Annual Drinking Water Quality Report

City of Wixom Municipal Water

For January 1, 2016 to December 31, 2016

Dear Water Utility Customer:

We are pleased to provide you with the 2016 Annual Drinking Water Quality Report in accordance with the "Safe Drinking Water Act", which was re-authorized and signed into law by President Clinton in the fall of 1998. A key component of this Act is mandatory public disclosure about compliance with drinking water regulations. The City of Wixom views this as an opportunity to inform our water customers about the high quality drinking water being supplied to them. The sample results presented in the following report are technical in nature, and our goal is to help you understand how the data supports the safety of consuming drinking water provided by the City of Wixom and its Contract Operator, Suez. If you have any questions about the contents of this report, or have suggestions on making it more understandable, please contact John Burton (Suez, Water Operations Specialist) at 248-960-0870.

The Great Lakes Water Authority - GLWA (formerly the Detroit Water and Sewerage Department - DWSD), has been providing water to the Wixom System since October 2001. Your source water comes from the lower Lake Huron watershed. The watershed includes numerous short, seasonal streams that drain to Lake Huron. The Michigan Department of Environmental Quality in partnership with the U.S. Geological Survey, the Detroit Water and Sewerage Department 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 ranging from moderately low to very high, based primarily on geologic sensitivity, water chemistry, and contaminant sources. The Lake Huron source water intake is categorized as having a moderately low susceptibility to potential contaminant sources. The Lake Huron water treatment plant has historically provided satisfactory treatment of this source water to meet drinking water standards. If you would like to have more information about this report or a complete copy of this report, please contact Suez at 248-960-0870. Test results for the GLWA water supply are included in this report.

Even though we are connected to the GLWA system, the City of Wixom still has eight ground water wells that are kept as "stand-by wells". These wells were not used to supply water to the City of Wixom in 2016. However, the City is still required to sample them as if they were the

primary source of water. These wells draw their water from the Huron River and Rouge River watershed and are approximately 100 feet in depth.

Over the last 25 years, state and federal environmental regulations have become progressively more stringent, resulting in significant improvements to water quality. As you will see in the following report, the City closely monitors both the source water and the drinking water supplied to you to ensure its quality and safety.

Suez (Contract Operator of the Wixom Water Utility) and GLWA routinely monitor your drinking water for impurities according to federal and state laws. The table included with this report shows the results of our monitoring for the period January 1, 2016 to December 31, 2016.

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 U.S. Environmental Protection Agency's (EPA) Safe Drinking Water Hotline at 800-426-4791.

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 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 run- off, 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 run-off, 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 run-off and septic systems.
- Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities.

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. The Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

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 City of Wixom 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.

Some people may be more vulnerable to contaminants in drinking water than is 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.

Also, the City of Wixom is required to collect numerous samples each year and have them analyzed for various chemical parameters to determine compliance with state drinking water standards. These samples are taken periodically throughout the year and are sent out to be analyzed. We are also required to take monthly samples, which are tested for any bacteria that might be in the water system. These samples are analyzed by a Suez state certified laboratory in Wixom. The City of Wixom and Suez are proud that the drinking water delivered to you meets or exceeds all federal and state requirements. As you will see from the tables below, our water system had no Maximum Contaminant Level (MCL) violations during 2016.

We are required to monitor your drinking water for specific contaminants on a regular basis. Results of regular monitoring are an indicator of whether or not our drinking water meets health standards. During August 2016, we did not test for disinfection byproducts, called haloacetic acids (HAA5s) and total trihalomethanes (TTHMs), and therefore cannot be sure of the quality of our drinking water during that time. However, the water was subsequently tested for the same parameters the following month, September 2016, and the results did NOT exceed MCL or AL. This failure to monitor an annual sample, on time, is considered a violation which however does not pose a threat to your supply's water.

As a water utility customer, you should consider yourself an investor-owner of the Wixom Water Utility System. Consequently, all customer inquiries, requests, or suggestions are welcomed and encouraged. Ultimately, the Wixom City Council, which assembles on the second and fourth Tuesday of every month, is responsible for overseeing the Wixom Water Utility.

"The Great Lakes Water Authority monitored for Cryptosporidium in our source water (Detroit River) at our Southwest Water Treatment Plant during 2016. Cryptosporidium was detected twice in our source water samples. A follow-up water sample was collected from the treated water and Cryptosporidium was not found to be present.

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly-used filtration methods cannot

guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease. Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea, and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immunocompromised people, infants and small children, and the elderly are at greater risk of developing life-threatening illness. We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water."

If you have questions, comments or want additional information regarding the water utility, you may direct your inquiries to the following personnel:

Matt Delaney Project/Plant Manager Suez

Telephone 248-960-0870

Fax 248-960-6586

Tim Sikma DPW Director City of Wixom

Telephone 248-624-0141

Fax 248-624-0890

There are Internet web sites with additional water information. Oakland County has an Internet web site at www.oakgov.com.

You can find the EPA at www.epa.gov. The American Water Works Association has a site at www.awwa.org.

Key to the Detected Contaminants Table

Symbol	Abbreviation	Definition/Explanation
>	Greater than	
°C	Celsius	A scale of temperature in which water freezes at 0° and boils at 100° under standard conditions.
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.
LRAA	Locational Running Annual Average	The average of analytical results for samples at a particular monitoring location during the previous four quarters.
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.
MCLG	Maximum Contaminant Level Goal	The level of contaminant in drinking water below which there is no known or expected risk to health.
MRDL	Maximum Residual 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 Residual Disinfectant Level Goal	The level of a drinking water disinfectant below which there is no known or expected risk to health. MRLDG'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	The average of analytical results for all samples during the previous four quarters.
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, dibromoochloromethane and bromoform. Compliance is based on the total.
µmhos	Micromhos	Measure of electrical conductance of water

Lake Huron Water Treatment Plant
2016 Regulated Detected Contaminants Tables

Inorganic Chemicals – Monitoring at the Plant Finished Water Tap

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest Level Detected	Range of Detection	Violation yes/no	Major Sources in Drinking Water
Fluoride	5-10-16	ppm	**4**	**4**	0.50	n/a	no	Erosion of natural deposits; Water additive, which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	5-10-16	ppm	**10**	**10**	0.46	n/a	no	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.

Disinfection By-Products – Monitoring in Distribution System, Stage 2 Disinfection By-Products

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Allowed Level MCL	Highest LRAA	Range of Detection	Violation yes/no	Major Sources in Drinking Water
Total Trihalomethanes (TTHM)	2016	**ppb**	n/a	**80**	33	27-37	**No**	By-product of drinking water chlorination
Haloacetic Acids (HAA5)	2016	**ppb**	n/a	**60**	13	8.7-15	**No**	By-product of drinking water disinfection

Disinfectant Residuals – Monitoring in Distribution System by Treatment Plant

Regulated Contaminant	Test Date	Unit	Health Goal MRDLG	Allowed Level MRDL	Highest RAA	Quarterly Range of Detection	Violation yes/no	Major Sources in Drinking Water
Total Chlorine Residual	Jan-Dec 2016	**ppm**	**4**	**4**	0.79	0.61-0.85	no	Water additive used to control microbes

2016 Turbidity – Monitored every 4 hours at Plant Finished Water

Highest Single Measurement Cannot exceed 1 NTU	Lowest Monthly % of Samples Meeting Turbidity Limit of 0.3 NTU (minimum 95%)	Violation yes/no	Major Sources in Drinking Water
0.28 NTU	100 %	no	Soil Runoff
Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.			

2016 Microbiological Contaminants – Monthly Monitoring in Distribution System

Regulated Contaminant	MCLG	MCL	Highest Number Detected	Violation yes/no	Major Sources in Drinking Water
Total Coliform Bacteria	0	Presence of Coliform bacteria > 5% of monthly samples	0	**No**	Naturally present in the environment
***E. coli* Bacteria**	0	A routine sample and a repeat sample are total coliform positive, and one is also fecal or E.coli positive.	0	**No**	Human waste and animal fecal waste.

2014 Lead and Copper Monitoring at Customer Tap

Regulated Contaminant	Test Date	Unit	Health Goal MCLG	Action Level AL	90th Percentile Value*	Number of Samples over AL	Violation yes/no	Major Sources in Drinking Water
Lead	2014	**ppb**	**0**	**15**	0	0	No	Corrosion of household plumbing system; Erosion of natural deposits.
Copper	2014	**ppm**	**1.3**	**1.3**	.125ppm	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.								

Lake Huron Water Treatment Plant
2016 Regulated Detected Contaminants Tables

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 was measured each quarter and because the level was low, there is no TOC removal requirement	Erosion of natural deposits

Radionuclides 2014							
Regulated contaminant	**Test date**	**Unit**	**Health Goal MCLG**	**Allowed Level**	**Level detected**	**Violation Yes/no**	**Major Sources in Drinking water**
Combined Radium 226 and 228	5-13-14	pCi/L	0	**5**	0.86 + or – 0.55	no	Erosion of natural deposits

Contaminant	MCLG	MCL	Level Detected	Source of Contamination
Sodium (ppm)	n/a	n/a	4.00	Erosion of natural deposits

GLWA
Great Lakes Water Authority

February 2017

Water Quality Report/Consumer Confidence Report

1. **Introduction:**
   Drinking water quality is important to our community and the region. The City Of Wixom and the Great Lakes Water Authority (GLWA) are committed to meeting state and federal water quality standards including the Lead and Copper Rule. With the Great Lakes as our water source and proven treatment technologies, the GLWA consistently delivers safe drinking water to our community. Wixom operates the system of water mains that carry this water to your home's service line. This year's Water Quality Report highlights the performance of GLWA and Wixom water professionals in delivering some of the nation's best drinking water. Together, we remain committed to protecting public health and maintaining open communication with the public about our drinking water.

2. **Closing:**
   Wixom and the Great Lakes Water Authority are committed to safeguarding our water supply and delivering the highest quality drinking water to protect public health. Please contact us with any questions or concerns about your water.

3. **Lead Message (optional message for use in addition to mandatory lead language):**
   Safe drinking water is a shared responsibility. The water that GLWA delivers to our community does not contain lead. Lead can leach into drinking water through home plumbing fixtures, and in some cases, customer service lines. Corrosion control reduces the risk of lead and copper from leaching into your water. Orthophosphates are added during the treatment process as a corrosion control method to create a protective coating in service pipes throughout the system, including in your home or business. The City of Wixom performs required lead and copper sampling and testing in our community. Water consumers also have a responsibility to maintain the plumbing in their homes and businesses, and can take steps to limit their exposure to lead.

Source: *Water Quality Work Group.*
This messaging was developed collaboratively between GLWA and its wholesale water customers as part of the GLWA Customer Outreach effort in 2016.

Diagrams: *Water system diagrams showing various pipe ownership scenarios are available at:* http://www.glwater.org/water-system/water-quality-matters/water-quality-report-collaborative-messaging-and-diagrams/