

2002 Water Quality Report



A MESSAGE *to our consumers*

In order to ensure that tap water is safe to drink, the Environmental Protection Agency (EPA) prescribes regulations, which 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 **Environmental Protection Agency's Safe Drinking Water Hotline at 1-800-426-4791.**

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 EPA require us to test our water on a regular basis to ensure its safety. We met all the monitoring and reporting requirements for 2002.

The Detroit Water and Sewerage Department will notify you immediately 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.

***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.***

People with special 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 EPA 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 Safe Drinking Water Hotline, **1-800-426-4791**.



COMMUNITIES

Served by Detroit Water & Sewerage Department

The Detroit Water and Sewerage Department provides drinking water to approximately 4.3 million people in 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.



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 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 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 are naturally occurring or the result of oil and gas production.

Important information

ABOUT LEAD

Since 1992, with the cooperation of many Detroit residents, DWSD has been testing homes with plumbing systems that may contribute lead to the household water supply. Our 2002 round of testing shows only 2 of the 51 homes tested have lead levels over the action level. If your home has a lead service line or piping that has lead soldered joints, you can take the following precautions to minimize your exposure to lead that may have leached into your drinking water from your pipes:



- Run your water for 30 to 60 seconds or until it feels colder any time your water has not been used for more than 6 hours.
- Always use cold water for drinking, cooking, or making baby formula.
- Use faucets and plumbing material that are either lead free or will not leach unsafe levels of lead into your water.



Health Effects: Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning disabilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

KEY TO DETECTED *Contaminants Tables*

The contaminant tables are based on tests conducted by DWSD in the year 2002. We conduct many tests throughout the year; however, only tests that show the presence of a substance or required special monitoring are shown here. The table below is a key to the terms used in the tables.

Key to Detected Contaminants Tables		
Symbol	Abbreviation for	Definition/Explanation
MCLG	Maximum Contaminant Level Goal	The level of a contaminant in drinking water below which there is no known or expected risk to health.
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.
MRDLG	Maximum Residual Disinfectant Level Goal	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.
MRDL	Maximum Residual Disinfectant Level	The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.
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.
NTU	Nephelometric Turbidity Units	Measures the cloudiness of water.
TT	Treatment Technique	A required process intended to reduce the level of a contaminant in drinking water.
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.
TTHM	Total Trihalomethanes	Total Trihalomethanes is the sum of chloroform, bromodichloromethane, dibromochloromethane, and bromoform. Compliance is based on the total.
n/a	Not Applicable	
≥	More than or equal to	

**City of Detroit Public
2002 Regulated Det**

Contaminant	Test Date	Health Goal MCLG	Allowed Level MCL	Highest Level Detected	Range of Detection	Violation yes/no
Inorganic Chemicals – Annual Monitoring at Plant Finished Water Tap						
Fluoride (ppm)	8/22/2002	4	4	1.1	1.0-1.1	NO
Volatile Organic Contaminants – Quarterly Monitoring at Plant Finished Water Tap						
Ethylbenzene (ppb)	5/21/2002	700	700	1.4	0–1.4	NO
Xylenes (ppm)	5/21/2002	10	10	0.008	0-0.008	NO
Disinfectant Residual and Disinfection By-Products – Monitoring in Distribution System						
Haloacetic Acids (HAA5) (ppb)	2/21-11/18 2002	n/a	60	13.3	2.0-19.0	NO
Trihalomethanes (TTHM) (ppb)	2/21-11/18 2002	n/a	80	17.8	5.7-30.6	NO
Disinfectant (chlorine) Residual (ppm)	Jan-Dec 2002	MRDGL 4	MRDL 4	0.78	0.44-0.93	NO
2002 Turbidity – Monitored every 4 hours at 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 yes/no
0.25 NTU		100%				NO
Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the						
2002 Microbiological Contaminants – Monthly Monitoring in Distribution System						
Contaminant	MCLG	MCL		Highest Number Detected	Violation yes/no	
Total Coliform bacteria	0	Presence of Coliform bacteria in >5% of monthly samples		in one month 3.23%	NO	
<i>E. coli</i> or fecal coliform bacteria	0	A routine sample and a repeat sample are total coliform positive, and one is also fecal or <i>E. coli</i> positive.		entire year 0	NO	
2002 Lead and Copper Monitoring at Customers' Taps						
Contaminant	MCLG	Action Level AL	90th Percentile Value*	Number of Samples Over AL	Violation yes/no	
Lead (ppb)	0	15	11.6	2	NO	
Copper (ppm)	1300	1300	148.5	0		
*The 90th percentile value means 90 percent of the homes tested have lead and copper levels below the AL, additional requirements must be met.						

2002 Special Monitoring				
Contaminant	MCLG	MCL	Level Detected	Source of Contamination
Sodium (ppm)	n/a	n/a	Not detected	Erosion of natural deposits

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

Public Water System Detected Contaminants

Major Sources in Drinking Water

Erosion of natural deposits; Water additive, which promotes strong teeth;
Discharge from fertilizer and aluminum factories.

Discharge from petroleum refineries.

Discharge from petroleum and chemical factories.

(Level detected is the highest running annual average based on quarterly averages)

By-product of drinking water disinfection.

By-product of drinking water chlorination.

Water additive used to control microbes.

Soil Runoff

Effectiveness of our filtration system.

Major Sources in Drinking Water

Naturally present in the environment.

Human waste and animal fecal waste.

Major Sources in Drinking Water

Corrosion of household plumbing system; Erosion of natural deposits;
Leaching from wood preservatives.

the given 90th percentile value. If the 90th percentile value is above

TOC Removal

The EPA requires us to remove 25% of Total Organic Carbon (TOC) from our source water during treatment. We are in compliance with this requirement.



A PROUD HERITAGE

The Detroit Water and Sewerage Department, or DWSD, is the third largest water and sewer utility in the United States. It has a rich history in public utility service dating back to the early 1800s — beginning with a water system comprised of wooden logs. Today some 4.3 million people who live and work in Detroit and 125 suburban communities receive water produced by DWSD’s five water treatment plants. But, it wasn’t always like this.

- In 1824, the “Department” consisted of a single pump on a wharf at the end of Randolph Street. Three years later, numerous tamarack trees – harvested from marshes along the Clinton River – were hollowed out to become the system’s first water mains.



- In 1836, Detroit purchased the water works from the private owners for \$20,500. The water system at this time consisted of two horse-driven pumps, a 40-gallon reservoir, and a few miles of wooden mains positioned along some of the city’s main thoroughfares.

- In 1838, the city’s first cast iron pipes were laid along Jefferson Avenue.

- In 1853, the state legislature in Lansing passed Public Act 90, which created the Board of Water Commissioners (BOWC), the governing body that celebrates its



was later incorporated into the city proper and would become known as Water Works Park. The park quickly became a tourist magnet where people could stroll winding walkways, wade into the man-made pond, admire the many floral displays, view Detroit and Windsor from the top of the 185-foot-tall standpipe (the world's second tallest man-made structure in 1879), enjoy the stately elegance of the 12

150th anniversary in 2003.

- In 1857, a new water works was built at the foot of Orleans Street in order to deal with the needs of Detroit's exploding population that had reached over 40,000.
- The first public drinking fountains in Detroit appeared in May 1871. The seven contrivances proved so popular with Detroiters that the Department ordered an additional nine fountains in July.
- In 1873, construction began on a new water works on a 56-acre site in Hamtramck Township. The location



Apostles (pear trees planted by Detroit's original French settlers), or just absorb the quiet amid the expansive open spaces.

- River Rouge became the first suburban community to buy Detroit water in 1900.
- Calcium hypochlorite was first used to disinfect drinking water in Detroit in 1913. The order was mandated by the U.S. Public Health Service and resulted in a dramatic



1928. Completed in a matter of only seven months, the building continues to serve as the headquarters of the DWSD.

- The Springwells Water Treatment Plant was for a time the largest water treatment plant in the world when placed in

operation in Dearborn in 1935.

- In 1956, the Northeast Water Treatment Plant was put into operation.

- The massive high-lift pumps at Water Works Park were replaced in 1961, as the plant was converted from coal-fired steam to electrical power.

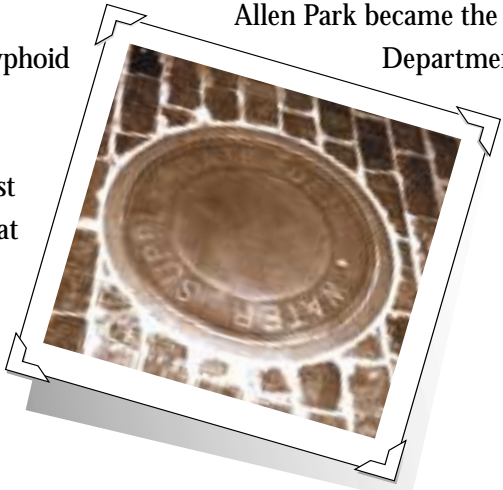
- In 1964, the Southwest Plant in Allen Park became the

Department's

reduction in the incidence of typhoid fever, a water-borne disease.

- The Department began operation of the world's largest water filtration plant in 1923 at Water Works Park.

- The Water Board Building was opened for business in



fourth water treatment plant.

- In recognition of the Department's role as a supplier to the region, its name was changed

- The Department officially became known as the "Detroit Water and Sewerage Department" in 1975, the name by which it continues to be known.

- The Water Board Building was given Historic Designation status by the City of Detroit's Historic Designation Advisory Board and by the Historic District Commission in 2002.



from the Department of Water Supply to the Detroit Metropolitan Water Service.

- The Lake Huron Plant in Fort Gratiot Township, the Department's fifth water treatment plant, became fully operational in 1974.



Other **MONITORING**

In addition to testing we are required to perform, our water system voluntarily tests for hundreds of additional substances and microscopic organisms to make certain our water is safe and of the highest quality. If you are interested in a more detailed report, contact DWS's Water Quality Division, **(313) 267-3629**.



Opportunities for 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 Division at **(313) 964-9570** or visit our Web site **www.dwsd.org**



Want to learn more **ABOUT WATER?**

The DWSB 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, call the Public Affairs Division at **(313) 964-9570**.

DWSB's 24-hour
EMERGENCY
Number: (313) 267-7401

To report emergencies, such as flooded streets and basements, missing manhole covers or water main breaks.

This report is available on our Web site 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 **Water Quality Division** at **(313) 267-3629** or you may email your comments to **public.affairs@dwsd.org**

