

CITY OF MARSHALL WATER QUALITY REPORT - 2010

This report covers the drinking water quality for the City of Marshall for the calendar year 2009. This information is a snapshot of the quality of the water that we provided you in 2009. Included are the details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and State standards.

Your water comes from four 12 inch wells that extend 100 feet deep into a geological rock formation called the Marshall Sandstone Aquifer. The wells are located in the Southeast section of the City. Water is pumped from the wells to an iron removal plant where the iron and manganese in the raw water are removed through four pressure filters which contain layers of anthracite, manganese treated green sand, and gravel. In the water treatment process, potassium permanganate (an oxidizing agent) is added to the water to expedite the removal of iron and manganese. Chlorine is added for disinfection of bacteria and viruses, fluoride is added to enhance dental protection, and phosphate is added for corrosion control in the water distribution system. The levels of these additives are monitored daily to ensure proper dosages are being added.

Protecting the groundwater source for our well field is vitally important to the community. Your water utility is actively involved in Wellhead Protection. Our Wellhead Protection Program was approved by the Michigan Department of Environmental Quality (MDEQ) in September 2001. The City of Marshall has an active WHPA Program that is managed by a team made up of representatives from each jurisdiction within the WHPA and lead by the City's Environmental Program Coordinator. The program is fully implemented and is in a maintenance phase. The team meets quarterly and its current focus is public education

Hydro geologic information from the WHPA delineation was reviewed to establish the geologic sensitivity for the City of Marshall's four production wells. The wells obtain groundwater from an aquifer that may be characterized as "unconfined." Unconfined aquifers are characterized geologically as "sensitive."

The City of Marshall's production wells have "high" susceptibility based on the above mentioned geologic sensitivity, listed potential contaminant sources within the WHPA, on the following:

- No Maximum Contaminant Level (MCL) violations have occurred.
 - The well construction meets standards.
 - There are no potential contamination sources within the standard isolation area.
 - Your community has an active WHPP that supports management of existing or potential sources of contamination in the WHPA.
 - Known sources of contamination within the WHPA are being remediated to prevent movement of contamination to the municipal wells.
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- **Contaminants and their presence in water:** The City of Marshall routinely monitors for contaminants in your drinking water according to Federal and State laws. 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 (800-426-4791)** or **access their web site (www.epa.gov/safewater/)**.

- **Vulnerability of sub-populations:** 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. 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 (800-426-4791).

- **Sources of drinking 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 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 and residential uses.
- **Radioactive substances**, which can be naturally-occurring.
- **Organic chemical contaminants**, which are by-products of industrial processes and petroleum production, and can also, come from gas stations, urban storm water runoff, and septic systems.

In order to insure that tap water is safe to drink, EPA prescribes regulations which limit the amount of certain contaminants in water provided by public water systems. Food and Drug Administration regulations establish limits for contaminants in bottled water which provide the same protection for public health.

WATER QUALITY DATA

The following table lists all the contaminants that were detected in your drinking water during the 2010 calendar year. The presence of these contaminants in the water does not necessarily indicate that the water poses a health risk. The tables contain the name of each substance, the highest level allowed by regulation (MCL), the ideal goals for public health (MCLG), the amount detected, the usual sources of contamination, a key to units of measurements, and footnotes explaining our findings. Unless otherwise noted, the data presented in these tables is from testing done January 1 thru December 31, 2009. The State allows us to monitor for certain contaminants less than once per year because the concentrations of these contaminants are not expected to vary significantly from year to year. All of the data is representative of the water quality, but some is more than one year old.

Terms and abbreviations used in the Water Quality Table:

- **Maximum Contaminant Level Goal (MCLG):** The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allow for a margin of safety.
- **Maximum Contaminant Level (MCL):** The highest level of contaminant that is allowed in drinking water. MCL's are set as close to the MCLG's as feasible using the best available treatment technology.
- **N/A:** Not Applicable **ND:** Not Detectable at testing limit.
- **ppm:** parts per million or milligrams per liter
- **ppb:** Parts per billion or micrograms per liter
- **pCi/l:** picocuries per liter (a measure of radiation)
- **Action Level:** The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

WATER QUALITY TABLES

Regulated Substance (units)	MCL	MCLG	Your Water	Range of Detections	Sample Date	Typical source of Contaminant
Fluoride (ppm)	4	4	1.16	N/A	7/23/09	Additive in water to enhance dental protection
Total Trihalomethanes (ppb)	80	80	ND	N/A	7/23/08	By-Product of Drinking water chlorination

Substance (units)	MCL	MCLG	Your water *	Number of homes exceeding AL	Sample date (if not 2004)	Likely sources of contamination
Lead (ppb)	15	0	0.000	0	July 2008	Corrosion of household plumbing systems
Copper (ppb)	1300	1300	486	0	July 2008	Corrosion of household plumbing systems

No chemical contamination violation has occurred on the above samples.

The City is required to sample 8 Microbiological Samples a month. The City sampled 172 times in 2009 with all the results came up negative. The 12 month running average on the chlorine residual was 0.67mg/l.

Municipal Water systems are required to test for hundreds of contaminants. The above tables list only the contaminants that were detected in your City water. For a complete list of contaminants that were tested for but not detected, contact the City Water Department at 781-2210.

Lead: Infants and small 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 at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your homes water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using the tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).

We are committed to providing you with a high quality, reliable, drinking water. We are pleased to provide you with this information to keep you fully informed about your drinking water. We will be updating this report annually, and will also keep you informed of any problems that may occur throughout the year, as they happen.

We are pleased to report that your drinking water meets all federal and state requirements. If you have any questions about this report or concerning your water utility, please contact Aaron Ambler at 781-2210 or email aambler@cityofmarshall.com. We want our valued customers to be informed about their water utility. If you would like to learn more about decisions that effect drinking water quality, please attend any of our regularly scheduled council meetings. They are held on the first and third Monday's of each month at 7:00 PM. in the City Hall Council Chambers located at 323 W. Michigan Avenue.

