



2014 Water Quality Report

Published in 2015

A message to our consumers

The Detroit Water and Sewerage Department (DWSD) provides its consumers with high quality water and is honored to provide this report to you. The Water Quality Report gives the sources of our water, lists the results of our tests, and contains important information about water and health.

The State and the Environmental Protection Agency require us to test our water on a regular basis to ensure its safety. As a public utility, we are required to report to our customers annually on the quality of the drinking water we deliver to you. We met all the monitoring and reporting requirements for 2014.

DWSD will immediately notify you if there is ever any reason for concern about our water. We are pleased to show you how we have surpassed water quality standards as mandated by the Environmental Protection Agency and the State of Michigan Department of Environmental Quality.

Communities Served by Detroit Water and Sewerage Department

DWSD supplies high-quality drinking water to approximately 40 percent of the state's population, serving 126 southeast Michigan communities. The system uses water drawn from three intakes. Two intakes are located in the Detroit River: one to the north near the mouth of Lake St. Clair and one to the south near Lake Erie. The third intake is located in Lake Huron. The Department has five water treatment plants. Four of the plants treat water drawn from the Detroit River intakes. The fifth water treatment plant located in St. Clair County uses water drawn from Lake Huron. Our Detroit customers are provided service from our four plants that treat water drawn from the Detroit River.

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. 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 EPA Safe Drinking Water Hotline at **(800) 426-4791** or at <http://www.epa.gov/safewater/lead>.

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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.

Source water assessment

Your source water comes from the Detroit River, situated within the Lake St. Clair, Clinton River, Detroit River, Rouge River, 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 DWSD, and the Michigan Public Health Institute performed a source water assessment in 2004 to determine the susceptibility of potential contamination. 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 our 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.

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. If you would like to know more information about this report or for a complete copy of this report please contact the Water Quality Manager at **(313) 926-8102**.

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 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 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 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

To ensure tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health. 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 EPA's Safe Drinking Water Hotline at **(800) 426-4791**.

2014 City of Detroit Regulated Contaminants Table

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	5/13/14	ppm	4	4	0.69	0.56-0.69	no	Erosion of natural deposit; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	5/13/14	ppm	10	10	0.39	0.26-0.39	no	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

2014 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	2014	ppm	4	4	0.92	0.52-1.01	no	Water additive used to control microbes.

2014 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
Total Trihalomethanes (TTHM)	2014	ppb	N/A	80	33.6	11.8-48.8	no	By-product of drinking water chlorination.
Haloacetic Acids (HAA5)	2014	ppb	N/A	60	11.3	7.5-15.1	no	By-product of drinking water chlorination.

2014 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	2014	ppb	0	10	0.5	0-1.9	no	By-product of drinking water ozonation.

2014 RADIONUCLIDES – MONITORED AT THE PLANT FINISHED TAP								
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.	

2014 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
0.24 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.

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

2014 SPECIAL MONITORING								
CONTAMINANT	UNIT	MCLG	MCL	HIGHEST LEVEL DETECTED	SOURCE OF CONTAMINANT			
Sodium	ppm	N/A	N/A	5.41	Erosion of natural deposits.			

These tables are based on tests conducted by DWSD in the year 2014 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. DWSD began monitoring for twenty-eight unregulated contaminants in 2014. The following tables list the unregulated substances detected during the calendar year 2014.

2014 UNREGULATED CONTAMINANTS – MONITORED AT THE PLANT FINISHED TAPS

CONTAMINANT	TEST DATE	UNIT	AVERAGE LEVEL DETECTED	RANGE OF DETECTION	HEALTH ADVISORY	MCLG	MCL	SOURCE OF CONTAMINANT
Strontium	October 2014	ppb	101	99-104	4000	N/A	N/A	Erosion of natural deposits.
Total Chromium	October 2014	ppb	0.26	ND-0.22	N/A/	100	100	Discharge from steel and pulp mills; Erosion of natural deposits.
Chromium +6	October 2014	ppb	0.091	0.086-0.098	N/A/	N/A	N/A	Discharge from steel and pulp mills; Erosion of natural deposits.
Vanadium	October 2014	ppb	0.59	ND-0.21	N/A	N/A	N/A	Erosion of natural deposits.

2014 UNREGULATED CONTAMINANTS – MONITORED IN THE DISTRIBUTION SYSTEM

CONTAMINANT	TEST DATE	UNIT	AVERAGE LEVEL DETECTED	RANGE OF DETECTION	HEALTH ADVISORY	MCLG	MCL	SOURCE OF CONTAMINANT
Strontium	October 2014	ppb	106	96.2-125	4000	N/A	N/A	Erosion of natural deposits.
Total Chromium	October 2014	ppb	0.115	ND-0.17	N/A/	100	100	Discharge from steel and pulp mills; Erosion of natural deposits.
Chromium +6	October 2014	ppb	0.1	0.059-0.17	N/A/	N/A	N/A	Discharge from steel and pulp mills; Erosion of natural deposits.
Vanadium	October 2014	ppb	0.19	ND-0.59	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.
°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.
LRAA	Locational Running Annual Average	
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 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. MRDLG'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	
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.

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, 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. The Environmental Protection Agency and Center for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the EPA Safe Drinking Water Hotline **(800) 426-4791**.

Turbidity

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.

2014 City of Detroit Tap Water Mineral Analysis

PARAMETER	UNITS	MAX	MIN	AVG
Total Solids	ppm	183	93	149
Total Dissolved Solids	ppm	158	81	123
Aluminum	ppm	1.125	0.000	0.215
Iron	ppm	0.586	0.000	0.175
Copper	ppm	0.022	0.000	0.002
Magnesium	ppm	11.8	5.8	8.5
Calcium	ppm	30.7	22.5	26.7
Sodium	ppm	12.2	4.6	5.9
Potassium	ppm	3.19	0.77	1.0
Manganese	ppm	0.005	0.000	0.000
Lead	ppm	0.000	0.000	0.000
Zinc	ppm	0.74	0.00	0.02
Silica	ppm	1.8	0.0	0.8
Sulfate	ppm	33.9	11.9	25.2
Chloride	ppm	39.8	4.2	11.4

PARAMETER	UNITS	MAX	MIN	AVG
Phosphorus	ppm	0.55	0.22	0.35
Free Carbon Dioxide	ppm	19.4	1.6	7.6
Total Hardness	ppm	120	90	101
Total Alkalinity	ppm	106	69	78
Carbonate Alkalinity	ppm	0	0	0
Bi-Carbonate Alkalinity	ppm	106	69	78
Non-Carbonate Alkalinity	ppm	48	4	23
Chemical Oxygen Demand	ppm	14.4	0.0	3.5
Dissolved Oxygen	ppm	15.3	6.6	10.9
Nitrite Nitrogen	ppm	0.0	0.0	0.0
Nitrate Nitrogen	ppm	0.51	0.17	0.33
pH		7.96	6.87	7.38
Specific Conductance at 25 °C	µmhos	345	210	238
Temperature	°C	26.0	2.0	15.0
Turbidity	NTU	0.12	0.01	0.07



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Detroit Water and Sewerage Department

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ATTENTION

This is an important report on water quality and safety.

El Informe contiene información importante sobre la calidad agua en su comunidad.

Por favor, si esta información no es comprensible para usted, solicite a alguien que se la traduzca.



This report is available
on our website at
www.dwsd.org.

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:
public.affairs@dwsd.org

About water

The DWSD Speakers Bureau provides an invaluable, face-to-face opportunity for school students, community groups and others to learn about the quality and production of Detroit's drinking water. To schedule a speaker or a plant tour, contact the Public Affairs Group at public.affairs@dwsd.org or call **(313) 964-9576**.

Emergency

To report emergencies, such as missing manhole covers, flooded basements, and broken hydrants, **call our 24-hour number at (313) 267-7401**.

Public participation

The Board of Water Commissioners meeting is held each month. There are also public hearings and meetings open to the public. To confirm dates and times or for information on other activities happening in the Department, please contact our Public Affairs Group at **(313) 964-9491** or visit our website www.dwsd.org.