



Environment and Natural Resources Trust Fund

2025 Request for Proposal

General Information

Proposal ID: 2025-211

Proposal Title: Wastewater Chloride Reduction through Industrial Source Reduction Assistance

Project Manager Information

Name: Kelsey Klucas

Organization: U of MN - School of Public Health

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Project Basic Information

Project Summary: Project seeks to reduce chloride effluent in communities with high chloride concentrations by providing technical assistance to identify cost-effective ways to reduce industrial/commercial chloride use.

ENRTF Funds Requested: \$247,000

Proposed Project Completion: June 30, 2028

LCCMR Funding Category: Small Projects (H)

Secondary Category: Water Resources (B)

Project Location

What is the best scale for describing where your work will take place?

Statewide

What is the best scale to describe the area impacted by your work?

Statewide

When will the work impact occur?

During the Project and In the Future

Narrative

Describe the opportunity or problem your proposal seeks to address. Include any relevant background information.

Treatment facilities manage effluent as part of the public infrastructure needed for public health, economic development, and job growth. This project will provide source reduction technical assistance for industrial facilities discharging high chloride concentrations to their municipal wastewater facility or to surface water. Industries that generally use chloride in their processes include

- Food processing
- Rendering
- Leather tanning
- Brewing
- Ethanol production
- Metal fabrication

One teaspoon of salt pollutes five gallons of water. Chloride removal at wastewater treatment facilities is prohibitively expensive. Madison Metropolitan Sewerage District estimates capital costs for chloride removal for a plant with a capacity for 15 MGD range from \$81 million to \$193 million. By promoting strategies for chloride management at facilities that discharge to municipal wastewater systems or to surface water, the chloride entering Minnesota waters is reduced. The Minnesota Technical Assistance Program (MnTAP) has demonstrated source reduction strategies to reduce chloride use at industrial facilities while reducing costs.

- A vegetable pickling facility identified 460,500 lbs of annual salt reduction (279,000 lbs of chloride if NaCl) through process optimization.
- A meat processing facility identified 82,000 lbs of annual salt reduction (50,000 lbs of chloride) through water softener optimization.

What is your proposed solution to the problem or opportunity discussed above? Introduce us to the work you are seeking funding to do. You will be asked to expand on this proposed solution in Activities & Milestones.

Provide technical assistance to identify cost-effective ways to reduce industrial/commercial chloride use. MnTAP will identify target communities and industrial facilities with chloride challenges by analyzing state wastewater data and the Minnesota Pollution Control Agency's impaired waters list. MnTAP will engage these communities and facilities by providing direct technical assistance to businesses and placing interns in businesses with high chloride reduction opportunity to launch conservation implementation.

What are the specific project outcomes as they relate to the public purpose of protection, conservation, preservation, and enhancement of the state's natural resources?

- 10-20 communities and/or industrial facilities receive direct outreach for chloride source reduction technical assistance
- 5-10 industrial sites receive source reduction assessments
- 2-3 intern projects for chloride source reduction
- At least 25,000 lbs annual chloride reduction
- At least 2 success stories published
- At least 2 presentations at sector specific events
- 1 webinar presented live and recorded for future viewing
- 1 webpage to share best management practices

Activities and Milestones

Activity 1: Identify/Engage Locations with High Chloride Concentrations and Industrial Clients for Assistance Activities

Activity Budget: \$33,000

Activity Description:

Select communities with wastewater facilities that would benefit from chloride source reduction technical assistance. This includes facilities with high chloride discharge levels that may be in areas with impaired surface water. Contact wastewater facilities, municipalities, and industrial facilities to share information on chloride reduction options and the potential impact on local surface water quality.

Activity Milestones:

Description	Approximate Completion Date
20-30 communities identified with high potential for effluent chloride reduction	March 31, 2026
10-20 communities and/or industrial facilities receive direct outreach for source reduction technical assistance	September 30, 2026
5-10 industrial sites agree to receive onsite source reduction assessments	March 31, 2027

Activity 2: Conduct Chloride Source Reduction Assessments at Industrial Facilities

Activity Budget: \$185,000

Activity Description:

Conduct technical assistance assessments to identify and implement source reduction opportunities that will decrease wastewater chloride load. Technical assistance activities will recommend process optimization strategies and material substitution. Facilities with highly complex systems will be encouraged to apply to the MnTAP Intern Program for a summer intern to provide added engineering expertise to support identification, implementation, and outcome documentation of chloride reduction activities. An annual chloride reduction of 25,000 lbs prevents 15,000,000 gallons of water from being polluted with chloride.

Activity Milestones:

Description	Approximate Completion Date
5-10 onsite source reduction site assessments for chloride reduction	September 30, 2027
2-3 intern projects for chloride source reduction	September 30, 2027
All participating sites receive follow up assistance from MnTAP	June 30, 2028
At least 25,000 lbs annual chloride reduction	June 30, 2028

Activity 3: Share results and replication opportunity throughout the state

Activity Budget: \$29,000

Activity Description:

Develop a process for conducting similar analysis through example case studies and lessons learned for broad dissemination to facilities across Minnesota for additional site engagement. Share information through publications, presentations, and webinars targeting wastewater facility staff, city managers, industries, and organizations that discharge high wastewater chloride load.

Activity Milestones:

Description	Approximate Completion Date
At least 2 success stories published	March 31, 2028
At least 2 presentations at sector specific events	June 30, 2028
1 webinar presented live and recorded for future viewing	June 30, 2028
1 webpage to share best management practices	June 30, 2028

Long-Term Implementation and Funding

Describe how the results will be implemented and how any ongoing effort will be funded. If not already addressed as part of the project, how will findings, results, and products developed be implemented after project completion? If additional work is needed, how will this work be funded?

This project seeks to bring industrial/commercial technical assistance to communities and businesses throughout the state interested in chloride reduction strategies. Once developed and documented, these strategies will be available to communities, businesses, and existing programs that assist Minnesota communities with chloride reduction for replication beyond the program time period.

Other ENRTF Appropriations Awarded in the Last Six Years

Name	Appropriation	Amount Awarded
Wastewater Nutrient Reduction through Industrial Source Reduction Assistance	M.L. 2019, First Special Session, Chp. 4, Art. 2, Sec. 2, Subd. 04c	\$200,000
Expanding Protection Of Minnesota Water Through Industrial Conservation	M.L. 2021, First Special Session, Chp. 6, Art. 5, Sec. 2, Subd. 04g	\$178,000

Project Manager and Organization Qualifications

Project Manager Name: Kelsey Klucas

Job Title: Director, MnTAP

Provide description of the project manager's qualifications to manage the proposed project.

Kelsey joined MnTAP in 2022 after spending 10 years with a global manufacturing company where she helped create tools and systems to facilitate environmental compliance and stewardship on a global scale. Prior to her appointment as MnTAP Director in 2023, Kelsey was leading MnTAP's PFAS efforts by developing tools and methods for identifying sources of PFAS in industrial operations. Kelsey also co-led efforts to identify and recommend best practices for source reduction in the metal fabrication and metal finishing industries.

Kelsey manages the MnTAP organization providing technical leadership to staff which includes 11 full time staff members and 12-20 student interns and administratively manages a grant sponsored budget of \$1.6 million per year primarily through an annual grant through the Minnesota Pollution Control Agency. Other grant funding come from partners including Minnesota Department of Commerce, Division of Energy Resources, Metropolitan Council, counties and other local units of government, U.S. Environmental Protection Agency (EPA) Region 5, U.S. Department of Energy (DOE) and energy utilities. Kelsey has experience managing the technical and administrative activities of environmentally focused assistance project that generate implemented results. Past history of MnTAP annual grant performance is summarized in our annual IMPACT environmental benefits reports posted on the MnTAP website - <http://www.mntap.umn.edu/resources/publications/impact/>.

Organization: U of MN - School of Public Health

Organization Description:

The Minnesota Technical Assistance Program (MnTAP) was established in 1984 as an outreach program at the University of Minnesota that has been helping Minnesota businesses develop and implement industry-tailored solutions that prevent pollution at the source, maximize efficient use of resources, and reduce energy use and costs to improve public health and the environment. MnTAP staff members provide no-cost, confidential, industry-tailored technical assistance. By reducing waste and increasing efficiency, clients can save on disposal and raw material costs and decrease regulatory compliance burdens as well as create healthier and safer working conditions while reducing environmental impacts and

saving money. As part of the University, MnTAP has no regulatory responsibilities or obligations allowing us to work closely and confidentially with a variety of businesses throughout the state. MnTAP typically provides technical assistance to over 200 companies per year. In the past 5 years, MnTAP has conducted technical assistance activities in 85 of the 87 Minnesota counties and actively seeks opportunities to provide service to all regions of Minnesota.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
Senior Engineer		Technical assistance and training			37.1%	0.3		\$28,296
Engineer		Technical assistance and training			33.5%	1.5		\$134,779
Intern Manager		Hire, train, and supervise intern program			33.5%	0.15		\$17,177
Intern(s)		Execute site based projects			27.1%	0.7		\$36,224
Principal Investigator		Program administration, reporting			37.1%	0.15		\$26,024
							Sub Total	\$242,500
Contracts and Services								
							Sub Total	-
Equipment, Tools, and Supplies								
							Sub Total	-
Capital Expenditures								
							Sub Total	-
Acquisitions and Stewardship								
							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Mileage and per diem for travel within Minnesota to provide technical assistance	Provide on site visits to define water conservation opportunities.					\$4,500
							Sub Total	\$4,500

Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$247,000

Classified Staff or Generally Ineligible Expenses

Category/Name	Subcategory or Type	Description	Justification Ineligible Expense or Classified Staff Request
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Non ENRTF Funds

Category	Specific Source	Use	Status	Amount
State				
			State Sub Total	-
Non-State				
In-Kind	University of Minnesota Indirect rate 26% MTDC	Non-recovered indirect on grant total.	Secured	\$64,220
			Non State Sub Total	\$64,220
			Funds Total	\$64,220

Total Project Cost: \$311,220

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: [6149007d-fc4.pdf](#)

Alternate Text for Visual Component

MPCA Chloride Conditions Map to demonstrate areas of MN impacted by high chloride. This map will serve to inform MnTAP efforts for outreach....

Supplemental Attachments

Capital Project Questionnaire, Budget Supplements, Support Letter, Photos, Media, Other

Title	File
MPCA Letter of Support	0c7d57ad-ca5.pdf
UMN Sponsored Projects Administration Authorization to Submit	50039ef9-401.pdf

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Does your project have potential for royalties, copyrights, patents, sale of products and assets, or revenue generation?

No

Do you understand and acknowledge IP and revenue-return and sharing requirements in 116P.10?

N/A

Do you wish to request reinvestment of any revenues into your project instead of returning revenue to the ENRTF?

N/A

Does your project include original, hypothesis-driven research?

No

Does the organization have a fiscal agent for this project?

No

Does your project include the pre-design, design, construction, or renovation of a building, trail, campground, or other fixed capital asset costing \$10,000 or more or large-scale stream or wetland restoration?

No

Do you propose using an appropriation from the Environment and Natural Resources Trust Fund to conduct a project that provides children's services (as defined in Minnesota Statutes section 299C.61 Subd.7 as "the provision of care, treatment, education, training, instruction, or recreation to children")?

No

Provide the name(s) and organization(s) of additional individuals assisting in the completion of this proposal:

Laura Sevcik, University of Minnesota; Debb Grove, University of Minnesota

