



CLEAN WATER STATE REVOLVING FUND (CWSRF) EMERGING CONTAMINANTS

CIFA Presentation

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Speakers

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CWSRF Emerging Contaminants Fund Overview

- New appropriation under the Bipartisan Infrastructure Law (BIL), enacted on November 15, 2021
- Appropriates \$1 billion over the next five years to address emerging contaminants
 - FY2022: \$100 M
 - FY2023 to FY2026: \$225 M each year
- Funding issued to states as CWSRF Emerging Contaminants Capitalization Grant based on the current CWSRF distribution percentages
- All funds are to be awarded to funding applicants as 100% forgivable loans or grants
- No state match required

CWSRF Emerging Contaminants Funding Eligibilities

- For a project or activity to be eligible under this appropriation, it must:
 - Be eligible under section 603(c) of the CWA
 - Address identified emerging contaminants
- Potential projects include:
 - Construction of POTWs
 - Stormwater management
 - Nonpoint source pollution control



CWSRF Emerging Contaminants Funding Eligibilities

- Can only fund portion of the project specific to emerging contaminants
- Only capital costs are eligible
- Can include planning and design (including monitoring) that is integral to the development of an eligible capital project
- Ineligible activities:
 - Operation and maintenance
 - Water quality monitoring activities (including monitoring associated with NPDES permit or pretreatment requirements) at POTWs

What is a CWSRF Emerging Contaminant?

- Substance or microorganism, including manufactured or naturally occurring physical, chemical, biological, radiological, or nuclear material, which is known or anticipated in the environment, which may pose newly identified or re-emerging risks to human health, aquatic life, or the environment
- Can include many different types of natural or manufactured chemicals and substances – such as those in some compounds of personal care products, pharmaceuticals, industrial chemicals, pesticides, and microplastics

What is a CWSRF Emerging Contaminant?

- Examples: PFAS, antimicrobial resistant bacteria, 6PPD-quinone (from tires), microplastics
- Contaminants with water quality criteria recommendation published by EPA under CWA section 304(a), except for PFAS, are not considered emerging contaminants
 - Includes nutrients (e.g., ammonia, nitrogen, and phosphorus), certain organics, and certain metals.
- Definition only for the purpose of CWSRF financing
 - Separate definition for DWSRF emerging contaminants
 - See Appendix B of EPA's March 2022 memo for more detail, https://www.epa.gov/system/files/documents/2022-03/combined_srf-implementation-memo_final_03.2022.pdf

CWSRF Emerging Contaminant Project Ideas and Examples

- Understand that it may be difficult to identify emerging contaminant projects
 - Lack of monitoring data to identify presence and quantity of emerging contaminants in wastewater/stormwater
 - Uncertainty of the need for capital projects to address identified contaminants (pretreatment of industrial sources may be the solution but is not a covered use of the funds)



CWSRF Emerging Contaminant Project Ideas and Examples

- Consider monitoring projects that for planning and design e.g. wastewater characterization for POTWs
- Consider projects already in the pipeline that address emerging contaminants
- Consider other eligible project types and fund uses (discussed in next few slides)
 - Look beyond POTW construction and PFAS
 - Stormwater, landfills, and contaminated sites can also be significant sources of emerging contaminants



Other CWSRF Emerging Contaminant Eligible Fund Uses: Planning and Design

- Planning and design for capital projects, as well as broader water quality planning are eligible, provided there is a reasonable expectation that the planning will result in a capital project
- Funding can be used for preconstruction activities to help prepare planning, preliminary engineering, and alternatives analysis documents

Other CWSRF Emerging Contaminant Eligible Fund Uses: Monitoring

- Monitoring for the specific purpose of project development (planning, design, and construction) over a reasonable timeframe is eligible
 - Monitoring may lead to outcomes other than capital projects to address emerging contaminants
- Funding may also be used for certain project types to assess effectiveness after construction (except for construction of POTWs and decentralized wastewater treatment systems)

Other CWSRF Emerging Contaminant Eligible Fund Uses: Monitoring

- Eligible monitoring activities include:
 - Purchase of monitoring (e.g., auto samplers) or laboratory analysis equipment
 - Monitoring to characterize stormwater or wastewater to inform an engineering report and the identification and selection of the appropriate treatment technology/project alternatives
 - Monitoring of wastewater influent/effluent/sludge to determine the fate of emerging contaminants, to inform the identification and selection of the appropriate treatment technology



MONITORING CASE STUDY: City of Cedar Rapids Water Pollution Control Facility PFAS Project



Background

- City of Cedar Rapids (IA) Water Pollution Control Facility (WPCF) provides wastewater treatment for 180,000 residents plus industrial and commercial customers
- A multiple hearth incinerator at the WPCF treats solids from the primary and biological treatment processes
- City is currently studying the fate of PFAS compounds in solids after incineration, specifically how effective the multiple hearth incinerator is at degrading and destroying PFAS compounds within the solids
- City also recognizes that PFAS treatment of liquid streams may be needed, such as the stream created during dewatering of solids

MONITORING CASE STUDY: City of Cedar Rapids Water Pollution Control Facility PFAS Project



Proposed Project

- Conduct baseline monitoring of liquid and solid streams at WPCF
- Sampling of the collection system upstream of the WPCF to determine PFAS contributions from various users. This sampling is **not eligible** for CWSRF emerging contaminants funding, but will help the City identify source reduction options.
- Evaluate treatment options and perform bench and/or pilot scale testing of the most viable treatment options
- Develop a final engineering report based on findings from pilot scale testing

Eligibility

- Eligible under CWSRF? Yes, capital project at POTW [603(C)(1) of CWA]
- Emerging contaminants present? Yes, detected PFAS in biosolids
- Capital project identified? Yes, monitoring and pilot projects result in a capital project

Other Sources to Fund Emerging Contaminant Monitoring

- Fees:
 - States that charge fees can use nonprogram income fees to provide grants for monitoring to help build their project pipeline or pair with SRF funding where the SRF covers the eligible monitoring equipment and the fees are used to pay for the lab analysis cost, staff, and other non-SRF eligible expenses.
- Water Quality Management Planning Grants (604(b) Funds):
 - States can use all or a portion of the 604(b) grant funding from CWSRF base, supplemental, and emerging contaminants allotments to perform POTW influent emerging contaminant monitoring, sewershed monitoring (emerging contaminant source identification), or hiring state staff to perform monitoring
 - Grant amount is 1% of all CWSRF (base, supplemental, and emerging contaminants) appropriation
 - State of Minnesota is using this fund for PFAS influent monitoring at municipal wastewater treatment plants throughout the state in selected communities

Other Sources to Fund Emerging Contaminant Monitoring

- States can use up to 2% of the CWSRF capitalization grant to hire staff, nonprofit organizations, or regional, interstate, or municipal entities to provide technical assistance to rural, small, and tribal publicly owned treatment works
 - Could include community outreach, technical evaluation of wastewater solutions, preparation of applications, preliminary engineering reports, and financial documents necessary for receiving SRF assistance
 - Can be used to fund a state staff position or eligible non-profit organization to assist rural, small, and tribal systems with emerging contaminant sampling and monitoring, including identification of emerging contaminant sources within the sewershed
 - Could also include assisting the systems with understanding the monitoring results and identifying follow up actions, such as the need for capital projects to address the emerging contaminants

CWSRF Emerging Contaminant Project Ideas and Examples

Projects at Wastewater Treatment Facilities:

- Look for projects to treat wastewater to remove emerging contaminants from discharge or biosolids
- Consider funding demonstration projects to evaluate specific technologies before full scale implementation

Capital Pretreatment Projects:

- That reduces energy consumption need at the POTW (funding must be provided to public entities)

Water reclamation and reuse:

- Consider where advanced treatment (e.g., reverse osmosis, granulated activated carbon, or ion exchange) can be added to remove PFAS or other emerging contaminants to facilitate reuse



RECLAIMED WATER CASE STUDY: City of Tucson (AZ)



Background

- The City of Tucson Water Department (Tucson Water) delivers 13 to 18 million gallons per day of Class A reclaimed water to over 1,000 customers for irrigation and other non-potable reuse activities
- Reclaimed water that is not sent directly into the reclaimed water distribution system is used for aquifer recharge and later extracted for reuse
- Sampling has determined the presence PFAS and 1,4-dioxane in the reclaimed water received and recycled water sent to customers

RECLAIMED WATER CASE STUDY: City of Tucson (AZ)



Proposed Project

- UV and hydrogen peroxide followed by GAC treatment for extracted groundwater and treated effluent prior to being sent into the reclaimed water distribution system for reuse by customers

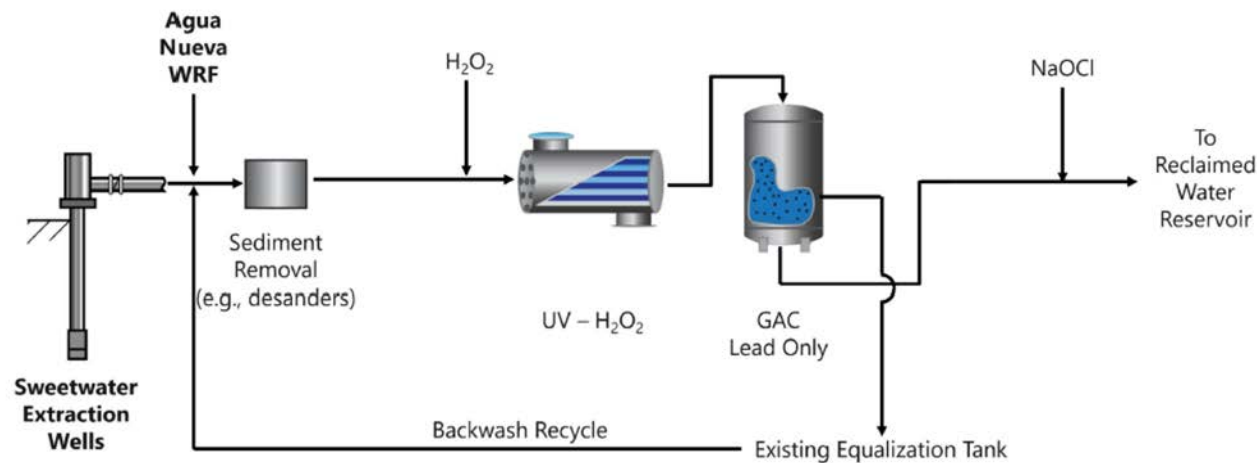


Figure B.2 UV AOP and GAC Pressure Contactor Process Flow Diagram

RECLAIMED WATER CASE STUDY: City of Tucson (AZ)



Eligibility

- Eligible under CWSRF?
 - Yes, reusing wastewater [603(C)(9) of CWA]
- Emerging contaminants present?
 - Yes, detected in previous monitoring
- Capital project identified?
 - Yes, treatment to remove both PFAS and 1,4-dioxane

CWSRF Emerging Contaminant Project Ideas and Examples

Landfills:

- Consider projects that will reduce emerging contaminant runoff from landfills
- Project examples:
 - Landfill closure (e.g., capping)
 - Landfill runoff and leachate collection and treatment that will reduce PFAS runoff
 - Modification/expansion of existing or construction of new publicly owned landfills (local and regional) primarily designed and permitted (per state and federal regulations) to accept POTW biosolids with PFAS

LANDFILL LEACHATE CASE STUDY: Town of Conway, NH



Background

- Town of Conway (NH) landfill currently accepts sludge from the North Conway Water Precinct's (NCWP) wastewater treatment facility (WWTF) and in exchange, the NCWP accepts leachate from the Town landfill
- NCWP WWTF is a groundwater discharge facility that is subject to NH's ambient groundwater quality standards, including standards for PFAS
- At least one of the monitoring wells currently exceeds NH's regulatory limits for PFAS and preliminary testing indicates that the majority of PFAS loading at the WWTF comes from the Town landfill leachate

LANDFILL LEACHATE CASE STUDY: Town of Conway, NH



Proposed Project

- Investigate treatment options for PFAS in landfill leachate
- Conduct pilot projects at WWTF to select best treatment option
- Prepare a project for full design and construction

Eligibility

- Eligible under CWSRF? Yes, capital project at POTW to reduce leachate pollution from publicly owned landfill [603(C)(1) of CWA]
- Emerging contaminants present? Yes, detected in previous monitoring
- Capital project identified? Yes, pilot projects to result in capital project at POTW to treat landfill leachate

CWSRF Emerging Contaminant Project Ideas and Examples

Contaminated sites:

- Can include Brownfields, Superfund sites, and sites of current or former aboveground or underground storage tanks
- Consider projects that address PFAS through capping, in-situ treatment, or removal of contaminated material as part the implementation of a state nonpoint source management plan

Surface Water Protection and Restoration:

- Look for projects that address emerging contaminants in waterbodies
- Can include equipment for the physical or chemical removal of HABs or projects that skim surface water to remove microplastics along with other plastic pollutants



CWSRF Emerging Contaminant Project Ideas and Examples

Nonpoint Source:

- Eligible nonpoint source projects may be publicly or privately owned provided they are capital projects that support the implementation of a current EPA approved state nonpoint source (NPS) management program or nine-element watershed-based plan established under Section 319 of the Clean Water Act

Regulated Stormwater Discharges:

- Where emerging contaminants have been identified in stormwater based on previous monitoring efforts, look for projects that can trap and/or treat stormwater contaminants prior to reaching waterbodies; or ways to prevent stormwater contamination (e.g., covering contaminant storage areas)



STORMWATER CASE STUDY: Central Oklahoma Master Conservation District (OK)



Background

- 40 different emerging contaminants (PFOS, PPCP, pesticides, hormones) identified in Lake Thunderbird
- Lake Thunderbird is the drinking water source for cities of Norman, Del City, and Midwest City in central Oklahoma
- Source of emerging contaminants are nonpoint and urban stormwater runoff
- Central Oklahoma Master Conservation District examining stormwater and nonpoint source treatment options, focusing on constructed wetlands

STORMWATER CASE STUDY: Central Oklahoma Master Conservation District (OK)



Proposed Project

- Additional monitoring within watershed to better identify sources, concentration, and seasonality
- Evaluation of constructed wetlands throughout the watershed for stormwater and nonpoint source treatment

Eligibility

- Eligible under CWSRF? Yes, treating stormwater and nonpoint source runoff into Lake [603(c)(2) and (5) of CWA]
- Emerging contaminants present? Yes, detected in previous monitoring
- Capital project identified? Yes, monitoring and pilot projects to result in capital project

General and Contact Information

- Webinar recording from September, webinar Q&As, and CWSRF emerging contaminants FAQs are posted on the SRF SharePoint site.
- For additional questions contact:
 - Kelly Tucker, EPA CWSRF: tucker.kelly@epa.gov
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Questions?