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Water & Sewerage
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2015 Water Quality Report

Published in 2016

A Message to Our Consumers

The Detroit Water and Sewerage Department (DWSD) delivers high quality water to the city of Detroit. The 2015 Water Quality Report outlines the sources of drinking water, lists test results, and contains important information about water and health.

The Michigan Department of Environmental Quality (MDEQ) and the Environmental Protection Agency (EPA) require DWSD to test water on a regular basis to ensure its safety. As a public utility, DWSD is required to report to customers annually on the quality of drinking water delivered to you. DWSD met all monitoring and reporting requirements for 2015.

DWSD will notify you immediately if there is ever a cause for concern about the quality of Detroit's water. To stay informed, we encourage you to sign up for water alerts via email and text message at www.detroitmi.gov/dwsd. This report and our water quality standards are mandated by the EPA and MDEQ.

How Services Are Provided

In 2015, Detroit Water and Sewerage Department supplied high-quality drinking water to approximately 40 percent of the state's population, serving 126 southeast Michigan communities. 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. The Department operated and managed five water treatment plants in 2015. 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.

Note: On January 1, 2016, the Detroit Water and Sewerage Department began leasing regional water and sewer infrastructure to the Great Lakes Water Authority which now manages water and sewer operations in several counties. The agreement resulted in greater financial stability for the DWSD system creating efficiencies to better control rates and produce greater transparency. The agreement includes a \$50 million annual lease payment to DWSD for the next 40 years to replace and rehabilitate DWSD's aging water and sewer system. DWSD continues to be responsible for the water and sewer infrastructure within the city of Detroit.

Lead

The water leaving our treatment plants does not contain lead. Lead can however be released to drinking water from lead service lines and home plumbing. DWSD is responsible for providing high-quality drinking water into your home but cannot control the variety of materials used in home plumbing components. The water provided to DWSD customers contains a corrosion control inhibitor to minimize leaching from lead service lines. If present, elevated levels of lead can cause serious health problems especially for pregnant women and young children. 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 two minutes before using water for drinking or cooking.

DWSD owns and maintains service lines starting at the water main in the street up to the customer's property boundary. Customers are responsible for the service lines from the property boundary to their home or business.



The Detroit Water and Sewerage Department wants you to know your tap water meets or surpasses all federal and state standards for quality and safety.

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 may take to minimize exposure are available from the Safe Drinking Water Hotline at: 800-426-4791 or at www.epa.gov/safewater/lead. DWSD offers frequently asked questions and other information about lead and water quality at: www.detroitmi.gov/dwsd

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 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 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 organics which are by-products of industrial processes and petroleum production, which can come from gas stations, urban storm water 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 EPA prescribes regulations that 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 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 the water poses a health risk. Information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's Safe Drinking Water Hotline at: 800-426-4791.

Source Water Assessment

Your source water comes from the Detroit River situated within Lake St. Clair, the Clinton River, the Detroit River, Rouge River and the Ecorse River (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 and Environment in partnership with the U.S. Geological Survey, the Detroit Water and Sewerage Department, 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 of this source water to meet drinking water standards in treated water.

DWSD has initiated source-water protection activities that include chemical containment, spill response and a mercury reduction program. DWSD participates in a National Pollutant Discharge Elimination System permit discharge program, and has an emergency response management plan. In 2015, DWSD received a grant from MDEQ to develop a surface water protection program for the Detroit River intakes. The program includes the following seven elements: roles and duties of government units and water supply agencies, delineation of a source water protection area, identification of potential source water contaminations, management approaches for protection, contingency plans, siting of new sources and public participation. For additional information about the Source Water Assessment report or the Surface Water Protection Program, call: 313-926-8102.

2015 City of Detroit Regulated Contaminants Table

INORGANIC CHEMICALS – ANNUAL MONITORING AT PLANT FINISHED WATER 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	5/11/2015	ppm	4	4	0.54	0.45-0.54	no	Erosion of natural deposit; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	5/11/2015	ppm	10	10	0.43	0.28-0.43	no	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

2015 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	2015	ppm	4	4	0.92	0.56-0.97	no	Water additive used to control microbes.

2015 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	2015	ppb	N/A	80	40.8	11.0-46.0	no	By-product of drinking water chlorination.
(HAA5) Haloacetic Acids	2015	ppb	N/A	60	12.4	6.0-16.0	no	By-product of drinking water chlorination.

2015 DISINFECTANT BY-PRODUCT – MONITORING AT THE WATERWORKS PARK PLANT FINISHED WATER 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	2015	ppb	0	10	0.8	ND-1.4	no	By-product of drinking water ozonation.

2015 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
0.18 NTU	100%	no	Soil runoff.

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

2015 MICROBIOLOGICAL CONTAMINANTS – MONTHLY MONITORING IN DISTRIBUTION SYSTEM

REGULATED CONTAMINANT	MCLG	MCL	HIGHEST % DETECTED IN ONE MONTH	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Total Coliform Bacteria	0	Presence of Coliform bacteria > 5% of monthly samples	1.7%	no	Naturally present in the environment.
<i>E.coli</i> Bacteria	0	A routine sample and a repeat sample are total coliform positive, and one is also fecal or <i>E.coli</i> positive	0	no	Human waste and animal fecal waste.

LEAD AND COPPER MONITORING AT THE CUSTOMER'S TAP IN 2014

REGULATED CONTAMINANT	TEST DATE	UNIT	HEALTH GOAL MCLG	ACTION LEVEL AL	90th PERCENTILE VALUE*	NUMBER OF SAMPLES OVER AL	VIOLATION	MAJOR SOURCES IN DRINKING WATER
Lead	2014	ppb	0	15	2.3	0	no	Corrosion of household plumbing system; Erosion of natural deposits.
Copper	2014	ppm	1.3	1.3	0.075	0	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 WATER 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.

2015 SPECIAL MONITORING

CONTAMINANT	TEST DATE	UNIT	MCLG	MCL	HIGHEST LEVEL DETECTED	SOURCE OF CONTAMINANT
Sodium	5/11/2015	ppm	N/A	N/A	5.41	Erosion of natural deposits.

These tables are based on tests conducted by DWSD in the year 2015 or the most recent testing done within the last five calendar years. DWSD conducts tests throughout the year. Only tests that show the presence of a substance or required special monitoring are presented in these tables.

About Unregulated Contaminant Monitoring

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. The Detroit Water and Sewerage Department (DWSD) began monitoring for twenty-eight unregulated contaminants in 2014. The following tables list the unregulated substances detected during the calendar year 2015.

2015 UNREGULATED CONTAMINANTS – MONITORED AT THE PLANT FINISHED WATER TAPS

REGULATED 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 IN THE DISTRIBUTION SYSTEM

REGULATED CONTAMINANT	TEST DATE	UNIT	AVERAGE LEVEL DETECTION	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.

Key to the Detected Contaminants Table

SYMBOL	ABBREVIATION	DEFINITION/EXPLANATION
>	Greater Than	
AL	Action Level	The concentration of a contaminant, which, if exceeded, triggers treatment or other requirements which a water system must follow.
HAA5	Haloacetic Acids	HAA5 is the total of bromoacetic, chloroacetic, dibromoacetic, dichloroacetic and trichloroacetic acids. Compliance is based on the total.
LRAA	Locational Running Annual Average	The average of sample results taken at a particular monitoring location during the previous four calendar 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 Residential 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 Residential 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 sample results during the previous four calendar quarters.
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.
°C	Celsius	A scale of temperature in which water freezes at 0° and boils at 100° under standard conditions.

Health Concerns

Some people have greater vulnerability to contaminants in drinking water than the general population. Infants, the elderly, and immuno-compromised individuals can be at risk for infections. People with AIDS or other immune system disorders and people who are undergoing chemotherapy or who have undergone organ transplants can be particularly at risk for infections. These people should seek advice about drinking water from their health care providers. The Environmental Protection Agency and Center for Disease Control and Prevention offers information on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants. For more information about contaminants and potential health risks, contact the EPA's Safe Drinking Water Hotline at: 800-426-4791.

Turbidity

Turbidity is a measure of cloudiness in water. DWSD monitors turbidity measurements because it is a good indicator of the effectiveness of our filtration system. Turbidity can interfere with disinfection and provide a medium for microbial growth and may indicate the presence of disease-causing organisms.

Customer Care

On April 4, 2016, the Detroit Water and Sewerage Department began "Identity Verification" for all new services. The enhancements require customers to present valid government-issued identification and the customer's social security number in order to establish services, set-up payment plan agreements or conduct business with the department. These enhancements will help the department protect customer's identity and, in the very near future, will allow us to offer a full set of account-access and self-service options including e-bill registration, individual service requests, enrollment in recurring payment plans and account-profile management. To contact our customer care center, call: 313-267-8000.

2015 City of Detroit Mineral Analysis – Water Leaving the Treatment Plants

PARAMETER	UNITS	MAX	MIN	AVG
Turbidity	NTU	0.13	0.03	0.06
Total Solids	ppm	198	112	143
Total Dissolved Solids	ppm	180	82	133
Aluminum	ppm	0.793	0.053	0.104
Iron	ppm	2.273	0.050	0.120
Copper	ppm	0.009	0.005	0.001
Magnesium	ppm	16.76	5.80	8.39
Calcium	ppm	31.1	10.2	24.9
Sodium	ppm	6.53	3.55	5.12
Potassium	ppm	2.37	0.78	0.92
Manganese	ppm	0.002	0.002	0.000
Lead	ppm	0.000	0.000	0.000
Zinc	ppm	0.07	0.03	0.01
Silica	ppm	1.3	0.4	0.9
Sulfate	ppm	53.5	17.6	23.4

PARAMETER	UNITS	MAX	MIN	AVG
Phosphorus	ppm	0.78	0.22	0.32
Free Carbon Dioxide	ppm	13.3	3.5	7.2
Total Hardness	ppm	130	88	106
Total Alkalinity	ppm	104	66	79
Carbonate Alkalinity	ppm	0	0	0
Bi-Carbonate Alkalinity	ppm	104	66	79
Non-Carbonate Hardness	ppm	46	6	27
Chemical Oxygen Demand	ppm	10.0	2.0	3.5
Dissolved Oxygen	ppm	14.5	5.5	9.6
Chloride	ppm	20.3	8.0	10.9
Nitrate Nitrogen	ppm	0.74	0.19	0.32
Fluoride	ppm	0.83	0.43	0.61
pH		7.65	7.01	7.37
Specific Conductance at 25 °C	µmhos	252	199	226
Temperature	°C	25.1	2.0	14.5



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Detroit Water and Sewerage Department

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ATTENTION

The report contains important information about water quality in your community.
Este es un informe importante sobre la calidad del agua y la seguridad.

التقرير يتضمن معلومات هامة عن جودة وصحة الماء في منطقتك

Emergency

To report emergencies such as flooded streets or basements, missing manhole covers, leaky fire hydrants, water main breaks, or running water at or near vacant properties, call the DWSD 24-hour emergency service line at: 313-267-7401.

DWSD is committed to responding promptly to reports of water emergencies. Smartphone users may download the Improve Detroit mobile app to take a photo and report the issue or citizens may report online at: www.detroitmi.gov/dwsd

Public Participation

The Board of Water Commissioners meeting is held the third Wednesday of each month at the Water Board Building located at 735 Randolph Street. Unless otherwise noted, public hearings and other Board of Water Commissioner meetings are open to the public. For more information, please contact the DWSD board liaison at: 313-224-4704 or visit: www.detroitmi.gov/government/boards

ATTENTION: This is a 2015 water quality report which contains important information about your drinking water. If you are having difficulty understanding the report, please have someone translate this document for you or speak with a person who understands the information contained in this water quality report.

ATENCIÓN: Éste es un informe de calidad de agua de 2015 que contiene información importante sobre su agua potable. Si usted está teniendo dificultades para leer o entender este informe, por favor alguien tiene traducir este documento para usted o hablar con una persona que entiende la información contenida en este documento.

إنتباه: هذا هو تقرير ال-٢٠١٥ عن جودة المياه، و يحتوي على معلومات هامة حول مياه الشرب الخاصة بك. إذا كنت تواجه صعوبة في فهم هذا التقرير، يرجى أن تجد شخصاً ما يترجم هذه الوثيقة لك أو أن تتحدث مع شخص يفهم المعلومات الواردة في هذا التقرير عن جودة المياه



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This report is available
on our website at
www.detroitmi.gov/dwsd

We welcome your
comments and opinions
about this report and
will be happy to answer
any questions you may
have. Please direct your
comments or questions
to the

Public Affairs Group at:
(313) 964-9570
or you may email your
comments to:
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