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Kalamazoo Lake Sewer and Water Authority (KLSWA) 2016 Water Quality Report

KLSWA is pleased to present our annual Water Quality Report for the 2016 monitoring period. This report is for all water customers served by KLSWA in the City of the Village of Douglas, the City of Saugatuck, Saugatuck Township and customers in the Goshorn Lake vicinity of Laketown Township. Water quality has been and continues to be a priority for maintaining the health of the customers and the economic vitality of the communities we serve.

The source of our water is groundwater supplied from three well fields, which consists of a total of six wells. The wells are located in The City of the Village of Douglas on Bayou Dr., the City of Saugatuck off of Maple St., and in Saugatuck Township off of Blue Star Hwy. A copy of the Source Water Assessment, which was performed by the State of Michigan, is available upon request at the KLSWA office. The Source Water Assessment identifies potential sources of groundwater contamination such as underground storage tanks and abandoned private wells. The Source Water Assessment defines the Douglas well field as having a "high" susceptibility to groundwater pollution while those in Saugatuck have a "moderate" susceptibility. The KLSWA has an active Well Head Protection Program (WHPP) that supports the management of existing and potential sources of contamination and was updated in 2011 with the help of the Michigan Rural Water Association. The determination of well susceptibility to contamination is based on geological analysis, listed potential sources within the WHPP area, and on the following:

- No Maximum Contamination Level violations have occurred.
- Well construction meets all applicable standards.
- Known sources of contamination within the WHPP area are remediated to prevent movement of contamination to Municipal wells.

The KLSWA adds chlorine as a disinfectant to the public water supply at each well. There is convincing evidence that the addition of a disinfectant is necessary for the control of microbial contaminants. We also add polyphosphate for iron sequestration and corrosion control both in the distribution system and in your domestic plumbing. Additional treatment is also utilized at the Douglas wells, where we have an Iron Removal Plant (IRP). The IRP utilizes a type of treatment that minimizes the naturally occurring iron levels present from the supply wells, and has shown to reduce to a non-detectable level other contaminants such as Trichloroethylene.

Drinking water, including bottled water, may reasonably be expected to contain small amounts of some contaminants. The presence of contaminants does not necessarily indicate that the water poses a health threat. More information about contaminants and potential health effects can be obtained by calling the EPA Safe Drinking Water Hotline (1-800-426-4791).

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. Food and Drug Administration (FDA) regulations establish limits for contaminants in bottled water intended to provide the same protection for public health.

Copies of this Water Quality Report are available at the KLSWA office located at 6449 Old Allegan Rd., Saugatuck, MI 49453 or at www.klswa.com/2016wqr.pdf. As a cost savings, this report will not be published, advertised, or mailed. This report will be publicly distributed and posted at public locations. The KLSWA has monthly public meetings. Please contact our office or Daryl VanDyke at (269)857-2709 for the current schedule and location of our public meetings along with questions, concerns, or emergencies you may have.

Some people may be more vulnerable to contaminants in the drinking water than the general population. Immuno-compromised persons such as persons undergoing chemotherapy for cancer, people 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 provider. EPA/CDC guidelines on appropriate means to lessen the risk of infection by

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cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline (1-800-426-4791). The sources of drinking water (both tap water and bottled water) include rivers, 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 plants, septic systems, agricultural 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, urban storm water runoff, or residential areas.
- Organic chemical contaminants, including synthetic and volatile organic chemicals which are a byproducts industrial processes and petroleum production, and can come from gas stations, urban storm water runoff, and septic systems.
- Radioactive contaminants, which can be naturally-occurring or be the result of oil and gas production and mining activities.

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. KLSWA 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 the 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 www.epa.gov/safewater/lead.

Water Quality Table Key and Definitions:

AL (Action Level): The concentration of a contaminant which, if exceeded, triggers treatment or other requirements.

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 a contaminant in drinking water below which there is no known or expected health risk. MCLGs allow for a margin of safety.

SMCL (Secondary Maximum Contaminant Level): non-mandatory standard utilized as guidance for aesthetic and cosmetic water quality parameters that is not considered to present a risk to human health.

ND (Not Detected): Laboratory analysis indicates that the constituent is not present.

NA (Not Applicable): There is no regulation limit that applies.

ppb (parts per billion): A measurement unit of concentration. You save for 32 years to buy a home and sign your name in 1 second. That one second is 1 ppb which is equal to 1 microgram per liter.

ppm (parts per million): A measurement unit of concentration. You wait 11.5 days for your license and are handed it in 1 second. That 1 second is 1 ppm which is equal to 1 milligram per liter.

RAA (Running Annual Average): Calculation based on preceding twelve months, and may not be represented on this table.

TTHM (Total Trihalomethanes): The sum of a specific species of halogenated methane and are volatile organic compounds.

HAA5 (Haloacetic acids): The sums of a specific species of halogenated acetic acids and are volatile organic compounds.

KLSWA 2016 Water Quality Report Data

The EPA requires monitoring for over 80 drinking water contaminants. Those listed below are the contaminants detected in your water during the 2016 calendar year. The presence of those contaminants does not necessarily indicate the water poses a health risk. Regulations require the monitoring of certain contaminants less than once a year because the concentrations are not expected to vary significantly from year to year. The contaminant is noted by the year collected if not sampled in 2016. We have also included data for Trichloroethylene, Nitrite, Iron and Hardness as their values are commonly requested but may not be required reportable data for this report.

KLSWA 2016 Water Quality Report Data Tables

Well Data

Regulated Contaminant	MCL	MCLG	Highest level detected	Range of detection	Violation	Typical source
Arsenic (ppb) sampled in 2015	10	0	4	ND - 4	no	Erosion of natural deposits; Runoff from orchards.
Trichloroethylene (ppb)	5	0	ND	ND	no	Discharge from metal degreasing sites and other factories.
Nitrate (ppm)	10	0	0.6	ND - 0.6	no	Runoff from fertilizer use; Erosion of natural deposits.
Nitrite (ppm)	1	0	ND	ND	no	Runoff from fertilizer use; Erosion of natural deposits.
Fluoride (ppm)	4.0	4.0	0.6	0.3 - 0.6	no	Erosion of natural deposits.
Barium (ppm) sampled in 2015	2	2	0.2	0.1 - 0.2	no	Erosion of natural deposits.
Unregulated	SMCL					
Sodium (ppm)	NA	NA	73	13 - 73	no	Erosion of natural deposits.
Sulfate (ppm)	250	NA	2	2 - 20	no	Erosion of natural deposits.
Iron (ppm)	0.3	NA	0.6	ND - 0.6	no	Erosion of natural deposits.
Hardness (ppm)	250	NA	361	135 - 361	no	Erosion of natural deposits.

While Trichloroethylene has historically been detected from one of the two wells that supply water to be treated with the Iron Removal Plant (IRP), there has been no detection of trichloroethylene in the water supplied from the IRP after treatment that provides water for potable purposes to the Distribution System and your residence.

Distribution System Data

Regulated Contaminant	MCL	Highest level detected	Range	violation	Typical source
TTHM (ppb)	80	11	NA	no	By product of disinfection.
HAA5 (ppb)	60	2	NA	no	By product of disinfection.

Regulated Contaminant	MRDL	MRDLG	Highest RAA	Range of Monthly Averages	Range of individual samples	Violation	Typical Source
Chlorine (ppm)	4.00	4.00	0.54	0.26 - 0.91	0.03 - 1.43	no	Water additive used to control microbes

The maximum residual disinfectant level (MRDL) allowed in drinking water is 4.00 ppm. There is convincing evidence that the addition of a disinfectant is necessary for control of microbial contaminants. The maximum residual disinfectant level goal (MRDLG) of drinking water is 4.00 ppm, below which there is no known or expected risk to health. The MRDLG does not reflect the benefit of the use of disinfectants to control microbial contaminants.

Customer's Tap Data

Regulated Contaminant	AL	MCLG	KLSWA 90 th percentile	Sites exceeding AL	Year Sampled	violation	Typical source
Copper (ppm)	1.3	1.3	0.318	0	2014	no	Corrosion of household plumbing.
Lead (ppb)	15	0	0	0	2014	no	Corrosion of household plumbing.

The KLSWA is required to collect lead and copper samples once every three years, with sampling in 2017.