



REQUEST FOR PROPOSALS (RFP)

IPR Aquifer Geochemistry Forum (RFP 5408)

Date Posted

July 7, 2026

Due Date

Proposals must be received by 3:00 pm Mountain Time on Wednesday, September 2, 2026.

WRF Project Contact

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Project Sponsors

This project is co-funded by The Water Research Foundation (WRF) and the California State Water Resources Control Board (SWB) as part of the SWB Grant D2505000.

Project Objective

Facilitate information exchange to address key knowledge gaps in aquifer storage and recovery by synthesizing practical insights on groundwater geochemistry impacts, mitigation measures, and field-scale challenges.

Budget

Applicants may request up to \$100,000 in WRF funds for this project.

Background and Project Rationale

As California utilities increasingly pursue indirect potable reuse (IPR) through groundwater recharge, storage, and extraction, the geochemical interactions between injected advanced-treated recycled water and receiving aquifers have emerged as a critical—but often underappreciated—challenge. Geochemical compatibility between recharge water and the aquifer can influence a range of outcomes that directly impact project feasibility, including metals mobilization, disinfection byproduct formation, well and pipeline scaling, and changes to native groundwater quality. Understanding and managing these interactions during injection well development and throughout the project lifecycle is essential for protecting public health, maintaining infrastructure integrity, and securing regulatory approval.

Prior WRF-funded research has advanced the state of knowledge in this area. WRF project 5051, which focused on the impacts of full advanced treatment (FAT) injection on aquifer geochemistry, identified multiple knowledge gaps that, if addressed, could support utilities during planning and implementation of aquifer storage and recovery (ASR) and IPR projects. Subsequent geochemical research has established that key factors driving subsurface water

quality changes include recharge or injection water pH, ionic strength and composition, redox and oxidant concentrations, and the geochemistry of aquifer solids and native groundwater. However, this body of work has also underscored that aquifer geochemistry is complex, and site-specific processes are controlled by multiple interacting parameters, making it difficult to generalize findings across projects and provide guidance that can address broad challenges.

This project builds on concepts developed through a State Water Board–WRF Grant 3 Research Needs workshop held on February 9-10, 2026, at Orange County Water District in Southern California. Workshop participants identified the need for a collaborative forum to bring transparency and clarity to siloed ASR expertise and learn from practical project implementation experience. Rather than generating new primary research, the project will convene utilities, researchers, regulators, and other stakeholders to exchange practical insights, share monitoring and mitigation strategies, and collectively identify priority research needs for further exploration.

Research Approach

This RFP is intentionally flexible in the research approach to encourage creativity and originality from proposers. Proposers should describe how they will organize and facilitate the forum to meet the objective listed above. The following approach is intended as a starting point.

The research team will conduct a targeted review of existing literature, prior WRF project findings, and relevant regulatory guidance to establish a common foundation of knowledge for forum participants. This review should be structured at a high level and/or include a concise executive summary that clearly highlights key technical themes, critical uncertainties, and priority knowledge gaps to inform the forum agenda. The research team will work with the WRF Project Advisory Committee (PAC) and the California State Water Resources Control Board to refine the agenda and identify appropriate participants, including utilities with direct experience managing aquifer geochemistry in IPR and ASR systems, utilities, hydrogeologists (e.g., USGS experts), academic researchers, regulatory staff, and engineering consultants.

The research team will plan and facilitate a collaborative forum organized around key topic areas relevant to IPR aquifer geochemistry. Topics could include, but are not limited to, aquifer characterization approaches, metals mobilization and scaling, redox and oxidant management, monitoring strategies, and insights from field-scale projects. Where relevant, discussions of field-scale experience may also explore the role of modeling and prediction in anticipating geochemical impacts, including the extent to which observed issues were predicted in advance versus identified through monitoring or operational experience. For each topic area, a series of short presentations should provide updates on the latest advancements and practical experience. The presentations should be followed by a facilitated discussion among participants designed to include purposeful two-way engagement, meaningful discussion, and opportunities for creative interactions to capture the lived experience of participants, including key challenges and research needs. A concluding session should synthesize highlights from each topic area and discuss priorities for future research and collaboration. The project budget is

expected to cover all workshop-related expenses for an anticipated 40-60 participants, including participant travel expenses, food and beverage, and any other hosting expenses.

Following the forum, the research team will prepare a synthesis report summarizing the presentations, discussions, and key findings by topic area. The report should document areas of consensus and disagreement, identify priority research gaps, and provide actionable recommendations for utilities, regulators, and researchers. The report should be structured to inform subsequent phases of research investment by WRF and SWB.

Expected Deliverables

Deliverables should include:

- Literature review with executive summary
- Workshop preparation materials, including agenda and slides
- In-person workshop
- Workshop Summary, with follow-up report summarizing presentations, discussions, and key findings by topic area

Communication Plan

Please review WRF's [Project Deliverable Guidelines](#) for information on preparing a communication plan. 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 12 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.

- Lechler, B. J., M. Lucas, L. Schimmoller, and D. Davis. 2022. *Geochemical Considerations for Managed Aquifer Recharge Implementation in Potable Reuse*. Project 5051. Denver, CO: The Water Research Foundation. <https://www.waterrf.org/research/projects/geochemical-considerations-managed-aquifer-recharge-implementation-potable-reuse>
- Trussell, S., B. Trussell, Y. Qu, and R. Trussell. 2020. *Soil Aquifer Treatment Characterization with Soil Columns for Groundwater Recharge in the San Fernando Valley*. Project 4600. Denver, CO: The Water Research Foundation. <https://www.waterrf.org/research/projects/soil-aquifer-treatment-characterization-soil-columns-groundwater-recharge-san>
- Rauch-Williams, T., J. Mosher, J. E. Drewes, V. Zhiteneva, and C. Gerba. 2023. *State-of-the-Science Review: Evidence for Pathogen Removal in Managed Aquifer Recharge Systems*. Project 4957. Denver, CO: The Water Research Foundation.

<https://www.waterrf.org/research/projects/state-science-review-evidence-pathogen-removal-managed-aquifer-recharge-systems>

- Blute, N., M. Trudell, M. B. Hendrie, B. Trussell, F. Gerringer, and Y. Qu. 2022. *Planning and Regulatory Framework for Groundwater Replenishment with Recycled Water in the San Fernando Basin*. Project 5016. Denver, CO: The Water Research Foundation.
<https://www.waterrf.org/research/projects/planning-and-regulatory-framework-groundwater-replenishment-recycled-water-san>
- Blute, N. Forthcoming. *Tracer Test Planning for Groundwater Replenishment with Recycled Water in the San Fernando Basin for the City of Los Angeles*. Project 5351. Denver, CO: The Water Research Foundation. <https://www.waterrf.org/research/projects/tracer-test-planning-groundwater-replenishment-recycled-water-san-fernando-basin>
- Fakhreddine, S., J. Dittmar, D. Phipps, J. Dadakis, and S. Fendorf. 2015. *Geochemical Triggers of Arsenic Mobilization during Managed Aquifer Recharge*. Environ. Sci. Technol. 2015, 49, 13, 7802–7809. <https://pubs.acs.org/doi/10.1021/acs.est.5b01140>
- Fakhreddine, S., H. Prommer, S. M. Gorelick, J. Dadakis, and S. Fendorf. 2020. *Controlling Arsenic Mobilization during Managed Aquifer Recharge: The Role of Sediment Heterogeneity*. Environ. Sci. Technol. 2020, 54, 14, 8728–8738.
<https://pubs.acs.org/doi/10.1021/acs.est.0c00794>

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 20 points)
- Communication Plan, Deliverables, and Applicability (maximum 15 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 California State Water Resources Control Board Proposals*, posted within each individual grant number located on the [Outbound Grants page](#). 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, spreadsheets, databases, etc., must follow the criteria outlined for web tools presented in the [Technology Deliverables Guidance](#).

Eligibility to Submit Proposals

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

WRF's Board of Directors has established a [Timeliness Policy](#) that addresses researchers' adherence to the project schedule. 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 California State Water Resources Control Board 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. Well in advance of preparing the proposal, your research and financial staff should review the detailed instructions included in WRF's *Guidelines for California State Resources Control Board Proposals*.

Budget and Funding Information

The maximum funding available from WRF for this project is \$100,000. 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 \$100,000. Proposals that do not meet the minimum 33% of the project award will not be accepted. Consult the *Instructions for Budget Preparation* posted

within each individual grant located on the [Outbound Grants page](#) 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.

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 of utilities and other organizations that have indicated an interest in this research. Proposers are responsible for negotiating utility and organization participation in their proposals. The listed utilities and organizations are under no obligation to participate, and the proposer is not obligated to include them in their proposal.

Funding Provisions

- Indirect Costs – **The indirect cost rates are capped at 25% for all organizations.**
 - Cash Co-Funding and Cost Share – Cash co-funding and cash cost-share are not allowed for SWB projects.
- Travel – Prior Approval, Reimbursement
 - Prior Approval – Travel to be reimbursed by grant funds requires prior written authorization. Please allow at least two (2) weeks' notice for WRF to gain approval from SWB.
- Travel Reimbursement – Reimbursement shall be at rates not to exceed those set by the California Department of Human Resources. These rates may be found at <http://www.calhr.ca.gov/employees/pages/travel-reimbursements.aspx>. Reimbursement will be at the State travel and per diem amounts that are current as of the date costs are incurred by the Recipient.
- Subcontracting – The Recipient shall not contract or allow subcontracting with excluded parties. The Recipient shall not contract with any party who is debarred or suspended or otherwise excluded from or ineligible for participation in any work overseen, directed, funded, or administered by the U.S. Government or the SWB program for which this funding is authorized. For any work related to this Agreement, the Recipient shall not contract with any individual or organization listed on SAM.gov or on the SWB's List of Disqualified Businesses and Persons that is identified as debarred or suspended or otherwise excluded from or ineligible for participation in any work overseen, directed, funded, or administered by the U.S. Government or the SWB program for which funding under this Agreement is

authorized. The SWB's List of Disqualified Businesses and Persons is located at https://www.waterboards.ca.gov/water_issues/programs/enforcement/fwa/dbp.html.

- All work under the SWB grant projects, including submission of final deliverables and invoices, must be completed by October 31, 2029. This deadline is firm due to expiration of the SWB agreement.

Application Procedure and Deadline

Proposals are accepted exclusively WRF's through enterprise resource planning platform, and they must be fully submitted before 3:00 pm Mountain Time on Wednesday, September 2, 2026.

To learn how to submit a proposal for this RFP, please visit www.waterrf.org/proposals and follow the instructions on the page.

Questions to clarify the intent of this RFP and WRF's administrative, cost, and financial requirements may be addressed to the WRF project contact, Ms. Alice Jariz at 303.347.6111 or ajariz@waterrf.org. Questions about how to submit proposals through WRF's Portal should be directed to [WRF's Customer Care Form](#).