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Environmental Cleanup Program

Environmental Restoration Program Booth at the Beale Air & Space Expo 2025

The Beale Air Force Base (AFB) Environmental Restoration Program (ERP), together with the Restoration Advisory Board (RAB), is hosting a booth at the Beale Air & Space Expo 2025, scheduled for June 7 and 8, 2025.

Members of the public are welcome to stop by the booth and explore the ongoing environmental cleanup projects at Beale AFB. There will also be opportunities to learn about and apply to be a RAB member, and to sign up to receive email updates about the Beale ERP, including RAB meeting notifications and newsletters.

This year's air show honors a legacy of reconnaissance and celebrates "70 years at 70,000 feet." The dynamic displays will offer an immersive experience into military heritage, delve into the evolution of cutting-edge warfighting technology, and demonstrate innovations and advancements that will shape the future of national security.

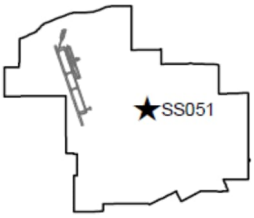
Beale AFB is partnering with the Beale Military Liaison Council (BMLC) for the highly anticipated event. Attendees can anticipate a thrilling lineup of performances, including high-altitude reconnaissance aircraft demonstrations from the world-renowned U-2 Dragon Lady, and aerial displays by the legendary U.S. Air Force Thunderbirds. The event will also feature an engaging Science, Technology, Engineering, and Mathematics (STEM) section for visitors of all ages.

Admission to the air show is free. For premium experience options, visit the BMLC's website at **BealeAirShow.com**.

The U.S. Air Force Thunderbirds will thrill audiences at the Beale Air & Space Expo 2025 this June (U.S. Air Force photo/Dylan Smith).

Site SS051 Site Inspection and Remedial Investigation

Site SS051 is a groundwater plume located within a developed area of Beale AFB, approximately 300 feet northwest of the Civil Engineering Heavy Equipment Yard near B and 30th Streets. Trichloroethene (TCE) was detected in groundwater in 2021 during an investigation for adjacent Site OT584, a tetrachloroethene (PCE) groundwater plume. The area is predominantly covered with asphalt and landscaping typical of parking lots and buildings. Groundwater in this area is shallow and generally found between 1 and 8 feet below ground surface.



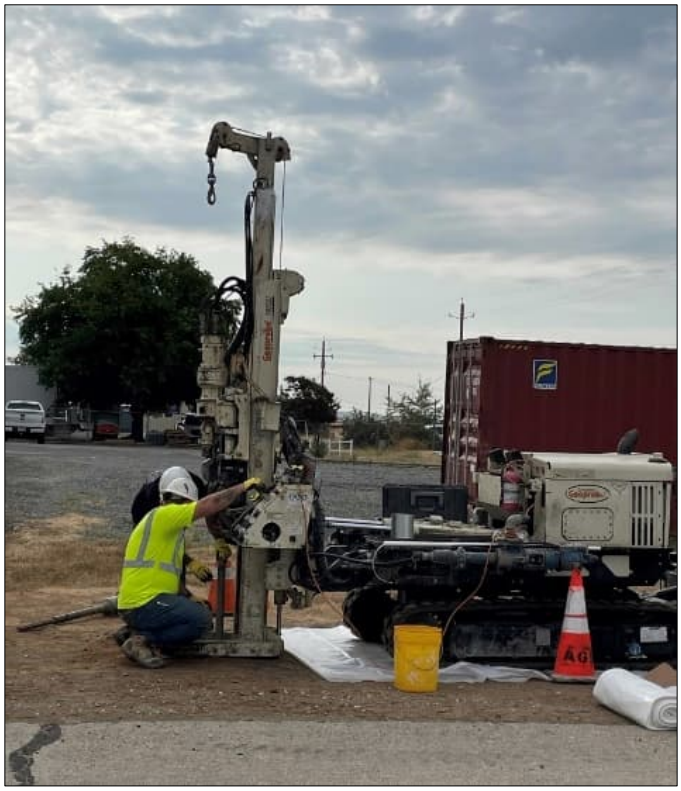
A site inspection was completed in 2024 following the process outlined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The site inspection included the following:

- Limited video pipe inspection of the sanitary sewer pipeline
- Passive soil gas survey, consisting of installing and sampling passive samplers at 40 locations
- Installation of seven monitoring wells and soil/ groundwater sampling
- Installation of six soil vapor monitoring points and sampling

Installing a passive sampler with aluminum seal for the passive soil gas survey.

Removing a passive sampler after being left in the ground for 14 days.

Snipping off the suspension wire after retrieving the passive soil gas sample.



Installing a soil vapor monitoring point with a Geoprobe direct push rig.

Collecting a soil vapor sample.

The underground location where Building 2614 (a former coin-operated laundromat) discharges wastewater to the sanitary sewer pipeline was identified as a potential source of chemicals of potential concern (COPCs) in groundwater. TCE was identified as the primary COPC, and to a lesser extent, total petroleum hydrocarbons as gasoline-range organics (TPH-g) and cis-1,2-dichloroethene (cis-1,2-DCE). The TPH-g and cis-1,2-DCE were detected in groundwater within the larger TCE plume.

Work planning for a remedial investigation is now underway to further delineate the extent of COPCs, determine their fate and transport, and collect sufficient data to assess potential risks to human health and ecological receptors. Once work planning is completed, sampling is anticipated to be conducted as two events. The first event will be in August 2025. The second event will be in February 2026. Upon completion of sampling and laboratory analysis of samples, a report will be prepared. The Remedial Investigation Report, which will present the results of the sampling, is scheduled to be finalized in June 2027.

Restoration Teams Visit Remedy Scientific for Demonstration of New PFAS Destruction Technologies for Soil

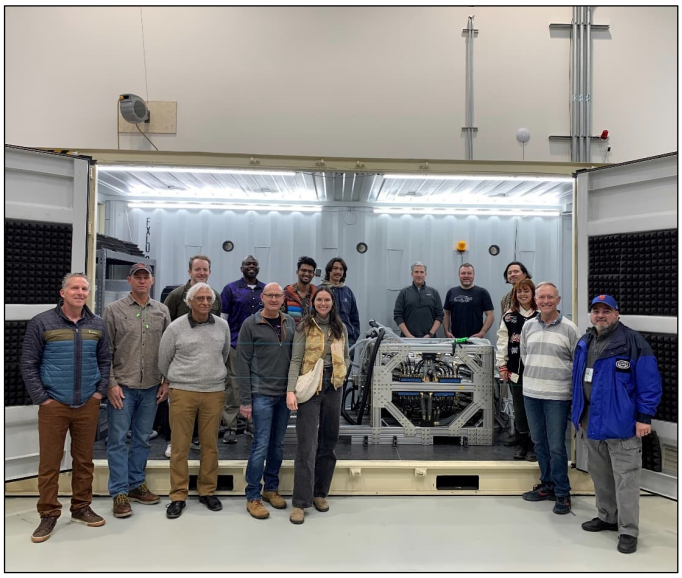
By Darren Kraabel, Remedy Scientific, Inc.

Restoration Teams from Beale and Travis AFBs recently travelled to Remedy Scientific, Inc. (Remedy) in Alameda, California, for a demonstration of a potential new tool to remove per- and polyfluoroalkyl substances (PFAS) from the environment. PFAS, commonly referred to as "forever chemicals" due to their resistance to chemical breakdown, are a class of synthesized compounds used globally in a wide variety of applications, including stain and fire resistance fabrics/materials, non-stick coatings, and firefighting foams. The Air Force used PFAS-containing firefighting foams for decades to protect service members, equipment, and infrastructure particularly as related to aircraft accidents. The Air Force has been working with several technology developers over the past few years to identify solutions that remove these harmful compounds from water. Now, the focus is expanded to identify solutions that remove PFAS from soil, which often serves as a source of water contamination.

Remedy has developed an innovative approach to destroy PFAS in soil by harnessing high-energy mechanical forces of ball milling, a process that uses grinding stainless or chrome steel balls to break down materials into fine powders. The general idea of ball milling has been around for decades and particularly used in the mining industry. However, the technology has not been used to destroy PFAS chemical bonds until now. During the physical process of grinding, the mechanical forces disrupt the strong chemical carbon-fluorine bonds that make PFAS notoriously resistant to degradation. This environmentally friendly solution destroys PFAS in soil without producing harmful emissions or hazardous byproducts.

Often new innovative technologies are difficult to scale to commercially viable size. However, Remedy overcomes this challenge by using proprietary software and advanced sensing to make the PFAS destruction process far more efficient. In just over a year, Remedy's continuous optimization approach has been scaled up from lab experiments to an industrial-sized ball mill.

"Remedy's mission is to bring contaminated land back online," according to CEO Randol Aikin. "Destroying PFAS at impacted sites is difficult due to the inherent complexity of soil. This complexity calls for smarter, adaptive systems designed to optimize the process by responding to varying soil constituents, making it both more effective and efficient. As a startup, our goal is to bring new technologies to the table to tackle the vast backlog of contaminated sites across the country, and do it fast. And none of that would be possible without the collaboration we've enjoyed with the Restoration Teams at Travis and Beale."



Beale and Travis AFB Restoration Management teams, along with staff from Remedy, around Remedy's PFAS Soil Remediation System in Alameda, California. The system is specifically designed to fit into an off-the-shelf shipping container for easy modularization and deployment to the field. (Photo credit: Remedy)

Future field demonstrations of this technology may occur at Beale and/or Travis AFB as part of the U.S. Department of Defense's certification program for environmental remediation technologies. For more information, visit **www.remedyscientific.com**.

We'd Love to Hear from You!

The Beale AFB ERP is committed to communicating with our community regarding the environmental issues that concern you. Typically, our newsletters and meetings cover information that we think is relevant to the community surrounding Beale AFB regarding on-base field work and related activities, but we'd love to tailor our communications to your needs. If you have a specific topic that you would like our team to cover in an upcoming newsletter or meeting, please let us know by contacting Darren Rector at **darren.rector.2@us.af.mil**. We look forward to hearing your ideas!

Restoration Advisory Board Meetings and Tours

You are cordially invited to attend the public RAB meetings and tours. **The next RAB meeting is scheduled for May 15, 2025**, from 6:00 p.m. to 7:00 p.m. at the One Stop Center for Business and Workforce Development, Second Floor, 1114 Yuba Street, Marysville, California. **Please stay tuned to your email for updates.**

To find out more about the RAB at Beale AFB, to be placed on the email mailing list, or to inquire about becoming a RAB member, please contact any of the following individuals:

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