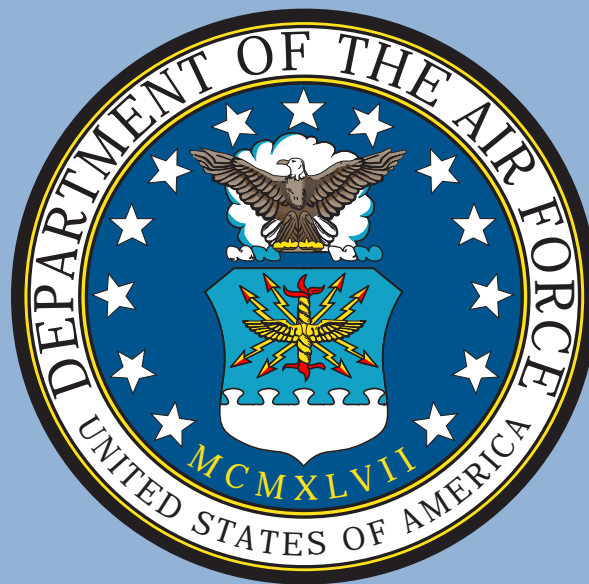


TRAVIS AIR FORCE BASE  
ENVIRONMENTAL RESTORATION PROGRAM

---

ANNUAL REPORT  
ON THE STATUS OF  
LAND USE CONTROLS  
ON RESTORATION SITES  
IN 2009  
FINAL



60<sup>TH</sup> CIVIL ENGINEER SQUADRON  
Travis Air Force Base, California

---

APRIL 2010

**TRAVIS AIR FORCE BASE  
ENVIRONMENTAL RESTORATION PROGRAM**

**ANNUAL REPORT  
ON THE STATUS OF  
LAND USE CONTROLS  
ON RESTORATION SITES  
IN 2009**

**Final**

**Submitted by:**

**60th Air Mobility Wing  
Travis Air Force Base, California**

**Prepared by**

**60 Civil Engineer Asset Management Flight  
411 Airmen Drive, Building 570  
Travis AFB CA, 94535-2001**

**April 2010**

# Table of Contents

---

<b>1.0</b>	<b>Introduction.....</b>	<b>1-1</b>
<b>2.0</b>	<b>Performance Measures.....</b>	<b>2-1</b>
2.1	Base General Plan Revisions .....	2-1
2.2	Regulatory Agency Notification .....	2-2
2.3	Existing Administrative Control Maintenance .....	2-3
2.4	Periodic Monitoring.....	2-3
2.5	Other Monitoring Requirements .....	2-4
2.5.1	Signs.....	2-4
2.5.2	Use of Clean Soil .....	2-4
2.5.3	Landfill X.....	2-5
2.5.4	Report Submittal .....	2-5
<b>3.0</b>	<b>Solvent Spill Area and Facilities 550 and 552 (SS015) .....</b>	<b>3-1</b>
3.1	Environmental Conditions .....	3-1
3.2	Status of SS015 Land Use Controls.....	3-1
<b>4.0</b>	<b>Oil Spill Area, Facilities 11, 13/14, 20, 42/1941, 139/144, and Selected Sections of the Storm Sewer Right-of-Way (SS016).....</b>	<b>4-1</b>
4.1	Environmental Conditions .....	4-1
4.2	Status of SS016 Land Use Controls.....	4-1
<b>5.0</b>	<b>MW107x32 and MW246x32 Areas (ST032) .....</b>	<b>5-1</b>
5.1	Environmental Conditions .....	5-1
5.2	Status of ST032 Land Use Controls.....	5-1
<b>6.0</b>	<b>Storm Sewer System B (West Branch of Union Creek), Facilities 810 and 1917, and South Gate Area (SD033) .....</b>	<b>6-1</b>
6.1	Environmental Conditions .....	6-1
6.2	Status of SD033 Land Use Controls .....	6-1
<b>7.0</b>	<b>Sanitary Sewer System; Facilities 837/838, 919, 977, and 981; Area G Ramp; and Ragsdale/V Area (SD037).....</b>	<b>7-1</b>
7.1	Environmental Conditions .....	7-1
7.2	Status of SD037 Land Use Controls .....	7-1
<b>8.0</b>	<b>Building 755 (DP039).....</b>	<b>8-1</b>
8.1	Environmental Conditions .....	8-1
8.2	Status of DP039 Land Use Controls .....	8-1
<b>9.0</b>	<b>Building 916 (SD043) .....</b>	<b>9-1</b>
9.1	Environmental Conditions .....	9-1
9.2	Status of SD043 Land Use Controls .....	9-1
<b>10.0</b>	<b>Landfill X (LF044) .....</b>	<b>10-1</b>
10.1	Environmental Conditions .....	10-1
10.2	Status of LF044 Land Use Controls.....	10-1
10.2.1	Fence and Gate Installation.....	10-2
10.2.2	Berm Construction .....	10-3

<b>11.0</b>	<b>Railhead Munitions Staging Area (SS046)</b> .....	<b>11-1</b>
11.1	Environmental Conditions .....	11-1
11.2	Status of SS046 Land Use Controls.....	11-1
<b>12.0</b>	<b>Landfill 2 (LF007)</b> .....	<b>12-1</b>
12.1	Environmental Conditions .....	12-1
12.2	Status of CAMU Land Use Controls .....	12-2
<b>13.0</b>	<b>Fire Training Area #4 (FT005)</b> .....	<b>13-1</b>
13.1	Environmental Conditions .....	13-1
13.2	Status of FT005 Land Use Controls.....	13-1
<b>14.0</b>	<b>Storm Sewer Systems A and C, Union Creek (SD001)</b> .....	<b>14-1</b>
14.1	Environmental Conditions .....	14-1
14.2	Status of SD001 Land Use Controls .....	14-1
<b>15.0</b>	<b>Travis AFB Groundwater Sites</b> .....	<b>15-1</b>
15.1	Environmental Conditions .....	15-1
15.2	Status of Groundwater Land Use Controls .....	15-1
<b>16.0</b>	<b>Conclusion and Summary of Findings</b> .....	<b>16-1</b>
<b>17.0</b>	<b>Works Cited</b> .....	<b>17-1</b>

## List of Appendices

---

Appendix A	Base General Plan Screen Shots
Appendix B	Photographs
Appendix C	Memorandum on Institutional Land Use Controls at Travis AFB Groundwater Sites

## List of Photographs

---

Photograph 1	Controlled Area at SS015
Photograph 2	Controlled Area at SS016
Photograph 3	Warning Sign at Controlled Area on East Side of SD033 (soil)
Photograph 4	Warning Sign at Controlled Area on West Side of SD033 (soil)
Photograph 5	Controlled Area on Southeast Side of SD037
Photograph 6	Controlled Area on Southwest Side of SD037
Photograph 7	Controlled Area at DP039 (Post Bioreactor Construction)
Photograph 8	Sign Near East Side of Installed Generator at SD043
Photograph 9	Generator Pad and Warning Signs at SD043
Photograph 10	Warning Signs at LF044 Entrance Near the North Access Gate.
Photograph 11	West Side of LF044 Fence
Photograph 12	Broken Fence Strand on South Side of LF044
Photograph 13	Warped Warning Sign
Photograph 14	Fencing and Berm on East Side of LF044
Photograph 15	Warning Sign at West Side of SS046
Photograph 16	Warning Sign at East Side of SS046
Photograph 17	Top of CAMU Phase 3 (Northwest End)
Photograph 18	Top of CAMU Phase 3 (Southeast End)
Photograph 19	Warning Sign at CAMU Phase 3 Entrance
Photograph 20	Controlled Area at FT005
Photograph 21	Controlled Area at Sediment Portion of SD033 After Cleanup
Photograph 22	Controlled Area at SD001 After Cleanup

# List of Acronyms and Abbreviations

---

<b>AFB</b>	Air Force Base
<b>AFCEE</b>	Air Force Center for Engineering and the Environment
<b>CAMU</b>	Corrective Action Management Unit
<b>COC</b>	Chemical of Concern
<b>COEC</b>	Chemical of Ecological Concern
<b>ECC</b>	Environmental Chemical Corporation
<b>EPA</b>	U. S. Environmental Protection Agency
<b>ERP</b>	Environmental Restoration Program
<b>GMU</b>	Grazing Management Unit
<b>GP</b>	Travis Air Force Base General Plan
<b>LUC</b>	Land Use Control
<b>NEWIOU</b>	North/East/West Industrial Operable Unit
<b>OSHA</b>	Occupational Safety and Health Administration
<b>PCB</b>	Polychlorinated Biphenyl
<b>PPE</b>	personal protective equipment
<b>RA</b>	Remedial Action
<b>RD</b>	Remedial Design
<b>RI</b>	Remedial Investigation
<b>ROD</b>	Record of Decision
<b>WABOU</b>	West/Annexes/Basewide Operable Unit

# 1.0 Introduction

---

The *Soil Record of Decision (ROD) for the West/Annexes/Basewide Operable Unit (WABOU)* (Travis AFB, 2002) and the *North/East/West Industrial Operable Unit (NEWIOU) Soil, Sediment and Surface Water (SSSW) ROD* (URS, 2006) are the legal documents that describe the selected remedies for twenty eight soil and sediment Environmental Restoration Program (ERP) sites on Travis Air Force Base (AFB). Sections 1 through 14 of this report describe the environmental conditions and status of land use controls at these soil and sediment sites.

The *Groundwater Interim ROD for the WABOU* (CH2M HILL, 1999) and the *Groundwater Interim ROD for the NEWIOU* (URS, 1997) are the legal documents that describe the selected interim remedies for nineteen groundwater ERP sites on Travis AFB. Section 15 describes the environmental conditions and status of land use controls at these groundwater sites.

Alternative S2 (Land Use and Access Restrictions) is the selected remedial or contingent remedial alternative for nine of ten WABOU soil sites. Alternative #17 (Land Use Controls) is the selected remedial or contingent remedial alternative for ten of the eighteen NEWIOU soil and sediment sites. Both remedial alternatives provide the administrative and physical measures needed to restrict future land use, prevent unauthorized soil disturbance and removal activities, and/or ensure the effectiveness of the remedies at these nineteen sites.

The remedial action objective of Alternative S2 and Alternative #17 is to restrict residential development and unauthorized disturbance and relocation of soil. While the descriptions of Alternatives S2 and #17 differ slightly in the respective RODs, their objectives are identical.

For four WABOU sites (DP039, SD043, LF044, and SS046), Alternative S2 is the only selected remedy. For the remaining five active WABOU sites (LF008, RW013, SS041, SD042, and SD045), the WABOU Soil ROD selected an active remedy and Alternative S2 as a contingency remedy. The reason for this is the active remedy is required to reduce contaminant concentrations to industrial cleanup levels so that the sites are safe for base workers. Alternative S2 serves to restrict activity at those sites. Section 5.4 (Land Use Controls) of the WABOU Soil ROD describes these requirements in more detail.

Similarly, for four NEWIOU sites (SS015, SS016, ST032, and SD037), Alternative #17 is the only selected remedy. For five of the remaining six active NEWIOU sites (SD001, FT003, FT004, FT005, and LF007), the NEWIOU SSSW ROD selected an active remedy and Alternative #17 as a contingency remedy. Because the active remedy is required to reduce contaminant concentrations to industrial cleanup levels, Alternative #17 will serve to restrict activity at those sites to industrial uses only. Site SD033 has separate remedies for soil (Alternative #17) and sediment (Alternatives #17 and #18), so the restrictions for the two media are described in this report separately. For site SD001 and the sediment portion of site SD033, Alternative #17 serves to protect ecological receptors in the event that the active remedy does not reduce contaminant concentrations below ecological risk levels. Section 5.4 (Land Use Controls [LUC]) of the NEWIOU SSSW ROD describes these requirements in more detail.

If the active remedy reduces contaminant levels to those that allow for unlimited use and unrestricted exposure, there would be no need for LUCs. Each ROD states that the requirements pursuant to the LUC alternative will be deleted for a site in the event that the soil/sediment excavation achieves levels for all contaminants that allow for unlimited use and unrestricted exposure at the site. In 2002 and 2003, Travis AFB conducted soil excavations at LF008, RW013, SS041, and SD042; and all four excavations achieved these levels. In 2007, Travis AFB conducted soil excavations at FT003, FT004, LF007E, and SD045. These actions also achieved cleanup levels that allow for unlimited use and unrestricted exposure. As a result, no LUCs are in place at these sites; however, with regard to the remainder of LF007, land use controls will remain in place for the CAMU cover, CAMU associated features, the landfill cover and associated buried wastes.

Site SD045 is a site where a LUC had been established as a contingency remedy but was removed after a soil remedial action had returned the site conditions to unlimited use and unrestricted exposure. SD045 had been a part of previous inspections and had been discussed in previous annual land use control reports. After the soil remedial action report that described the cleanup work at SD045 had been finalized, the warning sign at the gated entrance was removed. SD045 will not be a part of future LUC inspections.

One active remedy (Alternative S6 for WABOU soil sites and Alternative #18 for NEWIOU soil sites) consists of excavation and placement of contaminated soil in a Corrective Action Management Unit (CAMU). Alternative #18 also allows soil to be sent to an off-base landfill. A CAMU is a designated on-base area that is designed to receive and consolidate contaminated soil. The location of the Travis AFB CAMU is within the boundaries of Site LF007, a closed municipal landfill within the NEWIOU. The CAMU received contaminated soil from other soil sites during the 2003 and 2007 soil remedial actions.

On 24 December 2009, Mr. Glenn Anderson and Mr. Lonnie Duke from the 60th Civil Engineer Asset Management Flight began a formal inspection of the LUCs at twelve soil and sediment ERP sites, several groundwater sites on Travis AFB, and the three off-base groundwater sites.

The twelve soil and sediment sites are designated as SS015, SS016, ST032, SD033, SD037, DP039, SD043, LF044, SS046, LF007, FT005, and SD001. The groundwater sites are listed in Section 15. All sites were inspected in a single day, with the exception of the inspection of LF044 which was delayed until 4 January 2010. This report serves as the official record of the results of this inspection.

The following list provides a brief summary of the organization and content of the 2009 LUC Status Report:

- Section 1.0 – Introduction. Provides descriptions of the purpose, regulatory background and content of this annual report.
- Section 2.0 – Performance Measures. Describes the performance measures for LUCs. Subsections describe how these measures have been met.



- Section 3.0 – Solvent Spill Area (SS015). Describes the environmental conditions at the Solvent Spill Area and Facilities 550 and 552 and the status of LUCs at that site.
- Section 4.0 – Oil Spill Area (SS016). Describes the environmental conditions at the Oil Spill Area, Facilities 11, 13, 14, 20, 42, 1941, 139, and 144 and sections of the Storm Sewer Right-of-Way and the status of LUCs at that site.
- Section 5.0 – Monitoring wells 107 and 246 (ST032). Describes the environmental conditions at the area surrounding Monitoring Wells 107 and 246 and the status of LUCs at that site.
- Section 6.0 – Storm Sewer System B, Facilities 810 and 1917, and South Gate Area (SD033). Describes the environmental conditions at this site and the status of LUCs.
- Section 7.0 – Sanitary Sewer System (SD037). Describes the environmental conditions at the Sanitary Sewer System; Facilities 837, 838, 919, 977, and 981; Area G Ramp; and the Ragsdale/V Area and the status of LUCs at that site.
- Section 8.0 – Building 755 (DP039). Describes the environmental conditions at Building 755 and the status of LUCs at that site.
- Section 9.0 – Building 916 (SD043). Describes the environmental conditions at Building 916 and the status of LUCs at that site.
- Section 10.0 – Landfill X (LF044). Describes the environmental conditions at Landfill X and the status of LUCs at that site.
- Section 11.0 – Railhead Munitions Staging Area (SS046). Describes the environmental conditions at the Railhead Munitions Staging Area and the status of LUCs at that site.
- Section 12.0 – Landfill 2 (LF007). Describes the environmental conditions at this site and the status of its LUCs.
- Section 13.0 – Fire Training Area #4 (FT005). Describes the environmental conditions and the status of LUCs at that site.
- Section 14.0 – Union Creek (SD001). Describes the environmental conditions at the contaminated portion of the main branch of Union Creek and the status of LUCs at that site.
- Section 15.0 – Travis AFB Groundwater Sites. Provides a general description of land use controls associated with contaminated groundwater sites.
- Section 16.0 – Conclusion and Summary of Findings. Summarizes the sixth year of managing LUCs in the WABOU and the third year of managing LUCs in the NEWIOU.

- Section 17.0 – Works Cited. Lists the documents used in the development of this annual report.

## Appendices

- Appendix A – Base General Plan Screen Shots. Shows various views of the web-based General Plan.
- Appendix B – Photographs. Shows photographs of sites with LUCs.
- Appendix C –Memorandum on Institutional Land Use Controls at Travis AFB Groundwater Sites.

## **2.0 Performance Measures**

---

Section 5.4 (Land Use Controls) of both the WABOU Soil ROD and the NEWIOU SSSW ROD addresses the Air Force requirements and responsibilities for implementing, monitoring, maintaining, and enforcing identified LUCs. To assist the Air Force in meeting these responsibilities, each ROD describes performance measures for all LUC sites. The following subsections explain how these performance measures have been met.

### **2.1 Base General Plan Revisions**

The first performance measure pertains to the Base General Plan (GP). The GP is a long-range planning document that provides a framework for selecting the locations of future facilities needed to carry out the base mission. Section 5.4 of each ROD required Travis AFB to incorporate within its GP all specific LUCs at each site, the reasons for the controls, and site-specific details to adequately describe them to base personnel. Once a soil remedial action is complete, the base will update the GP to include the site-specific restrictions, if needed.

As stated in the 2003 Annual Land Use Control Report, the GP revisions as described in the WABOU Soil ROD were completed in November 2003 and consisted of two parts. The first part updated the existing text to incorporate the LUC concept and how it impacts future property development. The second part consisted of a new Appendix E (Land Use Controls) for the GP. Appendix E discussed LUCs in depth and provided a detailed description of the specific controls required at each site. It also listed the responsibilities of base personnel and organizations in maintaining LUCs. An individual attachment for each site contained site-specific LUC maintenance instructions. Each attachment contained a site map and a recent photograph of the controlled area.

In 2006, Travis AFB completed a significant upgrade of the GP. The new GP is now entirely web-based and is located on the Travis AFB Intranet, so it is only accessible to personnel with authorization to use the Travis AFB local area network. Base officials who are responsible for planning and carrying out large military construction (MILCON) or smaller infrastructure improvement projects that involve soil excavation can quickly obtain data from the GP on all restrictions (environmental, safety, flight line, etc.) assigned to base property.

HB&A, Inc. was the contractor that created the new web interface. They worked with various base offices, including the Environmental Flight, to update the existing database and use improved data presentation methods. The web-based GP is a major advancement in base planning and an improved tool for LUC management. Along with the goal of bringing the GP into compliance with Air Force policy directives, the web-based version is much easier to update, increases emphasis on planning rather than its previous reference-book appearance, and provides a central information repository of base planning information and base development references. By eliminating static maps and relying heavily on computer mapping products for maps and figures, the new GP allows users to identify and show LUC restrictions in planning documents for future construction activities with greater ease and accuracy. Even though this

project was not a part of the Environmental Restoration Program, it enhanced Travis' ability to track and enforce its LUC restrictions. Appendix A presents screen shots of the latest version of the web-based GP.

In the NEWIOU SSSW ROD, the Air Force agreed to provide the regulatory agencies with electronic access to view the GP during regulatory visits to Travis AFB. On 7 February 2007, the Environmental Flight demonstrated the capabilities of the web-based GP to all three regulatory agency and Techlaw representatives after the February 2007 RPM meeting; the representatives asked questions and suggested format changes for the next GP update.

The 2009 inspection discovered that the GP on the Travis AFB Intranet had undergone another revision that was designed to standardize the format of this web-based document among Air Mobility Command installations. Also, a new GIS feature makes it easy to locate controlled areas on a base map. Unfortunately, it also removed a number of hyperlinks to data files and LUC descriptions. As a result, the GP is not as useful for LUC management as the original web-based version. The information is on the server that supports the GP, but it is not readily accessible. In addition, some of the information in the GP is outdated and requires an update. In response to this finding, the Asset Management Flight has contacted the web site designer in order to restore the links to the site-specific data files and LUC descriptions and to update the content of the restoration portion of the GP. To verify that the appropriate changes have been made to this web-based document, the Restoration Branch will conduct a second inspection of the Travis AFB GP in the June/July 2010 timeframe and report the results to the regulatory agencies both during the next scheduled monthly meeting and in the 2010 Annual Land Use Control report.

## **2.2 Regulatory Agency Notification**

The second performance measure involves the notification of the regulatory agencies of any base proposals for a major land use change at a site inconsistent with land use control objectives or the selected remedy, any anticipated action that may disrupt the effectiveness of the LUCs, any action that might alter or negate the need for LUCs, or any anticipated transfer of the property subject to the LUCs.

For eleven of the twelve sites that are addressed in this report, there were no land use change proposals or activities in 2009 that were inconsistent with, disruptive of or negated the need for LUCs. For site LF044, the base notified environmental regulatory representatives via email on 6 March 2009 of a potential military construction project to build a second aboveground storage tank (AST) facility within most of the lateral extent of LF044. Section 10.1 of this report describes the military construction project and its probable impact on the existing LF044 land use controls.

No property transfers took place in the vicinity of the twelve sites.

Section 5.4 [Land Use Controls (LUCs)] of the NEWIOU SSSW ROD specifies a period up to 10 days after discovery for regulatory agency notification of LUC changes or breaches as described above. It also describes the submission of a tentative plan for addressing the breach.

Since Travis AFB made no notifications in 2009, the LUC inspection did not evaluate notification timeliness.

## **2.3 Existing Administrative Control Maintenance**

The third performance measure requires the maintenance of existing administrative controls (e.g., through the review of excavation permits) while LUCs are in place. Overall, Travis AFB has not made any significant changes to its existing system of administrative procedures for tracking land use on-base.

The basic procedures to maintain administrative controls start with the AF Form 332 that must be approved before the start of any building project. The reviewers of this form compare the proposed building site with the constraints in the GP before approval. The base also uses an excavation permit for similar comparisons. However, beginning in January 2003, the Environmental Flight began to require the completion of an AF Form 813 (Request for Environmental Impact Analysis) for most AF Form 332s and prior to the submission of any excavation permit (60 AMW Form 55). These required procedures provide further assurance that projects are subjected to an appropriate level of environmental analysis. This procedural change was minor in nature, because base personnel were already required to submit an AF Form 813 to the Asset Management Flight in the early stages of a construction project. However, by requiring the attachment of a copy of the completed AF Form 813 to the excavation permit during the review process, the Asset Management Flight is able to verify that environmental issues pertaining to the proposed project are properly considered and addressed.

During the 2009 LUC inspection, the reviewers noted that all LUCs at the twelve soil and sediment sites that are addressed in this report were intact. There were no indications of improper land use or soil disturbance in any of the controlled areas. Based on the site inspections and periodic attendance in project coordination meetings throughout 2009, the reviewers concluded that the existing administrative measures are properly maintaining the LUCs.

## **2.4 Periodic Monitoring**

Periodic monitoring is the final performance measure in both RODs. Officially, Travis AFB is required to conduct annual inspections of its controlled areas and to take prompt action to restore, repair, or correct any LUC deficiencies or failures identified. Also, the RODs provide the flexibility to select a different monitoring schedule as long as all parties agree with it and if the change reasonably reflects the potential risk presented by the site.

The 60th Civil Engineer Asset Management Flight has two restoration project managers who routinely visit various environmental and construction projects. As a result, site visits take place on at least a quarterly and often more frequent basis, with few exceptions. Sections 1 through 14 now list any specific activities or incidents that resulted in more frequent site visits. Any potential LUC deficiencies are investigated promptly. During this reporting period, there were no major occurrences of LUC deficiency restoration, repair or correction.

## 2.5 Other Monitoring Requirements

In addition to the LUC requirements described above for all sites, the RODs require the following measures at some sites:

### 2.5.1 Signs

Specific sites will have appropriate signs on display to warn site visitors of potential hazards associated with surface soil contamination, conforming to ANSI Z 53.1 and AFP 88-40.

In 2003, Travis AFB placed signs at all WABOU sites with LUCs. In 2006, the base placed signs at SS016 and the soil portion of SD033. Sites SS015, ST032, and SD037 did not receive signage because of incompatibilities with safe vehicle or aircraft operations. Appendix B (Photographs) presents photographs taken during the 2009 inspection that show the signs that have been posted at LUC sites.

The NEWIOU SSSW ROD specified that signs for NEWIOU sites where there would be no soil remedial activities needed to be installed within 30 days of signing the NEWIOU SSSW ROD. The 2006 Annual Land Use Control Report states that the base met this requirement.

### 2.5.2 Use of Clean Soil

At sites where the selected remedy involves soil excavation, Travis AFB is required to backfill the excavation voids with clean soil. This removes the potential for exposure to surface soil contaminants. If there is any residual contamination at depth, the digging permit process is used to ensure that future industrial activities or construction projects either do not disturb the contaminated subsurface soil or that the base takes other appropriate safety measures. The NEWIOU SSSW ROD does not require backfilling or other mitigation at sites SD001 and the sediment portion of SD033.

In 2002 and 2003, Travis AFB conducted soil cleanup actions at four of the five ERP sites that are addressed in the WABOU Soil ROD. They are LF008, RW013, SS041, and SD042. All four actions achieved cleanup levels that allow for unlimited use and unrestricted exposure, so there is no residual contamination at depth that requires the implementation of LUCs. The LF008 soil remedial action is described in detail in the *Remedial Action Report for Soil Remedial Action at Site LF008* (Shaw Environmental and Infrastructure [E&I], 2004). The RW013 soil remedial action is described in detail in the *Remedial Action Report for Soil Remedial Actions at Site RW013* (Environmental Chemical Corporation [ECC], 2003). The SS041 soil remedial action is described in detail in the *Remedial Action Report for Soil Remedial Actions at Site SS041* (ECC, 2003). The SD042 soil remedial action is described in detail in the *Remedial Action Report for Soil Remedial Action at Site SD042* (Shaw E&I, 2003).

In 2007, Travis AFB conducted soil cleanup actions at site SD045 as described in the WABOU Soil ROD and sites FT003, FT004, and LF007 Area E as described in the NEWIOU SSSW ROD. All four actions achieved cleanup levels that allow for unlimited use and unrestricted exposure, so there is no residual contamination at depth that requires the implementation or

continuation of LUCs. The *North, East, and West Industrial Operable Unit and West/Annexes/Basewide Operable Unit Soil Remedial Action for Sites SD045, FT003, FT004, FT005, Union Creek SD001 and SD033, and LF007 Area E Report* (Shaw E&I, 2008) describes the completed soil remedial actions at sites SD045, FT003, FT004, and LF007 Area E.

### 2.5.3 Landfill X

The WABOU Soil ROD requires Travis AFB to install a fence around the Landfill X area and the adjacent equipment training area, build protective berms to prevent the transport of soil contamination via surface water flow during rain events into nearby vernal pools, and comply with applicable OSHA regulations, including relevant worker notification, training, and protective measures.

In 2003, Travis AFB completed the installation of a fence and berm at Landfill X. The details of this soil action are found in the *Remedial Action Report for the Soil Remedial Actions at Site LF044* (ECC, 2003).

Starting in November 2006, Travis AFB began to use the Landfill X area for heavy equipment training as provided for in the WABOU Soil ROD. Although available for the temporary staging of construction debris, it is unlikely that Landfill X will be consistently used for this purpose because of its location within an explosives safety control zone. Before training takes place on this property, base personnel verify that all OSHA regulations are followed.

### 2.5.4 Report Submittal

In accordance with both RODs, Travis AFB is required to submit in a timely manner to the U.S. EPA, California Department of Toxic Substances Control, and the San Francisco Regional Water Quality Control Board an annual monitoring report on the status of LUCs and/or other remedial actions, including the operation and maintenance, and monitoring thereof, and how any LUC deficiencies or inconsistent uses have been addressed.

A hard copy of this report has been placed in the Travis AFB Information Repository at the Vacaville Public Library, and an electronic copy of this report will be accessible through the environmental portion of the Travis AFB Public Web Site ([www.travis.af.mil/enviro](http://www.travis.af.mil/enviro)). Although this report is not subject to approval and/or revision by EPA and the State of California, Travis AFB will voluntarily consider any suggestions from the regulatory agencies and the public to improve the format and/or content of future reports.

## **3.0 Solvent Spill Area and Facilities 550 and 552 (SS015)**

---

SS015 is in the central part of the NEWIOU and consists of the Solvent Spill Area (SSA) and Facilities 550 and 552. The SSA covers approximately 1.4 acres east of Facility 550, in an area previously used for stripping paint from aircraft and where solvent spills were reported to have occurred. The site was an open grassy plot adjacent to an asphalt driveway and Facility 552.

Facility 552 consisted of a fenced, bermed, concrete pad constructed in 1964 that was used as a temporary hazardous waste collection point. Stored wastes included paint, chromic acid, and solvents generated during aircraft maintenance operations at Facility 550. Facility 550 contained a corrosion control facility that treated and painted aircraft parts and support equipment. A metals-processing shop in Facility 550 used cadmium-based plating solutions.

In 2004, Facilities 550 and 552 were demolished to construct a POL (petroleum, oil, and lubricants) MILCON (military construction) project that consists of an office building, a fuel truck maintenance facility, and a large, concrete truck-parking area.

### **3.1 Environmental Conditions**

Surface soil in the vicinity of the former metals-plating shop in Facility 550 contains cadmium residue. Appendix H of the *Summary of Remedial Investigation Data and Risk Management Decisions for Human Health at NEWIOU Sites* (URS, 2004) presents a more detailed description of the human health risk assessment for this site.

Currently, the cadmium-contaminated soil is covered by concrete from a truck parking area, which is divided into individual parking stalls and entrance/exit lanes. A fence surrounds the POL facility. The footprint of the environmentally-controlled area is small in relation to the large footprint of the truck parking area, so it is impractical and somewhat unsafe from an operations perspective to place warning signs in the vicinity of the contaminated soil.

### **3.2 Status of SS015 Land Use Controls**

Section 5.3.8 of the NEWIOU SSSW ROD states that Alternative #17 (Land Use Controls) is the selected remedial action for this site, because cadmium concentrations in the soil exceed levels that allow for unlimited use and unrestricted exposure. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site.

The Travis AFB General Plan has been revised to document the presence of cadmium in the surface soil and enforce the land use restriction, particularly on the unauthorized disturbance and use of the soil beneath the concrete at this site. The LUCs for SS015 are described in the Base General Plan intranet web site, but hyperlinks need to be added to the web site to allow the LUC data to be readily available, as described in section 2.1.



The 2009 inspection of the LUCs at SS015 found that administrative controls and existing physical infrastructure are adequate to enforce the environmental restriction. In addition, the inspectors noted a potential for additional physical barriers (i.e., fences) and signage to adversely impact vehicle operations. There is no evidence that the cadmium-impacted soil beneath the concrete parking area has been disturbed. Photograph 1 in Appendix B of this report shows the controlled area at SS015.

SS015 is located on the southern side of Hickam Avenue, which is a primary access road when visiting restoration sites on the western part of the base. Because of the large amount of field work that took place in 2009 to support the Travis AFB Vapor Intrusion Assessment, the Phytoremediation study, GSAP sampling, and the SD001/ SD033 sediment remedial actions; at least one restoration project managers viewed the controlled area of SS015 every two weeks on an average.

## **4.0 Oil Spill Area, Facilities 11, 13/14, 20, 42/1941, 139/144, and Selected Sections of the Storm Sewer Right-of-Way (SS016)**

---

SS016 is in the central part of the NEWIOU and consists of the Oil Spill Area (OSA); Facilities 11, 13/14, 20, 42/1941, and 139/144; and portions of the Storm Sewer Right-of-Way. The OSA covers approximately 7 acres north of Facility 16. The facilities within the site support flight line service equipment repair, aircraft engine repair, fuel storage, aircraft wash racks, and vehicle maintenance.

The OSA originally encompassed an area where waste oil from cleaning and degreasing operations at Facility 18 had reportedly been spilled or disposed of on a grassy field. The area is now entirely paved and covered with buildings. Facility 139 is a vehicle maintenance shop, and facility 144 is a vehicle body shop. Facilities 13 and 14 were used for paint stripping and parts cleaning, using TCE and a dilute phosphoric acid solution; the facilities were demolished in 1988. Facility 11 is a vehicle maintenance shop, and facilities 42/1941 include a hazardous waste storage area, a wash rack, oil-water separator, and four 250-gallon above-ground storage tanks. Facility 20 is the aircraft control tower.

### **4.1 Environmental Conditions**

Surface soil in a grassy field west of facility 18 contains polycyclic aromatic hydrocarbon (PAH) residue. Appendix I of the *Summary of Remedial Investigation Data and Risk Management Decisions for Human Health at NEWIOU Sites* (URS, 2004) presents a more detailed description of the human health risk assessment for this site.

A small portion of PAH-contaminated soil is covered by concrete and a brick walkway.

### **4.2 Status of SS016 Land Use Controls**

Section 5.3.9 of the NEWIOU SSSW ROD states that Alternative #17 (Land Use Controls) is the selected remedial action for this site, because PAH concentrations in the soil exceed levels that allow for unlimited use and unrestricted exposure. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site.

The Travis AFB General Plan has been revised to document the presence of PAH in the surface soil and enforce the land use restriction, particularly on the unauthorized disturbance and use of soil at this site. The LUCs for SS016 are described in the Base General Plan intranet web site, but hyperlinks need to be added to the web site to allow the LUC data to be readily available, as described in section 2.1.

The 2009 inspection of the LUCs at SS016 found that administrative controls are adequate to enforce the restriction, so physical barriers (i.e., fences) are not needed. There is no evidence that the PAH-impacted soil has been disturbed either with or without proper authorization. A

warning sign has been posted on a tree in the middle of the site to notify base workers of the presence of the controlled area. Photograph 2 in Appendix B of this report shows the controlled area at SS016.

The controlled area at SS016 is located one block from the Asset Management office, and a Travis AFB restoration project manager drives by the controlled area during visits to the Central Groundwater Treatment Plant. Because of the large amount of site characterization that took place at SS016 in 2009 to support an optimization of its interim remedial action, at least one Travis AFB environmental restoration project manager viewed the controlled area on a weekly basis on an average.

## **5.0 MW107x32 and MW246x32 Areas (ST032)**

---

ST032 is in the central part of the NEWIOU and consists of grassy, open areas between an active runway and an abandoned taxiway. Land use and personnel access is severely restricted because of the proximity of the runway. This site is in a restricted area and a designated clear zone (an area in which no vertical obstructions to aircraft are allowed). MW107x32 and MW246x32 are in the Storm Sewer Right-of-Way area.

### **5.1 Environmental Conditions**

Surface soil in a grassy field adjacent to a runway contains benzene residue. Appendix M of the *Summary of Remedial Investigation Data and Risk Management Decisions for Human Health at NEWIOU Sites* (URS, 2004) presents a more detailed description of the human health risk assessment for this site.

### **5.2 Status of ST032 Land Use Controls**

Section 5.3.13 of the NEWIOU SSSW ROD states that Alternative #17 (Land Use Controls) is the selected remedial action for this site, because benzene concentrations in the soil exceed levels that allow for unlimited use and unrestricted exposure. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site.

The Travis AFB General Plan has been revised to document the presence of benzene in the surface soil and enforce the land use restriction, particularly on the use of the unauthorized disturbance and use of soil at this site. The LUCs for ST032 are described in the Base General Plan intranet web site, but hyperlinks need to be added to the web site to allow the LUC data to be readily available, as described in section 2.1.

Because of aircraft operations that were taking place at the time and the high level of security associated with them, the inspectors were not able to coordinate access to the controlled area at ST032 during the inspection. Since the Base Operations office controls aircraft activities, it is virtually impossible for ST032 to be used for residential purposes and highly unlikely that soil in the controlled area would be disturbed without proper authorization. In addition, the site is clearly visible from the Travis AFB aircraft control tower at all times during the day and night. Any attempt to drive to the site without permission from Base Operations would be viewed as a serious security threat to flight operations, invoking an immediate response by base security forces.

Monitoring wells at ST032 are sampled annually under the Travis AFB GSAP, usually in the May timeframe. Because of the difficulty in accessing the site, a base project manager conducted a periodic LUC inspection during the sampling event. During the 2009 GSAP annual event, no LUC deficiencies were noted.

Due to this high level of security along the Travis AFB flight line, physical barriers (i.e., fences) and signage are not needed to maintain these environmental land use restrictions.

## **6.0 Storm Sewer System B (West Branch of Union Creek), Facilities 810 and 1917, and South Gate Area (SD033)**

---

SD033 is in the western part of the NEWIOU and consists of the West Branch of Union Creek, parts of Storm Sewer System B, Facilities 810 and 1917, the area around the South Gate, and Outfall II. Storm Sewer System B collects runoff from within the west side of the aircraft industrial area. This runoff enters Union Creek at Outfall II. Facility 810 is used to refurbish aircraft, and facility 1917 had sumps and an oil/water separator that are no longer in use.

### **6.1 Environmental Conditions**

Surface soil on the east and west side of facility 810 contains cadmium and benzo(a)pyrene residue. Most of this soil is covered by asphalt. Appendix N of the *Summary of Remedial Investigation Data and Risk Management Decisions for Human Health at NEWIOU Sites* (URS, 2004) presents a more detailed description of the human health risk assessment for this site.

Sediment in the portion of the west branch of Union Creek that enters the main branch of the creek contains Polynuclear Aromatic Hydrocarbons (PAH). Section 5.2 [SD033-SSSB and West Branch of Creek (Drainage Basin 2)] of the *North/East/West Industrial Operable Unit Ecological Technical Memorandum* (URS, 2005) presents a more detailed description of the ecological assessment for this site.

### **6.2 Status of SD033 Land Use Controls**

Section 5.3.14 of the NEWIOU SSSW ROD states that Alternative #17 (Land Use Controls) is the selected remedial action for the soil portion of this site, because cadmium and benzo(a)pyrene concentrations in the soil exceed levels that allow for unlimited use and unrestricted exposure. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site.

Section 5.3.14 of the NEWIOU SSSW ROD also states that Alternative #18 (Excavation) is the selected remedial action for the sediment portion of this site, because the PAHs pose a potential ecological risk. Alternative #17 is the selected contingency remedy if concentrations of PAHs remaining in sediment after excavation exceed levels that allow for unlimited use and unrestricted exposure.

The Travis AFB General Plan has been revised to document the presence of cadmium and benzo(a)pyrene in the surface soil and enforce the land use restriction, particularly on the unauthorized disturbance and use of soil at this site. The LUCs for SD033 are described in the Base General Plan intranet web site, but hyperlinks need to be added to the web site to allow the LUC data to be readily available, as described in section 2.1.

The General Plan does not specifically discuss the sediment portion of SD033. As described in section 2.1, it provides information on all restrictions to property usage (environmental, safety, airfield operations, etc.) to base planners for their construction projects. Since the sediment is in Union Creek itself, construction activities in the creek, outside of the sediment remedial activities approved in the NEWIOU SSSW ROD, would require extensive environmental analysis, FONSI and FONPA determinations and the requisite CWA 401 and 404 permits. Thus, such activities would be identified and properly assessed as described in Section 2.3, and unauthorized soil and sediment disturbance would be restricted.

In 2009, Travis AFB successfully carried out a sediment remedial action in the Union Creek portion of SD033. The sediment cleanup levels were achieved at all sampling locations. A report on this sediment cleanup action is scheduled for review in March 2010. The report will evaluate the need for land use controls in the sediment portion of SD033.

The 2009 inspection of the LUCs at the soil portion of SD033 found that administrative controls are adequate to enforce the restriction, so physical barriers (i.e., fences) are not needed. There is no evidence that the cadmium- and benzo(a)pyrene-impacted soil has been disturbed. Warning signs have been posted on both sides of Facility 810 to notify base workers of the presence of the controlled area. Photographs 3 and 4 in Appendix B of this report show the controlled soil areas at SD033.

The two controlled areas at SD033 are located in an industrial area that was the focus of considerable site characterization field work. However, because of the site's somewhat detached location in relation to nearby solvent plumes, the Travis environmental project managers visited both controlled area about once a quarter on an average. They also visited the sediment portion of SD033 several times to check on the effectiveness of erosion control measures both along the creek sides and in the creek itself. Photograph 21 in Appendix B shows the controlled sediment area at SD033.

## **7.0 Sanitary Sewer System; Facilities 837/838, 919, 977, and 981; Area G Ramp; and Ragsdale/V Area (SD037)**

---

SD037 is in the western part of the NEWIOU and consists of Facilities 837, 838, 919, 977, and 981; the Area G Ramp; and the Ragsdale/V Street. It also includes approximately 22,000 feet of sanitary sewer piping, an oil/water separator, sumps, wash racks, and a fuel-hydrant system. The sanitary sewer system conveys domestic and industrial wastewater from facilities within the NEWIOU to the Fairfield-Suisun publicly owned treatment works. Facility 919 is used to maintain heavy equipment, facility 977 is an air freight terminal, and facility 981 has a hazardous waste satellite accumulation point.

### **7.1 Environmental Conditions**

Surface soil to the southwest and southeast of facility 977 contains polycyclic aromatic hydrocarbon (PAH), lead and total petroleum hydrocarbon (TPH) residue. Both controlled areas are covered in asphalt and lie in busy areas where aircraft receive and deliver palletized cargo from loading vehicles. Appendix R of the *Summary of Remedial Investigation Data and Risk Management Decisions for Human Health at NEWIOU Sites* (URS, 2004) presents a more detailed description of the human health risk assessment for this site.

### **7.2 Status of SD037 Land Use Controls**

Section 5.3.18 of the NEWIOU SSSW ROD states that Alternative #17 (Land Use Controls) is the selected remedial action for this site; because PAH, lead and TPH concentrations in the soil exceed levels that allow for unlimited use and unrestricted exposure. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site.

The Travis AFB General Plan has been revised to document the presence of PAH, lead, and TPH in the surface soil and enforce the land use restriction, particularly on the unauthorized disturbance and use of soil at this site. The LUCs for SD037 are described in the Base General Plan intranet web site, but hyperlinks need to be added to the web site to allow the LUC data to be readily available, as described in section 2.1.

The 2009 inspection of the LUCs at SD037 found that administrative controls are adequate to enforce the restriction, so physical barriers (i.e., fences) are not needed. Although the contaminated soil cannot be seen (since it is covered with asphalt), the asphalt work area surrounding Building 977 is in excellent condition and has not required maintenance in the past year. So, there is no evidence that the PAH-, lead-, and TPH-impacted soil has been disturbed.

SD037 is located south of Ragsdale Street, which is a main thoroughfare for access to restoration sites in the southern portion of the base. In addition, the controlled area was visited during a Comprehensive Site Evaluation, a phase of the Military Munitions Response Program. On an average, an environmental project manager views the controlled area about once a month.

Due to the nature of operations at the air freight terminal, it is not practical or safe to post warning signs to notify base personnel of the presence of contaminated soil beneath the asphalt. Specifically, vehicles that are designed to transport large cargo pallets to and from both military and commercial aircraft require an open area free of physical hazards. The two small controlled areas lie in the middle of these open work areas, and there are no existing posts or structures that could be used to post signs that point out their location. Because of the high tempo of mission-critical operations associated with the air freight terminal, any obstructions would pose significant risk to both personnel and equipment. Photographs 5 and 6 in Appendix B of this report show the controlled areas within the open work areas at SD037.



## 8.0 Building 755 (DP039)

---

Building 755 is the Travis AFB Battery and Electric Shop. The site consists of Building 755 and a former battery neutralization sump. Past operations have included the recharging and dismantling of lead-acid and nickel-cadmium batteries. Before 1978, lead acid solutions were discharged into a sink inside Building 755. The pipeline from the sink led to a rock-filled sump approximately 65 feet northwest of the building. This practice was discontinued in 1978 when the pipeline was dismantled and reconnected to the sanitary sewer system. The sump was removed in 1993.

### 8.1 Environmental Conditions

Lead residue is the contaminant associated with the surface soil around the edges of the former sump area. Since the lead-acid solution entered the former sump through a subsurface pipe, the presence of lead in the surface soil is attributed to the deposition of small amounts of lead-contaminated subsurface soil during the 1993 sump removal action. The Human Health and Ecological risk assessments for Building 755 concluded that the lead residue does not pose an unacceptable risk to local workers or ecological receptors. Sections 4.1.7 and 4.1.8 of the *WABOU Remedial Investigation Report* (CH2M HILL, 1997) present more detailed descriptions of the risk assessments for Building 755.

In November 2008, the base started the construction of a sustainable in situ bioreactor as a demonstration project. Funded by the Technology Transfer Office at the Air Force Center for Engineering and the Environment, the Travis AFB bioreactor is designed to clean up residual solvent contamination associated with the former sump. Data from this project will support the selection of final groundwater remedies in an upcoming Basewide Groundwater ROD. Travis AFB obtained regulatory approval to authorize the construction of the bioreactor; construction needs to be complete before the start of the 2008-2009 rainy winter season. Also, the base shut down the existing Dual-Phase Extraction system to return the subsurface to steady-state conditions. The final *Sustainable Bioreactor Demonstration Work Plan Site DP039* (CH2M HILL, 2009) describes the bioreactor technology and its construction details.

As part of the bioreactor construction, the remedial action contractor excavated a 20' x20' x20' void, centered in the middle of the former sump. The bioreactor footprint completely covers the lead-contaminated surface soil area. When the excavation began, the lead-contaminated soil was placed in a large bin. Soil sample collection and analysis was used to characterize the waste and to determine when all of the contaminated soil had been excavated from DP039. The details of the bioreactor construction and the disposal of the contaminated soil will be presented in an upcoming bioreactor report.

### 8.2 Status of DP039 Land Use Controls

Section 5.3.1 of the WABOU Soil ROD states that Alternative S2 (Land Use and Access Restrictions) is the selected remedial action for this site. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site.

The Travis AFB General Plan has been revised to document the presence of lead in the surface soil and enforce the land use restriction, particularly on the unauthorized disturbance and use of soil at this site. The LUCs for DP039 are described in the Base General Plan intranet web site, but hyperlinks need to be added to the web site to allow the LUC data to be readily available, as described in section 2.1.

The 2009 inspection of the LUCs at DP039 found that administrative controls and a LUC warning sign are still adequate to enforce the restriction, so physical barriers (i.e., fences) are not needed. The lead-impacted soil has been excavated and sent by truck to an appropriate landfill as a result of the bioreactor demonstration project. Travis AFB will continue to enforce the DP039 controls until the upcoming bioreactor report has received regulatory review and the base receives permission to officially remove the controls. Photograph 7 in Appendix B of this report shows the surface of the bioreactor over the controlled area at DP039. The warning sign that notifies visitors to the site of the presence of LUCs can be seen in the background. Building 755 was vacated and demolished in 2009.

The two Travis AFB environmental project managers visited the controlled area at DP039 in 2009 while supporting a phytoremediation study, a bioreactor demonstration project, and a Comprehensive Site Evaluation of a closed skeet range, which is south of the controlled area. On average, they visited the site about once a month.

## 9.0 Building 916 (SD043)

---

Building 916 is an emergency electrical power facility. The diesel-powered generators inside the building sit above a cellar, or sump area, that also houses sump pumps. Prior to 1991, spilled diesel fuel from the generators and wash water were pumped out of the building through one of four pipes. The pipes discharged onto small concrete spillways constructed for erosion control on the side slope of the trapezoidal drainage channel that lies east of the building. From the spillways, wastewater flowed down the side-slope and into the drainage channel. This method of sump water disposal was discontinued in 1991.

There had been a fenced and graveled electrical transformer area on the southwest corner of the building. This area contained three liquid-filled transformers on top of a concrete pad. In 1992, one of the transformers developed a leak onto the concrete pad and ground surface. The base removed the transformers and pad in 1993.

### 9.1 Environmental Conditions

Polychlorinated Biphenyl (PCB)-1254 was detected in soil at concentrations that do not pose an unacceptable risk to local workers or ecological receptors. Sections 4.3.7 and 4.3.8 of the *WABOU Remedial Investigation Report* (CH2M HILL, 1997) present detailed descriptions of the human health and ecological risk assessments for Building 916, respectively.

PCB-1254 was detected in a groundwater sample immediately below the transformer area, and there was a possibility that PCB-1254 in subsurface soil is a source of ongoing groundwater contamination. Additional groundwater sampling in June 1999 demonstrated that there is no PCB-contaminated groundwater migrating from the site. The *Reevaluation of Soil and Groundwater Contamination at Building 916 (SD043)* Technical Memorandum (CH2M HILL, 2000) presents a detailed discussion on this groundwater sampling effort.

### 9.2 Status of SD043 Land Use Controls

Section 5.3.3 of the WABOU Soil ROD states that Alternative S2 (Land Use and Access Restrictions) is the selected remedial action for this site. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site. As long as administrative controls are adequate to enforce the restriction, physical barriers (i.e., fences) will not be needed.

The Travis AFB General Plan has been revised to document the presence of PCB-1254 in the soil and enforce the land use restriction. The LUCs for SD043 are described in the Base General Plan intranet web site, but hyperlinks need to be added to the web site to allow the LUC data to be readily available, as described in section 2.1.

Section 4 of the *Annual Report on the Status of Land Use Controls on Restoration Sites* (Travis AFB, 2004) describes the construction of a concrete pad within the boundaries of the controlled area at SD043. A standby emergency generator had been placed on the pad; the purpose of the

generator was to provide additional utility support to the air freight terminal, located in Building 977.

As a result of this construction activity within the controlled area, the Environmental Flight enlarged the footprint of the controlled area to incorporate the concrete pad beneath the generator and all utilities. The new footprint also includes the soil within 10 feet to the east, south and west of the concrete pad. The Flight also posted two warning signs on Building 916 to notify site workers and visitors of the presence of land use controls at SD043.

Since no soil samples were collected and analyzed as part of the generator installation project; any future projects on site, including any to expand, alter, or remove the infrastructure associated with the generator will include analysis of the soil to be impacted by project activities prior to project approval. Decisions on soil disturbance activities and the disposition of any excavated soil will be made based on the results of sample analysis. The expanded LUC footprint has been incorporated into the web-based GP.

The 2009 inspection of the LUCs at SD043 found that administrative controls are adequately enforcing the restriction, so physical barriers (i.e., fences) are not needed. There is no evidence that any soil disturbances in the vicinity of the concrete pad and generator took place in 2009. Photograph 8 in Appendix B shows the east side of the generator and pad south of Building 916, and photograph 9 shows the warning signs in relation to the west side of the controlled area at SD043.

Although it is in the vicinity of several streets that allow access to other restoration sites, environmental project managers visit the controlled area at SD043 about two to three times a year on an average.

## 10.0 Landfill X (LF044)

---

Landfill X is not a landfill at all. It received this name because the past activities at this site had not been completely identified at the start of the WABOU Remedial Investigation. It comprises approximately 25 acres of undeveloped land located within Grazing Management Unit (GMU)-2, a 126-acre parcel of land that had been used to graze horses. The soil contaminants are attributed to the asphalt and other construction debris that have been stockpiled onsite.

### 10.1 Environmental Conditions

Chemicals of Concern (COCs) detected in surface soils include benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene. These contaminants are also chemicals of ecological concern (COECs) together with benzo(k)fluoranthene, fluoranthene, and pyrene. COCs detected in subsurface soils include benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene, benzo(k)fluoranthene. These contaminants are also subsurface COECs together with anthracene, acenaphthene, benzo(b)fluoranthene, benzo(g,h,i)perylene, chrysene, fluoranthene, indeno(1,2,3-c,d)pyrene, phenanthrene, bis(2-ethylhexyl)phthalate, cadmium, lead, and silver. Sections 4.8.7 and 4.8.8 of the WABOU RI report present a detailed description of the human health and ecological risk assessments for Landfill X, respectively.

In early October 2008, a brush fire swept across the western portion of the base. The base fire department responded to the fire and put it out before it could leave the LF044 boundaries. The impact of the fire on the LF044 LUC is described in section 10.2.

In December 2008, the Asset Management Flight learned that the Defense Energy Support Center is proposing to construct a new above-ground storage tank (AST) fuel facility on the installation, with a site within LF044 as the preferred alternative. The preference for constructing the fuel facility in the LF044 area is based its proximity to an existing AST facility on base, as well as to an off-base fuel pipeline.

Final selection of the location for this facility is pending final approval by Travis AFB and Air Mobility Command. The base will notify the regulatory agencies if any proposed land use issues inconsistent with the land use control objectives for this area are identified during the final selection of the AST construction location. The most likely impact of this project on the LF044 controls would be changes to the fences and signs over most of the controlled area.

### 10.2 Status of LF044 Land Use Controls

Section 5.3.6 of the WABOU Soil ROD states that Alternative S2 (Land Use and Access Restrictions) is the selected remedial action for this site. The selected remedy requires the installation of a fence around the contaminated area and the training/stockpile area and the construction of a protective berm within the fenced area. The purpose of the berm is to provide environmental protection by preventing soil contaminants from flowing during rain events into nearby vernal pools. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site. The objective of this remedial action is to

document the location of the contaminants and apply land use controls to prevent the site from being used for residential purposes.

The Travis AFB General Plan has been revised to document the presence of the soil contaminants and enforce these LUCs. The LUCs for LF044 are described in the Base General Plan intranet web site, but hyperlinks need to be added to the web site to allow the LUC data to be readily available, as described in section 2.1.

The *Remedial Action Report for Soil Remedial Actions at Site LF044* (ECC, 2003) provides a detailed description of the construction of the physical controls at LF044. This report is the source of some of the information provided in the following subsections.

### 10.2.1 Fence and Gate Installation

Environmental Chemical Corporation (ECC) and a fencing subcontractor installed the fence according to RD Specification #02831 of the *LF044 Soil Remedial Design Package* (URS, 2002). ECC accommodated a request by TAFB to install an additional gate on the southeastern side of LF044 site along with the northern gate that accesses Hangar Avenue. Warning signs were posted at the gates and every 200 feet along the fence as required.

The 2009 inspection of the LUCs at LF044 found the fence and signs to be overall in good physical condition, although both have degraded since the last annual inspection. Along with a part of the fence that was cut by base firefighters during their response to a October 2008 fire, another larger section of fence was damaged when a branch from a eucalyptus tree fell on it. There are several fence sections with broken strands, possibly due to exposure to high winds over a long period of time.

Several signs showed metal fatigue and were lying near the fence posts. The southwest portion of the fence is exposed to gusty winds throughout the year, and it appears that repetitive motion caused by the wind can cause metal fatigue and a separation of the sign from the attaching bolts.

To carry out permanent fence repairs and sign replacement, the base has assigned a small-business environmental contractor to return all physical controls up to their original condition and upgrade any controls where possible. This maintenance work will start in the summer of 2010.

There is no evidence to suggest that the property is being used for other than industrial purposes. Both gates were locked, and the Asset Management Flight keeps a copy of the keys. Photograph 10 of Appendix B shows the warning signs at the north access gate, and photograph 11 shows the west side of the fence. Photograph 12 shows an example of a broken fence strand near the south access gate, and photograph 13 shows a sign that is warped from wind exposure. The gates are in good physical condition, and warning signs at each gate are visible.

### 10.2.2 Berm Construction

The berm was constructed with aggregate, type ABII. A total of 647.54 tons of ABII aggregate was imported for the berm construction. The material originated from a local quarry owned by Syar Industries. The material met the physical and chemical characteristics required by RD specification #02210 of the *LF044 Soil Remedial Design Package* (URS, 2002). The aggregate was placed along the surveyed and staked perimeter line. Following precision spreading, the berm was shaped and compressed using 6-inch maximum horizontal lifts. ABII aggregate has a good mixture of fines and course material, which made it easy to compact to the required 85% of laboratory maximum dry density.

In December 2002, exceptionally heavy rains caused a low section of the berm to erode and fail. Pooled water on the northwest side of the berm began to flow over the top of the compacted soil, creating a small breach. To prevent a similar event from occurring again, ECC fortified the low section of the berm with cement. In future winter months that receive a substantial amount of rainfall, the base expects pooled water to gently flow over the low sections of the berm, allowing sediment to settle within the controlled area.

The 2009 inspection of the LUCs at LF044 found the berm to be in good to excellent physical condition. The responders to an October 2008 fire slightly damaged the berm surface in one small location with their firefighting equipment.

Native grass, weeds and small shrubs have grown over portions of the berm, which serves to increase its cohesiveness. The base received a fair amount of rainfall this year, and the standing water shows that the berm is performing as designed; the damage to the berm from the October 2008 firefighting response has not adversely impacted its ability to prevent contaminated sediment from entering the nearby wetlands. Photograph 14 of Appendix B was taken during the inspection of the berm and the north side of the fence.

Because of its size, some parts of the controlled area at LF044 are visited more often than other remote parts. The environmental project managers tend to visit the north side of LF044 at least once a month, depending on the level of field work at surrounding restoration sites.

## **11.0 Railhead Munitions Staging Area (SS046)**

---

The Railhead Munitions Staging Area site consists of a railroad track and concrete pad that formerly served as a railhead at the south terminus of a spur off the Northern Sacramento Railroad. This site served as a weapons-handling facility from 1953 to 1962.

### **11.1 Environmental Conditions**

Chemicals of Concern (COCs) detected in surface soil include benzo(a)pyrene, benzo(b)fluoranthene, benzo(a)anthracene, and benzo(k)fluoranthene. COCs detected in subsurface soil include cadmium, lead, benzo(a)pyrene, benzo(k)fluoranthene, fluoranthene, phenanthrene, pyrene, and pentachlorophenol. All of the COCs were detected in the vicinity of the railroad tracks. Section 4.12.7 of the WABOU RI report presents a detailed description of the human health risk assessment for this site.

Chemicals of Ecological Concern (COECs) were detected in isolated areas surrounding the concrete pad. The COECs include benzo(a)pyrene, benzo(k)fluoranthene, fluoranthene, pentachlorophenol, phenanthrene, pyrene, cadmium, and lead. Section 4.12.8 of the WABOU RI report presents a detailed description of the ecological risk assessment for this site.

### **11.2 Status of SS046 Land Use Controls**

Section 5.3.8 of the WABOU Soil ROD states that Alternative S2 (Land Use and Access Restrictions) is the selected remedial action for this site. The objective of this remedial action is to document the location of the contaminants and apply land use controls to prevent the site from being used for residential purposes. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site.

The Travis AFB General Plan has been revised to document the presence of contaminants in the surface soil and enforce the land use restriction, particularly on the unauthorized disturbance and use of soil at this site. The LUCs for SS046 are described in the Base General Plan intranet web site, but hyperlinks need to be added to the web site to allow the LUC data to be readily available, as described in section 2.1.

The 2009 inspection of the LUCs at SS046 found that administrative controls and two warning signs are adequate to enforce the restriction, so additional physical barriers (i.e., fences not associated with the Grazing Management Unit) are not needed. There is no evidence that the contaminated soil has been disturbed. Photograph 15 of Appendix B of this report shows the warning sign at the west end of the SS046 controlled area, and photograph 16 shows the warning sign at the east end of the controlled area.

The controlled area at SS046 is somewhat concealed by two large soil berms, so the Travis environmental project managers have to plan to check on its condition when visiting other nearby groundwater sites. They average a visit once a quarter.



## 12.0 Landfill 2 (LF007)

---

LF007 is a closed municipal landfill in the northeast corner of the base that was active from the 1950s to 1974. It is a NEWIOU restoration site that was selected in the WABOU Soil ROD as the location for the construction of the Corrective Action Management Unit (CAMU). There are also active operations at LF007 conducted at Buildings 1360 (Military Affiliated Radio Station), 1365 (Permitted Treatment, Storage and Disposal Facility), and 1370 (Small Arms Range).

### 12.1 Environmental Conditions

Alternative #17 is the selected remedial action in the NEWIOU SSSW ROD for the CAMU cover, CAMU associated features, the Landfill cover and associated buried wastes, and sample location E19. For PCB-contaminated soils in Area E, Alternative #18 (Excavation) is the selected remedy and Alternative #17 is the contingency remedy. Travis AFB elected to also excavate sample location E19, as described below.

The CAMU was built in three phases. Phase 1 involved landfill maintenance and consisted of the placement of large quantities of clean soil into subsidence trenches that formed in the existing soil cap. The soil also serves as a foundation for the CAMU. Phase 2 involved the placement of contaminated soil from WABOU soil sites into the CAMU and the construction of an evapotranspiration cap over the consolidated soil. Travis AFB completed the fieldwork for Phases 1 and 2 in November 2003. Phase 3 involved the placement of contaminated soil from NEWIOU and WABOU sites into the CAMU and the completion of the CAMU cap. The base completed the fieldwork for Phase 3 in December 2007.

The soil remediation of LF007 Area E and sample location E19 also took place during the 2007 fieldwork, and cleanup levels that allow for unlimited use and unrestricted exposure were achieved at both locations. The *North, East, and West Industrial Operable Unit and West/Annexes/Basewide Operable Unit Soil Remedial Action for Sites SD045, FT003, FT004, FT005, Union Creek SD001 and SD033, and LF007 Area E Report* (Shaw E&I, 2008) describes the completed soil remedial actions and the cleanup levels achieved at LF007 Area E and sample location E19.

The *Remedial Investigation Report for the North Operable Unit* (Radian, 1995) contains a detailed description of the LF007 environmental conditions. The *Design Report and Post-Construction Maintenance Plan for the LF007 Soil Remedial Action* (CH2M HILL, 2002) contains a detailed description of the CAMU design. The *Project Summary Report for the LF007 Soil Remedial Action Phase 1, Landfill Cap, Corrective Action Management Unit Subgrade, Wetlands Mitigation* (Shaw E&I, 2003) contains the description of the fieldwork that supports the closure of Landfill 2. The *Project Summary Report for the Site LF007 Phase 2 Soil Remedial Action* (Shaw E&I, 2004) describes the placement of contaminated soil from WABOU soil sites and the construction of the CAMU protective cap as well as other designed features. The NEWIOU Human Health and Eco Tech Memos also describe environmental conditions at LF007.

In November 2008, the CAMU construction contractor conducted some maintenance on the evapotranspiration cap that involved the addition of clean soil to the top of the cap and the application of more hydroseed. No contaminated soil was disturbed by this maintenance activity.

## **12.2 Status of CAMU Land Use Controls**

Section 4.2 of the WABOU Soil ROD describes the CAMU and its part of the selected remedies for WABOU soil sites. Section 5.3.6 of the NEWIOU SSSW ROD states that Alternative #17 is the selected remedial action for LF007 Areas A through D and a contingency remedy for Area E, as described above.

The Travis AFB General Plan has been revised to document the presence of the CAMU cover, CAMU associated features, and Landfill 2, and to enforce their land use controls. Travis AFB also does not allow unauthorized soil disturbance and relocation activities at LF007 and periodically inspects and actively monitors the CAMU to ensure that the integrity and function of the CAMU remain intact.

There is no established schedule for these periodic inspections. For example, they coincide with contractor site visits associated with CAMU maintenance and monitoring as well as Groundwater Sampling and Analysis fieldwork in the northeast part of the base. The CAMU is also inspected when base representatives check on the wetland area north of the CAMU during the wet season to determine when the North Groundwater Treatment Plant should be shut down to prevent adverse wetland impacts. It is likely that this informal inspection frequency will continue for the next three or more years until all decision documents have been signed and all soil and groundwater remedies are in place.

The 2009 inspection of the LUCs at LF007 found that the current administrative and physical controls are adequate to enforce the restrictions. There is no evidence that the contaminated soil at LF007 has been disturbed. Photograph 17 in Appendix B of this report shows the top of CAMU Phase 3, looking from the northwest end. Photograph 18 shows the top of the CAMU Phase 3, looking from the southeast end. Photograph 19 shows the warning sign at the CAMU entrance. The inspectors noted that the gate post on the right side of the entrance is rotting and will need to be replaced this summer.

There is also no evidence that the active operations at Buildings 1360, 1365 and 1370 are compromising the LUCs in place on the portions of LF007 discussed above.

Although the LF007 LUCs are successfully enforcing site restrictions, it may be beneficial to add an additional layer of physical controls around the CAMU, particularly now that all construction activities are complete and the base will eventually look to transition from a CAMU Operation and Management phase to a Long-Term Monitoring phase. Additional physical controls will help with this transition, and the base will be working with a small-business environmental contractor to design and build appropriate controls.

## 13.0 Fire Training Area #4 (FT005)

---

Fire Training Area #4 covers approximately 30 acres in the southeastern portion of the base and consists of a former fire training area that was used for fire training exercises from 1962 to about 1987. From 1962 to the early 1970's waste fuels, oils, and solvents were burned at the site. From the early 1970's until the end of these firefighting activities, only waste fuels were burned.

### 13.1 Environmental Conditions

Chemicals of Concern (COCs) detected in soil include benzo(a)pyrene, benzo(b)fluoranthene, benzo(a)anthracene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, and indeno(1,2,3-c,d)pyrene. Appendix E of the *Summary of Remedial Investigation Data and Risk Management Decisions for Human Health at NEWIOU Soil Sites Technical Memorandum* (URS, 2004) presents a detailed description of the human health risk assessment for this site.

Chemicals of Ecological Concern (COECs) detected in the soil include benzo(a)pyrene, benzo(a)anthracene, and pyrene. Section 7.5 of the *North/East/West Industrial Operable Unit Ecological Technical Memorandum* (URS, 2005) presents a detailed description of the ecological risk assessment for this site.

### 13.2 Status of FT005 Land Use Controls

Section 5.3.5 of the NEWIOU SSSW ROD states that Alternative #18 (Excavation) is the selected remedial action for this site. Originally, this remedial action was scheduled for the 2007 summer construction season, but multiple cleanup actions were scheduled for that year, and the base could not complete all actions with the available time and funding. In addition, a considerable amount of asphalt construction debris was discovered in a preliminary test pit in the center of the site; this debris was not discussed in the NEWIOU SSSW ROD. The current strategy is to conduct a supplemental soil investigation to determine the extent of the construction debris; this investigation will take place in 2010.

Alternative #17 (Land Use Controls) is the selected contingency remedy for the residual concentrations of contaminants remaining in the soil that do not allow for unlimited use and unrestricted exposure. The objective of this contingency remedial action is to document the location of the residual contaminants and apply environmental restrictions to prevent the site from being used for residential purposes.

The Travis AFB General Plan has been revised to document the presence of soil contaminants and enforce the environmental restrictions, particularly on the unauthorized disturbance and use of soil at this site. The LUCs for FT005 are described in the Base General Plan intranet web site, but hyperlinks need to be added to the web site to allow the LUC data to be readily available, as described in section 2.1.

The 2009 inspection of the LUCs at FT005 found that administrative controls are adequate to enforce the restriction, so additional physical barriers (i.e., fences not associated with the

Explosive Ordnance Disposal area) are not needed. There is no evidence that an unauthorized disturbance of the contaminated soil has taken place. Photograph 20 of Appendix B of this report shows a portion of the controlled area that was used as a contaminated sediment and vegetation staging area in support of the sediment cleanup action in the portion of Union Creek known as SD001.

The sediment cleanup actions at SD001 and SD033 in 2009 led to a number of visits to FT005 by both Travis AFB environmental project managers. Over the course of a year, they averaged a visit once every three weeks.

## 14.0 Storm Sewer Systems A and C, Union Creek (SD001)

---

SD001 consists of Storm Sewer Systems A and C and the main branch of Union Creek. These storm sewer systems discharge into Union Creek at Outfalls II, III, and IV. Union Creek exits Travis AFB at the southwestern tip and flows south to Hill Slough, which discharges into Suisun Marsh and ultimately to Suisun Bay.

### 14.1 Environmental Conditions

Chemicals of Ecological Concern (COECs) detected in sediment include benzo(b)fluoranthene, benzo(a)anthracene, chrysene, fluoranthene, phenanthrene, and pyrene. Section 7.9 of the *North/East/West Industrial Operable Unit Ecological Technical Memorandum* (URS, 2005) presents a detailed description of the ecological risk assessment for this site.

### 14.2 Status of SD001 Land Use Controls

Section 5.3.1 of the NEWIOU SSSW ROD states that Alternative #18 (Excavation) is the selected remedial action for this site, because the PAHs pose a potential ecological risk. Alternative #17 is the selected contingency remedy if concentrations of PAHs remaining in sediment after excavation exceed levels that allow for unlimited use and unrestricted exposure. Appendix A of the *Summary of Remedial Investigation Data and Risk Management Decisions for Human Health at NEWIOU Soil Sites* (URS, 2004) states that the sediment and surface water in Union Creek do not pose a potential human health risk.

The General Plan does not specifically discuss SD001 for a couple of reasons. As described in section 2.1, it provides information on all restrictions to property usage (environmental, safety, airfield operations, etc.) to base planners for their construction projects. Since the sediment is in Union Creek itself, construction activities in the creek, outside of the sediment remedial activities approved in the NEWIOU SSSW ROD, would require extensive environmental analysis, FONSI and FONPA determinations and the requisite CWA 401 and 404 permits. Thus, such activities would be identified and properly assessed as described in Section 2.3 and unauthorized soil and sediment disturbance restricted.

In 2009, Travis AFB successfully carried out a sediment remedial action in the Union Creek portion of SD001. The sediment cleanup levels were achieved at all sampling locations. A report on this sediment cleanup action is scheduled for review in March 2010. The report will evaluate the need for land use controls at SD001.

The 2009 inspection of SD001 found that administrative controls are adequate to enforce the sediment disturbance restriction, so physical barriers are not needed. There is no evidence that the contaminated sediment has been disturbed from unauthorized activity. The inspection also checked on the effectiveness of the erosion control measures both along the creek sides and in the creek itself. Photograph 22 of Appendix B of this report shows the controlled area at SD001.

## 15.0 Travis AFB Groundwater Sites

---

Travis AFB has 19 contaminated groundwater sites that are being cleaned up under interim remedial actions. The *Groundwater Interim Record of Decision for the WABOU* (Travis AFB, 1999) addresses the interim remedies at four sites (LF008, SS041, SD043, and DP039), and the *Groundwater Interim Record of Decision for the NEWIOU* (URS, 1997) addresses the interim remedies at 15 sites (FT004, FT005, LF006, LF007, SS015, SS016, SS029, SS030, SD031, ST032, SD033, SD034, SS035, SD036, and SD037).

### 15.1 Environmental Conditions

Section 3 of the *Groundwater Interim Record of Decision for the NEWIOU* (URS, 1997) describes the nature and extent of groundwater contamination at the NEWIOU sites, and section 3 of the *Groundwater Interim Record of Decision for the WABOU* (Travis AFB, 1999) describes the nature and extent of groundwater contamination at the WABOU sites. Travis AFB also publishes an annual Groundwater Sampling and Analysis report that provides an update to the contaminant concentrations within and lateral extent of the groundwater plumes.

### 15.2 Status of Groundwater Land Use Controls

Section 5.1.2 (Institutional Actions) of the *Groundwater Interim Record of Decision for the NEWIOU* (URS, 1997) describes the land use controls on NEWIOU groundwater sites, and section 5.6 (Land Use Restrictions) of the *Groundwater Interim Record of Decision for the WABOU* (Travis AFB, 1999) describes the land use controls on WABOU groundwater sites. These controls are designed to restrict use of the contaminated groundwater as well as soil excavation and other subsurface work where base and contractor personnel may encounter contaminated groundwater or vapors. These subsurface activities are only allowed after environmental and worker safety control measures are in place.

Additionally, in September 2008, the RPM placed a memorandum in the Travis AFB Administrative Record that documents the land use controls that are currently in place for the groundwater sites. The memorandum indicates that additional land use controls will be incorporated into the base General Plan to restrict on-base development of water supply wells and consumption of contaminated water. The memorandum also documents the government's rights under its easements to prevent residential development and well drilling activities on the off-base properties covered by its easements. Finally, the memorandum documents the notification protocols in the event of transfer of any property subject to land use controls. Appendix C contains a copy of this memorandum.

Travis AFB obtains its drinking water from two sources: a water treatment facility that is owned and operated by the City of Vallejo and a group of deep groundwater production wells at the Cypress Lakes Golf Course. As a result, the base does not use its groundwater for either domestic or industrial use. It does use treated groundwater to recharge Duck Pond, an on-base recreational area.

The Travis AFB General Plan describes the presence of groundwater contaminants and the restrictions on development of water supply wells and consumption of contaminated water. Travis AFB will amend its General Plan to document any additional land use restrictions once the final remedies are selected in the upcoming basewide groundwater ROD.

The 2009 inspection did not include a visit to all groundwater sites. The three off-base easements were inspected to verify that no residential development or well drilling activities other base remedial activities had taken place. For the on-base sites, a records review revealed no drinking water wells have been constructed.

The remaining controls are procedural in nature and are based on the administrative and worker safety tasks that base personnel and contractors must complete to obtain permission to excavate soil as part of a construction or repair project. There are no physical controls associated with these groundwater restrictions that can be inspected. Section 4.1.2 (Institutional Controls on Groundwater Use) of the *Second Five-Year Review Report* (CH2M HILL, 2008) provides a detailed description of the implementation of groundwater land use controls.

There were a number of site characterization field activities at various groundwater sites that took place throughout the dry season. Along with the other field activities that were mentioned in previous sections, the average number of site visits by the Travis AFB environmental project managers ranged from once a week to once every few months.

## 16.0 Conclusion and Summary of Findings

---

On 24 December 2009 and again on 04 January 2010, base representatives from the 60th Civil Engineer Asset Management Flight conducted a formal inspection of the LUCs at twelve soil and sediment ERP sites on Travis AFB. The twelve sites are designated as FT005, SS015, SS016, ST032, SD033, SD037, DP039, SD043, LF044, SS046, SD001 and portions of LF007. This inspection complies with section 5.4 (Land Use Controls) of the WABOU Soil ROD and section 5.4 (Land Use Controls [LUC]) of the NEWIOU SSSW ROD.

The inspection team found the controls at the twelve soil and sediment sites to be in place and effective at restricting land use to industrial purposes only or protecting ecological receptors. There is no evidence that any unauthorized land uses or unauthorized soil/sediment disturbances in the controlled areas took place in 2009. Other than the CAMU portion of LF007, the inspectors did not identify any sites where the addition of physical barriers could improve land use control management. Site SD045 was one of four sites that achieved unrestricted cleanup levels during the 2007 construction season, and the base removed the environmental controls from this site in 2008.

The inspectors noted the slight degradation of the physical controls at LF044 as a result of the base response to a brush fire in October 2008 and a broken tree branch. Repairs and potential upgrades to the physical controls at LF044 will be scheduled in 2010 as part of a basewide LUC maintenance project. In addition, an additional layer of physical controls (most likely a second fence and set of access gates) will be designed and built around the CAMU to improve controlled access to this soil repository and eventually allow the CAMU to enter a future Long-Term Monitoring phase with agency concurrence.

The inspectors noted that the lead-contaminated surface soil that required the placement of land use controls at site DP039 had been completely excavated as part of an unrelated groundwater cleanup demonstration project (bioreactor). The footprint of the bioreactor completely covered the controlled area, so the bioreactor construction also removed the need for soil land use controls at this site. The base will document the excavation and disposal of the lead-contaminated soil in a future report on the performance evaluation of the bioreactor. The base will maintain the DP039 land use controls until the regulatory agencies have had the opportunity to review this report, accept its contents, and approve the removal of this remedy. The inspectors also noted that Building 755 (the former battery and electric shop) had been demolished. There are no current plans for future construction at this site.

As in 2008, the 2009 inspection did not include a visit to all groundwater sites. The three off-base easements were inspected to verify that no residential development or well drilling activities other base remedial activities had taken place. For the on-base sites, a records review revealed no drinking water wells have been constructed. The remaining controls are procedural in nature and are based on the tasks that base personnel and contractors must complete to obtain permission to excavate soil as part of a construction or repair project. There are no physical controls associated with these groundwater restrictions that can be inspected.



As described in section 2.1, changes to the web-based Travis AFB General Plan (GP) have reduced its usefulness in supporting LUC management, and some of the GP information is outdated. The Asset Management Flight has contacted the web site designer in order to restore the links to the site-specific data files and LUC descriptions and to update the content of the restoration portion of the GP. To verify that the appropriate changes have been made to this web-based document, the Restoration Branch will conduct a second inspection of the Travis AFB GP in the June/July 2010 timeframe and report the results to the regulatory agencies both during the next scheduled monthly meeting and in the 2010 Annual Land Use Control report.

## 17.0 Works Cited

---

CH2M HILL, 1997. Final *Remedial Investigation Report* (Volumes 1-4). West/Annexes/ Basewide Operable Unit. Installation Restoration Program. 60th Air Mobility Wing, Travis Air Force Base, California. May.

CH2M HILL, 1999. Final *Groundwater Interim Record of Decision for the West/Annexes/Basewide Operable Unit*. Installation Restoration Program. Travis Air Force Base, California. June.

CH2M HILL, 2000. Final *Reevaluation of Soil and Groundwater Contamination at Building 916 (SD043)* Technical Memorandum. Installation Restoration Program. Travis Air Force Base, California. February.

CH2M HILL, 2002. Final *Design Report and Post-Construction Maintenance Plan for the LF007 Soil Remedial Action*. Installation Restoration Program. Travis Air Force Base, California. August.

CH2M HILL, 2008. Final *Second Five-Year Review Report*. Environmental Restoration Program. Travis Air Force Base, California. September

CH2M HILL, 2009. Final *Sustainable Bioreactor Demonstration Work Plan Site DP039*. Travis Air Force Base, California. January.

Environmental Chemical Corporation, 2003. Final *Remedial Action Report for Soil Remedial Actions at Site LF044*. Environmental Restoration Program. Travis Air Force Base, California. October.

Environmental Chemical Corporation, 2003. Final *Remedial Action Report for Soil Remedial Actions at Site RW013*. Environmental Restoration Program. Travis Air Force Base, California. August.

Environmental Chemical Corporation, 2003. Final *Remedial Action Report for Soil Remedial Actions at Site SS041*. Environmental Restoration Program. Travis Air Force Base, California. August.

Environmental Chemical Corporation, 2003. Final *Remedial Action Report for Soil Remedial Actions at Site LF044*. Environmental Restoration Program. Travis Air Force Base, California. October.

Radian, 1995. Final *Remedial Investigation Report for the North Operable Unit*. Installation Restoration Program. Travis Air Force Base, California. July.

Shaw Environmental and Infrastructure, 2003. Final *Project Summary Report for the LF007 Soil Remedial Action Phase 1, Landfill Cap, Corrective Action Management Unit Subgrade*,

*Wetlands Mitigation*. Environmental Restoration Program. Travis Air Force Base, California. September.

Shaw Environmental and Infrastructure, 2004. *Final Project Summary Report for the Site LF007 Phase 2 Soil Remedial Action*. Environmental Restoration Program. Travis Air Force Base, California. April.

Shaw Environmental and Infrastructure, 2008. *Final North, East, and West Industrial Operable Unit and West/Annexes/Basewide Operable Unit Soil Remedial Action for Sites SD045, FT003, FT004, FT005, Union Creek SD001 and SD033, and LF007 Area E Report*. Environmental Restoration Program. Travis Air Force Base, California. September.

Travis Air Force Base, 2002a. *Final Soil Record of Decision for the WABOU*. Installation Restoration Program. Travis Air Force Base, California. December.

Travis Air Force Base, 2002b. *Final Travis AFB General Plan*. Travis Air Force Base, California.

Travis Air Force Base, 2004. *Final Annual Report on the Status of Land Use Controls on Restoration Sites*. Environmental Restoration Program. Travis Air Force Base, California. January.

URS Corporation, 1997. *Final Groundwater Interim Record of Decision for the North, East, West Industrial Operable Unit*. Installation Restoration Program. Travis Air Force Base, California. December.

URS Corporation, 2002a. *Final Basewide Soil Remedial Design/Remedial Action Plan*. Installation Restoration Program. Travis Air Force Base, California. June.

URS Corporation, 2002b. *Final LF044 Soil Remedial Design Package*. Installation Restoration Program. Travis Air Force Base, California. July.

URS Corporation, 2004. *Summary of Remedial Investigation Data and Risk Management Decisions for Human Health at NEWIOU Soil Sites*. Environmental Restoration Program. Travis Air Force Base, California. October.

URS Corporation, 2005. *Final North/East/West Industrial Operable Unit Ecological Technical Memorandum*. Environmental Restoration Program. Travis Air Force Base, California. September.

URS Corporation, 2006. *Final North/East/West Industrial Operable Unit Soil, Sediment, and Surface Water Record of Decision*. Environmental Restoration Program. Travis Air Force Base, California. May.

**Appendix A**

**Base General Plan Screen Shots**

## 1. Base General Plan

The Base General Plan (GP) is actually a web site on the Travis AFB Intranet that received a make-over in the 2008-2009 timeframe. The main page of the GP introduces the viewer to the GP and provides a table of contents for easy access to its components. The Component Plan Overview provides key base decision-makers with the primary source for development information at Travis Air Force Base (AFB). Each page contains hypertext links, interactive maps, photographs and graphics, and links to supporting source documentation, database files, and Travis and non-Travis websites. It summarizes information from a variety of sources to provide decision-makers with an understanding of the character, structure, and development potential of the installation.

Because of security concerns and its importance to the base mission, only personnel on the Travis AFB Intranet are authorized to access this intranet website.



## 2. Composite Constraints and Opportunities

All data on land use restrictions on Travis AFB that are due to the presence of soil contaminants in concentrations above residential cleanup levels can be accessed via the Composite Constraints and Opportunities section of the CPIC. By scrolling down the page, the reviewer can identify three categories of constraints: Natural & Cultural, Environmental, and Operational (not shown). An Installation Restoration Program (IRP) Sites link takes the reviewer to the sites section.

The Composite Constraints and Opportunities section describes the IRP Sites link as the only Environmental Constraint that prohibits certain development in affected area of Travis AFB.

The screenshot shows a web browser window displaying the Travis AFB Automated General Plan. The page is titled "Travis AFB Automated General Plan" and includes a navigation bar with links: "AMC IPT Home", "Table of Contents", "Search", "View Entire Document", and "Admin". The "Table of Contents" link is selected, showing a list of sections: "View Commander's Summary", "INTRODUCTION", "INSTALLATION AND VICINITY PROFILES", "COMPONENT PLAN OVERVIEW", "PLAN MAINTENANCE AND REVISION", "AREA DEVELOPMENT PLANS", "REFERENCES", and "ACKNOWLEDGMENTS". The "CONSTRAINTS AND OPPORTUNITIES" section is highlighted, and the "4A.1 Introduction" subsection is visible. Below the introduction, "Table 4A-1: Rating Categories and Explanation" is displayed, showing three rating categories: "Not a constraint to development" (green circle), "Minor constraint: development permitted in affected area with consideration/mitigation" (yellow circle), and "Major constraint: prohibits certain development in affected area of Travis AFB" (red circle). Below this, "Table 4A-2: Development Constraints Matrix for Travis AFB" is mentioned, with a link to view the matrix.

UNCLASSIFIED

Travis AFB General Plan - Microsoft Internet Explorer provided by USAF

https://a7ims.amc.af.mil/general\_plan/index.asp?base\_id=58&cs=false

Travis AFB General Plan

Travis AFB  
Automated General Plan  
Last Updated: 7/19/2009 7:12:09 PM

AMC IPT Home Table of Contents Search View Entire Document Admin

**Table of Contents**

[View Commander's Summary](#)

Click on the "+" to expand. Click on the link to jump to that location in the document.

- + [INTRODUCTION](#)
- + [INSTALLATION AND VICINITY PROFILES](#)
- + [COMPONENT PLAN OVERVIEW](#)
- + [PLAN MAINTENANCE AND REVISION](#)
- + [AREA DEVELOPMENT PLANS](#)
- + [REFERENCES](#)
- + [ACKNOWLEDGMENTS](#)

**CONSTRAINTS AND OPPORTUNITIES**

**4A.1 Introduction**

In order to best assess development potential at Travis AFB, all the pertinent constraints must be reviewed. This section identifies and assesses the natural, cultural, environmental, and operational factors that may impact Travis AFB facility development. To assist in the planning process, constraints discussed in this section have also been rated as to the degree of impact they have on future development. Table 4A-1 provides an explanation of these ratings via a 'stoplight' graphic that appears next to each constraint.

**Table 4A-1: Rating Categories and Explanation**

Rating	Explanation
	Not a constraint to development
	Minor constraint: development permitted in affected area with consideration/mitigation
	Major constraint: prohibits certain development in affected area of Travis AFB

**Table 4A-2: Development Constraints Matrix for Travis AFB**  
Click on the item to link to that sub-section

Done Trusted sites | Protected Mode: Off 100% 3:13 PM

### 3. Table 4A-3 ERP Sites

The ERP Sites link takes the reviewer to Section 4A.3.4 (Environmental Restoration Program [ERP]). This section provides a summary of the ERP, its history, and a table with links to all ERP sites. Table 4A-3 also provides a brief description of the land use control status at each site.

The screenshot shows a web browser window displaying the Travis AFB Automated General Plan. The page has a blue header with the Travis AFB logo and the text "Travis AFB Automated General Plan" and "Last Updated: 7/19/2009 7:12:09 PM". Below the header is a navigation bar with links: "AMC IPT Home", "Table of Contents", "Search", "View Entire Document", and "Admin". The "Table of Contents" link is selected, and the page displays a list of links under the heading "Table of Contents". The links are: "View Commander's Summary", "Click on the '+' to expand. Click on the link to jump to that location in the document.", "INTRODUCTION", "INSTALLATION AND VICINITY PROFILES", "COMPONENT PLAN OVERVIEW", "PLAN MAINTENANCE AND REVISION", "AREA DEVELOPMENT PLANS", "REFERENCES", and "ACKNOWLEDGMENTS". To the right of the links, there is a section titled "Table 4A-3 below and the ERP document summarizes information on the Travis AFB ERP sites." Below this text is a table titled "Table 4A-3: ERP Sites". The table has four columns: "ERP Site #", "Site Name", "Acres", and "Constraints". The table lists six sites: SD001 (Union Creek Storm Sewer System, 21.6 acres), FT002 (Fire Training Area 1, 6.9 acres), FT003 (Fire Training Area 2, 10.6 acres), FT004 (Fire Training Area 3, 62.8 acres), FT005 (Fire Training Area 4, 61.4 acres), and LF006 (Landfill 1, 32.2 acres). The constraints for each site are: "Site is the creek and associated surface waters. Need for site cleanup is being evaluated.", "Need for site cleanup is being evaluated.", "Site is within airfield clearance zone. Need for site cleanup is being evaluated.", "Site is within airfield clearance zone. Need for site cleanup is being evaluated.", "Need for site cleanup is being evaluated.", and "Need for site cleanup is being evaluated." respectively.

ERP Site #	Site Name	Acres	Constraints
SD001	Union Creek Storm Sewer System	21.6	Site is the creek and associated surface waters. Need for site cleanup is being evaluated.
FT002	Fire Training Area 1	6.9	Need for site cleanup is being evaluated.
FT003	Fire Training Area 2	10.6	Site is within airfield clearance zone. Need for site cleanup is being evaluated.
FT004	Fire Training Area 3	62.8	Site is within airfield clearance zone. Need for site cleanup is being evaluated.
FT005	Fire Training Area 4	61.4	Need for site cleanup is being evaluated.
LF006	Landfill 1	32.2	Need for site cleanup is being evaluated.

#### 4. Site LUC Maintenance Instructions

In the past, a click on a site link in Table 4A-3 opened up a PDF file of the LUC Maintenance Instructions for that site. This file presented background information, site descriptions, an explanation of the physical or administrative controls at the site, restricted activities, authorized activities, inspection requirements, and reporting requirements. This file also provided a map and a photograph of the controlled area.

An inspection of Table 4A-3 revealed that most of the links to the LUC maintenance instructions were no longer available. As a result, a base project manager can gain access to this information only by contacting the Asset Management Flight or by obtaining the information when submitting an AF Form 813 (Request for Environmental Impact Analysis) or a base excavation permit.

Appendix A of the *Annual Report on the Status of Land Use Controls on Restoration Sites* (Travis AFB, 2004) contains a copy of the original Appendix E of the Base General Plan that presented LUC data for WABOU sites. Reviewers without access to the Travis AFB Intranet can still review examples of the information provided in the maintenance instructions.



## **Appendix B**

### **Photographs**



Photograph 1: Controlled Area at SS015.



Photograph 2: Controlled Area at SS016.



Photograph 3: Warning Sign at Controlled Area on East Side of SD033 (soil).



Photograph 4: Warning Sign at Controlled Area on West Side of SD033 (soil).





Photograph 5: Controlled Area on Southeast Side of SD037



Photograph 6: Controlled Area on Southwest Side of SD037



Photograph 7: Controlled Area at DP039 (Post Bioreactor Construction)



Photograph 8: Sign near East Side of Installed Generator at SD043





Photograph 9: Generator Pad and Warning Signs at SD043. Stanchion of Former Pad with Leaking Transformers is visible in the foreground.



Photograph 10: Warning Signs at LF044 Entrance near the North Access Gate.





Photograph 11: West Side of LF044 Fence.



Photograph 12: Broken Fence Strand on South Side of LF044.





Photograph 13: Warped Warning Sign.



Photograph 14: Fencing and Berm on East Side of LF044.





Photograph 15: Warning Sign at West Side of SS046.



Photograph 16: Warning Sign at East Side of SS046.





Photograph 17: Top of CAMU Phase 3 (Northwest End).



Photograph 18: Top of CAMU Phase 3 (Southeast End).





Photograph 19: Warning Sign at CAMU Phase 3 Entrance.



Photograph 20: Controlled Area at FT005.





Photograph 21: Controlled Area at Sediment Portion of SD033 After Cleanup.



Photograph 22: Controlled Area at SD001 After Cleanup.

## **Appendix C**

### **Memorandum on Institutional Land Use Controls at Travis AFB Groundwater Sites**





**DEPARTMENT OF THE AIR FORCE**  
**60TH CIVIL ENGINEER SQUADRON (AMC)**

21 October 2008

**MEMORANDUM FOR RECORD**

**FROM:** 60 CES/CEAO  
411 Airmen Drive  
Travis AFB CA 94535-2001

**SUBJECT:** Institutional Land Use Controls at Travis Air Force Base Groundwater Sites

1. This memorandum documents the land use controls for all Travis AFB groundwater sites that are described in the final Groundwater IROD for the NEWIOU (Travis AFB, 1998) and the final Groundwater IROD for the WABOU (Travis AFB, 1999). The current land use controls are detailed in the base General Plan. Additional land use controls will be incorporated into the base General Plan to restrict on base development of water supply wells and consumption of contaminated groundwater. Regarding enforcement of land use controls at the off-base plumes, Travis AFB purchased long-term easements that grant access rights to the United States, its representatives, agents, and contractors for the purpose of conducting an environment response on the properties. The easements restrict the landowners from interfering or abridging the exercise of the government's rights under the easements. Actions such as residential development and any well drilling on the properties covered by the easements would interfere with the government's easements and appropriate action to prevent such interference would be taken. Actions to extend those easements will also be taken as necessary. Further, Solano County Ordinance, Chapter 13.10, makes it a misdemeanor to construct a well without a Solano County permit and requires the permit requester to notify the County of all wells within a 100 foot radius of the proposed well site. Given the number of monitoring and extraction wells the government is operating on the easements, this ordinance insures Travis AFB will be notified of a landowner's well drilling plans.

2. Consistent with the land use controls in the NEWIOU SSSW ROD, whenever the Air Force transfers real property that is subject to land use controls and resource use restrictions to another federal agency, the transfer documents shall require that the federal transferee include the land use controls and applicable resource use restrictions in its resource use plan or equivalent resource use mechanism. The Air Force shall advise the recipient federal agency of all controls and restrictions, including an obligation to execute and record a land use covenant in accordance with 22 CCR Section 67391.1 in the event the federal agency transfers the property to a non-federal entity. Whenever the Air Force proposes to transfer real property subject to resource use restrictions and institutional controls to a non-federal entity, it will provide information to that entity in the draft deed and transfer documents regarding necessary resource use restrictions and land use controls, including the obligation that a State Land Use Covenant will be executed and recorded, pursuant to 22 CCR Section 67391.1. The signed deed will include land use controls and resource restrictions equivalent to those contained in the State Land Use Covenant and

actually in place at the time of transfer. The Air Force will provide notice to the U.S. EPA and the State at least 6 months prior to any transfer or sale of the site at issue so that the U.S. EPA and the State can be involved in any discussions to ensure that appropriate provisions are included in the transfer terms or conveyance documents to maintain effective land use controls. If it is not possible for the facility to notify the U.S. EPA and the State at least 6 months prior to any transfer or sale, then the facility will notify the U.S. EPA and the State as soon as possible, but no later than 60 days prior to the transfer or sale of any property subject to land use controls. In addition to the land transfer notice, the Air Force agrees to provide the U.S. EPA and State with similar notice, within the same time frames, as to federal to federal transfer of property. The Air Force shall provide a copy of the executed deed or transfer assembly to the U.S. EPA and the State.

3. To the extent not already included, these restrictions will be incorporated into the appropriate planning documents. In addition, this letter will be placed in the administrative record files as a minor change to the WABOU and NEWIOU Groundwater Interim Records of Decision.

A handwritten signature in black ink, appearing to read "Mark H. Smith", with a long horizontal flourish extending to the right.

MARK H. SMITH  
Chief, Asset Optimization

cc:

James Chang, EPA

Jose Salcedo, DTSC

Alan Friedman, RWQCB

Travis AFB ERP Administrative Record