Kalamazoo Lake Sewer and Water Authority (KLSWA)
2011 Annual Water Quality Report

KLSWA is pleased to present our Annual Water Quality Report for the 2011 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. 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 (WHP) program 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 WHP area, and on the following:

- No Maximum Contamination Level violations have occurred.
- Well construction meets all applicable standards.
- There are no potential sources of contamination within the standard isolation area.
- Known sources of contamination within the WHP area are being 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 the control of corrosion both in the distribution system and in your domestic plumbing. An additional treatment is also utilized at the Douglas wells, which we have an Iron Removal Plant (IRP). The IRP utilizes a type of treatment that minimizes the iron levels present from the wells, which occur naturally from groundwater, and may reduce other contaminants also.

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, 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.

Copies of this Water Quality Report are available at the KLSWA office located at 6449 Old Allegan Rd., Saugatuck, MI 49453 or on the KLSWA website at **www.klswa.com**. As a cost savings measure, this report will not be published, advertised, or mailed. The report will be circulated at public locations. The KLSWA has monthly public meetings. Please contact our office at (269)857-2709 for the current schedule and location of our public meetings along with any 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 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.
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 win a billion dollars, and you give your favorite nonprofit organization one dollar. That's 1 ppb which is equal to 1 microgram per liter.
ppm (parts per million): A measurement unit of concentration. The local tycoon buys a million acres and gives your neighbor one acre. That's 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 2011 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 2011 calendar year. The presence of those contaminants does not necessarily indicate the water poses a health risk. Regulations require the monitoring of certain contaminates 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 2011.

Well Data

Regulated Contaminants	MCL	MCLG	Highest level detected	Range of detection	Violation	Typical source of contaminant
Trichloroethylene (ppm)	5	0	ND	ND	no	Discharge from metal degreasing sites and other factories.
Nitrate (ppm)	10	0	0.5	ND – 0.5	no	Runoff from fertilizer use; Erosion of natural deposits.
Fluoride (ppm)	4.0	4.0	0.55	0.28 – 0.55	no	Erosion of natural deposits.
Unregulated Contaminants						
Sodium (ppm)	NA	NA	67	67 - 13	no	Erosion of natural deposits.
Sulfate (ppm)	NA	NA	22	ND - 22	no	Erosion of natural deposits.

While Trichloroethylene was not detected in 2011, it has historically been detected at one well that supplies water to the Iron Removal Plant (IRP). Due to the treatment process at the IRP, there has been no detection of Trichloroethylene at the IRP tap that supplies water to the Distribution System.

Distribution System Data

Regulated Contaminant	MCL	Highest level detected	Range	Year Sampled	violation	Typical source of contaminant
TTHM (ppb)	80	6.3	NA	2010	no	By product of disinfection.
HAA5 (ppb)	60	1	NA	2010	no	By product of disinfection.

Chlorine	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec
Monthly Residual Average	0.20 ppm	0.11 ppm	0.13 ppm	0.35 ppm	0.21 ppm	0.88 ppm	0.64 ppm	0.61 ppm	0.57 ppm	0.81 ppm	0.60 ppm	0.47 ppm
RAA	0.46 ppm	0.44 ppm	0.39 ppm	0.35 ppm	0.31 ppm	0.35 ppm	0.36 ppm	0.37 ppm	0.39 ppm	0.42 ppm	0.46 ppm	0.47 ppm

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. Chlorine is a water additive to control microbes. There has been no violation for chlorine.

Customer's Tap Data

Regulated Contaminant	AL	MCLG	KLSWA 90th percentile	Sites exceeding AL	Year Sampled	violation	Typical source of contaminant
Copper (ppm)	1.3	1.3	0.622	0	2011	no	Corrosion of household plumbing.
Lead (ppb)	15	0	0	0	2011	no	Corrosion of household plumbing.