumbing inspection by DWSD personnel to identify plumbing components that need to be replaced.

The new Michigan Lead and Copper Rule Testing Method

The new Michigan Lead and Copper Rule – the most stringent in the nation (enacted in June 2018) – changed the way lead samples are collected at Detroit homes. In the past, DWSD collected only the first liter of water out of the tap. Under the new rule, both the first and fifth liter are collected. The first liter represents water from household plumbing and fixtures, and the fifth liter is more likely to represent water from the lead service line. The service line is the pipe which brings water from the water main in the street to inside the home or business. In Detroit, most service lines are either lead, copper or galvanized steel. Lead service lines are under two inches in diameter and are mostly at single family or duplex homes. The new sampling technique more accurately represents the range of lead in the drinking water in Detroit homes.

Lead in Drinking Water

The water leaving Detroit water treatment plants, operated by the Great Lakes Water Authority (GLWA), does not contain lead, but lead can be released into drinking water from lead service lines and home plumbing as the water moves from the water mains to your tap. Beginning in 1945, Detroit stopped allowing the installation of lead piping for water service lines. Homes before 1945 are most likely to have a lead pipe that connects the home to the water main, known as a lead service line. The lead in lead service lines, household plumbing and fixtures can dissolve or break off into water and end up in tap water. The water provided to DWSD customers contains a corrosion inhibitor to reduce leaching from lead service lines and other lead components, but lead can still be present in water at the tap.



Health Effects of Lead

Lead can cause serious health and development problems. The greatest risk of lead exposure is to infants, young children and pregnant women. Older homes can have many sources of lead exposure including paint, dust and soil. To learn more about the effects of lead exposure, contact the Detroit Health Department at [313-876-0133](tel:313-876-0133).

MICHIGAN'S REVISED LEAD & COPPER RULE AND DETROIT'S TEST RESULTS

Sources of Lead

Drinking water is only one source of lead exposure. Some of the most significant sources - especially for children six years old and under - include lead-based paint and lead contaminated dust and soil. Because lead can be carried on hands, clothing, and shoes, sources of exposure to lead can include the workplace and certain hobbies. Wash your children's hands and toys often as they can come in contact with dirt and dust containing lead. In addition, lead can be found in certain types of pottery, pewter, food and cosmetics. If you have questions about other sources of lead exposure, please contact the health department.

Most plumbing products such as service lines, pipes and fixtures contain lead. The information on the following page demonstrates where sources of lead in drinking water could be in your home. Older homes may have more lead unless the service line and/or plumbing has been replaced. Lead-based solder and lead-based fittings and fixtures are still available in stores to use for non-drinking water applications. Be careful to select the appropriate products for repairing or replacing drinking water plumbing in your home. Even materials currently marked "lead free" have up to 0.25% lead by weight.

Galvanized plumbing can be a potential source of lead. Galvanized plumbing can absorb lead from upstream sources like a lead service line. Even after the lead service line has been removed, galvanized plumbing can continue to release lead into drinking water over time. Homes that are served by a lead service line should consider replacing galvanized plumbing inside the home.

Source: EPA

Additional information regarding lead, including "*Frequently Asked Questions about Lead in Drinking Water*," can be found on the City of Detroit's website at www.detroitmi.gov/leadsafe, or visit EGLE's website at www.michigan.gov/MILeadSafe.



Steps You Can Take to Reduce Your Exposure to Lead in Your Water



Run your water to flush out lead. If you do not have a lead service line, run the water for two minutes, or until it becomes cold or reaches a steady temperature. If you do have a lead service line, run the water for at least five minutes to flush water from both the interior building plumbing and the lead service line.



Use only cold water for drinking and cooking.

Do not cook with or drink water from the hot water tap; lead dissolves more easily into hot water.



Use only filtered water or bottled water for preparing baby formula.



Consider using a filter to reduce lead in drinking water.

The Detroit Health Department recommends that any household with a child or pregnant woman use a certified lead filter to reduce lead from their drinking water. Look for filters that are tested and certified to NSF/ANSI Standard 53 for lead reduction.



Get your child tested. Contact the Detroit Health Department at **313-876-0133** or healthcare provider.



Identify older plumbing fixtures that likely contain lead.



Clean your aerator. The aerator on the end of your faucet is a screen that will catch debris. This debris could include particulate lead. The aerator should be removed monthly to rinse out any debris.



Test your water for lead. To request for your water to be tested, please visit www.detroitmi.gov/leadsafe and search "Lead and Copper Sample Request Form." If you do not have Internet access, please call the Detroit Lead Safe Resource Line at **313-964-9300** for assistance.





STORMWATER AND GSI

The most common method to improve stormwater management is Green Stormwater Infrastructure, or GSI. It replicates natural systems to reduce runoff volume, filter pollutants and cut down on flooding by slowing the movement of water into the combined sewer system and channeling it into the ground. Reducing stormwater runoff with strategically placed GSI projects, such as a bioretention area and bioswales, has the added benefit of reducing street flooding.

GSI treats stormwater where it falls by replicating natural habitats and engineered environments in a wide array of practices, including rain gardens, bioretention, living roofs and walls, permeable pavement, retention ponds, and underground storage tanks. It's something that all Detroiters can have a hand in (see green box entitled "Detroit Stormwater Hub").

Non-residential Property owners may receive drainage charge credits on their monthly bill for installing approved, engineered GSI practices. Companies that are developing or redeveloping at least 0.5 acres of land in the city are now required to include stormwater management practices in order to meet the Stormwater Management Code approved in 2018.

DWSD, in order to improve stormwater management in our city and meet state regulations, has built 16 GSI projects in the past six years, which manage a total of 24.5 million gallons of stormwater annually. View the DWSD GSI projects, videos and manuals at www.detroitmi.gov/GSI.

Detroit Stormwater Hub

A community-based collaborative effort, funded by the Erb Family Foundation, launched the Detroit Stormwater Hub in November 2019 as the one place to learn, share and track green stormwater projects across Detroit. The site is now live at www.detroitstormwater.org.

The Detroit Stormwater Hub lists more than 200 public and private GSI projects from across the city, managing 365 million gallons of stormwater annually.



UPGRADING DETROIT'S WATER AND SEWER SYSTEMS

As part of its \$500 million program to upgrade the city's aging water infrastructure, announced in June 2019, DWSD has upgraded 43 miles of water main, lined 40 miles of sewer collection piping and replaced 559 lead service lines. The funding for the \$500 million capital program leverages the funds DWSD receives through its 40-year lease with GLWA.

DWSD is investing \$44.3 million into Cornerstone Village and North Rosedale Park beginning Spring 2020, which follows condition assessments and DWSD's master plan. These are pilot neighborhoods as DWSD moves to a neighborhood approach for water and sewer upgrades.



Improvements being made in each neighborhood include:

- Replacement of water mains and fire hydrants.
- Replacement and lining of city sewer pipes.
- Replacement of lead service lines with copper pipes where they exist on blocks where water mains are being replaced. While a portion of the service lines are on private property, DWSD is replacing them at its own cost, as long as it has the consent of the property owner or occupant to perform the work on their property.
- Installation of Green Stormwater Infrastructure projects to reduce street flooding.

“This is one more way we are investing in our neighborhoods and our residents,”
said Mayor Mike Duggan.

More neighborhoods slated for improvements

This is the first time in DWSD's history to plan water and sewer upgrades at the same time by neighborhood, supported by comprehensive data. To date, DWSD has assessed the water and sewer systems in 12 neighborhoods.

As part of the neighborhood approach, 76 miles of water main and 198 miles of sewer were assessed by DWSD and its contractors in 2018 and 2019.

“We are leveraging the GLWA lease payment and benefiting from improved operations at DWSD to launch a comprehensive approach to water and sewer upgrades,” said Palencia Mobley, P.E., DWSD deputy director and chief engineer whose team is managing the capital improvement program along with contractor AECOM. “We decided to take a neighborhood-by-neighborhood approach, starting with assessing the water and sewer systems, then designing an upgrade strategy based upon that data, the probability of failure and the consequence of failure of the pipes.”

SUBSTANCES FOUND IN SOURCE WATER

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 materials and substances resulting from the presence of animal or 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, urban stormwater runoff and residential uses;
- Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, which

also can come from gas stations, urban stormwater runoff and septic systems; and

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

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

Drinking water, including bottled water, may reasonably be expected to contain 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**.

SOURCE WATER PROTECTION

Your source water comes from the Detroit River, situated within the Lake St. Clair, Clinton River, Detroit River, Rouge River and Ecorse River watersheds in the U.S., and parts of the Thames River, Little River, Turkey Creek and Sydenham watersheds in Canada.

The Michigan Department of Natural Resources, in partnership with the U.S. Geological Survey, DWSD and the Michigan Public Health Institute, performed a source water assessment in 2004 to determine the susceptibility of potential contamination in these watersheds. The susceptibility rating is on a seven-tiered scale from "very low" to "very high" based primarily on geologic sensitivity, water chemistry and contaminant sources.

The susceptibility of the Detroit River source water intakes were determined to be highly susceptible to potential contamination. However, all four Detroit water treatment plants that use source water from the Detroit River have

historically provided satisfactory treatment to meet drinking water standards.

The Great Lakes Water Authority (GLWA)-initiated source water protection activities include chemical containment, spill responses and a mercury reduction program. In 2016, Michigan Department of Environmental Quality (MDEQ), now the Department of Environment, Great Lakes, and Energy (EGLE), approved the GLWA Surface Water Intake Protection Program plan. The programs include the following seven elements: roles and duties of government units and water supply agencies, delineation of source water protection areas, identification of potential contaminant sources, management approaches for source water protection, contingency plans, siting of new sources and public participation.

For more information about the Source Water Assessment report, call GLWA at **313-926-8102**.

Key to the Detected Contaminants

> Greater Than	µohms Microohms Measure of electrical conductance of water.
N/A Not Applicable	NTU Nephelometric Turbidity Units Measure of cloudiness of water.
ND Not Detected	pCi/L Picocuries Per Liter Measure of radioactivity.
ppm Parts Per Million (one in a million) The ppm is equivalent to milligrams per liter. A milligram = 1/1000 gram.	ppb Parts Per Billion (one in a billion) The ppb is equivalent to micrograms per liter. A microgram = 1/1000 gram.
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.
HAA5 Haloacetic Acids HAA5 is the total of bromoacetic, chloroacetic, dibromoacetic, dichloroacetic, and trichloroacetic acids. Compliance is based on the total.	RAA Running Annual Average The average of all analytical results for all samples during the previous four quarters.
LRAA Locational Running Annual Average The average of analytical results for samples at a particular monitoring location during the previous four quarters.	TT Treatment Technique A required process intended to reduce the level of a contaminant in drinking water.
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.	MRDL Maximum Residual Disinfectant Level The highest level of disinfectant allowed in drinking water. There is convincing evidence that additional of a disinfectant is necessary for control of microbial contaminants.
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.	MRDLG Maximum Residual Disinfectant Level Goal The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLG's do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MCLG Maximum Contaminant Level Goal The level of contaminant in drinking water below which there is no known or expected risk to health.	Level 1 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 the water system.
TTHM Total Trihalomethanes Total Trihalomethanes is the sum of chloroform, bromodichloromethane and bromoform. Compliance is based on the total.	Level 2 Level 2 Assessment A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if necessary) why an E. coli MCL violation occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

HEALTH CONCERNS

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, and 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 at **800-426-4791**.

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. DWSD 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>.

REGULATED CONTAMINANTS

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	6/11/19	ppm	4	4	0.74	0.66-0.74	no	Erosion of natural deposit; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	6/11/19	ppm	10	10	0.99	0.48-0.99	no	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Barium	5/16/17	ppm	2	2	0.01	0.01-0.01	no	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.

Disinfection Residual Monitoring in the Detroit 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	2019	ppm	4	4	0.79	0.45-0.86	no	Water additive used to control microbes.

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	2019	ppb	n/a	80	49	12-70	no	By-product of drinking water chlorination.
(HAA5) Haloacetic Acids	2019	ppb	n/a	60	22	5.4-19.7	no	By-product of drinking water chlorination.

Disinfectant By-Product Monitoring at the Waterworks Park Plant Finished Tap

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest Level RAA	Range of Quarterly Results	Violation	Major Sources in Drinking Water
Bromate	2019	ppb	0	10	0.7	0.0-0.0	no	By-product of drinking water ozonation.

Turbidity Monitored Every 4 Hrs 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
0.31 NTU	99.9%	no	Soil runoff

Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.

Special Monitoring

Contaminant	Test Date	Unit	MCLG	MCL	Highest Level Detected	Source of Contaminant
Sodium	6/11/19	ppm	n/a	n/a	7.25	Erosion of natural deposits

Lead and Copper Monitoring at the Consumer's Tap in 2019

Data reported in this table is from 2019. For more information on the testing of Lead and Copper, please refer to page 8.

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Action Level AL	90 th Percentile Value*	Number of Samples Over AL	Range of Individual Samples	Violation	Major Sources in Drinking Water
Lead	2019	ppb	0	15	10	1	0-114	no	Lead service lines, corrosion of household plumbing including fittings and fixtures, erosion of natural deposits
Copper	2019	ppm	1.3	1.3	0.1	0	0-0.3	no	Corrosion of household plumbing system; Erosion of natural deposits; leaching from wood preservatives

* 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.

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	0.65 ± 0.54	no	Erosion of natural deposits

UNREGULATED CONTAMINANTS

Unregulated contaminants are those for which EPA has not established drinking water standards. The purpose of unregulated monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water

and whether future regulation is warranted.

Before EPA regulates a contaminant, it considers adverse health effects, the occurrence of the contaminant in drinking water, and whether the regulation would reduce health risk.

2015 Unregulated Contaminants Monitored at the Plant Finished Taps

Unregulated Contaminant	Test Date	Unit	Average Level Detected	Range of Detection	Health Advisory	MCLG	MCL	Source of Contaminant
Strontium	2015	ppb	106	98.7-124	4000	n/a	n/a	Erosion of natural deposits
Total Chromium	2015	ppb	0.28	0.21-0.42	n/a	100	100	Discharge from steel and pulp mills; Erosion of natural deposits
Chromium +6	2015	ppb	0.13	0.082-0.24	n/a	n/a	n/a	Discharge from steel and pulp mills; Erosion of natural deposits
Vanadium	2015	ppb	0.21	ND-0.66	n/a	n/a	n/a	Erosion of natural deposits

2015 Unregulated Contaminants Monitored at the Plant Finished Taps

Unregulated Contaminant	Test Date	Unit	Average Level Detected	Range of Detection	Health Advisory	MCLG	MCL	Source of Contaminant
Strontium	2015	ppb	109	102-124	4000	n/a	n/a	Erosion of natural deposits
Total Chromium	2015	ppb	0.21	ND-0.45	n/a	100	100	Discharge from steel and pulp mills; Erosion of natural deposits
Chromium +6	2015	ppb	0.11	0.086-0.18	n/a	n/a	n/a	Discharge from steel and pulp mills; Erosion of natural deposits
Vanadium	2015	ppb	0.20	ND-0.53	n/a	n/a	n/a	Erosion of natural deposits

2019 Unregulated Contaminants Monitored at the Plant Finished Taps

Unregulated Contaminant	Test Date	Unit	Highest Level Detected	SMCL	Range of Detection	Noticeable Effects Above the SMCL	Source of Contaminant
Manganese	2019	ppb	0.48	50	0.0-0.48	black to brown color; black staining; bitter metallic taste	Erosion of natural deposits and corrosion of iron pipes

2019 Unregulated Contaminants Monitored in the Distribution System Haloacetic Acids

Unregulated Contaminant	Test Date	Unit	Allowed Level MCL	Highest Level Detected	Range of Detection	Violation	Major Sources in Drinking Water
Haloacetic Acid 9 (HAA9)	2019	ppb	n/a	31.41	6.72-31.41	n/a	By-product of drinking water chlorination
Haloacetic Acid 5 (HAA5)	2019	ppb	60	22.5	4.5-22.5	no	By-product of drinking water chlorination
Haloacetic Acid Brominated 6 (HAA6BR)	2019	ppb	n/a	11.34	2.22-11.34	n/a	By-product of drinking water chlorination

2019 CITY OF DETROIT TAP WATER MINERAL ANALYSIS

Parameter	Units	Max.	Min.	Avg.
Turbidity	NTU	3.40	0.03	0.22
Total Solids	ppm	179	74	138
Total Dissolved Solids	ppm	193	13	125
Aluminum	ppm	0.361	0.007	0.061
Iron	ppm	0.140	0.014	0.015
Copper	ppm	0.012	0.009	0.000
Magnesium	ppm	10.63	6.63	8.28
Calcium	ppm	41.7	27.0	30.1
Sodium	ppm	10.68	4.60	6.07
Potassium	ppm	1.8	0.86	1.03
Manganese	ppm	0.000	0.000	0.000
Lead	ppm	0.000	0.000	0.000
Zinc	ppm	0.00	0.00	0.00
Silica	ppm	2.8	1.5	2.1
Sulfate	ppm	33.4	18.0	24.1

Parameter	Units	Max.	Min.	Avg.
Phosphorus	ppm	1.44	0.23	0.49
Free Carbon Dioxide	ppm	17.4	4.8	8.5
Total Hardness	ppm	145	90	103
Total Alkalinity	ppm	89	64	72
Carbonate Alkalinity	ppm	0	0	0
Bi-Carbonate Alkalinity	ppm	89	64	72
Non-Carbonate Hardness	ppm	56	20	31
Chemical Oxygen Demand	ppm	40	2.0	2.3
Dissolved Oxygen	ppm	17.2	8.2	11.8
Chloride	ppm	21.3	8.9	11.9
Nitrate Nitrogen	ppm	1.60	0.21	0.41
Fluoride	ppm	0.84	0.45	0.67
pH	ppm	7.49	7.0	7.24
Specific Conductance @ 25 °C	µohms	294	211	234
Temperature	°C	24.6	1.0	12.57

These tables are based on tests conducted by GLWA in the year 2019 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.



Water & Sewerage Department

This report is available on the
City of Detroit website at
detroitmi.gov/2019waterqualityreport

We welcome your comments and opinions
about this report. Please direct your comments
or questions to the DWSD Public Affairs Group.

Published in 2020

PUBLIC AFFAIRS GROUP
313.964.9576
dwsd-publicaffairs@detroitmi.gov