



Researchers Propose Solution for Third Largest Carbon Emitter

Recent weather in the U.S. has been extreme, a result of global warming primarily caused by human activities that add greenhouse gases to the atmosphere. One activity that requires high heat and produces large amounts of carbon dioxide (CO₂) is cement manufacturing. In fact, if cement was a country, it would be the third biggest source of emissions after China and the U.S. – responsible for 7.5% of human-made CO₂. As remediation professionals, we use cement to solidify contaminated soil (i.e., in situ solidification/stabilization) so that pollutants don't migrate to groundwater or streams. Although this technology reduces the need for landfill disposal, it has a high carbon footprint because of its reliance on Portland cement as a binding agent.

But recent research at the University of Cambridge (United Kingdom) has provided a potential solution: reactivating used cement by reheating it at high temperatures using existing steel recycling processes, equipment, and standards. The lime flux used in steel recycling is replaced by recovered, decarbonated cement paste. (Flux is a chemical compound used in metallurgy and welding to remove impurities, promote fluidity, and enhance the flow of metal.) The result? Low-emission concrete production at scale that can be modified to produce zero emissions if powered by clean energy. Click [here](#) to learn more.



Source: U.S. Navy. | GAO-21-268

Dive In! NAVFAC Develops Framework for Climate Resilience Assessments

The Naval Facilities Engineering System Command (NAVFAC), on behalf of Department of the Navy, has developed and published *A Framework for Assessing Climate Resilience at the Department of Navy's Environmental Restoration Sites*. The framework includes methodologies and tools for conducting a climate resilience assessment at installations with Environmental

Restoration sites where waste remains in place. By following the framework, practitioners assess eight climate hazards to project potential impacts, vulnerabilities, and risks to the protectiveness of remedies. Helpful examples are provided in nearly every section of the document. The eight climate hazards include coastal flooding (from sea level rise and groundwater table rise), extreme weather, riverine flooding, drought, wildfire, heat, energy demand, and land degradation. To read the document, click [here](#).



Did You Know? Remediation Resource Recap

It's Fall, y'all...and we're here to help you catch up on the latest in sustainable remediation before the holiday havoc begins. Check out the recordings for these webinars, which were held in September:

- SURF Webinar: Sustainable Remediation in Washington State – Combining Climate Change Resiliency and Green Remediation (click [here](#))
- EPA Tools and Resources Webinar: Assessing Community Vulnerabilities to Potential Contaminant Releases from Extreme Events (click [here](#))

- EPA Healthy and Resilient Communities Research Webinar: Brownfields, Gentrification, and Environmental Justice Research: Learning from Past Experiences (click [here](#))

Upcoming Events

SURF Events

SURF Meeting @ AEHS East Coast Conference (open to all)

Tuesday, October 22, 2024

3:30 p.m. – 5 p.m. EDT

All AEHS conference attendees are invited to join SURF for a deep dive into three timely remediation topics. Attendees will break into groups to brainstorm and discuss possible ways forward.

Click [here](#) to register for the conference.

AEHS East Coast Conference: 40th Annual International Conference on Soils, Sediments, October 21-24, 2024

Amherst, MA

Click [here](#) for more information or to register.

SURF is chairing two sessions during the conference. Presentations address:

- Climate Change Resilience During Remedy Selection
- Groundwater Monitoring Programs in Carbon Capture, Utilization, and Storage Projects
- Impacts from Sea Level Rise at Vapor Intrusion Sites
- Range and Value of Available Sustainable Remediation Tools
- Environmental Justice in Natural Resource Restoration Decisions
- Remedy Selection Reevaluation: Risk, Environmental Footprint, and Environmental Justice
- Colloidal Activated Carbon Barriers
- Sustainability Assessment Tool for Remediation Technology Selection at Gasoline Sites