

Internship: Lead a project focused on repurposing alkaline industrial byproducts to capture CO₂ while minimizing energy and water usage.

Company: Alkali Earth - Dundas, MN

The Minnesota Technical Assistance Program (MnTAP) is seeking a junior or senior college student or first-year graduate student to lead a project focused on repurposing low-value alkaline industrial byproducts to capture CO₂ while optimizing the use of water, chemicals, and energy in an engineered industrial system.

The intern will work with MnTAP and Alkali Earth staff to identify and test methods to sustainably regenerate reagents used in a mineral leaching process to promote the removal and sequestration of atmospheric CO₂. This work will also focus on increasing efficiency of the leaching process to decrease the water and energy requirements for the overall process. Additionally, the student will investigate methods and experiments that will inform the optimization of this process at the industrial scale. The intern will quantify these opportunities, develop suggestions to decrease usage, as well as outline plans for implementation.

JOB DUTIES:

As part of this project, you will be asked to complete the following tasks:

1. Test chemicals that can be sustainably regenerated to efficiently loop dissolution and precipitation reactions.
2. Design and conduct experiments to determine the feasibility of the use of the chemicals at scale.
3. Research the embodied carbon emissions associated with the use and recycling efficiency of these chemicals.
4. As time allows, investigate other opportunities to reduce energy use throughout the process.
5. Help build, test and optimize prototype reactors for use in our first pilot deployment.
6. Estimate water, chemical, and energy reduction potential from implementation of provided recommendations.
7. As appropriate, support the general operation of the laboratory, including maintaining supply inventory, cleanliness and organization, and health and safety.
8. Summarize findings in a detailed report, including recommended procedures and vendor proposals along with an economic analysis and justification of changes.
9. Present findings to the company and at MnTAP-hosted public presentation events.

As an intern, you will work at the company and report back to MnTAP. The position is full time, 40 hours per week, for three months to start after the conclusion of spring semester or quarter. Pay is \$19/hour, with a lump sum stipend of \$1,500 upon completion of the project deliverables: a final report and presentations. Cumulatively, this equates to \$22.00/hour when averaged over the project. Candidates must pass a background check.

QUALIFICATIONS:

- U.S. work authorization
- Good oral & written communication skills
- A technical academic background
- Troubleshooting skills
- Self-motivated
- Excel and other software skills
- Cumulative GPA of at least 3.0
- Preferred majors: *Chemical engineering, environmental or physical sciences and others as applicable*

TO APPLY:

Apply online at:

www.mntap.umn.edu/interns/student/apply/

Remember to submit your application form, cover letter, resume, and unofficial transcript.

Applications can be addressed to:

Matt Domski, Intern Program Manager

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MNTAP IS THE HIRING BODY: DO NOT CONTACT THE COMPANY.