



## **REQUEST FOR PROPOSALS (RFP)**

### ***Validation of an Integrated Framework of Wastewater and Stormwater Treatment Options of CECs (5244)***

#### **Date Posted**

Monday, September 11, 2023

#### **Due Date**

Proposals must be received by 3:00 pm Mountain Time on Tuesday, November 21, 2023.

#### **WRF Project Contact**

Lola Olabode, MPH, BCES, lolabode@waterrf.org

#### **Project Sponsors**

This project is funded by The Water Research Foundation (WRF) as part of WRF's Research Priority Program.

#### **Project Objectives**

- Validate cost effective strategies for the management and control of constituents of emerging concern (CECs) in all water sources.
- Provide benefit/cost guidance to utilities in determining viable treatment options at the water resource recovery facility (WRRF) or the source.
- Address current research gaps in the One Water framework such as analytical techniques and screening tools, characterization and predictive modeling, and potential health impacts.

#### **Budget**

Applicants may request up to \$200,000 in WRF funds for this project.

#### **Background and Project Rationale**

Constituents of emerging concern (CECs) include a variety of substances such as medicines, personal care products, flame retardants, hormones, algal toxins, and many others that are not currently federally regulated but known to occur in water. Tens of thousands of chemicals are produced annually and used in a variety of industrial, agricultural, commercial, and household products. New substances or metabolites of existing chemicals are continuously developed or discovered, and information regarding their toxicity, fate, and transport is evolving. The fate and effects of chemicals on aquatic biota and human health are identified for only a fraction of the chemicals in use and in the environment. The United States Environmental Protection Agency and other countries provide criteria and water quality standards for a portion of these compounds, which serve as a basis of regulations for surface, storm and groundwaters, treated

wastewaters, and drinking water. There are limited comparative evaluations available on the cost-effective management strategies of treatment options versus source control. This RFP calls for ***Validation of an Integrated Framework of Wastewater and Stormwater Treatment Options of CECs***. Cost-effective management strategies where CECs are thought to present an unacceptable risk are essential.

Research is needed to demonstrate/validate an integrated framework of wastewater treatment, as well as stormwater (and other non-point sources) treatment of CECs. Utilities, regulators, and policymakers need quantitative information to help develop policies that support the best and most cost-effective solutions for CECs. A fully developed stakeholder-driven, multi-decision criteria analysis, ensuring triple bottom line guidance to utilities, will improve water sector knowledge on cost-effective approaches to managing multiple CECs in all water types.

The output from this research will be specific guidance on how to use an integrated One Water framework of treatment options (e.g., site screening tools) supported by detailed examples of site applications under different scenarios. These examples will come directly from demonstrations selected and conducted by the research team. It is the goal of the research to assist water quality managers who are considering—for example—chemical and biological monitoring programs, upgrades to treatment facilities, source control initiatives, future regulatory requirements, and possible concerns expressed by utility boards, environmental groups, and the public.

This RFP covers One Water, all utility sizes, and relevance to both national and regional jurisdictions.

### **Research Approach**

This RFP is intentionally flexible in the research approach to encourage creativity and originality from proposers. This project is viewed as a “demonstration” of an approach or strategy that leverages and builds on lessons learned, limitations, and recurring themes of existing cost and management challenges.

Proposers should describe how they will conduct the research to meet the project objectives stated above. The following approach is intended as a starting point.

Proposers may want to summarize the “state of knowledge” or “state-of-the-practice” on CECs in all water matrices to verify the best path forward in validating an integrated one water framework of treatment options for source control and cost-effective management strategies of CECs. This validation/demonstration study can be applied to CECs that have the highest public health risk and load, building on lessons learned from *A Framework for Assessing the Costs and Benefits of Managing Compounds of Emerging Concern in Surface Water* (Rauch-Williams et al. 2018) and the simultaneous compliance tools from *Decision Tool to Help Utilities Develop Simultaneous Compliance Strategies* (Schendel et al. 2009). *Technical Brief: Constituents of Emerging Concern Using a One Water Approach* (Diamond et al. 2021), provides

some information on loads/risk from other sources. It also provides a framework for communicating what is known about CECs and their risks relative to other stressors, what the current uncertainties are, and what critical information gaps exist.

### **Expected Deliverables**

- A demonstration/validation and documentation of an approach or strategy.
- An easy to implement, tested decision matrix/tool of wastewater and stormwater treatment options for source control and cost-effective management strategies based on consensus from key water quality stakeholders (traditional and non-traditional).
- A research report (must use WRF's Research Report Template), which can be found at <https://www.waterrf.org/project-report-guidelines#research-report-template>.
- Frequently Ask Questions (FAQs) document, webcast(s), conference presentation, etc.

If a web tool is being proposed, RFP responders must follow the criteria outlined for web tools presented in the *Web Tool Criteria and Feasibility Study for The Water Research Foundation Project Deliverables* at <https://www.waterrf.org/project-report-guidelines#webtool-criteria>.

Proposers are also encouraged to suggest alternative deliverables that address the project objectives and benefit the water quality community.

### **Desired Outcomes:**

- A well tested, reproducible, and documented stakeholder-driven multi-decision criteria analysis ensuring triple bottom line guidance to utilities will improve water sector knowledge on cost-effective approaches to managing multiple CECs in all water types.
- A vetted and demonstrated cost/benefit guidance to utilities in determining viable treatment options at the WRRF or the source. Lessons learned through case studies on cost-effective management strategies.
- A decision support system that helps utilities screen and communicate CEC risks at their sites, and further offer utilities, the water quality community, regulators, and policy makers some quantitative information to help support the best and most cost-effective solution.
- A consensus-based framework that integrates different approaches and incorporates the latest field-tested tools/resources/outputs.

### **Communication Plan**

Please review WRF's *Project Deliverable Guidelines* for information on preparing a communication plan. The guidelines are available at <https://www.waterrf.org/project-report-guidelines#project-deliverable-guidelines>. Conference presentations, webcasts, peer-reviewed publication submissions, and other forms of project information dissemination are typically encouraged.

### **Project Duration**

The anticipated period of performance for this project is 24 months from the contract start date.

## References and Resources

The following list includes examples of research reports, tools, and other resources that may be helpful to proposers. It is not intended to be comprehensive, nor is it a required list for consideration.

- Roback, S., and M. Plumlee. 2019. *Validation of Rapid, Low-Volume, Low-Cost NDMA Analytical Method with Potential for Online Monitoring*. Project 4881. Denver, CO: The Water Research Foundation.
- Chang, Y.J., S. Reiber, P. Kwan, M. Norton, and T. Galeziewski. 2005. *Demonstration of Emerging Technologies for Arsenic Removal Volume 2: Pilot Testing*. Project 2661. Denver, CO: AWWA Research Foundation.
- Bell, C. 2015. *Modeling Guidance for Developing Site-Specific Nutrient Goals - Demonstration, Boulder Creek, Colorado*. Project 1491. Alexandria, VA: The Water Environment Research Foundation.
- Diamond, J., J. Flippin, and A. Burton. 2021. *Technical Brief: Constituents of Emerging Concern Using a One Water Approach*. Project 5036. Denver, CO: The Water Research Foundation.
- Rauch-Williams, T., E. Dickenson, J. Drewes, S. Snyder, T. Letzel, S. Bieber, C. Glover, G. Woods, S. Deslaurier, and S. Dagnino. 2018. *A Framework for Assessing the Costs and Benefits of Managing Compounds of Emerging Concern in Surface Water*. Project 4494. Denver, CO: The Water Research Foundation.
- Schendel, D. B., Z. K. Chowdhury, C. P. Hill, R. S. Summers, E. Towler, R. Balaji, R. S. Raucher, and J. Cromwell. 2009. *Decision Tool to Help Utilities Develop Simultaneous Compliance Strategies*. Project 3115. Denver, CO: Water Research Foundation.

## Proposal Evaluation Criteria

The following criteria will be used to evaluate proposals:

- Understanding the Problem and Responsiveness to RFP (maximum 20 points)
- Technical and Scientific Merit (maximum 30 points)
- Qualifications, Capabilities, and Management (maximum 15 points)
- Communication Plan, Deliverables, and Applicability (maximum 20 points)
- Budget and Schedule (maximum 15 points)

## **PROPOSAL PREPARATION INSTRUCTIONS**

Proposals submitted in response to this RFP must be prepared in accordance with WRF's *Guidelines for Research Priority Program Proposals*. The current version of these guidelines and the *Instructions for Budget Preparation* are available at <https://www.waterrf.org/proposal-guidelines>. The guidelines contain instructions for the technical aspects, financial statements, indirect costs, and administrative requirements that the applicant must follow when preparing a proposal.

Proposals that include the production of web- or software-based tools, such as websites, Excel spreadsheets, Access databases, etc., must follow the criteria outlined for web tools presented in the *Web Tool Criteria and Feasibility Study for The Water Research Foundation Project Deliverables* at <https://www.waterrf.org/project-report-guidelines#webtool-criteria>.

### **Eligibility to Submit Proposals**

Proposals will be accepted from both U.S.-based and non-U.S.-based entities, including educational institutions, research organizations, governmental agencies, and consultants or other for-profit entities.

WRF's Board of Directors has established a Timeliness Policy that addresses researcher adherence to the project schedule. The policy can be reviewed at <https://www.waterrf.org/policies>. Researchers who are late on any ongoing WRF-sponsored studies without approved no-cost extensions are not eligible to be named participants in any proposals. Direct any questions about eligibility to the WRF project contact listed at the top of this RFP.

### **Administrative, Cost, and Audit Standards**

WRF's research program standards for administrative, cost, and audit compliance are based upon, and comply with, Office of Management and Budget (OMB) Uniform Grants Guidance (UGG), 2 CFR Part 200 Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, and 48 CFR 31.2 Contracts with Commercial Organizations. These standards are referenced in WRF's *Guidelines for Research Priority Program Proposals*, and include specific guidelines outlining the requirements for indirect cost negotiation agreements, financial statements, and the Statement of Direct Labor, Fringe Benefits, and General Overhead. Inclusion of indirect costs must be substantiated by a negotiated agreement or appropriate Statement of Direct Labor, Fringe Benefits, and General Overhead. Well in advance of preparing the proposal, your research and financial staff should review the detailed instructions included in WRF's *Guidelines for Research Priority Program Proposals* and consult the *Instructions for Budget Preparation*, both available at <https://www.waterrf.org/proposal-guidelines>.

### **Budget and Funding Information**

The maximum funding available from WRF for this project is \$200,000. The applicant must contribute additional resources equivalent to at least 33% of the project award. For example, if an applicant requests \$100,000 from WRF, an additional \$33,000 or more must be contributed

by the applicant. Acceptable forms of applicant contribution include cost share, applicant in-kind, or third-party in-kind that comply with 2 CFR Part 200.306 cost sharing or matching. The applicant may elect to contribute more than 33% to the project, but the maximum WRF funding available remains fixed at \$200,000. Proposals that do not meet the minimum 33% of the project award will not be accepted. Consult the *Instructions for Budget Preparation* available at <https://www.waterrf.org/proposal-guidelines#RPP-instr-budget-prep> for more information and definitions of terms.

### **Period of Performance**

It is WRF's policy to negotiate a reasonable schedule for each research project. Once this schedule is established, WRF and its sub-recipients have a contractual obligation to adhere to the agreed-upon schedule. Under WRF's No-Cost Extension Policy, a project schedule cannot be extended more than nine months beyond the original contracted schedule, regardless of the number of extensions granted. The policy can be reviewed at <https://www.waterrf.org/policies>.

### **Utility and Organization Participation**

WRF encourages participation from water utilities and other organizations in WRF research. Participation can occur in a variety of ways, including direct participation, in-kind contributions, or in-kind services. To facilitate their participation, WRF has provided contact information, on the last page of this RFP, of utilities and other organizations that have indicated an interest in this research. Proposers are responsible for negotiating utility and organization participation in their particular proposals. The listed utilities and organizations are under no obligation to participate, and the proposer is not obligated to include them in their particular proposal.

### **Application Procedure and Deadline**

Proposals are accepted exclusively online in PDF format, and they must be fully submitted before 3:00 pm Mountain Time on Tuesday, November 21, 2023.

The online proposal system allows submission of your documents until the date and time stated in this RFP. To avoid the risk of the system closing before you press the submit button, do not wait until the last minute to complete your submission. Submit your proposal at <https://forms.waterrf.org/cbruck/rfp5244>.

Questions to clarify the intent of this RFP and WRF's administrative, cost, and financial requirements may be addressed to the WRF project contact, Lola Olabode at 571.384.2109 or [lolabode@waterrf.org](mailto:lolabode@waterrf.org). Questions related to proposal submittal through the online system may be addressed to Caroline Bruck at 303.347.6118 or [cbruck@waterrf.org](mailto:cbruck@waterrf.org).

## ***Utility and Organization Participants***

The following utilities have indicated interest in possible participation in this research. This information is updated within 24 business hours after a utility or an interested organization submits a volunteer form, and this RFP will be re-posted with the new information. **(Depending on your settings, you may need to click refresh on your browser to load the latest file.)**

### **Xiongfei Xie**

Senior Engineer  
Hillsborough County Water Resources  
Department 925 East Twiggs Street  
Tampa, FL 33602  
(813) 635-7392  
[xiex@hillsboroughcounty.org](mailto:xiex@hillsboroughcounty.org)

### **Anna Schroeder**

Engineering Supervisor  
South Platte Renew  
2900 S. Platte River Dr  
Englewood, CO 80110  
(303) 783-6884  
[Aschroeder@englewoodco.gov](mailto:Aschroeder@englewoodco.gov)

### **John Norton**

Director of Energy, Research, & Innovation  
Great Lakes Water Authority  
735 Randolph Street  
Suite 1101  
Detroit, MI 48226  
(313) 400-2553  
[john.norton@glwater.org](mailto:john.norton@glwater.org)

### **Mark Payne**

Supervisor, Environmental Monitoring and  
Enforcement  
Regional Municipality of York  
17250 Yonge Street  
Newmarket, ON L3Y 6Z1  
(877) 464-9675  
[mark.payne@york.ca](mailto:mark.payne@york.ca)

### **Brady Steinbach**

Business Development Manager  
Sudoc  
94 Landfill Road  
Edinburg, VA 22824  
(262) 565-8275  
[bsteinbach@sudoc.com](mailto:bsteinbach@sudoc.com)