

Opportunity Title: Research Lab Scientist

Opportunity Reference Code: EPA-NSSC-0008-46-4-10-24

Organization U.S. Environmental Protection Agency (EPA)

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How to Apply Click [HERE](#) to apply.

Description The EPA National Student Services Contract has an immediate opening for a full time Research Lab Scientist position with the Office of Research and Development at the EPA facility in Cincinnati, Ohio.

The Office of Research and Development at the EPA supports high-quality research to improve the scientific basis for decisions on national environmental issues and help EPA achieve its environmental goals. Research is conducted in a broad range of environmental areas by scientists in EPA laboratories and at universities across the country.

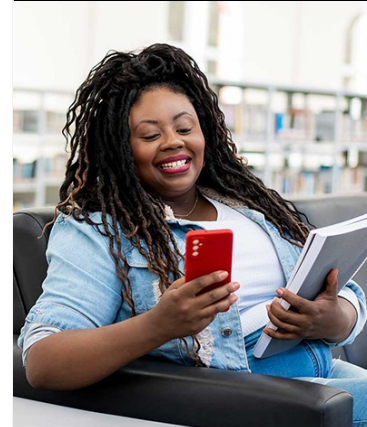
What the EPA project is about

The Center for Environmental Solutions & Emergency Response (CESER) plans, coordinates and conducts applied, customer-driven, national research and development program to improve decision making by EPA, federal, state, tribal and local agencies, when faced with challenging environmental problems in the built environment. The Homeland Security Research Program (HSRP), within CESER develops and provides applied scientific and engineering solutions, technologies, and cutting-edge innovations to protect and remediate our air, land, and water resources, and critical infrastructure challenged by systemic and acute environmental contamination. The Wide Areas and Installations Decontamination Branch (WAIDB), within HSRP, focuses on assisting CESER customers across the nation with effective and innovative approaches to decontaminate wide areas contaminated chemical and biological (CB) agents. The WAIDB develops, evaluates, and applies research and demonstration methods at various scales spanning laboratory to pilot to full field scale to provide the most useful and efficient scientific solutions in support of EPA's mission and the Office of Research & Development (ORD) mission and strategic vision. This project involves applied research of advanced wet oxidation technology (AWOT). The feasibility study in a laboratory environment (~0.5-1 liter Parr Reactor-system) to deactivate and/degradation of select surrogates of chemical warfare agents, and biological agents, in aqueous and soil matrices. The solid matrices include porous concrete bricks, stainless steel coupons, and other materials such as fiberglass thermal insulation materials, with different geometries. Experimental design will consider evaluating the effect of temperature (120-220?), pressure (10 – 100 bars), and other oxidizing agents (salts or catalysts) to enhance redox kinetics. Once the feasibility studies are completed in a batch operation, a large-scale system (5-10 liters) will be designed and demonstrated at EPA facilities.

Anticipated Results/Impacts(s): HSRP will have the capability to develop a full-scale system to respond to unknown CB agents' release and decontaminate both indoor and outdoor equipment and matrices. Such a



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system will add to the fail-proof options to address CB agent release scenarios. Results of this project will provide a process tool for decontamination chemical and biological (CW) agents. Fundamental and applied research information on the diffusion of oxidants, and degradation kinetics, and chemical moieties generated during the process. and evaluate the system with benign simulants of SARS-CoV-2 (e.g., MS2), and a chemical warfare agent (Mustard) simulant, such as Dimethylmethyl phosphate (DMMP).

What experience and skills will you gain?

As a team member, you will provide support to accomplish experimental research in a laboratory environment. The team member will be a member of a multi-disciplinary research team and assist with a bench-scale wet air oxidation system, conducting experimental runs, and analyzing the water and soil samples. The team member will also help carry out the necessary calibration of the instruments. They will also assist with sample analysis of the CB agents with other analytical facilities available to the research team. The team member will also actively participate in conducting literature search and summarize the experimental results.

Research Data Development and Analysis responsibilities will include:

- Conduct a comprehensive review of thermophysical technologies for deactivation of CB agents in water and on soils;
- Assisting with the assembly of the experimental wet oxidation system;
- Calibration of air flow, temperature, pressure measuring systems;
- Assist in the development of a quality control plan for experimental research;
- Analysis of CB agent simulants; and
- Experimental data analyses, and creation of monthly research progress reports.

Communications-related responsibilities will include:

- Participating as a member of a multi-disciplinary research team;
- Interacting with other members of the development team as well as EPA scientists;
- Contribute to prepare research reports, and manuscripts for journal articles; and
- Presenting research results at a scientific conference is optional.

Required Knowledge, Skills, Work Experience, and Education

- Demonstrated education and hands on experience with laboratory chemistry and physics experiments, data collection, analyses, preliminary interpretation of the experimental results. Laboratory experience shall include analyses of chemicals, and biological simulants.
- Strong written, oral, and electronic communication skills.

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Desired Knowledge, Skills, Work Experience, and Education

- Experience with chromatographic analytical methods and
- Experience with temperature and pressure measurements, and chemical characterization of water and soil samples.

Location: This job will be located EPA's facility in Cincinnati, Ohio.

Salary: Selected applicant will become a temporary employee of ORAU and will receive an hourly wage of \$32.26 for hours worked.

Hours: Full-time.

Travel: Travel may be required for this position.

Expected start date: The position is full time and expected to begin June 2024. The selected applicant will become a temporary employee of ORAU working as a contractor to EPA.




For more information, contact EPANSSC@orau.org. Do not contact EPA directly.

Qualifications

- Be at least 18 years of age **and**
- Have earned at least a Master's degree in the fields of chemical engineering, environmental engineering, mechanical engineering, chemistry, physics, environmental science, or a related field from an accredited university or college within the last 24 months **and**
- Be a citizen of the United States of America or a Legal Permanent Resident.

EPA ORD employees, their spouses, and children are not eligible to participate in this program.

Eligibility Requirements

- **Citizenship:** LPR or U.S. Citizen
- **Degree:** Any degree .
- **Discipline(s):**
 - **Chemistry and Materials Sciences** ([1](#) )
 - **Engineering** ([3](#) )
 - **Physics** ([1](#) )

Affirmation

I certify that I am at least 18 years of age; a recent graduate with at least a Master's degree in the fields of chemical engineering, environmental engineering, mechanical engineering, chemistry, physics, environmental science, or a related field from an accredited university or college within the last 24 months; a citizen or a Legal Permanent Resident of the United States of America; and not a current employee of EPA ORD or the spouse or child of an EPA ORD employee.

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