

Water Resource Planning – Wastewater Treatment Plant Monitoring – Effluent Toxicity Testing

Monitoring Purpose

The Metropolitan Council Environmental Services (MCES) is responsible for collecting and treating wastewater in the seven-county Twin Cities Metropolitan Area. MCES owns and operates eight wastewater treatment plants that treat and discharge approximately 260 million gallons of wastewater daily to the Mississippi, Minnesota, St. Croix and Crow Rivers.



Performance monitoring of 8 MCES wastewater treatment plant discharges is conducted regularly to meet National Pollutant Discharge Elimination System (NPDES) permit requirements and to assess the quality of treated wastewater discharged to the large rivers in the Twin Cities Metropolitan Area.

MCES staff conducts toxicity tests on the treated wastewater (effluent) discharged from 8 MCES wastewater treatment plants, in order to help determine the potential toxicity of numerous chemicals contained in treated wastewater, and to determine the effects of effluent discharges on aquatic life in area rivers. Effluent toxicity testing is also conducted to determine compliance with federal and state regulations prohibiting the “discharge of toxic materials in toxic amounts.”

MCES began its toxicity testing program in 1979 as a self-monitoring tool, however NPDES permits have required toxicity testing since 1988.

MCES Wastewater Treatment Plants Monitored

- Blue Lake Wastewater Treatment Plant: Located in Shakopee, MN
- Eagles Point Wastewater Treatment Plant: Located in Cottage Grove, MN
- Empire Wastewater Treatment Plant: Located in Empire township, MN
- Hastings Wastewater Treatment Plant: Located in Hastings, MN
- Metropolitan (Metro) Wastewater Treatment Plant: Located in St. Paul, MN
- Rogers Wastewater Treatment Plant: Rogers, MN
- Seneca Wastewater Treatment Plant: Located in Eagan, MN
- St Croix Valley Wastewater Treatment Plant: Located in Stillwater, MN

Effluent Toxicity Testing Endpoints

Effluent toxicity tests are conducted to determine if treatment plant effluents have the potential to adversely affect aquatic organisms as measured by short-term (acute) and long-term (chronic) test methods, using survival, growth, and reproduction as test endpoints.

Effluent Toxicity Testing Protocols

Effluent toxicity testing exposes select aquatic test organisms, ([Ceriodaphnia dubia](#), [Daphnia magna](#), or [Pimephales promelas](#)) to effluent concentrations under controlled laboratory conditions according to US Environmental Protection Agency effluent test methods:

- [Methods for Measuring the Acute Toxicity of Effluents and Receiving Water to Freshwater Organisms](#)
- [Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Freshwater Organisms](#)

Monitoring Data and Reports

Results of all NPDES permit required effluent toxicity tests are reported to the Minnesota Pollution Control Agency.

For further information on effluent toxicity testing, please contact Tim Pattock via [email](#) or at 651.602.8084.