

Strategic Partnership Project Agreement No. FP00027718

Between

**The Regents of the University of California
as the Management and Operating Contractor for the
Ernest Orlando Lawrence Berkeley National Laboratory
Operating Under Contract No. DE-AC02-05CH11231 for the
U. S. Department of Energy**

**And
Sonoma County Water Agency**

(each a "Party")

The obligations of the above-identified DOE Site/Facility Management Contractor shall apply to any successor in interest to said contractor continuing the operation of the DOE facility involved in this Strategic Partnership Project Agreement.

ARTICLE I. PARTIES TO THE AGREEMENT

The Regents of the University of California as the U.S. Department of Energy Management and Operating Contractor for the Ernest Orlando Lawrence Berkeley National Laboratory hereinafter referred to as the "Facility Contractor," has been requested by Sonoma County Water Agency, hereinafter referred to as the "Sponsor," collectively referred to as the "Parties," to use best efforts to perform the work set forth in the SOW, attached hereto as Appendix A. It is understood by the Parties that, the Facility Contractor is obligated to comply with the terms and conditions of its Facility Prime Contract with the United States Government (hereinafter called the "Government") represented by the United States Department of Energy (hereinafter called the "Department" or "DOE") when providing goods, services, products, materials, or information to the non-Federal Sponsor under this Agreement.

ARTICLE II. TERM OF THE AGREEMENT

The Facility Contractor's estimated period of performance for completion of the SOW is through June 30, 2027. The effective date of this Agreement shall be the later of (1) the date on which it is signed by the last of the Parties or (2) receipt of the advance payment, as required under Article IV.

Notwithstanding the above, the Facility Contractor may elect to temporarily authorize use of its own funds to enable the start of work prior to the receipt of Sponsor's advance payment required by Article IV. The temporary use of Facility Contractor's funds does not relieve the Sponsor's requirement to provide the advance payment on a timely basis as required in Article IV and any costs charged to temporary Facility Contractor funds shall be allowable and reimbursable by the Sponsor under this Agreement. If the

Facility Contractor's funds are used, the effective date shall be the date the funds are approved.

ARTICLE III. COSTS

1. The Facility Contractor estimated cost for the work to be performed under this Agreement is \$210,000.
2. The Facility Contractor has no obligation to continue or complete performance of the work at a cost in excess of its estimated cost, including any subsequent amendment.
3. The Facility Contractor agrees to provide at least thirty (30) days' notice to the Sponsor if the actual cost to complete performance will exceed its estimated cost.

ARTICLE IV. FUNDING AND PAYMENT (partial advance)

1. Advance Payment. The Sponsor shall advance the following amount at the time shown:

<u>Amount Due</u>	<u>Date Due</u>
<u>\$52,500</u>	Upon full execution of this Agreement

This is a partial advance for the estimated cost. Once received, this advance will be held to pay for the costs incurred on this agreement after the amounts on the monthly invoices plus the advance payment equals the contractual cost limitation level authorized under this agreement.

An invoice for the advanced payment of \$52,500 will be issued by the Facility Contractor upon full execution of this Agreement and sent to the Sponsor at the contact information specified in Article IV.3.

All advance payments must be made in US dollars. For foreign wire transfers, please add \$30 to the invoice amount to cover payment charges levied by the Sponsor's banking institution.

2. Monthly Invoice Payments. Once each month during the Agreement term, the Facility Contractor shall invoice the Sponsor for costs incurred in the previous month. Payment for such costs shall be due upon receipt of the invoice. For foreign wire transfers, please add \$30 to the invoice amount to cover payment charges levied by the Sponsor's banking institution.

The Facility Contractor is not obligated to continue the work unless it is holding an adequate advance and may stop work if the monthly invoices are not paid on a timely basis.

When the advance payment plus the amounts paid in response to the monthly invoices equals the contractual cost limitation, the advance payment will be applied

to pay for the remaining costs incurred on the agreement. From that time forth, monthly Expense Statements showing actual costs incurred for the month and the balance remaining in the agreement are e-mailed to the Sponsor for information only. The expense statements are not requests for payment.

Upon completion of the project there will be a reconciliation of the total costs incurred to total payments received and a final expense statement along with any remaining advance will be returned to the Sponsor.

3. The Sponsor shall provide the contact information where invoices and expense statements shall be sent as well as all financial information below. This information is mandatory. Any terms and conditions associated with a Purchase Order Number are not applicable to this Agreement.

Sponsor Reference No. if applicable TW 25/26/111

Purchase Order No. if applicable N/A

Contact Name Accounts Payable

Street Address 404 Aviation Boulevard

City, State, Zip Code Santa Rosa, CA 95403-9019

Country USA

Telephone with area code 707-521-6216

Email: ap.agreements@scwa.ca.gov

Tax ID Number (TIN) 94-6000539

DUNS Number N/A

ARTICLE V. SOURCE OF FUNDS

The Sponsor hereby represents that, if the funding it brings to this Agreement has been secured through other agreements, those other agreements do not have any terms and conditions (including intellectual property terms and conditions) that conflict with the terms and conditions of this Agreement.

ARTICLE VI. TANGIBLE PERSONAL PROPERTY

Upon termination of this Agreement, tangible personal property or equipment produced or acquired in conducting the work under this Agreement shall be owned as follows: (1) any personal property with a value greater than \$5,000 will be owned by the Sponsor and will be disposed of as directed by the Sponsor at the Sponsor's request; and (2)

any personal property with a value less than \$5,000 produced or acquired with the Sponsor's funds under this Agreement, will be owned by the Government. Tangible personal property or equipment produced or acquired as part of this Agreement will be accounted for and maintained during the term of the Agreement in the same manner as Department of Energy property or equipment. Costs incurred for disposition of property shall be the responsibility of the Sponsor and included in costs allocated in Article III or paid separately by the Sponsor.

ARTICLE VII. PUBLICATION MATTERS

The Parties will provide reciprocal copies of articles including publication of information generated pursuant to the Agreement for review and comment thirty (30) days prior to publication. The other Party may request a reasonable delay in publication if the proposed publication contains unprotected patentable information or Proprietary Information provided by either Party.

The Sponsor will not use the name of Facility Contractor or the United States Government or their employees in any promotional activity, such as advertisements, with reference to any product or service resulting from this Agreement, without prior written approval of the Government and Facility Contractor.

ARTICLE VIII. LEGAL NOTICE

The Parties agree that the following legal notice shall be affixed to each report furnished to the Sponsor under this Agreement and to any report resulting from this Agreement which may be distributed by the Sponsor:

This document may contain research results which are experimental in nature. Neither the United States Government, nor any agency thereof, nor Facility Contractor, nor any of their employees, makes any warranty, express or implied, or assumes any legal responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference to any specific commercial product, process, or service by its trade name, trademark, manufacturer, or otherwise, does not constitute or imply an endorsement or recommendation by the United States Government or any agency thereof, or by the Facility Contractor. The United States Government reserves for itself a royalty-free, worldwide, irrevocable, non-exclusive license for Governmental purposes to publish, disclose, distribute, translate, duplicate, exhibit, prepare derivative works, and perform any such data included herein. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof, or by the Facility Contractor and shall not be used for advertising or product endorsement purposes.

ARTICLE IX. DISCLAIMER

THE GOVERNMENT AND THE FACILITY CONTRACTOR MAKE NO EXPRESS OR IMPLIED WARRANTY AS TO THE CONDITIONS OF THE RESEARCH OR ANY INTELLECTUAL PROPERTY, GENERATED INFORMATION, OR PRODUCT MADE OR DEVELOPED UNDER THIS STRATEGIC PARTNERSHIP PROJECT AGREEMENT, OR THE OWNERSHIP, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE OF THE RESEARCH OR RESULTING PRODUCT; THAT THE GOODS, SERVICES, MATERIALS, PRODUCTS, PROCESSES, INFORMATION, OR DATA TO BE FURNISHED HEREUNDER WILL ACCOMPLISH INTENDED RESULTS OR ARE SAFE FOR ANY PURPOSE INCLUDING THE INTENDED PURPOSE; OR THAT ANY OF THE ABOVE WILL NOT INTERFERE WITH PRIVATELY OWNED RIGHTS OF OTHERS. NEITHER THE GOVERNMENT NOR THE FACILITY CONTRACTOR SHALL BE LIABLE FOR SPECIAL, CONSEQUENTIAL, OR INCIDENTAL DAMAGES ATTRIBUTED TO SUCH RESEARCH OR RESULTING PRODUCT, INTELLECTUAL PROPERTY, GENERATED INFORMATION, OR PRODUCT MADE OR DELIVERED UNDER THIS STRATEGIC PARTNERSHIP PROJECT AGREEMENT.

ARTICLE X. GENERAL INDEMNITY [RESERVED]

ARTICLE XI. PRODUCT LIABILITY INDEMNITY

Notwithstanding any other provision of this Agreement, the Sponsor agrees that all technology and information generated under this Agreement will be placed in the public domain (with the appropriate disclaimer) or the results will be a product, process, or service that will not be commercialized for profit. Therefore, a standard Product Liability provision where the Sponsor would indemnify the Facility Contractor and the Government is not included in this Agreement. However, if the Sponsor does commercialize the technology generated under this Agreement, the Sponsor agrees that the following standard article XI, "Product Liability Indemnity" applies:

Except for any loss, liability, or claim resulting from any willful misconduct or negligent acts or omissions of the Government, the Facility Contractor, or persons acting on their behalf ("Indemnified Parties"), the Sponsor agrees to hold harmless and indemnify the Indemnified Parties against any losses, liabilities, and claims, including all damages, costs, and expenses, including attorney's fees, arising from personal injury or property damage occurring as a result of the making, using, or selling of a product, process, or service by or on behalf of the Sponsor, its assignees, or licensees, which was derived from the work performed under this Agreement.

For purposes of this Article, neither the Government nor the Facility Contractor shall be considered assignees or licensees of the Sponsor, as a result of reserved Government and Facility Contractor rights. This Article shall apply only if the Sponsor was:

1. informed as soon and as completely as practical by the appropriate Indemnified Party of the allegation or claim;
2. afforded, to the maximum extent by applicable laws, rules, or regulations, an opportunity to participate in and control its defense; and
3. given all reasonably available information and reasonable assistance requested by the Sponsor.

No settlement for which the Sponsor would be responsible shall be made without the Sponsor's consent, unless required by a court of competent jurisdiction.

ARTICLE XII. INTELLECTUAL PROPERTY INDEMNITY – LIMITED

The Sponsor shall indemnify and hold harmless the Government, the Facility Contractor, and persons acting on their behalf ("Indemnified Parties") against any losses, liabilities, and claims, including all damages, costs, and expenses, including attorney's fees, for infringement of any United States patent, copyright, trade secret, or other intellectual property right if arising out of any acts required or directed by the Sponsor to be performed under this Agreement to the extent such acts are not already performed at the facility. Such indemnity shall not apply to a claim or allegation of infringement that is settled without the consent of the Sponsor unless required by a court of competent jurisdiction.

ARTICLE XIII: NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT

Each Party shall report to the other Party, promptly and in reasonable written detail, each claim or allegation of infringement of any patent, copyright, trade secret, or other intellectual property right based on the performance of this Agreement of which a Party has knowledge. In the event of any claim or suit against a Party based on such alleged infringement, the other Parties shall furnish to the Party, when requested by the Party, all evidence and information in the possession of the other Party pertaining to such suit or claim.

ARTICLE XIV: PATENT RIGHTS - RESERVED

ARTICLE XV. RIGHTS IN TECHNICAL DATA - USE OF FACILITY (UNLIMITED RIGHTS/NONPROPRIETARY)

1. The following definitions shall be used.
 - A. "Generated Information" means information produced in the performance of this Agreement or any Facility subcontract under this Agreement.
 - B. "Proprietary Information" means information which is developed at private expense, is marked as Proprietary Information, and embodies (1) trade secrets or (2) commercial or financial information which is privileged or confidential under the Freedom of Information Act (5 U.S.C. 552 (b)(4)).

- C. "Unlimited Rights" means the right to use, disclose, reproduce, prepare derivative works, distribute copies to the public, and perform publicly and display publicly, in any manner and for any purpose, and to have or permit others to do so.
2. Generated Information shall not be marked as Proprietary Information. If the Sponsor provides Proprietary Information to the Facility Contractor to perform the work, such Proprietary Information will be destroyed or returned to the Sponsor as directed by the Sponsor in writing. The DOE, the Facility Contractor and the Sponsor shall have Unlimited Rights in all Generated Information and Proprietary Information provided by the Sponsor, only if such Proprietary Information has not been removed from the Facility Contractor's facility before termination of this Agreement. The Sponsor agrees that the Facility Contractor may provide to the DOE, a non-proprietary description of the work to be performed under this Agreement.

ARTICLE XVI: ASSIGNMENT AND NOTIFICATION

Neither this Agreement nor any interest therein or claim thereunder shall be assigned or transferred by either Party, except as authorized in writing by the other Party to this Agreement; provided, however, the Facility Contractor may transfer it to the Department, or its designee, with notice of such transfer to the Sponsor, and the Facility Contractor shall have no further responsibilities except for the confidentiality, use, and/or non-disclosure obligations of this Agreement.

If the Sponsor intends to assign or transfer any interest in this Agreement to a third party or the Sponsor is merging or being acquired by a third party, the Sponsor shall notify the Facility Contractor with details of the pending action for a determination. The Facility Contractor shall reply in writing whether such transfer is acceptable or invoke the termination clause.

ARTICLE XVII. SIMILAR OR IDENTICAL SERVICES

The Government and/or Facility Contractor shall have the right to perform similar or identical services in the SOW for other Sponsors as long as the Sponsor's Proprietary Information is not utilized.

ARTICLE XVIII. EXPORT CONTROL

1. Each Party is responsible for its own compliance with laws, regulations governing export control.
2. Sponsor acknowledges that Contractor has many foreign employees and students. The Sponsor further acknowledges that the Contractor will conduct this project as fundamental research with no restrictions on publication. Accordingly, Sponsor agrees not to direct Contractor to create export controlled information and Sponsor agrees not to transfer to Principal Investigator or other Contractor employees or students any Proprietary Information that is export controlled or to direct Contractor to engage in any transactions that are subject to U.S. sanctions.

ARTICLE XIX: DISPUTES

The Parties shall attempt to jointly resolve all disputes arising from this Agreement. In the event a dispute arises under this Agreement, the Sponsor is encouraged to contact Facility Contractor's Technology Partnerships Ombudsman in order to resolve such dispute before pursuing third-party mediation or other remedies. If the Parties are unable to jointly resolve a dispute within 60 days, the Parties agree to submit the dispute to a third-party mediation process that is mutually agreed upon by the Parties.

ARTICLE XX. ENTIRE AGREEMENT AND MODIFICATIONS

1. This Agreement with its appendices contains the entire agreement between the Parties with respect to the subject matter hereof, and all prior representations or agreements relating hereto have been merged into this document and are thus superseded in totality by this Agreement.
2. Any agreement to materially change any terms or conditions of this Agreement or the appendices shall be valid only if the change is made in writing, executed by the Parties hereto, and approved by DOE.

ARTICLE XXI. TERMINATION

This Agreement may be terminated by either Party following sixty (60) days written notice to the other Party. If Article IV provides for advance funding, this Agreement may also be terminated by the Facility Contractor in the event of failure by the Sponsor to provide the necessary advance funding. In the event of termination either by the Sponsor or by the Facility Contractor (e.g., for lack of advance funding), the Sponsor shall be responsible for the Facility Contractor's costs (including closeout costs), but in no event shall the Sponsor's cost responsibility exceed the total cost to the Sponsor as described in Article III, above.

It is agreed that any obligations of the Parties regarding Proprietary Information or other intellectual property will remain in effect, despite early termination of the Agreement.

In witness whereof, the Parties hereto have executed this Agreement.

**THE REGENTS OF THE
UNIVERSITY OF CALIFORNIA AS
MANAGEMENT AND
OPERATING CONTRACTOR FOR
THE ERNEST ORLANDO
LAWRENCE BERKELEY
NATIONAL LABORATORY**

SONOMA COUNTY WATER AGENCY

By: _____
Name _____
Title: _____
Date: _____

By: _____
Name: Grant Davis
General Manager
Title: Sonoma County Water Agency
Date: _____

By: _____
Name: Jake Spaulding
Division Manager
Title: Financial Services
Date: _____

Approved as to form: _____

By: _____
Name: Cory Wurtzel O'Donnell
Title: Chief Deputy County Counsel
Date: _____

Water Resources Investigations and Modeling Studies to Evaluate Streambed Clogging impacts on Riverbank Filtration

PI: Michelle Newcomer, **Team members:** Craig Ulrich, Jinwoo Im. An additional post-doc at 10% time will be added in year 2 (pending 2nd year funding). **Resources:** pdf files of literature can be found in this [folder](#)

Budget: We request \$210k to advance the scope of this work starting July 1, 2026 for FY 25/26 for Task 1 (year 1). Y2 funding for follow-on Tasks 2, 3, and 4 not included in current request.

Motivation: Unlike traditional water treatment systems, Sonoma Water's riverbank filtration (RBF) system relies on natural streambed processes as the primary filtration mechanism. Because RBF systems rely on natural streambed processes, they can be vulnerable to some extreme hydrologic conditions, such as floods and droughts. All RBF systems are vulnerable to streambed clogging, which can reduce RBF efficiency. Sonoma Water's RBF system relies on wet-season high flow events to scour streambed clogging material and reestablish hydraulic connectivity between surface water and groundwater. During the 2020–2022 drought, water levels in Collector 6 dropped below operational thresholds for an extended period, reflecting a reduction in hydraulic connectivity between surface water and groundwater, presumably due to a reduction in magnitude and frequency of high flow scouring events during the preceding wet seasons and prolonged inflation of an inflatable dam, which creates a warm back water pool in the vicinity of Collector 6.

Prior modeling and data collection over the past two decades motivates a data-model integration effort to better identify hydrologic threshold conditions and causal phenomena that may impact RBF operational reliability. One gap identified in previous efforts to characterize and model of RBF phenomena at Wohler is the level of complexity that is needed to accurately represent streambed and aquifer characteristics (e.g., spatiotemporal variability of streambed clogging, subsurface aquifer heterogeneity, bathymetry, boundary conditions), flow phenomena (e.g., variably-saturated flow, multi-phase flow, unsaturated zone development), and other processes (e.g., biological gas production, microbially mediated chemical/nutrient degradation). For example, all prior modeling work to date has treated the riverbed layer and the aquifer layer with bulk van Genuchten properties (e.g. singular values representing the entire domain). However, preliminary findings from recent streambed temperature profiling studies have highlighted significant spatiotemporal variability of infiltration rates within Wohler pool, likely reflecting changes in streambed bathymetry, clogging, unsaturated conditions, and subsurface aquifer heterogeneity. By integrating representation of complex subsurface heterogeneity along with bathymetric data and infiltration estimates from past studies, the project will provide a mechanistic, predictive understanding of hydrobiogeochemical phenomena to anticipate seasonal, dynamic infiltration declines. Results will inform RBF operations of potential vulnerabilities, and explore opportunities to improve water production efficiency.

Goal: The goal in this phase is to simulate biogeochemical and hydrologic processes and feedbacks in an integrated fashion to identify threshold conditions that signal vulnerabilities in [2026-02-25 LBNL 1-pager](#)

the RBF system performance (e.g., critical reductions in collector well efficiency from streambed clogging events). This phase of research builds on previous data collection and modeling efforts to develop a calibrated/validated variably-saturated, multi-phase flow model, that incorporates Bayesian geostatistical methods to represent subsurface hydrogeologic heterogeneity and streambed bathymetry, to better understand streambed clogging phenomena and its impacts on RBF water production. This proposal aims to develop a mechanistic predictive capability of the RBF system to extreme hydrologic variability.

Science Questions: **1)** Does representation of subsurface aquifer heterogeneity help improve understanding of streambed infiltration and subsurface flow and biogeochemical phenomena that contribute to RBF? **2)** What is the co-variability between streambed infiltration, collector well production efficiency, unsaturated conditions, and seasonal riverbed bathymetry? **3)** Under what conditions does the co-variability identified above mitigate or enhance bioclogging? **4)** Can threshold hydrologic conditions be identified that contribute to increased vulnerability for RBF operations (e.g., under prolonged drought conditions)?

Tasks:

FY 25/26

1) Integrate all available geophysical data into the PFLOTRAN 3D model structure (bathymetry, streambed temperature profiles, subsurface structures and heterogeneity identified from geophysics) and use Bayesian Inversion to derive a final model with structural and parametric identifiability.

Deliverable: This work will include 1 deliverable 1) A calibrated/validated and benchmarked 3D PFLOTRAN model of the Wohler site

Optional Tasks Pending FY 26/27 follow-on funding

2) Benchmark the reactive transport and bioclogging process in the model against USGS datasets including pore-water chemistry, bottom chemistry, gases, microbial communities, and biomass, all from prior collected data (mid range and fine-scale datasets, and cryocores). **3)** Explore local conditions driven by water-year variability and management scenarios by running the final model for 2 case studies (different geomorphology at the start of each water year, and pumping scenarios e.g. in fall 2021 when Collector 6 water levels dropped below operational thresholds).

4) Demonstration of an inexpensive, streamlined, near-real-time or telemetered temperature sensor array to provide real-time estimates of infiltration rates and bioclogging conditions.

Task 2-4 Deliverables: This work will include 2 main deliverables 1) A publication showing the model application towards the Wohler case studies, and 2) Implement the near-real time or telemetered temperature array into Sonoma Water's operations system