ANNUAL

DRINKING WATER QUALITY REPORT

VILLAGE OF MACKINAW CITY

January 1 thru December 31, 2013

This report is designed to inform you about the quality drinking water and services that we deliver to you every day. Our constant goal is to provide you with a safe and dependable supply of drinking water. We want you to understand the efforts we make to continually improve the water treatment process and protect our water resources. We are committed to ensuring the quality of your water. The sources of drinking water (both tap 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.

Our water comes from four groundwater wells. These wells are located throughout the village. Well # 1 is on Pond St., Well # 2 is on Perrot St., Well # 3 is on U.S. 23, and Well # 4 is on Pond St. In 2004 the state approved the Village of Mackinaw City's "Wellhead Protection Plan". The 4 production wells (Well #1, Well #2, Well #3, Well #4) obtain ground water from an aquifer that would be characterized as moderately high susceptibility to contamination. The State performed an assessment of our source water in 2003.

We are pleased to report that your drinking water is safe and meets all State and Federal requirements

This report is a snapshot of the quality of the water we provided to you in 2013. Included are details about where your water comes from, what it contains, and how it compares to Environmental Protection Agency (EPA) and State of Michigan standards.

If you have any questions about this report or concerning your water utility, please contact Village Manager, at City Hall (231) 436-5351. We want our valued customers to be informed about their water utility. The Village of Mackinaw City Water Department routinely monitors for contaminants in your drinking water according to *Federal and State Laws.*

This report shows the results of our monitoring for the period of **January 1 thru December 31, 2013.** *ALL* drinking water, including bottled drinking water, may be reasonably expected to contain at least small amounts of some constituents. It is important to remember that the presence of these constituents does not necessarily pose a health risk.

Contaminants that may be present in <u>any</u> source water include:

<u>Microbial contaminants,</u> such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife.
<u>Inorganic contaminants,</u> such as salts and metals which can be naturally occurring or result from urban storm water run-off, industrial or domestic wastewater discharges, oil and gas production, mining or farming.
<u>Pesticides and herbicides,</u> which may come from a variety of sources such as agriculture and residential uses.
<u>Radioactive contaminants,</u> which are naturally occurring.
<u>Organic chemical contaminants,</u> including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff, and septic systems.

The **State of Michigan** and **Environmental Protection Agency** require us to test our water on a regular basis to ensure its safety.

We met all monitoring requirements for the year 2013.

The following tables list all drinking water contaminants that we detected during the **2013** calendar year. The presence of these contaminants in the water **does not** necessarily indicate that the water poses a health risk. Unless otherwise noted, the data presented in this table is from testing done **January 1 – December 31, 2013.** 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 are more than one year old.

In the following tables you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms we've provided the following definitions:

<u>Parts per million (ppm) or Milligrams per liter (mg/l)</u> – one part per million corresponds to one minute in two years time, or a single penny in $10,000.
<u>Parts per billion (ppb) or Micrograms per liter</u> – one part per billion corresponds to one minute in 2,000 years, or a single penny in $10,000,000.
<u>Picocuries per liter (pCi/L)</u> – a pico equals one part per trillion; the measurement of radiation in water.
<u>Maximum Contaminant Level (MCL)</u> – is the highest level of a 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.
<u>Maximum Contaminant Level Goal (MCLG)</u> – is the level of a contaminant in drinking water below which there is no known or expected risk to health. MCLG's allows for a margin of safety.
<u>Action Level (AL)</u> – is the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.
<u>Maximum Residual Disinfectant Level (MRDL)</u> – is 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.
<u>Maximum Residual Disinfectant Level Goal (MRDLG)</u> – is 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.
<u>NA</u> – not applicable ***<u>ND</u>*** – not detectable at testing limits ***<u>RAA</u>*** – running annual average.

We are pleased that your drinking water meets or exceeds all Federal and State Requirements.

We have learned through our monitoring and testing that some constituents have been detected. The EPA has determined that **YOUR WATER IS SAFE** at these levels. ***All*** sources of drinking water are subject to potential contamination by substances that are naturally occurring or man made. ***All*** 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 the water poses a health risk. 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 microbiological contaminants and potential health effects can be obtained by calling:

The Environmental Protection Agency's Safe Drinking Water Hotline at -- 1-(800) 426-4791.

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. The Village of Mackinaw City 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 Safe Drinking Water Hotline or at http://www.epa.gov/safewater/lead.

General information about our water system . . . .

The Village of Mackinaw City water system distributes water along approximately 11 miles of pipelines from four separate well locations. Well # 1, on Pond St., has a pumping capacity of 650 GPM, Well #2 on Perrot St. has a capacity of 360 GPM, Well # 3, located just off U.S. 23 has a capacity of 400 GPM, and Well # 4, also located on Pond St., has a capacity of 385 GPM. These wells give the village a "Firm Capacity" (the systems capacity with the largest well out of service) of 1145 GPM or 1.6 Million Gallons per Day. Water storage is provided by a 200,000 gallon elevated water storage tank, located at Wawatam Park on N. Huron Ave. Additional land is owned by the Village on the west side of town for a future additional storage tank. The Villages' water is treated with sodium hypochlorite (chlorine) and polyphosphate for disinfection and iron sequestering. The Village has recently purchased back-up generators capable of maintaining the capacity of our water system in the event of a power loss to the city.

The Village of Mackinaw Water Department is on call 24 hours per day 365 days a year ready to do whatever is necessary to provide this community with the best possible water at all times.

Please help us protect our water resources, which are the heart of our Community, our way of life, and our children's future.

VILLAGE OF MACKINAW CITY

2013 WATER MONITORING REPORT

Regulated Chemical Contaminants	MCL	MCLG	*Our Water System*	Sample Date	Violations Yes/No	Typical Source of Contaminants
Barium (ppm) (inorganic)	2	2	N/D to 0.01	2005	NO	Erosion / Natural Occurring Byproducts of drilling
Nitrate (ppm)	10	10	N/D to .6 mg/L	2013	NO	Erosion of natural deposits, runoff from fertilizers
Fluoride (ppm) (inorganic)	4	4	.17 to .28 mg/L	2013	NO	Erosion of natural deposits

Radioactive Contaminants	MCL	MCLG	*Our Water System*	Sample Date	Violations Yes/No	Typical Source of Contaminants
Alpha emitters (pCi / L)	15	0	0.6 to 2.0	2002	NO	Erosion of natural deposits
Gross Beta (mrem / yr)	4	0	0.7 to 1.8	2002	NO	Decay of natural and man-made deposits
Combined Radium 226 / 228 (pCi / L)	5	0	.13 to .35	2002	NO	Erosion of natural deposits

Contaminants Subject to an Action Level	Action Level		*Our Water System*	Sample Date	# of Samples Above AL	Typical Source of Contaminants
Free chlorine Residual (ppm)	MRDL = 4.0 MRDLG = 4.0		.23 to .47 RAA= .34	2013 / monthly	0	Disinfectant added to control microbes
Total Trihalomethanes (ppb)	MCL = 80		4.2 to 11.4 RAA= 7.4	2013	0	Disinfection byproduct
Haloacetic Acids (ppb)	MCL = 60		2.0 to 6.0 RAA= 4.5	2013	0	Disinfection byproduct
Lead (ppb) *	AL = 15		1	2012	0	Corrosion of household plumbing; Erosion of Natural Deposits
Copper (ppm) *	AL = 1.3		0.29	2012	0	Corrosion of household plumbing; Erosion of Natural Deposits; Leaching from wood preservatives

*** 90 % of the samples collected were at or below the level reported for our water.**

Unregulated Chemical Contaminants **			*Our Water System*	Sample Date	Violation Yes / NO	Typical Source of Contaminants
Sodium (ppm)			N/D to 11 Average 4.5	2013	N / A	Erosion of natural deposits
Sulfate (ppm)			ND to 13 Average 3.3	2013	N / A	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.**