



100+ Years of Water Quality Improvements in the Twin Cities

A chronology of significant events affecting water quality in the Mississippi River in the Twin Cities metropolitan area



 **Metropolitan Council**
Environmental Services

Sustaining the Environment for Future Generations

1900 Sewage flowed directly to the river; no wastewater treatment. The first sewers in the Twin Cities were built between 1880 and 1900 to convey sewage away from the early settlements in downtown Minneapolis and St. Paul. But the sewage emptied directly into the Mississippi River.

1917 First lock and dam built; improved commercial navigation, but degraded river water quality. When the first lock and dam was built at St. Anthony Falls, the natural “flushing” of the river during spring was interrupted and sewage began to collect in thick rafts above the dam and in some backwaters. By the early 1920s, three million cubic yards of sewage and scum fouled the river.

1926 River labeled a public health problem; very few fish survived. The Minnesota State Board of Health declared the river a public health nuisance and urged Minneapolis and St. Paul city councils to take remedial action. Few fish survived in the murky water; concern for the public’s health—not the environment—brought action.

1926 Guidelines set for improving river water quality. To address quality issues, the Minneapolis/St. Paul Sanitary District was created in 1933 to begin constructing the Twin Cities’ first wastewater treatment plant.

1938 Metropolitan Wastewater Treatment Plant built near Pig’s Eye Lake on the river in St. Paul. The first major treatment plant on the river, this facility provided primary treatment with chlorination. Even before it opened in July, the Metro Plant was hailed as an engineering wonder and savior of the river. Within four months the floating mats of stinking sludge and scum were gone. Within two years, fish returned to metro waters and anglers reported catching walleye and other game fish in water that previously could not support carp.

1938 Water quality improved. Water quality steadily improved for more than a decade, accompanied by increased diversity in aquatic life and fish.

1956 Twin Cities population increased rapidly, sewage exceeded treatment plant capacity and river quality again decreased. Despite advances in water quality in the 1950s, by the mid-1960s water quality was compromised again by a growing population that put additional stress on the original treatment plant.

1966 Secondary treatment added to decompose organic wastes; river water quality better than 1928 guidelines. Using secondary treatment, microscopic organisms were added to the wastewater stream to feed on organic wastes, reducing pollution by 90%.

1970 Wastewater treatment in the Twin Cities consolidated under the Metropolitan Council. Over the next 25 years, 33 plants were reduced in number to nine technologically advanced plants to improve environmental and economic efficiencies.

1972 Clean Water Act set “fishable, swimmable” goals for the Mississippi River. Available federal grant money used to upgrade infrastructure and meet higher effluent standards.

1977 Water quality downstream of Metro Plant remained a problem. Increased demand on the plant due to increasing population and industry continued to threaten water quality.

1982 Industrial waste pretreatment program initiated to reduce heavy metals. A comprehensive approach was begun to reduce heavy metals and industrial waste discharged into sanitary sewers. Again the river responded, and by 1992 heavy metals reaching the plant had dropped by up to 90%.

1984 Advanced secondary treatment initiated. To further improve its discharge, the Metro Plant began effluent nitrification, breaking down toxic ammonia into its nontoxic components.

1985 Separation of combined sanitary sewers and storm sewers began. This 10-year accelerated program was initiated to separate combined sewers in Minneapolis, St. Paul and South St. Paul. By reducing sewer overflows, millions of gallons of sewage are kept out of the river every year.

Dissolved oxygen concentrations greatly improved; toxins reduced; clean-water organisms flourish. With less oxygen demanding pollution in the river, water quality improved again and cleared the way for pollution-sensitive organisms to flourish.

1986 Effluent dechlorination added at the Metro Plant. Dechlorination neutralizes excess chlorine in wastewater before discharging to the river.

1987 1989 Mayflies return to metro area after 20-year absence, signifying much-improved river quality. Water quality remained good during 1988 drought. Fifteen-year ban lead to PCB reductions of up to 90% in fish. River fishing improved greatly, with “catch and release” enacted for lunker walleyes.

1993 Metro Plant continued to meet permit requirements during flooding. The plant treated nearly twice its normal flow of wastewater during the flood but continued to meet permit requirements.

1994 Metropolitan Council Environmental Services (MCES) created. New structure of regional government brought together wastewater operations and water planning to improve coordination, management, quality, cost competitiveness and accountability.

1995 Twin Cities sewer separation project completed. A 10-year, \$332 million project to separate combined sewers in the metro area was completed, significantly improving water quality.

1996 Metropolitan Council adopted Water Resources Management Policy Plan. The plan provides a comprehensive, holistic framework for preserving regional environmental quality.

1997 Metro Plant again achieved full compliance with its operation permits, despite spring flooding that overwhelmed other riverfront industries.

1998 Council approved plans to reduce phosphorus and mercury; new Metro Plant solids handling facilities will reduce mercury emissions 70% by 2004.

8 Five-year permit reissued for Metro Plant calls for 60% phosphorus reduction by 2003. Concurrent MetroEnvironment Partnership committed \$7.5 million to abate nonpoint source pollution.

All nine MCES treatment plants achieved 100% compliance—besting a 10-year average of 99.7%. Three plants earn national honors for five consecutive years of perfect compliance.

1999 Overall, MCES treatment plants achieved 99.8% compliance. Seven plants achieved 100% compliance.

9 U.S. Department of Transportation designated Mississippi River as a *National Millennium Trail*.

Achieved by partnering with 19 local governments and over 40 river organizations in the Twin Cities, in collaboration with 38 communities from the headwaters to St. Louis in the federal Upper Mississippi American Heritage Rivers Initiative.

2000 As in the past several years, MCES maintained near-perfect compliance with clean water discharge permits. Compliance achieved while decreasing wastewater treatment costs and amid capital project planning and construction to meet the region’s future needs.

In 2000, MCES awarded \$1.75 million of the \$7.5 million, 5-year MetroEnvironment Partnership Grants. The funds supported nonpoint source pollution management implementation projects.

2001 **The St. Croix Valley Wastewater Treatment Plant won the U.S. Environmental Protection Agency (EPA) National Medium Advanced Facility Award.** Plant staff was commended for outstanding operations & maintenance.

Seven plants received Association of Metropolitan Sewerage Agencies (AMSA) gold and silver awards; \$3 million was awarded in environmental grants with smart growth connections; and, \$300,000 obtained for Mississippi River Pool Two work from the McKnight Foundation.

2002 **Metro Plant earned national award for five consecutive years of perfect compliance with clean water discharge permits.** MCES's eight treatment plants combined for 99.8% permit compliance. Cottage Grove Plant quadrupled in size and renamed Eagles Point. Grants totaling \$1.4 million awarded for nonpoint source pollution abatement and prevention projects.

2003 **MCES plants continued to perform at award-winning levels in 2003.** Stepped up requirements in the Minnesota Pollution Control Agency "Minnesota Wastewater Treatment Facility Operational Award Program" were met; AMSA "Peak Performance Awards" were earned by all eight plants; wastewater was treated to greater than 99.9% compliance with permit limits; and the Council was named by the U.S. EPA as one of its "Clean Water Partners for the 21st Century" for going beyond the requirements of the Clean Water Act to protect watersheds.

2004 **The Seneca Plant received an "Excellence in Operation and Maintenance Award" from the U.S. EPA** for overall efficiency and excellence of wastewater treatment. Once again, all eight plants received AMSA "Peak Performance Awards" (seven for full compliance and one for having fewer than five permit exceedances). Two MnGREAT! Awards (governor's awards for excellence in waste and pollution prevention) were received. One was for the Voluntary Dental Office Amalgam Separator Program, working in partnership with the Minnesota Dental Association to recover mercury from dental clinic wastewater. The other was for sustainable design in the expansion of the Eagles Point Plant.

2005 **The Blue Lake Plant was awarded an "Excellence in Operation and Maintenance Award" from the U.S. EPA** as one of the top-rated wastewater treatment plants in the country (best large advanced facility in the six-state region and second place in the national competition). All eight plants earned NACWA (National Association of Clean Water Agencies, formerly AMSA) "Peak Performance Awards" for clean water discharge permit compliance. Also, from 2003 to 2005 MCES plants reduced their total discharge of phosphorus by 49%.

Treatment Plants

MCES owns and operates eight regional wastewater treatment plants that treat approximately 300 million gallons of wastewater daily. All eight plants consistently achieve near-perfect compliance with federal and state clean water standards.

Blue Lake

6957 County Road 101 • Shakopee, Minnesota 55379

Eagles Point

9211-110th Street South • Cottage Grove, Minnesota 55016

Empire

2540 West 197th Street • Farmington, Minnesota 55024

Hastings

100 Lee Street and First Street • Hastings, Minnesota 55033

Metropolitan

2400 Childs Road • St. Paul, Minnesota 55106

Rosemount

4005-140th Street East • Rosemount, Minnesota 55068

Seneca

3750 Plant Road • Eagan, Minnesota 55122

St. Croix Valley

6163 St. Croix Trail North • Stillwater, Minnesota 55082

Metropolitan Council Environmental Services

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