

Annual Drinking Water Quality Report

East China and China Charter Townships

Water Quality Report for 2018

On August 6, 1996, the reauthorized and amended Federal Safe Drinking Water Act (SDWA) was signed into law. Because of this, the SDWA and Michigan Department of Environmental Quality now require each water supplier, including townships, to inform their customers of the water quality through an annual report.

This is the 20th Annual Water Quality Report. This report is designed to inform you about the water quality and services we deliver to you every day. Our goal is to provide you with a safe, dependable, and adequate supply of water. We want you to understand the efforts that are made to continually improve the water treatment system. We are committed to ensuring the quality of your water.

We are fortunate to have the St. Clair River for our water source for the East China Township Water Treatment Plant. It provides us with an excellent quality and unlimited supply of raw water. Unfortunately, because of occasional chemical spills, the plant is shut down until the danger passes our intake. A Source Water Assessment was completed in 2004 to determine the susceptibility of the relative potential of contamination. The susceptibility rating is on a seven-tiered scale from “very low” to “high” based primarily on geologic sensitivity, water chemistry, and contaminant sources. The susceptibility of our source is high given land uses and potential contaminant sources.

Significant sources of contamination include commercial and industrial discharges, storm water drainage, and agricultural runoff.

To find out about current spills, watch Cable Channel 6, or call the Township Hall at (810) 765-8879 and a message will be on the answering machine if there is a problem.

The Water Plant utilizes membrane micro-filtration to filter impurities out of your drinking water. This technology, we feel, is the best method available to us to meet the ever-changing regulations set forth by the Michigan Department of Environmental Quality and The United States Environmental Protection Agency.

The Water Plant has been online since July of 2001. We have the capabilities of producing sufficient water to meet the needs of our customers. The plant is also easily expandable to meet future needs.

Zenon Environmental Systems, a Canadian company, manufactured the filtration process. It is made up of 600,000 hollow fibers, about 10ft long. Water is drawn through these fibers and the unwanted particles, dirt, viruses, and bacteria are removed. To make absolutely sure the water is safe, a small amount of chlorine is added, and bacteria samples are taken daily before it is sent to the distribution system. Three samples are collected weekly from the distribution system to make certain the water is of good quality.

WATER PLANT FACTS

- * 3.2 million gallon per day maximum capacity.
- * 6,500 square foot facility designed to allow future expansion.
- * State of the art microfiltration treatment technology.
- * First application of Zenon microfiltration in the Midwest.
- * Powdered activated carbon system for taste and odor control.
- * Use of long-lasting, low maintenance materials throughout the plant.
- * State of the art laboratory for on-site analysis and quality control.

The Water Department routinely monitors your drinking water according to Federal and State laws. The table on the inside of this report shows the test results for the monitoring period of January 1, 2018 through December 31, 2018 unless otherwise noted.

The test results show that we have met or exceeded all State and Federal requirements.

Required Additional Information: To ensure that tap water is safe, the EPA implements regulations which limit the amount of certain contaminants in water provided by public water systems.

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

Contaminants that may be present in source water:

All sources of drinking water are subject to potential contamination by substances that are naturally occurring or man-made. These substances can be microbes, inorganic or organic chemicals, and radioactive substances. 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.

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 may be naturally occurring or result from urban 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, storm water runoff, and residential uses.

Organic chemical contaminants, including synthetic and volatile organics, which are by-products of industrial processes and petroleum production, and may 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.

Some people may be more vulnerable to contaminants in drinking water than the general population. Immune-compromised persons such as persons with cancer undergoing chemotherapy, persons whom have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may 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 and other microbiological contaminants are available from:

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

Definitions: In the table on the next page, you will find many terms and abbreviations you might not be familiar with. To help you better understand these terms, we have provided the following definitions:

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

Maximum Contaminant Level Goal (MCLG): The "Goal" is the highest level 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 "Maximum Allowed" 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.

Maximum Residual Disinfectant Level (MRDL): The highest level of a disinfectant allowed in drinking water. There is evidence that the addition of a disinfectant is necessary for control of microbial contaminants.

Maximum Residual Disinfectant Level Goal (MRDLG): The level of a drinking water disinfectant, to 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.

Nephelometric Turbidity Unit (NTU): Nephelometric Turbidity is a measure of the clarity of water. Turbidity in excess of 5 NTU, is just noticeable to the average person.

N/A: Not applicable / available: **ND:** Not detected

Parts per million (ppm) or Milligrams per liter (mg/l): One part per million corresponds to a single Dollar in \$ 1,000,000.

Parts per billion (ppb) or Micrograms per liter: One part per billion corresponds to a single Dollar in \$1,000,000,000.

RAA: Recent Annual Average

LRAA: Locational Running Annual Average

Treatment Technique (TT): A treatment technique is a required process intended to reduce the level of a contaminant in drinking water.

For More Information

We invite public participation in decisions that affect drinking water quality. Township Board meetings are held on the first and third Mondays of each month. Please feel free to attend.

If there are any questions about your water or this report, you can contact Dwayne Loper at the Water Filtration Plant telephone number listed below.

Online Water Resources

www.deq.state.mi.us/

Michigan Department of Environmental Quality

www.awwa.org/

American Water Works Association

www.epa.gov/ogwdw/

U.S. Environmental Protection Agency

www.mrwa.org/

Michigan Rural Water Association

Important Phone Numbers

Water Filtration Plant	810-765-4647
East China Township Office	810-765-8879
China Township Office	810-765-1145
St. Clair County Health Department	810-987-5300
MDEQ Southeast Michigan Office	586-753-3700
EPA Drinking Water Hotline	800-426-4791

2018 Test Results

Sampled from the (Distribution System)

Microbiological Contaminants	MCL	MCLG	Number Detected	Violation Yes/No	Typical Sources of Contaminant
Total Coliform Bacteria	TT	N/A	0	NO	Naturally present in the environment
Fecal Coliform and E. coli	See E.Coli note below ⁽¹⁾	0	0	NO	Naturally present in the environment

Sampled from the (Water Plant tap)

Microbiological Parameters	MCL	Highest Detected	Violation Yes / No	Major Source
Regulated Contaminant Turbidity (NTU) ⁽²⁾	Lowest monthly % of samples meeting limit of 0.5 NTU (minimum 95%)	.07 NTU	NO	Soil runoff
	Highest single measurement cannot exceed 1.0 NTU			

Sampled from the (Distribution System)

Contaminant	Test date	Units	MCLG	MCL	Highest Detected	Range Detected	Violation Yes/No	Major Sources in Drinking Water chemical treatment for disinfection
Total Trihalomethanes TTHM	2018	ppb	NA	80	75.0	32.0 75.0	NO	By-product of drinking water chlorination
Haloacetic Acids	2018	ppb	NA	60	33.0	16.0 33.0	NO	By-product of drinking water chlorination
Chlorine Residual	2018	ppm	MRDLG 4	MRDL 4	1.40	0.52 1.40	NO	By-product of drinking water chlorination

Regulated Inorganic Parameters (sampled from the Water Plant tap)

Contaminant	MCL	MCLG	Level Detected	Sample Date	Violation Yes / No	Typical sources of contaminant
Nitrate (as nitrogen) (ppm)	10	10	0.34	2018	NO	Runoff of fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Nitrite (as nitrogen) (ppm)	1	1	0.06	2018	NO	Runoff of fertilizer use; leaching from septic tanks, sewage; erosion of natural deposits.
Fluoride (ppm)	4.0	4.0	0.58	2018	NO	Water additive which promotes strong teeth. Erosion of natural deposits, discharge from fertilizer and aluminum.
Sulfate (ppm)	250.0	250.0	17	2018	NO	Run off from fertilizer use, leaching from septic tanks, sewage, erosion of natural deposits.
Barium (ppm)	2.0	2.0	0.015	2018	NO	Discharge from drilling wastes, discharge from metal refineries, discharge from mines.
Chromium (ppb)	100	100	1.2	2018	NO	Discharge for steel and pulp mills; erosion of natural deposits.
Nickel (ppm)	N/A	N/A	0.0011	2018	NO	Erosion of natural deposits
Sodium (ppm)	N/A	N/A	8	2018	NO	Erosion of natural deposits
Special Monitoring and Unregulated Contaminant **	Level Detected		Sample Date		Typical Source of Contaminant	
Chloride (ppm)	12		2018		Erosion of natural deposits	
Sulfate (ppm)	0.34		2018		Erosion of natural deposits	

Sampled from the (Distribution System)

Contaminants Subject to Action Level (AL)		Action Level		90 % of Samples < This Level			Violation Yes/No	Typical Source of Contaminant
Contaminant	Test Date	Units	Health Goal MCLG	Action Level (AL)	90th % Value	# samples > AL		
Lead	Jul-18	ppb	0	15.0	3	1 ⁽³⁾	NO	Lead service line, corrosion of household plumbing including fittings and fixtures.
Copper	Jul-18	ppm	1.3	1.3	0.36	0	NO	Corrosion of household plumbing systems; erosion of natural deposits.

Regulated Radiocidal Parameters (sampled from the Water Plant tap)

Contaminant	Units	MCL	MCLG	Level Detected	Sample Date	Violation Yes / No	Typical sources of contaminant
Combined Radium Radium 226 and 228	pCi/L	5	0	0.37	3/9/2016	NO	Erosion of natural deposits ⁽⁴⁾
Gross Alpha	pCi/L	15	0	0	3/9/2016	NO	Erosion of natural deposits

MCL's are set at very stringent levels. To understand the possible health affects described in this report for the many required contaminants detected, a person would have to drink 2 liters of water every day at the MCL level for a lifetime to have a one in a million chance of having the described health affects.

** Unregulated contaminants are those for which the EPA has not established drinking standards. Monitoring helps the EPA to determine where certain contaminants occur and whether it needs to regulate those contaminants.

⁽¹⁾ E. Coli MCL violation occurs if : (1) routine and repeat samples total coliform-positive and either is E. Coli positive, or (2) supply fails to take all required repeat samples following E. Coli positive routine sample, or (3) supply fails to analyze total coliform positive repeat sample.

⁽²⁾ Turbidity is a measure of the cloudiness of water. It is monitored to determine the effectiveness of our filtration treatment process. The requirement for turbidity is that all samples be below 1.0 NTU's and that 95% of the samples must be lower than 0.50 NTU's. 100% of our samples were below 0.50 NTU's.

⁽³⁾ The most recent sampling period for lead and copper was June 1st through September 30th 2018. We are required to monitor once every three years for lead and copper. One sample from the Consecutive System of China or East China exceeded the Action Level for lead or copper.

⁽³⁾ Lead : If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Infants and children who drink water containing lead in excess of the AL could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. The SCRSWA 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

⁽⁴⁾ Radium: Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.

Chlorine or Chloramines	Previous Year 2017											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Bact Sample Site # 1				0.81	0.85	0.95	0.88	0.65	0.57	0.52	0.90	1.09
Bact Sample Site # 2				0.85	1.05	1.00	1.04	0.98	0.91	1.18	1.14	1.18
Bact Sample Site # 3				1.01	1.16	1.09	0.89	1.01	1.11	1.06	1.10	1.22
Average of all measurements taken in the month	N/A for RAA in year covered by the CCR			0.89	1.02	1.01	0.94	0.88	0.86	0.92	1.05	1.16
Chlorine or Chloramines	Year covered by the CCR 2018											
Bact Sample Site # 1	1.14	1.18	1.00	1.06	0.98	1.00	1.03	0.83	0.90	0.97	1.03	1.16
Bact Sample Site # 2	1.17	1.29	1.26	1.11	1.12	1.19	1.03	1.02	0.93	0.94	1.11	1.21
Bact Sample Site # 3	1.18	1.29	1.29	1.11	1.28	1.20	1.12	0.88	1.23	1.36	1.40	1.25
Average of all measurements taken in the month	1.16	1.25	1.18	1.09	1.13	1.13	1.06	0.91	1.02	1.09	1.18	1.21
RAA calculated quarterly of 12 monthly averages			1.03			1.02			1.02			1.12

TTHM	Previous Year 2017			YEAR Covered by the CCR 2018			
	2nd Qrt	3rd Qrt	4th Qrt	1st Qrt	2 nd Qrt	3rd Qrt	4th Qrt
Sample site #1-DBP2	0.056	0.074	0.037	0.032	0.075	0.041	0.052
Sample site #2-DBP2	0.056	0.078	0.035	0.038	0.049	0.033	0.038
			DPB1 LRAA	0.050	0.055	0.046	0.050
			DBP 2 LRAA	0.052	0.050	0.039	0.040

HAA-5	Previous Year 2017			YEAR Covered by the CCR 2018			
	2nd-Qrt	3rd Qrt	4th Qrt	1st Qrt	2 nd Qrt	3rd Qrt	4th Qrt
Sample site #1-DBP2	0.033	0.026	0.017	0.022	0.018	0.016	0.025
Sample site #2-DBP2	0.029	0.029	0.019	0.030	0.024	0.016	0.019
			DPB1 LRAA	0.025	0.021	0.018	0.020
			DBP 2 LRAA	0.027	0.026	0.022	0.022

- Lowest to the Highest Residual
- Lowest to the Highest TTHM
- Lowest to the Highest HAA-5

St. Clair River Water Authority

Water Treatment Plant

2018 Annual Report

The water plant treated **184.03** million gallons of water in 2018 an 8.2% increase from 2017. There were **10.486** million gallons of reject water sent to the wastewater treatment plant. Down 21.7% from 2017.

Water to Customers

- 183.7 MG.** of water was pumped for distribution to our water customers.
- 121.2 MG.** of water was billed to customers in China and East China Township.
- 60.6 MG.** of water used by residential customers.
- 9.9 MG.** of water used by sprinklers
- 50.7 MG.** of water was used by industrial, municipal, and commercial customers.
- 3.0 MG.** of water was used by the DPW for flushing.
- 62.5 MG.** of water, unaccounted for (broken mains, leaks, and fires).

	<u>Water Usage</u>		<u>Water Treatment</u>
The average day use was:	.503 MG.	The average monthly treated was:	15.335 MG.
The minimum day use was:	.427 MG.	The minimum monthly treated was:	12.060 MG.
The maximum day use was:	.762 MG.	The maximum monthly treated use was:	20.257 MG.

Plant Operating Costs

Chlorine	\$ 6342.36	Up	\$ 327.90
Fluoride	\$ 2966.72	Up	\$ 138.47
Total chemical cost	\$ 9309.08	Up	\$ 466.37
Chemical cost / MG	\$ 50.44	Down	\$ 1.56
Total Electric Cost	\$ 39428.88	Up	\$ 1384.27
Electric costs/ MG	\$ 217.77	Down	\$ 9.98
Natural Gas/ Heating	\$ 3687.93	Up	\$ 230.74
Natural Gas / MG	\$ 22.54	Down	\$ 0.30

Man Hours Worked

Operators'	6580 hrs.
Supervision	2148 hrs.
Total hours	8728 hrs.

System Accounts

	East China	China	Usage
Residential Accounts	1476	159	The average use per person for the consecutive system was 68 Gallons per day.
Apartments & Condo's	69	2	
Commercial	86	14	
Sprinkler Meters	256	32	
Total Meters supplied.	1887	+ 209 =	2062

East China Water Rate per 1,000 gallons effective **10/1/15**
\$ 5.15 per 1000 gal. with readiness to serve charges added by meter size
China water rates - \$9.50 / 1000 gallons minimum usage 10,000 gallons

St. Clair River Water Authority 2018 Water Plant Review

Once again, our Water Plant Laboratory received a certificate of excellence from ERA Proficiency Testing and met or exceeded all regulations set forth by the MDEQ or USEPA. These repeated results are a testament to the quality and dedication of our plant operators.

A few of the projects our Water Plant staff worked on are listed below:

1. Two low lift pumps rebuilt.
2. Raw water wet well cleaning.
3. Phase 1 of membrane replacement schedule completed.
4. Replaced heater unit #2 with Geothermal unit.
5. New turbidimeters on all filters and the combined filter effluent.
6. Intake chlorine line completed. It had been out of service since 2010.

During the winter months, our staff concentrated on interior building maintenance. There are always smaller projects that need to be completed when larger jobs aren't being performed.

The summer months typically are the high demand season, creating the need to switch our operators from five eight-hour days per week to four ten-hour days, with one operator remaining on maintenance to perform the most essential duties.

Our Plant is fast approaching 20 years old, and our staff continues to do an impeccable job of maintaining its visual and operational integrity. Visitors never leave without commenting on how clean and well-kept everything appears.

2018 was a very productive year for the water plant. Looking forward, 2019 will assuredly provide new challenges, but they will be greeted as opportunities for improvement and learning. A few things we will be doing include installing the second phase set of replacement membranes and improving our technology to better monitor our plant efficiency. We will also have our laboratory inspected by the MDEQ for compliance in our procedures.

I would like to thank both the Township Board and the Water and Sewer Authority for their time, patience, and input into the matters that have been brought before them throughout the year. I will keep all parties updated on the plants performance as we proceed.

Respectfully,

Dwayne Loper
SCRWA Supt.
2/12/19