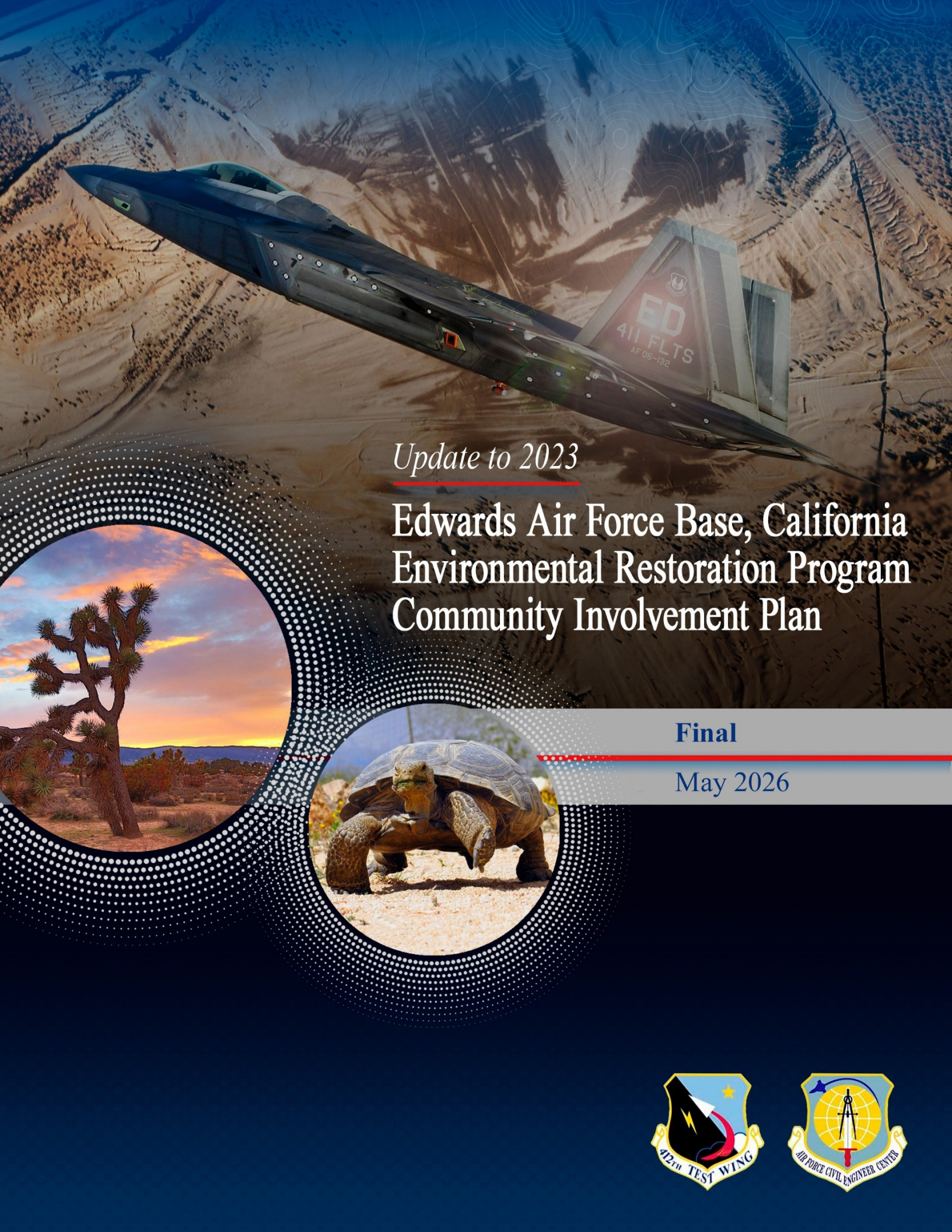




Update to 2023

Edwards Air Force Base, California Environmental Restoration Program Community Involvement Plan



Final

May 2026



This Environmental Restoration Program Community Involvement Plan meets the requirements of Air Force Instructions (DAFI) 32-7020, *The Environmental Restoration Program*, and DAFI 35-101, *Public Affairs Operations*.

This plan is approved for publication:

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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFFF	Aqueous Film Forming Foam
AFRL	Air Force Research Laboratory, Detachment 7
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
CIP	Community Involvement Plan
CRP	Compliance Restoration Program
DAFI	Department of the Air Force Instruction
DoD	Department of Defense
DTSC	California Department of Toxic Substances Control
ERP	Environmental Restoration Program
ESD	Explanation of Significant Differences
FFA	Federal Facility Agreement
FS	Feasibility Study
GenX	Hexafluoropropylene oxide dimer acid
HFPO-DA	Hexafluoropropylene oxide dimer acid
MMRP	Military Munitions Response Program
NASA	National Aeronautics and Space Administration
NCP	<i>National Oil and Hazardous Substances Pollution Contingency Plan</i>
NPL	National Priorities List
OU	Operable Unit
PA	Preliminary Assessment
PCE	Tetrachloroethene
PFAS	Perfluoroalkyl and Polyfluoroalkyl Substances
PFBS	Perfluorobutanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
RAB	Restoration Advisory Board
RI	Remedial Investigation
ROD	Record of Decision

RTS	<i>Report to Stakeholders</i>
SARA	<i>Superfund Amendments and Reauthorization Act of 1986</i>
SI	Site Inspection
U.S. EPA	United States Environmental Protection Agency
Water Board	California Regional Water Quality Control Board, Lahontan Region

1.0 INTRODUCTION

Edwards Air Force Base (AFB), in conjunction with the United States Environmental Protection Agency (U.S. EPA), the California Department of Toxic Substances Control (DTSC) and the California Regional Water Quality Control Board, Lahontan Region (Water Board), has developed this Community Involvement Plan (CIP) to specify outreach activities intended to address community concerns and expectations.

The goals of Edwards AFB's community involvement program include the following:

- Providing opportunities for the public to become educated about, and actively involved in, Edwards AFB restoration activities;
- Meeting the community's needs for information;
- Incorporating community issues and concerns into cleanup decisions; and
- Giving feedback to the public on how Edwards AFB is addressing the public's issues and concerns about the cleanup work.

Edwards AFB has developed this CIP to organize public participation efforts throughout the investigation and cleanup process for the sites on base. In the fall of 2021, Edwards AFB conducted research and interviews with 18 community members, elected officials, Air Force personnel, and other stakeholders. This document identifies current and potential community concerns, provides guidance for communicating with the local public, and establishes an action plan to address those concerns through various activities. A glossary of terms used throughout this CIP is provided in Appendix A.

1.1 PURPOSE OF THE COMMUNITY INVOLVEMENT PLAN

The purpose of the CIP is to identify community issues and concerns regarding the Air Force's cleanup of hazardous waste, petroleum contamination, and munitions from past military activities conducted at Edwards AFB. This document also identifies community involvement activities the Air Force will conduct at Edwards AFB during the phases leading up to and including remediation of hazardous substances, pollutants, and contaminant releases. The Air Force is releasing this CIP to facilitate communication between the public and those responsible for cleanup at Edwards AFB.

1.2 AUTHORITY FOR CONDUCTING THE COMMUNITY INVOLVEMENT PLAN

The Air Force prepared Edwards AFB's first CIP in 1991 pursuant to the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA), as amended by the *Superfund Amendments and Reauthorization Act of 1986* (SARA), the *National Oil and Hazardous Substances Pollution Contingency Plan* (NCP), and the *Edwards AFB Federal Facility Agreement* (FFA). This revision was prepared in accordance with Department of the Air Force Instruction (DAFI) 32-7020, *The Environmental Restoration Program*, DAFI 35-101, *Public Affairs Operations*, DTSC Public Participation Plan guidance (DTSC 2001), and U.S. EPA *Superfund Community Involvement Handbook* (U.S. EPA 2020).

1.3 LEAD AGENCY AND SUPPORTING AGENCIES

As the lead agency for cleanup at Edwards AFB, the Air Force developed and implemented a CIP as part of the Department of Defense's public participation requirements. The U.S. EPA, DTSC, and Water Board are supporting agencies that provide comments on draft CIP documents.

According to U.S. EPA guidance, the CIP should be a living document and is updated and revised as site conditions change. The 2025 CIP updates the 2023 CIP with the inclusion of an emerging contaminants section.

For the 2023 CIP and in conjunction with the U.S. EPA, DTSC, and Water Board, the Air Force interviewed community members in the fall of 2021 to learn whether the public had any new concerns or issues since interviews were last conducted in 2012. Additional interviews were not conducted for the 2025 CIP.

1.4 PREVIOUS COMMUNITY INVOLVEMENT PLANS

CIP updates help the Air Force understand and respond to changing demographics and public concerns, and help the surrounding communities understand how to get involved. Updates are also helpful as onsite investigation and remediation activities change. At Edwards AFB, the cleanup program has changed from conducting large contamination removal actions and risk reductions to making final decisions on residual contamination. Edwards AFB published its first CIP in 1991 and the last approved CIP was issued in August 2023. Community interviews were performed in 1990, 2001, 2012 and 2021.

2.0 COMMUNITY INTERESTS AND CONCERNS

2.1 COMMUNITY INTERVIEWS

Community interviews were conducted in 1990, 2001, 2012, and 2021 by Edwards AFB personnel in coordination with supporting regulatory agencies—U.S. EPA, DTSC, and the Water Board. Interviewees included local officials, community leaders, and interested citizens. A total of 18 people were interviewed from October to November 2021. Due to the COVID-19 pandemic, most interviews were conducted virtually or over the telephone. A list of the questions from the 2021 interviews is included in Appendix B.

2.2 CURRENT COMMUNITY CONCERNS

Most interviewees were familiar with the Edwards AFB cleanup program. Over 70 percent of interviewee respondents expressed a high level of confidence in the current cleanup efforts at Edwards AFB. Only five of the 18 interviewees expressed concerns with responses ranging from military munitions to groundwater contamination plumes affecting local aquifers. One interviewee voiced a concern unrelated to environmental cleanup, asking how their community could become more involved with Edwards AFB on a variety of other issues.

The following sections describe detailed responses provided by the interviewees. The concerns are listed in order of the frequency they were expressed. Note that some concerns are stated using the same terminology expressed by the interview respondents.

2.2.1 No Concerns

Twelve interviewees stated that they felt Edwards AFB was doing a good job and that they did not have any concerns. Interviewees said this is because contamination issues are being addressed, the cleanup program is consistently monitored, and the proximity of the base to their community is far enough away that contamination issues do not pose any high-level risks to their communities. The early and ongoing communication to stakeholders, especially the *Report to Stakeholders* (RTS) newsletter, is known in the region and provides a good level of transparency and credibility to the cleanup program.

2.2.2 Groundwater Contamination and Local Aquifers

Two interviewees had questions about groundwater contamination in relation to local aquifers. One respondent wondered if there is any connectivity from Edwards AFB to the Rosamond aquifer. This concern stems from the ongoing issues with rocket fuel in groundwater following World War II. Another respondent stated that the natural aquifer in the valley needed to be rectified as soon as possible.

2.2.3 Military Munitions

One respondent was concerned about military munitions being found on the base. The general concern was related to how the base plans to clean up past military munitions and the impacts to areas where they are found.

2.2.4 Perfluoroalkyl and Polyfluoroalkyl Substances (PFAS)

One individual stated a concern about PFAS becoming more prevalent in groundwater and would like these compounds banned from use. This individual has been working with other governmental agencies to have PFAS listed as designated hazardous substances.

2.2.5 Sampling

One individual mentioned that a lot of sampling is conducted in certain areas where remediation occurs. This person would like to see more than just sampling efforts being done but understands monetary constraints. However, the general concern was the lengthy timeframe it takes to clean up a site.

2.3 PUBLIC INTEREST AT RESTORATION ADVISORY BOARD (RAB) AND PUBLIC MEETINGS

Edwards AFB has a well-documented history of being responsive to the concerns of RAB members and the general public. There are many instances of RAB concerns being addressed by Air Force actions. Several cleanup topics discussed at RAB and public meetings in 1995 raised community interest, including the proposed destruction of pentaborane cylinders at the Air Force Research Laboratory, Detachment 7 (AFRL) and the non-stockpile chemical warfare materiel program.

Because of the nature of the materials involved, the Air Force called in experts, coordinated with regulatory agencies, and asked local communities to provide input. Both cleanups were carefully monitored, and the Air Force published results and updates in the RTS in addition to keeping RAB members informed.

Two individual sites—Site 25 and Site 416—raised community concerns in 1999. Employees from the National Aeronautics and Space Administration (NASA) Armstrong Flight Research Center expressed concern about the proximity of a former daycare center and extent of trichloroethene contamination from Site 25. In response, the Air Force initiated an interim removal action to prevent further migration of the groundwater contamination. The action included the use of a groundwater extraction and treatment system. In addition, the Air Force installed groundwater monitoring wells between the leading edge of the plume and the building. While the daycare center was moved and consolidated with the EAFB Child Development Center near the housing area on base, the interim treatment system at Site 25 continued to run until June 2010.

Site 416, an abandoned homestead water well, created public interest in 2003 because it contained high levels of arsenic and was located near the base boundary with the unincorporated community of Mojave. Further investigation of the site resulted in the removal of contaminated soil. No further contamination was detected following soil removal. Although the groundwater contained arsenic levels

higher than the regulatory limit, the levels were consistent with regional data indicating the arsenic was naturally occurring.

In fiscal year 2001, the RAB raised concern about perchlorate contaminated groundwater in an area of the base close to North Edwards. These RAB members' concerns played a role in the decision to fund a \$1.5M perchlorate treatability study at Site 285, an area of high perchlorate concentrations in groundwater at North Base. In another instance, the RAB's concerns about potential hazards to airmen living in the dormitories supported the Air Force's decision to excavate refuse trenches associated with a site identified on World War II-era maps as a toxic gas yard.

In fiscal year 2012, the Air Force faced a 50 percent reduction in funds available for RAB support. Even though the RAB supported the Air Force's move toward online communication, the board expressed disapproval at the suggestion to make the RTS newsletter (Section 4.1.3) solely electronic. Despite the funding cuts, the Air Force budgeted to continue distributing hard copies of the RTS in response to RAB member concerns.

During the public comment periods of two RAB meetings in 2015 and 2016, interest was raised about a formal dispute invoked by regulatory agencies on the South AFRL Explanation of Significant Differences. At the March 2015 RAB meeting, a representative of the California Communities Against Toxics raised a concern that the dispute resolution consider the protection of women of childbearing age and children. At the May 2016 RAB meeting, a RAB member from China Lake expressed interest in the outcome of the dispute because the member stated that events at Edwards AFB could eventually affect China Lake. The dispute was resolved in May 2019 and the South AFRL Explanation of Significant Differences (ESD) was finalized in October 2021. The South AFRL ESD provides in-depth information on the dispute and how it was resolved and is available on the Air Force's Administrative Record website at <https://ar.cce.af.mil>.

2.4 ISSUES RAISED BY THE LOCAL COMMUNITIES

2.4.1 Rosamond/South Mojave

In the late 1980s and early 1990s, substantial press coverage and community involvement revolved around 44 hazardous waste sites concentrated in the Rosamond/south Mojave area. None of these sites was related to base military activities. Because the area had an unexplained high number of childhood brainstem cancer cases, state health officials investigated the sites over a period of five years. No direct link between any one patient and a specific point of contamination was established. There have been no community concerns regarding this issue for at least the last 10 years.

2.4.2 North Edwards

Because of concern from North Edwards residents regarding potential contamination to the town's drinking water, the North Edwards Water District contacted the base's Environmental Management office in 1989. To alleviate concerns, Edwards AFB personnel performed tests to identify and evaluate contaminant plumes near the base boundary with North Edwards and installed groundwater monitoring wells to monitor plume movement. Although the plume had not migrated off the



base, the California Department of Health Services sampled North Edwards drinking water sources in 1998 to screen samples for potential contaminants, including ammonium perchlorate. None of the samples analyzed showed any chemicals of concern. To date, no additional concerns have been raised regarding this issue.

2.5 REGULATOR CONCERNS

Regulatory agencies including the U.S. EPA, DTSC, and the Water Board have a broad perspective that allows them to understand issues in the context of what is being learned from other sites in the region. Regional trends that concern regulators at Edwards AFB include vapor intrusion, PFAS, contamination of groundwater, munitions debris at or near the soil surface, and skeet/small arms ranges. As these issues are investigated at Edwards AFB, updates will be provided to the public using communication tools outlined in Section 4.0.

2.6 ADDRESSING STAKEHOLDER CONCERNS

The base releases information that addresses many of the community and regulatory concerns in the form of fact sheets, newsletters, technical reports and documents as outlined in Section 4.0, Action Plan. All of this information is available for viewing on the Air Force's Administrative Record website at <https://ar.cce.af.mil>. The Administrative Record contains documents that form the basis for the selection of a response action. Under CERCLA, Edwards AFB is required to compile and maintain the Administrative Record.

A subset of recently published documents can also be found on the Edwards AFB website at <https://www.edwards.af.mil/About/Environment> under the Publications tab. Gary Hatch, 412th Test Wing Public Affairs, can be contacted by telephone at (661) 277-8707 or via e-mail at 412tw.pae@us.af.mil to receive this information in hard copy format or to obtain information unrelated to the Environmental Restoration Program (ERP).

3.0 COMMUNITY PROFILES

3.1 COMMUNITIES SURROUNDING EDWARDS AFB

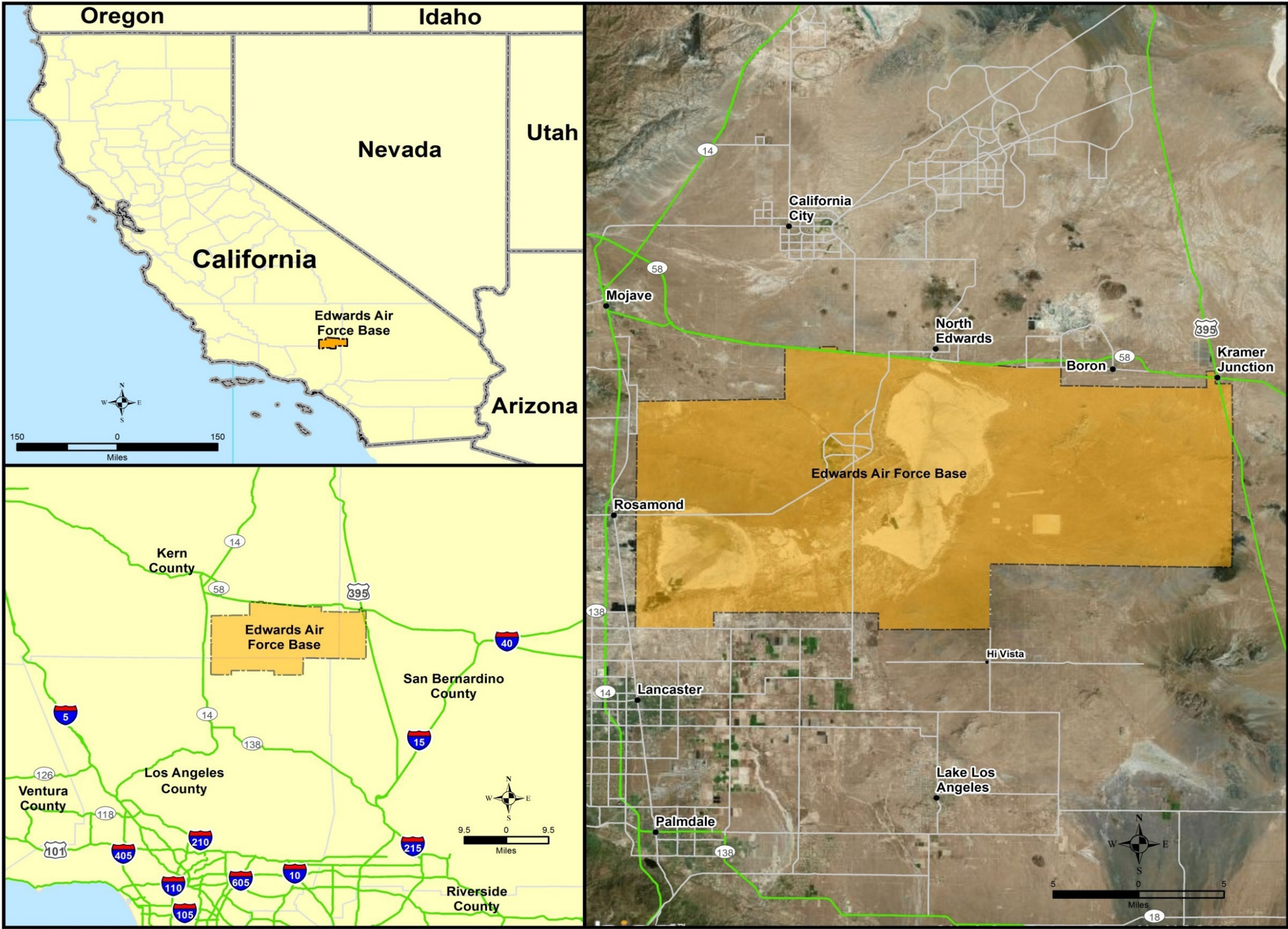
Neighboring communities include Boron, California City, Lancaster, Mojave, North Edwards, and Rosamond (Figure 1). These communities are located in the Antelope Valley, an area of more than 3,000 square miles.

The Antelope Valley, located in northern Los Angeles County, California, and the southeast portion of Kern County, California, constitutes the western tip of the Mojave Desert. It is situated between the Tehachapi and San Gabriel Mountains. The Antelope Valley is home to over 475,000 people.

The 2019 Antelope Valley Integrated Regional Water Management Plan (Regional Water Management Group 2019) provides a strategy for increased water demand associated with anticipated regional growth. The Plan states, "all of the water currently used in the Antelope Valley Region comes from two sources: (1) naturally occurring water within the Antelope Valley Region (surface water and groundwater accumulated from rain and snow that falls in the Antelope Valley and surrounding mountains), and (2) State Water Project water (surface water that is collected in northern California and imported into the Antelope Valley and other areas around the state)." It is important to note that the current groundwater contamination plumes at Edwards AFB are not expected to migrate toward water supply wells.

Sections 3.1.1 through 3.1.6 include demographic information and a brief highlight for each of the communities neighboring Edwards AFB.

Figure 1. Edwards AFB Vicinity Map

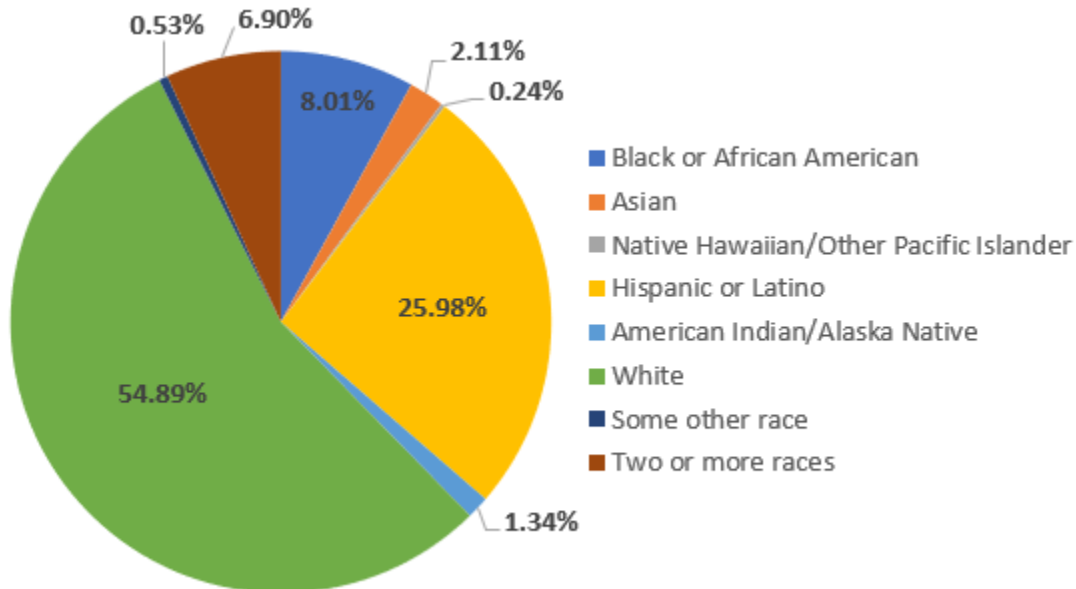


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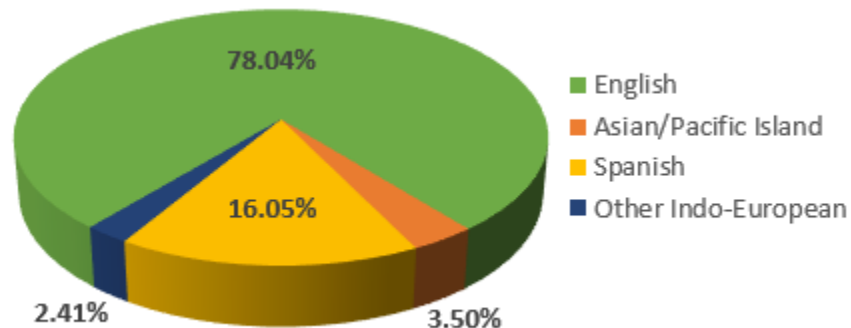
3.1.1 Boron

Boron is located on the border of the Mojave Desert, approximately 20 miles from the central part of Edwards AFB. Boron is a small community in Kern County, California, with a population of approximately 2,086 according to the 2020 Census (United States Census Bureau 2020).

Ethnic Composition in Boron, CA



Languages Spoken at Home in Boron, CA

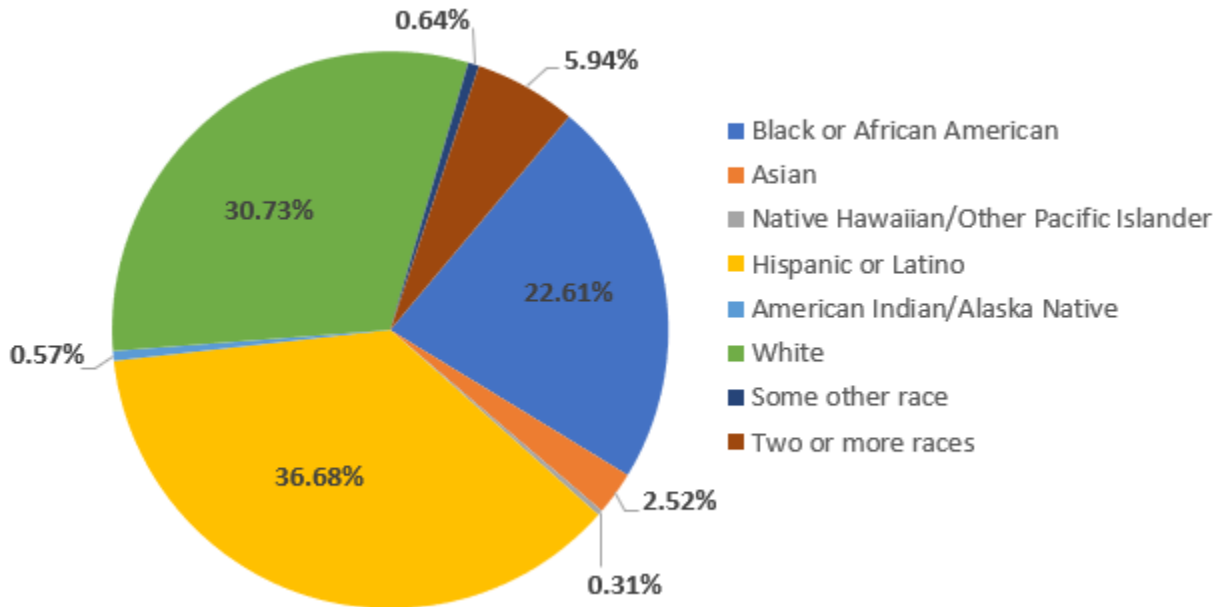


The town is named after the element that is produced at the nearby U.S. Borax Mine. The mine produces approximately 1 million tons of refined borate ore every year and provides a third of the world's supply of refined borate products. Local attractions include the Twenty Mule Team Museum, with exhibits highlighting the mining operations in the area. The museum has a working model of a 20-mule team that is controlled electronically, much like an amusement park ride, and simulates how the mining was conducted historically. Other exhibits include fire engine equipment and kitchen artifacts from the 1930s. In the lot next to the museum, visitors can take a walk to view 30 artifacts, including a miner's cabin and a simulated mine entrance.

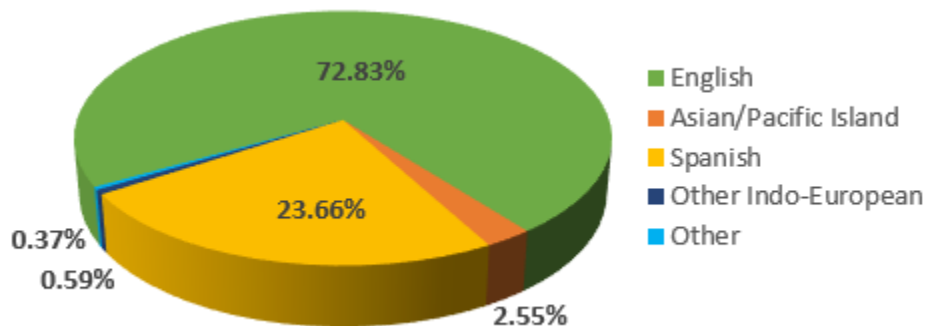
3.1.2 California City

California City, incorporated in 1965, is a city in the Mojave Desert in eastern Kern County approximately 65 miles from Death Valley National Park and 20 miles from Edwards AFB. The city has a total area of 204 square miles with a population of approximately 14,973 according to the 2020 Census (United States Census Bureau 2020).

Ethnic Composition in California City, CA



Languages Spoken at Home in California City, CA

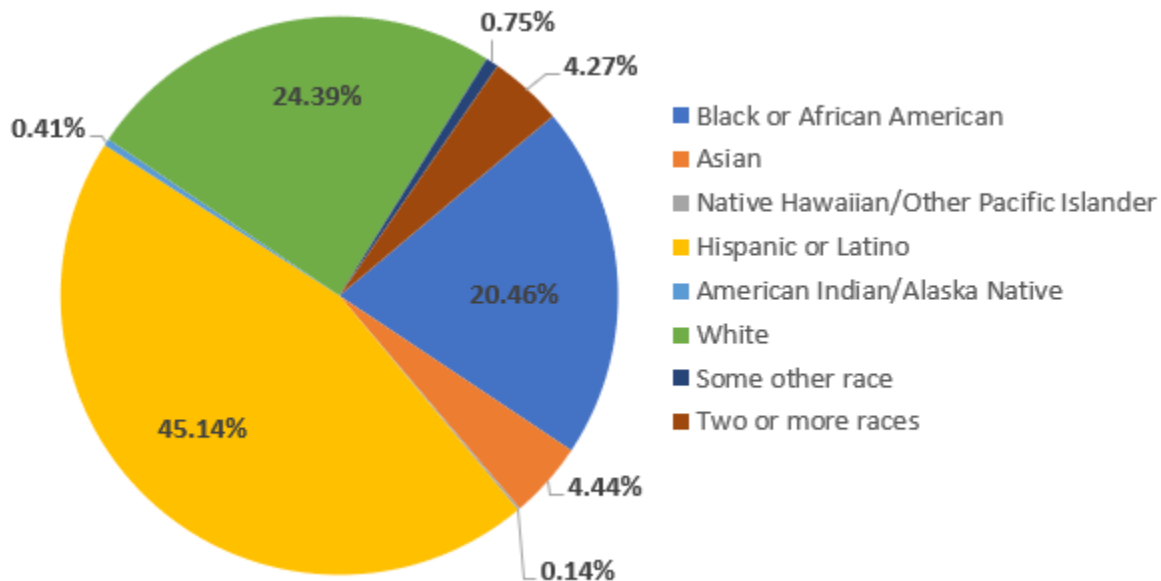


The town is a popular location for military personnel and their families because of the short commute from California City to Edwards AFB.

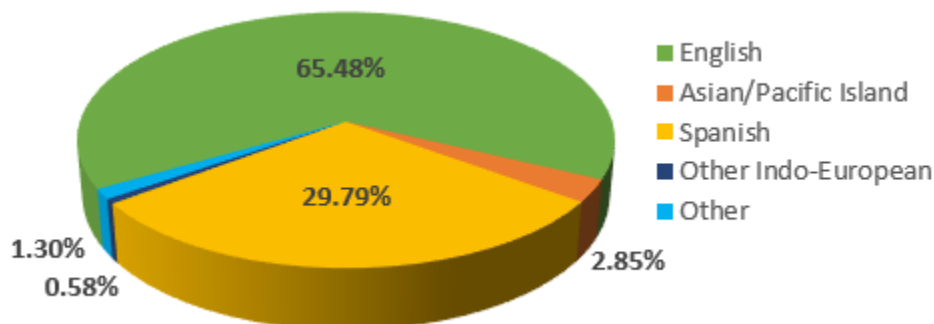
3.1.3 Lancaster

Lancaster is located in northern Los Angeles County, near the Kern County line. Lancaster, which currently ranks as the 30th largest city in California and the 153rd largest city in the United States, is one of the principal cities within the Antelope Valley. The city has a total area of 95 square miles and is located approximately 70 miles from Los Angeles and approximately 15 miles from the central part of Edwards AFB. The current population is 173,516 according to the 2020 Census (United States Census Bureau 2020). The town grew to prominence because of the aerospace industry.

Ethnic Composition in Lancaster, CA



Languages Spoken at Home in Lancaster, CA



Local attractions include the Antelope Valley California Poppy Reserve, which has more than 1,700 acres of poppy fields with walking trails and a multitude of other flowers for visitors to enjoy. Each spring, the California Poppy Festival draws upwards of 60,000 guests to Lancaster City Park to celebrate springtime. The California Poppy Reserve, 20 miles west of Lancaster, boasts one



of California's most abundant crops of the state flower. The Poppy Festival has become a popular event not only for Lancaster residents, but also for visitors from around the world.

Saddleback Butte State Park is another scenic park with many native Joshua trees and unique wild plants and animals. One of the rare species that may be seen is the desert tortoise, an age-old desert animal.

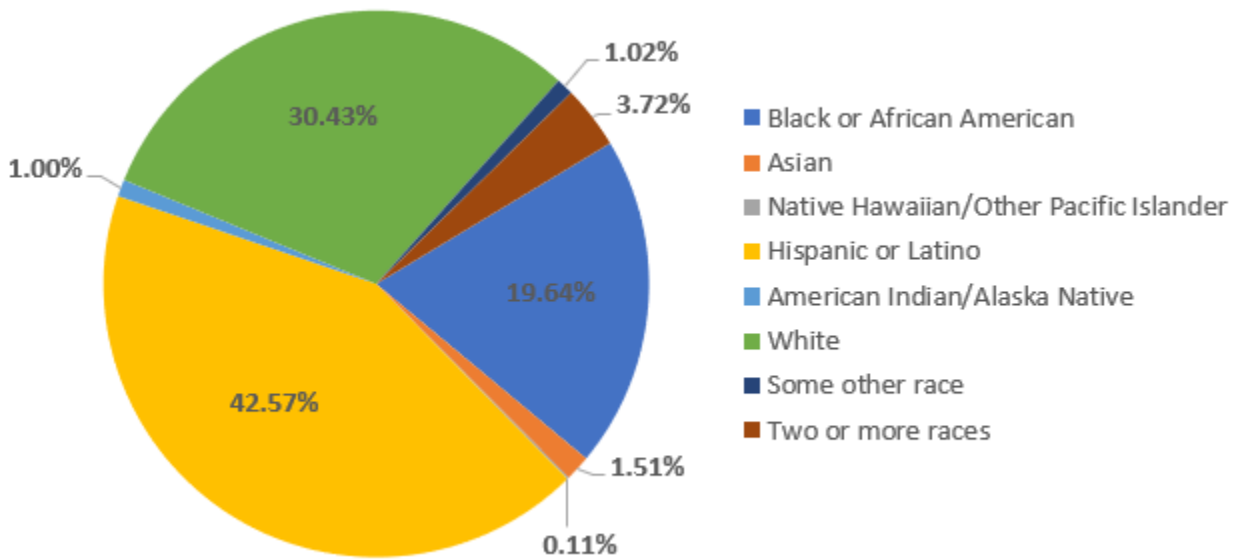
The city is also home to the Lancaster Museum of Art and History (MOAH). Founded in 1986, MOAH operates four sites within the City of Lancaster, serving the Antelope Valley and greater Los Angeles County regions. The museum's primary exhibition space is host to large-scale curatorial initiatives, which celebrate the historic traditions and artistic revolutions taking place in Southern California. MOAH holds a collection of over 10,000 artworks and artifacts, producing community-oriented programming designed to engage diverse audiences.

3.1.4 Mojave

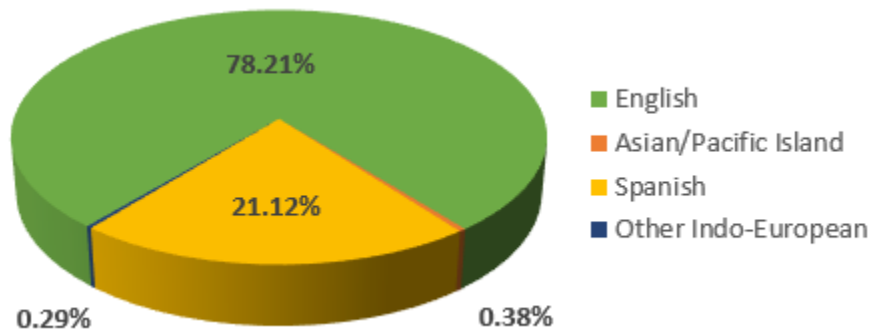
Mojave is located approximately 50 miles east of Bakersfield at the western edge of the Mojave Desert. Mojave is an unincorporated community of approximately 58 square miles of land and a population of 4,699 (United States Census Bureau 2020).

Mojave has a rich aerospace history and is home to the Mojave Air and Space Port, which is the first inland spaceport. The first private spaceflight was launched from Mojave Air and Space Port on June 21, 2004. Edwards AFB is located approximately 24 miles from Mojave.

Ethnic Composition in Mojave, CA



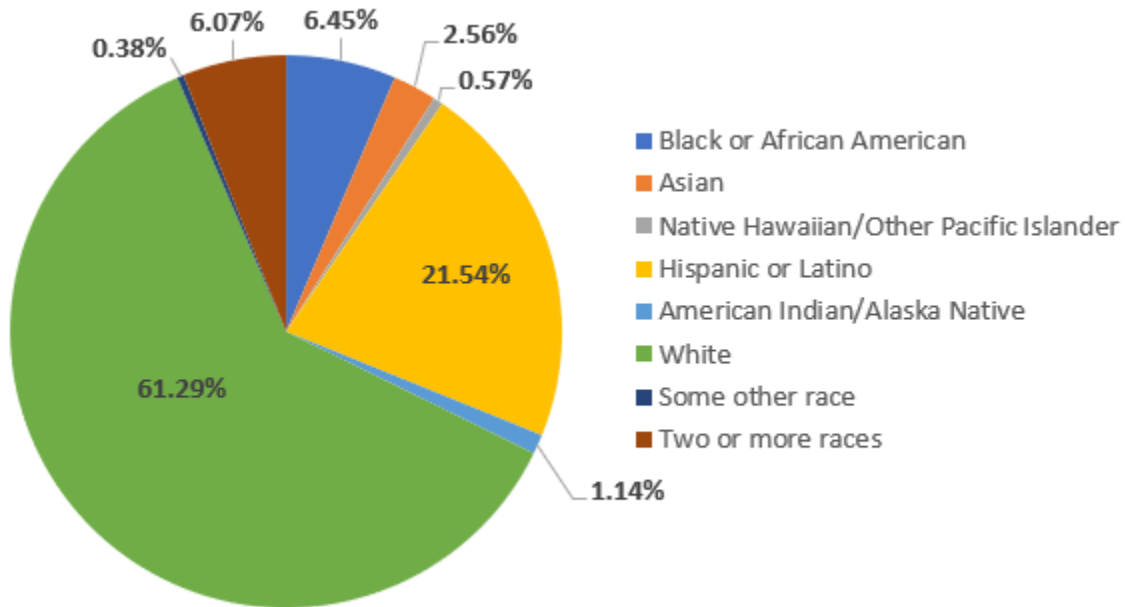
Languages Spoken at Home in Mojave, CA



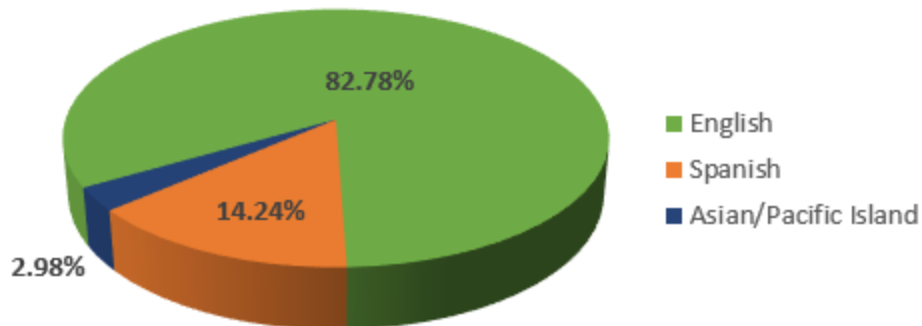
3.1.5 North Edwards

North Edwards is located approximately 10 miles from the central part of Edwards AFB with a total area of 12.7 square miles. The population was 880 according to the 2020 Census (United States Census Bureau 2020). The population of North Edwards is currently declining; its population decreased from 1,058 in 2010.

Ethnic Composition in North Edwards, CA



Languages Spoken at Home in North Edwards, CA

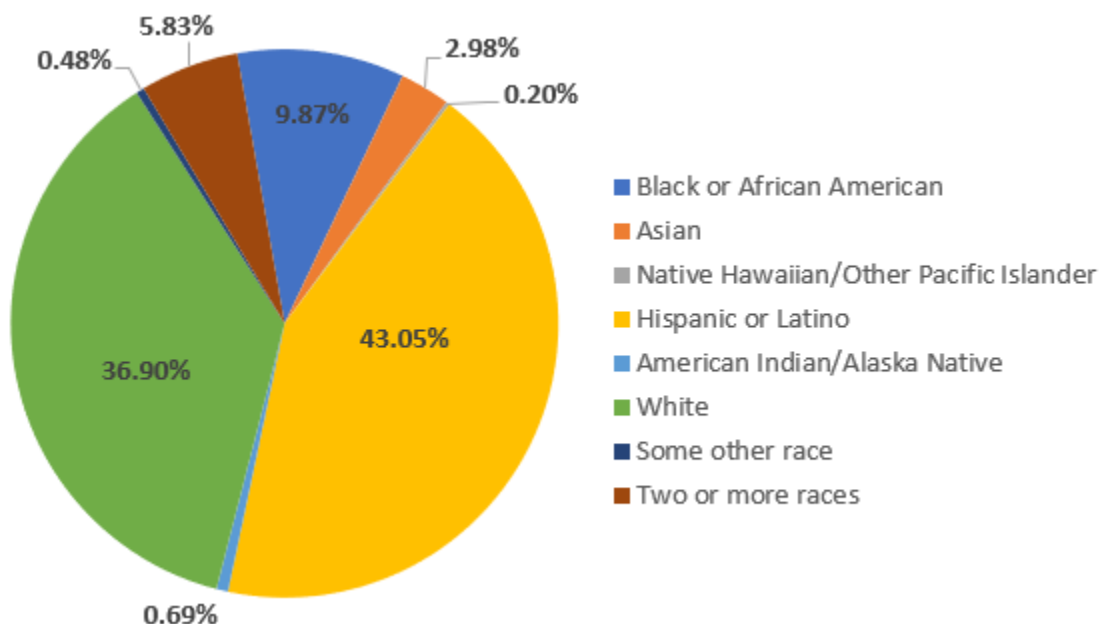


North Edwards is home to the Sunshine Market and several churches. Primarily for reasons of economic viability, several prior establishments have closed over the years. Today, the town mainly serves as a bedroom community for those wishing to live near Edwards AFB or the U.S. Borax Mine in Boron.

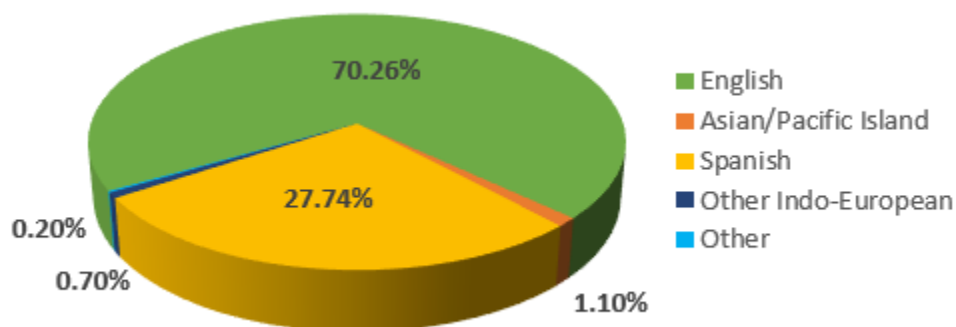
3.1.6 Rosamond

Rosamond is located on the northwestern end of the Antelope Valley. Rosamond has a total area of approximately 52 square miles and a population of approximately 20,961 according to the 2020 Census (United States Census Bureau 2020).

Ethnic Composition in Rosamond, CA



Languages Spoken at Home in Rosamond, CA



The town was established in the late 1800s and received a boost in population when gold was discovered nearby in the 1890s. With the arrival of Edwards AFB, the town's economy got another lift. Edwards AFB is one of the larger employers in the area. Rosamond is located approximately 16 miles from the central part of Edwards AFB. Rosamond is home to the Feline Conservation Center, which showcases 13 species of wild cats.

3.2 ON-BASE COMMUNITIES

The 412th Test Wing provides support to more than 11,000 personnel assigned to the base. Major tenant units on base include the Air Force Research Laboratory, NASA Armstrong Flight Research Center and 54 other units.

3.2.1 Air Force Research Laboratory, Detachment 7

Situated in the eastern portion of the base, the AFRL covers more than 20,000 acres and is used for spacecraft and rocket propulsion test programs.

3.2.2 Base Housing

Located to the west of Main Base, this area incorporates on-base housing for military families. The base currently has 741 family housing units.

3.2.3 Main Base

Main Base includes military, civilian, and contractor employees who work in flight test, engineering, administrative, and support services organizations.

3.2.4 NASA Armstrong

NASA Armstrong Flight Research Center plays a vital role in carrying out the agency's missions of atmospheric flight research and test projects. Edwards AFB was the secondary landing site for NASA space shuttle flights when the Space Shuttle Program was operational.

3.2.5 North Base

North Base is one of the oldest portions of Edwards AFB, with infrastructure dating back to the 1930s and 1940s. North Base was closed in the 1950s and has since been used for temporary testing programs. This area includes the former site of the NASA Jet Propulsion Laboratory.

3.2.6 South Base

Located to the south of Main Base, this area was the center of base activities during the 1940s and 1950s. South Base is home to the Yeager Pit, a concrete depression that was once used to attach the Bell X-1 to the belly of the B-29 mothership. The South Base area is now used for heavy aircraft operations, munitions storage, and general aviation aircraft flight.



Chuck Yeager in front of the Bell X-1. Yeager broke the sound barrier in this type of aircraft at Edwards AFB in October 1947.

4.0 ACTION PLAN

The Air Force manages its environmental restoration programs and activities conducted under CERCLA in accordance with the NCP, the Edwards AFB FFA and DAFI 32-7020. These laws, regulations and guidance define the elements for community relations activities that take place during the CERCLA cleanup process.

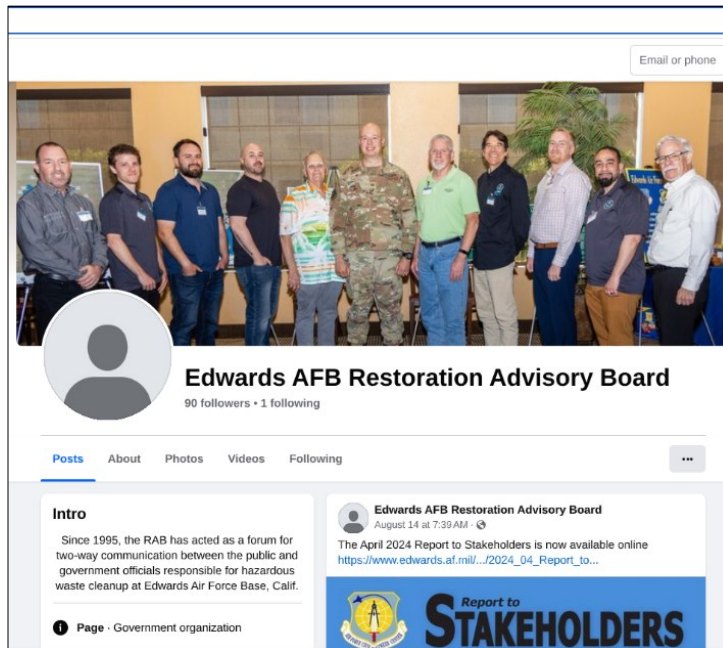
4.1 EXISTING OUTREACH ACTIVITIES

In addition to complying with required community relations activities, Edwards AFB strives to be as transparent as possible with the public. Recent interviews provided insight regarding which activities are effectively getting information out to the communities and what information tools will be helpful to supplement the current program. Edwards AFB currently supports several ways in which the public can participate in the base's cleanup decision-making process.

4.1.1 Restoration Advisory Board (RAB)

The RAB is one of the best resources available to the public. A person from each of the surrounding and on-base communities acts as a public representative on the RAB. Public representatives volunteer to act as a conduit of information between the members of their communities and those responsible for the base's environmental cleanup. To contact a community representative, visit the Edwards AFB website at <https://www.edwards.af.mil/About/Environment> to locate contact information under the "Restoration Advisory Board" section. A contact list is also available in Appendix J.

Figure 2. RAB Facebook Page



The board meets semiannually and the public is welcome to attend. Meeting announcements run in the local newspapers approximately a week before the meeting and are also posted on the RAB's Facebook page (Figure 2) and the *Report to Stakeholders* newsletter (Section 4.1.3).

Because of a reduction in funding in fiscal year 2012, the Air Force was unable to continue the level of support previously provided to the RAB. Therefore, the frequency of formal meetings was changed from quarterly to semiannually. In lieu of the quarterly meetings, base officials proposed several alternatives to the board, including the following: moving RAB meeting locations

to the base for working-group sessions; meeting at a restaurant for informal dinner discussions; video conferencing; and using social media for the exchange of information. At the February 2011 meeting, board members agreed to a reduction in the frequency of formal meetings and to initiate the use of social media. August 2011 marked the launch of the RAB Facebook page. Three training sessions were offered to board members to help familiarize them with the social media forum. In February 2012, RAB members attended a working-group session to learn how to protect their privacy on Facebook.

Currently, the RAB Facebook page is used as an online information exchange forum. From the Facebook page, the public can also access information about upcoming events such as RAB meetings or other public meetings, fact sheets, *Report to Stakeholders* newsletters, and other information about restoration efforts. Future uses for the page will be determined by the RAB, if Air Force funds allow. Some benefits to having a Facebook page include improving the RAB's ability to reach a broader

audience within their communities in a convenient way that fits into personal schedules and also providing a platform that may interest a younger generation.

4.1.2 Our Remedial Project Managers are Available to You

You may contact your local RAB representative or any of the base's remedial project managers who oversee the Edwards AFB cleanup program. Contact information for RAB representatives and remedial project managers is available in Appendix J. Updated contact information can be found in the quarterly RTS newsletter, the Edwards AFB website at <https://www.edwards.af.mil/About/Environment> under the "Restoration Advisory Board" section or by emailing 412tw.rab@us.af.mil.

Additionally, Air Force environmental experts are available to give presentations or hold informal discussions at regularly scheduled meetings of organized groups. Contact Gary Hatch, 412th Test Wing Public Affairs, to schedule a presentation or discussion with your group. Mr. Hatch can be reached by telephone at (661) 277-8707 or via e-mail at 412tw.pae@us.af.mil.

4.1.3 Report to Stakeholders

The Air Force Civil Engineer Center's Installation Support Section at Edwards AFB publishes a quarterly newsletter to inform the public about the ERP's progress and RAB events. To be added to the mailing list, e-mail 412tw.rts@us.af.mil or call (661) 277-8707. A link to recent RTS issues may be found on the RAB's Facebook page at www.facebook.com/RAB.Edwards, and hard copies are distributed to the information repository locations (Appendix E). Direct online access to recent and past issues can be found on the Edwards AFB website at <https://www.edwards.af.mil/About/Environment> and on the Air Force's Administrative Record website at <https://ar.cce.af.mil>.

4.1.4 Edwards AFB Official Website

Information on the Edwards AFB cleanup program can be found on the base's official website at <https://www.edwards.af.mil/About/Environment>. The public can access the site to learn more about the program and the RAB. From the website, the public can send an e-mail to the Public Affairs Office with questions or concerns about the program.



4.1.5 Information Repositories and Online Administrative Record

The screenshot displays the 'U.S. AIR FORCE CIVIL ENGINEER CENTER ADMINISTRATIVE RECORD 2.3.0' web application. It features a navigation bar with 'Active Duty', 'Air National Guard', and 'BRAC' options. A left sidebar lists various installations, with 'Edwards AFB, CA' selected. The main content area contains a search interface with multiple input fields: 'Subject or Title', 'Full Metadata Search', 'Full Document Search', 'Author', 'Recipient', 'Author ARI', and 'Recipient ARI'. Below these are dropdown menus for 'Sites', 'OUs', and 'RODs'. At the bottom of the search area are 'Documents After' and 'Documents Before' date pickers, and 'Search', 'Reset Search', and 'Reset Page' buttons. The footer includes links for 'IG', 'FOIA', 'AF Sites', and 'AF Executive Fleet', along with the 'Official United States Air Force Website' logo and additional links like 'USA.gov', 'No FEAR Act', 'Accessibility', 'EEO', 'Strategic APG', and 'Suicide Prevention'.

An information repository is a physical location where the public can view a collection of documents about cleanup sites at the base. It documents onsite activities and provides general information about the cleanup program. The information repository provides citizens, local officials, and the media with easy access to accurate, detailed, and current data about specific sites or related issues. It also contains documents undergoing public review. See Appendix E for repository locations.

Each information repository contains an identical set of documents and an index of all documents available in the Administrative Record (available for review by the public by appointment and online at <https://ar.cce.af.mil>). Administrative Record documents form the basis for environmental response actions and demonstrate the public's opportunity to participate in and comment on the selection of the response action.

The Administrative Record and information repositories are maintained by the Air Force throughout the remediation process. If the information repository content is not adequate for some specialized need, individual requests for documents can be handled on a case-by-case basis. Requests for documents should be directed in writing to the following address:

412th Test Wing Public Affairs
305 East Popson Avenue
Edwards AFB, California 93524

Inquiries can also be made by contacting Gary Hatch in the Public Affairs Office by telephone at (661) 277-8707 or via e-mail at 412tw.pae@us.af.mil.

4.1.6 Fact Sheets

Edwards AFB releases fact sheets summarizing current or proposed remedial activities. A sample fact sheet, along with a list of fact sheets, is included in Appendix D. Fact sheets can be accessed online at <https://www.edwards.af.mil/About/Environment> under Publications or by searching "Fact Sheets" on the Edwards AFB Administrative Record at <https://ar.cce.af.mil>.

4.1.7 Public Meetings and Comment Periods

Although community members are encouraged to provide input throughout the remediation process, some issues require public meetings. In general, these are required under CERCLA. Typically, public meetings, public availability sessions, and public comment periods are opportunities for the public to learn about and comment on remediation alternatives and Proposed Plans.

Such meetings will be part of a minimum 30-day public comment period. This allows the public time to make formal comments, which then become part of the official public record.



A responsiveness summary will be prepared addressing public comments and concerns raised during the formal Proposed Plan comment period. This responsiveness summary is included in the Record of Decision, the decision document that outlines the approved cleanup remedy.

The announcement of a public comment period will be through advertising in the news section of the *Antelope Valley Press*. Periodically, if the proposed action is close to a particular community, the Air Force will

also advertise in news sections of other local newspapers, such as the *Mojave Desert News*. *Aerotech News* will also be used to keep base residents and employees informed.

4.1.8 Tours

The experience of reading about a site coupled with seeing it firsthand can make a significant difference in understanding the site. That is one of the reasons Edwards AFB offers free group tours of its restoration sites.

Tours can be tailored to the specific desires of a group. Contact the Public Affairs Office 30 days in advance to arrange a tour. The Public Affairs Office or Gary Hatch can be reached by telephone at (661) 277-8707 or via e-mail at 412tw.pae@us.af.mil.

4.2 SUGGESTED ACTIVITIES

Based on input from the 2021 community interviews, the following activities will be considered for implementation.

4.2.1 E-mail

E-mail communication was suggested by 11 interviewees as an efficient way to communicate information to stakeholders. This is especially true for distributing the RTS newsletter and any other important updates. Many interviewees said they would prefer receiving the RTS electronically versus hard copy. A few said an added benefit to receiving the RTS newsletter electronically through e-mail is that it can easily be forwarded to other members of the community who may also be interested in the cleanup program.

4.2.2 RAB Meetings Uploaded on Social Media

Two interviewees suggested that RAB meeting minutes be uploaded to the RAB Facebook page. Another suggestion was to record RAB meetings and post the audio and/or video of the RAB meetings on the RAB Facebook page. This was suggested so that community members who could not attend a RAB meeting in person could view or listen to it virtually at a more convenient time.

4.2.3 Community Postings

It was suggested by two interviewees that Edwards AFB post meeting announcements and other brief items of importance on community bulletin boards.

4.2.4 Other Outreach Methods

Other tools suggested by interviewees to better reach the community include partnering with schools to engage youths in environmental lesson plans, educational clubs, and volunteer opportunities. Also, it was recommended that the base provide an environmental cleanup representative to speak periodically at other local civic organizations' meetings. Lastly, it was suggested that the base mail a hard copy of the RTS newsletter to senior centers, local lodges (i.e., Moose, Elks) and other well-known community groups.

4.3 TIMING OF OUTREACH ACTIVITIES

Edwards AFB implements communication with stakeholders throughout the investigation and cleanup effort. Some milestones require public communication. Table 1 provides an overview of the relationship between community relations activities and the ERP technical process.

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Table 1. Relationship Between Community Relations Activities and the Environmental Restoration Program Technical Process

	CIP	RI/FS	Proposed Plan	ROD	RD/RA	Five-year Review
Interviews	X					
Fact Sheet ⁽¹⁾ ⁽²⁾			X		X	
Public Notice ⁽²⁾	X		X	X		X
Restoration Advisory Board	X	X	X	X	X	X
Public Comment Period	X		X			
Public Meeting ⁽²⁾			X			
Administrative Record	X	X	X	X	X	X
Information Repository	X	X	X	X	X	X
Report to Stakeholders	Distributed quarterly to RTS mailing list ⁽³⁾					
Press Release	As Needed					
Site Tour	Upon Request					

Notes:

1. Fact Sheets are available on the Edwards AFB public website until placed in the Administrative Record.
 2. Public Notices, Fact Sheets and Public Meeting announcements will be published in one or more of the: local newspaper(s), RAB Facebook page or Edwards AFB public website.
 3. The RTS mailing list is updated quarterly.
- CIP Community Involvement Plan
 RD/RA Remedial Design/Remedial Action
 RI/FS Remedial Investigation/Feasibility Study
 ROD Record of Decision

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5.0 SITE DESCRIPTION

5.1 LOCATION AND HISTORY

Edwards AFB is located within the Antelope Valley and Mojave Desert of Southern California. The base is situated approximately 90 miles northeast of Los Angeles, California. The Antelope Valley is a wedge-shaped basin with internal drainage and dry lakebeds. The Tehachapi Mountains bound it on the northwest, the San Gabriel Mountains on the south, and buttes and hills on the east.

Base property accounts for approximately 15 percent of the Antelope Valley and encompasses approximately 481 square miles within three counties—Los Angeles, Kern, and San Bernardino (Figure 1). Most of the base is located in Kern County, and the southwestern portion of the base is in Los Angeles County. A small eastern portion of the base, which is primarily undeveloped desert, extends into San Bernardino County.



Communities bordering the base include Boron, California City, Hi Vista, Lancaster, Mojave, North Edwards, and Rosamond. On-base communities include Edwards AFB residents and employees working at the Air Force Research Laboratory Detachment 7, the 412th Test Wing, NASA Armstrong Flight Research Center, North Base and South Base.

Military activities at Edwards AFB began in 1933 when the Army Air Corps established a bombing and gunnery range. Aircraft testing began in early 1942. The first major aircraft design to be tested at the base was America's first jet fighter aircraft, the Bell XP-59.

In November 1943, the base was renamed Muroc Army Airfield. It became formally known as Edwards AFB on December 8, 1949. Since 1951, the primary mission at Edwards AFB has been aerospace weapons systems developmental testing and evaluation.

5.2 AREA GROUNDWATER BASIN

The Antelope Valley Groundwater Basin underlies an extensive alluvial valley in the western Mojave Desert. The elevation of the valley floor ranges from 2,300 to 3,500 feet above sea level. The basin is composed of two primary aquifers—the principal aquifer and the deep aquifer. The principal aquifer is an unconfined aquifer. Separated from the principal aquifer by clay layers, the deep aquifer is considered to be confined and is therefore generally protected from potential contamination.

In general, the principal aquifer is thickest in the southern portion of the Antelope Valley near the San Gabriel Mountains, while the deep aquifer is thickest in the vicinity of the dry lakebeds at Edwards AFB. Historically, groundwater in the basin flowed north from the San Gabriel Mountains and south and east from the Tehachapi Mountains toward Rosamond Lake, Buckhorn Lake, and Rogers Lake.

Figure 3 shows the Antelope Valley Groundwater Basin in relation to the base and groundwater contaminant plumes. Note that the groundwater contamination is close to the lowest elevation in the basin; therefore, the contamination is a considerable distance from populated areas and (based on groundwater flow and transport rates) is unlikely to migrate to populated areas within the next century.

Sustainable planning for regional water resources is detailed in the Antelope Valley Integrated Regional Water Management Plan (Regional Water Management Group 2019), which can be found at <https://pw.lacounty.gov/wwd/avirwmp>.

Due to interest in developing a better understanding of how water management at Edwards AFB is related to the overall hydrogeology of the Antelope Valley, in 2011 the Air Force produced a report titled *Basewide Conceptual Site Model* (United States Air Force 2011).

5.3 POTENTIAL CONTAMINATION SOURCES

In support of past military activities, Edwards AFB used, stored, and disposed of hazardous substances. Known or suspected contaminants in the soil and groundwater include jet fuel, motor vehicle fuel, industrial solvents, oil, grease, low levels of beryllium, metal plating waste, and rocket fuel components. An exposure pathway that has received significant attention in the last 10 years is vapor intrusion, by which chemicals—mainly volatile solvents and fuels—migrate upward from groundwater or soil and through building foundations into indoor air. This poses a



potential inhalation exposure for anyone who occupies buildings beneath which there is soil or groundwater contamination. Edwards AFB is on the forefront of addressing this issue and has released its own communications plan as part of its efforts (Appendix L).

In addition to hazardous substances, pollutants, and contaminant releases, the Air Force is addressing munitions and unexploded ordnance in areas no longer used for operational range activities. Base restoration program managers are also cleaning up historical petroleum, oil, and lubricant sites that do not fall under CERCLA. Colorized maps depicting the current extent of groundwater contamination plumes are provided in Appendix K.

5.3.1 Emerging Contaminants

Emerging contaminants are chemicals that have a reasonably possible pathway to enter the environment; present a potential unacceptable human health or environmental risk; and do not have regulatory standards based on peer-reviewed science, or the regulatory standards are evolving due to new science, detection capabilities, or pathways. It is the Department of Defense's (DoD) policy to identify emerging contaminants, assess DoD installations for the likelihood and severity of impacts associated with emerging contaminants, and identify and communicate risk management actions and policies that reduce these impacts.

Emerging contaminants currently being investigated at Edwards AFB include 1,4-dioxane (often used as a stabilizer for chlorinated solvents) and PFAS compounds (often referred to in news media as “forever chemicals”). The DoD has identified certain PFAS compounds that have affected installations across the Air Force. Specifically, perfluorooctanesulfonic acid (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS), which are components of aqueous film forming foam (AFFF) that the Air Force began using in the 1970s as a firefighting agent to extinguish petroleum fires.

The science and regulatory framework of PFAS is evolving rapidly. In April 2024, the U.S. EPA established legally enforceable levels, called Maximum Contaminant Levels (MCLs), for PFOS, PFOA, perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), and hexafluoropropylene oxide dimer acid (HFPO-DA, or GenX) in drinking water; however, as there are many other PFAS compounds that do not have regulatory standards, PFAS as a group are still considered emerging contaminants.

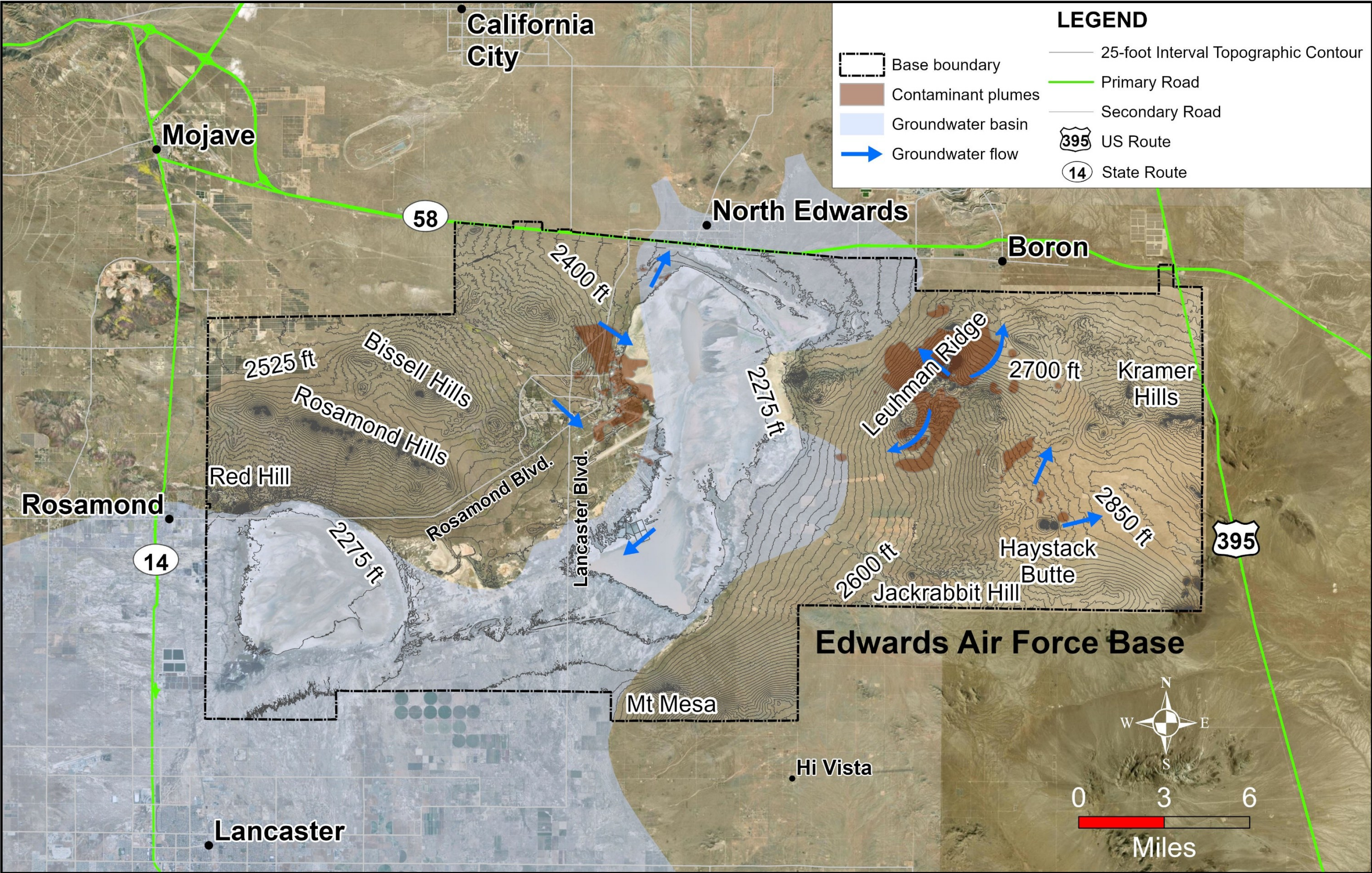
Edwards AFB is currently performing a basewide CERCLA PFAS Remedial Investigation (RI) of sites that have been impacted by the use of AFFF and a due diligence effort to identify potential PFAS contamination sources other than AFFF. The base also participated in a technology demonstration to evaluate smoldering combustion as a method for treating PFAS in soil.

More information on the Air Force response to PFAS can be found at <https://ar.cce.af.mil> and <https://www.afcec.af.mil/WhatWeDo/Environment/Perfluorinated-Compounds>.

Perchlorate is often considered an emerging contaminant and is also being investigated at Edwards AFB; however, as there is a regulatory standard for perchlorate in California, it is not considered an emerging contaminant at Edwards AFB.

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Figure 3. Antelope Valley Groundwater Basin Map



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5.4 EDWARDS AIR FORCE BASE CLEANUP PROGRAMS

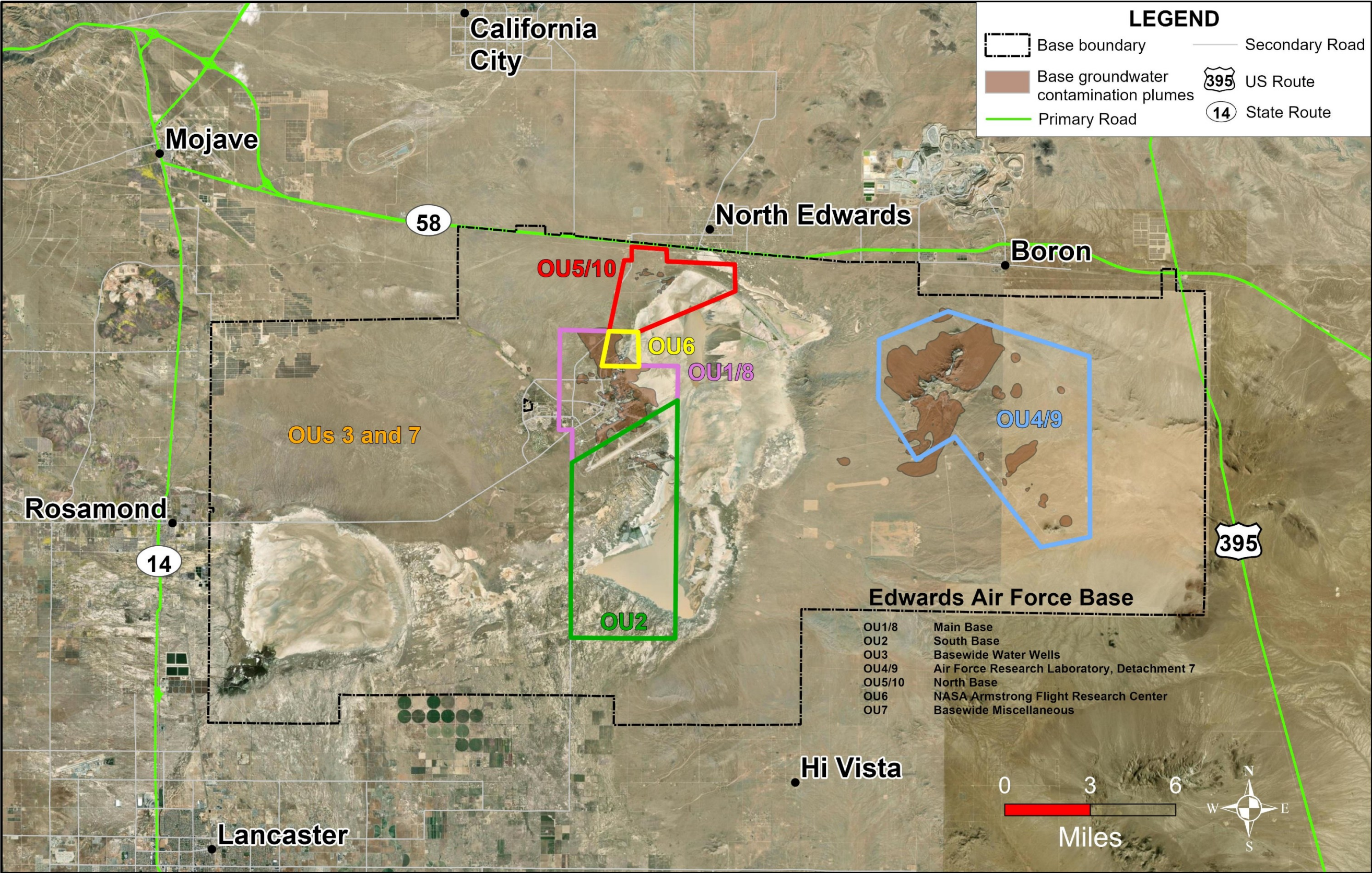
Edwards AFB manages three cleanup programs: CERCLA sites under the ERP; inactive ranges under the MMRP; and petroleum-only contamination sites under the Compliance Restoration Program (CRP).

More than 460 ERP sites were identified at Edwards AFB by the end of 1999; more than half were found to have no significant contamination or have been cleaned up. For improved management and cost efficiency, the Air Force grouped ERP sites within geographic proximity to each other into larger areas known as Operable Units (OUs). The OUs were first established following Edwards AFB's listing on the National Priorities List (NPL) in 1990. Figure 4 shows the OUs and respective groundwater contaminant plumes at Edwards AFB. Under the MMRP, one on-base area (AL504) and two off-base areas (AL505-2 and AL505-4) have been identified for remedial action (Figure 5). Appendix D provides a fact sheet with more detailed information about the MMRP.



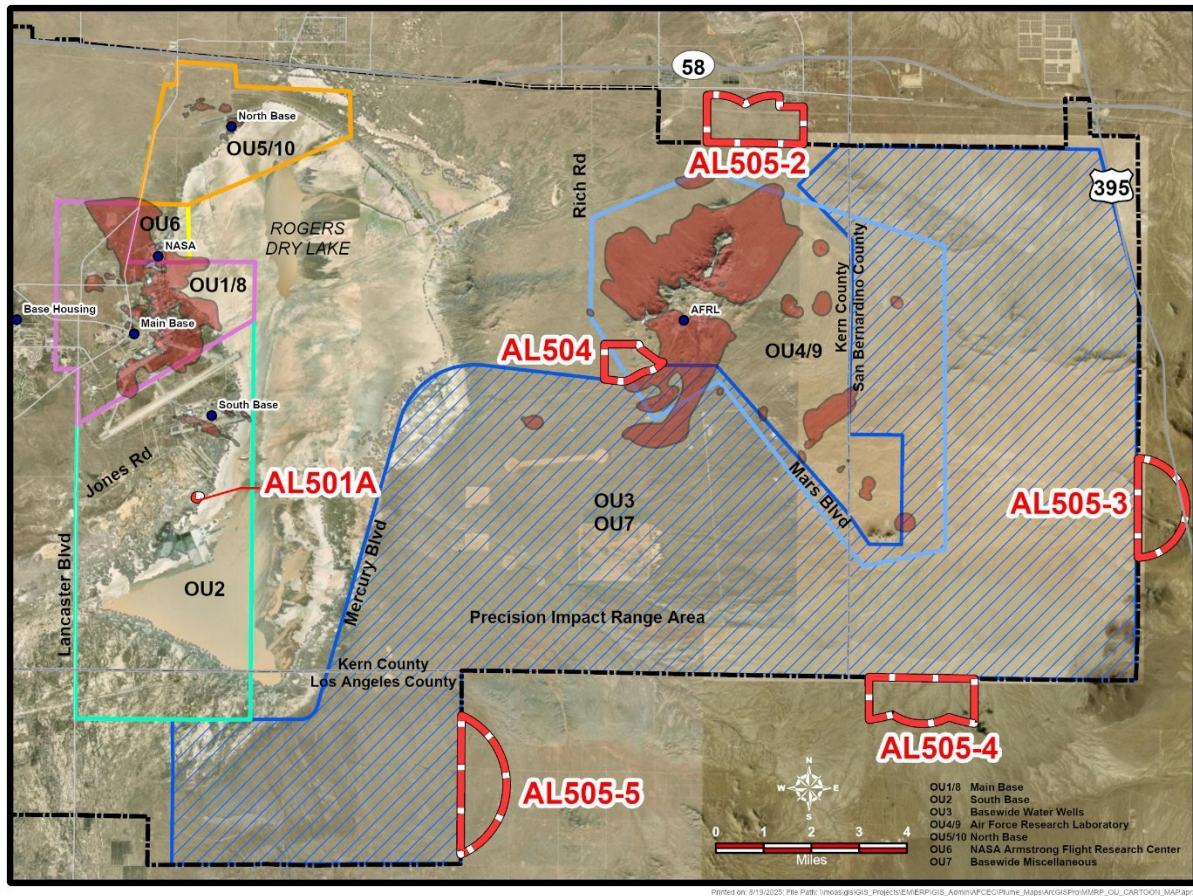
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Figure 4. Vicinity Plume Map



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Figure 5. MMRP Areas



6.0 REMEDIATION SITES CONTACTS

The public may contact Edwards Air Force personnel with questions or concerns about the Edwards AFB cleanup programs:

Edwards Air Force Base

Gary Hatch
412th Test Wing Public Affairs
305 E. Popson Ave.
Edwards AFB, CA 93524
412tw.pae@us.af.mil
(661) 277-8707

Paul Schiff
Remedial Project Manager
120 N. Rosamond Blvd.
Edwards AFB, CA 93524
paul.schiff@us.af.mil
(661) 277-1469



In addition to Air Force resources, the public may contact the following regulatory agency personnel with questions or concerns about the Edwards AFB cleanup programs:

U.S. Environmental Protection Agency

Dante Rodriguez
U.S. EPA, Region 9
Mail Stop SFD-8-2
75 Hawthorne St.
San Francisco, CA 94105
rodriguez.dante@epa.gov
(415) 972-3661

Ethan Finkel
U.S. EPA, Region 9
Mail Stop SFD-8-2
75 Hawthorne St.
San Francisco, CA 94105
finkel.ethan@epa.gov
(415) 972-3127

Mohamed Ibrahim
U.S. EPA, Region 9
Mail Stop SFD-8-2
75 Hawthorne St.
San Francisco, CA 94105
ibrahim.mohamed.n@epa.gov
(415) 972-3184

Department of Toxic Substances Control

Bruce Lewis
Department of Toxic Substances Control
8800 Cal Center Dr., R1-5
Sacramento, CA 95826-3200
bruce.lewis@dtsc.ca.gov
(916) 255-6576

Lahontan Regional Water Quality Control Board

Toufic Zeidan
Lahontan RWQCB
15095 Amargosa Rd., Bldg. 2, Ste 210
Victorville, CA 92394
toufic.zeidan@waterboards.ca.gov
(760) 241-7407

Mark Allen
Lahontan RWQCB
15095 Amargosa Rd., Bldg. 2, Ste 210
Victorville, CA 92394
mark.allen@waterboards.ca.gov
(760) 241-7391



To ensure effective communication with interested individuals or groups, Edwards Air Force Base will make additional services available to persons with special needs. Please contact one of the representatives listed above. Contact information is updated at <https://www.edwards.af.mil/About/Environment> and in the quarterly RTS newsletter.

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Appendix A Glossary

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Appendix A – Glossary

Administrative Record File: A maintained file that concerns all information used by the lead agency to make its decision on the selection of a response action under CERCLA.

Comment Period: A period during which the public can review and comment on various documents and ERP actions.

Community Relations: A program to inform, educate, and involve the public in the CERCLA process and respond to community concerns.

Community Involvement Plan (CIP): A formal plan for community relations activities at sites covered under CERCLA.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA): A federal law passed in 1980 and amended in 1986 by the SARA, designed to protect the public and the environment from releases of hazardous substances.

Environmental Restoration Program (ERP): The Department of Defense program for identifying the locations of past releases of hazardous substances and minimizing their associated hazard to human health and the environment.

Information Repository: A physical location where the public can go to view current information, technical reports, and reference documents regarding CERCLA sites.

Maximum Contaminant Level (MCL): A legal limit set by the U.S. EPA that regulates the amount of a substance that can be present in public drinking water systems.

Munitions Response Area (MRA): Any area on a defense site that is known or suspected to contain unexploded ordnance or discarded military munitions. Examples include former ranges and munitions burial areas. An MRA contains one or more munitions response sites.

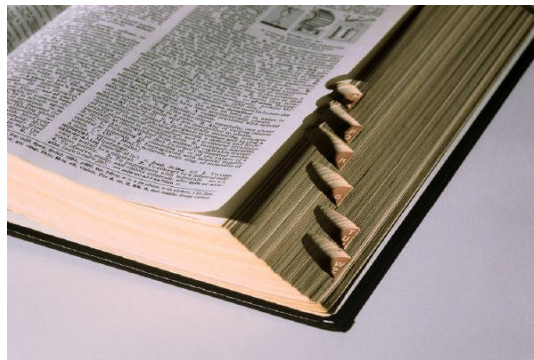
Munitions Response Site (MRS): A discrete location within an MRA that is known to require a munitions response.

National Oil and Hazardous Substances Pollution Contingency Plan (NCP): The federal regulation that guides the CERCLA program.

National Priorities List (NPL): The U.S. EPA's list of the most serious hazardous waste sites identified for possible long-term remedial response.

Operable Unit: A discrete portion of a program that may be based on geographical area or similarity of site contaminants.

Ozone: A colorless, odorless gas made of molecules consisting of three oxygen atoms (O³). Ozone is naturally occurring but can also form by reactions between chemicals from vehicle exhaust, industrial plants, and other man-made sources.



Particulate Matter 2.5: A type of air pollution that consists of particles that are 2.5 micrometers (approximately 0.0001 inches) in diameter or less.

Public Affairs: Air Force personnel who are responsible for maintaining proper communication channels with the public regarding installation activities of public concern.

Preliminary Assessment (PA): The process of collecting and reviewing available information about a known or suspected hazardous waste site or release.

Record of Decision (ROD): A public document that explains which cleanup alternative(s) will be used at NPL sites.

Remedial Action (RA): The actual construction or implementation phase that follows the Remedial Design of the selected cleanup alternative at a site on the NPL.

Remedial Design (RD): An engineering phase that follows the Record of Decision when technical drawings and specifications are developed for the subsequent Remedial Action at a site on the NPL.

Remedial Investigation (RI)/Feasibility Study (FS): Investigative and analytical studies usually performed at the same time in an interactive, iterative process, and together referred to as the RI/FS. During the RI, samples from different types of environmental media, such as soil or groundwater are collected to characterize the contamination at the site. During the FS, alternatives for Remedial Action are developed and evaluated for possible use at the site.

Remedial Project Manager (RPM): An individual responsible for overseeing remedial response activities for a specific agency. Edwards AFB is assigned RPMs from four entities: the Air Force Civil Engineer Center's Installation Support Section and three regulatory agencies—U.S. EPA Region 9, California Department of Toxic Substances Control, and California Regional Water Quality Control Board.

Remedial Response: A long-term action that stops or substantially reduces a release, or threatened release, of hazardous substances that are serious, but do not pose an immediate threat to human health or the environment.

Removal Action: An immediate action taken to address a release, or threatened release, of hazardous substances.

1. Emergency Removal Action – Those releases, or threats of releases, requiring cleanup activities to begin onsite within hours of the determination that a Remedial Action is appropriate. Onsite activity lasts less than 30 days.
2. Time-critical Removal Action – All emergencies lasting longer than 30 days and requiring cleanup activities to begin onsite within six months of the determination, based on the site evaluation, that a Removal Action is appropriate.
3. Non-time-critical Removal Action – Those releases, or threats of releases, not requiring cleanup activities to begin onsite within six months after the determination, based on the site evaluation, that a Removal Action is appropriate.

Resource Conservation and Recovery Act (RCRA): A federal law that established a regulatory system to track hazardous substances from the time of generation to disposal. RCRA also provides rules for the proper handling, storage, transportation, treatment, and disposal of hazardous wastes.

Responsiveness Summary: A summary of oral and written public comments received during a public comment period, and responses to those comments. The summary is included in the ROD.

Site Inspection (SI): A technical phase that follows a Preliminary Assessment, designed to collect more extensive information on a hazardous waste site.

Superfund: The common name used for CERCLA.

Superfund Amendments and Reauthorization Act (SARA): Modifications to CERCLA enacted on 17 October 1986.

Water Purveyor: A public utility, mutual water company, county water district, or municipality that delivers drinking water to customers.

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Appendix B

2021 Interview Questionnaire

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Appendix B – Interview Questionnaire

Edwards Air Force Base CIP Community Questionnaire 2021

Interview Date: _____

Name: _____

Affiliation: _____

Address: _____

City, Zip: _____

E-mail: _____

Add to Report to Stakeholders (newsletter) mailing list? (circle) Yes No Already on list

1) How long have you lived or worked in this area? _____

2) How would you rate your familiarity with the Edwards Air Force Base (EAFB) Environmental Restoration Program on a scale of 1 to 5? (1 = not at all familiar and 5 = very familiar)

1 2 3 4 5

3) Have you participated in any public meetings or Restoration Advisory Board meetings for EAFB? (circle) Yes No

If yes, do you have any suggestions for improvement? _____

4) What is the likelihood you would participate in an in-person meeting? (1 = not likely and 5 = very likely)

1 2 3 4 5

5) What is the likelihood you would participate in a virtual meeting utilizing Zoom or similar platforms? (1 = not likely and 5 = very likely)

1 2 3 4 5

6) If an online meeting platform were available, what would be your preferred platform (e.g., Zoom, Microsoft Teams, etc.)? _____

7) Have you ever contacted EAFB with questions/concerns about the Environmental Restoration Program (ERP)? (circle) Yes No

If yes, what was the nature of these contacts? Are there ways that the interaction can be improved? If yes, how? _____

8) Are you aware of the EAFB information repositories and online Administrative Record?

(circle) Yes No

Do you know where the information repositories are located and how to access the online Administrative Record? (circle) Yes No

If yes, how often do you use the repositories or online Administrative Record to learn about environmental cleanup at EAFB? _____

9) Have you gone to the EAFB website or social media site for environmental restoration information?

(circle) Yes No

If yes, which one(s) and how often do you view the site(s)? _____

Please describe your experience. _____

10) Do you have environmental cleanup concerns associated with EAFB? (circle) Yes No

If yes, please describe. _____

11) How is EAFB doing in making information available to you about its cleanup program on a scale of 1 to 5?

(1 = not available and 5 = readily available)

1 2 3 4 5

12) What methods would you prefer to be used to effectively communicate EAFB environmental restoration information? Please rate the following communication tools on a scale of 1 to 5

(1 = least preferred and 5 = most preferred):

Mailed newsletter	1	2	3	4	5
Website/Facebook	1	2	3	4	5
Public notices in a newspaper	1	2	3	4	5
Public meetings or availability sessions	1	2	3	4	5

13) In addition to the tools listed above, do you suggest other ways for us to keep you better informed?

(circle) Yes No

Please describe. _____

14) How frequently do you want to receive environmental restoration information from EAFB?

15) How would you rate the community's familiarity with the EAFB Environmental Restoration Program on a scale of 1 to 5? (1 = not at all familiar and 5 = very familiar)

1 2 3 4 5

16) How would you rate your community's need for more information about the EAFB Environmental Restoration Program on a scale of 1 to 5? (1 = no need and 5 = very high need)

1 2 3 4 5

17) How often do you think the community would like to hear from EAFB regarding this cleanup program?

18) What are the most convenient locations for public meetings?_____

19) What are the best times to hold a public meeting?_____

20) Are there languages other than English spoken in your community?_____

21) Have you had any contact with any government officials regarding issues related to EAFB?

(circle) Yes No

If so, what was the nature of these contacts?_____

Are there ways that the interaction can be improved? If so, how?_____

22) Where do you get your news and information on local issues (e.g., Antelope Valley Press, Google News, Facebook, etc.)?

Newspapers:

Internet:

Social Media:

Television:

Radio:

Other community members:

Other:

23) Would you like to suggest any other individuals or groups that should be contacted for their input or to be added to the mailing list?_____

24) Do you have any other comments, suggestions, or concerns that you would like to share with us?

Please feel free to use Page 5 or add additional pages for further explanation and additional comments to any of the previous questions.

Additional comments, explanation, or other feedback:

Appendix C

Report to Stakeholders

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Appendix C – Report to Stakeholders



February 2026

Report to **STAKEHOLDERS**

Volume 31 No.1



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

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

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Report to STAKEHOLDERS

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 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,

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.



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.



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/ and the base environmental webpage at www.edwards.af.mil/About/Environment/. The public is encouraged to attend.

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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.

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/C2RW
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

Megan Pater - alternate 760-920-1379
megan@ekccf.org

California City
Alexia Svejda 760-373-8676
info@californiacitychamber.com

Lancaster
Raj Mahi 661-723-6019
rmahi@cityoflancaster.ca.gov

Lauren Hughes-Leslie - alternate 661-723-6019
lhughes-leslie@cityoflancaster.ca.gov

Mojave
Victor Yaw 661-754-1641
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

William Gaddis - alternate 661-238-5389
wrgaddy@icloud.com

ON-BASE COMMUNITIES

Housing
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david.soltis@us.af.mil 850-380-8096

Main Base Test Wing
Melody Couch 661-277-3774
melody.couch@us.af.mil

Paul Mattson - alternate 661-277-5665
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

Air Force Research Laboratory
Joe Mabry 661-857-6289
joseph.mabry@us.af.mil

Remedial Project Managers

California Dept. of Toxic Substances Control
Bruce Lewis 916-255-6576
bruce.lewis@dtsc.ca.gov

California Lahontan Regional Water Quality Control Board

Mark Allen 760-241-7391
mark.allen@waterboards.ca.gov

Toufic Zeidan 760-241-6583
toufic.zeidan@waterboards.ca.gov

Edwards AFB
Paul Schiff 661-277-1469
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Ethan Finkel 415-972-3127
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SUBSCRIPTIONS

Report to STAKEHOLDERS

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By mail OR By e-mail
Mail this form to: 412 TW/PA
RTS Subscription
305 E. Popson Ave.
Edwards AFB, California 93524
Send request to
412tw.rts@us.af.mil

Name

Organization

Address

City

State Zip

E-mail Address

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Appendix D Fact Sheets

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Appendix D – Fact Sheets

Edwards Air Force Base Military Munitions Response Program **MMRP Fact Sheet** September 2021



This fact sheet was prepared to notify the public that the latest Military Munitions Response Program (MMRP) investigations at Edwards Air Force Base (AFB), California are complete and results are available. Four Munitions Response Sites (MRSs), all located adjacent to the base boundary, were investigated as shown in bold on Figure 1 (see Page 2).

The following two sites were investigated under a Supplemental Comprehensive Site Evaluation (CSE) Phase II:

- MRS AL505-3 – Off-Base Adjacent Area 3
- MRS AL505-5 – Off-Base Adjacent Area 5.

Two additional sites were investigated under a Remedial Investigation/Feasibility Study (RI/FS) as follows:

- MRS AL505-2 – Off-Base Adjacent Area 2-Central
- MRS AL505-4 – Off-Base Adjacent Area 4-Central.

Results of the investigations can be found in the *Final Supplemental CSE Phase II Report* (Administrative Record Number [AR #] 5994) and the *Final RI/FS Report for MRSs AL501A, AL504, AL505-2, and AL505-4* (AR # 5995). Both reports are dated April 2021 and are available to the public (see text box in the next column).

Edwards AFB began as a United States Army bombing and gunnery range in the 1930s. Army personnel set up and maintained a series of ground targets on this range. These ground targets may have been active from the 1930s to possibly as late as the early 1960s. Outside of the active ranges, munitions items have been found in a number of areas at Edwards AFB and in off-base areas adjacent to the Edwards AFB boundary. This fact sheet describes how to recognize munitions-related items and what to do if one is encountered or is suspected.

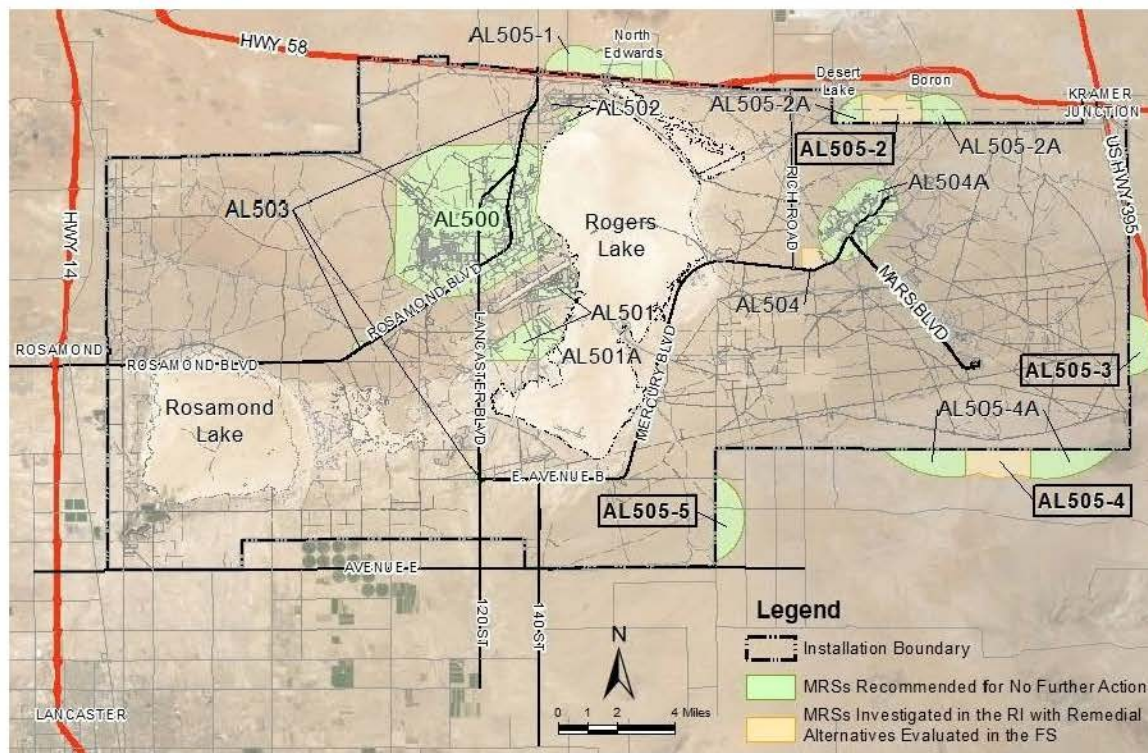
U.S. Air Force Administrative Record

Documents for the MMRP and other Edwards AFB environmental programs are available online at the AR website by following these steps:

1. Click this link <https://ar.afcec-cloud.af.mil> or copy it to your web browser.
2. At the start page, click "Continue to Site."
3. With the "Active Duty" button selected, scroll down the "Installation List" and select "Edwards AFB, CA."
4. Enter the appropriate AR # (see text) in the "AR #" field and click the "Search" button.
5. Documents can be viewed by clicking on the  icon in the "View" column.

Military munitions that were used but fail to function as intended are called unexploded ordnance (UXO). Military munitions abandoned without proper disposal or removed from storage in a military magazine or other storage area for the purpose of disposal are called discarded military munitions (DMM). The United States has always maintained a trained and ready military to protect its national interests. As a result of the munitions-related activities (e.g., live-fire training and testing, disposal operations) required to maintain this force, and other actions (e.g., souvenir collecting), UXO or DMM can be found almost anywhere, particularly in areas located near installations that have used munitions. Although the military controls access to areas known or suspected to contain UXO on active installations, a number of areas that are known or suspected to contain military munitions that were once used by the military have been transferred to public uses.

Figure 1. Edwards AFB MRS Location Map



When people encounter or believe they may have encountered a munition, they should consider it extremely dangerous. To protect their family, friends and neighbors, everyone should learn and follow the **3Rs of explosives safety**: **Recognize** – when you may have encountered a munition and the potential danger; **Retreat** – do not approach, touch, move or disturb it; **Report** – notify local law enforcement of what you saw and where you saw it.

Although military munitions will most likely be found in areas that the military currently uses or has used in the past, they could be encountered anywhere (e.g., Civil War battlefields, in homes as family souvenirs). Following the 3Rs when you have or think you may have encountered a munition can prevent a tragedy.

UXO are often referred to as duds, bombs, dummy rounds or by other terms. Regardless of what you call them, they should be considered dangerous. Never approach, touch, move or disturb munitions. Even Civil War cannon balls and souvenir munitions that may have been kept by a family and handled for years can be extremely dangerous.

Remember that UXO:

- Comes in many shapes and sizes
- Can look like a:
 - pointed pipe
 - soda can
 - baseball
 - muffler
- May be visible on the surface or may be buried
- May be exposed by erosion or fires
- May look new or old
- May be complete or in parts
- May be found alone or in groups
- Should be considered dangerous regardless of size or age

Munitions including their components (e.g., projectiles, fuzes, rocket motors) may contain high explosives, propellant or pyrotechnics. Munitions should never be collected as souvenirs or trophies. No matter how old or damaged a munition may look, it can still be as dangerous or more dangerous than the day it was made.

The 3Rs of Explosives Safety

Recognize – Recognizing when you may have encountered a munition is key to reducing the risk of injury or death. If you encounter or suspect you may have encountered a munition, consider it extremely dangerous. Remember, munitions are sometimes hard to identify.

Retreat – If you encounter or suspect you may have encountered a munition, do not approach, touch, move or disturb it, but immediately and carefully – do not run – leave the area following the same path on which you entered. If you can, mark the general area, not the munition, in some manner (e.g., with a hat, piece of cloth or tying a piece of plastic to a tree branch).

Report – When you think you may have encountered a munition, notify your local law enforcement – call 911.



Even small munitions can be dangerous and should be treated with caution.



Munitions can be hard to see, especially when they have had years to rust and settle into place. Beware as munitions can be hidden by deep grass or brush.



Munitions can be clean or rusty and may be hard to recognize. Even old munitions can be very dangerous.



Even practice bombs can have explosive flash or spotting charges.



Munitions that seem to be severely damaged or incomplete can still be dangerous, especially if explosive fuzes are intact.



The Kern County Sheriff's Office Bomb Squad and Edwards AFB Explosive Ordnance Disposal (EOD) teams are trained to safely respond to UXO and DMM hazards.

DON'T FORGET

Munitions are dangerous and may not be easily recognizable. Never touch, move or disturb munitions or suspected munitions.

REMEMBER THE 3Rs

RECOGNIZE: Recognize when you may have encountered a munition.

RETREAT: Do not approach, touch, move or disturb it, but carefully leave the area the way you entered.

REPORT: Call 911! Immediately notify local law enforcement of what you saw and where you saw it.

For more information visit the UXO safety education website at: www.denix.osd.mil/uxo
and the Formerly Used Defense Sites Program website at: www.fuds.mil



Fact Sheets

Title	Date of Publication
Military Munitions Response Program - MMRP Fact Sheet	Sep 2021
Military Munitions Response Program - MMRP Proposed Plan Fact Sheet	Sep 2021
RAB Fact Sheet – Issued in lieu of November 2020 RAB meeting due to COVID-19	Nov 2020
June 2013 Edwards AFB General (Basewide) Vapor Intrusion Fact Sheet	Jun 2013
Base Invites Public to Comment on Clean Closure Plan for Former South Base Landfill	Jan 2011
Public Comment Period Opens for Site 3, Edwards Main Base Inactive Landfill	Feb 2010
Base Opens Public Comment Period on Cleanup Plan for Northwest Laboratory Area	Aug 2009
Base to Conduct Vapor Assessments at South Air Force Research Laboratory	May 2009
Careful Excavation of World War II Site Finds No Trace of Chemicals	May 2008
Land Use Controls Will Keep People and Animals Safe at Site 442	May 2008
Air Force Seeks Public Comment on Laboratory Soil and Debris Cleanup Plan	Apr 2007
Enhancing Groundwater Protection at Site 29	Feb 2006
In Situ Treatment a Preferred Cleanup Method for Sites 5/14 Contaminant Plume	Feb 2006
In Situ Treatment the Preferred Cleanup Method for Sites 76 and 86 Contaminant Plumes	Feb 2006
Removal and Off-Site Treatment/Recycling – the Preferred Cleanup Method for Sites 81 and 102	Feb 2006
Removal of Debris and Disposal/Recycling at the Main Base Landfill Preferred for Site 69	Feb 2006
Air Force Seeks Public Comments on Laboratory Cleanup Plan	Jan 2006
Air Force Tests Whey to Destroy Solvent at Site 19	Sep 2005
Site 285 Update	Dec 2003
Perchlorate Treatment Ready for Real-World Test	May 2003
Innovative Liner Brings Landfill Back to Natural State	Jun 2002
Waste Consolidation Unit for Site 443 Planned at Edwards	Apr 2002
Work to Begin at Suspect Chemical Warfare Site	Feb 2002
Site 25 System Slows Down Contaminants	Nov 2001
Base Tests Common Cleanup Solution at Uncommon Site	May 2001
Site 426: Fieldwork Goes On To Ensure Safety Near New Dorms	Mar 2000

Fact sheets can be accessed online at [https://www.edwards.af.mil/About/Environment or](https://www.edwards.af.mil/About/Environment_or) through the Administrative Record at <https://ar.cce.af.mil>.

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Appendix E

Information Repository Locations, Online Resources and Community Involvement Contact

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Appendix E – Information Repository Locations, Online Resources and Community Involvement Contact

Information Repository Locations and Online Resources

Edwards Air Force Base Library To learn more about the Edwards AFB restoration program, please visit one of the information repositories listed below. You may also visit the Air Force's Administrative Record website at <https://ar.cce.af.mil> or the Edwards AFB website at <https://www.edwards.af.mil/About/Environment>.

Edwards Air Force Base Library

5 W. Yeager Blvd.
Edwards AFB, CA 93524
(661) 275-2665

Los Angeles County Public Library

601 W. Lancaster Blvd.
Lancaster, CA 93534
(661) 948-5029

Kern County Public Library

Wanda Kirk Branch
3611 Rosamond Blvd.
Rosamond, CA 93560
(661) 256-3236



Who to Contact about Community Involvement and Edwards AFB

Edwards Air Force Base

Gary Hatch
412th Test Wing Public Affairs
305 E. Popson Ave.
Edwards AFB, CA 93524
412tw.pae@us.af.mil
(661) 277-8707

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Appendix F

Potential Meeting Locations

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Appendix F – Potential Meeting Locations

Potential Meeting Locations

The following list includes potential locations where the Environmental Restoration Program may conduct public and Restoration Advisory Board meetings, as well as public availability sessions.

Boron

- a. West Boron Elementary School
- b. Boron Senior Citizens Center
- c. Boron High School

Mojave

- a. Mojave Elementary School
- b. Mojave High School
- c. Veterans Building
- d. Comfort Inn

California City

- a. California City Council Chambers
- b. California City Community Center
- c. California City Middle School

North Edwards

- a. Muroc School District

Edwards AFB

- a. Air Force Test Center Conference Center
- b. Club Muroc
- c. Environmental Management Office
- d. Schools

Rosamond

- a. Westpark Elementary School
- b. Hummel Hall
- c. Wanda Kirk Branch Library

Lancaster

- a. Jane Reynolds Park, Activities Building
- b. Cole Middle School
- c. Stanley Kleiner Activity Center, Lancaster Park
- d. Antelope Valley College
- e. Museum of Art and History

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Appendix G

Restoration Advisory Board Bylaws and Charter

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Appendix G – Restoration Advisory Board Bylaws and Charter

**EDWARDS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
RESTORATION ADVISORY BOARD
BYLAWS**



November 2012

EDWARDS AIR FORCE BASE ENVIRONMENTAL RESTORATION PROGRAM RESTORATION ADVISORY BOARD BYLAWS

A Restoration Advisory Board (RAB) is an advisory body designed to act as a focal point for the exchange of information. While it is the responsibility of the Air Force to make decisions regarding what actions should be taken at Environmental Restoration Program (ERP) sites, RAB members are asked to review and comment on restoration activities and projects, including the progress of the projects, the level of restoration required, and acceptable risks. To efficiently and effectively accomplish the orderly exchange of all information, the meetings of the RAB will be conducted in accordance with the Bylaws presented herein. Although free and open discussion among members will aid in the successful exchange of information, it is the aim of these Bylaws to ensure an orderly and expeditious presentation of information while focusing on the purpose for which the RAB exists.

The RAB members will provide comments on environmental documents as individuals and/or on behalf of community organizations with which they are affiliated. The RAB will not render advice or recommendations as a group or submit recommendations to a group vote.

I. CHAIRMANSHIP

A. The RAB shall be chaired by the Installation Commander's (412 TW/CC) designee and a Public Representative.

B. The Air Force Co-Chair shall be appointed by the 412 TW/CC. The powers and duties of the Air Force Co-Chair may be delegated as appropriate.

C. The Public Representative Co-Chair shall be selected by a quorum of Public Representatives at a time of vacancy or as otherwise determined by the board, provided that all representatives are given the opportunity to vote.

D. Chairmanship of the RAB meetings will, whenever possible, alternate between the Air Force Co-Chair and the Public Representative Co-Chair.

E. The chair shall have the responsibility to focus discussions toward cleanup issues as deemed appropriate.

F. The chair will be responsible for orderly conduct of all meetings and is empowered to end the meeting if the proceedings become disruptive.

G. The chair is empowered to adjourn or recess the meeting.

H. The chair will open each meeting by reading the *Statement of Purpose and Conduct*. The *Statement of Purpose and Conduct* is as follows:

“Welcome to the Edwards Air Force Base Restoration Advisory Board meeting for the (first/second) half of (calendar year). We appreciate your attendance and interest in our Environmental Restoration Program. Our purpose today is to communicate information to the public concerning ongoing activities designed to

Edwards Air Force Base Environmental Restoration Program Restoration Advisory Board Bylaws

clean up identified contamination sites on Edwards Air Force Base.

To accomplish this purpose, we have created this Restoration Advisory Board and asked Public Representatives to attend these meetings and act as liaisons with our neighboring communities. They are asked to receive not only the information we will present here, but also to listen to the citizens' comments and questions concerning our cleanup efforts and to relate those comments to us through this forum.

Additionally, we want to know what is on your mind today. Members of the public who wish to address the RAB at these meetings will be allowed to do so at a designated time on the agenda. Each person desiring to address the RAB will be allowed a maximum of 3 minutes to speak. That time may be extended if deemed necessary by the Co-Chairs. The total time allotted for public comments is limited to 30 minutes at each meeting. The RAB may extend this time up to an additional 30 minutes if deemed necessary by the Co-Chairs.

While this meeting is open to the public, it is not a public meeting. Public comments should be made in the time allotted and must be limited to the Environmental Restoration Program at Edwards AFB. The Co-Chairs retain the authority to discontinue a discussion that strays beyond the board's purview. Likewise, the Co-Chairs may limit discussion by any member of the public who becomes disruptive, or they may direct that the discussion move on to the next topic if it is felt an issue has been adequately addressed. Those who wish to speak must fill out a card for that purpose at the reception table. One of the Co-Chairs will

call on you to speak at the appropriate time.

Also, forms are available for any written comments you may wish to provide. The ERP staff at Edwards Air Force Base will provide a written response to each comment. Written inquiries can be submitted online through the RAB's social media website at www.facebook.com/RAB.Edwards.

Again, we thank you for your interest in our cleanup efforts at Edwards Air Force Base and for your attendance at this meeting."

II. DUTIES OF PUBLIC REPRESENTATIVES¹

A. The Public Representatives shall serve in a voluntary capacity.

B. The Public Representatives shall attend the RAB meetings and functions.

C. The Public Representatives shall comment on cleanup issues to government decision-makers.

D. The primary Public Representatives shall present a brief report on community contacts and concerns received since the previous RAB meeting. This report should identify the date of contact and name and address of each citizen or organization contacted with sufficient detail of any concerns to enable follow-up action by the Air Force.

E. The Public Representatives shall serve as a conduit for the flow of information between local communities and the Air Force.

¹ Except where otherwise indicated, the term "Public Representative" in this section refers to both the primary and alternate members.

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F. The Air Force will develop and support a social media website to facilitate the exchange of information between the public, Air Force restoration officials, and state and federal regulators. This website may be used to conduct meetings. Public Representatives are encouraged to participate on the RAB's social media website.

G. The Air Force will provide copies of all documents to the RAB members when the Air Force asks for review of such documents. However, the Public Representatives desiring copies of the documents contained in the repositories must obtain such at their own expense. Copies of these documents will not routinely be provided by Edwards Air Force Base.

H. If any Public Representative obtains, or is provided with, a copy of any document which is not yet identified as a "final document," the Public Representative shall not reproduce, copy, distribute, or otherwise make available to non-RAB members such draft document. All non-final documents provided to or obtained by Public Representatives will be returned to the Edwards AFB Remedial Project Manager upon completion of review or when requested by the Edwards AFB Remedial Project Manager. Failure to comply with this provision is a basis for removal and replacement of the Public Representative.

III. MEETING CONDUCT

A. The RAB meetings will not convene unless the Edwards AFB Remedial Project Manager is present.

B. Concepts and exchanges at meetings are intended to be open and freely discussed among RAB members and Remedial Project Manager technical advisors. To facilitate this open and free exchange of information, meetings will be conducted as informally as practicable.

C. Public Representatives shall not designate substitute individuals to represent them when unable to attend RAB meetings.

D. Once the meeting is adjourned, it will not be reconvened on that calendar day.

IV. ADMINISTRATIVE PROCEDURES

The Edwards Air Force Base ERP RAB shall conduct meetings in accordance with the following procedural rules:

A. Meetings

1. The RAB will convene biannually or more often as requirements dictate. In addition to two public formal meetings held in off-base rotating locations, the RAB will meet as necessary on base for working-group sessions, online through the RAB's social media website, or via phone conferencing. The board's next meeting date will be finalized before the conclusion of each meeting.

2. Meetings will be conducted on Edwards Air Force Base or other public locations as the Air Force Co-Chair may from time to time designate.

3. Meetings will normally not exceed 2 hours.

4. Meetings will normally be scheduled after normal duty hours (after 5:00 p.m.).

B. Agendas

1. In accordance with the RAB Charter, Section IV.A., the Air Force Co-Chair and the Public Representative Co-Chair will be provided with an opportunity to coordinate an agenda for each meeting. The Air Force Co-Chair will be responsible for preparing the final agenda and distributing the agenda 10 days prior to the

Edwards Air Force Base Environmental Restoration Program Restoration Advisory Board Bylaws

meeting. Under extraordinary circumstances and after joint concurrence between Co-Chairs, items can be added to the agenda after distribution of the agenda.

2. The Public Representative Co-Chair will submit agenda items verbally or in writing to the Air Force Co-Chair not less than 15 days prior to each meeting.

3. Public Representatives with ERP issues must contact the Public Representative Co-Chair for inclusion of those issues on the agenda. If the Public Representative Co-Chair is not available, the Public Representatives may contact the Air Force Co-Chair for this purpose.

4. All Remedial Project Managers desiring to include items on the agenda shall submit the item not less than 15 days prior to the meeting to the Air Force Co-Chair. If the Air Force Co-Chair is not available, the Remedial Project Managers may contact the Public Representative Co-Chair for this purpose.

5. New business will normally be limited to those matters previously submitted as an agenda item.

6. Agenda format will be in accordance with Attachment 1.

C. Meeting Minutes

1. The Air Force Co-Chair is responsible for providing the services of a recorder who will take detailed minutes of the meeting.

2. Draft meeting minutes will normally be distributed to RAB members not later than 10 days prior to the next meeting.

3. Previous meeting minutes will be approved as written or amended at the commencement of each meeting. Additions or

corrections to minutes may be submitted to the RAB upon discovery but prior to final approval by the RAB.

4. Minutes will be prepared in the agenda format.

5. Minutes will be signed by both Co-Chairs after final approval by the RAB.

D. Training

1. Training will be conducted as requirements dictate. Training materials will be provided to new RAB members upon their initial term of service.

V. SUBCOMMITTEES AND WORKING GROUPS

A. The RAB Co-Chairs are empowered to create subcommittees and working groups to accomplish the purposes of the RAB. All subcommittees and working groups will conduct themselves in accordance with the intent and purpose of the Charter and Bylaws.

B. The RAB Co-Chairs are empowered to dissolve or disband any subcommittee or working group as appropriate.

VI. PROCESS FOR REMOVAL OF PUBLIC REPRESENTATIVE

A. When a Public Representative believes that another Public Representative has failed to function in accordance with the Charter and these Bylaws, they shall contact the Public Representative Co-Chair stating their concerns in a letter.

1. If the letter stating the concerns originates from the Public Representative Co-Chair or are against the Public Representative

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Co-Chair, the Air Force Co-Chair will receive the letter.

2. The Air Force Co-Chair will convene an executive session of only the Public Representatives for the sole purpose of selecting a temporary Public Representative Co-Chair to act as arbitrator. The Air Force Co-Chair will not participate in the selection of the temporary Public Representative Co-Chair.

3. The temporary Public Representative Co-Chair will assume the duties of the Public Representative Co-Chair in the process outlined in the following paragraphs.

B. The Public Representative Co-Chair will:

1. Meet with all Public Representatives expressing similar concerns and with the subject Public Representative to attempt resolution.

2. If no resolution is achieved, the Public Representative Co-Chair will:

(a) Schedule an executive session of all Public Representatives only within 30 days.

(b) Notify all Public Representatives and the Air Force Co-Chair of the time and place of the executive session.

(c) Chair the executive session in an attempt to resolve the concerns.

(d) If concerns are not fully resolved, prepare a letter to the sponsoring organization and the Air Force Co-Chair recommending removal and replacement of the Public Representative. Such recommendation will be made after secret ballot by majority vote of members present with not less than 75 percent of all Public Representatives in attendance. Representatives involved in the complaint shall not participate in the vote. Details of Public

Representative concerns will be set forth in this letter and a tally of the final vote will be stated therein. Abstentions will also be included in this tally.

C. The sponsoring organization will endorse the letter forwarded from the Public Representative Co-Chair stating their concurrence/nonconcurrence with the recommendation. Failure of the sponsoring organization to respond to the Air Force Co-Chair within 45 days will constitute concurrence by the sponsoring organization with the recommendation.

D. The Air Force Co-Chair will acknowledge the recommendation of the Public Representative Co-Chair and sponsoring organization with a concur/nonconcur recommendation and will forward this endorsement to 412 TW/CC (or designee) for final action.

E. If 412 TW/CC (or designee) approves the recommended removal of the Public Representative, notice to the individual and the sponsoring organization will be processed immediately.

F. The other Public Representatives on the RAB will be notified, in writing, of the outcome of the removal action.

G. Failure to function in accordance with the Charter and these Bylaws will include the following:

1. Failure to exhibit the proper interest, attitude, or focus on the ERP.

2. Any sustained activity or disruption that inhibits the RAB or Public Representatives from achieving RAB goals and objectives.

3. Failure to center discussion on approved agenda topics.

4. Failure to perform their duties as Public Representatives.

5. Loss of endorsement from Public Representative's sponsoring organization.

A flowchart of the removal process is contained in Attachment 2 to these Bylaws.

VII. AMENDMENTS TO THE BYLAWS

Amendments to the Bylaws must be submitted in writing to the Edwards AFB Remedial Project Manager. Proposed written amendments will be submitted to the Edwards AFB Remedial Project Manager for proper staffing and coordination with the Federal Facility Agreement signatories. Final Air Force approval will be made by the 412 TW/CC.

If approved, the amendment will be submitted to the RAB at the next meeting. Approval requires a majority of those RAB members present.

Edwards Air Force Base Environmental Restoration Program Restoration Advisory Board Bylaws

VIII. EFFECTIVE DATE

The effective date of these Bylaws shall be the date of the last signature.

//original signed by//	15 Nov 12
AMY V. ARWOOD, Colonel, USAF	Date
Air Force Co-Chair	
Edwards Air Force Base, California	

//original signed by//	15 Nov 12
BRUCE H. DAVIES	Date
Public Representative Co-Chair	
Edwards Air Force Base, California	

Approved:

//original signed by//	12 Dec 12
MICHAEL T. BREWER, Brigadier General, USAF	Date
Commander	
Edwards Air Force Base, California	

ATTACHMENT 1

Format for Agendas

Poster Session (5:00 p.m.)

Call To Order (5:30 p.m.)

Reading of *Statement of Purpose and Conduct*

Introduction of New RAB members (if applicable)

Presentation of Plaques to Outgoing RAB members (if applicable)

Approval of the Minutes

New Business

Presentations

Action Items (if applicable)

Break

Opportunity for Public Comments

Old Business

RAB Vacancy Updates

Reports from Public Representatives

Reports from Remedial Project Managers

Announcements

Scheduling of Special Meetings (if any)

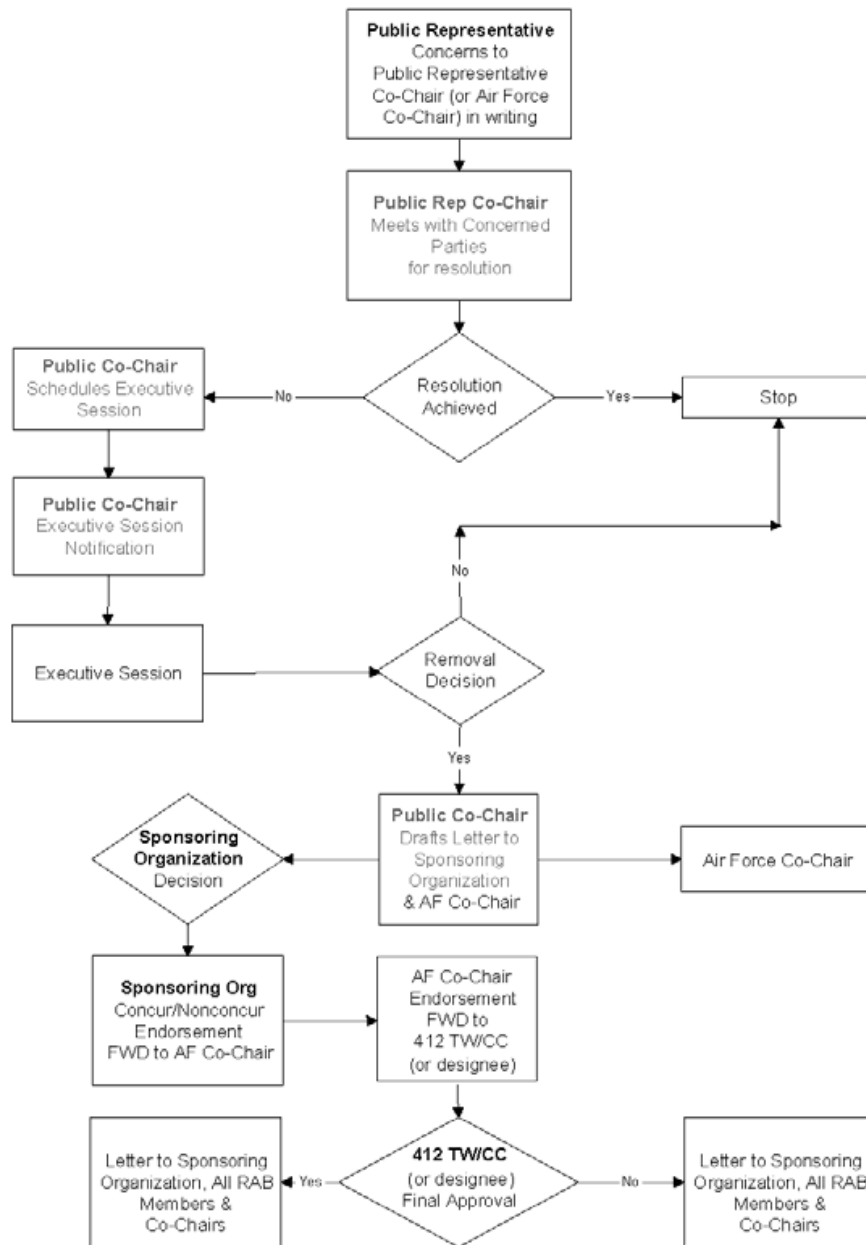
Scheduling of Next Meeting

Adjournment

Edwards Air Force Base Environmental Restoration Program Restoration Advisory Board Bylaws

ATTACHMENT 2

Basic Process Flow for Removal of Edwards AFB Restoration Advisory Board Public Members



**EDWARDS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM
RESTORATION ADVISORY BOARD
CHARTER**



November 2012

EDWARDS AIR FORCE BASE ENVIRONMENTAL RESTORATION PROGRAM RESTORATION ADVISORY BOARD CHARTER

I. NAME

This group shall be known as the EDWARDS AIR FORCE BASE ENVIRONMENTAL RESTORATION PROGRAM (ERP), RESTORATION ADVISORY BOARD (RAB).

various ERP issues at Edwards Air Force Base, California, as they relate to environmental impacts the Edwards Air Force Base presence poses on affected/interested communities.

II. AUTHORITY

The basis and authority for the RAB and its Charter is established pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended by the Superfund Amendments and Reauthorization Act (SARA) of 1986, particularly Sections 120(a), 120(f), and 121(f); Title 10 United States Code (U.S.C.) Section 2705, enacted by Section 211 of SARA; Executive Order 12580; and the FY95 Defense Appropriations Act, Public Law 103-337, Section 326.

C. The RAB members will provide comments on environmental documents as individuals and/or on behalf of community organizations with which they are affiliated. The RAB will not render advice or recommendations as a group or submit recommendations to a group vote.

D. In accordance with Title 10 U.S.C. Section 2705(d), the RAB shall operate as a mechanism through which the local community is apprised of, may have input on, and make recommendations on, including but not limited to, the following:

III. PURPOSE

A. The mission statement for the RAB is as follows: "The Restoration Advisory Board furthers community awareness and involvement in the Edwards Air Force Base Environmental Restoration Program through review of technical documents and exchange of information relative to basewide cleanup."

1. The ongoing investigative actions taken at each ERP site;

2. The degree and composition of contamination at each site;

3. The order of priority set for remediation of all sites;

4. The remedial alternatives proposed for each site;

B. The primary function of the RAB, as a distinct element of the Community Relations Program, is to foster community awareness and promote community involvement, wherein government agencies and Public Representatives engage in coordinated review and dialogue on

5. The proposed schedule of cleanup; and,

6. The impact, or potential impact, if any, of site contamination and the cleanup on the local populace and the environment.

Edwards Air Force Base Environmental Restoration Program Restoration Advisory Board Charter

IV. ORGANIZATION AND MEMBERSHIP

A. The RAB shall be chaired by the Installation Commander's (412 TW/CC) designee and a Public Representative who is selected by the RAB public members. The Co-Chairs will be provided with an opportunity to coordinate the agenda for each meeting as specified in the Edwards Air Force Base ERP RAB Bylaws (the Bylaws).

B. Permanent membership on the RAB shall include, at a minimum, representatives (Remedial Project Managers [RPMs]) from each of the following: Edwards Air Force Base; U.S. Environmental Protection Agency (U.S. EPA), Region IX; California EPA Department of Toxic Substances Control; the California Regional Water Quality Control Board, Lahontan Region; and one Public Representative from each affected community. The community being represented may nominate an alternate Public Representative at its discretion. Additionally, technical advisors to the RPMs shall actively participate in planning and discussions during all meetings. Technical advisors shall include, by way of illustration but not by limitation: Operable Unit (OU) Program Managers, public health and safety representatives, a public affairs representative, and a judge advocate representative.

C. All other interested parties from regulatory agencies and other organizations shall be considered invitees, as may be necessary depending on the issues to be discussed.

D. The two biannual formal Restoration Advisory Board meetings are open to the general public and there is a time provided during the meeting for the public to address the board. Public comments are limited to the portion of the meeting identified for that purpose and must pertain to the Environmental Restoration Program at Edwards Air Force Base. Inquiries,

oral or written, from the public concerning the ERP or its activities, may also be brought before the board through any RAB member. Written inquiries can be submitted online through the RAB's social media website at www.facebook.com/RAB.Edwards.

E. The Air Force shall request the local communities bordering the Base to nominate a public member to represent the community interests that are impacted or potentially impacted by response actions at Edwards Air Force Base. Additionally, the Air Force shall identify major areas within Edwards Air Force Base and shall seek a nominee from each area to serve on the RAB. Each Public Representative must have sufficient technical background or interest to provide meaningful comment on the matters to be reviewed. The Public Representative must also have a constituency or active affiliation with a large number of community members in order to disseminate information concerning the Base's ERP. Public Representatives from the interested communities shall work or reside in that community. The Air Force, U.S. EPA, and the State of California shall be provided the opportunity to review and comment on nominations of Public Representatives before forwarding for final approval by the 412 TW/CC (or designee). Public Representatives will be screened for potential conflicts of interest.

F. The RAB members will serve without compensation or reimbursement.

G. In the event any representative withdraws or is removed from the RAB, the sponsoring organization will notify a RAB Co-Chair and nominate a suitable replacement. Replacements will receive final approval by the 412 TW/CC (or designee).

H. Public members shall be appointed for 2 years and can be renominated by their

Edwards Air Force Base Environmental Restoration Program Restoration Advisory Board Charter

respective community/organization. The Air Force Co-Chair and RPMs shall retain their RAB appointments until their involvement in the Edwards Air Force Base ERP is terminated (by resignation, transfer, retirement, promotion, other project assignment, or personal request).

I. A RAB member may be removed from the Board:

1. By written request to the sponsoring organization and 412 TW/CC (or designee) by the member,

2. By board action after missing two consecutive biannual meetings (no member shall be removed if absence is due to good cause shown),

3. For failure to abide by the requirements of this Charter and the accompanying Bylaws, or

4. By recommendation of sponsoring organization in accordance with process detailed in Section VI of the Bylaws.

J. Primary and alternate Public Representatives will perform the same functions except as stated in Section V of this Charter.

V. MEETINGS

A. The RAB will convene biannually or more often as requirements dictate. In addition to two public formal meetings held in off-base rotating locations, the RAB will meet as necessary on base for working-group sessions, online through the RAB's social media website, or via phone conferencing.

B. The Air Force Co-Chair (or designee) will be responsible for notifying all members of scheduled meetings and provide other logistical support as specified in the Bylaws.

C. The Air Force Co-Chair (or designee) will be responsible for arranging the recording of the minutes of the meetings and for dissemination of these minutes to members. Meeting minutes shall be distributed to participants 10 days prior to the next scheduled meeting and will be available for public review.

D. Public Representatives will be responsible for regularly informing interested citizens or groups on the ERP activities. Public Representatives will report on their activities. Reports and concerns from citizens will be presented by the primary member from each community at each regularly scheduled RAB meeting or through a social media site maintained by the Air Force.

E. When a community is represented by a primary and an alternate Public Representative, the duties of the representative shall rest with the primary member unless the primary member is absent from the meeting. In the absence of the primary Public Representative, the alternate will serve as the primary member.

VI. DECISIONAL AUTHORITY

The RAB serves to obtain a coordinated and informed review of the ERP at Edwards Air Force Base. The final selection and implementation of any remedial action will be in accordance with applicable State and Federal laws, the Edwards Air Force Base Federal Facility Agreement, and will consider input derived from RAB meetings or social media/working group discussions.

This Charter shall be amended as required by changes in State and Federal laws or regulations. Public Representatives may recommend amendments to this Charter. Amendments not required by law will require approval by the RPMs representing the Air Force, the

Edwards Air Force Base Environmental Restoration Program Restoration Advisory Board Charter

U.S. EPA, the State of California, and
the 412 TW/CC.

Nothing in this Charter shall amend the
rights and responsibilities of the Air Force,
U.S. EPA, or the State of California.

VII. TERMINATION

This Charter shall be terminated after
implementation of the final basewide remedial
design. It may also be terminated earlier upon
a unanimous vote of the RPMs.

Edwards Air Force Base Environmental Restoration Program Restoration Advisory Board Charter

VIII. EFFECTIVE DATE

The effective date of this Charter shall be the date of the last signature.

//original signed by//	15 Nov 12
AMY V. ARWOOD, Colonel, USAF Air Force Co-Chair Edwards Air Force Base, California	Date

//original signed by//	15 Nov 12
BRUCE H. DAVIES Public Representative Co-Chair Edwards Air Force Base, California	Date

Approved:

//original signed by//	12 Dec 12
MICHAEL T. BREWER, Brigadier General, USAF Commander Edwards Air Force Base, California	Date

Appendix H

Local Media Listing

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Appendix H – Local Media Listing

LOCAL MEDIA CONTACTS

The following media outlets disseminate information amongst the Antelope Valley community. Edwards AFB has used some of these suggested media outlets for prior meeting notifications.

Newspapers

Aerotech News and Review
220 E Avenue K-4, Suite 4
Lancaster, CA 93535
(661) 945-5634
FAX: (661) 723-7757

Antelope Valley Press
PO Box 4050
Palmdale, CA 93590
(661) 273-2700
editor@avpress.com

Bakersfield Californian
3700 Pegasus Drive
Bakersfield, CA 93308
(661) 395-7500

Los Angeles Times
2300 E. Imperial Highway
El Segundo, CA 90245
(213) 237-5000
FAX: (213) 237-3535

Mojave Desert News
8016 California City Blvd.St#7
California City, CA 93505
(760) 373-4812

Rosamond News
2969 Sierra Hwy.
Rosamond, CA 93560
(661) 256-0149
FAX: (661) 269-2139

Tehachapi News
411 N Mill Street
Tehachapi, CA 93561
(661) 822-6828
FAX: (661) 822-4053

Broadcasters

Time Warner Cable
569 E Palmdale Blvd.
Palmdale, CA 93551
(661) 247-0136
FAX: (661) 273-6439

KCRW (Radio)
1900 Pico Boulevard
Santa Monica, CA 90405
(310) 450-5183

KIIS Radio
3400 W Olive Avenue, Suite 550
Burbank, CA 91505
(818) 559-2252

High Desert Broadcasting (Radio)
KGMX, KKZQ, KTPI (AM 1340)
570 E Avenue Q-9
Palmdale, CA 93550
(661) 947-3107



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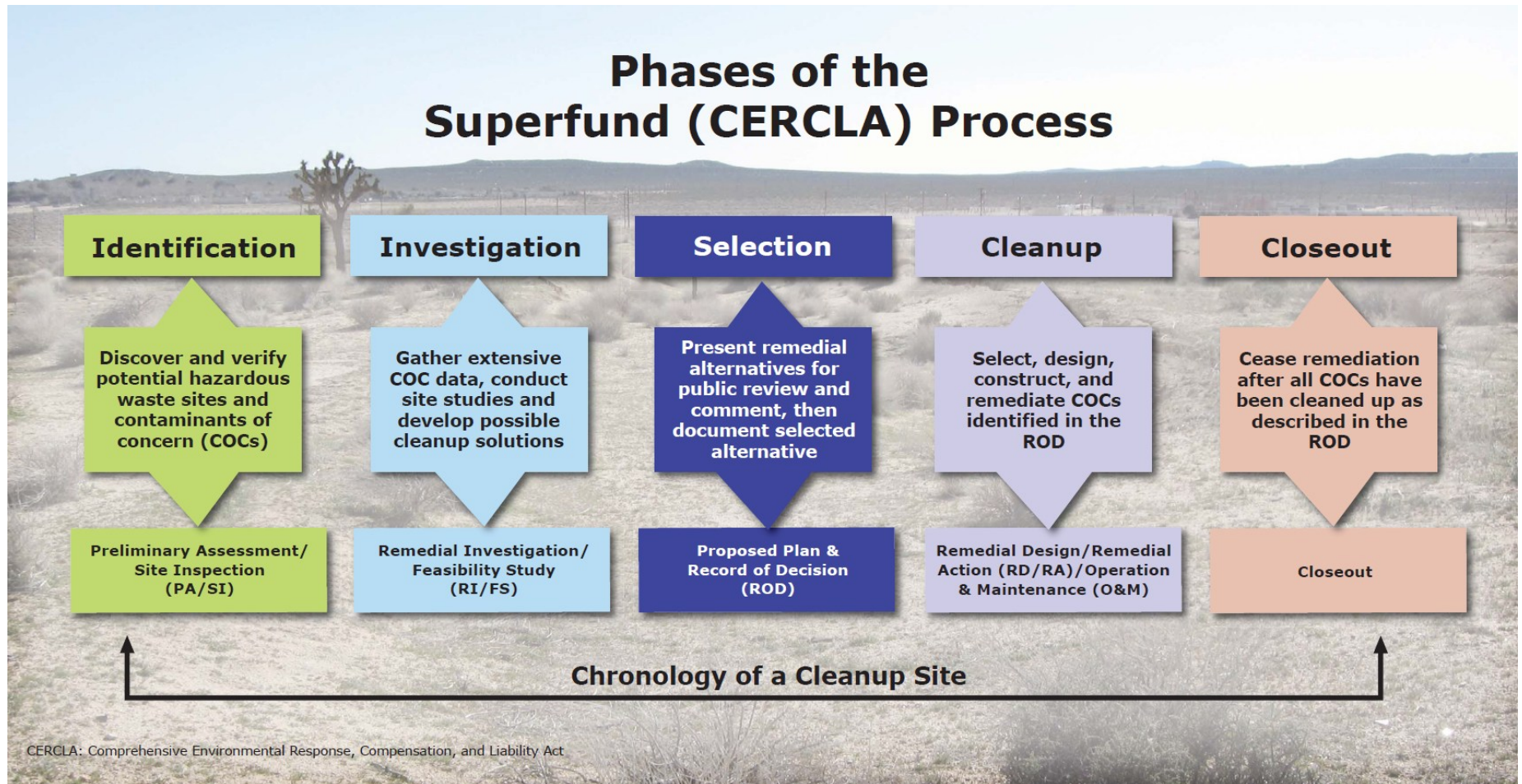
Appendix I

CERCLA Process

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Appendix I – CERCLA Process

The Proposed Plan Stage is the opportunity for public comment on cleanup documents.



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CERCLA PROCESS

The Superfund (also known as the CERCLA) process allows for public review and comment of certain documents. It is typical for a large site to have various Operable Units in different stages of investigation and cleanup. The following summary generally describes the steps in the cleanup process, from the initial investigations through the removal of the site from the National Priorities List (NPL).

Superfund Cleanup Program Overview

Site Discovery – Applies to the different ways that the Air Force becomes aware of the need to consider a site for cleanup.

Preliminary Assessment/Site Inspection – Following site discovery, the Air Force reviews any existing information (including prior sampling results) in a preliminary assessment. The Air Force then conducts various activities, such as a site visit or additional sampling, as part of the site inspection.

National Priorities List Process – If the information warrants it, the Air Force notifies the U.S. Environmental Protection Agency (U.S. EPA) to begin the NPL process, which requires an analysis of the types of known or suspected contaminants and their proximity to people or the environment, to determine the potential for harm. The analysis document, the NPL Scoring Package, forms the basis for the U.S. EPA to add the site to the NPL.

Remedial Investigation (RI) – Following NPL listing, the Air Force designs a thorough investigation of the site to characterize the extent of contamination (the area affected and to what depth) and the types and concentrations of contaminants. The RI involves sampling air, soil, surface water and/or groundwater. Multiple sampling events can take many years to characterize the site. After completion, the Air Force makes the RI report available for public review in the information repository and on the internet.

Feasibility Study – Once the Air Force identifies the area and types of contamination, they begin to determine possible ways to clean up the contamination. The Air Force organizes the cleanup tools, techniques, and processes into alternatives, often with multiple elements. The alternatives are then evaluated using the nine CERCLA criteria including protection of human health and the environment, ease of implementation, cost, and time to reach cleanup goals. The FS summarizes the evaluation process.

Proposed Plan – The Proposed Plan is a brief document written for the public that is distributed to the Air Force's mailing list and included in the information repositories. It announces a formal 30-day comment period (minimum), summarizes the findings of the RI/FS, compares various ways to address site contaminants, identifies the Air Force's preferred alternative, and explains how the public may provide comments.

Record of Decision – Once the comment period on the Proposed Plan is complete, the Air Force works with the U.S. EPA to develop the Record of Decision (ROD), a formal decision document recorded for the public that identifies the selected remedy the Air Force will use to clean up a Superfund Site. The Air Force reviews all public comments and responds/incorporates those comments, as appropriate, into the Responsiveness Summary section of the ROD.

Remedial Design – The Remedial Design document includes development of engineering drawings and specifications for a site cleanup based on the selected remedy recorded in the ROD. After the completion of the final engineering design, the lead agency shall issue a fact sheet and provide, as appropriate, a public briefing prior to the initiation of the Remedial Action.

Remedial Action – The Remedial Action document includes the actual building of treatment facilities, implementation of institutional controls, or any other aspect that implements the cleanup decision. This phase includes the operation, maintenance, and monitoring of the site remedy until remedial action objectives are achieved.

Long-Term Management – Actions required to monitor long-term protectiveness of the remedy when the remedial action objectives do not allow unrestricted use of the property.

Five-Year Review – The Air Force conducts an analysis every five years to determine if site remedies remain protective of human health and the environment. Prior to the start of the Five-Year Review process, the Air Force notifies the community and asks the community to provide information about the operations of the as-built remedy, or any issues and concerns that have arisen regarding the remedy. When the Air Force completes the Five-Year Review report, the community is notified of the results.

Delisting – When a site has met its cleanup objectives, the U.S. EPA can remove the site from the NPL. At this point, the Air Force will notify the public and hold a comment period prior to removing the site from the NPL.

OTHER CLEANUP STEPS

Two other potential steps in the site's cleanup process might occur.

Interim Actions – The U.S. EPA defines an interim action as any short-term, temporary, or preliminary construction or activity that addresses contamination before a final cleanup decision is made. The selection of an interim action often involves a public participation process similar to the Proposed Plan process that leads to a ROD.

Record of Decision Amendment/Explanation of Significant Differences – If a selected remedy needs modification after the Air Force develops the ROD (because, for example, new cleanup standards come into effect, more effective cleanup technologies become available, or new areas of contamination are discovered), the Air Force will notify the public, and a process similar to the Proposed Plan process leading up to a ROD might ensue. The actual process will depend on the scope of the proposed changes.

Appendix J

RAB Representatives and Remedial Project Managers

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Appendix J – RAB Representatives and Remedial Project Managers

If you have any questions or concerns, you may contact any of the RAB members by telephone or by e-mail. Each representative is responsible for communities at and surrounding Edwards Air Force Base.

RAB Members

City	Contact Name	Telephone	E-mail Address
Off-Base Communities			
Boron	Carol-Ann Thomas	(760) 762-5678	carol-ann.thomas@nasa.gov
	Megan Pater (Alternate)	(760) 920-1379	megan@ekccf.org
California City	Alexia Svejda	N/A	asvejda@yahoo.com
Lancaster	Raj Malhi	(661) 723-6019	rmalhi@cityoflancasterca.gov
	Lauren Hughes- Leslie (Alternate)	(661) 723-6019	lhughes-leslie@cityoflancasterca.gov
Mojave	Victor Yaw, Public Co-Chair	(661) 754-1641	vicyaw@yahoo.com
North Edwards	Vacant	N/A	N/A
Rosamond	Joaquin Morales	(661) 275-0509	joaquin.morales@us.af.mil
	William Gaddis (Alternate)	(651) 614-8454	wrgadjr@icloud.com
On-Base Communities			
Housing	Christopher Carlin	(661) 277-9733	christopher.carlin.2@us.af.mil
	Irwin Holloway (Alternate)	(843) 729-4516	irwin.holloway@us.af.mil
Main Base Test Wing	Paul Mattson	(661) 277-5665	paul.mattson.2@us.af.mil
NASA Armstrong	Maria Caballero	(661) 676-0088	maria.l.caballero@nasa.gov
	Kaedance Collette (Alternate)	(661) 276-3487	kaedance.e.collette@nasa.gov
North Base	Vacant	N/A	N/A
South Base	Shanelle Newman	(661) 275-1376	shanelle.newman@us.af.mil
AF Research Laboratory	Joe Mabry	(661) 857-6289	joseph.mabry@us.af.mil

You may also contact any of the remedial project managers who oversee the cleanup program at Edwards AFB.

Remedial Project Managers

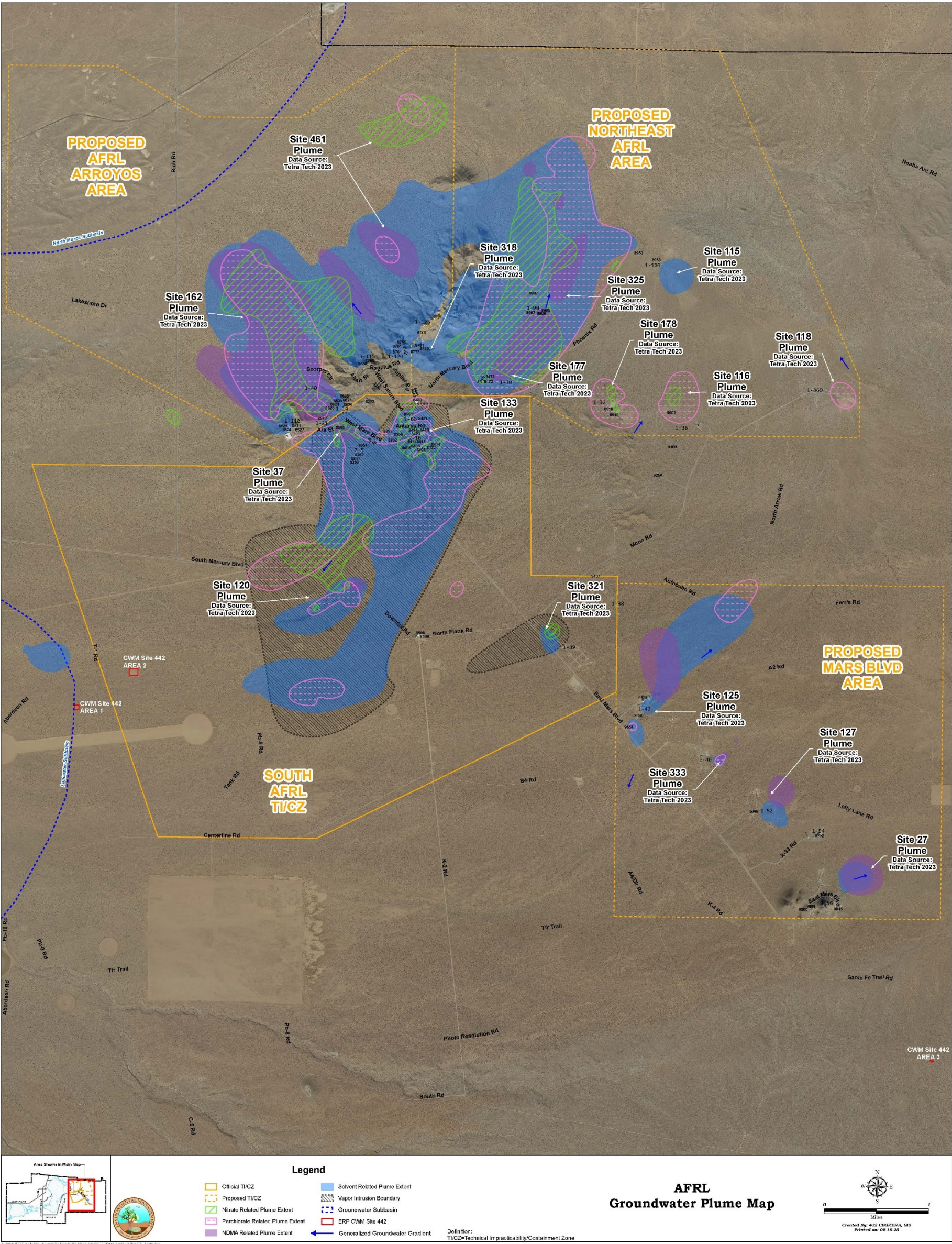
Agency	Contact Name	Telephone	Email Address
U.S. Air Force	Paul Schiff	(661) 277-1469	paul.schiff@us.af.mil
U.S. Environmental Protection Agency	Dante Rodriguez	(415) 972-3166	rodriguez.dante@epa.gov
	Ethan Finkel	(415) 972-3127	finkel.ethan@epa.gov
	Mohamed Ibrahim	(415) 972-3184	ibrahim.mohamed.n@epa.gov
Department of Toxic Substances Control	Bruce Lewis	(916) 255-6576	bruce.lewis@dtsc.ca.gov
Lahontan Regional Water Quality Control Board	Toufic Zeidan	(760) 241-7407	toufic.zeidan@waterboards.ca.gov
	Mark Allen	(760) 241-7391	mark.allen@waterboards.ca.gov

Appendix K Plume Maps

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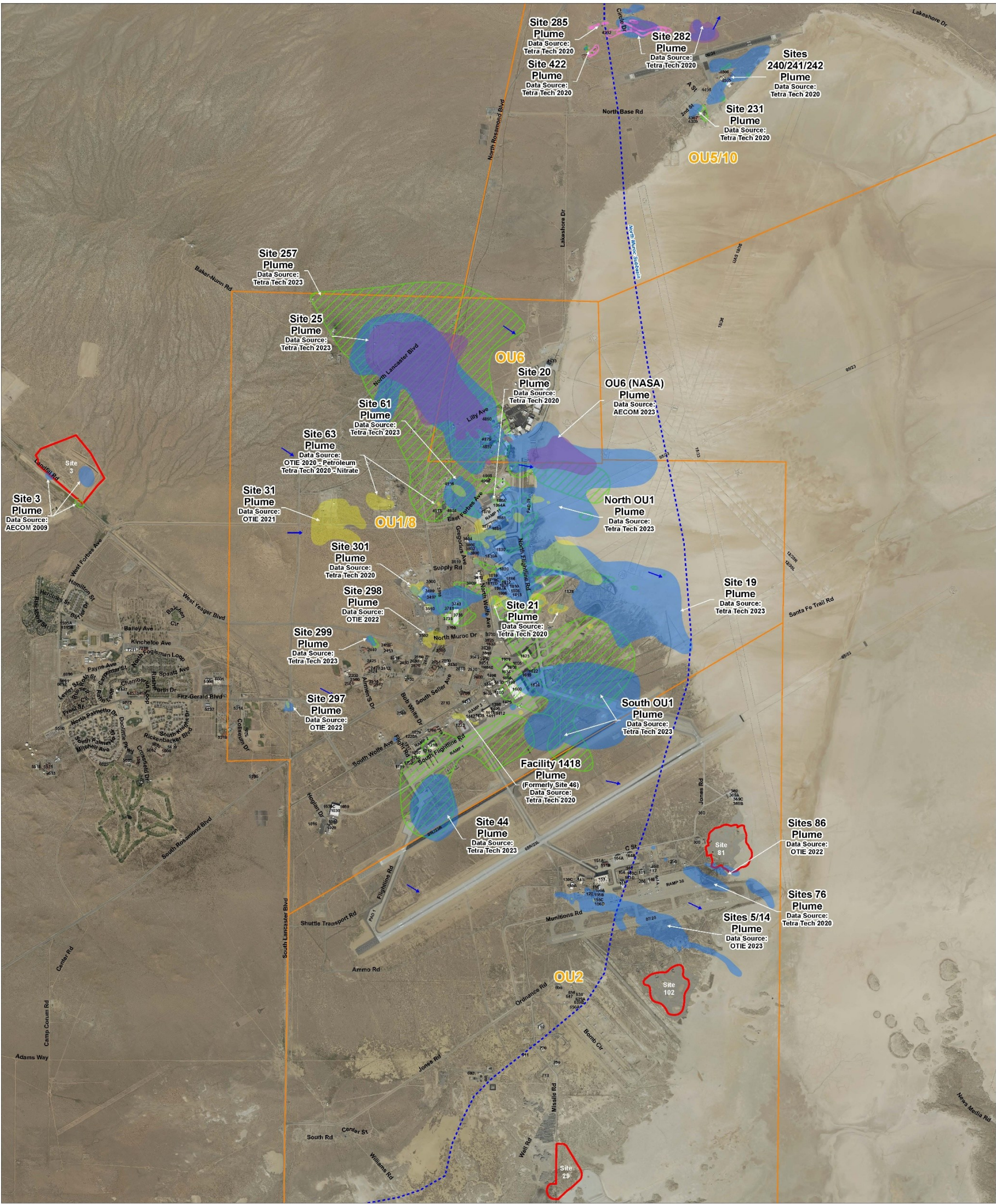
Appendix K – Plume Maps

OU4/9 AFRL
Groundwater Plume Map



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OU1/8, OU2, OU5/10, and OU6
Groundwater Plume Map

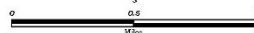




Legend

NDMA Related Plume Extent	Nitrate Related Plume Extent
Petroleum Related Plume Extent	Groundwater Subbasin
Perchlorate Related Plume Extent	ERP Sites 3, 29, 81, and 102
Solvent Related Plume Extent	Operable Unit Boundary
Generalized Groundwater Gradient	

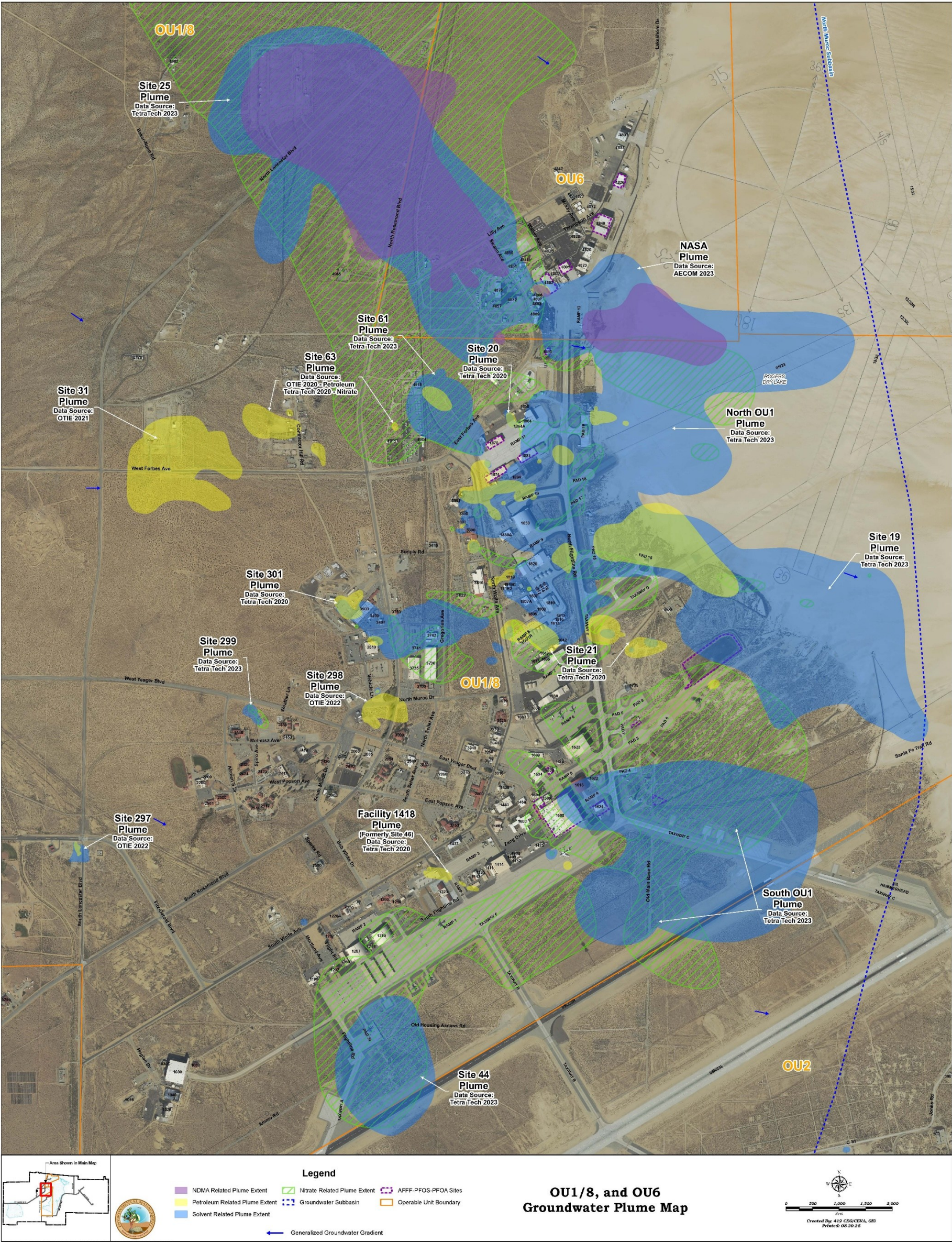
**OU1/8, OU2, OU5/10, and OU6
Groundwater Plume Map**



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Printed on: 08/18/25

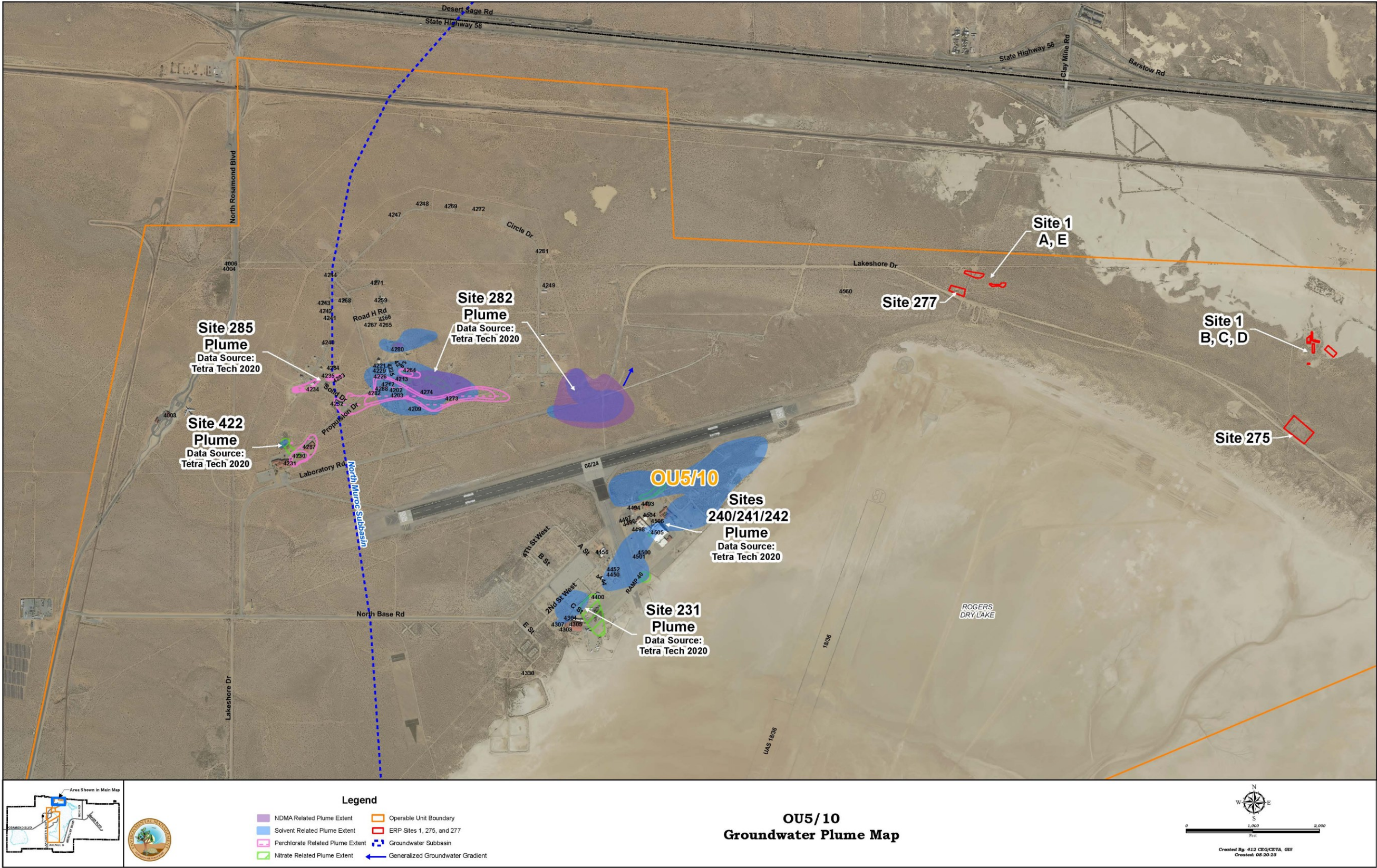
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OU1/8 and OU6
Groundwater Plume Map



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OU5/10 Groundwater Plume Map



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Appendix L

Vapor Intrusion Pathway Communications Plan

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Appendix L – Vapor Intrusion Pathway Communications Plan



**412th Test Wing
Civil Engineer Division
Environmental Management
Edwards Air Force Base, California**

**Vapor Intrusion Pathway
Communications Plan for
Edwards Air Force Base, California**

FINAL

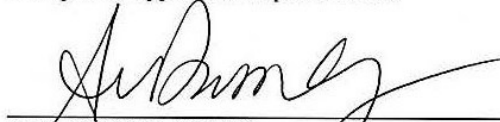
February 2013

REPORT DOCUMENTATION PAGE			Form Approved OMB No. 0704-0188	
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6. AUTHOR(S) Stephen Watts, Ph.D., 412 TW/CEV Leilani Richardson, JT3/CH2M HILL		5d. PROJECT NUMBER		
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14. ABSTRACT This communications plan is intended to be a guideline for notifying and relaying information to on-base personnel regarding vapor intrusion studies being conducted at Edwards Air Force Base (AFB), California. Ensuring a safe work environment for base employees is a top priority for Edwards AFB officials. Officials will use this plan to communicate the activities and results of vapor intrusion studies in a timely and responsible manner.				
15. SUBJECT TERMS Vapor, intrusion, pathway, communication, plan, Edwards, AFB, California, environmental, restoration, program, base, personnel, studies, safe, work, activities, results, contaminants, migration, chemical, penetration, slab, floor, building, plume, indoor, air				
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES
a. REPORT	b. ABSTRACT	c. THIS PAGE	UNCLASSIFIED	19a. NAME OF RESPONSIBLE PERSON Robert W. Wood
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED		19b. TELEPHONE NUMBER (include area code) 661-277-1407

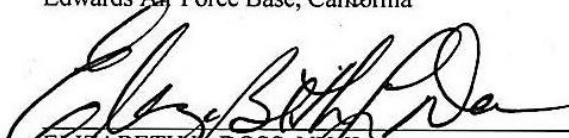
Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

This Environmental Restoration Program Vapor Intrusion Pathway Communications Plan meets the requirements of the Air Force Instruction (AFI) 35-101, *Public Affairs Responsibilities and Management*.

This plan is approved for publication:


A.D. DUONG, NH-IV
Remedial Project Manager
Edwards Air Force Base, California

Date 7 Feb 2013


ELIZABETH L. DOSS, NH-II
Director, Public Affairs
Edwards Air Force Base, California

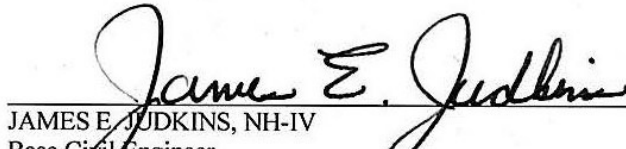
Date 7 Feb 2013


STEPHEN K. DONALDSON, Colonel, USAF
Commander, 412th Medical Group
Edwards Air Force Base, California

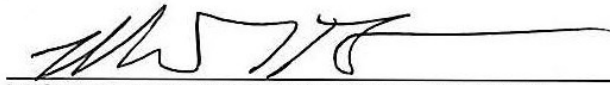
Date 11 Feb 13


JEFFERY D. KNIPPEL, Colonel, USAF
Chief, Environmental Restoration Division
Air Force Civil Engineer Center

Date 4 FEB 2013


JAMES E. JUDKINS, NH-IV
Base Civil Engineer
Edwards Air Force Base, California

Date 8 FEB 13


MICHAEL T. BREWER, Brigadier General, USAF
Installation Commander
Edwards Air Force Base, California

Date 15 Feb 13

Acronyms and Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists
AEGL	acute exposure guideline limits
AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFI	Air Force Instruction
AFRL	Air Force Research Laboratory, Detachment 7
AFTC/PZ	Air Force Test Center Contracting
ATSDR	Agency for Toxic Substances and Disease Registry
BE	412th Test Wing Bioenvironmental Engineering
CE	412th Test Wing Civil Engineer
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOD	Department of Defense
DTSC	Department of Toxic Substances Control
ERA	Environmental Restoration Account
ERP	Environmental Restoration Program
HVAC	heating, ventilation and air conditioning
JA	412th Test Wing Judge Advocate
MDG	412th Medical Group
NIOSH	National Institute for Occupational Safety and Health
O&M	operations and maintenance
OSHA	Occupational Safety and Health Administration
PA	412th Test Wing Public Affairs
PCE	tetrachloroethene
ppb	parts per billion
ppm	parts per million
SVE	soil vapor extraction
TCE	trichloroethene
USEPA	U.S. Environmental Protection Agency
VI	vapor intrusion
VOC	volatile organic compound

I. PURPOSE/STATEMENT OF INTENT

This communications plan is intended to be a guideline for notifying and relaying information to on-base personnel regarding vapor intrusion studies being conducted at Edwards Air Force Base (AFB). Ensuring a safe work environment for base employees is a top priority for Edwards AFB officials. Officials will use this plan to communicate the activities and results of vapor intrusion studies in a timely and responsible manner.

II. SITUATION

Background: Vapor intrusion is upward chemical vapor migration and penetration through building slabs or floors connecting subsurface soil and groundwater contamination to workspace air. Edwards AFB Environmental Restoration Program (ERP) experts are measuring indoor air vapor to evaluate potential exposures to contaminants and potential human health risks such as chronic (long-term) cancer and non-cancer effects as well as short-term effects on sensitive populations (e.g., pregnant women). The primary regulatory driver for these vapor intrusion studies is the *Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA).

ERP experts under the 412th Test Wing Civil Engineer (CE) plan to take a combination of indoor air, outdoor air and soil gas samples at administrative and industrial worker occupied buildings, to check for the presence of chemical vapors. The samples measure the vapor concentrations of chemicals (if present) to assess whether any preventative measures need to be taken to protect human health. Sampling will be conducted in buildings closest to the highest concentrations of subsurface soil and groundwater contamination associated with past military activities.

Screening levels are U.S. Environmental Protection Agency (USEPA) and/or California Environmental Protection Agency Department of Toxic Substances Control (DTSC) defined concentrations of hazardous chemicals that are considered to be below thresholds of concern for risks to human health. According to state and federal regulators, chemical vapors migrating from the subsurface into indoor work areas should pose no more than a one-in-a-million increased cancer risk to employees. This equates to one person in one million developing cancer if exposed to chemical vapors continuously for 25 years. In the workplace, continuous exposure is defined by USEPA as 8 hours per workday, 250 days a year, over a 25-year period. This conservative risk level based on recent science is designed to be protective of human health, including cancer and non-cancer health effects.

Edwards AFB officials must coordinate sample strategy and results with state and federal regulatory agencies. They will be reviewing the data and making recommendations/critiquing future actions where screening levels indicate action is necessary. In the past, Department of Defense (DOD) vapor intrusion assessment guidance under CERCLA emphasized multiple lines of evidence and a phased, stepwise approach to systematically assessing the need for mitigation based on potential long-term (chronic) exposure. However, since November 2011, with the advent of new science that suggests shorter-term exposures could be problematic for select chemicals, the traditional timeline for CERCLA data collection and decision-making has been expedited. Thus, state and federal regulators have an interest in interpreting real-time data (which

may not be definitive or reproducible if not collected by a DOD-certified laboratory) and collaborating with the Air Force in making interim mitigation decisions prior to the availability of final validated data under CERCLA.

Current Situation: If a facility is located above or near subsurface soil or groundwater contamination, the ERP applies the principles outlined in the base's *Provisional Final Basewide Vapor Intrusion Evaluation Protocol*, October 2012 (VI Protocol) to assess the potential for vapor intrusion. ERP experts have evaluated, or are in the process of evaluating, administrative and industrial worker occupied buildings that could be affected at Edwards AFB.

More than 30 buildings on the flightline and at the Air Force Research Laboratory, Detachment 7, (AFRL) have been tested for vapor intrusion. To date, one building (8595) at AFRL had indoor air readings that exceeded regulatory screening levels. For this building, the Air Force operates a soil vapor extraction (SVE) system to mitigate potential vapor intrusion issues.

Assumptions: The main contaminants of concern in the subsurface soil and groundwater include fuels and solvents, such as benzene, tetrachloroethene (PCE) and trichloroethene (TCE). These contaminants, known as volatile organic compounds (VOCs), have chemical properties that cause them to vaporize, like rubbing alcohol. These vapors migrate upward towards the Earth's surface and can enter buildings through cracks or holes in the building's structure. In this way, people working in buildings above contaminated subsurface soil or groundwater could potentially be exposed to VOCs. See Figure 1 for a conceptual model of the vapor intrusion pathway.

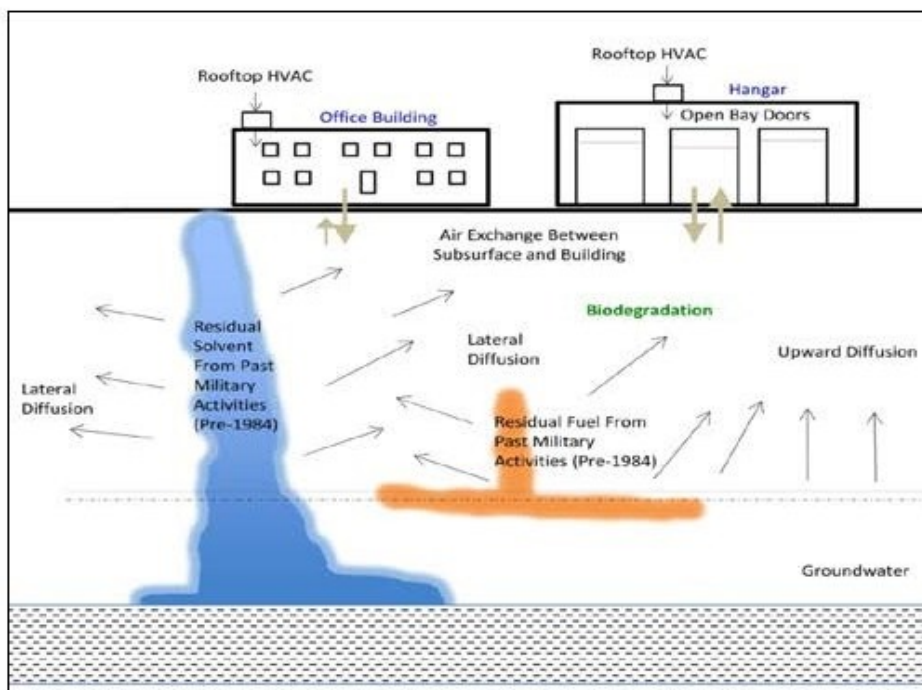


Figure 1. Conceptual site model.

Subsurface vapors are not the only sources of VOCs in the air. VOCs detected in indoor air may be due to compounds present in outdoor air, chemical use within the buildings, or subsurface soil or groundwater contamination intruding through the building's slab or floor. Types of VOC-emitting chemicals include solvents, jet fuel, exhaust fumes, paint, glue, and adhesives. To properly address the source of VOCs, the data will be reviewed to assess the relative contribution of vapors from the subsurface compared to potential sources of VOCs inside the building or outside air based on data collected from active and passive air samplers located in applicable locations.

Under the ERP, experts also analyze cumulative risk for the combined chemicals present (if any) in indoor air, in addition to the risk from each individual chemical.

Limiting Factors: CERCLA data is required to be collected in a reproducible and controlled manner. Strict laboratory certification requirements and recordkeeping accompany each VOC sample, which takes up to 14 days to analyze. After analysis, before releasing the results of vapor intrusion studies conducted under the ERP, experts must perform quality assurance/quality control checks of the data collected. This means it could take at least 45 days before final, validated results suitable for long-term decision-making are available. Confirmatory and seasonal sampling may be necessary for a representative assessment of vapor intrusion that takes into account long-term variation. The timing of retesting and additional sampling may also be influenced by mission impact-related scheduling, funding availability and contractual timelines.

In some cases, traditional analytical VOC results can be expedited (for a supplemental fee), but laboratory capacity can limit this option. Preliminary (pre-validation or field instrument) results may be used internally to initiate the decision tree/screening process and initiate dialog regarding interim actions while awaiting final, validated results (see the *Background* section above). Emerging CE technologies include capabilities to detect VOCs almost in real-time where appropriate; however, this preliminary data may be superseded by final, validated results anticipated within 45 days.

There are a range of screening levels that require further assessment by USEPA and DTSC but do not fall under a base organization's responsibilities. Environmental experts at CE are testing for chemical vapors at a sensitivity level significantly below that of Occupational Safety and Health Administration (OSHA) standards. 412th Test Wing Bioenvironmental Engineering (BE) conducts health risk assessments of industrial workplaces using OSHA standards, measuring and monitoring as appropriate. OSHA standards – typically in the parts per million (ppm) range - require sampling worker's personal exposure at their breathing zone. OSHA sampling quantifies worker exposure; if the worker's exposure exceeds OSHA standards, mitigation is required. In contrast, CERCLA sampling is an area sample – often measured in parts per billion (ppb) - that may or may not reach the worker's breathing zone and represents a potential exposure. According to the USEPA guidelines, if the VOCs originate from past contamination in the subsurface soil or groundwater beneath a building, CE must continue to investigate or — in some cases for some VOCs — take action to mitigate potential exposure if indoor air concentrations are above USEPA and/or DTSC screening levels.

Supporting Interests: CE is conducting the vapor intrusion studies as part of the base's ERP following the principles outlined in the VI Protocol. Other base organizations that may need to be involved in cases where readings exceed regulatory screening levels include BE; the 412th Test Wing Labor Relations, Personnel, Judge Advocate (JA), Medical Group (MDG), Public Affairs (PA), and the Installation Commander (412 TW/CC); Air Force Test Center Contracting (AFTC/PZ); and the Air Force Civil Engineer Center (AFCEC).

Alternative Viewpoints: In addition to CERCLA, which sets out the requirements for protection of human health and the environment, another regulation developed to protect site workers includes the Occupational Safety and Health Act [29 CFR § 671]. Non-regulatory recommendations issued by the National Institute for Occupational Safety and Health (NIOSH, a research arm of the Centers for Disease Control); the Agency for Toxic Substances and Disease Registry (ATSDR); and the American Conference of Governmental Industrial Hygienists (ACGIH) may also be relevant. Other potentially relevant advisory levels include the National Academy of Sciences' acute exposure guideline limits (AEG-1,2,3).

References: This communications plan adheres to a sample format in Air Force Instruction 35-101, *Public Affairs Responsibilities and Management*, 18 August 2010.

III. OBJECTIVES

Base officials want to communicate the initiation and results of vapor intrusion studies in a timely and responsible manner. In order to do so, key base organizations must understand their role in communicating to employees. Base leadership also wants a contingency plan in place so that follow-up actions and responses are standardized and approved by all the process owners involved.

IV. AUDIENCES/STAKEHOLDERS

The key groups and individuals to notify for vapor study results will be the unit/group commander, facility manager and building occupants. If sampling results indicate indoor air levels are above screening levels, CE will notify BE, Labor Relations, Personnel, JA, AFCEC, AFTC/PZ, PA and the MDG, who will each have roles to fill in the communication process to base employees. Sampling results are shared with state and federal regulators, who evaluate the Air Force's response and future actions to address the indoor air vapors. PA will work with CE to coordinate and appropriately notify the unit/group commander, facility manager and building occupants.

V. COMMUNICATION CHANNELS

Before a vapor intrusion study begins, CE and PA will brief senior leadership and then meet with the facility manager to coordinate building entry and sampling events. CE creates a fact sheet reviewed by AFCEC, state and federal regulators, BE and PA. The fact sheet is distributed to building occupants. The goal is to communicate on a building-by-building basis consistent with the step-by-step, logical approach to ascertaining the likelihood of a subsurface release set forth in the VI Protocol.

Labor Relations will disseminate information to union members and AFTC/PZ will notify contractors through the appropriate channels. Commander's calls and/or town hall meetings can be held to address concerns and answer questions.

Because vapor intrusion studies are part of the base's ERP, the results are part of the decision-making process for cleanup. Therefore, the results will be published in restoration documents available in library repositories and online, and will be part of the Edwards AFB Restoration Administrative Record located at CE and available online at www.adminrec.com.

VI. THEMES AND MESSAGES

Ensuring a safe work environment for its employees is a top priority for base leadership. CE will brief the unit/group commander and associated personnel if any further actions need to be taken after sample results have been analyzed. The Air Force will take appropriate action to protect the health of its workers.

VII. SPOKESPERSONS

CE staff and supporting experts will brief audiences about vapor intrusion study results with the help of PA. CE is also available to present at commander's calls and to answer any questions or concerns.

VIII. ENGAGEMENT STRATEGY

Prioritization

- Prioritization is done by CE in the stepwise process approved by state and federal regulatory agencies consistent with the principles set forth in the VI Protocol
- According to the regulator-approved workplans to be developed for each vapor intrusion investigation, CE will sample indoor air and sub-slab vapor concentrations in buildings overlying areas of highest soil and/or groundwater contaminant concentrations first
 - The regulator-approved workplans and VI Protocol take into account historical information with respect to source areas, soil characteristics, and depth to groundwater
 - The regulator-approved workplans and VI Protocol utilize modeling data to identify buildings with the highest potential risk
 - Where possible, occupied buildings and potentially occupied buildings will take priority over unoccupied buildings

Before the Study Begins: CE personnel, in cooperation with PA, brief the unit/group commander and coordinate with the facility manager, who is then responsible for notifying civil service employees in the building. CE notifies Labor Relations and AFTC/PZ, who in turn notify union members and contractor personnel who work in the building, respectively. The facility manager, Labor Relations and AFTC/PZ should contact CE if there are any questions or concerns from the building's occupants.

Suggested Pre-study Timelines are as Follows:

- Day 1: Notifications by CE/PA to affected unit/group commander(s) and facility manager(s) who then notify civilian employees. CE notification to Labor Relations and AFTC/PZ, who notify union representatives and contractor personnel about the proposed air sampling
- NLT Day 10: Letter (signed by commander) and fact sheet will go out to building employees
- NLT Day 21: Series of meetings for building employees to answer questions about air sampling (attended by CE, PA, BE, Labor Relations, union reps, JA, AFTC/PZ)
- NLT Day 21: CE posts fact sheet, map of sampling area, and commander's letter to employees on Edwards AFB CE SharePoint site
- TBD: Air sampling begins
- Next Restoration Advisory Board (RAB) Meeting: CE briefs the Edwards AFB RAB about sampling

After Sampling Results Have Been Analyzed: In all cases, CE notifies state and federal regulators of the final, validated results in accordance with the CERCLA process, at which time the vapor intrusion study data becomes part of the Restoration Administrative Record for Edwards AFB. CE also will continue to follow the regulator-approved workplan.

- Communication of results
 - CE sends correspondence to the facility manager copying the unit/group commander, and notifies Labor Relations and AFTC/PZ
 - Unit/group commander notifies all personnel to include contract employees
 - AFTC/PZ notifies contractor management, as required
 - CE, in conjunction with PA, can attend unit/group meetings to answer questions or address concerns
- Action
 - *Final lab results are below industrial risk screening levels* (indoor air concentrations below the CERCLA chemical specific cancer risk of 10^{-6} [one in a million] and non-cancer hazard index of 1):
 - No confirmatory sampling required, unless required by the regulator-approved workplan
 - No mitigation required
 - No interim action required
 - *Final lab results are within the Air Force Industrial Risk Management range* (indoor air concentrations above the CERCLA chemical specific cancer risk of 10^{-6} but below 10^{-4} , and/or above a non-cancer hazard index of 1 and below a hazard index of 3):
 - Confirmatory sampling is required to corroborate the data and continue collecting multiple lines of evidence pursuant to the regulator-approved workplan
 - Mitigation options will be assessed (e.g., configuring heating, ventilation and air conditioning [HVAC] systems for slight [2-3 pascal] positive pressure and high air exchange rate [at least 1 exchange/hour]; sealing cracks in the building slab and other preferential pathways; sub-slab depressurization; and/or providing personal filters)

- No interim action required
- *Final lab results are above industrial risk screening levels* (indoor air concentrations above the CERCLA chemical specific cancer risk of 10^{-4} and/or non-cancer hazard index of 3):
 - Interim action is required (pending regulatory notification and input), followed by confirmatory sampling
 - Mitigation measures to be implemented (e.g., configuring HVAC systems for slight [2-3 pascal] positive pressure and high air exchange rate [at least 1 exchange/hour]; sealing cracks in the building slab and other preferential pathways; and/or providing personal workspace filters capable of removing VOCs. Sub-slab depressurization is potentially a long-term mitigation measure)
 - Temporary relocation of employees should be considered, where duties can be relocated

Funding

Because ERP funds are used to implement the principles of the VI Protocol in a stepwise investigation (where suspicion that an environmental release associated with past military activities is contributing to indoor air quality impacts), CE pays to collect indoor air data in the ppb range using AFCEC Environmental Restoration Account (ERA) funds when a subsurface release is confirmed. Some proportion of the total indoor air VOC concentration also is likely to originate from in-shop use or ambient outdoor air concentrations of the same VOCs being investigated by CE. However, until risk assessments can be conducted and (if needed) longer term remedial measures are selected, investigation and potential mitigation activities for these buildings are funded by ERA.

However, for buildings outside of the ERA-funded screening process set forth in the VI Protocol that are not reasonably expected or suspected by CE to be associated with any subsurface release, any OSHA issues (investigated by BE upon request) will continue to be eligible for the base's operations and management (Base O&M) funds appropriate for the BE's indoor air quality assessment efforts. BE pays to collect indoor air data in the ppm range (using Base O&M funds) when no subsurface release is confirmed.

- As noted above, if CE was undertaking the vapor intrusion study in the first place, that indicates the building is close to a CERCLA release and was suspected to contain VOCs that originated in the subsurface, per the principles outlined in the VI Protocol
- If action is warranted, AFCEC pays for presumptive interim mitigation measures and further sampling until the source is identified. When following the VI Protocol, the difference between sources of VOCs is determined
 - *Subsurface source*: AFCEC continues funding presumptive interim mitigation measures, working towards a long-term remedy under CERCLA
 - *Not a subsurface source and exceeds OSHA standards*: BE funds sampling and mitigation measures are paid for by the Base O&M budget

- Not a subsurface source and does not fall under BE's purview for sampling (levels below OSHA standards): Data collection and presumptive measures are paid for by the Base O&M budget

Best Management Practice

For every base facility being renovated, repaired or modified, mitigation measures to address potential vapor intrusion should be factored into the design.

- Mitigation measures that reduce vapor intrusion include configuring HVAC systems for slight (2-3 pascal) positive pressure and high air exchange rate (at least 1 exchange/hour), foundation/slab vapor barriers, sealing cracks in the building slab and other preferential pathways, sub-slab depressurization, or adequately renovating an existing structure with VOC-free materials to safely house personnel moved for consolidation purposes

IX. TACTICS

The Installation Commander may wish to set aside Base O&M funds to be held until the end of every fiscal year to address potential interim mitigation actions required for unanticipated vapor intrusion concerns where AFCEC and BE funds cannot be used.

X. ASSESSMENT

CE will periodically check with the facility manager (or unit/group commander designee) to see if building occupants have further questions or concerns. Labor Relations, AFTC/PZ, Personnel, the MDG, JA, PA and BE will notify CE if their offices receive any questions or concerns from base employees or residents.

Appendix M References

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Appendix M – References

Department of Toxic Substances Control (DTSC)

- 2001 *Public Participation Manual*. Available at: <https://dtsc.ca.gov/get-involved/policies-procedures-public-participation-program>. October.

Edwards Air Force Base

- 2013 *Vapor Intrusion Pathway Communications Plan for Edwards Air Force Base, California*. Prepared by 412th Test Wing, Civil Engineer Division, Environmental Management, Edwards Air Force Base, California. February.

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- 2019 *Antelope Valley Integrated Regional Water Management Plan*. Available at: <https://pw.lacounty.gov/wwd/avirwmp>.

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- 1991 *Community Relations Plan for the Edwards Air Force Base Installation Restoration Program*, United States Air Force Flight Test Center (AFFTC) Environmental Planning and Compliance Branch. July. Prepared by Computer Sciences Corporation.
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- 2011 *Basewide Conceptual Site Model Edwards Air Force Base, CA*. October. Prepared by AECOM.
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United States Environmental Protection Agency (U.S. EPA)

- 2020 *Superfund Community Involvement Handbook*. Available at: <https://semspub.epa.gov/work/HQ/100002505.pdf>. March.

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Appendix N

Responses to Regulatory Agency Comments

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Appendix N – Responses to Regulatory Agency Comments on the April 2025 Draft CIP Update

Item #	Org/ Reviewer	Type	Section/ Page	Comment	Air Force Response
1	EPA 5/08/2025 E. Finkel	General Comment #1	--	This update to the 2023 Community Involvement Plan (CIP) incorporates EPA's comments concerning Section 508 of the Rehabilitation Act and emerging contaminants. The Air Force has sufficiently addressed EPA's comments regarding these issues.	Comment acknowledged.
2	EPA 5/08/2025 E. Finkel	General Comment #2	--	The hyperlinks in the document referring to the Air Force Administrative Record appear to be invalid. Please ensure all hyperlinks are valid.	The hyperlinks have been corrected.
3	EPA 5/08/2025 E. Finkel	Specific Comment #1	3.1.2/19	It is unclear why the text at the bottom of the page differs from the text included in the 2023 CIP. Please clarify why the text was changed as it is not readily apparent.	Upon review of the 2023 CIP, the text regarding personnel relocating to the area was judged to be out of date and was therefore revised.
4	EPA 5/08/2025 E. Finkel	Specific Comment #2	App. K/ 118 & 124	It appears the headers may be mislabeled with a date of April 2023. Please revise the header dates to the appropriate date.	The headers have been revised.
5	DTSC 5/20/2025 B. Lewis	Comment #1	--	The link https://ar.afcec-cloud.af.mil/ imbedded in the document at numerous locations does not work	Please see response to Item 2. The hyperlinks have been corrected.

Note:

In a letter dated June 12, 2025, the Lahontan Regional Water Quality Control Board stated that they concur with the Draft CIP and do not have any specific comments.

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