



Environmental Restoration Program

Edwards Air Force Base, California



Community Involvement Plan

Edwards Air Force Plan 35-101

March 2014

Final



This Environmental Restoration Program Community Involvement Plan meets the requirements of Air Force Instructions (AFI) 32-7020, *The Environmental Restoration Program*, and AFI 35-108, *Environmental Public Affairs*.

This plan is approved for publication:

A handwritten signature in black ink, appearing to read 'MTB', is written above a solid horizontal line.

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Brigadier General, USAF

Commander, 412th Test Wing

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ACRONYMS AND ABBREVIATIONS

AFB	Air Force Base
AFI	Air Force Instruction
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
DTSC	California Department of Toxic Substances Control
ERP	Environmental Restoration Program
FFA	Federal Facility Agreement
FS	Feasibility Study
GAVEA	Greater Antelope Valley Economic Alliance
JPL	Jet Propulsion Laboratory
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
RAB	Restoration Advisory Board
RI	Remedial Investigation
ROD	Record of Decision
RTS	<i>Report to Stakeholders</i>
SARA	<i>Superfund Amendment and Reauthorization Act of 1986</i>
U.S. EPA	United States Environmental Protection Agency
UXO	unexploded ordnance
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) and the California Department of Toxic Substances Control (DTSC) 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:

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

Edwards AFB developed this CIP to organize public participation efforts throughout the investigation and cleanup process for the sites on base. In the fall of 2012, Edwards AFB conducted research and interviews with 26 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.

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 its historical hazardous waste, petroleum, and munitions sites. 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 Amendment and Reauthorization Act of 1986 (SARA)*, and the *National Oil and Hazardous Substances Pollution Contingency Plan (NCP)*. This comprehensive revision was prepared in accordance with Air Force Instruction (AFI) 35-108, *Environmental Public Affairs*, and U.S. EPA *Community Involvement Plans* guidance.

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 participation requirements. The U.S. EPA, DTSC, and the California Regional Water Quality Control Board, Lahontan Region (Water Board) are supporting agencies that provided 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. This 2014 update is a comprehensive revision requested by the U.S. EPA because of changes to the base's Restoration Advisory Board (Section 4.1.1), changes in communication technologies, new information about emerging contamination risks, and the potential for increased demand of water resources in the Antelope Valley.

In conjunction with the U.S. EPA and DTSC, the Air Force interviewed community members in the fall of 2012 to learn if the public had any new concerns or issues since the last round of interviews was conducted in 2001.

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 investigation and remediation activities onsite 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 published in 1996 (Appendix M). Several updates to the document have occurred since 1996, but none of those documents was finalized. Community interviews were performed in 1990, 2001, and 2012.

2.0 COMMUNITY INTERESTS AND CONCERNS

2.1 Community Interviews

Community interviews were conducted in 1990, 2001, and 2012 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 26 people were interviewed in November 2012. The interview team provided a map, fact sheet, and a *Report to Stakeholders* (RTS) newsletter to most interview participants. A list of the questions from the 2012 interviews is included in Appendix B.

2.2 Current Community Concerns

Interviewees expressed a variety of concerns regarding cleanup at Edwards AFB. The following concerns are listed in order of the frequency they were expressed. Note that some concerns are similar (such as groundwater and plumes), but attempts were made to keep the concerns grouped using the same terminology used by the interview respondents.

2.2.1 No Concerns

Ten individuals stated that they felt Edwards AFB was doing a good job and they did not have any concerns. Interviewees said this is due to the fact that contamination issues are being addressed, the cleanup program is aggressive, and groundwater contamination has not spread to any drinking water sources. The early and ongoing communication to stakeholders, especially the RTS newsletter, is known in the region and provides a good level of transparency and credibility to the cleanup program.

2.2.2 Questions and Background Information

Most interviewees had questions, especially those who were not familiar with the Environmental Restoration Program (ERP). Six people did not state concerns directly but inquired about the base's background, contamination sources, the size of the problem, ongoing sources, new plumes, new contamination, releases to the atmosphere, cleanup timing, the Superfund (or CERCLA) process, and what is being done.

2.2.3 Groundwater

Six people were specific about their concern for groundwater. Under this category, interviewees wanted to know where the contamination is in relation to drinking water sources and whether there was an impact on regional ability to pump groundwater.



Community Involvement Contacts

Please direct questions, comments, and requests to:

Edwards AFB

Gary Hatch

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412tw.pae@edwards.af.mil

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(415) 972-3243

DTSC

Nathan Schumacher

8800 Cal Center Dr.
Sacramento, CA
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nathan.schumacher@dtsc.ca.gov

(916) 255-3650



2.2.4 Plumes

Four individuals mentioned plumes as a concern, especially if there were plume movement away from the base. Under this category, one person said there were too many monitoring wells, that you could chase fractured bedrock forever, and because the groundwater movement is known, the number of wells needs re-evaluation.

2.2.5 Health Effects

Four individuals were specific in their concern for human health. They want to know if there are any exposure paths and whether any contamination exists near schools or communities.

2.2.6 Cleanup Methods

Four people wanted to know about cleanup methods and technology.

2.2.7 Fuel Drop/Burning

Four people wanted to know about fuel dumps (aircraft on runway approach) and fuel burning at the rocket site.

2.2.8 Surface Contamination

In relation to health effects, three people wanted to know if any surface contamination exists.

2.2.9 Unexploded Ordnance (UXO)

Three individuals mentioned UXO, or munitions, as a concern. The cover article for the RTS that was provided to the 2012 interviewees featured UXO.

2.2.10 Cleanup Timeline

Two people were interested in the timeframe for the cleanup.

2.2.11 Radiation

Two people wanted to know about any potential radiation at the site.

2.2.12 Rosamond Cancer Cluster

Two people mentioned the cancer cluster in Rosamond as a concern.

2.2.13 Natural Environmental Effects

Two individuals asked about effects on the natural environment and whether plants could uptake contaminants that could then be ingested by animals.

2.2.14 Transport

One person stated concern about the transport of contaminated or hazardous materials.

2.2.15 Chemical Weapons

One individual was curious about any chemical weapons that may be in the area.

2.3 Public Interest at Restoration Advisory Board (RAB) and Public Meetings

Public and RAB input and concerns are taken seriously by the Air Force. There are many instances of RAB concerns being addressed by Air Force action. Several cleanup topics discussed at RAB and public meetings in 1995 raised community interest, including the proposed destruction of pentaborane cylinders at Air Force Research Laboratory, Detachment 7 (AFRL) and the nonstockpile 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. Employees from the National Aeronautics and Space Administration (NASA) Armstrong Flight Research Center expressed concern in 1999 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 daycare center. While the daycare center closed due to budgetary cutbacks, 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 the well contained high levels of arsenic and was located near the base boundary with Mojave. Further investigation of the site included 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 expressed concern about perchlorate contaminated groundwater in an area of the base close to North Edwards. RAB members' concerns tipped the scales in favor of funding a \$1.5 million perchlorate treatability study in fiscal

year 2001 at Site 285, an area of high perchlorate concentrations in groundwater at North Base. As a result, Edwards AFB became the first military installation to install and operate a perchlorate treatment system before official regulatory standards were established. In another instance, the RAB's concerns about potential hazards to airmen living in the dormitories supported the Air Force's decision to excavate a suspected World War II 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.

Tours of restoration sites are also being offered to RAB members several times a year as a direct result of comments from the board members.

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 victims, 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.

2.4.2 North Edwards

Because of concern from North Edwards residents, the North Edwards Water District contacted the base's Environmental Management office in 1989 regarding potential contamination to the town's drinking water. 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.



2.5 Regulator Concerns

Regulatory agencies such as 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, munitions debris at or near the soil surface, and skeet/small arm 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, and technical reports as outlined in Section 4.0, Action Plan. All of this information is available for viewing online at www.adminrec.com or <http://eafb.mojavedata.gov/Documents>. You may also contact Gary Hatch by telephone at (661) 277-8707 or via e-mail at 412tw.pae@us.af.mil to receive this information in hard-copy form or to obtain information unrelated to the 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, and the population is expected to reach 1 million by the year 2020.

The 2007 *Antelope Valley Integrated Regional Water Management Plan* (Regional

Water Management Group, 2007) 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 plumes at Edwards AFB are not expected to migrate toward water supply wells.

The following sections include demographic information as well as a brief highlight for each of the communities neighboring Edwards AFB.

3.1.1 Boron

Boron is located on the border of the Mojave Desert, 20.1 miles away from the central part of Edwards AFB. Boron is a small community in Kern County, California, with a population of approximately 2,253 people according to the 2010 Census (United States Census Bureau, 2010).



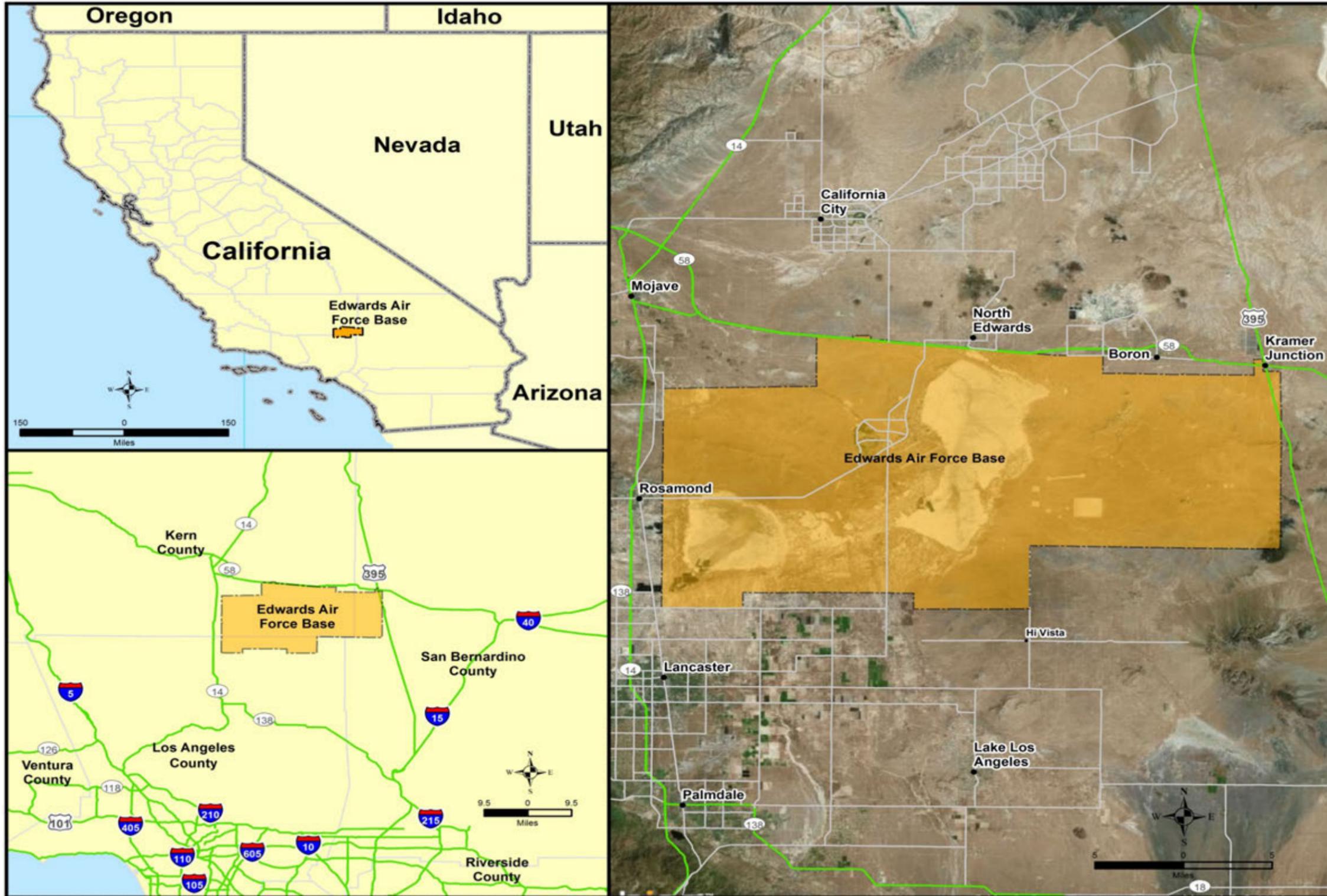
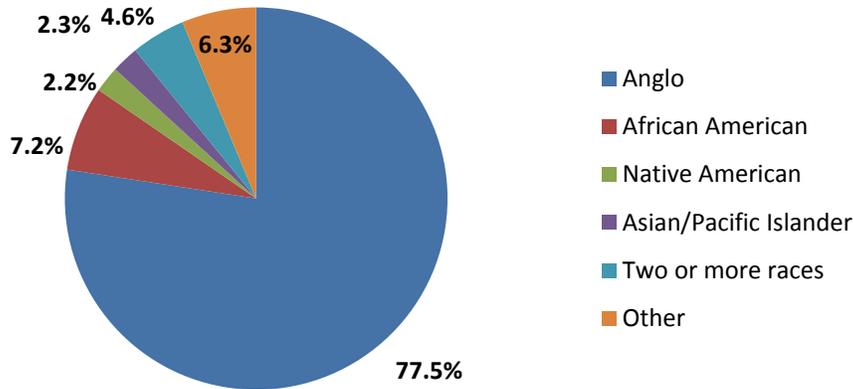


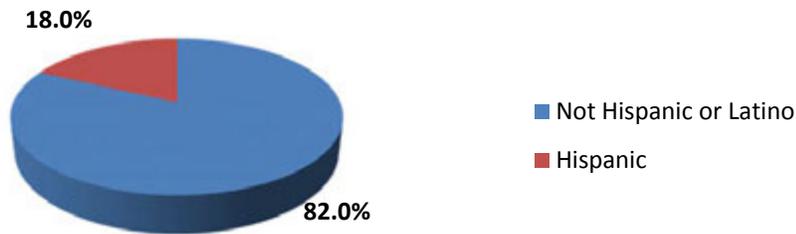
FIGURE 1
Edwards Air Force Base Vicinity Map

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Ethnic Composition in Boron, CA



Population by Origin in Boron, CA



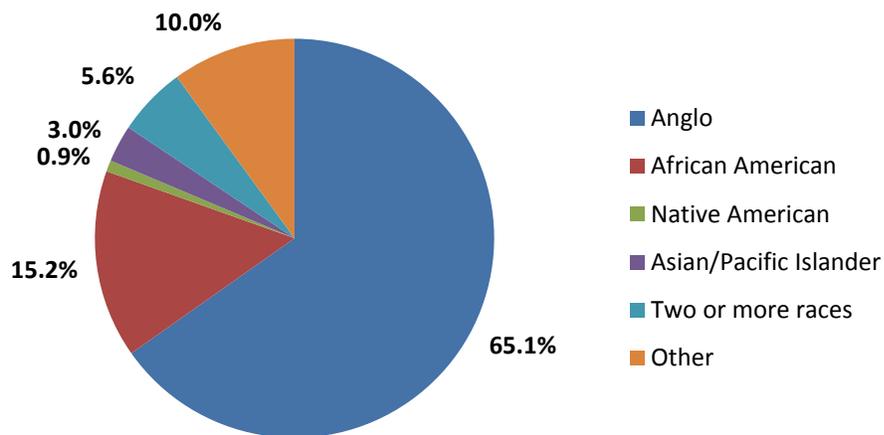
The town is named after the element that is produced at the nearby U.S. Borax Mine. The mine is the world’s largest source of the substance. Local attractions include the Twenty Mule Team Museum, which offers exhibits highlighting the mining operations in the area. The facility even has a working model of a 20-mule team that is controlled electronically, much like an amusement ride, and simulates how the mining was conducted historically. Other exhibits include old-time fire engine equipment, old kitchen artifacts, and a Vietnam Veteran’s Memorial wall.



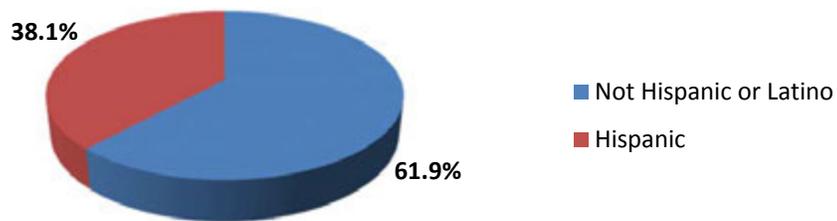
3.1.2 California City

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 14,120 people according to the 2010 Census (United States Census Bureau, 2010).

Ethnic Composition in California City, CA



Population by Origin in California City, CA



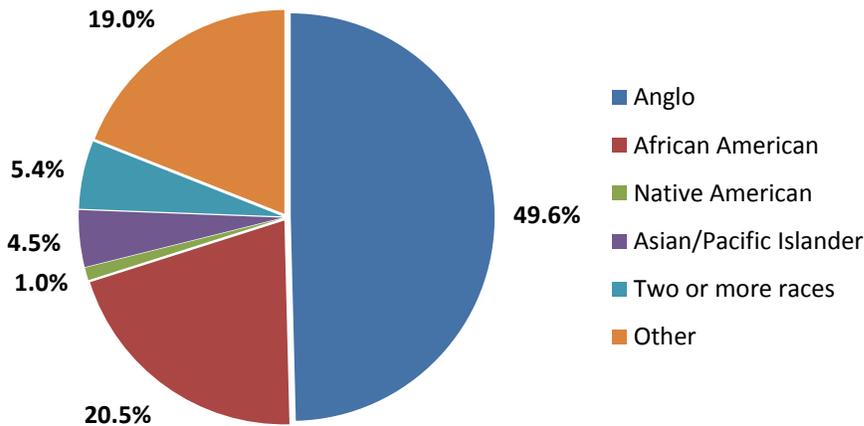
The town’s main employers include the Mojave Airport, the California City Prison, and the Silver Saddle Ranch Resort. The town is a popular location for military personnel and their families who are looking to relocate to the area. Many military members appreciate the short commute to work and call California City home.

3.1.3 Lancaster

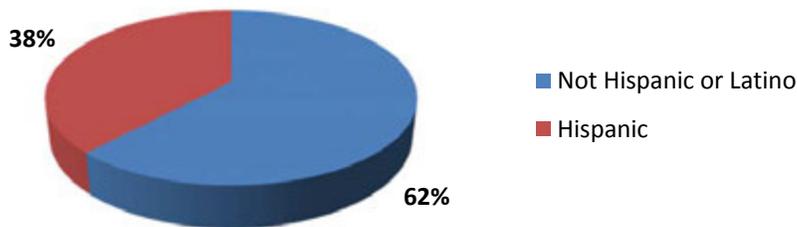
Lancaster is located in northern Los Angeles County, near the Kern County line. Lancaster, which currently ranks as the 30th largest city in California and the 148th largest city in the United States, is one of the principal cities within the Antelope Valley. The city has a total area of 95 square miles and is located approximately 70 miles from Los Angeles and 30 miles from Edwards AFB. The current population is 156,633 people

according to the 2010 Census (United States Census Bureau, 2010). The town grew to prominence because of the aerospace industry.

Ethnic Composition in Lancaster, CA



Population by Origin 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, and the Poppy Festival has become a popular event not only for Lancaster residents, but also for visitors from around the world.

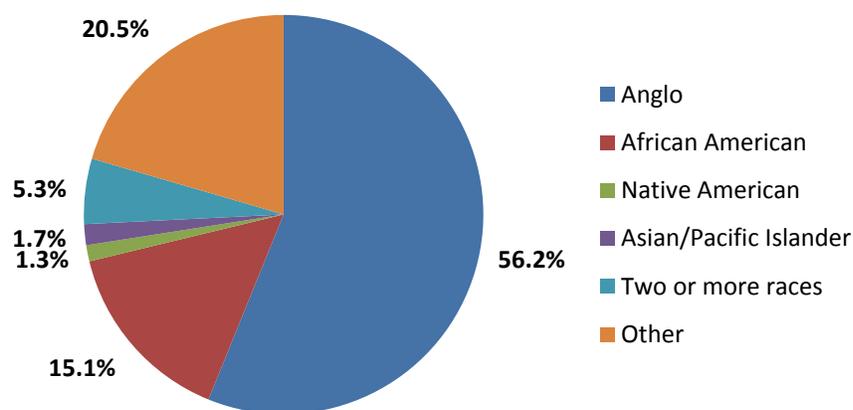
Saddleback Butte State Park is another scenic park with many native Joshua trees and unique wild plants and animals. One of the rare species that may be seen is the desert tortoise, an age-old desert animal. The city is also home to the Lancaster Aerospace Walk of Honor established in 1990 by the town's city council. Hi Vista is an

unincorporated community located 21 miles east-northeast of Lancaster. It is immediately south of the base and is in proximity to a few of the Military Munitions Response Program (MMRP) sites.

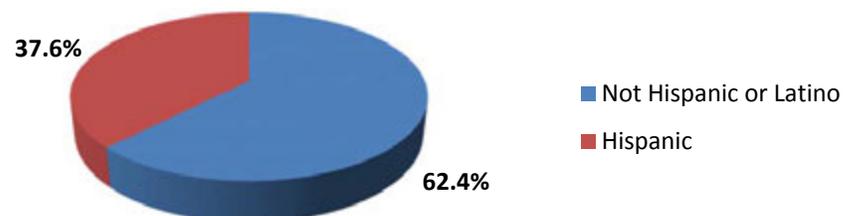
3.1.4 Mojave

Mojave is located approximately 50 miles east of Bakersfield at the western edge of the Mojave Desert. Mojave is a city of approximately 58 square miles of land and 4,238 people according to the 2010 Census (United States Census Bureau, 2010).

Ethnic Composition in Mojave, CA



Population by Origin in Mojave, CA

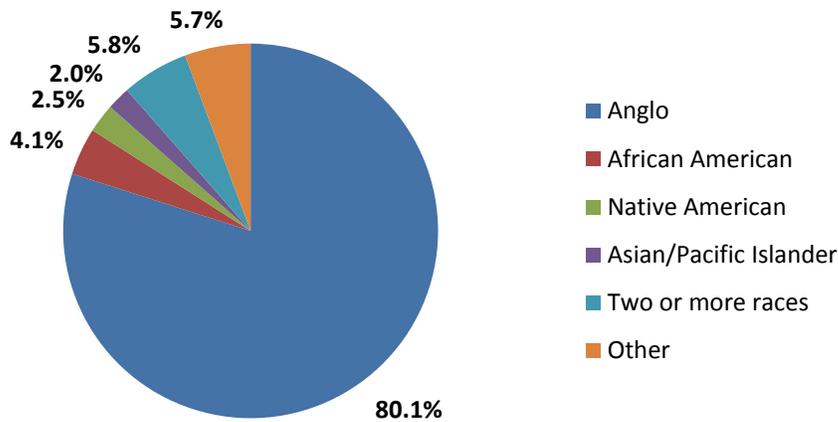


Mojave has a rich aerospace history and is home to the Mojave Air and Space Port, which is the first inland spaceport. The first private spaceflight was launched from the Spaceport on June 21, 2004. Edwards AFB is located 24 miles from the town.

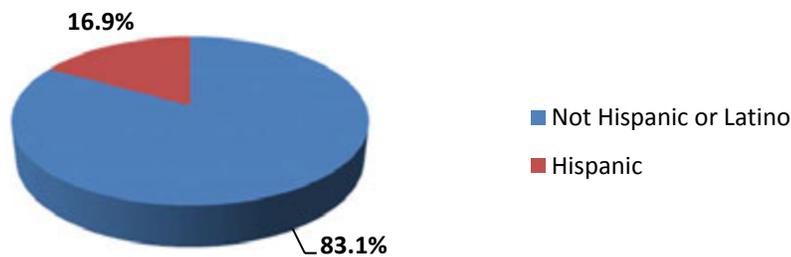
3.1.5 North Edwards

North Edwards is located approximately 10 miles from Edwards AFB with a total area of 12.7 square miles of land. The population was 1,058 according to the 2010 Census (United States Census Bureau, 2010).

Ethnic Composition in North Edwards, CA



Population by Origin in North Edwards, CA

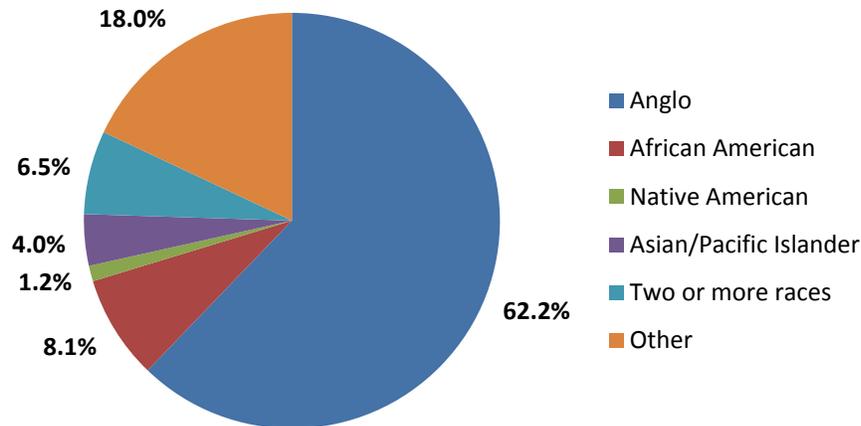


North Edwards is home to the Sunshine Market, Twenty Mule Team Cafe, and several churches. Primarily for reasons of economic viability, several prior establishments have closed over the years. Today, the town serves mainly as a bedroom community for those wishing to live near Edwards AFB or the United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

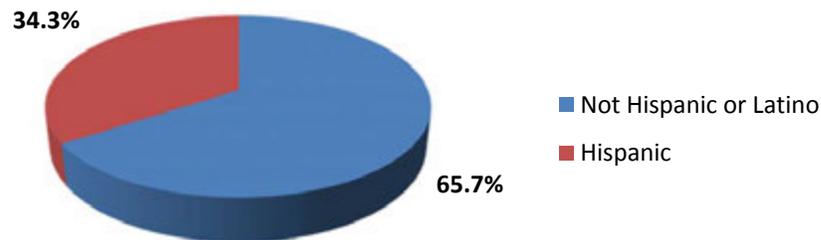
3.1.6 Rosamond

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 18,150 according to the 2010 Census (United States Census Bureau, 2010).

Ethnic Composition in Rosamond, CA



Population by Origin in Rosamond, CA



The town was established in the 1890s during the gold rush and soon became a mining town. With the arrival of Edwards AFB, the town’s economy took another boost. The base, which is one of the larger employers in the area, is located approximately 16 miles from the city. Rosamond is home to the Feline Conservation Center, which showcases 13 species of wild cats.

3.2 On-base Communities

The daily workforce at Edwards AFB is estimated at 10,420 people, including military personnel, civilians, and contractors.

3.2.1 Air Force Research Laboratory, Detachment 7

Situated in the eastern portion of the base, 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 786 family housing units.

3.2.3 Main Base

The 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 plays a vital role in carrying out the agency's missions of space exploration, space operations, scientific discovery, and aeronautical research and development. Edwards AFB was the secondary landing site for NASA space shuttle flights.

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. North Base employees are sparse and transient. As a result, there has been little involvement from the people in this area regarding the restoration program.

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. In fact, South Base is home to the Yeager Pit, a concrete depression that was once used to load the Bell X-1 onto 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 in October 1947.

4.0 ACTION PLAN

The Air Force plans its cleanup programs and activities to be as transparent as possible to 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 supports several vehicles through which the public can participate and be involved in the base's cleanup decision-making process.

4.1 Existing Outreach Activities

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 educate and inform their communities about the cleanup at Edwards AFB. To contact a community representative, visit the RAB's Facebook site at www.facebook.com/RAB.Edwards under the "Public Reps" tab. A contact list is also available in Appendix J.



FIGURE 2
RAB Facebook Site

The board meets semiannually and welcomes the public 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 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: moving RAB meeting locations to the base for working-group sessions, meeting at a restaurant for informal dinner discussions, video conferencing, and the use of social media for the exchange of information. At the February 2011 meeting, board members agreed to a reduction in 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 only used as an online information exchange forum. The page contains contact information for each community's public representative, Air Force restoration program managers, and regulatory agency personnel. From the Facebook page, the public can also access a website that contains more information—like fact sheets and key documents—about restoration efforts such as vapor intrusion. Future uses for the page will be determined by the RAB, if Air Force funds allow. One of the benefits to having a Facebook page is improving the RAB's ability to reach the younger generation.

4.1.2 Our Program Managers are Available to You

You may contact your local RAB representative or any of the base's restoration program managers. Each program manager is responsible for a different cleanup area or Operable Unit (OU). If you would like more information regarding the base's restoration program, you may contact the program managers via e-mail at 412tw.rab@us.af.mil. Complete contact information for program managers is available in Appendix J.

Air Force environmental experts are available to give presentations or hold informal discussions at regularly scheduled meetings of organized groups. Contact Gary Hatch to schedule a presentation or discussion with your group. He 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

Environmental Management publishes a bimonthly newsletter to inform the public about the ERP's progress and RAB events. Environmental Management maintains a mailing list for the newsletter's distribution. To be added to the mailing list, e-mail 412tw.rts@us.af.mil, or



call (661) 277-1401. 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 at <http://eafb.mojavedata.gov/Documents> under the *Report to Stakeholders* tab.

4.1.4 Edwards AFB Official Website

Information on the Edwards AFB cleanup program can also be found online at www.edwards.af.mil/library/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 Fact Sheets

Edwards AFB regularly releases fact sheets summarizing current or proposed activities. A sample fact sheet, along with a list of fact sheets, is included in Appendix D. Fact sheets can be accessed online at <http://eafb.mojavedata.gov/Documents> under the Restoration Fact Sheets tab.



4.1.6 Public Meetings and Comment Periods

Although community members are encouraged to provide input throughout the remediation process, some issues require formal meetings. In general, these are required under CERCLA and AFI 35-108, *Environmental Public Affairs*. 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 if they desire. These comments then become a 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, a decision document that outlines the approved cleanup remedy.

The announcement of a public comment period will be through purchased advertising in the news section of the *Antelope Valley Press*. Periodically, if the proposed action is close to a particular community, then the Air Force will purchase advertising in news sections of other local newspapers, such as the *Mojave Desert News*. The base newspaper, *Desert Wings*, will be used to the fullest extent possible to keep base residents and employees informed.

4.1.7 Information Repositories

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.

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 www.adminrec.com). See Appendix E for repository locations.

The 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.

4.1.8 Tours

The experience of reading about a subject coupled with seeing it firsthand can make a big 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. Every year, Edwards Air Force base hosts a tour of the restoration sites for the hydrogeology class of the California State University Northridge. Restoration site tours are also offered to RAB members. Tours may include visits to landfills and treatability study sites.

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 2012 community interviews, the following activities will be considered for implementation.

4.2.1 Speakers Bureau

Implementation of a speakers bureau was suggested by 15 individuals during the 2012 community interviews. There are many organizations in the region with existing meeting times that would allow Edwards AFB personnel to present an ERP update. This small meeting format would allow community members to receive a personal response to their questions and concerns.



Tour for Restoration Advisory Board members.

Edwards AFB environmental experts are available to give presentations, make speeches, or hold informal discussions about site investigations, remediation activities, or other ERP issues. Such speaking engagements are offered by appointment only. Interested groups should contact Gary Hatch by telephone at (661) 277-8707 or via e-mail at 412tw.pae@us.af.mil.

4.2.2 E-mail

E-mail communication was suggested by six interviewees as an efficient way to communicate information to stakeholders. This is especially true for on-base personnel because of existing distribution lists.

4.2.3 Linking to Existing Websites

Many organizations offered to provide a link to Edwards AFB information or to provide updates on their websites. This was suggested by six individuals as an effective way to get information out to the community. This method would be most effective for meeting announcements, general information, and brief updates.



4.2.4 Community Postings

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

4.2.5 Other Outreach Methods

Other tools for reaching the community include partnering with schools to conduct lesson plans, conducting more tours, providing more copies of the RTS in bulk to key community members, preparing a “Frequently Asked

Questions” fact sheet to provide a basic understanding to those people who have not heard of the cleanup at Edwards AFB, posting informational videos on YouTube (could be recordings of RAB presentations), and focusing on the many success stories that Edwards AFB has to tell. The public is proud of Edwards AFB as a national asset and likes to hear about the positive projects accomplished onsite. These stories can be told with little technical focus and will, therefore, be understood by a wide audience.

4.3 Timing of Outreach Activities

Edwards AFB implements communication with stakeholders throughout the investigation and cleanup effort. Some milestones require public communication. The relationship between community relations activities and the ERP technical process is presented in Table 1.

TABLE 1.
Relationship of Community Relations Activities to the Environmental Restoration Program Technical Process

Community Relations Activities	Technical Milestones			
	Remedial Investigation (RI)	Feasibility Study (FS)/Proposed Plan	Record of Decision (ROD) Final Plan	Remedial Design/ Remedial Action
<i>Specified by Federal and State Laws</i>	<ul style="list-style-type: none"> Interviews (prior to RI) Community Involvement Plan (prior to RI field work) Information Repository Administrative Record Public notices Remedial Actions^a 	<ul style="list-style-type: none"> Public notice of availability of FS/Proposed Plan, to include brief analysis Public comment period Public meeting Include in Administrative Record Remedial Actions^a 	<ul style="list-style-type: none"> Meeting transcript Responsiveness summary Public notices Make ROD available Explanation of differences from Proposed Plan if, after final remedy selection, new information becomes available, which requires the selected remedy to be changed significantly 	<ul style="list-style-type: none"> Announcement
<i>Additional</i>	<ul style="list-style-type: none"> Develop mailing list Conduct public availability sessions Revise Community Involvement Plan Fact sheets 			
<i>Ongoing</i>	<ul style="list-style-type: none"> Restoration Advisory Board meetings Workshops Mailing list maintenance Media releases Internet web pages 			

^a Remedial Actions may be implemented at any time. Remedial Action Work Plans, or Engineering Evaluation/Cost Analyses, will be placed in repositories; and there will be a 30-day public comment period. Responsiveness summaries will be prepared.

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 as 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

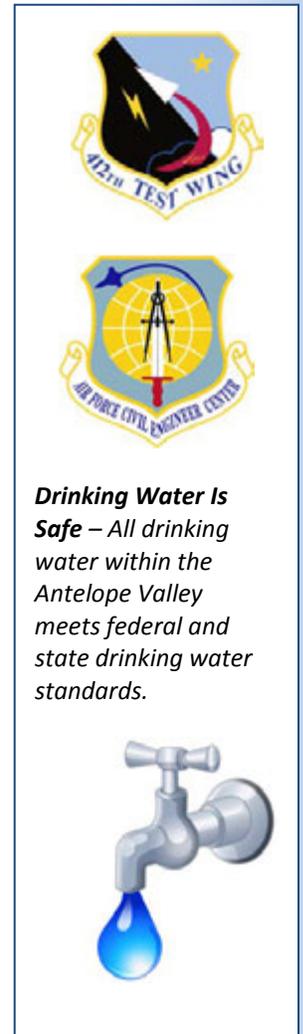
The Antelope Valley Groundwater Basin underlies an extensive alluvial valley in the western Mojave Desert. The elevation of the valley floor ranges from 2,300 to 3,500 feet above sea level. The basin is composed of two primary aquifers—the principal aquifer and the deep aquifer. The principal aquifer is an unconfined aquifer. Separated from the principal aquifer by clay layers, the deep aquifer is generally considered to be confined and therefore is 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 and therefore, the contamination is a considerable distance from populated areas and (based on groundwater flow and transport rates) unlikely to migrate to populated areas within the next century.

Sustainable planning for regional water resources is detailed in the user friendly *Antelope Valley Integrated Regional Water Management Plan* (Regional Water Management Group, 2007), which can be found at <http://avwaterplan.org>.

Due to the strong interest in trying to better understand how water management at Edwards AFB is related to the larger picture, the Air Force produced a report entitled *Basewide Conceptual Model* (United States Air Force, 2011).



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FIGURE 3
Antelope Valley Groundwater Basin Map

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5.3 Potential Contamination Sources

In support of past military activities, Edwards AFB used, stored, and disposed of hazardous materials. 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 emerging exposure pathway gaining national concern is vapor intrusion by which chemicals—mainly solvents and fuels—migrate upward from groundwater or soil and through building foundations into indoor air. This poses a potential inhalation exposure for base employees who work where soil or groundwater contamination is beneath their buildings. 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 waste contamination, the Air Force is addressing munitions and unexploded ordnance in areas no longer used for operational range activities. Base restoration program managers also are cleaning up historical petroleum, oil, and lubricant sites that do not fall under CERCLA.

5.4 Edwards Air Force Base Cleanup Programs

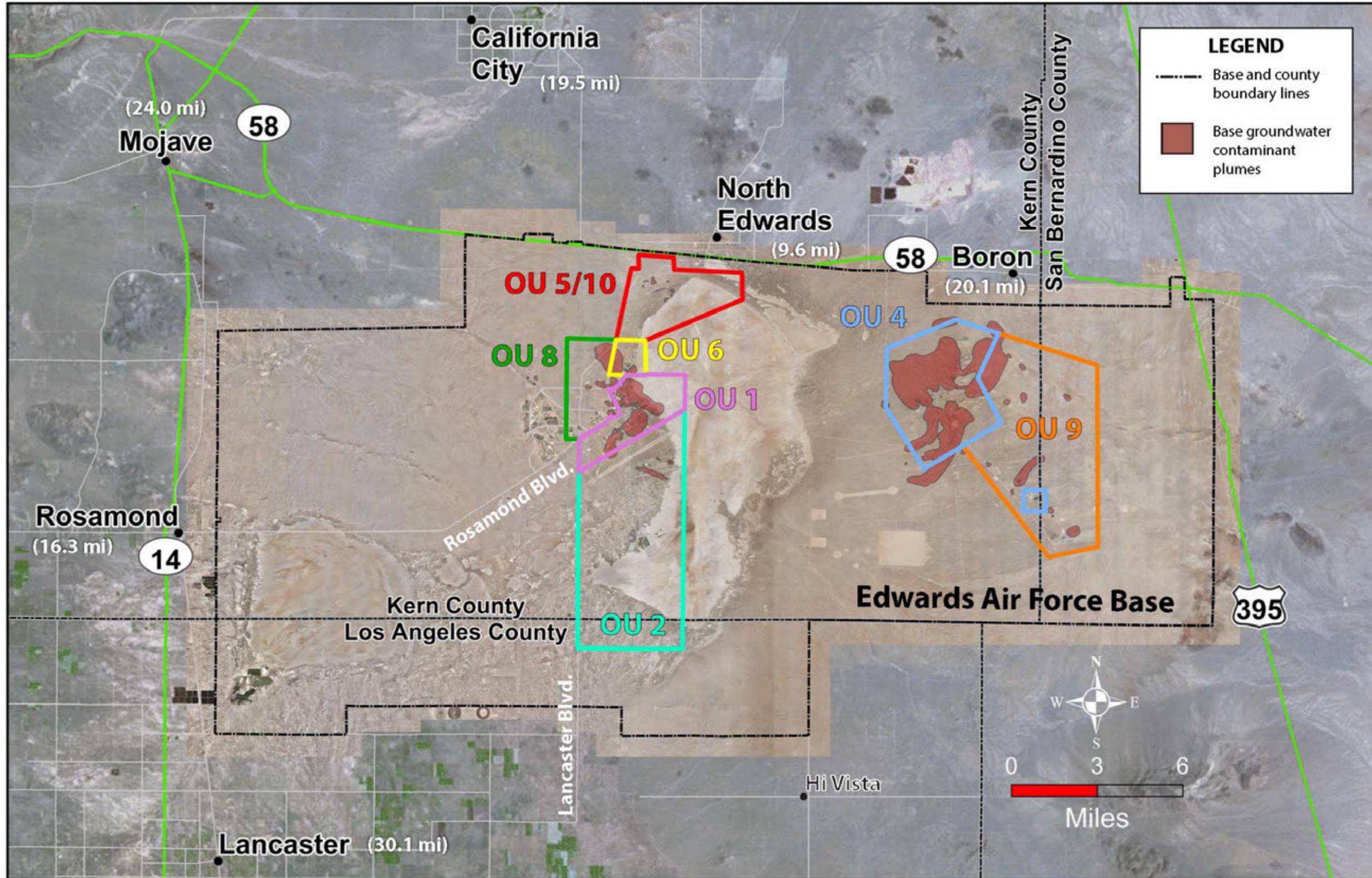
Edwards AFB manages three cleanup programs: pre-1986 contaminated sites under the ERP; inactive ranges under the MMRP; and post-1986 contamination sites under the Compliance Restoration Program (CRP).

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 proximity to each other into larger areas known as 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. Driving distances to each of the surrounding communities



(described in Section 3.0) were calculated from the Main Base area. Appendix J provides more detailed information about each OU and the program manager responsible for the cleanup of each area.

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File Path: \\lap-fp\spm01\gis\GIS_Projects\EM\Com_Rel\General_Maps\ArcMap\Vicinity Map Plumes OUs.mxd

FIGURE 4
Vicinity Plumes Map

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Under the MMRP, one on-base area and four off-base areas have been identified for further munitions investigation (Figure 5).

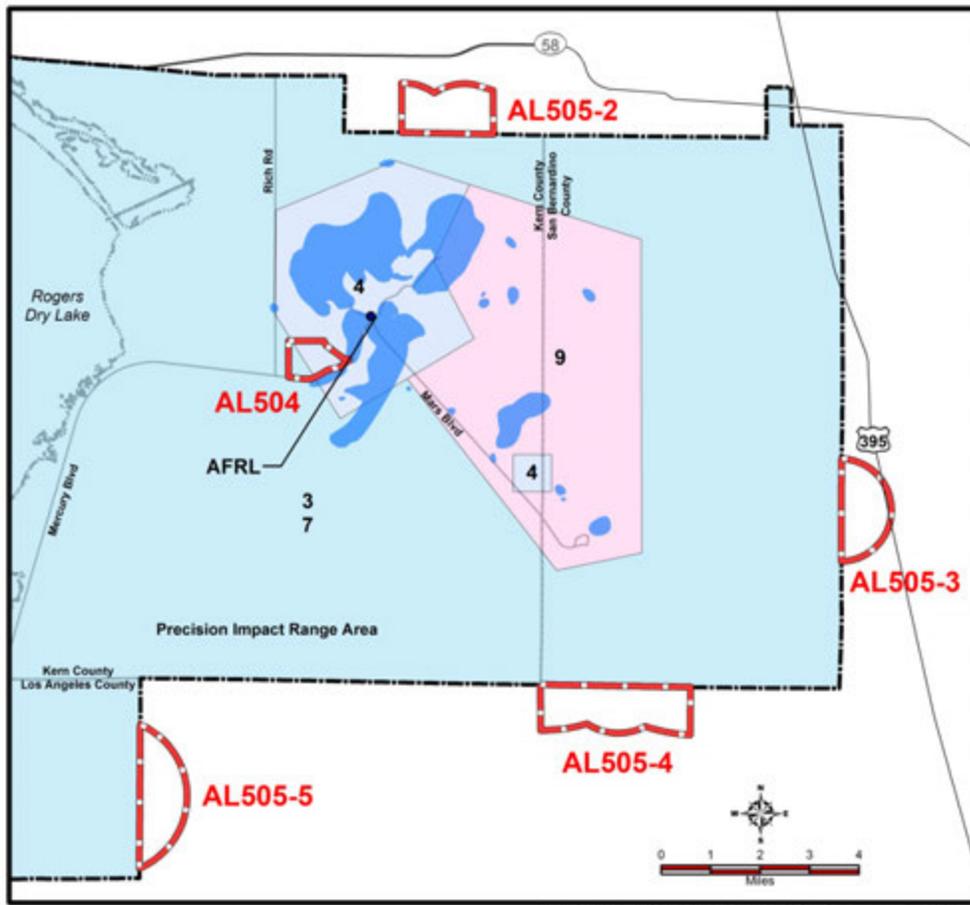


FIGURE 5
MMRP Areas

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
 Public Affairs Deputy Chief of Current Operations
 305 E. Popson Ave.
 Edwards AFB, CA 93524
412tw.pae@us.af.mil
 (661) 277-8707



Air Force Civil Engineer Center (AFCEC)

Ai Duong
 Remedial Project Manager
 12 Laboratory Rd.
 Edwards AFB, CA 93524-8400
ai.duong@us.af.mil
 (661) 277-1474

Eric Barefoot
 AFCEC/CZRW
 2261 Hughes Ave., Ste 155
 Lackland AFB, TX 78236-9853
eric.barefoot.1@us.af.mil
 (210) 395-8581

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

Joe Healy
 U.S. EPA, Region 9
 Mail Stop SFD-8-1
 75 Hawthorne St.
 San Francisco, CA 94105
healy.joseph@epa.gov
 (415) 972-3269

James Ricks
 U.S. EPA, Region 9
 Mail Stop SFD-8-1
 75 Hawthorne St.
 San Francisco, CA 94105
ricks.james@epa.gov
 (415) 972-3023

Viola Cooper
U.S. EPA, Region 9
Community Involvement Coordinator
Mail Code SFD-6-3
75 Hawthorne St.
San Francisco, CA 94105
cooper.viola@epa.gov
(415) 972-3243

Department of Toxic Substances Control

Kevin Depies
DTSC
8800 Cal Center Dr., R1-5
Sacramento, CA 95826-3200
kevin.depies@dtsc.ca.gov
(916) 255-6547

Nathan Schumacher
DTSC
Public Participation Specialist
8800 Cal Center Dr.
Sacramento, 95826-3200
nathan.schumacher@dtsc.ca.gov
(916) 255-3650

Lahontan Regional Water Quality Control Board

Christina Velasquez
Lahontan RWQCB
14440 Civic Dr., Ste 200
Victorville, CA 92392
christina.velasquez@waterboards.ca.gov
(760) 241-7333

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.



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Appendix A
Glossary

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Appendix A – Glossary

Administrative Record File: A file that is maintained and 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 modified 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 materials 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.

Installation Restoration Program: Former name for the Department of Defense program for identifying the locations of past releases of hazardous materials and minimizing their associated hazard to human health and the environment.

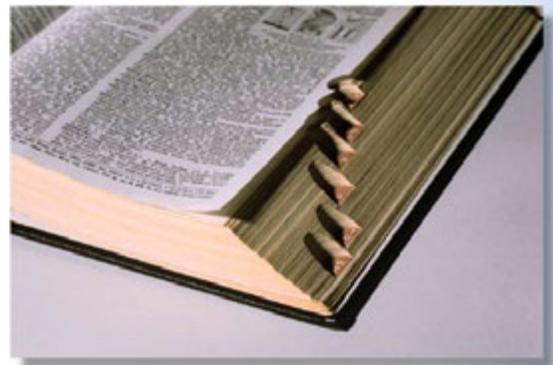
Munitions Response Area (MRA): Any area on a defense site that is known or suspected to contain unexploded ordnance or discarded military munitions. Examples include former ranges and munitions burial areas. An MRA contains one or more munitions response sites.

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.



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, soil, groundwater, and surface water samples 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. At Edwards AFB, there are four RPMs: three from the regulatory agencies—U.S. EPA, Department of Toxic Substances Control, and Regional Water Quality Control Board; the fourth is from the Air Force Civil Engineer Center's Installation Support Team at Edwards AFB.

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 comment period, and responses to those comments.

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
2012 Interview Questionnaire

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Appendix B – Interview Questionnaire

Edwards Air Force Base Community Interview

Interview Date: _____ Name: _____

Address: _____ City, Zip: _____

Affiliation: _____ E-mail: _____

Add to mail 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 10? (1 = not at all familiar and 10 = very familiar)

1 2 3 4 5 6 7 8 9 10

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

If no, why not?

If yes, do you have any suggestions for improvement?

4) Are you aware there are information repositories for EAFB? (circle) Yes No

If so, how often do you use the repositories to learn about environmental cleanup at EAFB?

5) Have you gone to any of the EAFB Web sites for environmental restoration information? (circle)

Yes No

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

Please describe your experience.

6) Do you have environmental cleanup concerns associated with EAFB?

7) How is EAFB doing in making information available to you about its cleanup program on a scale of 1 to 10? (1 = not available and 10 = readily available)

1 2 3 4 5 6 7 8 9 10

8) What communication methods would you prefer be used to effectively provide EAFB environmental restoration information? On a scale of 1 to 5 (1 = least preferred and 5 = most preferred), please rate the communication tools.

- Small group meetings/discussions	1	2	3	4	5
- Community/public meetings	1	2	3	4	5
- Mailed fact sheets	1	2	3	4	5
- E-mailed information	1	2	3	4	5

- Web site/internet	1	2	3	4	5
- Social media (Facebook, Twitter)	1	2	3	4	5
- Information through schools	1	2	3	4	5
- Information through churches	1	2	3	4	5
- Information posted in public areas	1	2	3	4	5
- Public notices in a newspaper	1	2	3	4	5
- Press releases/newspaper articles	1	2	3	4	5
- Workshops (open houses)	1	2	3	4	5

9) In addition to the tools listed above, are there other ways for us to keep you better informed?

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

11) How would you rate the community’s familiarity with the EAFB Environmental Restoration Program on a scale of 1 to 10? (1 = not at all familiar and 10 = very familiar)

1 2 3 4 5 6 7 8 9 10

12) How would you rate your community’s need for more information about the EAFB Environmental Restoration Program on a scale of 1 to 10? (1 = no need and 10 = very high need)

1 2 3 4 5 6 7 8 9 10

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

14) What are the most convenient locations for community meetings?

15) Are you aware of any secondary language needs in the area?

16) 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?

17) Where do you get your news and information on local issues?

Newspapers: _____

Internet: _____

Television: _____

Radio: _____

Other community members: _____

Other: _____

18) 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?

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

Appendix C
Report to Stakeholders

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Appendix C – Report to Stakeholders



New Test Wing Representative Eager to Share Experience

The newest member of the Restoration Advisory Board, Otto Zahn, may not be able to share much about his work at the F-35 Joint Strike Fighter program, but he's entirely open about discussing environmental restoration on the base. Zahn's job, as the 412th Test Wing's RAB representative, is to act as an information hub between the Test Wing community and those responsible for environmental cleanup at Edwards Air Force Base, Calif.

"I hope to educate people so they understand why cleanup actions are happening and how that affects them," Zahn said. "If anyone from the Test Wing community has questions or concerns, please e-mail or call me. That's why I'm here."

Environmental cleanup is nothing new to Zahn, who has worked on the base since 1985—first in Public Health, then as an industrial hygienist. He recalled two major cleanup projects that occurred at Edwards during the 1990s and 2000s: underground storage tank removals and the chemical warfare material investigation near the barracks.

"Some of the underground tanks dated from the 1940s," he said. "Back then, we didn't keep records of tanks or hazardous waste because there were no environmental requirements. I've seen a progression of environmental cleanup since I arrived here at Edwards."

That's why Zahn took the opportunity to join the RAB when he saw a vacancy. He read about the RAB in the *Report to Stake-*



READY TO SHARE—Otto Zahn (left) discusses cleanup program efforts with engineer Claudia Basura from FPM Group (center) and Dr. Nash Saleh, Operable Units 4 and 9 program manager.

holders and had worked with the former Test Wing representative. "Because of my work experience, I know many of the people in Environmental Management," Zahn said. "If someone asks me a question I don't know how to answer, then I know who to contact for more information."

The working relationship Zahn established with Environmental Management personnel developed out of his 21-year Air Force career, when he worked in Public Health alongside Bioenvironmental Engineering. After retiring from the military, Zahn earned his master's degree in industrial hygiene from the University of Southern California. He returned to Edwards as a contractor and now works for the Joint Strike Fighter Integrated Task Force as a civil service industrial hygienist.

Since 2005, Zahn has helped the JSF set up its first hazardous materials pharmacy and performed a proof of concept to test techniques for decontaminating aircraft from chemical and biological agents. Zahn will be part of a crew this summer doing another decontamination proof of concept demonstration using modified equipment and a simplified process. Although the tests so far have been on an F-16 Fighting Falcon aircraft, Zahn expects the testing to progress to the F-35 Lightning II in 2015-2016. "The F-35 is the first aircraft with a requirement for decontamination from chemical and biological agents," he said.

When he's not working on big projects, Zahn keeps busy making the working environment comfortable for JSF employees. His current job prevents him from being physically available to others in the Test Wing community. "The challenge I think I'll face as a RAB member is talking to everyone who has a concern," he said. "I don't visit the other flight areas or have the opportunity to talk to them as a RAB member. But I'm always available by phone or e-mail."

The Test Wing community can contact Zahn by phone at (661) 277-3174 or e-mail otto.zahn@jsf.mil.



Cleanup Program Changes

Why did you change your logo?

The Air Force has changed the management structure for base cleanup programs all across the service. The program managers in charge of the environmental cleanup at Edwards continue with their duties on base.

However, now they report to the Air Force Civil Engineer Center in San Antonio, Texas.

Despite the change in management, their job remains the same -- to protect human health and the environment by investigating and defining the extent of contamination on base and restoring soil and groundwater to beneficial uses.

How will the reorganization affect the base?

Although the local AFCEC/CZO team is now considered a tenant organization at Edwards, the work the team does is still a crucial aspect of the environmental mission at the base. Restoration work continues. Restoration staff still provide critical input to base Environmental Management on environmental planning and compliance issues.

Where is your office located?

In October 2013, the local office for AFCEC/CZO moved, along with the 412th Civil Engineering Directorate Environmental Management Division (412 CE/CEV) to Building 4231, located near the former Jet Propulsion Laboratory at Edwards. It is close to the Edwards North Gate, in the building that previously housed the Security Forces Squadron.

Restoration Advisory Board Meeting Highlights

Newly appointed Air Force Co-chair David Smith led the semiannual RAB meeting Nov. 21 in North Edwards, Calif., welcoming to the board Test Wing public representative Otto Zahn and Labontan Regional Water Quality Control Board remedial project manager (RPM) Christina Velasquez.

Edwards Air Force Base restoration chief Ai Duong presented the current status of the base's cleanup program. The recently updated Community Involvement Plan is not expected to be released to the public until January 2014 because of delays caused by the October government shutdown.

Duong also briefed the preliminary findings from vapor intrusion assessments conducted at 12 buildings discussed at the May 2013 RAB meeting. No immediate action is required at any of the buildings because indoor air readings were below or near the very conservative regulatory levels established by the U.S. EPA and the California Department of Toxic Substances Control (DTSC).

In addition, the performance-based remediation contract briefed at the May 2012 RAB meeting is not as sizable as originally anticipated because of complexities of some of the cleanup sites.

During the public comment portion of the meeting, Lenny Siegel introduced himself as a member of the Center for Public Environmental Oversight and the Moffett Field RAB in northern California. His organization has a grant to do research on communities at defense department facilities where vapor intrusion assessments are occurring. He attended the Edwards RAB to learn what the affected communities thought about the base's assessments.

As part of the RAB's table discussion, Public Co-chair and North Edwards public representative Bruce Davies expressed his concern over government shutdowns affecting cleanup progress. In addition, DTSC RPM Kevin Depies encouraged people to contact him with any questions or concerns regarding the base's cleanup program (contact information on the back page of this newsletter).

The next semiannual RAB meeting is expected to occur in Mojave, Calif., in May 2014. Details of the meeting time and location will be advertised in the local newspapers during that month. For more information about the RAB, you may visit www.facebook.com/RAB.Edwards, or contact Gary Hatch by phone at (661) 277-8707 or e-mail 412tw.pae@us.af.mil.



U.S. Environmental Protection Agency remedial project manager Dr. Joe Healy (left) explains an Edwards plume map to Lenny Siegel from the Center for Public Environmental Oversight (right).

Report to STAKEHOLDERS

Report to Stakeholders is a publication of the Air Force Civil Engineering Center, Installation Support Team at Edwards Air Force Base (AFCEC/CZO). Its purpose is to inform and educate the public, base workers and residents about continuing environmental and safety efforts on base. It currently has a circulation of 6,000, including about 1,400 subscribers.

Contents of the *Report to Stakeholders* are not necessarily the official view of, or endorsed by, the U.S. government, the Department of Defense 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@edwards.af.mil



412th Test Wing Commander
Brig. Gen. Michael Brewer

Edwards Remedial Project Manager
Ai Duong

STAKEHOLDERS STAFF

EDITOR
Patti Kumazawa

CONTRIBUTOR
Leilani Richardson

WHAT'S ON THE COVER?



Test Wing Restoration Advisory Board representative Otto Zahn attends his first Restoration Advisory Board meeting in November 2013.

Where to find more INFORMATION

Published data and documents relating to Environmental Management are available for public review at three information repositories. They are updated when new documents are released. Here is a list of our current information repositories:

Edwards Air Force Base Library

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

Hours of operation:
Monday, Wednesday & Friday 9 a.m. – 5 p.m.
Tuesday & Thursday 11 a.m. – 7 p.m.
Saturday 10:30 a.m. – 6 p.m.

Kern County Public Library

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

Hours of operation: Tuesday & Thursday 11 a.m. – 7 p.m.
Friday & Saturday 9 a.m. – 5 p.m.

Los Angeles County Public Library

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

Hours of operation:
Tuesday & Thursday 10 a.m. – 8 p.m.
Friday & Saturday 8 a.m. – 6 p.m.

For questions about information in the repositories, you may contact Gary Hatch, Public Affairs Deputy Chief of Current Operations, at (661) 277-8707 or by e-mail at 412twpa@edwards.af.mil.

For general information about Edwards or other documents of public interest, you may visit the following link: www.edwards.af.mil/library/environment.



Restoration Advisory Board (RAB) Information

The RAB is made up of appointed representatives from communities on and around Edwards Air Force Base, 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 in 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, Deputy Public Affairs Chief of Current Operations, at (661) 277-8707. The RAB also has its own Facebook site: www.facebook.com/RABEdwards. "Like" us on Facebook today!

NEXT BOARD MEETING

Date: May 15, 2014
Time: 5:30 p.m.
Location: Mojave

RAB Members

OFF-BASE COMMUNITIES

Boron
Randy Smith
rsmith400@earthlink.net (760) 284-2727 Cell

California City
Ed Fuller
fulledream@gmail.com (661) 209-0160 Cell

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Mojave
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viyaw@yahoo.com (661) 824-2886 Home
(661) 275-4296 Work

North Edwards
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(661) 275-7671 Work

Rosamond
William Gasidio
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(661) 277-3387 Work
ALTERNATE: Leslie Uhazy
luhazy@avc.edu (661) 256-8209 Home
(661) 722-6417 Work

ON-BASE COMMUNITIES

Housing
Amy Driscoll
apolarjeng@gmail.com (718) 609-9062 Cell

Main Base Test Wing
Otto Zahn
otto.zahn@jcf.com (661) 277-3174 Work

NASA Dryden
Jessy Gray
jessygray2@gmail.com (661) 276-2784 Work

North Base
Vacant – If you work at North Base, you can apply to be a public representative.

South Base
Brenda Weems-Hunter
brenda.weems-hunter.cbr@us.af.mil (661) 275-0456 Work

AF Research Laboratory
Milton McKay
milton.mckay@us.af.mil (661) 275-5706 Work

Remedial Project Managers

California Department of Toxic Substances Control
Kevin Depies
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Edwards AFB
Al Duong
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Lahontan Regional Water Quality Control Board
Christina Velasquez
christina.velasquez@waterboards.ca.gov (760) 241-7333 Work

U.S. Environmental Protection Agency
James Ricka
jricka.james@epa.gov (415) 972-3223 Work
Joseph Healy
healy.joseph@epa.gov (415) 972-3269 Work

SUBSCRIPTIONS

Report to STAKEHOLDERS

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Edwards AFB, Calif., 93524

OR
By e-mail
Send request to
rts@edwards.af.mil

Name _____

Organization _____

Address _____

City _____

State _____ Zip _____

E-mail Address _____



AFCEC/CZO
12 LABORATORY RD BLDG 4231
EDWARDS AFB CA 93524-8400
OFFICIAL BUSINESS



ADDRESS SERVICE REQUESTED

Appendix D
Fact Sheets

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Appendix D – Fact Sheets

Edwards Air Force Base
Environmental Restoration Program

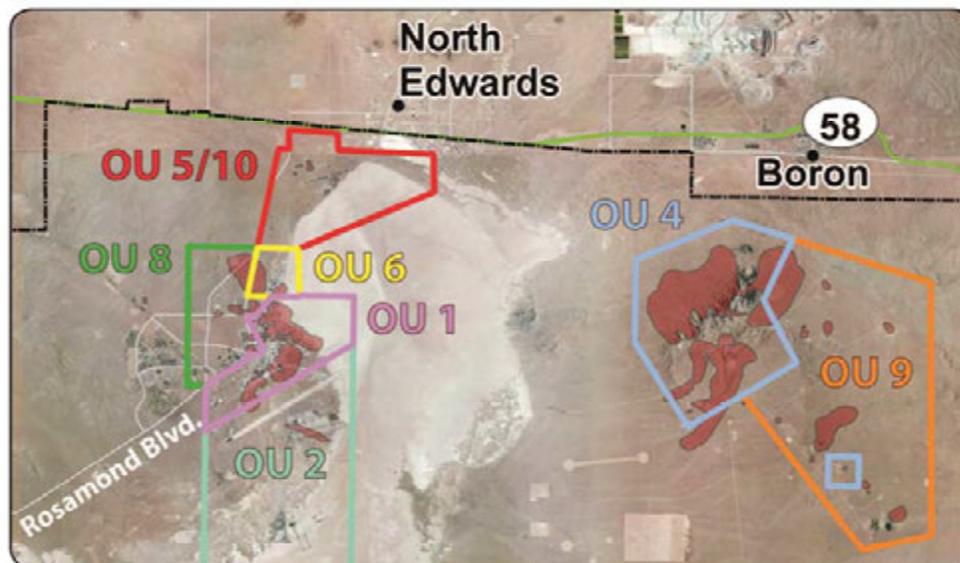
ERP Fact Sheet

Vapor Intrusion
June 2013



This fact sheet addresses vapor intrusion assessment activities planned for buildings located at Edwards AFB, Calif., in the summer of 2013.

Affected buildings: 1808, 1810, 1820, 1833, 1860, 1864, 1884, 3500, 3800, 4221, 4505 and 8753



An overview map shows the base's cleanup areas known as operable units or OUs. The groundwater plumes that serve as a potential source of vapors are depicted in brown. Soil contamination near buildings may also serve as a source of vapors. The black dashed line represents the base boundary. OU5/10 = North Base; OU8 = northwest main base; OU6 = NASA Dryden; OU1 = main base flightline; OU2 = South Base; OUs 4 and 9 = Air Force Research Laboratory, Det 7.

As part of an ongoing effort to fully characterize environmental contamination on base, Environmental Management officials will continue vapor intrusion (VI) assessments in buildings along the flightline, on Main Base, North Base and the Air Force Research Laboratory, Det 7.

The assessments will determine

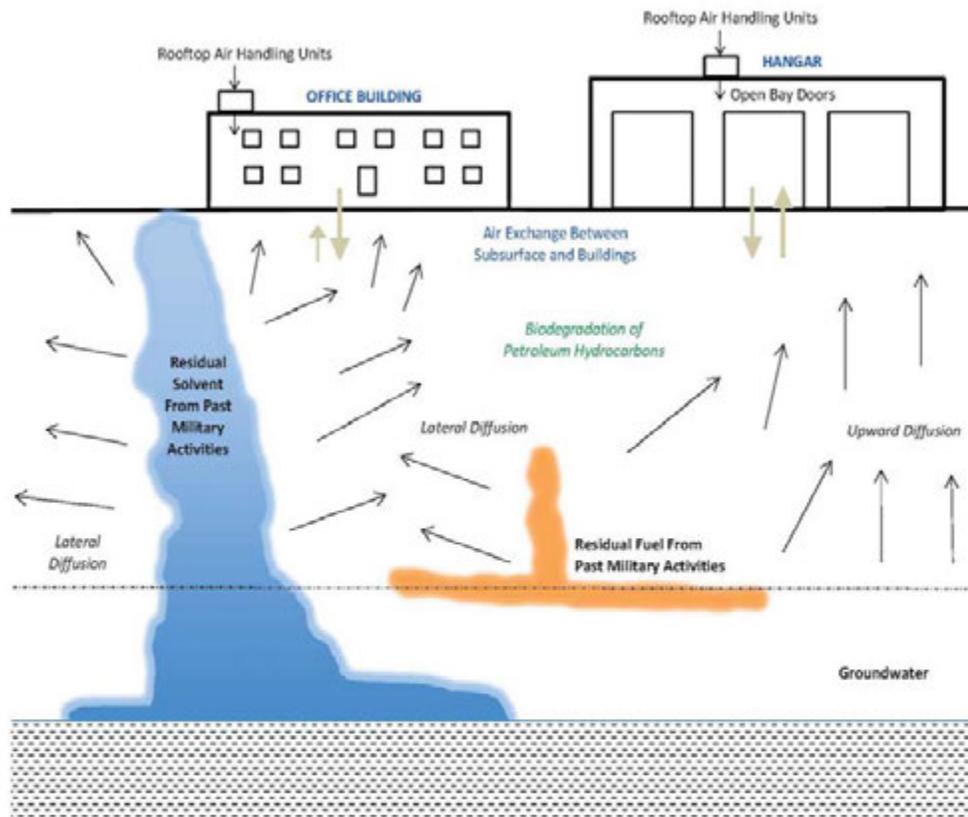
whether volatile organic compounds (VOCs) in soil and groundwater are migrating into overlying or nearby buildings, potentially posing health risks to building occupants via inhalation. These activities are being conducted with review by the U.S. Environmental Protection Agency (EPA), California EPA Department of Toxic Substances Control and the California Regional Water Quality

Control Board. The VI assessments will focus on solvents such as trichloroethene (TCE) and tetrachloroethene (PCE), and fuels which may contain benzene and toluene.

Regulatory Guidance

Federal and state regulatory agencies recommend assessment of vapor intrusion when VOCs are present in the subsurface

2



A conceptual model of potential vapor intrusion at Edwards Air Force Base. Volatile chemicals in subsurface soil and groundwater can vaporize and migrate into nearby and overlying buildings. Hydrocarbons such as fuels degrade rapidly by soil microbial metabolism, as illustrated by the term "Biodegradation" in the figure. Solvents do not degrade as readily as fuels in the subsurface, and may be more likely to diffuse and collect beneath the slab of a building.

(groundwater and soil) near or under occupied buildings at concentrations above conservative health-based screening levels. An assessment typically includes collection of indoor air, outdoor air and sub-slab soil gas samples; review of the building's ventilation system and history of chemical use, storage and handling, and other lines of evidence as appropriate for specific buildings.

Screening Levels

Cal EPA established screening levels for soil gas samples assuming that 5 percent of the air inside a building originates from the ground below the building. This is likely to be overly protective for Edwards AFB buildings because most occupied buildings at Edwards AFB are well ventilated

and the floors are generally in good condition (e.g., relatively few cracks or penetrations in the slab), thereby reducing the amount of soil gas entering the buildings. Therefore, concentrations of VOCs in soil gas beneath the building may be above Cal EPA screening levels without posing unacceptable indoor air quality risks.

412th Test Wing Environmental Management
5 East Popson Avenue • Edwards AFB, California 93524-8060



Clockwise from left: A Summa® canister, micromanometer, photoionization detector and passive sampler (penny shown for scale) are used to identify potential locations of VOC releases from potential sub-slab or indoor air sources, and to collect samples for evaluation.

Methods and Equipment

Sampling will be conducted by a team of two or more people and will occur over a 7-day time period at most buildings. Two sampling methods will be used to collect the indoor and outdoor air, and sub-slab soil gas samples: Summa® canisters and passive samplers. The indoor air Summa® canister samples will be left in place for 24 hours and the passive samplers will be left for 7 days. Three visits will be required at each building for sample collection: one to deploy the samplers and two for sample retrieval.

Sub-slab soil gas samples are collected after drilling a small hole (less than 1-inch diameter) through the floor, which is noisy for 5-10 minutes on average. Otherwise, collection of the samples should not substantially disturb the building occupants or operations.

In addition to sample collection, the environmental consultants will be walking through the buildings to:

- 1) evaluate potential sources of VOCs;
- 2) measure differences in air pressure between rooms in the buildings, and between the building and the soil beneath, to assess the air flow directions and;
- 3) assess the building heating, ventilation and air conditioning (HVAC) operations to evaluate the air exchange and associated dilution of any subsurface vapors that could enter the building.

Potential locations of VOC releases and potential indoor sources will be identified by review of historic chemical use, storage and handling, through interviews with the building managers and field screening using portable instruments, such as a photoionization detector and micromanometer (depicted in the photos on this page). The HVAC operations will be assessed by interviews with HVAC engineers, contractors and building managers and visual inspection of the air handling units.

Results

The results of the VI studies will be used to identify whether: (i) no additional action to address VI is needed; (ii) engineering or administrative controls

Assessment Approach

The assessment will focus first on 12 buildings located near the highest concentrations of chemicals detected in previously collected groundwater and soil gas samples, as follows:

- Buildings 1808, 1810, 1820, 1833, 1860, 1864, 1884 and 3800 on the main base flightline
- Building 8753 at AFRL
- Buildings 4221 and 4505 at North Base
- Building 3500 in the northwest main base area

The VOCs measured in the sub-slab soil gas, indoor and outdoor air will be compared to screening levels as recommended by regulatory guidance. This strategy will provide information that can be used to help determine the degree to which additional buildings should be

assessed. The VOC concentrations will also be evaluated to determine whether the relative proportion of each VOC found in the sub-slab soil gas and indoor air samples are similar or different as a way to differentiate the relative contribution of vapor intrusion and background sources. For example, if the concentrations of two or more VOCs are relatively consistent in the subsurface (e.g., TCE concentrations are about 10 times higher than PCE concentrations) but the proportions are not the same in indoor air (e.g., PCE concentrations are higher than TCE by about 3 times), then a background source is likely contributing VOCs (PCE in this case) to the indoor air. In addition to comparing the concentrations of VOCs, the influence of building ventilation systems and the integrity of the building structure will be considered when assessing the potential impact of VI on indoor air concentrations.

4

to mitigate the VI pathway are needed; or (iii) additional data collection is warranted before a final decision is made. The results from the first 12 buildings will also be used to guide decisions regarding potential VI studies at other buildings. All vapor assessment results, and possible further actions on these 12 buildings, and any future buildings if warranted, will be conveyed to building occupants via their unit or group commander. The Air Force will take appropriate actions to protect human health at any Edwards building if vapor intrusion is found to pose unacceptable risks.

Background Sources

Indoor air typically contains detectable concentrations of several VOCs from consumer products, building

materials and outdoor (ambient) air, so detection of chemicals in indoor air does not necessarily indicate a vapor intrusion concern. Some consumer products contain the same chemicals that are present in the subsurface at Edwards, which may complicate the interpretation of indoor air sampling data. Examples of these products include paint, paint strippers, thinners, glues, cigarette smoke, aerosol sprays, gas cans, mothballs, air fresheners, new carpeting or furniture and recently dry-cleaned clothes.

In some cases, VOCs in outdoor air or sources inside the building may cause the concentrations detected in indoor air to exceed state or federal regulatory screening levels. Outdoor air samples will be collected to evaluate this possibility.



A hammer-drill is used to install a sample port in the slab of a building.

MORE INFORMATION AVAILABLE

Building occupants affected by vapor intrusion assessment activities are encouraged to visit the Edwards AFB SharePoint site at <https://org.ets.afmc.af.mil/sites/25environmentalRestorationVIP/default.aspx> for more information. Included on the site is the **Edwards AFB VI Pathway Communications Plan** (February 2013), a guideline for communicating vapor intrusion activities and results to on-base personnel in a timely and responsible manner. The communications plan may also be accessed through public websites such as www.adminrec.com and <https://eafb.mojavedata.gov/SitePages/Home.aspx>.

The Air Force invites the public to gain a more complete understanding of the base cleanup areas and the activities that were conducted there. Documents related to environmental restoration investigation and mitigation at Edwards AFB are in the base's administrative record. To view the full record, you may contact Gary Hatch by:

- Mail: 412 TW/PA, 305 E. Popson Ave., Edwards AFB, CA 93524
- Phone: (661) 277-8707 • Fax: (661) 277-2732 • E-mail: 412tw.poc@edwards.af.mil

Administrative record documents also may be found online at www.adminrec.com. On the website, use the menus on the left-hand side of the screen to navigate to the Edwards AFB Administrative Record. To view a subset of decision documents, you may also visit one of the other Information Repository locations listed below.

For more information on the health effects of exposure to VOCs, visit the Agency for Toxic Substances and Disease Registry website at www.atsdr.cdc.gov.

Information Repositories:

Edwards AFB Library
5 W. Yeager Blvd.
Edwards AFB, Calif.
(661) 275-2665

Kern County Public Library
Wanda Kirk Branch
3611 Rosamond Blvd.
Rosamond, Calif.
(661) 256-3236

Los Angeles County Public Library
601 W. Lancaster Blvd.
Lancaster, Calif.
(661) 948-5029



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5 East Popson Avenue • Edwards AFB, California 93524-8060

Other Published Fact Sheets

Title	Date of Publication
June 2013 Edwards AFB General (Basewide) Vapor Intrusion Fact Sheet	June 2013
Base Invites Public to Comment on Clean Closure Plan for Former South Base Landfill	January 2011
Public Comment Period Opens for Site 3, Edwards Main Base Inactive Landfill	February 2010
Base Opens Public Comment Period on Cleanup Plan for Northwest Laboratory Area	August 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	April 2007
Enhancing Groundwater Protection at Site 29	February 2006
In Situ Treatment a Preferred Cleanup Method for Sites 5/14 Contaminant Plume	February 2006
In Situ Treatment the Preferred Cleanup Method for Sites 76 and 86 Contaminant Plumes	February 2006
Removal and Off-Site Treatment/Recycling – the Preferred Cleanup Method for Sites 81 and 102	February 2006
Removal of Debris and Disposal/Recycling at the Main Base Landfill Preferred for Site 69	February 2006
Air Force Seeks Public Comments on Laboratory Cleanup Plan	January 2006
Air Force Tests Whey to Destroy Solvent at Site 19	September 2005
Site 285 Update	December 2003
Perchlorate Treatment Ready for Real-World Test	May 2003
Innovative Liner Brings Landfill Back to Natural State	June 2002
Waste Consolidation Unit for Site 443 Planned at Edwards	April 2002
Work to Begin at Suspect Chemical Warfare Site	February 2002
Site 25 System Slows Down Contaminants	November 2001
Base Tests Common Cleanup Solution at Uncommon Site	May 2001
Site 426: Fieldwork Goes On To Ensure Safety Near New Dorms	March 2000

**All of these fact sheets can be accessed online at <http://eafb.mojavedata.gov/Documents> under the Restoration Fact Sheets tab.

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Appendix E
Information Repository Locations, Base
Website and Community Involvement
Contacts

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Appendix E – Information Repository Locations, Base Website and Community Involvement Contacts

Information Repository Locations and Base Website

To learn more about the Edwards AFB restoration program, please visit one of the information repositories listed below or go to the Edwards AFB website at www.edwards.af.mil/library/environment.

Los Angeles County Public Library

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

Kern County Public Library

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

Edwards Air Force Base Library

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



Who to Contact about Community Involvement and Edwards AFB

Edwards Air Force Base

Gary Hatch
Deputy Chief of Current Operations
Public Affairs
305 E. Popson Ave.
Edwards AFB, CA 93524
412tw.pae@edwards.af.mil
(661) 277-8707

U.S. EPA, Region 9

Viola Cooper
Community Involvement Coordinator
75 Hawthorne St.
Mail Code: SFD-6-3
San Francisco, CA 94105
cooper.viola@epa.gov
(415) 972-3243

DTSC

Nathan Schumacher
Public Participation Specialist
8800 Cal Center Dr.
Sacramento, CA 95826-3200
nathan.schumacher@dtsc.ca.gov
(916) 255-3650

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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. Mariah Country 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

Lancaster

- a. Jane Reynolds Park, Activities Building
- b. Cole Middle School
- c. Stanley Kleiner Activity Center, Lancaster Park
- d. Antelope Valley College

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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.

Edwards Air Force Base Environmental Restoration Program Restoration Advisory Board Bylaws

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
<hr/>	
AMY V. ARWOOD, Colonel, USAF Air Force Co-Chair Edwards Air Force Base, California	Date

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

Approved:

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

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)

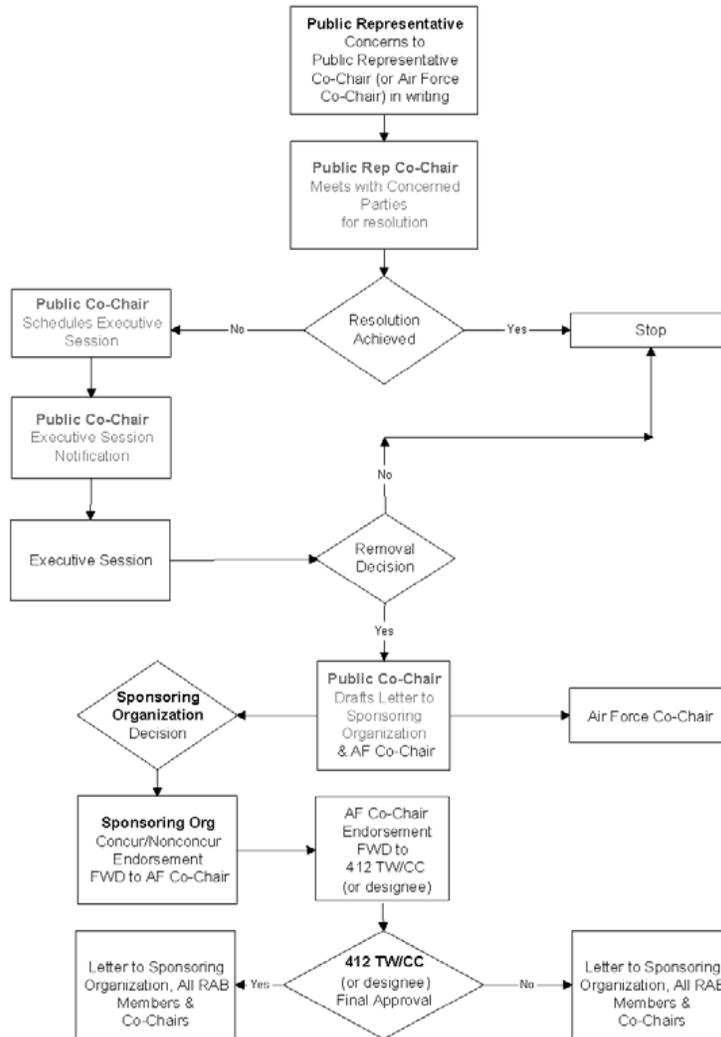
Scheduling of Next Meeting

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."

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

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;

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
<hr/>	
AMY V. ARWOOD, Colonel, USAF Air Force Co-Chair Edwards Air Force Base, California	Date

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

Approved:

//original signed by//	12 Dec 12
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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
456 E Avenue K-4, Suite 8
Lancaster CA 93535
(661) 945-5634
FAX: (661) 723-7757

Antelope Valley Press
PO Box 4050
Palmdale CA 93590
(661) 273-2700
FAX: (661) 947-4870

Bakersfield Californian
P.O. Box 440
Bakersfield CA 93302
(661) 395-7500

Los Angeles Times
202 West 1st Street
Los Angeles CA 90012
(213) 237-7847
FAX: (213) 237-0755
Send to Attn: City Desk

Mojave Desert News
8148 California City Boulevard
PO Box 2698
California City CA 93504
(800) 541-4460
(760) 373-4812
FAX: (760) 373-2941

Rosamond News
PO Box 848
Rosamond CA 93560
(661) 256-0149
FAX: (661) 269-2139

Tehachapi News
411 N Mill Street
Tehachapi CA 93561
(661) 822-6828
(800) 600-2909
FAX: (661) 822-4053

Broadcasters

KAV TV
Time Warner Cable
41551 N 10th Street W
Palmdale CA 93551
(661) 947-3130
FAX: (661) 273-6439

KCRW (Radio)
1900 Pico Boulevard
Santa Monica CA 90405
(310) 450-5183
FAX: (310) 450-7172

KISS Radio
3400 W Olive Avenue, Suite 550
Burbank CA 91505
(818) 559-2252
FAX: (818) 955-8439

High Desert Broadcasting (Radio)
KGMX, KKZQ
570 E Avenue Q-9
Palmdale CA 93550
(661) 947-3107
FAX: (661) 272-5688

KTPI FM (Radio)
352 E Avenue K-4
Lancaster CA 93535
(661) 942-1121
FAX: (661) 948-9801



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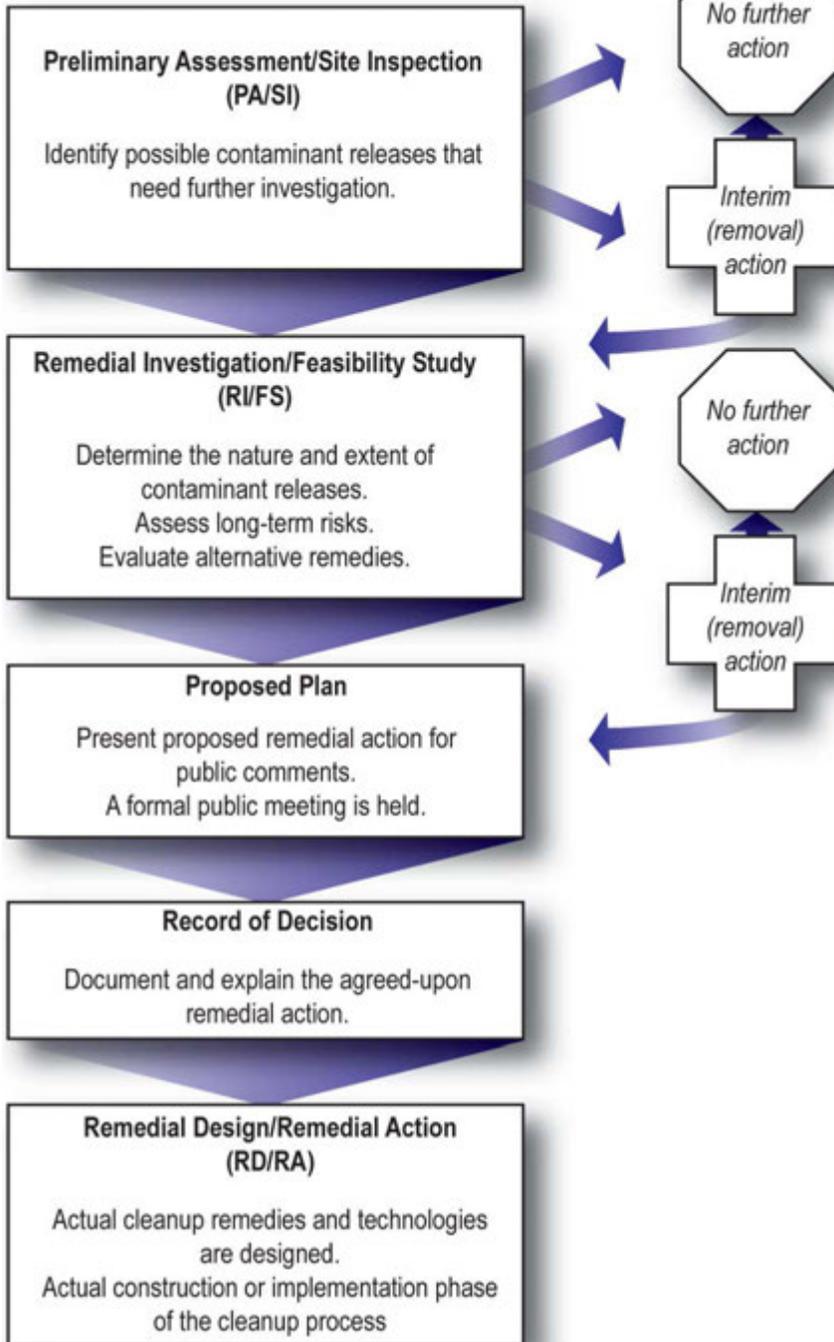
Appendix I
CERCLA Process

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Appendix I – CERCLA Process

The Proposed Plan Stage is the Opportunity for Public Comment on Cleanup Documents

Environmental Restoration Process



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.

Appendix I – CERCLA Process

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.

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 testing and certifying of any facilities that are put into operations.

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 final 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.

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Appendix J
Base Restoration Program Managers and
RAB Representatives

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Appendix J – Base Restoration Program Managers and RAB Representatives

You may contact any of the base's restoration program managers by telephone or by e-mail at 412tw.rab@us.af.mil. Each program manager is responsible for a different area or Operable Unit.

Operable Units	Contact Name	Telephone	Notes
OU 1 Main Base Flightline	Paul Schiff	(661) 277-1469	Based on its location, OU1 issues could affect base housing residents and Main Base employees.
OU 2 South Base	Rebecca Hobbs	(661) 277-1409	Based on its location, OU2 issues could affect South Base employees and Lancaster residents and employees.
OUs 4 & 9 Air Force Research Laboratory	Nash Saleh	(661) 277-1437	Based on its location, OU4/9 issues could affect AFRL employees and Boron residents and employees.
OUs 5 & 10 North Base	Phil Saxton, AGEISS Inc.	(661) 277-9165	Based on its location, OU5/10 issues could affect North Base employees and North Edwards residents and employees.
OU 6 NASA Armstrong	Tom Merendini	(661) 277-1414	Based on its location, OU6 issues could affect NASA Armstrong employees.
OU 7 Basewide Miscellaneous	Tom Merendini	(661) 277-1414	Based on its location, basewide miscellaneous sites could affect South Base employees and Rosamond residents and employees.
OU 7 Site 3 & Chemical Warfare Materiel (CWM)	Rebecca Hobbs	(661) 277-1409	Based on its location, Site 3 could potentially affect base housing residents. Because of their remote locations, the CWM sites are not expected to pose an effect on base residents or employees.
OU 8 Northwest Main Base and Site 25	Tom Merendini	(661) 277-1414	Based on their locations, OU8 issues could affect Main Base employees and base housing residents.
Petroleum Sites	Phil Saxton, AGEISS Inc.	(661) 277-9165	The petroleum sites are located within each OU, so they could affect base organization employees.
MMRP Sites	Paul Schiff	(661) 277-1469	Based on their locations, the MMRP sites could affect AFRL employees, Boron residents and employees, and private landowners bordering the base's northeast corner.

Appendix J *Continued* RAB Representatives

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 in and around Edwards Air Force Base.

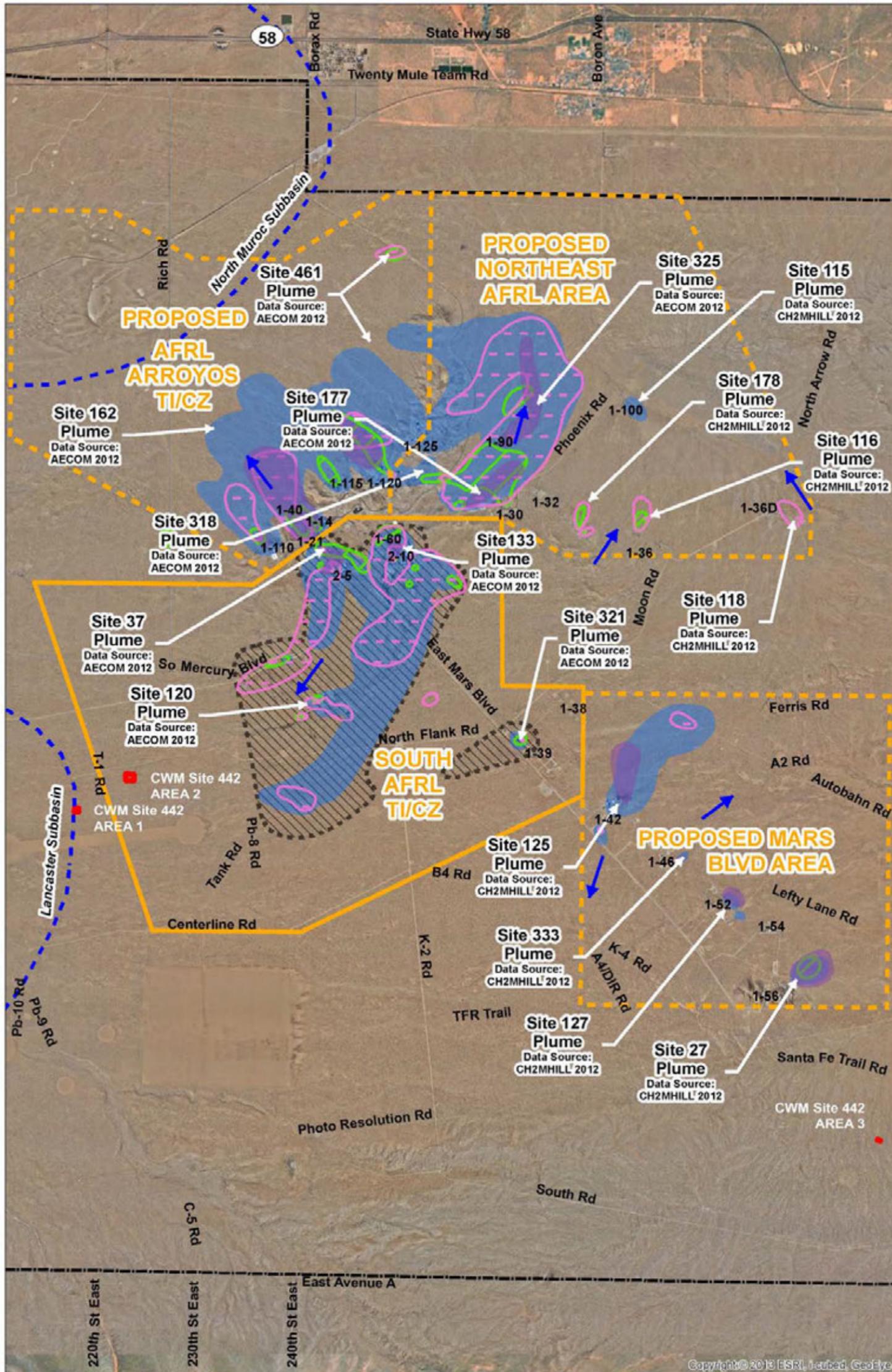
City	Contact Name	Telephone	E-mail Address
Off-Base Communities			
Boron	Randy Smith	(760) 284-2727 Cell	<i>rsmith6803@earthlink.net</i>
California City	Ed Fuller	(661) 209-0160 Cell	<i>fullerdreams@gmail.com</i>
Lancaster	Jocelyn Swain	(661) 723-6249 Work	<i>jswain@cityoflancasterca.org</i>
	Marvin Crist (Alternate)	(661) 723-6019 Work	<i>mcrist@cityoflancasterca.org</i>
Mojave	Victor Yaw	(661) 824-2886 Home	<i>vicyaw@yahoo.com</i>
		(661) 275-4296 Work	
North Edwards	Bruce Davies	(760) 769-4104 Home	<i>bruce.h.davies@boeing.com</i>
		(661) 275-7671 Work	
Rosamond	William Gaddis	(661) 965-7771 Home	<i>wr.gaddis@sbcglobal.net</i>
		(661) 277-3387 Work	
	Leslie Uhazy (Alternate)	(661) 256-8209 Home (661) 722-6417 Work	<i>luhazy@avc.edu</i>
On-Base Communities			
Housing	Amy Driscoll	(719) 659-9362 Cell	<i>bipolargem@gmail.com</i>
Main Base Test Wing	Otto Zahn	(661) 277-3174 Work	<i>otto.zahn@jsf.mil</i>
NASA Armstrong	Jessy Gray	(661) 276-2784 Work	<i>jessygray2@gmail.com</i>
North Base	Vacant	N/A	N/A
South Base	Brenda Weems- Hunter	(661) 275-0456 Work	<i>brenda.weems- hunter.ctr@us.af.mil</i>
AF Research Laboratory	Milton McKay	(661) 275-5786 Work	<i>milton.mckay@us.af.mil</i>

Appendix K
Plume Maps

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Appendix K – Plume Maps

AFRL Groundwater Plume Map



Legend	
	Solvent Related Plume Extent
	Vapor Intrusion Boundary
	Groundwater Subbasin
	ERP CWM Site 442
	Edwards AFB Boundary

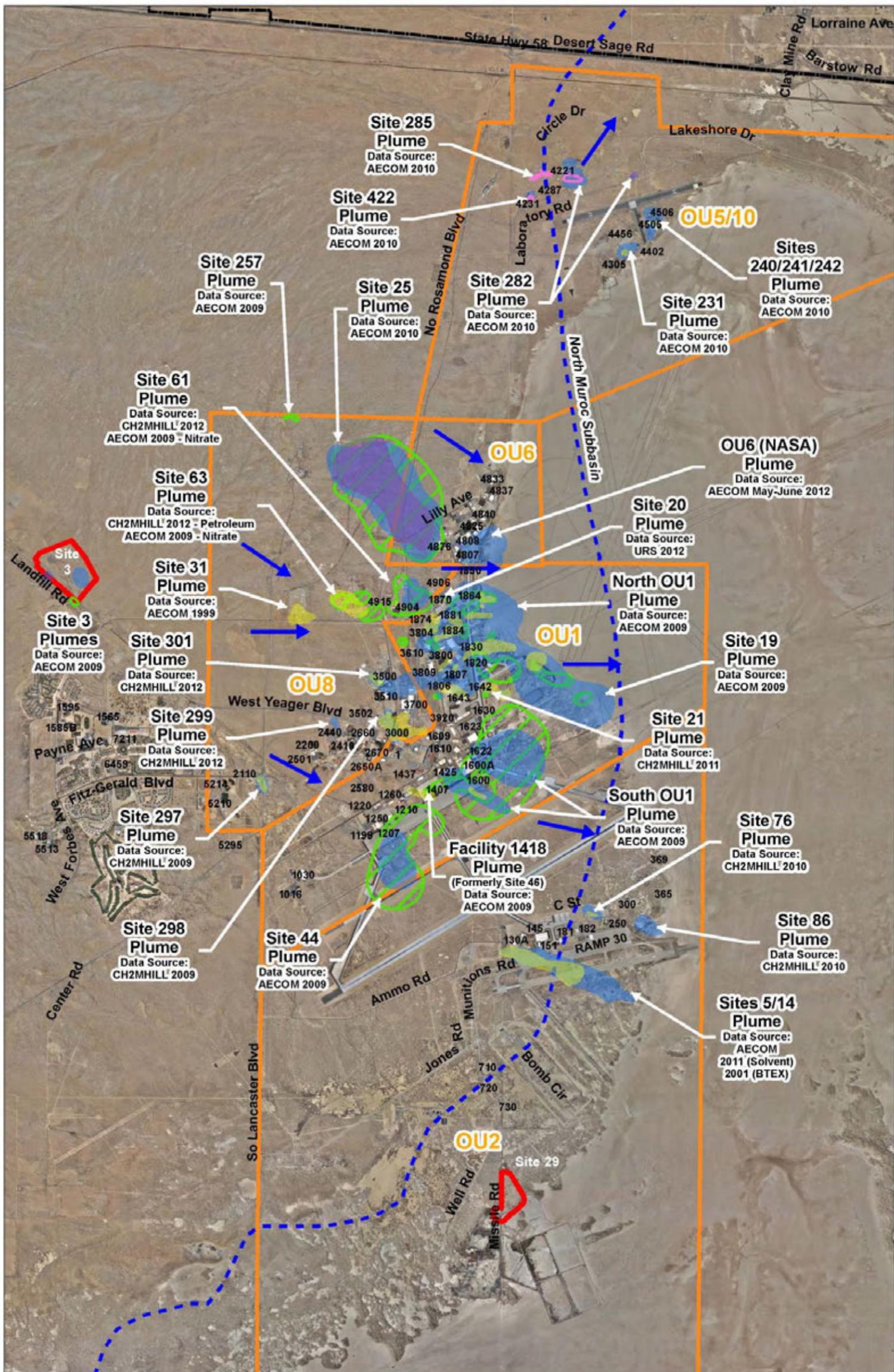
AFRL Groundwater Plume Map

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OU1, OU2, OU5/10, OU6, AND OU8 Groundwater Plume Maps



Area Shown in Main Map

Legend

- NCMA Related Plume Extent
- Petroleum Related Plume Extent
- Solvent Related Plume Extent
- Perchlorate Related Plume Extent
- Nitrate Related Plume Extent
- Groundwater Subbasin
- ERP Sites 3 and 29
- Operable Unit Boundary
- Edwards AFB boundary
- Generalized Groundwater Gradient

**Operable Units
1, 2, 5/10, 6, and 8
Groundwater Plume Map**

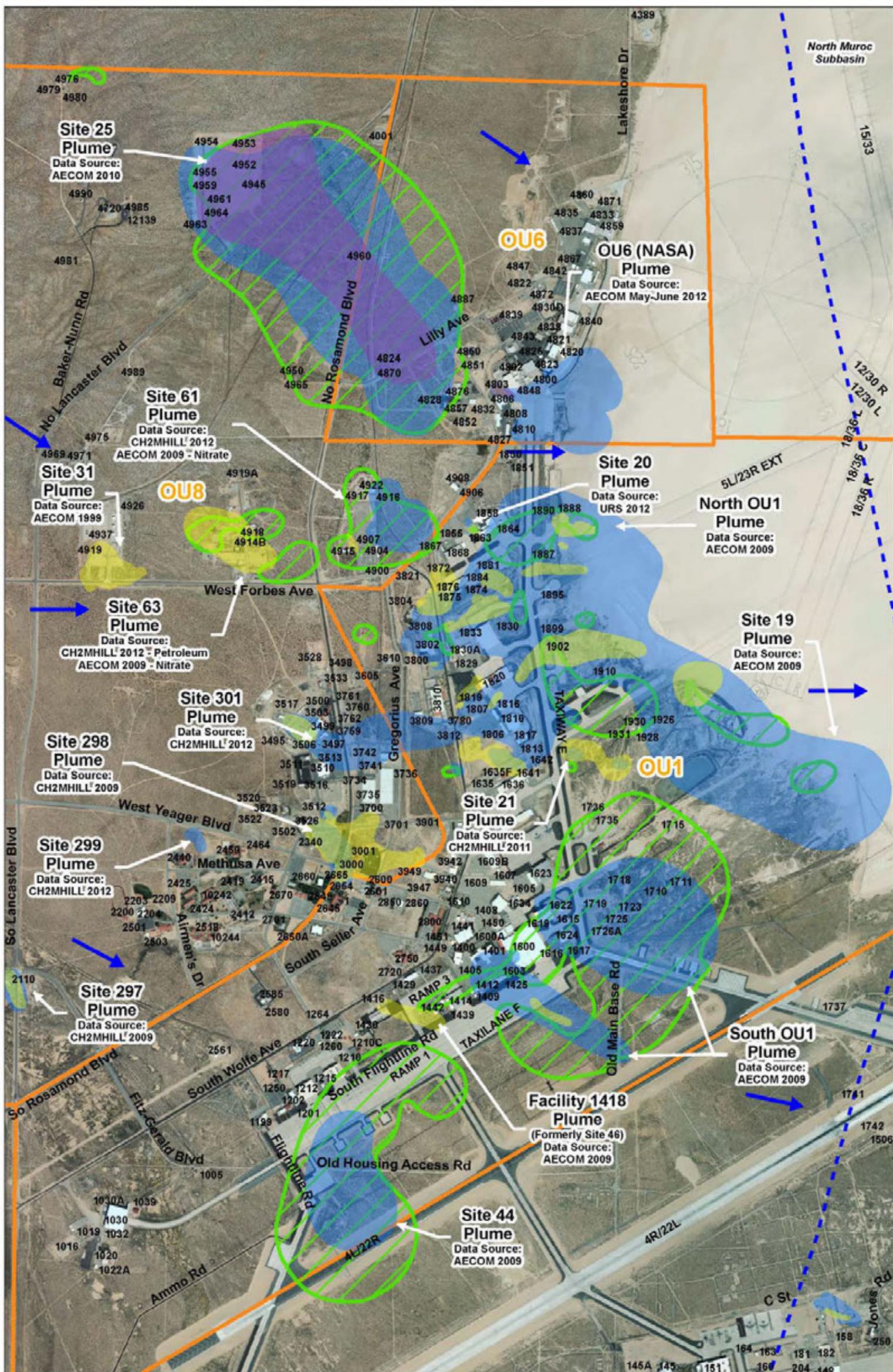
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OU1, OU6, and OU8
Groundwater Plume Maps



Area Shown in Main Map

Legend

- NDMA Related Plume Extent
- Petroleum Related Plume Extent
- Solvent Related Plume Extent
- Nitrate Related Plume Extent
- Groundwater Subbasin
- Operable Unit Boundary
- Generalized Groundwater Gradient

**Operable Units 1, 6, and 8
Groundwater Plume Map**

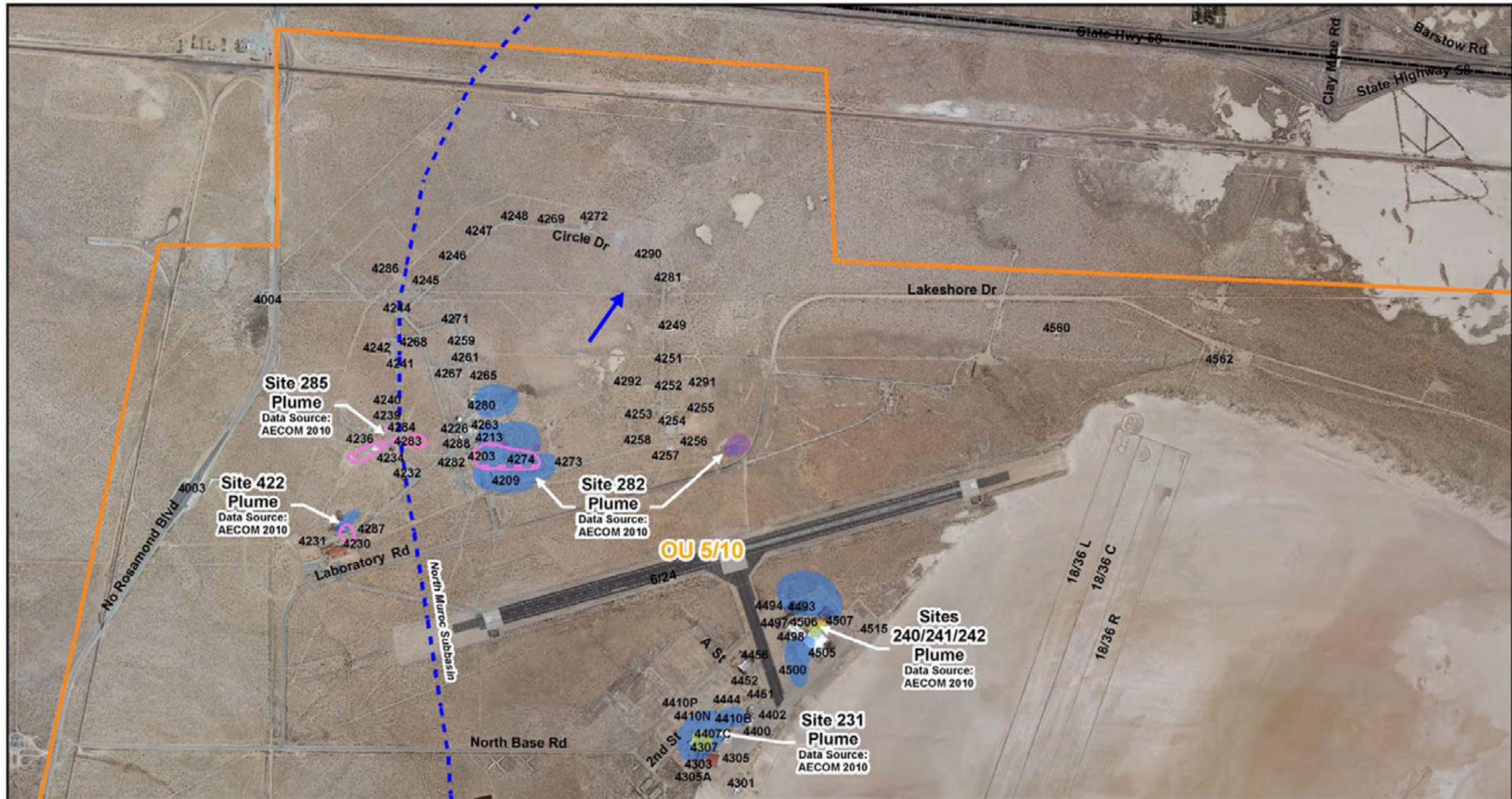
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OU5/10 Groundwater Plume Maps



Legend

■ Petroleum Related Plume Extent	— Groundwater Subbasin
■ NDMA Related Plume Extent	□ Operable Unit Boundary
■ Solvent Related Plume Extent	□ Edwards AFB Boundary
■ Propellant/Other Plume Extent	→ Generalized Groundwater Gradient

Created By: 412 CE/CRYA, GIS
Created: 12-13-13

**Operable Unit 5/10
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

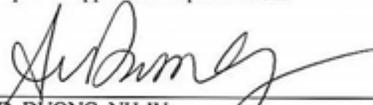
February 2013

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	19a. NAME OF RESPONSIBLE PERSON
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UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED		19b. TELEPHONE NUMBER (include area code) 661-277-1407

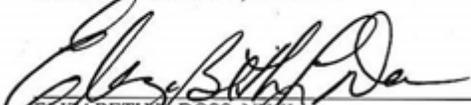
Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

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:



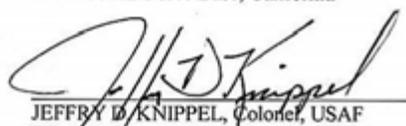
A.D. DUONG, NH-IV
Remedial Project Manager
Edwards Air Force Base, California
Date 7 Feb 2013



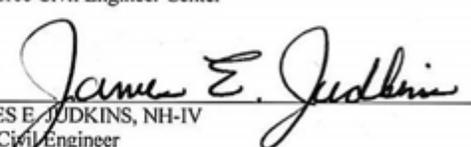
ELIZABETH L. DOSS, NH-11
Director, Public Affairs
Edwards Air Force Base, California
Date 7 FEB 2013



STEPHEN K. DONALDSON, Colonel, USAF
Commander, 412th Medical Group
Edwards Air Force Base, California
Date 11 Feb 13



JEFFREY D. KNIPPEL, Colonel, USAF
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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.

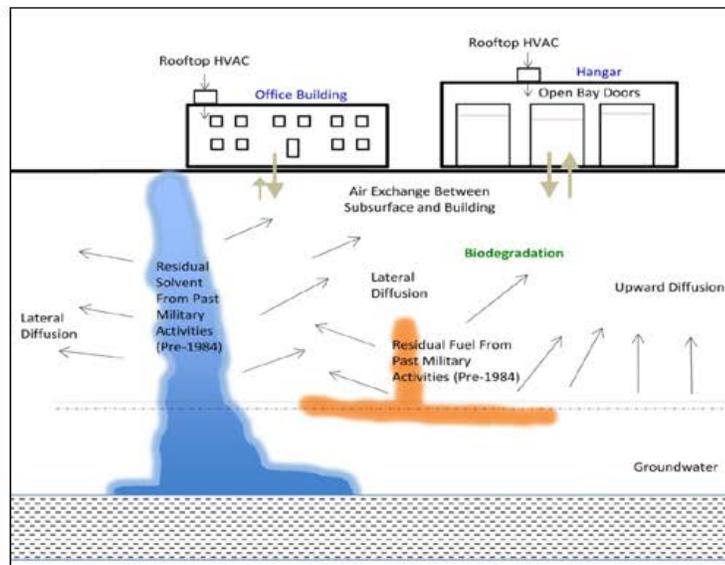


Figure 1. Conceptual site model.

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 (AEG1-1,2,3).

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

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

Regional Water Management Group. 2007. *Antelope Valley Integrated Regional Water Management Plan*. Prepared by the Regional Water Management Group of the Antelope Valley Integrated Regional Water Management Plan with the assistance of Kennedy/Jenks Consultants. Available at: <http://avwaterplan.org>.

Secretary of the Air Force. 2010. Air Force Instruction 35-108, *Environmental Public Affairs*. March.

United States Air Force Flight Test Center (AFFTC) Environmental Planning and Compliance Branch. 1991. *Community Relations Plan for the Edwards Air Force Base Installation Restoration Program*. July. Prepared by Computer Sciences Corporation.

United States Air Force Flight Test Center Environmental Management. 1996. *Installation Restoration Community Relations Plan, Edwards AFB, CA*. AFFTC Plan 35-202. February. Prepared by Computer Sciences Corporation.

United States Air Force 412th Test Wing Civil Engineer Division Environmental Management. 2011. *Basewide Conceptual Site Model Edwards Air Force Base, CA*. October. Prepared by AECOM.

United States Census Bureau. 2010. *American FactFinder*.
<http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml>.

United States Environmental Protection Agency. 2011. *Community Involvement Plans*. Available at www.epa.gov/superfund/community/pdfs/toolkit/ciplans.pdf. November.

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Appendix N
Responses to Regulatory Comments

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RESPONSES TO COMMENTS
Review of the EAFB Community Involvement Plan, February 2013

Reviewer	Comment #	Regulatory Comment	Air Force Response - note this column references section numbers for the tracked-changes document. The Draft Final will have Section 2.0 (Site Description) as Section 5.0. All section references will be changed accordingly.
Viola Cooper EPA	1	Will the RAB/public have a chance to comment on the CIP before it is finalized?	Yes, a preview final is expected to be released during a 30-day public comment period that will be held before the document is published as a final document.
	2	If including the regulatory issues, then can easily point the public toward fact sheets, newsletter and websites	Agree
	3	Hold a meeting to go over regulatory comments on the CIP	Done – held 16 May 2013
	4	Main concern is that we do not release a bulky document that's too technical in nature. The document's focus should be on the communities and making this plan user/reader friendly	Agree
Joe Healy EPA RPM	General Comment A	The greatest potential current and future risk at Edwards AFB for human exposure is most likely related to worker inhalation of solvent vapors inside industrial buildings via the vapor intrusion pathway. This is an emerging pathway of concern especially for potential short term exposures to TCE for non cancer effects. This pathway is very difficult to explain and is the subject of current discussion and debate throughout the nation. Thus, I think you could greatly improve the current draft by addressing this concern within the Community Involvement Plan (CIP); and the best way to accomplish this would be to include, in an appendix, the excellent February 2013 Vapor Intrusion Communications Plan for Edwards AFB. This would facilitate access to this important document within the CERCLA-required CIP as a timely update to a	Added February 2013 Edwards AFB Vapor Intrusion Pathway Communications Plan to appendices (Appendix L). Also added a mention of vapor intrusion sampling efforts occurring at Edwards on pg. 17, Sect. 2.3, end of first paragraph: <i>An emerging exposure pathway gaining national concern is vapor intrusion by which chemicals—mainly solvents and fuels—migrate upward from groundwater or soil and through building foundations into indoor air. This poses a potential inhalation exposure for base employees who work where soil or groundwater contamination is beneath their buildings. Edwards AFB is on the forefront of addressing this issue and has released its own communications plan as part of its efforts (Appendix L).</i>

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		cutting edge issue and a state of the art approach. Because it is only 16 pages long, it would not adversely affect the size of the CIP.	
	General Comment B	I did not get a good sense of how well Facebook is working out or what plans you might have to increase or change its use at Edwards for community involvement. Please add a more detailed description of its current and future anticipated role.	The current and future roles of the RAB Facebook page are already listed in Section 5.1.1. The following was added regarding Facebook: <i>The page contains contact information for each community's public representative, Air Force restoration program managers, and regulatory agency personnel. From the Facebook page, the public can also access a website that contains more information—like fact sheets and key documents—about restoration efforts such as vapor intrusion.</i>
	General Comment C	You need a list of references (e.g., for past community plans, guidance, and other key documents directly relevant to this plan).	Added Appendix M for References.
	General Comment D	The introduction section needs a brief summary of previous Community Involvement Plans (referenced by date to a References Cited section). This could be combined nicely with an explanation of why it's good to periodically update these plans, (e.g., because communities can change in size, composition, and interests over time). In particular, could you state any observations in past interests at the time of the previous two plans.	The following was added to the introduction Section 1.4. <i>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 investigation and remediation activities onsite 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</i>

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		Certainly you could explain how the Edwards cleanup program has changed from one of massive removals and risk reduction to one of making final decisions on residual contamination. This could help present a historical perspective that leads nicely into the present need for an updated plan (and the perfect example of the VIP Communication Plan, which you would explain or mention briefly later in this document).	<i>CIP in 1991 and the last approved CIP was published in 1996 (Appendix M). Several updates to the document have occurred since 1996, but none of those documents was finalized. Community interviews were performed in 1990, 2001, and 2012.</i>
	General Comment E	Can you find a way to indicate somewhere within the plan, a brief mention of the key issues or concerns being followed by the regulators. For example, two of EPA’s topmost concerns might also be of concern to some in the community, especially if they were made aware of the existence of these concerns (i.e., EPA R9 is most concerned about three things in the near-term: vapor intrusion, munitions debris at or near the surface, and skeet/small arms ranges--I wonder whether the interviewees were or could have been made aware of these?).	A new section 3.5 was added for Regulator Concerns. <i>Regulatory agencies such as 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, munitions debris at or near the soil surface, and skeet/small arm ranges. As these issues are investigated at Edwards AFB, updates will be provided to the public using communication tools outlined in Section 5.0.</i>
	Specific Comment 1	p. 7, Section 1.0 Introduction: Could you add something about “education” into the wording or as a separate bullet? In some ways you already provide educational type activities (some of your tours etc.); and you could emphasize these as potential enticements to arouse interest, questions, and potential concerns or issues directly from the community.	Wording was changed to read: <i>Providing opportunities for the public to become <u>educated about Edwards AFB restoration activities and actively involved</u></i>
	Specific	p. 8, Sect. 1.3, end of 2nd par.: Add a brief phrase	Wording was changed to read: <i>This 2013 update is a</i>

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	Comment 2	something like “and because of new information about emerging contamination issues and risk pathways.” Recent changes to the RAB was only one of several major reasons to update this plan. You could also work in changes in the technologies of communication (twitter and Facebook?) and recently updated interest in water use and resources in the greater Antelope Valley.	<i>comprehensive revision requested by the U.S. EPA because of changes to the base’s Restoration Advisory Board (Section 5.1.1), <u>changes in communication technologies, new information about emerging contamination risks, and the potential for increased demand of water resources in the Antelope Valley.</u></i>
	Specific Comment 3	p. 8, Sect. 1.3, end of 3rd par.: Add “in 200x” indicating the year in which the last plan was published. The previous plans should be referenced in a References list back in the appendices.	See comment D. Section 1.3 was changed to read: <i>In conjunction with U.S. EPA and DTSC, the Air Force interviewed community members in the fall of 2012 to learn if the public had any new concerns or issues since the last round of interviews was conducted in 2001.</i>
	Specific Comment 4	p. 13, Sect. 2.2 Area Groundwater Basin: Add a brief paragraph that mentions sources of drinking water and recently published planning by local water management districts in the greater area. Include a reference to the 2007 Antelope Valley Integrated Regional Water Management Plan, which is very user friendly and well written for the lay public. You could also mention the strong interest in trying to better understand how water management at Edwards is related to the larger picture and then reference the much more technical 2011 Basewide Conceptual Model produced by the Air Force. These are key new documents since the last time you issued a community involvement plan.	Both documents are referenced in the rewrite of section 2.2.
	Specific	p. 13, Section 2.2, 3rd par., 1st sent.: The terminology	<i>Endorheic desert salt pan</i> was removed from Section 2.2 and

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	Comment 5	of “endorheic desert salt plan” needs to be explained in lay language.	reworded per Comment 4 above.
	Specific Comment 6	p. 17, Section 2.4 or perhaps a new Section 2.5: Briefly mention an emerging national concern for a risk pathway that has gained much new attention since the last time you issued a community plan (i.e., the vapor intrusion pathway and related indoor air concerns). Specifically mention that you are investigating worker-occupied buildings on the base. These base workers form a particularly close-proximity portion of the community. This contrasts with the much greater driving distances to surrounding communities. The VIP is also the current highest priority focus of US EPA and the highest priority POTENTIAL current exposure route that could be complete and of concern for risk management measures. This Section 2 mention of the VIP should include a reference to the February 2013 Vapor Intrusion Communications Plan for Edwards AFB, which I strongly recommend that you actually include as an appendix to this CIP.	Addressed in Comment A
	Specific Comment 7	p. 24, Section 3.3 Public Interest at Restoration Advisory Board and Public Meetings: If you could fit one more anecdote into this section I would strongly recommend describing the impact one member of the public (former base employee – I think) who pointed out that our proposed plan for the missile silos might need to be changed because of a treaty or some such	A base advisor (AFRL Public Affairs officer) made this comment, not a member of the public. Therefore, this anecdote does not belong in this section.

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		agreement with the former Soviet Union about needing movable covers for treaty verification. This was a great example of community input directly affecting a change to the proposed plan.	
	Specific Comment 8	p. 26, Sect. 4, Community Profile: At the introduction of this section, you mention how the Antelope Valley population is increasing. This could be an alternate point in the Plan to mention and cite the 2007 Antelope Valley Integrated Regional Water Management Plan, especially since that plan covers similar topics (e.g., population and water use projections) from a water use perspective at the time of 2007. Some of that topic could be briefly summarized in an extra paragraph on this page. Then, each of the subsequent profiles could have an added sentence or two that describes whether that community is part of this large anticipated growth or is expected to remain about the same or even decline in coming decades (e.g., Boron, if the mine closes?). Mentioning where they obtain their water and their relative proximity to Edwards contamination could help drive home the remote nature of these plumes; which, in addition, are not expected to migrate significantly towards water supply wells.	A paragraph on water usage was added to this section: <i>The 2007 Antelope Valley Integrated Regional Water Management Plan (Regional Water Management Group, 2007) provides a plan 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 plumes at Edwards AFB are not expected to migrate toward water supply wells.</i>

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	Specific Comment 9	p. 35, Section 5.1.1 Restoration Advisory Board, last paragraph: Consider making this last paragraph a separate section to better emphasize Facebook as one of your outreach activities. Although it originally was introduced through the RAB, I would like to think it could also have aspects tailored to the younger generation who work or live in surrounding communities. If you do make this its own section, you could then add some additional information on possible plans to explore. Also, a brief status of how well it has been used to date (number of hits etc.) might be good information to include here.	The Facebook site has had very little traffic, only 18 “likes” so far. The paragraph on Facebook now reads: <i>Currently, the RAB Facebook page is only used as an online information exchange forum. The page contains contact information for each community’s public representative, Air Force restoration program managers, and regulatory agency personnel. From the Facebook page, the public can also access a website that contains more information—like fact sheets and key documents—about restoration efforts such as vapor intrusion. Future uses for the page will be determined by the RAB, if Air Force funds allow. One of the benefits to having a Facebook page is improving the RAB’s ability to reach the younger generation.</i>
Nathan Schumacker DTSC PPS	General Comments 1	The contents of the Draft Community Involvement Plan (CIP) were compared with US EPA’s guidance: Community Relations in Superfund, a Handbook, EPA Directive 9230.0-03 C. All of the recommended sections are provided, except for a discussion of the timing of various outreach techniques. The guide suggests to: “specify when (various outreach) techniques are likely to be most effective.” Please so specify in this CIP.	A new Section 5.3 Timing of Outreach Activities was added which includes a table outlining the guidance for activities at investigation and cleanup milestones.
	General Comments 2	Throughout the discussion of the communities that have an interest and or possible effects from the Environmental Restoration Program, there is no mention of the community of Hi Vista California. DTSC knows from our work with this area, there are over 270 addresses in the area known as Hi Vista.	Two sentences about Hi Vista were added to the Lancaster community profile. <i>Hi Vista is an unincorporated community located 21 miles east-northeast of Lancaster. It is immediately south of the base and is in proximity to a few of the MMRP sites.</i>

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		Population is relatively small but it is not a “ghost town”. Therefore, we recommend that Hi Vista be profiled and that their interests and concerns be considered throughout the CIP.	
	General Comments 3	The draft CIP identifies concerns/questions raised by interviewees. Please identify in the text how or when The Air Force plans to address these concerns/questions.	Added Section 3.6 Addressing Stakeholder Concerns <i>The base releases information that addresses many of the community and regulatory concerns in the form of fact sheets, newsletters, and technical reports as outlined in Section 5.0, Action Plan. All of this information is available for viewing online at www.adminrec.com or https://eafb.mojavedata.gov/SitePages/Home.aspx. You may also contact Gary Hatch by telephone at (661) 277-8707 or via e-mail at 412tw.pae@edwards.af.mil to receive this information in hard copy form or to obtain information unrelated to the ERP.</i>
	Specific Comments 1	Site Description, Page 9: Please include the community of Hi Vista in the third paragraph. Even though it is not incorporated as a city in Los Angeles County, a number of other communities in the Antelope Valley are also unincorporated and yet are mentioned and included in the CIP. Specifically, Rosamond, Mojave, North Edwards, and Boron are all unincorporated and mentioned on page 9.	Hi Vista was added to the third paragraph.

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	Specific Comments 2	Site Description, Page 9, Fourth Paragraph: This sentence seems to be out of order in the discussion: “the first major aircraft design to be tested at the base was America’s first jet fighter aircraft, the Bell XP-59”. However, it is not out of order if it was tested between 1942 and 1943. That is unclear because no date is given. Was it tested after 1943? If so, we recommend moving this sentence further down in the text on this page	The Bell XP-59 was tested in Sept. 1942, so it’s in chronological order.
	Specific Comments 3	Site Description, Page 9, Picture: Is this a picture of the Bell XP-59? If not, we suggest that the picture of the Bell XP-59 or some other early jet plane tested at Edwards would be appropriate here.	A photo of the Bell XP-59 was added to this page. The existing photo of outreach at the Salute to Youth was moved to Section 5.
	Specific Comments 4	Figure 1, Page 11: Please include the community of Hi Vista and extend the roads out to include that area. There is no reason to leave this community out of the discussion in this document. The zip code area of 93535 contains a large eastern swathe of Lancaster but also contains the community of Hi Vista. This zip code area has a population of 72,046 as reported in the U.S. Census for 2010	The Figure 1 map was updated to include Hi Vista.
	Specific Comments 5	2.4 Edwards Air Force Base Cleanup Programs, 2nd Paragraph: The first sentence should identify the year when there were 471 ERP sites. This identification will give the reader a greater context out of which to understand the information. Also, for the same reason, I suggest adding the year when the Air Force established the operable units.	Specific information was added to Section 2.4. <i>More than 460 sites were identified by the end of 1999 [471 was an unofficial count]. The OUs were first established following Edwards AFB’s listing on the National Priorities List in 1990.</i>

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	Specific Comments 6	Vicinity Plume Map, Figure 3, pages 19 to 20: For the reasons cited above, please add Hi Vista to this map.	The Figure 3 map was updated to include Hi Vista.
	Specific Comments 7	MMRP Areas, Figure 4, page 21: There is no legend or explanation in the text for the areas that seem to be highlighted in the Figure. This is quite unclear: are gray areas subjects for further investigation or are the red areas? What is the difference between the two kinds of areas?	The Figure 4 map was updated to address this comment.
	Specific Comments 8	Community Involvement Contacts, Page 25: DTSC changed our e-mail system. As result, the e-mail for Nathan Schumacher has changed. Please revise the e-mail from nschumac@dtsc.ca.gov to Nathan.Schumacher@dtsc.ca.gov. Please make this change throughout the document.	Corrections to the e-mail addresses were made throughout the document.
	Specific Comments 9	Population by Origin in Lancaster CA graphic, Page 29: The 2010 U.S. Census figures show 38% Hispanic population living in Lancaster, California. Please see the US Census web site as well as the City of Lancaster web site for demographic data. For your convenience, I have included a link to the City's web site at: http://www.cityoflanasterca.org/index.aspx?page=558 . Please revise the graphic.	All demographic information in Section 4 was checked using http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml to access 2010 census information and the section was updated.

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	Specific Comments 10	Population by Origin in Rosamond CA graphic, Page 32: The 2010 U.S. Census figures show 34.2 % Hispanic population living in Rosamond, California. Please see the US Census web site to check the graphic’s total of 39.1 % Hispanic population in Rosamond. Since both Rosamond and Lancaster figures are inaccurate, I suggest that you re-check all of the figures used for the population by origin graphics.	See Comment 9
	Specific Comments 11	4.2.4 NASA Dryden, First Sentence, Page 33: Please replace the D with an S in the first sentence. Instead of NADA Dryden, please replace with NASA Dryden.	Correction made. Please note that as of March 1, 2014, NASA Dryden Flight Research Center was redesignated as NASA Armstrong Flight Research Center.
	Specific Comments 12	Photo of Chuck Yeager, Page 33: Does this photo have a relationship with one of the on-base communities? If so, which one? Knowing which community has an historical relationship with Yeager’s work enhances this discussion. Otherwise, this photo is not as useful as it could be in this context.	The Yeager Pit is still present at South Base. More information was added to the South Base profile to reflect the connection between the photo and the text. -- In the text: <i>In fact, South Base is home to the Yeager Pit, a concrete depression that was used to load the Bell X-1 onto the belly of the B-29 mothership.</i> -- In the photo caption: <i>Chuck Yeager in front of the Bell X-1. Yeager broke the sound barrier in this type of aircraft at Edwards in October 1947.</i>
	Specific Comments 13	5.0 Action Plan, 5.1.1 Restoration Advisory Board, Page 34: Please include the abbreviation after Restoration Advisory Board. The suggested new heading would read: “Restoration Advisory Board (RAB)”. This makes the use “The RAB” in the opening sentence much clearer.	Change made.

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	Specific Comments 14	5.1.5 Fact Sheets, First Paragraph, Page 36 and 5.2.5 Other Outreach Methods, Pages 36 and 38: Depending on the issue and the potential audience, DTSC suggests that the Air Force may have to translate fact sheets and other outreach materials from English into Spanish. This could apply to outreach materials of interest to Lancaster, Mojave and Rosamond residents. For example, US Census figures for Rosamond estimate 4,346 Spanish speaking residents speak English "less than well". Another example, U.S. Census figures for Lancaster estimate that 14,052 Spanish Speaking residents or almost 10% of the total population speak English "less than well". Also, we recommend that the Air Force provide Spanish interpreters when holding a public meeting about a topic that may be of interest to Spanish speaking residents in these communities.	Per discussion at 16 May 2013 RPM meeting, translating material from English into Spanish is not Air Force policy (verified by Gary Hatch, Public Affairs). More importantly, both Viola and Kelly verified that none of the community members interviewed said translated (i.e., Spanish) material was necessary within their communities.
	Specific Comments 15	5.1.7, Information Repositories, last Paragraph, Page 37: Please include a contact name with the contact information. DTSC suggests a name because this reassures the reader that such requests are welcome.	Contact information for Gary Hatch was added to this section.
	Specific Comments 16	5.1.8, Tours, last Paragraph, Page 37: Please include a contact name with the contact information. DTSC suggests a name because this reassures the reader that such requests for tours are welcome.	Gary Hatch was added to this section.

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	Specific Comments 17	Department of Toxic Substances Control contacts, Page 40: DTSC changed our e-mail system. As result, the e-mail for Kevin Depies has changed. Please revise the e-mail from KDepies@dtsc.ca.gov to Kevin.Depies@dtsc.ca.gov. Please make this change throughout the document.	Correction made.
Kevin DepiesDTSC RPM	Specific Comments 1	Section 2.2, 3rd Paragraph, Last Sentence, page 13: The location of groundwater contamination relative to the lowest ground surface elevation in the basin is irrelevant to contaminant fate and transport (migration). Furthermore, consistent with comments made on the "final" Basewide Conceptual Site Model, DTSC disagrees that the "contamination is not migrating toward any populated areas". This sentence should be revised for accuracy. Groundwater flow direction from Operable Units 6 and parts of 1 and 8 is initially east to the lakebed but then to the north where there are populated areas. If it is the Air Force's desire to limit undue alarm to residents in this area, it would be accurate to state the groundwater contamination is a considerable distance from populated areas, and note that (based on groundwater flow directions and transport rates) the contamination is unlikely to migrate to populated areas within the next century.	Deleted "contamination is not migrating toward any populated areas" and replaced with "contamination is a considerable distance from populated areas and (based on groundwater flow and transport rates) unlikely to migrate to populated areas within the next century."

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	Specific Comments 2	Section 2.2. and Figure 2, Page 15: The flow direction arrow for the Northeast AFRL points directly towards Boron which contradicts the statement in the last sentence in the 3rd paragraph of Section 2.2. We recommend that in this arrow be extended and curve towards the west in the area between Boron and the AFRL. Also, because they are too generalized, the two somewhat overlapping arrows pointing in opposite directions in the Mars Boulevard area do not make sense. Please revise the locations of these arrows so they better represent flow direction in the Mars Blvd area. Last, please show also groundwater flow directions in the areas downgradient of the OU 1 and OU 6 areas.	The Figure 2 map was updated to address this comment.
	Specific Comments 3	Section 2.4, 1st Paragraph, Page 17: Based on vague references made by representatives in meetings, the Air Force has indicated additional "Compliance Program" activities other than that performed for petroleum at EAFB. Note DTSC has been requesting elaboration on these activities with only limited success. The CIP should note these additional "compliance" activities.	The first sentence was changed to read: <i>Edwards AFB manages three cleanup programs: pre-1986 contaminated sites under the Environmental Restoration Program (ERP); inactive ranges under the Military Munitions Response Program (MMRP); and post-1986 contamination sites under the Compliance Restoration Program (CRP).</i>

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	Specific Comments 4	Appendix K Plume Maps, pages 107 to 113: Please change the scales so the text can be read by the average reader. To do so, you likely will need to change the paper size for these figures. Also, the plumes are considerably different than presented in recent EAFB meetings and documents. Please update the plume map for the AFRL; the Arroyos and Northeast AFRL.	Changes made.
RWQCB		Comments provided as notes in the document. Notes repeated comments from other agencies.	Changes made per this comment response document.
		Pg. 8, Section 1.3, Second Paragraph: Change "Per" to "Persuant"	Changed so that it now reads "According to"
		Pg. 17, Section 2.4, Sixth Line under Photo: Insert "(described in Section 4.0)" after "each of the surrounding communities."	Change made.
		Pg. 24, Section 3.3, Second and Third Paragraphs: Provide the years when each concern was raised.	Site 25 concerns were raised in 1999. Site 416 concerns were raised in 2003. This information was added to the section and the paragraphs were reordered to be chronological.
		Pg. 24, Section 3.3, Last Paragraph, Second Sentence: Instead of changing "cleanup level" to "MCL," it was decided that we would delete the entire sentence altogether.	Change made.
		Pg. 25, Section 3.3, Second Sentence: Insert "suspected" before "World War II."	Change made.
		Pg. 25, Last Sentence Before Section 3.4: Change "regular basis" to "several times a year."	Change made.
		Pg. 25, Section 3.4.1, Last Word: Change "determined" to "established."	Change made.

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		Pg. 26, Section 4.1.1, First Sentence: Change it to read "20.1 miles away from the central part of Edwards AFB."	Change made.
		Pg. 34, Section 5.0, First Sentence: Change "wants" to a more active verb such as "plans" or "desires"	Changed to <i>plans</i> .
		Pg. 34, Last Sentence: Insert "and Report to Stakeholders" after "RAB's Facebook page."	Change made.
		Pg. 35, Second Paragraph, First Sentence: Change it to read ". . .reduction in formal meetings and to initiate the use of social media."	Change made.
		Pg. 36, Section 5.1.6, Third Paragraph: Rephrase, document timeline seems out of order Pg. 37, Add Public Affair Officer to address	Phrasing was changed to read: <i>A responsiveness summary will be prepared in response to public comments and concerns raised during the formal Proposed Plan comment period. This responsiveness summary is included in the Record of Decision, a decision document that outlines the approved cleanup remedy.</i> Already added Gary Hatch as POC per DTSC comments.
Leilani		Pg. 8, last sentence = change to read "any new concerns or issue since the last round of community interviews were conducted in 2001."	Change made.