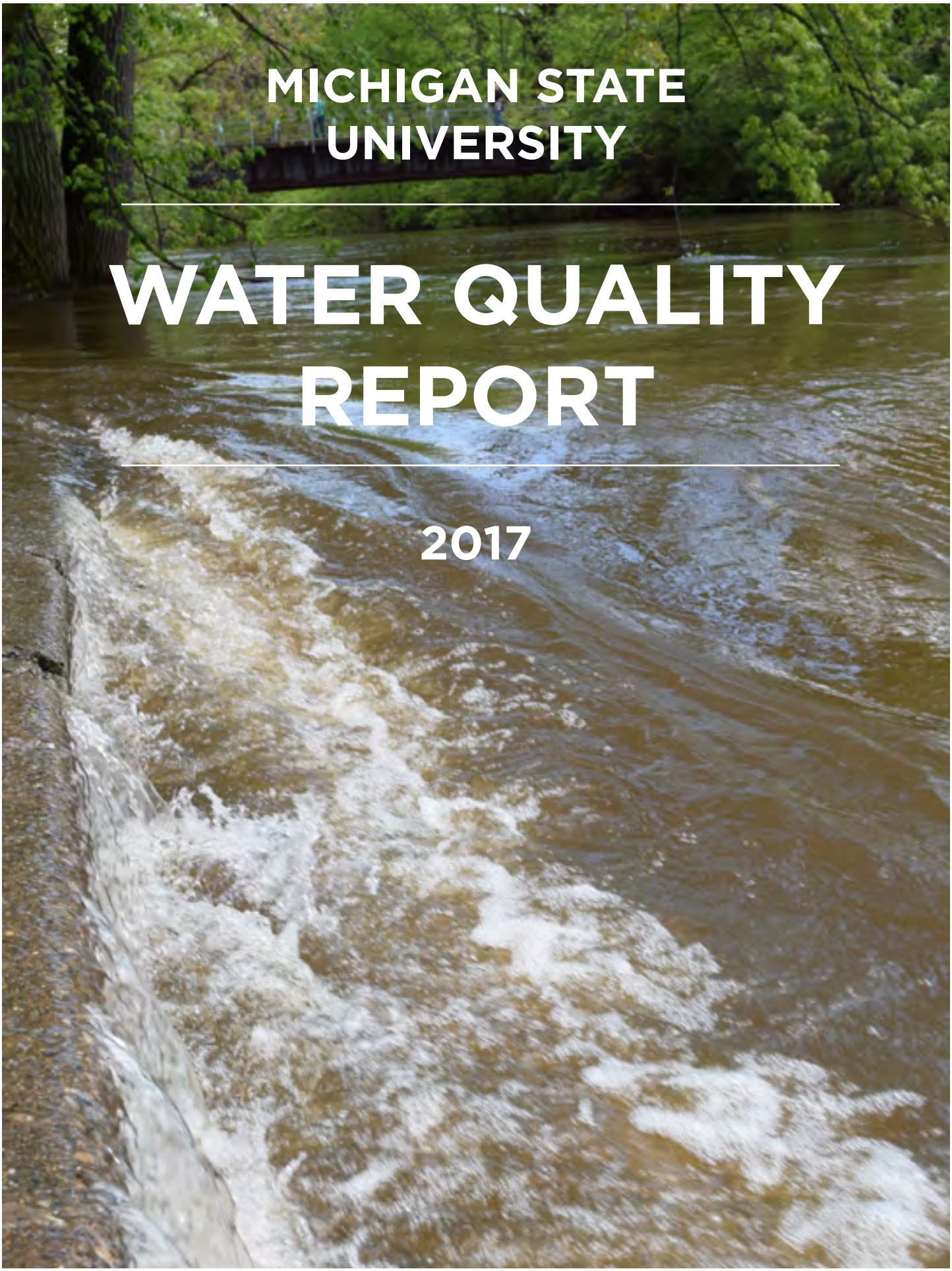


MICHIGAN STATE UNIVERSITY

WATER QUALITY REPORT

2017

Infrastructure Planning and Facilities
MICHIGAN STATE UNIVERSITY

ISSUED JUNE 2018

2017 WATER QUALITY REPORT EXECUTIVE SUMMARY

In 2017, Michigan State University initiated efforts to improve campus water quality aesthetically and to ensure its public health excellence. The initiative included a study to determine a water treatment process to address the aesthetic challenges typically observed, as well as a sanitary review with the Michigan Department of Environmental Quality (MDEQ) to ensure continued and improved public health.

The study recommended construction of an iron removal filter plant and an elevated water storage facility to improve aesthetics and system reliability. It also recommended reconfiguring how MSU's water supply system is tested and monitored. In the spring of 2017, MDEQ and MSU split the water distribution system into two separate systems. The North Campus system serves the majority of MSU. The Farms Distribution system serves the southern agricultural area (see map on page 3).

The separation is a management tool, not a physical separation. Both systems serve customers as they did before the change. The Farms Distribution system will have enhanced monitoring. Vigorous monitoring of the North Campus system will remain unchanged.

Enhanced Farms Distribution system monitoring includes a significant increase in testing types and number. New testing protocols were developed for each well serving the Farms system. New sampling was added for bacteria, lead/copper, volatile organic compounds, synthetic organic compounds, metals and radionuclides.

When two wells had radionuclides above the maximum contaminant level and were immediately taken out of use. These wells will not be used for drinking water and will be abandoned and replaced. Prior to removal from service, the water from these wells was blended with other well water, resulting in an aggregated sample below the maximum contaminant level. Required sampling of the Farm system will continue indefinitely, as is done for all public water supply systems.

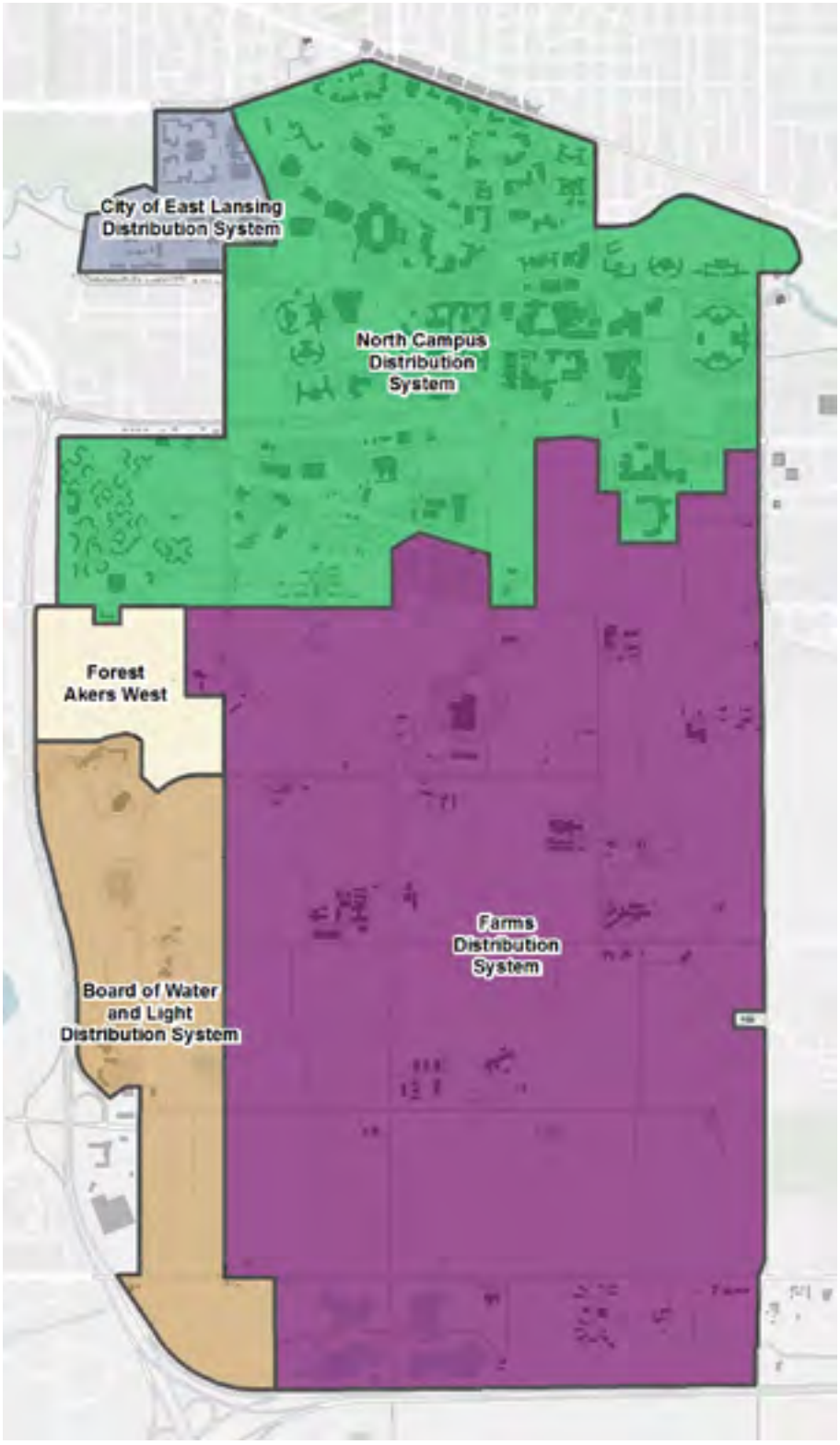
Additional sampling was performed in March 2017 on all production wells individually, even though the well water is blended with other wells. This sampling included testing for radionuclides, which MDEQ did not require for each well prior to 2017.

Testing consists of taking four samples quarterly for each well and averaging the results to determine the Running Annual Average (RAA). The RAA determines radionuclide concentrations. The March tests showed three of 17 wells were above the 5.0 pCi/L MCL. They were immediately taken offline. Subsequent quarterly samples showed two of the three wells remained above the 5.0 pCi/L; they were permanently removed from use. The remaining wells all tested below the 5.0 pCi/L.

Michigan State University's current and future efforts strive to improve campus water aesthetics and ensure its safety for the MSU community.

Questions regarding this report or MSU's water supply can be directed to 517-355-3314 or water@ipf.msu.edu.

DISTRIBUTION SYSTEM MAP



Michigan State University's 2017 water quality report includes details about where our water comes from, what MSU is doing to ensure that it remains safe to drink, what's in it and how it compares to federal Environmental Protection Agency (EPA) and state Michigan Department of Environmental Quality (MDEQ) standards and regulations. MSU facilities operate 24 hours a day, seven days a week and are monitored continuously by qualified, trained and licensed personnel. MSU is pleased to report our drinking water meets or surpasses all federal and state regulatory requirements.

MSU'S COMMITMENT TO SAFE WATER

MSU is committed to providing our campus community with safe, reliable and healthy water. In order to ensure that tap water is safe to drink, EPA regulations 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 provide the same protection for public health.

The state and EPA require MSU to test our water on a regular basis to ensure its safety. MSU meets all monitoring and reporting requirements for both state and federal regulations.

In the wake of the water crisis experienced in Flint, it is understandable that the MSU community is concerned about its water quality. Infrastructure Planning and Facilities (IPF) Power and Water has a highly qualified staff of water utility professionals who understand the importance of the water supply quality for our community. We are dedicated to providing the highest quality drinking water, and continue to meet or exceed all state and federal regulatory requirements.

There is no detectable lead in MSU drinking water when it enters the distribution system. Water supplied to MSU comes from a consistent source of groundwater, drawn from wells located deep within the Saginaw sandstone aquifer. Because water is naturally corrosive, if small amounts of lead are present in existing plumbing materials, lead could enter into drinking water if allowed to sit for several hours. To prevent this, MSU employs a comprehensive corrosion protection regimen, consisting of the use of phosphate additives. MSU has been testing for lead and other contaminants since 1992, and the water results consistently have been in full compliance, with lead levels below the action level of 15 parts per billion (ppb).

SOURCES OF DRINKING WATER

The water source for MSU is groundwater drawn from the Saginaw aquifers. These underground water-bearing formations are continually replenished with water through the normal hydrologic cycle. In Michigan and the Great Lakes Basin, we are fortunate to have an abundant supply of fresh water as compared with other areas of the world. The Great Lakes Basin contains 20 percent of the world's fresh water. MSU's water system uses 15 groundwater wells, each with pumping capacities ranging from 400 to 850 gallons per minute. MSU closely monitors the source water and the treated drinking water to ensure a high level of quality and safety is maintained. Once treated, the water is pumped to campus through a network of water mains, consisting of approximately 67 miles of pipes that range six to 16 inches in diameter.

1855 Place, Jack Breslin Student Events Center, Brody Neighborhood, University Village and the Kellogg Hotel & Conference Center are supplied by the East Lansing Meridian Water and Sewer Authority. For more information, refer to the City of East Lansing Water Quality Report here:

https://www.cityofeastlansing.com/ArchiveCenter/ViewFile/Item/437

Facilities along the southwest boarder of campus at Forest and Collins roads, including the Henry Center for Executive Development, are supplied by Lansing Board of Water and Light. For more information, refer to the Lansing Board of Water and Light Quality report here:

https://www.lbwl.com/WaterQualityReport/

STEPS MSU TAKES TO ENSURE WATER SAFETY AND QUALITY

MSU's water treatment process consists of the addition of small quantities of chlorine, fluoride, phosphate and sodium hydroxide. Water is naturally corrosive; water corrosion is controlled by adding phosphate. These treatment techniques are used to promote public health and to improve aesthetic quality of the water in the distribution system and buildings.

Chlorination is a chemical process used to control disease-causing microorganisms by killing or inactivating them, and is the most important step in drinking water treatment. Chlorination is the most common method of disinfection in North America. Significant strides in public health are directly linked to the adoption of drinking water chlorination. Before U.S. communities routinely began treating drinking water with chlorine, thousands of residents died annually from cholera, typhoid fever, dysentery and hepatitis A. Drinking water chlorination and filtration have helped eliminate these diseases in the United States. The filtration of drinking water plus the use of chlorine is likely the most significant public health advancement in human history.

Fluoride is one of the most plentiful elements on Earth, occurring naturally in both ground water and surface waters in Michigan. All ground water sources contain some fluoride. Community water fluoridation is the process of adjusting the amount of fluoride found in water to achieve optimal prevention of tooth decay. When optimal levels of fluoride are present in drinking water, it has been shown to promote oral health by preventing tooth decay. Water systems are considered naturally fluoridated when the natural level of fluoride is greater than 0.7 milligrams per liter (mg/L). Fluoride in MSU's groundwater is .3-.4 mg/L prior to fluoride addition. Fluoride is added to achieve the optimal range recommended by EPA and MDEQ.

CONTINUED...

Phosphate and sodium hydroxide are additives used to promote protection of the infrastructure and building plumbing under current treatment techniques. They are added in relatively small amounts to provide a protective layer on pipe interiors, reducing corrosion. This prolongs the life of the pipes and reduces the amount of mineral and iron deposits in the water.

These additives are monitored and approved by the EPA. MSU performs multiple water quality tests throughout the year to ensure water quality. These are all promulgated and required by EPA and MDEQ. Additional testing is also performed to further ensure health and safety.

In addition to the water treatment and testing listed above, MSU flushes the distribution systems every year. This helps remove naturally occurring iron sediment that is associated with the ground water that settles in the main lines, lessening the duration and impact associated with the occasional appearance of "red water" on campus.

Conditions that cause red water include increased water flow through mains or changes in water flow direction, resulting in stirred up sediment in the water distribution system. Although the red water is safe and does not pose a health risk, it can stain laundry or impact research activities. The flushing process minimizes red water occurrences to the community as much as possible.

SOURCE WATER ASSESSMENT

The 1996 amendments to the federal Safe Drinking Water Act required states to assess the susceptibility of all public water supplies to potential sources of contamination. The susceptibility rating is determined using a scale ranging from "very low" to "very high" based primarily on geologic sensitivity, water chemistry and locations of contaminant sources. MSU's Source Water Assessment was completed in 2003. The susceptibility of the campus water supply was deemed to be "moderately high."

Potential sources of contamination include: above-ground storage tanks, liquid manure spreading, chemical and waste storage areas, biowaste holding tanks, wet labs, equipment storage areas, farming operations, chemical storage, pesticide storage; equipment washing pads, paint storage, mixing and cleaning operations, a biotechnology facility and a number of sites that generate, use and dispose of hazardous waste and other chemicals.

To protect our groundwater from these potential sources of contamination, MSU developed a Wellhead Protection Program (WHPP) in 2000. The program is updated regularly, with the latest revision approved by MDEQ in 2014. The goal of MSU's WHPP is to manage the land area that surrounds our water supply wells in order to minimize the potential for contamination. In 2015, MSU's WHPP received the Exemplary Wellhead Protection Program award for a medium-sized system by the Michigan section of the American Water Works Association.

Information about the campus WHPP can be accessed here:

https://www.michigan.gov/deq/0,4561,7-135-3313_3675_3695---,00.html

TYPES OF CONTAMINANTS IN GROUND WATER SUPPLY MAY 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 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 and residential uses.

- **Radioactive contaminants,** which are naturally occurring.

- **Organic chemical contaminants,** including synthetic and volatile organic chemicals, which are byproducts of industrial processes and petroleum production, and can also come from gas stations, urban storm water runoff and septic systems.

To reduce the potential of these contaminants reaching the MSU water supply, a source water assessment was conducted and the Wellhead Protection Program was implemented. These are in the source water assessment section of this report.

SUBSTANCES FOUND IN MSU'S WATER

The tables show test results for substances found in MSU's drinking water. Results are not shown for substances that were tested for but not detected at or above the Maximum Contaminant Level (MCL). Unless otherwise noted, the data presented from testing that occurred Jan. 1 to Dec. 31, 2017. Note, as explained in the executive summary, the Farms Distribution system didn't begin until March 2017.

MCL (Maximum Contaminant Level) — The highest level of a contaminant that is allowed in drinking water. MLCs are set as close to the MCLGs as feasible using the best available technology.

MCLG (Maximum Contaminant Level Goal) — The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

AL (Action Level) — The concentration of a contaminant which, if exceeded, requires a water system to initiate treatment process or other action.

ALG (Action Level Goal) — The level of a contaminant in drinking water below which there is no known or expected risk to health. ALGs allow for a margin of safety.

TT (Treatment Technique) — A required process intended to reduce the level contaminants in drinking water.

MRDL (Maximum Residual Disinfectant Level) — 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.

MRDLG (Maximum Residual Disinfectant Level Goal) — The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

SDWA (Safe Drinking Water Act) — A set of federally mandated regulations that ensures the quality and safety of water provided by public water systems.

ND (None Detected) — Below analytical method detection limit.

NTU (Nephelometric Turbidity Units) — Unit of measurement for water clarity.

RAA (Running Annual Average) — A continuous averaging of four quarters of sampling.

AVG (Average) — Regulatory compliance with some MCLs are based on running annual average of monthly samples.

ppm (parts per million) or milligrams per liter (mg/L) — or one ounce in 7,350 gallons of water.

ppb (parts per billion) or micrograms per liter (mcg/L) — or one ounce in 7,350,000 gallons of water.

ppt (parts per trillion) or nanograms per liter (ng/L) — or one ounce in 7,350,000,000 gallons of water.

pCi/L (picocuries per liter) or nanograms per liter (ng/L) — a measure of radioactivity.

> — An abbreviation meaning "more than."
< — An abbreviation meaning "less than."

North Campus Distribution System

Jan. 1 to Dec. 31, 2017

This table shows test results for substances that were found in MSU's drinking water. Results are not shown for substances that were tested for but not detected at or above the Maximum Contaminant Level (MCL).

Michigan State University Water - Table of Detects					
Constituent/units of measurements	MCL	MCLG	Amount in MSU Water	Year[1]	Likely Sources
Biological Constituents					
Total Coliform (% Positive Samples)	N/A	N/A	Number Detected: 1 Violation: None	2017	Naturally present in the environment.
Inorganic					
Copper (ppb)[3]	AL = 1300	1300	500 No samples exceeded the Action Level[4]	2017	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead (ppb)[3]	AL = 15	0	9.0 Two samples exceeded the Action Level[4,5]	2017	Corrosion of household plumbing systems; Erosion of natural deposits.
Fluoride (Tap) (ppm)	4	4	0.62	2017	Naturally occurring and hydrofluorosilicic acid. Numbers shown averaged over 2017; Current level at 0.7 per EPA and MDEQ recommended dosage goal.
Barium (ppm)	2	2	0.14	2015	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Disinfectants					
Chlorine (ppm)[6]	4	4	Highest RAA: 0.42 Range: 0.1 - 0.8	2017	Water additive used to control microbes.
Disinfectants By-Products					
Stage 2 Total Trihalomethanes (THMs)(ppb)	80	N/A	LRAA: 12.5 Range: 0.9 - 21.7	2017	By-product of disinfection.
Stage 2 Total Haloacetic Acid (HAA5)(ppb)	60	N/A	LRAA: 5.5 Range: 1.0 - 9.0	2017	By-product of disinfection.
Radionuclides					
Gross alpha (pCi/L)	15	0	14.2	2016	Erosion of natural deposits.
Radium (pCi/L)	5	0	3.7	2016	Erosion of natural deposits.
Unregulated Substance[2]					
Sodium (ppm)	N/A	N/A	15	2017	Erosion of natural deposits and runoff.

[1] Water quality regulations allow us to monitor some substances less often than once a year because their concentrations are not expected to vary significantly from year to year.
[2] Unregulated substances are those for which the EPA has not established drinking water standards. The purpose of monitoring these substances is to assist the EPA in determining the occurrence of unregulated substances in drinking water and whether future regulation is warranted.
[3] MSU is currently on a three-year cycle for lead and copper testing. These results are from 2017.
[4] 90 percent of samples were at or below this level.
[5] Sample Fixtures were isolated and changed after receipt of sample results above action level.
[6] Chlorine does not have an associated MCL or MCLG. It is limited by a MRLG which is defined on the previous page. The levels shown are the MRLG limit.

More Water Quality Parameters of Interest: North Campus

Additional water parameters for researchers, faculty, staff and students

Parameter	Units	Your Water Results	
		Average Level Detected	Range
Alkalinity as calcium carbonate	ppm	363	330-400
Aluminum	ppm	0.012	.001-.028
Arsenic	ppm	ND	ND
Cadmium	ppm	ND	ND
Chloride	ppm	25	24-25
Chromium	ppm	ND	ND
Conductivity	S/cm	829	655-1026
Hardness (calcium carbonate)	ppm	438	288-592
Iron	ppm	0.8	0.3-1.4
Lead	ppm	ND	ND
Magnesium	ppm	35	26-45
Mercury	ppm	ND	ND
Nickel	ppm	ND	ND
Nitrate as N	ppm	ND	ND
Nitrite as N	ppm	ND	ND
Sodium	ppm	13	6-34
Sulfate	ppm	88	16-180
Temperature[1]	°F	55	53-57
Total Organic Carbon	ppm	1.9	0.5-4.5
pH	S.U.	7.6	7.4-7.7
Zinc	ppm	0.068	.03-.10

[1] May differ at tap due to building residence time

Unregulated Contaminant Monitoring Rule 3 (UCMR3)[2]

	Average	Range
Molybdenum (ppb)	1.4	1.3-1.5
Strontium (ppb)	270	220-320

Farms Campus Distribution System

Jan. 1 to Dec. 31, 2017

This table shows test results for substances that were found in MSU's drinking water. Results are not shown for substances that were tested for but not detected at or above the Maximum Contaminant Level (MCL).

Michigan State University Water - Table of Detects					
Constituent/units of measurements	MCL	MCLG	Amount in MSU Water	Year[1]	Likely Sources
Biological Constituents					
Total Coliform (% Positive Samples)	N/A	N/A	Number Detected: 0 Violation: None	2017	
Inorganic					
Copper (ppb)[3]	AL = 1300	1300	200 No samples exceeding the Action Level[4]	2017	Corrosion of household plumbing systems; Erosion of natural deposits.
Lead (ppb)[3]	AL = 15	0	0 No samples exceeding the Action Level[4]	2017	Corrosion of household plumbing systems; Erosion of natural deposits.
Fluoride (Natural) (ppm)	4	4	0.44 Range: 0.13 - 0.44	2017	Erosion of natural deposits; water additive which promotes strong teeth; discharge from fertilizer and aluminum factories.
Nickel (ppm)	0.1	0.1	0.01 Range: 0 - 0.01	2017	Erosion of natural deposits.
Barium (ppm)	2	2	0.19 Range: 0.09 - 0.19	2017	Discharge of drilling wastes; discharge from metal refineries; erosion of natural deposits.
Arsenic (ppb)	10	10	6 Range: 2.0 - 6.0	2017	Erosion of natural deposits; discharge from wood treatment; discharge from glass production.[5]
Total Xylenes (ppm)	10	10	0.0008 Range: 0 - 0.0008	2017	Runoff from petroleum products, paint, and rust preventatives.
Radionuclides					
Radium (pCi/L)	5	0	6.4 Range: 0 - 6.4	2017	Erosion of natural deposits.[6]
Gross Alpha (pCi/L)	15	0	19.4 Range: 1.4 - 19.4	2017	Erosion of natural deposits.[7]

[1] Water quality regulations allow us to monitor some substances less often than once a year because their concentrations are not expected to vary significantly from year to year.
[2] Unregulated substances are those for which the EPA has not established drinking water standards. The purpose of monitoring these substances is to assist the EPA in determining the occurrence of unregulated substances in drinking water and whether future regulation is warranted.
[3] MSU is currently on a three-year cycle for lead and copper testing. These results are from 2017.
[4] 90 percent of samples were at or below this level.
[5] While your drinking water meets EPA's standard for arsenic, it does contain low levels of arsenic. EPA's standard balances the current understanding of arsenic's possible health effects against the costs of removing arsenic from drinking water. EPA continues to research the health effects of low levels of arsenic, which is a mineral known to cause cancer in humans at high concentrations and is linked to other health effects such as skin damage and circulatory problems.
[6] 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.
[7] Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

HEALTH AND SAFETY INFORMATION

Pure water is often called a universal solvent because it will dissolve almost anything. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material. It can also pick up substances resulting from the presence of animals or from human activity. Some of these substances have been deemed by the EPA to be contaminants that must be monitored and strictly controlled. 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. Maximum Contaminant Levels (MCLs) and Maximum Contaminant Level Goals (MCLGs) are standards and criteria established using science and evidence-based approaches to keep the concentrations low at established safety levels based on toxicology studies, laboratory and engineering studies and monitoring. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

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, the elderly and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. The EPA and the Centers for Disease Control and Prevention guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1-800-426-4791.

The MSU campus drinking water is safe and meets all federal and state safety standards. However, the water may have a different taste and feel compared to the water you are used to if you come from a location with a different water supply. For example, you may experience dry skin, or notice that the water feels "hard," which is due to naturally occurring minerals in the water. Individuals usually acclimate to changes in a water supply fairly quick; however, if you have concerns, you should contact your health care provider for further guidance.

PROTECTING YOURSELF FROM LEAD IN DRINKING WATER

Considering that many of our customers travel to other locations in the world, below are general safety recommendations provided by the EPA and MDEQ that can be implemented to reduce the risk of contracting lead through any water system.

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 building plumbing. 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 two minutes before using water for drinking or cooking.

Infants and children who drink water containing lead in excess of the action level 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. Information on lead in drinking water, testing methods and steps you can take to minimize exposure is available from the EPA Safe Drinking Water Hotline at 1-800-426-4791 or online here.

HELPFUL HINTS TO CONSERVE WATER

Water conservation helps improve the environment and safeguard water resources for the community. MSU is working to ensure a balanced and sustainable approach to water consumption. Some examples of MSU's on-campus water conservation measures include installing drip irrigation systems to target plant root systems so less water is wasted, and replacing high-water-use fixtures with fixtures that use less.

The suggestions below are some of the many ways you can conserve water at home.

Bathroom

- Check the toilet for leaks. Place 12 drops of food coloring into the tank. Within 30 minutes, if the food coloring appears in the bowl without flushing, there is a leak that needs repair.
- Don't use the toilet as a wastebasket. Using a wastebasket instead of the toilet for tissues and other bits of trash will save water.
- Turn off the water to brush teeth, shave and soap up in the shower.
- Shorten your showers by one or two minutes.
- Save the running water that is wasted while waiting for hot water. Collect it in a container and use it for watering indoor plants.

Laundry

- Wash full loads of laundry or adjust the water level to the amount of clothes.
- Select the proper water level for laundry since many clothes washers allow control over the amount of water used.
- Use the correct amount of detergent to eliminate second rinses.

Kitchen

- When hand-washing dishes, use one sink to wash and fill the other sink with rinse water. For a single sink or basin, wash and stack dishes in a drainer, then rinse them all together with a sprayer.
- When washing dishes by hand, use a spray device or short blasts from the faucet instead of letting water run for rinsing.
- When cooking, peel and clean vegetables in a large bowl of water instead of under running water. Use a bowl or pan filled with water to wash and rinse fruits and vegetables.
- Keep a bottle of drinking water in the refrigerator instead of running the tap for cold water.
- Only use the garbage disposal when necessary. Disposals require a lot of water to run properly.
- Only run the dishwasher when it's full.
- Use just enough dish detergent to get dishes clean, preventing unnecessary rinsing.

THE FUTURE OF MSU WATER

In 2016 and 2017, MSU initiated a study to determine the feasibility of treating our drinking water supply to improve aesthetics and overall condition. The process started with preliminary planning and goal setting followed by a pilot study in early 2017 to determine the best treatment technology for our specific water. The information gleaned from the pilot study was used to develop an engineering study that provided different treatment and design scenarios to determine the best approach for MSU as it relates to quality, reliability and fiscal responsibility. The end result was a recommendation to construct an Iron Filter Plant to treat the water pumped from the well field and store it for use in a two million gallon elevated storage tank (water tower). This approach provides for optimal water quality, reliability and fiscal benefit to the university and its community of students, staff, researchers and faculty.

The concept was taken from an idea to design in 2017 and into early 2018 and culminated into a 6 million gallon per day water filter plant with a 2 million gallon elevated storage tank. Bids for the construction came in within the planned budget. The proposed water treatment plant will be located just east of the T.B. Simon Power Plant using land intended for university service activities. The project is planned to commence in July 2018 pending final Board of Trustee approval. Substantial completion of the water treatment plant is slated for December 2019 with minor off site work to follow with final completion by July 2020.

Artistic Rendering
Fishbeck Thompson, Carr & Huber

PROTECTING OUR SHARED WATER RESOURCES

While groundwater is the sole source of drinking water in the Mid-Michigan area, it is important to realize that it is connected to our surface water supplies as well.

MSU is fortunate to have the Red Cedar River run through campus. Our wastewater travels through sanitary pipes to the East Lansing Water Resources Recovery Facility, where the water is treated and ultimately discharged to the Red Cedar River. Our storm water (the water from rain or snow melt) is not treated; rather, it travels to the river via an intricate network of catch basins and storm drains. As an MSU student, faculty or staff member, or a visitor to campus, you can play an essential role in protecting our shared water resources.

Wastewater treatment facilities have to deal with an increasing amount of prescription drugs in the water supply. Unfortunately, facilities aren't equipped to "filter out" these chemicals and therefore, they make it into our water ways and eventually back into our water supplies.

Do not flush unused medications. Instead, take them to participating pharmacies and law enforcement offices in the area. To find a prescription disposal location near you, visit www.takebackmeds.org.

Please use caution with what you flush down the toilet. You can help protect the sanitary sewer system and ease the burden of wastewater treatment by disposing of the following items in the trash:

- **"Flushable wipes"** – Marketed as flushable, however these don't break down like toilet paper.
- **Condoms** – These do not break down and can balloon, creating clogs.
- **Fats, oils and grease** – Don't put grease down garbage disposals. Pour into a container such as an empty jar or coffee can. Once cooled and solidified, secure the lid and place it in the trash.
- **Diapers and feminine supplies** – Padding and adsorbent nature makes these too thick for plumbing.
- **Cotton swabs** – Cardboard cotton swabs can be composted, and plastic swabs go into the trash.
- **Dental floss** – Not biodegradable, can create clogs.
- **Cigarette butts** – Contain chemicals that can contaminate water.
- **Hair** – Put hair in a compost bin or in the trash.

TAP WATER VERSUS BOTTLED WATER

At MSU, plastic water bottles account for a large percentage of campus waste. It is estimated that only 25 percent of the nearly three million water bottles on campus make their way to MSU's Recycling Center each year. The waste from plastic water bottles increases the university's landfill costs and contributes to our environmental footprint. For this reason, MSU encourages campus to hydrate sustainably with a reusable water bottle at one of the university's many water refill stations. Additionally, MSU installed drinking water and water bottle refill stations that include additional filters across campus as a sustainable, aesthetic response to the campus community's issue with MSU's drinking water (i.e. the appearance of "red water".) These stations offer access to high quality drinking water that is both economically and environmentally responsible.

For more information about your water, the contents of this report, or the 2003 source water assessment, contact the MSU water operations manager at **517-355-3314** or e-mail **water@ipf.msu.edu**.