

Opportunity Title: EPA Underground Sources of Drinking Water Internship

Opportunity Reference Code: EPA-REG6-2021-02

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-REG6-2021-02

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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.

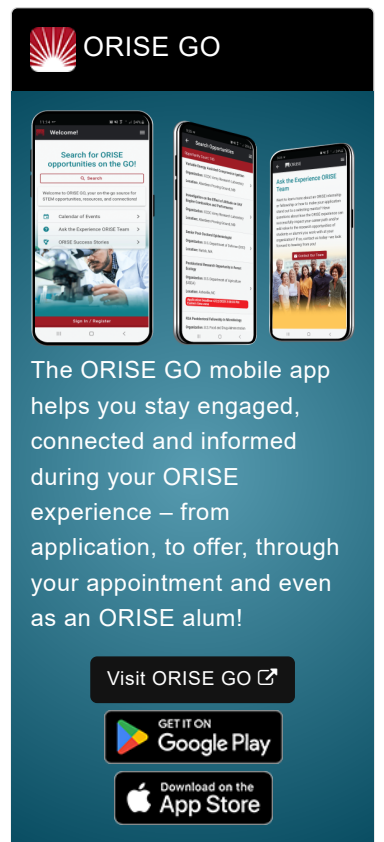
Application Deadline 10/26/2021 3:00:00 PM Eastern Time Zone

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: Two research opportunities are currently available at the U.S. Environmental Protection Agency, Region 6 located in Dallas, Texas in the Underground Injection Control Section.


The Underground Injection Control is responsible for administering EPA oversight of injected materials into the subsurface within region 6. Program responsibilities are mainly related to the protection of underground sources of drinking water. This opportunity will focus on the implementation of research and planned activities surrounding Class VI CO₂ wells.


Research Project: Research, compile, analyze and summarize data related to Class VI carbon sequestration permit applications. The selected participant will be involved in an interagency effort alongside state counterparts and EPA regions to characterize the specific geologic elements that lead to a successful Class VI permit application. The participant's analysis of previously submitted Class VI permit applications (both within and outside of Region 6) and previously accepted No Migration Petitions will inform improvements to EPA class VI guidance documents and crosswalks, leading to a more streamlined application process. Analysis and review may also include criterium development for adequate site geologic descriptions, permeability and porosity assessments, and possible reservoir modeling, characterization of CO₂ reactivity with the formation at various stages of the carbon storage process and plugging methodology. The information gathered will be used to ensure the protection of underground sources of drinking water. The complex and




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extensive nature of Class VI projects allows for applicants from a broad range of disciplines, including (but not limited) to the following areas: geologic and physical sciences, engineering, and geologic reservoir modeling.

Learning Objectives may include:

- Ascertain major geologic and modeling technical hurdles in permitting Class VI projects
- Review and catalog common seismic behavior models used in Class VI projects
- Characterize common permit application revision issues in moving from permit to construct stage to permit to inject stage in Class VI process
- Characterize common approaches to quantifying effectiveness of containment layers (both underlying and overlying) for CO2 containment within the injection zone
- Characterize approaches to quantifying vertical and horizontal flow behavior of area faults within a Class VI project.
- Research impacts of variable CO2 waste stream compositions on permit modeling considerations.
- Compare modeling considerations for Class VI permitting projects in an abandoned oil and gas reservoir versus a saline aquifer.
- Identify technical lessons learned from stratigraphic test wells drilled for reservoir data in prospective Class VI projects.

Mentor(s): The mentor for questions about this opportunity is Ken Johnson (Johnson.ken-e@epa.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: **October 2021.** All start dates are flexible and vary depending on numerous factors. Click [here](#) for detailed information about start dates.

Appointment Length: The appointment may initially be for one year and may be renewed up to three 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 ranging from \$3,924 up to \$4,800 depending on degree level.**

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

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through ORISE.

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

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

Qualifications The qualified candidate should have received a bachelor's or master's degree in one of the relevant fields. Degree must have been received within the past five years.

Candidates who are currently pursuing their master's degree and will receive it by the end of September 2021 are also encouraged to apply.

Practical work experience or research knowledge in:

- deep reservoir structural geology including fault assessments
- injection well construction, logging, and testing
- reservoir simulation modeling for enhanced oil recovery or CO2 storage
- reservoir engineering
- Formal course work in structural geology, well logging, reservoir simulation, geochemistry, well drilling and construction, ground water hydrology, and reservoir engineering

- Eligibility Requirements**
- **Citizenship:** U.S. Citizen Only
 - **Degree:** Bachelor's Degree or Master's Degree.
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([3](#))
 - **Earth and Geosciences** ([5](#))
 - **Engineering** ([8](#))
 - **Environmental and Marine Sciences** ([4](#))
 - **Physics** ([3](#))
 - **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).

Affirmation I have received a bachelor's or master's degree within the past five years, or am currently pursuing a master's degree with completion by the end of September 2021.