



Environment and Natural Resources Trust Fund

2027 Request for Proposal

General Information

Proposal ID: 2027-512

Proposal Title: Emerging Contaminant Monitoring in Minnesota Drinking Water

Project Manager Information

Name: Jane de Lambert

Organization: Minnesota Department of Health

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Project Basic Information

Project Summary: Supplemental sampling and analysis of contaminants of emerging concern (CECs) in Minnesota drinking water sources and finished water to help inform risk assessment, evaluation and mitigation.

ENRTF Funds Requested: \$1,150,000

Proposed Project Completion: June 30, 2030

LCCMR Funding Category: Water (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.

Approximately one hundred contaminants are federally regulated in drinking water. However, there are thousands of contaminants of emerging concern (CECs) present in the environment, most of which have very little occurrence data available. When CECs occur in drinking water, they may pose risks to human health.

Between 2018 and 2021, the Minnesota Department of Health (MDH) conducted a survey of CECs in paired source and finished drinking water samples from community water systems (CWSs). This work, the Unregulated Contaminant Monitoring Project (UCMP), was funded by the Minnesota Environment and Natural Resources Trust Fund (ENRTF) and resulted in the discovery of over one hundred distinct CECs in source and/or finished drinking water in Minnesota. Most systems had at least one CEC detection, while wells drawing from geologically vulnerable aquifers had higher detection frequencies.

Little is known about how the occurrence and concentration of these CECs may be changing over time. In 2023, MDH launched the Drinking Water Ambient Monitoring Program (DWAMP), which seeks to establish permanent, ongoing capacity to address CECs in drinking water. DWAMP is positioned to investigate a small number of CECs each year, but a gap remains in the ability to monitor CEC changes over time.

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.

MDH proposes to conduct a follow-up CEC scan of the systems previously monitored through UCMP and to evaluate temporal patterns. A key outcome of the previous work is the development of monitoring networks of CWS wells that are at relatively high risk of being impacted by wastewater discharge and agricultural practices, as well as surface water-sourced systems that are especially vulnerable to anthropogenic contamination. Wastewater is known to contain CECs associated with industrial, commercial, and domestic activities, and there are hundreds of pesticides associated with modern agricultural practice. As part of DWAMP, MDH plans to monitor these networks for a similar, comprehensive suite of CECs every five years, incorporating additional public water systems and/or contaminants as warranted. The data generated through this work will be compared to UCMP data and analyzed for temporal changes in CEC occurrence at public water system and regional scales.

Additionally, MDH proposes to expand on cyanotoxin monitoring work at surface water-sourced systems conducted under DWAMP between 2024 and 2026. ENRTF funding would enable DWAMP to conduct more frequent monitoring of these important CECs at systems of particular concern based on past monitoring results, more fully capturing transience and short term to acute health risks.

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?

Data generated as part of this work will provide information about the quality of drinking water sources that is not generated through Safe Drinking Water Act activities or other monitoring programs. This information will allow MDH to take proactive measures to protect source waters and appropriately advise public water systems on risk mitigation approaches. It will also be used to guide targeted monitoring by DWAMP in intermittent years, inform the nomination of contaminants for health risk assessment, and address public health concerns about drinking water in a rapidly changing scientific and regulatory landscape.

Activities and Milestones

Activity 1: Develop a detailed monitoring plan.

Activity Budget: \$76,300

Activity Description:

Using the analysis from the UCMP, analyze any changes to land use adjacent to CWS wells and upstream of surface water intakes. Confirm previous wells and intakes at risk from wastewater disposal and agricultural chemicals. Reassess monitoring networks comprised of CWS wells and surface water intakes at which the water quality effects of wastewater and agricultural chemicals can be sampled and evaluated. Assess if there are any new or emerging water quality concerns that could be classified into a new network.

Review previous state and national water monitoring information to establish a list of analytes targeted to Minnesota conditions. Parameters sampled in UCMP will be prioritized for reassessment. Revisit UCMP results to determine the top priority contaminants, whether any contaminant groups should be deprioritized, and whether any new groups are needed. Parameters will be grouped into classes (e.g., pharmaceuticals, pesticides, wastewater indicators, etc.). A formal strategy will be developed for laboratory analysis to maximize the information received on the presence of unregulated contaminants while minimizing costs.

Create updated statewide monitoring networks for groundwater and surface water sourced CWSs at risk from the following land uses: 1) wastewater disposal and 2) agricultural chemical storage and uses. Establish sampling schedule.

Activity Milestones:

Description	Approximate Completion Date
Rank vulnerable public water system wells relative to exposure to wastewater and agricultural chemicals.	October 31, 2027
Identify parameters associated with wastewater disposal or agricultural chemical use that should be prioritized.	November 30, 2027
Determine if there are any additional land uses to include as a network.	December 31, 2027
Create specific monitoring plan that lists wells/intakes, parameters, and sampling schedule.	January 31, 2028

Activity 2: Execute monitoring plan developed in Activity 1.

Activity Budget: \$921,100

Activity Description:

Collect and analyze water samples from public water system wells/intakes identified as at-risk for wastewater disposal and agricultural chemicals. This activity encompasses all data collection for this project. This will consist of coordinating the sampling needs for this project with other MDH sampling and inspection in support of compliance activities associated with the federal Safe Drinking Water Act.

Activity Milestones:

Description	Approximate Completion Date
Collect water samples from drinking water systems identified in monitoring plan completed in activity 1.	December 31, 2028
Quantitative laboratory analysis of source and finished water samples.	January 31, 2029
Conduct data quality assurance on analytical data received from laboratories.	January 31, 2029

Activity 3: Data analysis and report writing.

Activity Budget: \$152,600

Activity Description:

Upon receipt of quantitative data from the laboratory, quality assurance will be completed to ensure a robust dataset is available for analysis. Once the dataset is finalized, statistical methods will be researched and employed to assess temporal changes in CEC occurrence across the sampling network, spatial variability, risk factors, and the occurrence of CECs in source and finished drinking water that were not monitored as part of UCMP. Results will be summarized in a public-facing report and a peer-reviewed publication.

Activity Milestones:

Description	Approximate Completion Date
Data review and quality control.	November 30, 2029
Statistical analyses and interpretation of quantitative data.	December 31, 2029
Report preparation.	January 31, 2030

Project Partners and Collaborators

Name	Organization	Role	Receiving Funds
Sarah Elliot	United States Geological Survey	Project management, technical assistance, coordination with USGS lab, data management, data QA/QC and analysis, report development and presentation of results	Yes

Dissemination

Describe your plans for dissemination, presentation, documentation, or sharing of data, results, samples, physical collections, and other products and how they will follow ENRTF Acknowledgement Requirements and Guidelines.

Monitoring results will be shared as they are generated with participating CWSs and MDH staff. MDH will author a project report to share publicly as well as scientific paper(s) for journal publication. Result summaries and deliverable reports will be publicly available on the MDH website. The results and outcomes of this work will be presented at relevant scientific conferences. Results, conclusions, and action items resulting from the data gathered through this work will also be shared with partners including MDH toxicologists and monitoring staff at sister agencies.

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?

The Drinking Water Ambient Monitoring Program (DWAMP) will manage the results of water monitoring, including sharing of results, the nomination of chemicals of public health concern to MDH risk assessors for evaluation, and working with CWSs to implement strategies for risk mitigation. DWAMP will conduct supplemental and follow-up work using money appropriated through the Clean Water Fund.

Project Manager and Organization Qualifications

Project Manager Name: Jane de Lambert

Job Title: Environmental Health Supervisor

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

Jane de Lambert has been with the Minnesota Department of Health's (MDH) Drinking Water Protection Program for over ten years. While currently an Environmental Health Supervisor, she has served as a hydrologist in the Source Water Protection Unit, as well as an Environmental Research Scientist focusing on emerging contaminants in drinking water. Jane manages the Drinking Water Ambient Monitoring Program (DWAMP) which aims to provide permanent capacity and infrastructure for emerging contaminant monitoring in drinking water for the state. Jane also helped to lead the Unregulated Contaminant Monitoring Project (UCMP), which was funded by the Environment and Natural Resources Trust Fund in 2018. Jane has coauthored 6+ peer reviewed journal articles on unregulated contaminants in drinking water.

Jane has a Bachelor of Science in Geology from the University of St. Thomas and a Master of Public Health in Environmental Health Science from the University of Minnesota. She is a licensed Professional Geologist in the State of Minnesota.

The Drinking Water Ambient Monitoring Program at MDH has an established team that will manage the activities in this

project, along with our project partners at the United States Geological Survey (USGS). Team members consist of hydrologists, environmental specialists, student workers, and Drinking Water Protection managers.

Organization: Minnesota Department of Health

Organization Description:

The Minnesota Department of Health protects, maintains and improves the health of all Minnesotans. This proposal will be managed by the Drinking Water Protection Section, within the Environmental Health Division.

Budget Summary

Category / Name	Subcategory or Type	Description	Purpose	Gen. Ineligible	% Benefits	# FTE	Classified Staff?	\$ Amount
Personnel								
							Sub Total	-
Contracts and Services								
United States Geological Survey	Subaward	Salary - project management, technical assistance, coordination with USGS lab, data management, data QA/QC and analysis, report development and presentation of results: \$228,900.00, Laboratory costs: \$217,000.00, Shipping: \$1,700.00, Field supplies: \$3,000.00				0.57		\$450,600
Analytical Laboratory TBD	Service Contract	Analyze drinking water samples for contaminants of emerging concern (CECs), up to 120 wastewater samples, 120 agricultural samples, 50 surface water sites sampled 2x for a variety of CECs (may include pharmaceuticals, personal care products, flame retardants, hormones)				0		\$663,400
MDH Public Health Laboratory	Service Contract	Analyzing drinking water samples for general chemistry parameters				0		\$23,000
							Sub Total	\$1,137,000
Equipment, Tools, and Supplies								
	Tools and Supplies	Buckets (4 at \$120), coolers (5 at \$150), calibration standards and wet ice (\$3.60 x 4 bags x 30 trips = \$432) as needed for sample collection	Supplies that support the collection of water samples and maintenance of existing equipment					\$1,000
							Sub Total	\$1,000
Capital Equipment								
							Sub Total	-
Acquisitions and Stewardship								

							Sub Total	-
Travel In Minnesota								
	Miles/ Meals/ Lodging	Approximately 30 trips, two people, 9,760 miles at 0.725 mileage rate (\$7,076), meals (\$1,662) and lodging (\$2,640)	Travel to public water systems across the state for water sample collection					\$12,000
							Sub Total	\$12,000
Travel Outside Minnesota								
							Sub Total	-
Printing and Publication								
							Sub Total	-
Other Expenses								
							Sub Total	-
							Grand Total	\$1,150,000

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				
Cash	Clean Water Fund Appropriations for Source Water Protection Minn. Stat. 114D.50	Field sampler salary	Secured	\$24,000
			State Sub Total	\$24,000
Non-State				
Cash	United States Geological Survey Cooperative Matching Funds	Supporting project management, technical assistance, coordination with USGS lab, data management, lab analytical, data QA/QC and analysis, report development and presentation of results	Pending	\$55,000
			Non State Sub Total	\$55,000
			Funds Total	\$79,000

Total Project Cost: \$1,229,000

This amount accurately reflects total project cost?

Yes

Attachments

Required Attachments

Visual Component

File: [9473eca7-467.docx](#)

Alternate Text for Visual Component

The attachment shows a graphic depicting the CEC detections from UCMP. Detections are organized by frequency (size) and CEC class (color). Commonly detected CECs include pesticides and industrial contaminants. We aim to resample drinking water sources and finished water for similar contaminants to assess changes over time....

Administrative Use

Does your project include restoration or acquisition of land rights?

No

Do you understand that travel expenses are only approved if they follow the "Commissioner's Plan" promulgated by the Commissioner of Management of Budget or, for University of Minnesota projects, the University of Minnesota plan?

Yes, I understand the Commissioner's Plan applies.

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:

Sarah Elliot (USGS), Steve Robertson (MDH), Maya Gilchrist (MDH), Arianna Giorgi (MDH)

Do you understand that a named service contract does not constitute a funder-designated subrecipient or approval of a sole-source contract? In other words, a service contract entity is only approved if it has been selected according to the contracting rules identified in state law and policy for organizations that receive ENRTF funds through direct appropriations, or in the DNR's reimbursement manual for non-state organizations. These rules may include competitive bidding and prevailing wage requirements

Yes, I understand