MCES wastewater treatment plants earn national awards

All nine MCES wastewater treatment plants were recognized for excellence in operational performance and permit compliance during 2019. In October 2020, they each received a National Association of Clean Water Agencies (NACWA) Peak Performance Award.

Our continuous compliance record spans almost three decades for two of our plants and is one of the top three in the nation. This performance is achieved while customers pay, on average, about 40% less for service than customers served by systems of similar size across the nation.

This level of success is made possible through a complex system of people, processes, and technology. “This sustained achievement takes day-in and day-out commitment to excellence by countless employees in wide-ranging roles across the division,” said Leisa Thompson, MCES general manager. “Our big picture of protecting public health and the environment is executed in the details.”

Essential workers across MCES contribute to outstanding compliance

Collectively, wastewater treatment plant staff captured 23,248 effluent (treated wastewater) quality data points to prove we achieve the environmental compliance limits that are measured for the NACWA Award. Staff collected many more samples to build a baseline profile of effluent.

Industrial customers within the region contribute to our success

There are more than 900 industries served by the regional wastewater collection and treatment system and permitted by MCES. Many of these industries pretreat their process wastewater prior to sending it down the drain to meet federal regulations and MCES local limitations by removing heavy metals and other pollutants. Other industries follow best management practices to meet permit requirements. They conduct sampling and submit reports to MCES routinely to verify compliance. These efforts by industries contribute greatly to our exceptional compliance record.
### Treatment plants earning the Platinum Award
Five or more consecutive years of full compliance through 2019

- Hastings, 29 years
- St. Croix Valley, 28 years
- Blue Lake, 14 years
- Eagles Point, 14 years
- Empire, 12 years
- Metro, 8 years

### Treatment plants earning the Gold Award
At least one year, but less than five years of full compliance through 2019

- East Bethel
- Seneca
- Rogers (joint operations with the City of Rogers)

### Wastewater could provide warnings of future COVID-19 infection surges

MCES and the University of Minnesota Genomics Center (UMGC) scientists are researching wastewater to learn about COVID-19 infection rates and trends. This research could help predict outbreaks in the metro area before testing can identify positive cases and could help public health officials make informed policy decisions to reduce and prevent future spread.

MCES research and development staff have learned how to extract genetic material of the COVID-19 virus from untreated wastewater samples at the Metropolitan Wastewater Treatment Plant in Saint Paul. This extracted material is not the active virus; rather it is a remnant of the SARS-CoV-2 viral particles that COVID-19 patients release into wastewater through their bodily wastes.

“The material we collect is the single-stranded RNA (ribonucleic acid) that the virus uses to reproduce inside infected cells. If you’re infected with COVID-19, the viral particles attach to your cells, get inside them, and use the RNA to reproduce and spread the virus,” said Steve Balogh, an MCES principal research scientist.

Once extracted, the RNA is transferred to clean water, immediately frozen in small vials at minus 112 degrees Fahrenheit, then delivered to the UMGC for analysis to quantify traces of the SARS-CoV-2 virus using advanced analytical instruments. The amount of the viral particles observed is a measure of the prevalence of COVID-19 in the Metro Plant’s service area, which covers about 70% of the region’s population. To date, MCES and the UMGC researchers have found that the concentrations of the virus in wastewater closely mirror the changing infection rates in the metro area.

“The possibilities are really exciting,” said George Sprouse, an MCES manager. “Right now, health officials rely on COVID-19 testing to tell us what’s happening with disease spread. Wastewater-based epidemiology, however, might offer an earlier indication of the emergence and spread of infection, which could give public health officials more time to anticipate a spike in caseloads and plan accordingly,” said Sprouse.

### Trying to keep up with a mutating virus

The SARS-CoV-2 virus is reportedly changing and mutating in ways that may make it more contagious. In response, MCES and UMGC are now trying to “sequence” the viral RNA – that is, trying to determine the sequence of molecular subunits that comprise the RNA chain. This could allow scientists to better understand how the virus is changing locally and whether new, possibly more transmissible strains are showing up in our community.

“The COVID-19 virus has many strains or variants,” said Sprouse. “If we can capture and evaluate the ‘fingerprint’ of the viral RNA in wastewater, we might have an indicator of the prevalence of new strains in our region, such as the ones found recently across the United Kingdom.” Sprouse says this is a very new area of research, with a steep learning curve, but a worthy effort if it can help to save lives through early detection and mitigation.

### MCES contributes wastewater samples to state, national initiatives

In addition to these efforts, MCES is also involved in state and national initiatives to evaluate wastewater surveillance as a tool for tracking the spread of the virus by:

- Sending wastewater samples to the University of Minnesota Duluth as part of an effort to monitor the virus in wastewater treatment plants across Minnesota.
- Participating in the first phase of a nationwide Wastewater Surveillance System collaborated by the Centers for Disease Control and Prevention and U.S. Department of Health and Human Services to examine how wastewater-based epidemiology can assist our response to the COVID-19 pandemic.
Virtual customer workshops in 2021

The annual customer workshops are being held virtually this year so that we can continue to communicate with our 900+ industrial customers while staying safe during the ongoing COVID-19 pandemic. While we will not have the opportunity for face-to-face interaction and casual conversations this year, we value your input and will encourage questions and comments during the virtual events.

We host these workshops to share the MCES budget and preliminary rates process, as well as provide pretreatment program news and updates. We also want to hear from you on matters that concern your business and answer questions you have regarding your permit.

Upcoming 2021 virtual customer workshops:

- Industrial Customer Workshop #1 – April 20, 1:00 PM - 2:30 PM
- Industrial Customer Workshop #2 – April 22, 9:00 AM - 10:30 AM

All customers holding an MCES permit are invited to join in the workshops. Watch your email inbox for an invitation from METC@public.govdelivery.com to register via WebEx. We look forward to your participation and hearing from you.

Microbrewery virtual customer workshop held in March was a success

The virtual customer workshop for microbreweries was held on March 3. It included an overview of the microbrewery program, information to help microbreweries complete their annual reports, and presentations by guest speakers Michelle Gage with the Minnesota Technical Assistance Program (MnTAP) and Paige Novak from the University of Minnesota.

Michelle Gage presented MnTAP’s work to help industries reduce operating cost by conserving water and energy and reducing waste. She also highlighted some technologies available to enable breweries to reduce the strength of the wastewater that they discharge to the sanitary sewer.

Paige Novak’s presentation focused on her research to develop a low maintenance system that can take high strength, low pathogen wastewater from the food and beverage industry and use it to create a mixed fuel gas stream that can in turn be used for local energy production. This results in a lower strength effluent wastewater. Professor Novak and her research team are currently testing a pilot system at Fulton Brewery.

A recording of the microbrewery workshop will be posted soon on our [workshop webpage](#) as will a summary of the questions and answers from the event.

MPCA releases Minnesota’s PFAS Blueprint

The Minnesota Pollution Control Agency (MPCA) has released Minnesota’s PFAS Blueprint. The Blueprint is a strategic, coordinated approach developed by multiple agencies to protect families and communities from per- and polyfluoroalkyl substances (PFAS). The Blueprint discusses ten priority areas centered on additional research, new health guidance, drinking water and food protections, as well as additional tools for cleanup and prevention. PFAS are a large class of chemicals that do not break down in the environment and are often referred to as “forever chemicals.” They are used in a wide variety of consumer products and new PFAS are being developed every day.

Because of their use in consumer products, PFAS are present in waste streams that go to solid waste facilities or wastewater treatment plants. PFAS are also found in some industrial discharges. It is challenging to remove these compounds once they’re in the waste stream so preventing their entry into waste streams is the preferred management strategy.

The MPCA oversees the MCES’s Industrial Waste pretreatment program, and therefore we will follow all guidance and requirements that the MPCA lays out regarding PFAS.

Information for this article was obtained from the MPCA Feb 10, 2021 press release: [www.pca.state.mn.us/news/mpca-state-agencies-reveal-statewide-blueprint-address-pfas](http://www.pca.state.mn.us/news/mpca-state-agencies-reveal-statewide-blueprint-address-pfas)

MnTAP’s 2020 water efficiency grant projects could save nearly 35 million gallons of water each year

With the support of Metropolitan Council Water Supply Planning Group and funds from the Clean Water, Land and Legacy Amendment, the Minnesota Technical Assistance Program (MnTAP) at the university of Minnesota hosted science and engineering interns at four metro businesses to focus on water efficiency projects. These intern projects identified process improvements that, if implemented, could save the businesses a total of nearly 35 million gallons of water and 982,600 kWh in energy use, adding up to a savings of over $800,000 per year.

Since this grant program began in 2012, more than 300 million gallons of water and $4 million have been saved.
Abbott medical device and healthcare company in Little Canada
Abbott is a multinational medical device and healthcare company. The facility located in Little Canada is responsible for manufacturing mechanical heart valves, tissue heart valves, and stents. The purpose of this project was to identify and minimize areas of high-water use and waste streams.

Nahir K Hurtado Mercado (Intern, Chemical Engineering, University of Minnesota Duluth) recommended: reverse osmosis optimization, reusing reverse osmosis reject water, and changing deionized water for soft water in the fog chamber. The recommendations have the potential of reducing water usage by 1,385,000 gallons, energy usage by 28,600 kWh, or $13,150 per year.

Lifecore Biomedical, LLC biopharmaceutical company in Chaska
Lifecore Biomedical, LLC is a biopharmaceutical company that manufactures and supplies sodium hyaluronate, and has two facilities located in Chaska, MN. The purpose of this project was to map and identify water intensive processes and to recommend and implement water reduction strategies.

Elisabeth King (Intern, Bioproducts & Biosystems Engineering, University of Minnesota Twin Cities) recommended: install process water meters, turn sinks off, create water use training, repair and adjust condensate cooler temperatures, change filter press cloth type, and replace the reverse osmosis system. The recommendations have the potential of reducing water usage by 9,400,000 gallons, energy usage by 917,000 kWh, or $143,000 per year.

Minnesota Department of Administration Facilities Management Division
The Minnesota Department of Administration Facilities Management Division maintains and operates 22 state-owned buildings, 32 parking facilities, and 25 monuments and associated grounds. The purpose of this project was to find opportunities to conserve energy and water.

Yaakov Knobloch (Intern, Mechanical Engineering, University of Minnesota Twin Cities) recommended: retrofit fluorescent fixtures with LED lamps in six buildings, use seasonal adjust dials for irrigation water conservation, retrofit the toilet and urinal flush valves with new diaphragms, and install start-stop air compressors and zero loss drains in one building. The recommendations have the potential of reducing water usage by 9,400,000 gallons, energy usage by 917,000 kWh, or $143,000 per year.

Old Dutch Foods food manufacturing company in Roseville and St Antony
Old Dutch Foods is a snack food manufacturing company that produces multiple varieties of potato chips and has facilities located in Roseville and St. Anthony, Minnesota. The purpose of this project was to identify and quantify the water intensive steps in production and to identify opportunities for water reduction or reuse.

Madison Best (Intern, Bioproducts & Biosystems Engineering, University of Minnesota Twin Cities) recommended: add valve to washer pump, replace potato washer nozzles, install variable frequency drive on washer pump, recycle water to peeler, eliminate freshwater fryer hose, automate water recycling system, add locking valve and increase recycled water use at fryer, add hydrocyclones to water recycling system, install centrifuge (St. Anthony location), and replace nozzles (St. Anthony location). The recommendations have the potential of reducing water usage by 9,650,000 gallons, energy usage by 37,000 kWh, or $187,400 per year.

MnTAP can help your business improve efficiency and cut production costs
Your business may also be able to save money through process efficiencies and waste reduction with the help of a MnTAP intern. If interested, contact either Brent Vizanko, bvizan@umn.edu, 612-624-4653 or Matt Domski, mdomski@umn.edu, 612-624-5119 to learn more. Learn more about these intern projects from MnTAP 2020 Solutions.

Bob Nordquist is retiring May 2021
Bob Nordquist, Industrial Waste Manager, is retiring May 14, 2021. Bob has been with MCES and its predecessor, Metropolitan Waste Control Commission, for 34 years. “I started with a desire to protect the rivers of our region, but over the years, experienced the interconnection of the environment, business climate and culture of the region. I am proud to have been able to work for an organization that values all of this and works to support it,” says Nordquist. In 2014, Bob became Industrial Waste Manager when Leo Hermes retired. From his experience as manager, Nordquist says, “Leo built a strong section instilling the values of respect, collaboration, and transparency. With this group, we have moved forward to address the ever-changing challenges of environmental compliance from the emerging issues like PFAS and chloride, to dealing with a global pandemic. The pandemic has made us rethink everything about the way we meet our duty of environmental protection, while preventing the spread of COVID-19 within our staff, customers, and community. I feel confident in the ability of the Industrial Waste staff and the leadership of MCES to continue to meet the challenges ahead. It has been an honor and a privilege to work with the industrial community and I’d like to thank you all sincerely for that.”

Ned Smith, Pretreatment and Finance Director says, “We are grateful to Bob for his service to MCES and the region. Bob did amazing work to emphasize MCES as a partner to our industrial customers versus a regulator. He approached every interaction with a customer service lens rather than an enforcer. His work has truly made MCES a better service provider while protecting our interceptors, plants, and the region’s waters.”
2021 Industrial User rates and fees

The 2021 Industrial User rates and fees are as follows:

Strength Charge rates for wastewater discharged on site will increase to:
- $0.260 per excess pound of total suspended solids (TSS)
- $0.130 per excess pound of chemical oxygen demand (COD)

Full-cost recovery rates for treatment of industrial wastewater hauled to MCES disposal sites will remain at:
- $0.413 per excess pound of TSS
- $0.2065 per excess pound of COD

Production-based strength charge for microbrewery and brewpub facilities on General Permit will increase to:
- $0.815 per beer barrel

Liquid Waste Hauler Load Charges:
- $60.24 per 1,000 gallons for Domestic Septage and Commercial wastes
- $11.29 per 1,000 gallons for Holding Tank wastes
- $77.46 per 1,000 gallons for Portable Toilet wastes
- $75.24 per 1,000 gallons for Collar County Domestic waste loads

Service fee for Out-of-Service Area loads to remain at $15.00 per 1,000 gallons.

Industrial Capacity Charge (ICC) will increase to:
- $2.18 per 1,000 gallons

Sewer Availability Charge (SAC) will remain at:
- $2,485 per SAC unit (1 SAC unit = 274 gallons per day). SAC is paid to the local community for use of the Metropolitan Disposal System (MDS) capacity.

The Temporary Capacity Charge (TCC) will remain at:
- $1.25 per 1,000 gallons (SAC paid directly to MCES for temporary use of the MDS capacity)

Permit Fees (paid annually):
- $1,075 to $10,550 depending on permit status for Industrial, Special and Liquid Waste Hauler permits
- $425 for Sewer Cleaning Waste Hauler General permits
- $475 for all other General permits

Visit MCES Industrial User Rates and Fees site for more information about these rates.

Let’s stay connected!

To make sure you receive important information regarding your MCES permit, add the following emails to your address book:
MCESIndustrialOnlineReporting@metc.state.mn.us and METC@public.govdelivery.com. (GovDelivery is a news delivery system. This is not an active email account.)

If you need to update your contact information, please contact your MCES permit engineer or email us at iwpp@metc.state.mn.us.