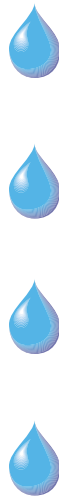


2004 DRINKING WATER QUALITY REPORT

Midland's annual **Drinking Water Quality Report** is intended to update you, our customer, on the continuing efforts made toward ensuring the safety and availability of your drinking water. This report shares the most recent water quality testing data as well as an overview of the City of Midland Utilities-Water Division and services provided to the community. Your concerns and opinions

are important to us, and we encourage you to contact us with any questions or comments. You can reach us by calling the Water Treatment Plant at **837-3515** or leaving a message on our 24-hour citizen comment line, **837-3400**. You may also send an e-mail to cityhall@midland-mi.org or write to us at **333 West Ellsworth Street, Midland, MI 48640**.

2004 Water System Improvements



On July 1, 2004, the Northeast Pressure District Pump Station started full-time operation. The station has a 9.0 million gallon-a-day pumping capacity to serve the area of highest elevation in the city. In the past, pressure in this area could be as low as 30 pounds per square inch (psi). Citizens now experience 45 psi during the periods of highest demand. The creation of the pressure district not only included a new pump station but also the addition of new transmission and distribution mains. The project included 1.7 miles of 24-inch diameter transmission main and approximately one mile of 16-inch diameter distribution main. The improvements in the system are designed to provide benefits well into the future as this area of the city continues to experience growth.

The water distribution system also experienced many other improvements in 2004. Private projects such as subdivisions and commercial development added approximately 1.5 miles of new water main to the system. Seven city water projects, including new and replacement main, totaled an additional three miles of pipe in 2004. These improvements will provide system benefits through improved reliability and additional flow capacity.

MIDLAND WATER FACTS

- 8.3 million kilowatt hours of electricity
- 8.3 billion gallons of finished water pumped
- Average Temp - 54°F or 12°C
- Average pH - 8.3
- Average Hardness - 105 ppm or 6 grains per gallon
- Average Alkalinity - 71 ppm
- 2700 System-wide Bacteriological tests performed
- 1166 tons of chemicals used*

*lime, ferric, chlorine, fluoride, carbon, polymer, phosphate



UTILITIES DEPARTMENT WATER TREATMENT • WATER DISTRIBUTION • WATER OFFICE

Here are some helpful City of Midland telephone numbers:

24-hour water
Emergency services:
989-837-3515

Questions or concerns
about water quality:
989-837-3515

Distribution system
questions or problems:
989-837-6950

Utility Billing -
Water office @ City Hall:
989-837-3341

IMPORTANT DEFINITIONS

The following tables contain scientific terms and measures, some of which may require an explanation.

Action Level or AL: The concentration of a contaminant which, if exceeded, triggers the need for additional treatment or other requirements which a water system must meet.

Maximum Contaminant Level or MCL: The highest level of a contaminant, which is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

Maximum Contaminant Level Goal or MCLG: The level of contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

Maximum Residual Disinfectant Level or MRDL: 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.

Maximum Residual Disinfectant Level Goal or MRDLG: 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 contamination.

Nephelometric Turbidity Units (ntu): Is a measure of the clarity of water. The lower the numbers, the more clear the water.

Not Applicable: n/a

Part per million (ppm); part per billion (ppb): These units describe the levels of detected contaminants. One part per million is about 1/2 of a dissolved aspirin tablet (162.5 mg) in a full bathtub of water (about 50 gallons). One part per billion is about one dissolved aspirin tablet (325 mg) in a typical 25-meter swimming pool (about 100,000 gallons).

Treatment Technique or TT: A required process intended to reduce the level of a contaminant in drinking water.

CITY OF MIDLAND TEST RESULTS FOR 2004

SUBSTANCES REGULATED AT MIDLAND'S WATER TREATMENT PLANT

| <i>Substance</i> | <i>Unit</i> | <i>Amount Detected</i> | | <i>MCL</i> | <i>MCLG</i> | <i>Likely Source</i> | <i>Violation?</i> |
|----------------------|-------------|---------------------------|-----------------------|-----------------|-------------|--|-------------------|
| | | <i>Lowest</i> | <i>Highest</i> | | | | |
| Fluoride | ppm | 0.86 | 1.57 | 4 | 4 | Erosion of natural deposits; Water Treatment additive which promotes strong teeth | NO |
| Turbidity | ntu | 0.02 | 0.37 | TT ^a | n/a | Soil runoff; suspended matter in surface water | NO |
| Barium | ppm | 0.01 | 0.01 | 2 | 2 | Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits | NO |
| Selenium | ppb | 2 | 2 | 50 | 50 | Discharge from petroleum refineries; erosion of natural deposits; discharge from mines | NO |
| Total Organic Carbon | ppm | <u>Range</u> 1.3 - 1.7 | <u>Average</u> 1.6 | TT ^b | n/a | Naturally present in the environment | NO |

a. Turbidity is monitored because it is a good indicator of the effectiveness of the filtration system. The treatment technique for turbidity requires that all samples be below 1 ntu, and at least 95% of the samples each month be lower than 0.3 ntu. All our samples were below 1 ntu. On a monthly basis, between 99.7% and 100% of our samples were below 0.3 ntu.

b. Certain water systems must remove Total Organic Carbon (TOC) to reduce the formation of disinfection byproducts. TOC was measured each month, and because the level was low, there is no requirement for TOC removal from the Midland water supply.

SUBSTANCES REGULATED IN THE DISTRIBUTION SYSTEM

| <i>Substance</i> | <i>Unit</i> | <i>Amount Detected</i> | | | <i>MCL</i> | <i>Likely Source</i> | <i>Violation?</i> |
|-------------------------|-------------------|------------------------|---------------------|-------------------|--|--|-------------------|
| | | <i>Range</i> | <i>Highest</i> | <i>MCL</i> | | | |
| Total Trihalomethanes | ppb | 39.5 - 68.6 | 48.6 ^c | 80 | By-products of drinking water chlorination | NO | |
| Total Haloacetic Acids | ppb | 7 - 33 | 26 ^c | 60 | By-products of drinking water chlorination | NO | |
| Total Coliform Bacteria | note ^d | 0 | 0 | note ^d | Naturally present in the environment | NO | |
| Fecal Coliform Bacteria | note ^e | 0 | 0 | note ^e | Human and animal fecal waste | NO | |
| Chlorine | ppm | 0.15 - 1.17 | <u>AVG.</u> 0.77 | <u>MRDL</u> 4 | <u>MRDLG</u> 4 | Water Treatment additive for control of microbial contaminants | NO |

c. Highest running annual quarterly average.

d. The MCL for Total Coliform Bacteria states that detects must not exceed 5% of the total monthly samples collected.

e. The occurrence of two consecutive total coliform positive samples, one of which contains fecal coliform/E.coli, constitutes an acute MCL violation.

SUBSTANCES REGULATED AT THE CUSTOMER'S TAP (CITY OF MIDLAND)

| <i>Substance</i> | <i>Unit</i> | <i>Amount Detected</i> | | <i>MCL</i> | <i>MCLG</i> | <i>Likely Source</i> | <i>Violation?</i> |
|---------------------|-------------|------------------------|------------|------------|---|----------------------|-------------------|
| | | <i>90th Percentile</i> | <i>MCL</i> | | | | |
| Copper ^f | ppm | 0.402 | AL=1.3 | 1.3 | Corrosion of household plumbing systems | NO | |
| Lead ^g | ppb | 13 | AL=15 | 0 | Corrosion of household plumbing systems | NO | |

f. No testing site exceeded the Copper Action Level of 1.300 ppm.

g. Four testing sites exceeded the Lead Action Level of 15 ppb. However, MCL compliance is determined using the 90th percentile value.

UNREGULATED (SINGLE SAMPLE AT WATER TREATMENT PLANT)

| <i>Substance</i> | <i>Unit</i> | <i>Highest</i> | <i>Likely Source</i> | <i>Violation?</i> |
|------------------|-------------|----------------|-----------------------------|-------------------|
| Sodium | ppm | 5 | Erosion of natural deposits | NO |

SOURCE WATER INFORMATION



Midland has received its source water supply from Lake Huron since 1948. The source water pumping system is jointly owned and operated by the cities of Midland and Saginaw and is called the Saginaw-Midland Municipal Water Supply Corporation (SMMWSC). Water is drawn into the system through two intake structures located in Lake Huron off the shores of Whitestone Point. The water is chlorinated at the lake intake structures to kill harmful bacteria and zebra mussels and is then pumped through 65 miles of pipeline to Midland. The water treatment complex is able to provide 48 million gallons per day (mgd) of treated Lake Huron water to our community. The water plant is staffed by state certified water treatment operators, water analysts and maintenance personnel that monitor, test, maintain and adjust the treatment process to provide high quality and reliable water service. Water distribution personnel are on duty to ensure water quality and safety as the water is delivered to the Midland area through approximately 320 miles of water main.

In June 2004 the Michigan Department of Environmental Quality (MDEQ) released a Source Water Assessment Report (SWAR) for our community's source of raw water. Included in the Source Water Assessment is a susceptibility analysis of our raw water. Susceptibility is a measure of the factors within the source water area that may pose a risk to the water supply. The Source Water Assessment Report concluded that potential contaminant sources present a negligible risk due to the physical location of the intakes. Based on our intake's infrequent experience with abnormal current flows, the Saginaw-Midland source water is defined as moderately low for susceptibility to potential contamination. Midland has effectively treated this source to meet drinking water standards. Protecting the source of our drinking water is an investment in our community's future and one of our main priorities. A copy of the report is available for review at the Water Office located at City Hall. If you have questions or need additional information on our Source Water Assessment, please call the Water Plant at 837-3515.

INFORMATION ON COPPER

Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's Disease should contact their personal doctor. If you are concerned about elevated copper levels in your home's water, you may wish to have the water tested, and flush your tap for 30 seconds to two minutes before using the water. Contact the City's Water Treatment Plant at 837-3515 for further information on water testing.

CROSS CONNECTIONS

What is a cross connection? A cross connection is any temporary or permanent connection between the public water supply and a potentially hazardous water supply on the consumer's end. Through these types of connections, contaminants can flow from the consumer's water supply back into the public water supply. Two of the most common ways this can happen are through underground lawn irrigation systems and fertilizer spray applicators attached to residential hoses.

How can cross connections best be avoided? There are backflow prevention devices which can be used to help protect our water supply. Through the City's Code of Ordinances, the Water Department requires that protection devices be tested on an annual basis except for pressure-type vacuum breaks that protect lawn irrigation only; these are to be tested every five years. Effective testing can detect failures in the devices.

How well did backflow prevention devices perform last year? In 2004, there were 868 tests on residential backflow protection devices. Of these, 103 devices failed. Also last year, 436 tests were conducted on commercial backflow prevention devices. Of these, 49 devices failed. Combined, the failure rate for commercial and residential devices was 11.7 percent.

These numbers show the importance of maintaining a diligent cross connection program. We need the help of every residential and commercial water customer to maintain a safe water supply. If you receive a letter notifying you of the need to have your device tested, please have it tested as soon as possible and send the results to the City's Water Department.

Work Zone SAFETY

Safety is a number one priority for City of Midland employees and the citizens of Midland. This year, the City of Midland Water Department, in an effort to improve our work zone safety, is purchasing new high visibility signs for use in our construction sites. In addition, we have begun the process to add high intensity LED strobe lights to our utility vehicles. This will make our work zones more visible and easier to navigate around. So when you see us out on the street, please slow down and take care when driving through work zones.



INFORMATION ON LEAD

Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than others in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your home's water tested, and to flush your water tap for 30 seconds to two minutes before using the water. Contact the City's Water Treatment Plant at 837-3515 for further information on water testing.

HYDRANT MAINTENANCE

The City of Midland Distribution Crews maintain over 2700 fire hydrants in the city and townships that we serve. Unlike electrical or telephone boxes that can be blended into the landscape, fire hydrants must remain visible at all times. Every spring, the City of Midland performs a routine hydrant flushing program. The process begins on the southeast side of the city near the water treatment facility. We then work our way through the entire community until the project is completed in the northwest area of town. The principal steps of the program are to isolate certain areas by shutting valves and then opening a fire hydrant to flow water through the main at approximately 2.5 feet per second. This process flushes and cleans the interior of the pipe. Another vital reason for flushing is to bring fresh water into the mains after a winter of low water use. We also perform flushing on a regular basis at the water system dead ends to keep the water fresh in the mains.



During the summer months, we paint hydrants and do routine maintenance. This work includes trying to keep weeds and debris from hindering the Fire Department's access to a hydrant during emergencies. In the winter months, our crews check to make sure fire hydrants have not frozen and become inoperable. After large snowfalls, we clear the snow around hydrants located near schools and hospitals. Many of our customers clear the fire hydrants in front of their homes. We greatly appreciate the help and we ask that you continue to do so. If you have a fire hydrant in your yard, please take the time to make sure it is visible from the road in case the Fire Department should ever have a need to use it.

Thank you for your help in keeping our community safe.

2004 Drinking Water Quality Report

Is produced by the Utilities Department - Water Treatment Plant
333 W. Ellsworth ■ Midland ■ MI 48640
www.midland-mi.org

**Midland City Council—meetings held twice monthly on
Monday evenings at 7 p.m. Check your City calendar for dates.**

R. Drummond Black, Ward I/Mayor
James Myers, Ward II
Hollis H. McKeag, Ward III
Bruce Johnson, Ward IV/Mayor Pro Tem
Joseph Rokosz, Ward V

This report was mailed to all residences and businesses in the City of Midland and to customers in communities that purchase their water from the City of Midland. Extra copies are available at the Water Plant by calling **989-837-3515** or on the City's website at www.midland-mi.org.

WHAT THE EPA SAYS ABOUT DRINKING WATER CONTAMINANTS

DRINKING WATER

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the Environmental Protection Agency's (EPA) Safe Drinking Water Hotline (**800-426-4791**) or e-mail: sdwa@epa.gov.

WHAT IF I HAVE SPECIAL HEALTH NEEDS?

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. Environmental Protection Agency/Centers for Disease Control guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the Safe Drinking Water Hotline (**800-426-4791**) or e-mail: sdwa@epa.gov.

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. In order to ensure that tap water is safe to drink, EPA prescribes regulations which 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 public health.

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