



**DEPARTMENT OF THE AIR FORCE  
AIR FORCE CIVIL ENGINEER CENTER  
INSTALLATION SUPPORT SECTION  
EDWARDS AIR FORCE BASE, CALIFORNIA**

21 May 2026

MEMORANDUM FOR DISTRIBUTION

FROM: AFCEC/CZOW  
120 North Rosamond Boulevard  
Edwards Air Force Base, California 93524

SUBJECT: Edwards AFB Restoration Advisory Board (RAB) Meeting Minutes – 15 May 2025

1. Time: 5:30 p.m.
2. Place: California City Arts and Community Center, 10400 Heather Avenue, California City, California 93505
3. Chairman: Victor Yaw, Public Co-Chair and Mojave Public Representative
4. The following RAB members were present:

<u>Name</u>	<u>Position</u>
Ms. Melody Couch	Primary Main Base Test Wing Public Representative
Mr. Ethan Finkel	United States Environmental Protection Agency (U.S. EPA) Remedial Project Manager (RPM)
Mr. Mohamed Ibrahim	U.S. EPA RPM
Mr. Bruce Lewis	California Environmental Protection Agency (Cal/EPA) Department of Toxic Substances Control (DTSC) RPM
Dr. Joseph Mabry	Air Force Research Laboratory (AFRL) Public Representative
Mr. Paul Mattson	Alternate Main Base Test Wing Public Representative
Mr. Joaquin Morales	Alternate Rosamond Public Representative
Mr. Dante Rodriguez	U.S. EPA RPM
Mr. Paul Schiff	Edwards AFB RPM
Mr. David Soltis	Base Housing Public Representative
Mr. Toufic Zeidan	Cal/EPA Lahontan Regional Water Quality Control Board (LRWQCB) RPM

5. The following RAB members were absent:

<u>Name</u>	<u>Position</u>
Mr. Mark Allen	Cal/EPA LRWQCB RPM
Mr. William Gaddis	Rosamond Public Representative
Ms. Lauren Hughes-Leslie	Alternate Lancaster Public Representative
Mr. Raj Malhi	Primary Lancaster Public Representative
Ms. Alexis McCadney	National Aeronautics and Space Administration (NASA) Armstrong Flight Research Center (AFRC) Public Representative
Ms. Shanelle Newman	Edwards AFB South Base Public Representative
Col Joel Purcell	Air Force Co-Chair
Ms. Alexia Svejda	California City Public Representative
Vacant	Boron Public Representative
Vacant	Edwards AFB North Base Public Representative
Vacant	North Edwards Public Representative

6. The following advisors were present:

<u>Name</u>	<u>Organization</u>
Mr. Gary Hatch	412th Test Wing Public Affairs (TW/PA)
Mr. Manish Joshi	Oneida Esc Group
Mr. David Liu	NASA AFRC Environmental
Mr. Tom Rademacher	412th Civil Engineer Group (CEG)/Environmental Management Division (CEV)
Ms. Leilani Richardson	Air Force Civil Engineer Center (AFCEC)/Environmental Management Directorate, Operations Division, West Branch (CZOW)
Mr. Dale Riedel	412th Test Wing Judge Advocate
Ms. Mendy Stanislawski	AFRL
Ms. Julia Tseng	AFCEC/CZOW
Ms. Jeanette Van Norden	AFCEC/CZOW

7. Others present were as follows:

<u>Name</u>	<u>Organization</u>
Mr. Anthony Cummins	Media Fusion
Ms. Belinda Martinez	Cherokee Federal (Recorder)
Ms. Kelly Minniti	Public
Mr. Fouad Nasraddine	Cherokee Federal
Mr. Todd Schannuth	Media Fusion
Ms. Thelma Valle	Cherokee Federal

8. Mr. Yaw called the meeting to order and read the *Statement of Purpose and Conduct*.

9. Mr. Yaw invited new RAB members to briefly introduce themselves to the board and attendees. Primary Main Base Test Wing public representative Ms. Melody Couch and alternate Rosamond public representative Mr. Joaquin Morales were welcomed as new members of the RAB.

10. Mr. Yaw presented the 21 November 2024 RAB Meeting Minutes for acceptance. The RAB members accepted the minutes as presented.

11. New Business – Environmental Restoration Program (ERP) Update (see attachment):

a. Mr. Schiff provided an overview of the ERP activities that occurred at Edwards AFB since the November 2024 RAB Meeting.

(1) Mr. Schiff identified the current roles of the ERP staff – base remedial project manager, ERP managers and in-house contractor support.

(2) Mr. Schiff summarized funding and contracts for the ERP. He said that each federal fiscal year (FY) spans from 1 October to 30 September and funding is prioritized across the Air Force enterprise. Funding from FY24 to FY25 has been restricted and focused on post-Record of Decision (ROD) requirements. Mr. Schiff shared that for FY25, funding was available to modify the ongoing basewide perfluoroalkyl and polyfluoroalkyl substances (PFAS) Phase I Remedial Investigation (RI) contract, which includes the installation of additional groundwater monitoring wells.

(3) Mr. Schiff discussed the update to the August 2023 Community Involvement Plan (CIP). He said it was previously reported the CIP update would incorporate Environmental Justice and emerging contaminants. However, Environmental Justice was not included in response to Executive Orders 14151 and 14173. He mentioned that the draft update was under regulatory review and does not include new community interviews.

(4) Mr. Schiff reported the Air Force's Administrative Record (AR) website link has changed. He noted the new AR direct link to access final environmental restoration documents is <https://ar.cce.af.mil>.

(5) Mr. Schiff briefly reviewed the phases that the base ERP implements under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) process, commonly known as Superfund. The chronological phases of a cleanup site are as follows: identification, involves conducting a Preliminary Assessment and Site Inspection (PA/SI); investigation, includes RI and Feasibility Study (FS); selection, a Proposed Plan (PP) and ROD are presented; cleanup, involves completing a Remedial Design/Remedial Action (RD/RA) or operations and maintenance (O&M); and closeout of a site.

(6) Mr. Schiff discussed the PFAS program and the basewide RI efforts underway for aqueous film-forming foam (AFFF) areas. He explained the Phase I RI included three field events completed between 2021 and 2024. These field events involved: planning documents, field coordination, and regulatory concurrence; installation of 90 new monitoring wells; collection of 933 samples from new and existing monitoring wells; advancement and sampling of 162 soil borings; and installation and sampling of six lysimeters. Field Event #4 is scheduled for March 2025 through September 2025. Activities will include the installation of additional monitoring wells, collection of surface and subsurface soil samples, and groundwater sampling at both new and existing monitoring wells.

(a) Mr. Schiff mentioned the Air Force is drafting an AFFF PFAS Phase I RI Report to document the findings for Field Events #1 through #3 in a comprehensive basewide document. The report will include the conceptual site model (CSM) and RI Report documentation of site activities and evaluations. He reported the Preliminary Draft RI Report is under review by the United States Army Corps of Engineers and the Air Force. The Draft RI Report is anticipated to be submitted to regulatory agencies for review in July 2025, with the final document expected by January 2026.

(7) Mr. Schiff discussed ongoing efforts at Operable Unit (OU) 1/8 Main Base. Quarterly, Technical Working Group (TWG) meetings are being held to resolve key issues necessary for advancing the FS Addendum. He reported that in April 2025, the Air Force submitted the Draft Human Health Risk Assessment, Draft Ecological Risk Assessment and Draft Final Phase II Comprehensive Vapor Intrusion (VI) Report. Additionally, the Air Force anticipates submitting the Draft Final Groundwater and Soil Data Gap Investigation in June 2025, followed by the Final Groundwater Modeling Report in July 2025.

(a) Mr. Schiff said the semi-annual indoor air sampling conducted on 7 November 2024 at Building 1807 confirmed that trichloroethene (TCE) levels remain below all action levels. These results were achieved with the heating, ventilation and air conditioning (HVAC) system operating continuously. A detection of benzene in both the outdoor and indoor air samples will be evaluated in the 2024/2025 report. The Final Building 1807 Indoor Air Monitoring Report from November 2023 through May 2024 was submitted for regulatory review in January 2025. Mr. Schiff reported that the most recent semiannual sampling event was completed on 15 May 2025.

(8) Mr. Schiff reviewed remediation activities from OU2 South Base.

(a) Sites 81 and 102 are former skeet sites that have been covered with crushed concrete as an interim removal action. A Draft Sites 81/102 Final Confirmation Sampling Work Plan was expected to be submitted to regulatory agencies in May 2025. The results will be used for updated human health and ecological risk assessments to evaluate the effectiveness of the interim removal action.

(b) For the carbon tetrachloride (CT) plume at Site 5, the Air Force received all regulatory comments on the Draft Supplemental FS by the end of October 2024. However, responses to regulatory comments were delayed pending contract award, which was issued at the end of April 2025. The Air Force and regulatory agencies anticipate holding a meeting to address and resolve comments before issuing a final draft.

(c) The groundwater extraction and treatment system (GETS) and biosparging (PHOSter™) system continue to operate at Sites 5/14. Sampling for PFAS will continue at the Site 14 GETS to monitor treatment effectiveness. The Air Force is drafting a Remedial Action Work Plan (RAWP) Addendum to address data gaps related to TCE plume extents and free product; installation of an additional injection well for the GETS is planned. Additionally, Schiff said that the Air Force plans to draft a cost benefit analysis of current remedies to address residual contaminants within the Sites 5/14 plume and identify if improvements can be made to treat the contamination.

(d) Mr. Schiff said that the Air Force is drafting a Site 76 Data Gap Investigation Work Plan to install nine wells in Phase I and up to five additional wells in Phase II to delineate CT contamination associated with Site 86.

(e) The biosparging (PHOSter™) system at Site 86 continues operating. Mr. Schiff said the Draft Site 86 RAWP Addendum, which proposes installing 17 data gap wells in Phase I and up to an additional 12 data gap wells in Phase II to further refine the TCE and CT plume extents, was submitted to the regulatory agencies for review.

(f) For Site 29, Mr. Schiff said the revised RAWP was finalized in March 2025. The landfill cover construction is anticipated to begin in spring 2025.

(9) Mr. Schiff said the annual groundwater monitoring event occurred in all four groundwater areas of OU4/9 AFRL. The post-ROD areas at South AFRL and AFRL Soil and Debris Sites have Land Use Controls in place as part of their cleanup remedies. The South AFRL also has a soil vapor extraction (SVE) system that continues to operate near Building 8595 to mitigate potential VI. The Air Force submitted responses to regulatory comments on the Draft RAWP Addendum #5, which proposes installing three deep wells in the South AFRL to address potential data gaps in the well network.

(a) For OU4/9 AFRL Soil and Debris Site 113, the Air Force submitted responses to regulatory comments on a work plan addendum to install two wells to further characterize groundwater conditions in the immediate vicinity of Abandoned Mine Shaft No. 2.

(b) In November 2024, the Final Work Plan for AFRL Arroyos In Situ Treatability Study was submitted. Mr. Schiff said the study will evaluate enhanced in situ bioremediation of contaminants in downgradient deep alluvial portions of the groundwater plume. Field activities began in January 2025, which included installing three new groundwater wells. He reported that while conducting field activities in February 2025, a desert tortoise appeared in the vicinity of the study location. Therefore, the Air Force installed fencing around the site to protect the desert tortoises.

(c) The Air Force submitted the Final Northeast AFRL SVE Treatability Study Work Plan in November 2024. Mr. Schiff said the study will evaluate SVE technology for removing contaminants from the vadose zone situated in fractured bedrock. Field activities began in January 2025 with the installation of two new SVE wells and completion of a short-term SVE test.

(d) For OU4/9 Mars Boulevard (Blvd), the Air Force submitted the Final Work Plan for In Situ Co-Metabolic Biosparging Study in November 2024. Mr. Schiff said the study will evaluate in situ biosparging, which involves injecting air and/or propane, and its ability to stimulate aerobic degradation of groundwater contaminants situated in fractured bedrock. Field activities began in January 2025 with the installation of two new groundwater wells and completion of a short-term air injection test.

(10) Mr. Schiff said that by February 2025, all regulatory comments were received on the Revised Draft OU5/10 FS. In May 2025, Air Force responses to regulatory comments were submitted. He reported that 23 data gap wells were installed to evaluate the vertical and lateral extent of contaminants at OU5/10. Mr. Schiff mentioned the Site 285 interim treatment system continues to operate. Since 2003, the interim system has removed a total of 234 pounds of perchlorate. He said that to keep the system more robust, the original GETS

programmable logic controller, which was over 20 years old and had faulty hardware, was replaced and commissioned in March 2025.

(11) Mr. Schiff announced that in 2006, the ROD for OU6 NASA Armstrong was signed and is now on its Fourth Five-Year Review (FYR) cycle. The objective is to determine whether the remedy remains protective of human health and the environment. He mentioned the Fourth FYR is funded by NASA and expected to be completed by September 2026. The start and results of the review will be announced in local newspaper notices.

(a) Mr. Schiff stated that the OU6 NASA Armstrong PFAS RI efforts are underway. He said NASA also funds and manages its PFAS effort separately from the Air Force. In August 2024, Field Event #1 was completed, including the sampling of 78 monitoring wells and two soil borings. Field Event #1 results were presented to the regulatory agencies in February 2025. The draft report summarizing the Field Event #1 results was expected to be submitted to regulatory agencies in May 2025.

(12) Mr. Schiff reviewed cleanup activities at OU7 Basewide Miscellaneous sites. In June 2024, a soil gas sampling report for two of the sites, Sites 272 and 293, was submitted to regulatory agencies. Regulatory comments were provided in September 2024; however, the responses to regulatory comments remain on hold pending contract award.

(13) For OU7 Site 3 Landfill, the Remedial Action Completion Report is currently in preparation. From November 2024 through January 2025, minor O&M repairs and three months of supplemental watering were conducted.

(a) For the retention basin adjacent to the Site 3 Landfill, Mr. Schiff said that a Draft Retention Basin Lining Work Plan was submitted to regulatory agencies in February 2025. In March 2025, semi-annual groundwater monitoring, landfill gas sampling and inspections were completed. Additionally, a minor O&M repair event was conducted in April 2025.

(14) Mr. Schiff explained vegetation at OU7 Chemical Warfare Materiel Site 442 has been identified as “stressed or dead” during the semiannual inspection for multiple years. Re-seeding and revegetation efforts were performed in December 2022 at Site 442 Areas 1, 2, and 3. A vegetation survey conducted in November 2024 indicated an increased presence of native species, growth in the size of existing vegetation and that native population of perennials were the first species to be established, showing signs of healthy soil development. He said that results are currently pending for the vegetation survey completed in April 2025. A follow-on Revegetation Work Plan is in preparation, aligned with the 2024 Edwards Habitat Restoration Plan to include supplemental watering and monitoring for five years.

(15) For Site 25, Mr. Schiff said the Air Force submitted the Revised Draft Site 25 FS in December 2024 for regulatory review and the agencies extended the review period until May 2025.

(16) Mr. Schiff discussed the Military Munitions Response Program (MMRP). He said the regulatory agencies concurred on the Draft Final MMRP ROD. The Air Force is awaiting determination of a California land use covenant regulation to be included in the ROD before the final ROD can be issued. Mr. Schiff also mentioned that solar developer preconstruction activities have commenced at MMRP Site AL505-2 and are currently ongoing.

(17) Mr. Schiff concluded by sharing the reminder of following the 3Rs of Explosive Safety: Recognize, Retreat, and Report.

(18) Mr. Schiff asked the RAB members whether there were any questions or comments. None of the members had questions or comments.

12. Opportunity for Public Comment – Mr. Hatch reported no public comments or questions had been submitted.

13. Old Business – Status of RAB Vacancies.

a. Mr. Hatch reported significant progress with the RAB vacancies over the last few months. He mentioned three new public representatives have been selected, leaving only three vacancies. Two vacancies are for the off-base communities of Boron and North Edwards, while the other is for the on-base community of North Base. Mr. Hatch noted vacancies will continue to be advertised in local newspapers and community flyers.

14. Reports from Public Representatives.

a. Mr. Soltis, Base Housing, had no comments.

b. Mr. Morales, Rosamond, had no comments.

c. Dr. Mabry, AFRL, had no comments.

d. Ms. Couch, Main Base, had no comments.

e. Mr. Yaw, Public Co-Chair and Mojave, announced that he provided RAB meeting flyers to the Mojave Water Agency to encourage his community to attend the RAB meetings. He will also be distributing the RTS newsletter copies in the next Mojave Water Agency meeting.

15. Reports from RPMs.

a. Mr. Zeidan, Cal/EPA LRWQCB, had no comments.

b. Mr. Lewis, Cal/EPA DTSC, had no comments.

c. Mr. Rodriguez, U.S. EPA, thanked the Air Force team for their great work and progress, specifically with the three treatability studies in the OU4/9 AFRL areas. He expressed his excitement to see the future possibilities of those cleanup technologies being implemented.

d. Finkel, U.S. EPA, had no comments.

e. Mr. Ibrahim, U.S. EPA, had no comments.

f. Mr. Schiff, Edwards AFB RPM, reminded the RAB members that the Air Force has provided tours of cleanup sites that can be coordinated at any time if requested. Both Ms. Couch and Mr. Yaw encouraged RAB members to participate in a tour and described the tours as informative and insightful.

16. The next RAB meeting is proposed for 20 November 2025 in North Edwards, California.

17. The meeting was adjourned at 6:49 p.m.

//Original signed by Col Bradly P. Bucholz for//

JOEL D. PURCELL, Colonel, USAF  
Air Force Co-Chair  
Restoration Advisory Board

//Original signed by//

VICTOR YAW  
Public Co-Chair  
Restoration Advisory Board

Attachment:

Environmental Restoration Program Update for Edwards AFB, California, 15 May 2025  
DISTRIBUTION

AFCEC  
412 CEG/CC/CEV  
412 OMRS/SGPB  
412 TW/JA/PA/SE  
AFRL  
RAB Members  
Cal/EPA DTSC  
Cal/EPA LRWQCB  
U.S. EPA

# Air Force Installation & Mission Support Center



## Environmental Restoration Program Update for Edwards AFB, California

Paul Schiff  
AFCEC/CZOW  
15 May 2025

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## Acronyms



- 3Rs = Recognize, Retreat, Report
- AFFF = aqueous film-forming foam
- AFRL = Air Force Research Laboratory, Detachment 7
- CERCLA = Comprehensive Environmental Response, Compensation, and Liability Act
- CIP = Community Involvement Plan
- CT = carbon tetrachloride
- CSM = conceptual site model
- FS = Feasibility Study
- FY = Fiscal Year
- GETS = groundwater extraction and treatment system
- MMRP = Military Munitions Response Program
- O&M = operations and maintenance
- OU = Operable Unit
- PFAS = perfluoroalkyl and polyfluoroalkyl substances
- PA = Preliminary Assessment
- PP = Proposed Plan
- RAWP = Remedial Action Work Plan
- RI = Remedial Investigation
- ROD = Record of Decision
- SI = Site Inspection
- SVE = soil vapor extraction
- TCE = trichloroethene
- UFP-QAPP = Uniform Federal Policy-Quality Assurance Project Plan
- USACE = United States Army Corps of Engineers
- VI = vapor intrusion

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# Environmental Restoration Program Staff



BASE REMEDIAL PROJECT  
MANAGER

PAUL SCHIFF

ENVIRONMENTAL RESTORATION PROGRAM MANAGERS



LEILANI RICHARDSON



JULIA TSENG



JEANETTE VAN NORDEN

IN-HOUSE CONTRACTOR SUPPORT



BELINDA MARTINEZ



PETER ROBLES JR.



THELMA VALLE



FOUAD NASRADDINE

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## Funding and Contracts Update



- Each Federal Fiscal Year (FY) runs October-September
  - E.g., FY25 is 1 October 2024-30 September 2025
- Funding is limited and prioritized across the Air Force enterprise
- FY24-FY25 funding has been restricted, focused primarily on post-Record of Decision (ROD) requirements
- FY25 funding was available to modify the ongoing perfluoroalkyl and polyfluoroalkyl substances (PFAS) Phase I Remedial Investigation (RI) contract
  - Includes installation of additional groundwater monitoring wells necessary to complete delineation of the multiple on base PFAS groundwater contaminant plumes (additional detail in follow-on PFAS slides)

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## CIP Update



- Previously reported that an update to the August 2023 Community Involvement Plan (CIP) was to include Environmental Justice and emerging contaminants; Environmental Justice not included in response to Executive Orders 14151 and 14173
- Draft is currently under regulatory review
- Friendly reminder that the update does not include new community interviews

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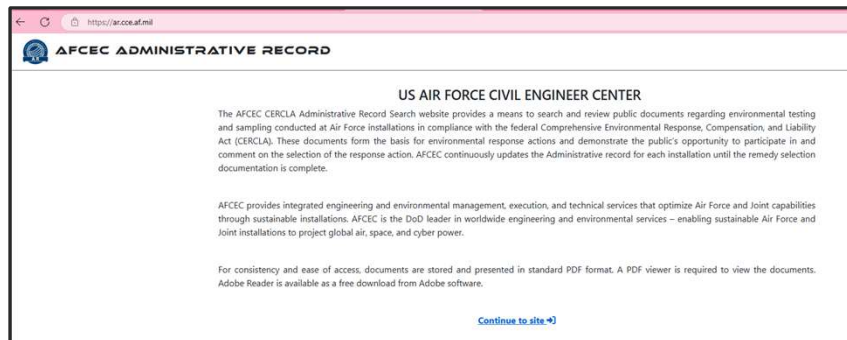
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## Administrative Record



- New administrative record website link
- Located at <https://ar.cce.af.mil>



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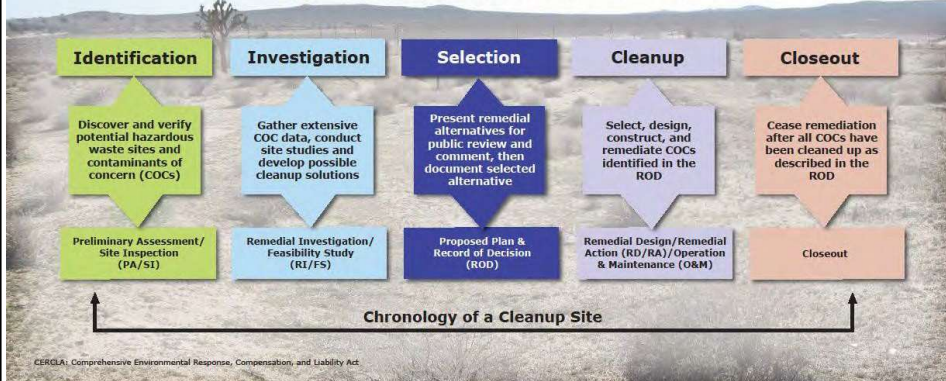
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# Superfund Phases



## Phases of the Superfund (CERCLA) Process

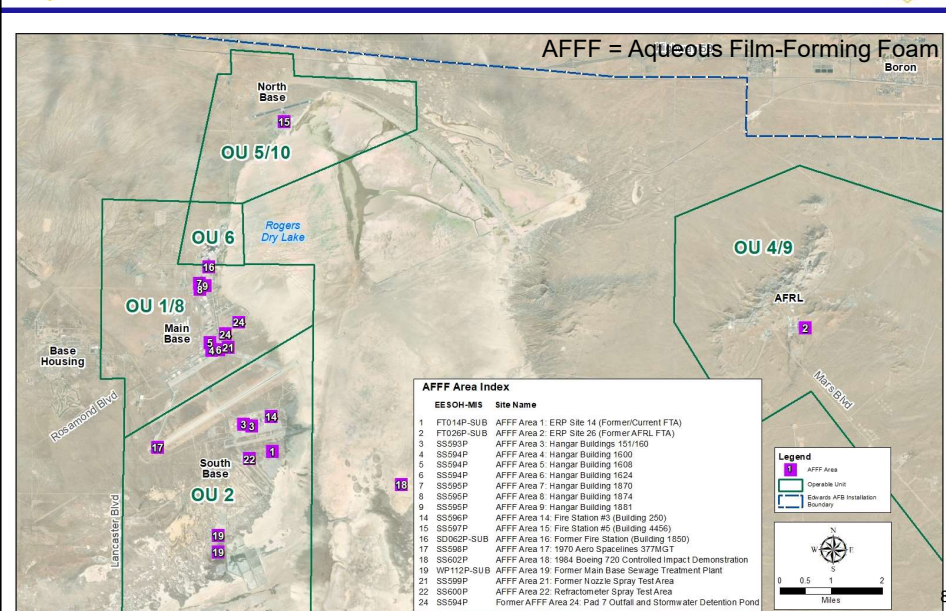


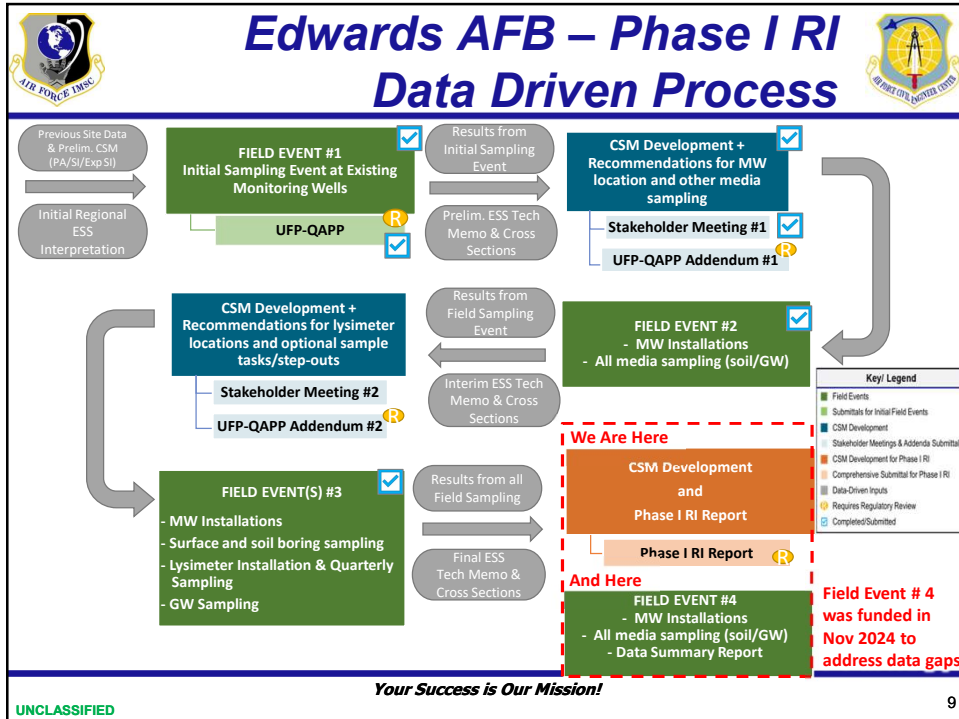
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# AFFF PFAS Phase I RI





## AFFF PFAS Phase I RI

- **RI effort underway: three field events completed (2021-2024)**
  - Planning documents, field coordination, regulatory concurrence
  - 90 new monitoring wells installed
  - 933 samples collected from new and existing monitoring wells
  - 162 soil borings advanced/sampled
  - 6 lysimeters installed/sampled



USACE providing oversight during well installation at AFFF Area 1

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## Field Event #4 March-Sept 2025



- **Field Event #4 activities:**
  - Monitoring well installation
  - Surface and subsurface soil sampling
  - Groundwater sampling at new and existing monitoring wells



Project geologist logging soils during installation of monitoring well SS600P-MW04C

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## AFFF PFAS Phase I RI Report

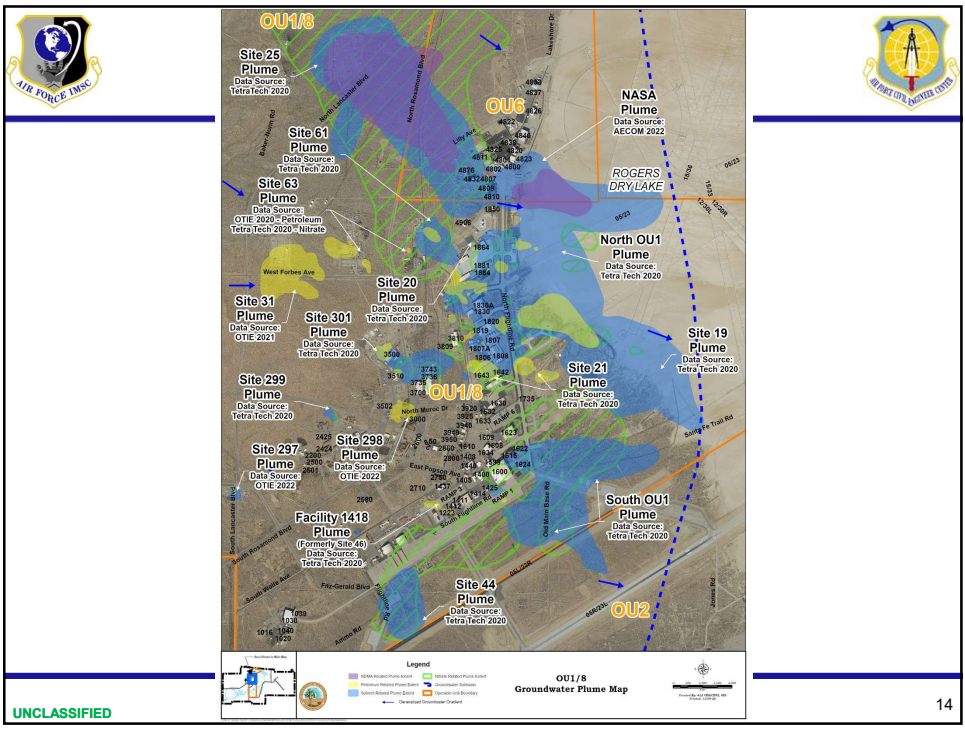
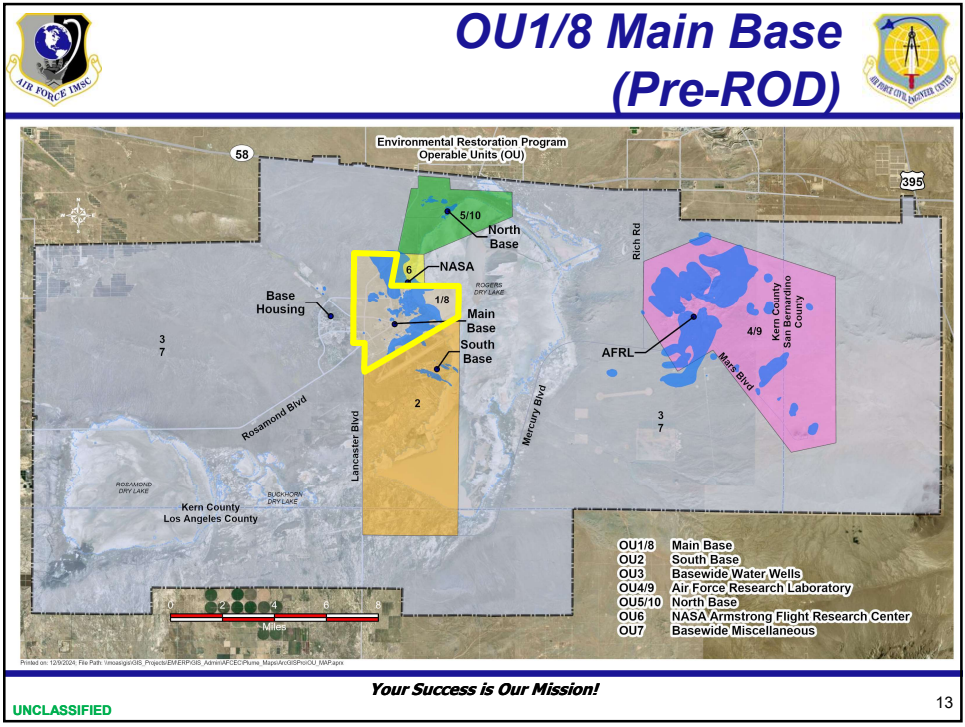


- **RI reporting for Field Events #1 through #3 underway:**
  - Comprehensive basewide document
  - Conceptual site model (CSM) and RI Report documentation of site activities and evaluation
  - Preliminary Draft RI Report: In U.S. Army Corps of Engineers (USACE)/Air Force Civil Engineer Center review
  - July 2025: Anticipate submitting Draft RI Report to regulatory agencies
  - January 2026: Final document anticipated

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## OU1/8 Main Base (Pre-ROD)



- Continue OU1/8 Technical Working Group meetings to resolves issues for incorporation into the Feasibility Study (FS) Addendum
- April 2025: Submitted the Draft Human Health Risk Assessment, Draft Ecological Risk Assessment and Draft Final Phase II Comprehensive Vapor Intrusion (VI) Report
- June 2025: Anticipate submitting the Draft Final Groundwater and Soil Data Gap Investigation; responses to regulatory comments were completed
- July 2025: Anticipate submitting the Final Groundwater Modeling Report; Air Force presented updated groundwater modeling in May 2025

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## OU1/8 Main Base (Pre-ROD)



*Animals observed on base such as predatory birds (e.g., red-tailed hawk, burrowing owl)*



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## OU1/8 Main Base (Pre-ROD)



- **Building 1807**
  - Semiannual indoor air sampling results from 7 November 2024 event confirmed that trichloroethene (TCE) levels are below all actions levels with new heating, ventilation and air conditioning operating continuously (i.e., 24/7)
    - Detection of benzene in both outdoor and indoor air samples will be evaluated in 2024-2025 report
  - **January 2025: Submitted Building 1807 Indoor Air Monitoring Report for November 2023-May 2024 for regulatory review; Air Force preparing responses to regulatory comments**
  - **May 2025: Next indoor air sampling event**

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## OU1/8 Main Base (Pre-ROD)

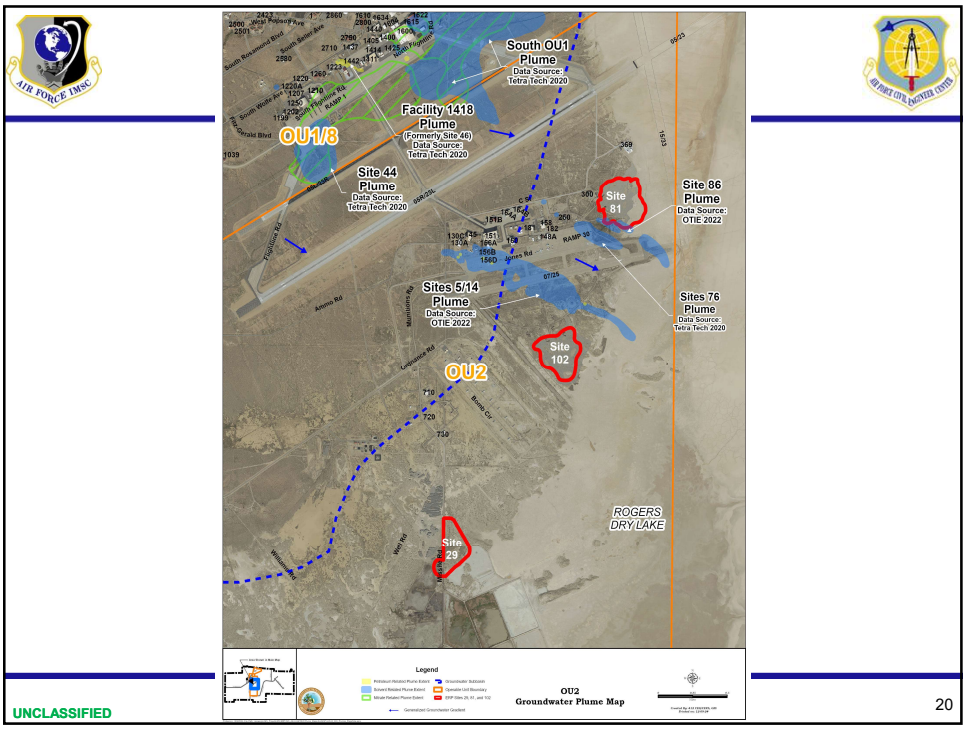
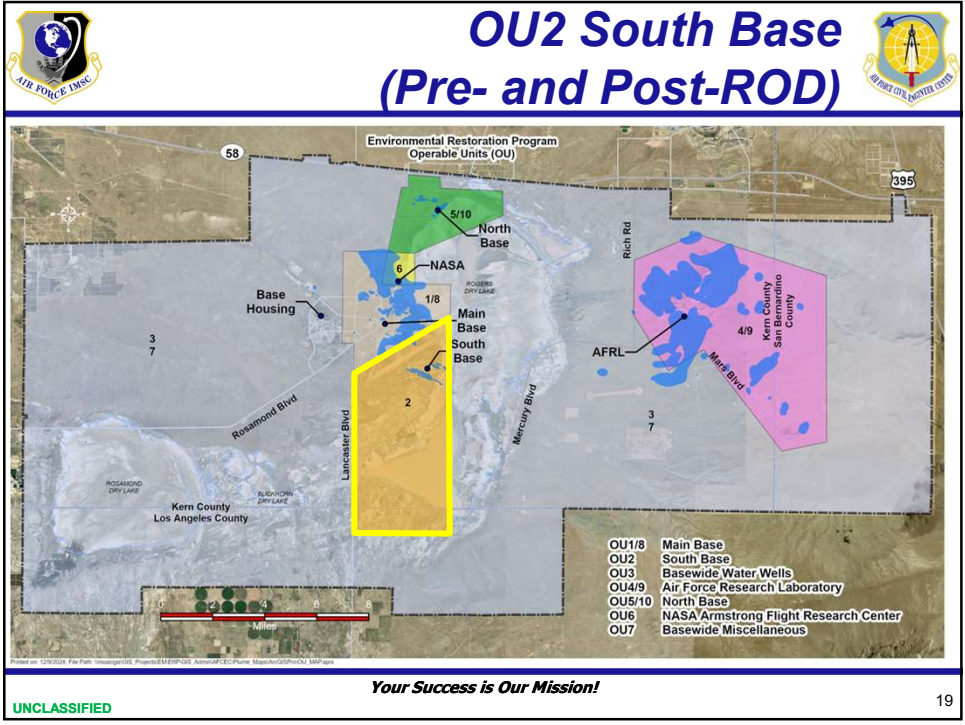


Summa canister used to sample outdoor air at Building 1807

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## OU2 South Base (Pre-ROD)



- **Sites 81 and 102**
  - **May 2025: Anticipate submitting Draft Final Confirmation Sampling Work Plan to regulatory agencies**
    - Results will be used for updated human health and ecological risk assessments to evaluate the effectiveness of the interim removal action
- **Site 5 Carbon Tetrachloride (CT) Plume**
  - **Air Force received all regulatory agency comments on Draft Supplemental FS by the end of October 2024; responses to regulatory comments was awaiting contract award (awarded end of April 2025)**
    - Air Force and regulatory agencies expected to meet and resolve regulatory comments before a draft final is issued

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## OU2 South Base (Post-ROD)



- **Sites 5/14**
  - Groundwater extraction and treatment system (GETS) and biosparging (PHOSter™) system continue to operate
  - Continue sampling for PFAS at the Site 14 GETS
  - Drafting a Remedial Action Work Plan (RAWP) Addendum to address data gaps related to TCE plume extents and free product; also plan to install additional injection well for the GETS
  - Plan to draft a cost benefit analysis of current remedies to address residual contaminants within the Sites 5/14 plume



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## OU2 South Base (Post-ROD)



A P-80, B-25, and T-28—Test Pilot School curriculum aircraft—fly over the flight test operations building (early 1950s) at what is now called South Base

- **Site 76**
  - Drafting a Data Gap Investigation Work Plan to install 9 wells (Phase I) and up to 5 additional wells (Phase II) to delineate CT contamination associated with Site 86

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## OU2 South Base (Post-ROD)



- **Site 86**
  - Biosparging (PHOSter™) system continues to operate
  - Submitted Draft RAWP Addendum to regulatory agencies for review; proposes to install 17 data gap wells (Phase I) and up to an additional 12 data gap wells (Phase II) to further refine the TCE and CT plume extents



Site 86 PHOSter™ system

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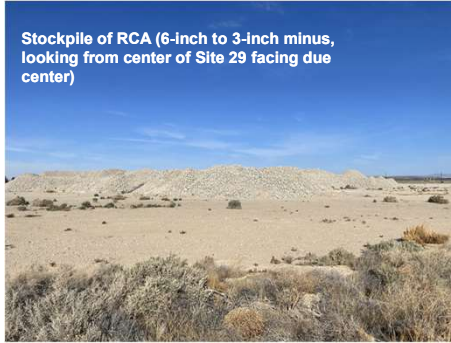
# OU2 South Base (Post-ROD)



## • Site 29

- The RAWP was finalized March 2025
- Landfill cover construction anticipated to start in spring 2025

Stockpile of RCA (6-inch to 3-inch minus, looking from center of Site 29 facing due center)



View of the entrance to the front gate at Site 29 facing southwest



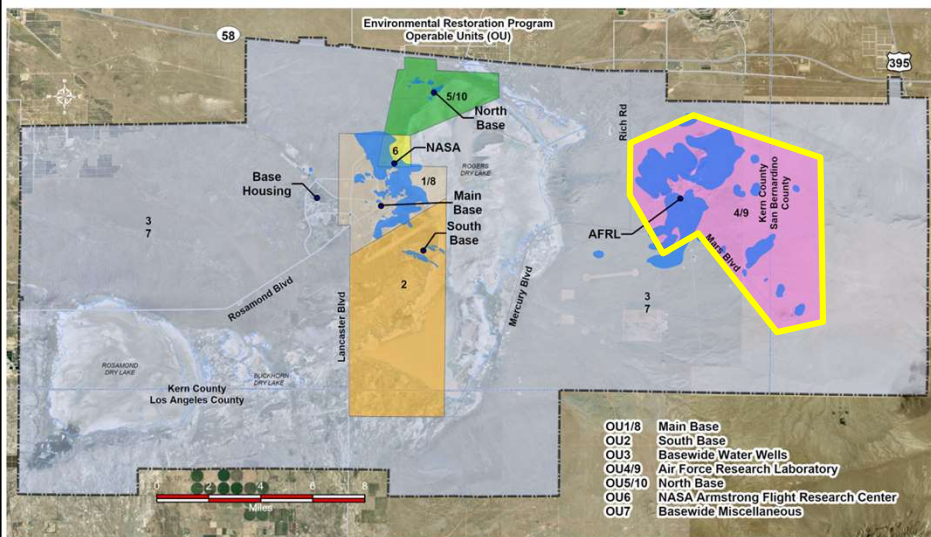
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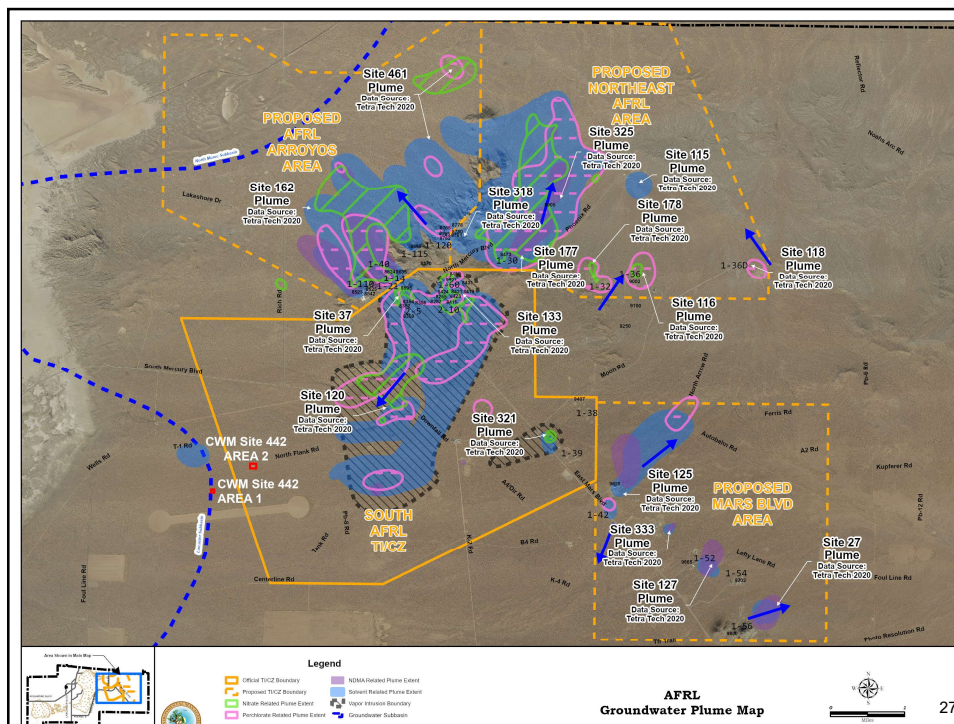
# OU4/9 AFRL (Pre- and Post-ROD)




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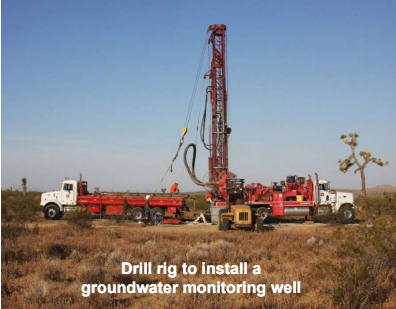




## OU4/9 AFRL (Pre- and Post-ROD)



- Annual groundwater monitoring in all post-ROD areas
- Land Use Controls in place for post-ROD areas South Air Force Research Laboratory (AFRL) and AFRL Soil and Debris Sites
- South AFRL
  - Soil vapor extraction (SVE) system continues operating near Building 8595 to mitigate potential VI
  - Submitted responses to regulatory comments on Draft RAWP Addendum #5, which proposes to install three deep wells to address potential data gaps in well network



Drill rig to install a groundwater monitoring well

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## OU4/9 AFRL (Pre- and Post-ROD)



- **AFRL Soil and Debris Site 113**
  - Submitted responses to regulatory comments on a work plan addendum to install two wells to further characterize groundwater conditions in the immediate vicinity of Abandoned Mine Shaft No. 2



Groundwater monitoring well 113-MW01 at Site 113

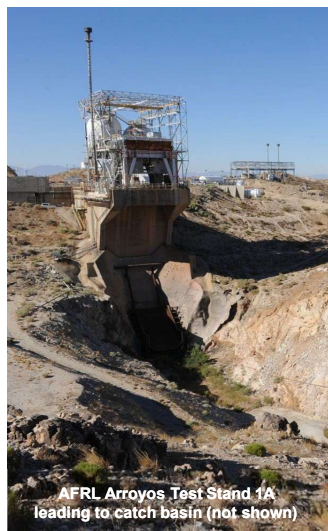
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## OU4/9 AFRL Arroyos (Pre-ROD)



AFRL Arroyos Test Stand 1A leading to catch basin (not shown)

- **November 2024: Final Work Plan for Arroyos In Situ Treatability Study was submitted**
- **Will evaluate enhanced in situ bioremediation of contaminants in downgradient deep alluvial portions of the groundwater plume**
- **January 2025: Field activities began**
  - Three new groundwater wells installed

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# OU4/9 AFRL Arroyos (Pre-ROD)



20 Feb 2025:  
Desert  
Tortoise  
(Tank) in  
vicinity of  
study location



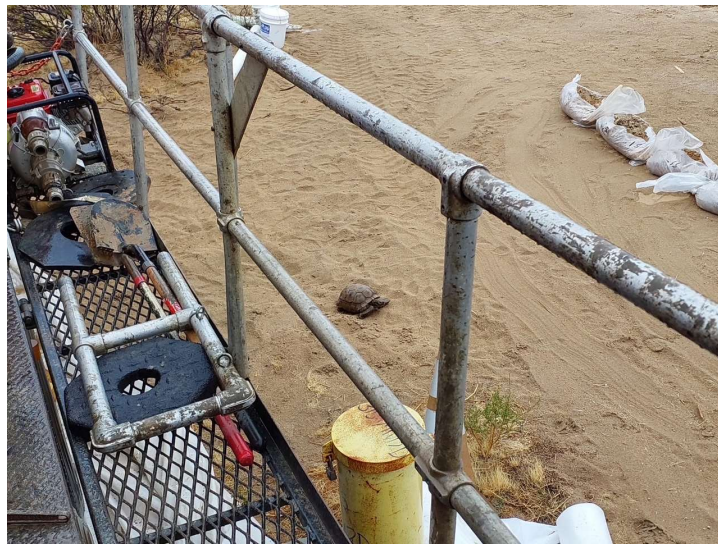
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# OU4/9 AFRL Arroyos (Pre-ROD)



20 Feb 2025:  
Desert Tortoise  
next to drill rig

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# OU4/9 AFRL Arroyos (Pre-ROD)



7 Mar 2025:  
Tortoise  
fencing  
installed



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# OU4/9 Northeast AFRL (Pre-ROD)



Checking for water  
while drilling a  
groundwater  
monitoring well

- November 2024: Final Work Plan for SVE Treatability Study was submitted
- Study will evaluate SVE for removing contaminants from the vadose zone situated in fractured bedrock
- January 2025: Field activities began
  - Two new SVE wells installed
  - Short-term SVE test completed

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## OU4/9 Mars Blvd (Pre-ROD)



- **November 2024: Final Work Plan for In Situ Co-Metabolic Biosparging Study was submitted**
- **Study will evaluate in situ biosparging (air and propane) and its ability to stimulate aerobic degradation of groundwater contaminants situated in fractured bedrock**
- **January 2025: Field activities began**
  - Two new groundwater wells installed
  - Short-term air injection test completed

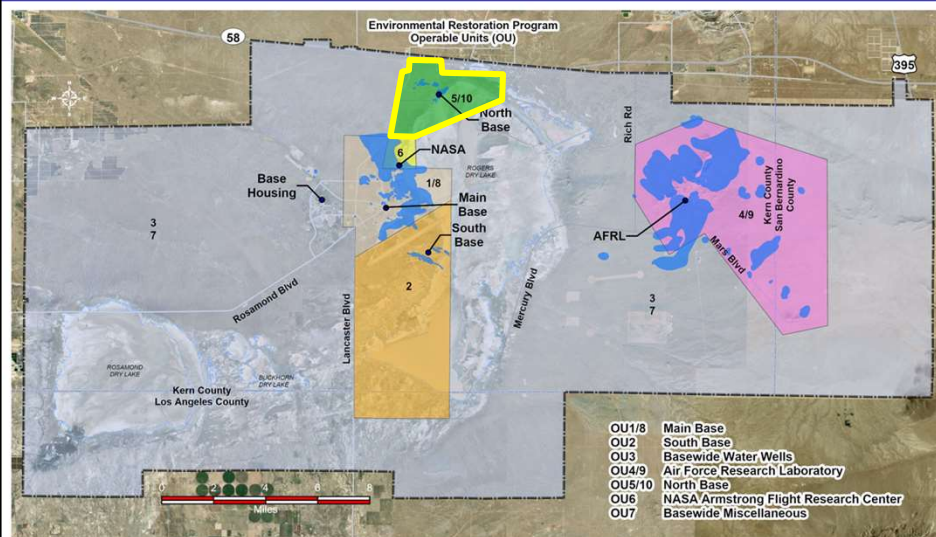
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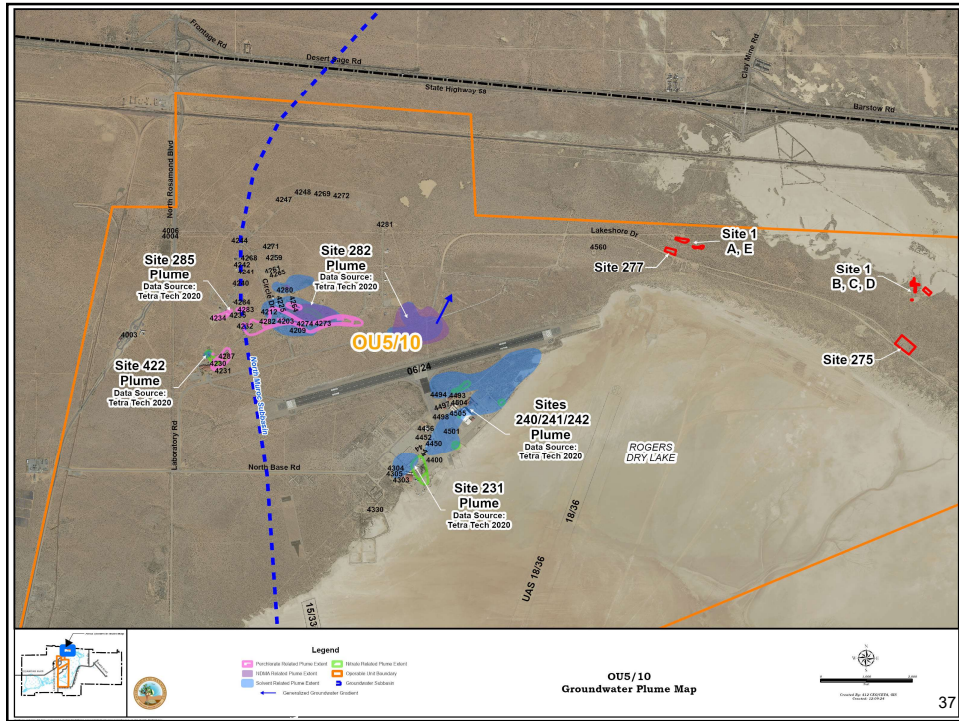
## OU5/10 North Base (Pre-ROD)




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## OU5/10 North Base (Pre-ROD)



- **Revised Draft OU5/10 FS: Regulatory comments were completely received February 2025 and the Air Force submitted responses to the regulatory comments in May 2025**
- **Installed 23 data gaps wells to evaluate the vertical and lateral extent of contaminants at OU5/10**
- **Site 285 Interim Treatment System continues to operate**
  - A total of 234 pounds of perchlorate have been removed since 2003
- **The original GETS programmable logic controller (PLC), which was over 20 years old and had faulty hardware, was replaced and commissioned in March 2025 as part of continuous system optimization**

Jet Propulsion Laboratory  
Test Stand A (circa 1945)

Site 285 interim treatment system

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## OU6 NASA Armstrong (Post-ROD)



- **Fourth Five-Year Review**
  - **Objective: Determine whether the remedy remains protective of human health and the environment**
  - **Due: September 2026**
  - **Funded by NASA and under contract**
  - **Review to start September 2025**
  - **Local newspaper notices will be placed announcing the start of the review and the results of the review**

The U.S. Air Force Thunderbirds leave their mark in the skies above NASA Armstrong Flight Research Center



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## OU6 NASA Armstrong PFAS Update



- **RI effort underway**
  - **August 2024: Completed Field Event #1 consisting of sampling 78 monitoring wells and two soil borings**
  - **February 2025: Presented Field Event #1 results to regulatory agencies**
  - **May 2025: Anticipate submittal of the draft report summarizing the Field Event #1 results to regulatory agencies**
  - **Uniform Federal Policy-Quality Assurance Project Plan (UFP-QAPP) Addendum for Field Event #2 under contract**

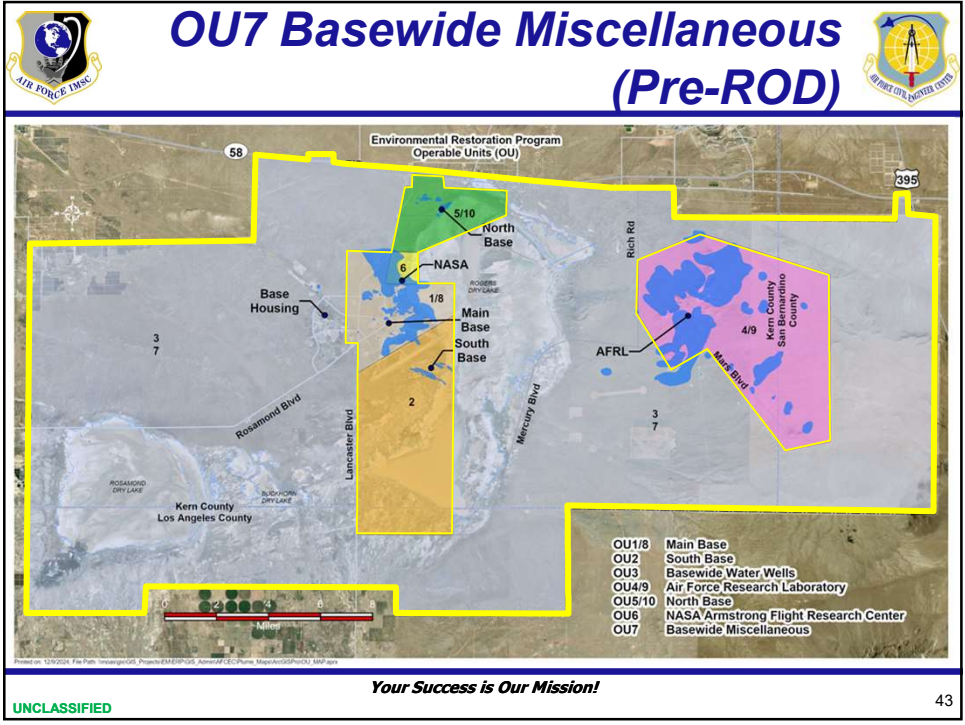


Mission-support aircraft on display at the Armstrong Flight Research Center

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**OU7 Basewide Miscellaneous (Pre-ROD)**

- Submitted soil gas sampling report in June 2024 for regulatory review; regulatory agencies provided comments in September 2024; responses to regulatory comments still on hold pending contract award

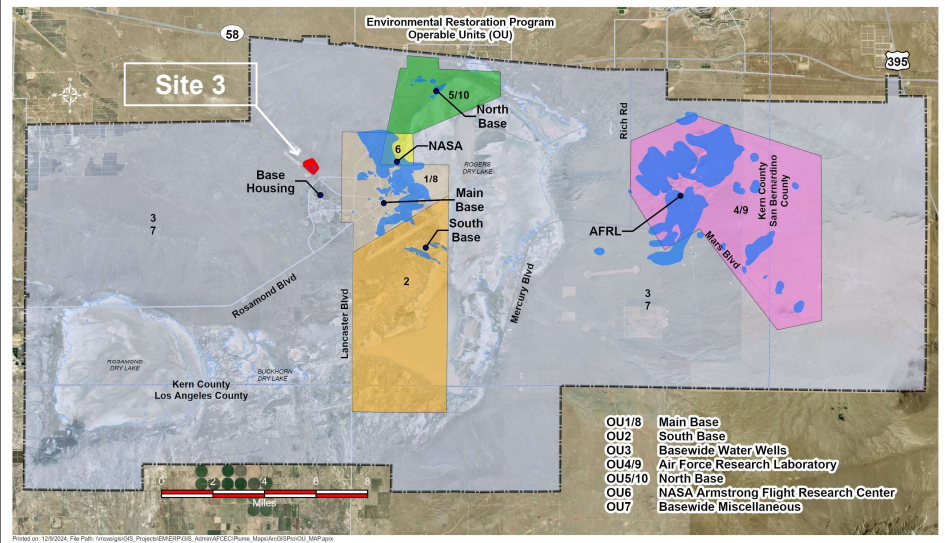
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# OU7 Site 3 (Post-ROD)



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## OU7 Site 3 (Post-ROD)



- Remedial Action Completion Report is in preparation
- November 2024-January 2025: Minor operations and maintenance (O&M) repair event and supplemental watering
  - Invasive vegetation abatement, stormwater channel repairs, access road grading, and signage installation
  - 3 months of supplemental watering of hydroseed application



Slope repairs at Site 3



## OU7 Site 3 (Post-ROD)



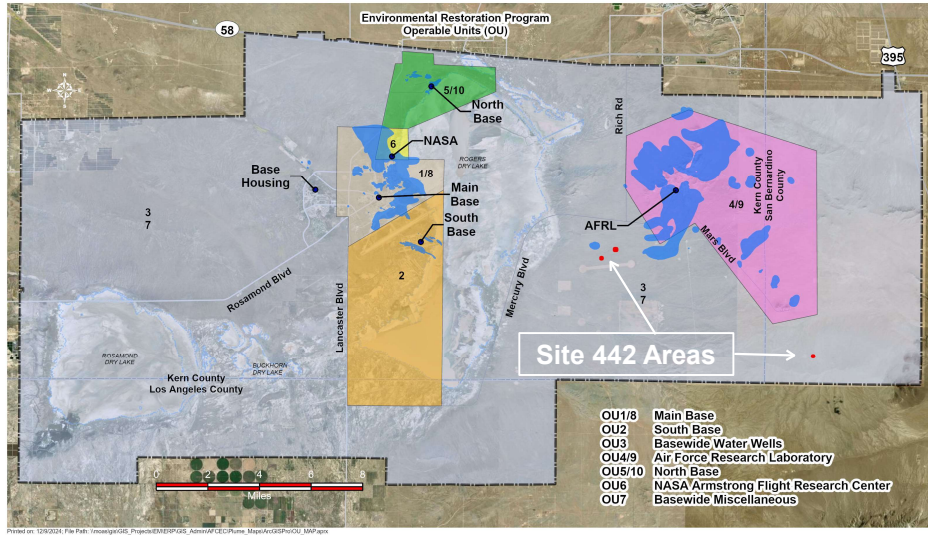
- February 2025: Draft Retention Basin Lining Work Plan submitted to regulatory agencies
  - Includes repairs of slopes
  - Lining of slopes with geotextile, and recycled concrete aggregate to protect against future storm erosion
- March 2025: Semiannual groundwater monitoring, landfill gas sampling and inspections
- April 2025: Minor O&M repair event
  - Minor storm repairs



Retention basin adjacent to landfill

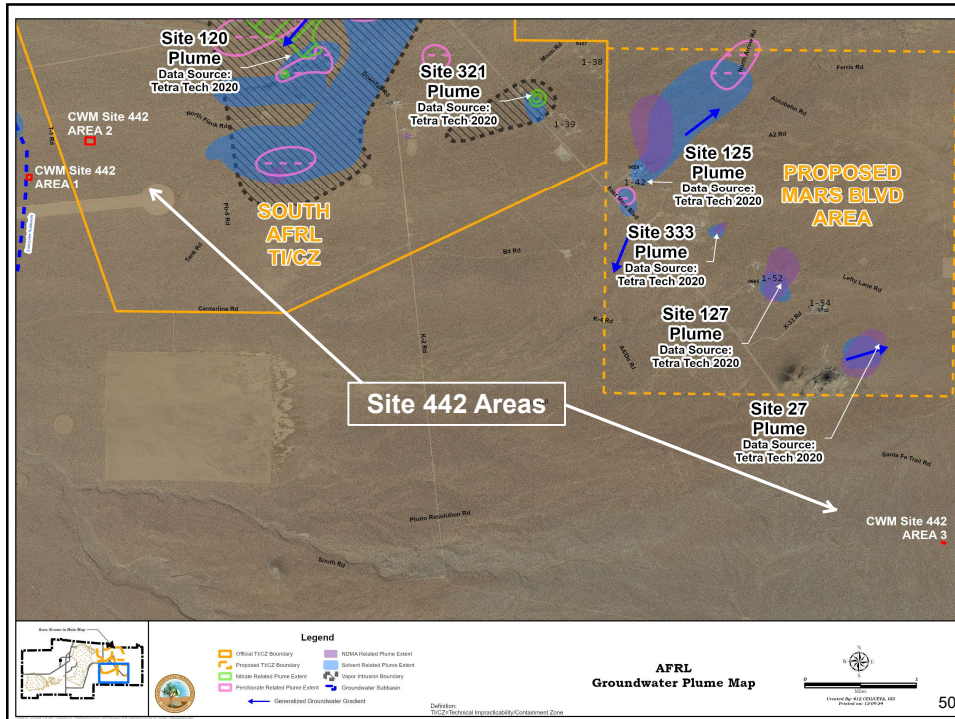


# OU7 Chemical Warfare Materiel (Post-ROD)



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# OU7 Chemical Warfare Materiel (Post-ROD)



- Vegetation has been identified as “stressed or dead” during the semiannual inspection for multiple years
- Re-seeding/revegetation effort performed in December 2022 at Site 442 Areas 1, 2, and 3
- November 2024 vegetation surveys
  - Increases in native species/non-natives reduced to near 0%
  - Increase in size of currently growing vegetation
  - Current native population of perennials are first species to establish and show signs of healthy soil development
- April 2025 survey recently completed (results pending)
- Follow-on Revegetation Work Plan is in preparation
  - In accordance with Edwards Habitat Restoration Plan (2024)
  - To include supplemental watering
  - Vegetation establishment process monitored for 5 years



# OU7 Chemical Warfare Materiel (Post-ROD)



Area 1 – view to east (Nov 2024)

Area 2 – view to west (Nov 2024)







# Site 25 (Pre-ROD)



- Air Force submitted the Revised Draft Site 25 FS in December 2024 for regulatory review
  - Agencies extended comment period until May 2025



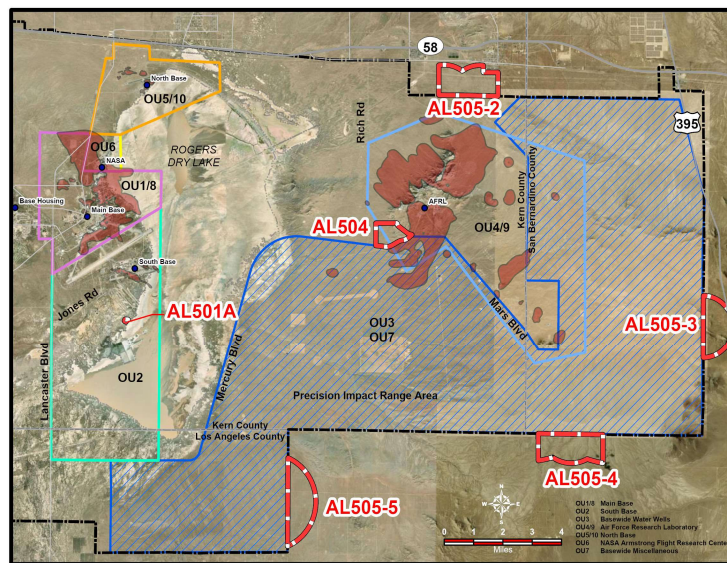
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# Military Munitions Response Program (MMRP) (Pre-ROD)



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# MMRP (Pre-ROD)



- The regulatory agencies concurred on the Draft Final ROD
  - Awaiting determination of California land use covenant regulation to be included in ROD before final ROD can be issued; still pending
- Solar developer construction activities have begun at AL505-2 and still in progress



Construction progress of the sub-station at the solar project site

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# MMRP 3Rs



Follow the 3Rs of Explosives Safety:

- **Recognize:**  
when you may have encountered a munition and that munitions are dangerous.
- **Retreat:**  
do not approach, touch, move or disturb it, but carefully leave the area.
- **Report:**  
call 911 and advise the police of what you saw and where you saw it.

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