Who We Are

The Metropolitan Council owns, operates and maintains the Metropolitan Disposal System, which includes 9 wastewater treatment plants and 600 miles of regional interceptor sewers that convey wastewater from municipalities in the Twin Cities area to the plants. The wastewater treatment plants process 250 million gallons of wastewater every day from 2.7 million residents in 110 communities. The effluents from eight of the wastewater treatment plants are discharged to the Mississippi, Minnesota, St. Croix, and Crow Rivers and one plant discharges to a subsurface infiltration site. Consequently, each wastewater treatment plant is required by law under the Clean Water Act and the Environmental Protection Agency (EPA) to have a National Pollutant Discharge Elimination System or a State Disposal System permit. Under these permits, a national pretreatment program must be implemented. The responsibilities of the regional pretreatment program are delegated to Metropolitan Council Environmental Services (MCES) for the Twin Cities area and administrated by the Industrial Waste & Pollution Prevention (IWPP) Section.

The objectives of the national pretreatment program are the following:

- Prevent interference at Publicly Owned Treatment Works (POTWs)
- Minimize pollutant pass-through to receiving waters
- Avoid residual solids contamination
- Protect health/safety of POTW staff

To fulfill these objectives, the IWPP Section regulates and monitors industrial discharges to public sanitary sewers to ensure compliance with local and federal regulations. The IWPP Section also responds to sewer-related spills and community sewer problems. These functions protect MCES and community collection/treatment facilities, operating personnel, and the environment, in addition to ensuring process efficiency.

A schematic of the national pretreatment program delegation for the Twin Cities is attached.

Industrial Discharge Permits

IWPP Section staff issue Industrial Discharge Permits to industrial users of the Metropolitan Disposal System. Industrial users are issued one of four different types of permit. Currently, 848 permits are in effect.

Permit Types:

Standard Permit

- Renewed every three years
- Conduct self-monitoring (i.e. Sampling) on a routine basis
- Submit discharge reports on an annual, semi-annual, or quarterly basis depending on the wastewater volumes

General Permit

- Renewed every five years
- Not required to conduct self-monitoring
- Submit discharge reports annually

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Liquid Waste Hauler Permit

- Renewed every three years
- Liquid waste refers to domestic septage, commercial, and industrial waste
- Submit discharge reports on a routine basis (quarterly or semi-annual)

Special Discharge Permit

- Renewed every three years
- Special discharge refers to landfill leachate and contaminated groundwater
- Submit discharge reports quarterly

IWPP reviews the discharge reports and uses them as a means of determining compliance with the MCES Waste Discharge Rules and for evaluating strength levels. Compliance determinations are also made through monitoring by the IWPP Section, using specialized equipment such as automatic samplers, flow meters, and pH recorders. The EPA requires MCES to inspect and monitor Significant Industrial Users (SIUs) at least once per year. The samples obtained are analyzed by the MCES Laboratory Services Section. MCES's laboratory performs approximately 17,000 analyses per year for industrial monitoring conducted by the IWPP Section at about 340 industrial facilities.

Wastewater Treatment

Wastewater treatment involves five steps:

1. Screening
2. Settling (primary treatment)
3. Aeration (secondary treatment)
4. Disinfection
5. Sludge Processing

Wastewater from industries, businesses, and homes is conveyed by city-owned sanitary sewer lines to the MCES interceptor sewers and then to the wastewater treatment plant. First, the wastewater passes through screens to remove large objects like rags and trash. Then the wastewater flows into settling tanks. The flow is slowed down to allow heavier solids to settle to the bottom of the tank and floating material is skimmed from the surface. The solids at the bottom of the tank are removed, and the wastewater continues to the aeration tanks. During the aeration process, air is pumped into the tanks and bacteria and other organisms use the additional oxygen to break down the organic matter in the wastewater. This process produces heavier particles, which are removed in settling tanks. The final treatment step involves disinfection. The wastewater is disinfected to kill harmful organisms, and then the treated wastewater is released to the receiving water. Some of the MCES wastewater treatment plants also perform advanced treatment, such as nutrient removal and dechlorination.

The sludge from the settling tanks requires additional processing. This usually involves sludge thickening/dewatering, digestion, and incineration or reuse.

Wastewater Conveyance and Treatment Costs

MCES nine wastewater treatment plants treat a combined total of nearly 250 million gallons of wastewater each day. Operation and maintenance costs of these treatment plants and the conveyance system are funded entirely by user fees paid by businesses and homes that are connected to the sanitary sewer. Sewer Availability Charge (SAC) and Industrial Capacity Charge (ICC), Strength Charge, and permit fees are the main fee types that MCES charges industrial users.

Sewer Availability Charge (SAC)

SAC is a fee for use of capacity in MCES' wastewater conveyance system. SAC funds are used to pay for new sewer pipe and treatment plants, rehabilitation of existing infrastructure, and equipment to meet new environmental regulations. MCES collects SAC from served communities for new connections and increased capacity demand. While SAC is assessed to communities, it is calculated based on the capacity demand of each specific residential home or business. Each paid SAC unit allows for discharge capacity up to 274 gallons per operating day. Payments are made by the property or business owner to the city where the property is located.

Industrial Capacity Charge (ICC)

ICC is a fee charged directly to permitted industrial users for any volumes that exceed a permitted industrial user's ICC threshold during a reporting period. The ICC threshold is the volume of wastewater equivalent to the facility's assigned SAC baseline multiplied by the number of operating days. This value changes each reporting period based on operating days. To calculate a potential ICC, the threshold is compared to the reported discharge for that period. If the reporting period discharge is at or below the existing threshold, no ICC charges will be incurred. For every 1,000 gallons discharged above the threshold, ICC will be assessed and invoiced. ICC is paid directly to MCES and does not increase a facility's SAC baseline. Industries have the option of paying SAC in lieu of ICC, which will increase their baseline.

Strength Charge

Wastewater treatment plants are designed to treat typical domestic strength waste. Any waste with strength greater than typical domestic waste results in increased energy and treatment costs. Strength is determined by measuring the Chemical Oxygen Demand (COD) and Total Suspended Solids (TSS) concentrations of the wastewater. Industries on permit with MCES who discharge COD and TSS concentration levels above typical domestic waste are required to pay a strength charge based on COD, TSS and volume. Industries that have COD and TSS concentrations at or below domestic waste levels do not pay a strength charge. Strength charges are assessed and invoiced each reporting period.

Permit fees

Each industry on permit with MCES pays an annual permit fee based on their permit type, significant industrial user status, reporting frequency and volume of discharge. These permit fees are cost-recovery fees for administering the Industrial Pretreatment Program.

MCES's Microbrewery/Brewpub Program

Breweries have always been part of the Twin Cities business scene. Several years ago, MCES developed a formal process for surveying, inspecting, and sampling microbreweries and brewpubs as they became more prevalent in the Twin Cities. A comprehensive survey requesting production and process information was sent to all microbreweries and brewpubs in the Twin Cities that were connected to the Metropolitan Disposal System. Based on the results of these surveys, MCES staff inspected 22 of these businesses to gather more information on their processes and the wastewater being generated. In addition, sampling projects were set up at 10 of these businesses to further characterize the wastewater. Based on these findings, MCES developed the following list of areas of concerns:

- High and low pH wastewater resulting from cleaning and sanitation processes
- High strength wastewater based on TSS and COD concentrations
- Use of non-contact cooling water
- High temperature wastewater discharges
- Yeast and grain disposal
- Bad brew disposal
- Acid-cleaning wastewater

As a result, MCES developed a General Permit for the microbreweries and brewpubs to address these concerns. The Microbrewery/Brewpub General Permit requires these businesses to either manually pH adjust their individual waste streams or collect the wastewater in a sufficiently sized tank and attenuate and/or adjust pH if needed, to meet the MCES pH limits of 5.0 - 11.0 standard pH units. General Permits also contain General and Specific Conditions of discharge, and Best Management Practices (the Best Management Practices are attached). Although sampling is not required, the permit requires submittal of an annual Industrial Waste Discharge Report, which includes production and wastewater discharge information.

MCES developed a production-based strength charge for wastewater resulting from microbrewery/brewpub operations which was implemented starting in 2016. The current per barrel strength charge can be found on our webpage at *https://metrocouncil.org/Wastewater-Water/Services/Industrial-Waste/Industrial-Waste-Rates-Fees.aspx*

MCES continues to send out surveys to new microbreweries and brewpubs as they start up, as well as conduct inspections at these locations. Additional General Permits will be issued to those businesses that meet MCES permitting criteria.