



# Report to **STAKEHOLDERS**

February 2026

Volume 31 No.1



**Results from PFAS Smoldering  
Technology Demonstration** page 2

**Water Board Regulators Support  
Edwards AFB Cleanup Efforts** page 3

Report to Stakeholders is a publication of the Air Force Civil Engineer Center, Restoration Management Section at Edwards AFB. Its purpose is to inform and educate the public, base workers and residents about continuing Environmental Restoration Program efforts on base. It currently has a circulation of 4,000, including about 1,100 subscribers.

Contents of the Report to Stakeholders are not necessarily the official view of, or endorsed by, the U.S. government, the Department of War or the Department of the Air Force.

All photos are property of the Air Force, unless otherwise identified.

Any comments or questions about the contents of the Report to Stakeholders may be directed to:

Gary Hatch  
412 TW/PA  
305 E. Popson Ave.  
Edwards AFB, CA 93524  
661-277-8707  
E-mail: 412tw.pae@us.af.mil



**412th Test Wing Commander**

Col Thomas M. Tauer

**Edwards Remedial Project Manager**

Paul Schiff

**STAKEHOLDER STAFF**

**EDITOR/CONTRIBUTOR**

Belinda Martinez

**GRAPHIC DESIGNER**

Sean F. McDaniel

**WHAT'S ON THE COVER?**

The Self-sustaining Treatment for Active Remediation system, STARx, setup at Edwards Air Force Base in early spring 2024 demonstrated smoldering treatment of soil contaminated with perfluoroalkyl and polyfluoroalkyl substances.

# Smoldering Technology Shows Potential to Address PFAS

Edwards Air Force Base conducted a field demonstration testing a technology to destroy perfluoroalkyl and polyfluoroalkyl substances, commonly referred to as PFAS. The demonstration showed promising results for destroying PFAS contamination in soil using a largely self-sustaining technology originally developed for hydrocarbon cleanup.

The field demonstration was conducted on the base from April 2024 through June 2024 and treated about 130 cubic yards of PFAS-impacted soil collected from three identified PFAS sites. The demonstration team used the Self-sustaining Treatment for Active Remediation system, known as STARx, to run 10 tests, each treating about 13 cubic yards of soil.

The process relies on smoldering, a flameless, exothermic combustion reaction that converts organic compounds into water and carbon dioxide. Smoldering occurs within a porous matrix, such as soil, and requires small amounts of surrogate fuel to maintain the reaction and achieve the high temperatures required for PFAS destruction.

The demonstration completed at Edwards AFB reported an average peak smoldering temperature of 750 degrees Celsius or 1382 degrees Fahrenheit. It achieved self-sustaining smoldering across all 10 tests with an average duration of seven days per batch.

To enhance the breakdown of PFAS compounds and reduce unwanted byproducts, calcium oxide was added to the treatment process. Data showed strong PFAS destruction efficiency, with only small quantities of PFAS, less than one percent of the initial mass, detected in either air emissions or liquid condensate. The air emissions were further treated through vapor-phase carbon vessels prior to release through a stack.

Although the majority of PFAS compounds were eliminated, some residual perfluorooctane sulfonate, known as PFOS, remained in the soil at low concentrations after treatment. Post-treatment soil sample analyses also revealed variability in the results, likely impacted by uneven heating along the walls of the STARx vessel.

Supplemental laboratory studies were conducted to better understand these inconsistencies. Tests found that relatively simple system modifications, such as adding insulation to the walls and removing air fins, could significantly improve treatment for soils with high PFAS concentrations.

The demonstration team concluded that the technology is highly effective at destroying PFAS and reported no safety incidents during testing. However,



**UNTREATED BATCHES**—In May 2024, batches of soil contaminated with perfluoroalkyl and polyfluoroalkyl substances from three identified PFAS sites sit on the demonstration site awaiting smoldering treatment.

additional work is recommended to better understand analytical variability and standardize post-treatment sampling methods. Standardized guidance could help provide clearer assessments of destruction efficiency in future applications of this and other soil remediation technologies.



**WATER BOARD REMEDIAL PROJECT MANAGERS**—Left photo: Mark Allen conducts field studies at the Grand Canyon National Park as a San Diego State University student. Right photo: Toufic Zeidan, right, attends the semiannual Edwards Restoration Advisory Board meeting along with U.S. Environmental Protection Agency RPM Mohamed Ibrahim.



## Meet the Water Board Remedial Project Managers

### Mark Allen

Mark Allen is a Southern California native who grew up in Apple Valley and earned a Bachelor of Science in geological sciences from San Diego State University. After graduating, he began his professional career at a geologic engineering firm before transitioning to public service.

Allen worked in the land disposal and underground storage tank site cleanup units at the Santa Ana Regional Water Quality Control Board. He now works alongside Edwards Air Force Base officials supporting the environmental cleanup efforts as a remedial project manager for the Lahontan Regional Water Quality Control Board, commonly known as the water board.

In his current role, Allen reviews technical documents and researches environmental technologies related to a wide range of contaminants. He said he is particularly interested in perfluoroalkyl and polyfluoroalkyl substances cleanup efforts and is passionate about protecting California's water resources. While getting up to speed with the workload at Edwards AFB was initially a challenge, he said he now finds the complex subsurface conditions both demanding and rewarding. He also values the partnership and enjoys collaborating with the Air Force and fellow regulatory agencies, which continues to shape his work as an RPM.

### Toufic Zeidan

Toufic Zeidan, an engineering geologist and RPM with the water board, brings a blend of technical training and public-sector dedication to Edwards AFB environmental cleanup efforts. He holds a bachelor's

degree in geological sciences, a master's degree in environmental engineering and is a licensed California professional geologist.

Zeidan began his professional career in geotechnical consulting, evaluating soil and rock conditions for residential and infrastructure projects. He later transitioned to the public sector to focus on groundwater protection and environmental remediation, aligning with his commitment to environmental stewardship and public service.

In his current role, Zeidan reviews technical reports, analyzes complex hydrogeologic data and works closely with the Air Force and its contractors to ensure cleanup actions comply with state and federal environmental standards. He said his favorite part of the job is knowing his work helps protect groundwater and ensure future generations have access to safe, clean water. While Edwards presents unique challenges due to its numerous sites, contaminants and stakeholders involved, Zeidan said witnessing collaboration among agencies with a shared commitment to protecting groundwater and ensuring a safe environment is one of the most fulfilling parts of his work.

### NOVEMBER 2025 RAB MEETING CANCELED

The November 2025 RAB meeting was canceled due to the federal government shutdown. The next meeting is scheduled for May 21, 2026, and the location is tentatively in North Edwards, California. Further meeting details will be advertised in local newspapers and posted on the RAB's Facebook page at [www.facebook.com/RAB.Edwards/](http://www.facebook.com/RAB.Edwards/) and the base environmental webpage at [www.edwards.af.mil/About/Environment/](http://www.edwards.af.mil/About/Environment/). The public is encouraged to attend.

# Where to find more INFORMATION



Published data and documents related to the Environmental Restoration Program at Edwards are available for public review at three Information Repositories and online at <https://ar.cce.af.mil>. The Information Repositories are located at:

### Edwards AFB Main Library

5 W. Yeager Blvd.  
Edwards AFB, California  
661-275-2665  
<https://edwardsfss.com/library/>

### Kern County Public Library Wanda Kirk Branch

3611 Rosamond Blvd.  
Rosamond, California  
661-256-3236  
<https://kerncountylibrary.org/find-hours-locations/>


### Los Angeles County Public Library

601 W. Lancaster Blvd.  
Lancaster, California  
661-948-5029  
<https://lacountylibrary.org/lancaster-library/>

For questions about documents in the repositories, you may contact Gary Hatch, 412th Test Wing Public Affairs, at 661-277-8707 or by e-mail at [412tw.pae@us.af.mil](mailto:412tw.pae@us.af.mil).

General information about the environmental program at Edwards can be found at the following websites:

<https://www.edwards.af.mil/About/Environment>  
<https://www.facebook.com/EdwardsEnvMgt>

 AFCEC/CZRW  
120 N ROSAMOND  
BLVD, STE A  
EDWARDS AFB CA 93524  
OFFICIAL BUSINESS

ADDRESS SERVICE REQUESTED

## Restoration Advisory Board Information

The RAB is made up of appointed representatives from communities on and around Edwards AFB, regulators from federal and state agencies and base officials. The board's purpose is to provide a forum for two-way communication between the public and those responsible for environmental cleanup at the base.

The board meets semiannually, rotating meeting locations among communities surrounding the base. The public is welcome to attend. Those who have questions or concerns about cleanup activities at Edwards may contact any RAB member or Gary Hatch, 412th Test Wing Public Affairs, at 661-277-8707.

The RAB also has its own Facebook site: <https://www.facebook.com/RAB.Edwards/>. "Like" us on Facebook today!

### NEXT BOARD MEETING

May 21, 2026  
5:30 p.m.  
North Edwards, California

## RAB Members

### OFF-BASE COMMUNITIES

#### Boron

Carol-Ann Thomas 760-762-5678  
[carol-ann.thomas@nasa.gov](mailto:carol-ann.thomas@nasa.gov)

Megan Pater - alternate 760-920-1379  
[megan@ekccf.org](mailto:megan@ekccf.org)

#### California City

Alexia Svejda 760-373-8676  
[info@californiacitychamber.com](mailto:info@californiacitychamber.com)

#### Lancaster

Raj Malhi 661-723-6019  
[rmalhi@cityoflancasterca.gov](mailto:rmalhi@cityoflancasterca.gov)

Lauren Hughes-Leslie - alternate 661-723-6019  
[hughes-leslie@cityoflancasterca.gov](mailto:hughes-leslie@cityoflancasterca.gov)

#### Mojave

Victor Yaw 661-754-1641  
[vicyaw@yahoo.com](mailto:vicyaw@yahoo.com)

#### North Edwards

Vacant — If you live or work in North Edwards, you may apply to be a public representative.

#### Rosamond

Joaquin Morales 661-275-0509  
[joaquin.morales@usaf.mil](mailto:joaquin.morales@usaf.mil)

William Gaddis - alternate 661-238-5389  
[wrgadjr@icloud.com](mailto:wrgadjr@icloud.com)

### ON-BASE COMMUNITIES

#### Housing

David Soltis 661-277-3688  
[david.soltis@us.af.mil](mailto:david.soltis@us.af.mil) 850-380-8096

#### Main Base Test Wing

Melody Couch 661-277-3774  
[melody.couch@us.af.mil](mailto:melody.couch@us.af.mil)

Paul Mattson - alternate 661-277-5665  
[paul.mattson.2@us.af.mil](mailto:paul.mattson.2@us.af.mil)

#### NASA Armstrong

Vacant — If you work at NASA Armstrong, you may apply to be a public representative.

#### North Base

Vacant — If you work at North Base, you may apply to be a public representative.

#### South Base

Shanelle Newman 661-275-1376  
[shanelle.newman@us.af.mil](mailto:shanelle.newman@us.af.mil)

#### Air Force Research Laboratory

Joe Mabry 661-857-6289  
[joseph.mabry@us.af.mil](mailto:joseph.mabry@us.af.mil)

## Report to STAKEHOLDERS

Subscribe  Modify  Cancel

By mail  
Mail this form to:  
412 TW/PA  
RTS Subscription  
305 E. Popson Ave.  
Edwards AFB, California 93524

OR

By e-mail  
Send request to  
[412tw.rts@us.af.mil](mailto:412tw.rts@us.af.mil)

Name

Organization

Address

City

State  Zip

E-mail Address

## Remedial Project Managers

### California Dept. of Toxic Substances Control

Bruce Lewis 916-255-6576  
[bruce.lewis@dtsc.ca.gov](mailto:bruce.lewis@dtsc.ca.gov)

### California Lahontan Regional Water Quality Control Board

Mark Allen 760-241-7391  
[mark.allen@waterboards.ca.gov](mailto:mark.allen@waterboards.ca.gov)

Toufic Zeidan 760-241-6583  
[toufic.zeidan@waterboards.ca.gov](mailto:toufic.zeidan@waterboards.ca.gov)

### Edwards AFB

Paul Schiff 661-277-1469  
[paul.schiff@us.af.mil](mailto:paul.schiff@us.af.mil)

### U.S. Environmental Protection Agency

Ethan Finkel 415-972-3127  
[finkel.ethan@epa.gov](mailto:finkel.ethan@epa.gov)

Mohamed Ibrahim 415-972-3184  
[ibrahim.mohamed.n@epa.gov](mailto:ibrahim.mohamed.n@epa.gov)

Dante Rodriguez 415-972-3166  
[rodriguez.dante@epa.gov](mailto:rodriguez.dante@epa.gov)

SUBSCRIPTIONS