

Opportunity Title: EPA Research Internship Opportunity on Treatment and Water Quality of Drinking Water Systems

Opportunity Reference Code: EPA-ORD-CESER-WID-2023-01

Organization U.S. Environmental Protection Agency (EPA)

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A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. All transcripts must be in English or include an official English translation. Click [here](#) for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations. Click [here](#) for detailed information about recommendations.

All documents must be in English or include an official English translation

Application Deadline 7/21/2023 3:00:00 PM Eastern Time Zone

Description *Applications may be reviewed on a rolling-basis and this posting could close before the deadline. Click [here](#) for information about the selection process.

EPA Office/Lab and Location: A research opportunity is available at the Environmental Protection Agency (EPA), Office of Research and Development (ORD), Center for Environmental Solutions and Emergency Response (CESER), Water Infrastructure Division (WID) located in Cincinnati, Ohio.

Research Project: These research projects will investigate biological and chemical treatment of drinking water and the integrity of water quality in drinking water distribution systems. Ongoing studies on the following research topics will include:

- Aerobic biological treatment of drinking water contaminants such as manganese
- Anoxic biological treatment of drinking water contaminants such as nitrate
- Impact of water quality changes on drinking water distribution systems

Violations of the nitrate maximum contaminant level are a concern, and biological treatment offers benefits but remains uncommon in the US. Manganese is undergoing regulatory review. Installing new treatment processes or changing source waters can impact water quality in the distribution system and potentially disrupt existing relatively stable conditions that have developed over several years. Therefore, it is important to understand how such changes impact biofilms on pipe walls and water quality. Bench- and pilot-scale approaches will be utilized, such



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as bench-scale distribution system biofilm reactors, bench-scale biofilters, and pilot-scale biofilters.

Research activities will include lab activities, data analysis and interpretation. Lab activities may include media preparation, sample collection, water quality analyses, and biofilm analyses. Instruction and guidance will be provided to teach new techniques and ensure ongoing quality assurance.

Learning Objectives: Research learning objectives will include:

1. Understanding how reactor design and operation impact microorganisms for the biological treatment of drinking water.
2. Learning how interactions between water chemistry and microbial biofilms impact water quality in drinking water distribution systems.
3. Developing skills analyzing and interpreting data and communicating results.

Mentor(s): The mentor for this opportunity is Michelle Angel (angel.michelle@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: June 1, 2023. All start dates are flexible and vary depending on numerous factors. Click [here](#) for detailed information about start dates.

Appointment Length: The appointment will initially be for one year and may be renewed three to four additional years upon EPA recommendation and subject to availability of funding.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. Click [here](#) for detailed information about full-time stipends.

EPA Security Clearance: Completion of a successful background investigation by the Office of Personnel Management (OPM) is required for an applicant to be on-boarded at EPA.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and EPA. Participants do not become employees of EPA, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

ORISE offers all ORISE EPA graduate students and Postdocs a free 5 year membership to the National Postdoctoral Association (NPA).

The successful applicant(s) will be required to comply with Environmental, Safety and Health (ES&H) requirements of the hosting facility, including but not limited to, COVID-19 requirements (e.g. facial covering, physical

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distancing, testing, vaccination).

Questions: Please see the [FAQ section](#) of our website. After reading, if you have additional questions about the application process please email ORISE.EPA.ORD@orau.org and include the reference code for this opportunity.

Qualifications The qualified candidate should have received a bachelor's degree in one of the relevant fields (e.g. Environmental Engineering, Civil Engineering, Chemical Engineering, Microbiology, Environmental Science, Chemistry), or be currently pursuing the degree with completion by the appointment start date. Degree must have been received within the past five years.

Preferred skills:

- Courses in or familiarity with drinking water treatment, aquatic microbiology, water chemistry, and public health.
- Coursework and lab work related to chemistry, microbiology, molecular biology, genetics and/or civil/environmental/chemical/biological engineering principles or related fields;
- Ability to analyze data using Microsoft Excel, R, or other tools;
- Experience writing technical documents or journal articles;
- Experience preparing and delivering PowerPoint presentations.

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Bachelor's Degree received within the last 60 months or currently pursuing.
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([2](#) )
 - **Earth and Geosciences** ([1](#) )
 - **Engineering** ([4](#) )
 - **Environmental and Marine Sciences** ([4](#) )
 - **Life Health and Medical Sciences** ([5](#) )