

TRAVIS AIR FORCE BASE  
ENVIRONMENTAL RESTORATION PROGRAM

---

**ANNUAL REPORT  
ON THE STATUS OF  
LAND USE CONTROLS  
ON RESTORATION SITES  
IN 2005**

FINAL



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

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FEBRUARY 2006



**DEPARTMENT OF THE AIR FORCE**  
**60<sup>TH</sup> CIVIL ENGINEER SQUADRON (AMC)**

MEMORANDUM FOR DISTRIBUTION

9 February 2006

FROM: 60 CES/CEV  
411 Airmen Drive  
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SUBJECT: Annual Report on the Status of Land Use Controls on Restoration Sites in 2005

1. The attached report documents the status of Land Use Controls (LUCs) at six restoration sites on Travis AFB. Travis AFB established these controlled areas to comply with the requirements of the West/Annexes/Basewide Operable Unit Soil Record of Decision (ROD). The report states the findings made by Travis AFB personnel during the 2005 annual inspection of all six sites. Both the inspection and report meet the LUC requirements as presented in the ROD.

2. If you have any questions concerning this report, please contact Mr. Mark Smith at (707) 424-3062.

A handwritten signature in black ink, appearing to read "Wayne M. Williams", is written over a horizontal line.

WAYNE M. WILLIAMS, GS-13, DAF  
Chief, Environmental Flight

Attachments:

1. Distribution List
2. Annual Report on the Status of Land Use Controls on Restoration Sites in 2005

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ENVIRONMENTAL RESTORATION PROGRAM**

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LAND USE CONTROLS  
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IN 2005**

**Final**

**Submitted by:**

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

**Prepared by**

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**January 2006**



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# List of Acronyms and Abbreviations

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<b>AFB</b>	Air Force Base
<b>AFCEE</b>	Air Force Center for Environmental Excellence
<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

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The *Soil Record of Decision (ROD) for the West/Annexes/Basewide Operable Unit (WABOU)* (Travis AFB, 2002) is the legal document that describes the selected remedies for nine Environmental Restoration Program (ERP) sites on Travis Air Force Base (AFB) and the completion of cleanup requirements at a tenth ERP site. Alternative S2 (Land Use and Access Restrictions) is the selected remedial alternative for the nine sites. Alternative S2 includes the administrative and physical measures needed to restrict future land use and ensure the effectiveness of the remedy at all nine sites.

The remedial action objective of Alternative S2 for all nine sites is to restrict site access to prohibit residential use of the property, especially use for day care, at sites where residential cleanup values are not attained. For sites where contaminated soil is not being excavated and backfilled with clean soil, an additional objective is to prevent surface-disturbing activities that could create a risk of human exposure inconsistent with the assumptions described in the ROD.

For four ERP sites (DP039, SD043, LF044, and SS046), Alternative S2 is the only selected remedy. For the remaining five sites (LF008, RW013, SS041, SD042, and SD045), the ROD selected an active remedy and Alternative S2. 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 to industrial uses only. Section 5.4 (Land Use Controls) of the ROD describes these requirements in more detail.

If the active remedy reduces contaminant concentrations to residential cleanup levels, then the site is available for unrestricted access, and there would be no need for Land Use Controls (LUCs). The ROD states that the requirements pursuant to Alternative S2 will be deleted for a site in the event that the soil excavation achieves the residential cleanup levels for all chemicals of concern at the site. In 2002 and 2003, Travis AFB conducted soil excavations at LF008, RW013, SS041, and SD042; and all four excavations achieved residential cleanup levels. As a result, the base has not placed LUCs at these four sites. The soil excavation at SD045 has been delayed until 2007, so land use controls are in place at this site.

One of the remedies (Alternative S6) consists of excavation and placement of contaminated soil in a Corrective Action Management Unit (CAMU). 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 North/East/West Industrial Operable Unit (NEWIOU).

On 29 December 2005, Mr. Glenn Anderson and Mr. Steve Stopher from the 60th Civil Engineer Environmental Flight conducted a formal inspection of the LUCs at six ERP sites on Travis AFB. The six sites are designated as DP039, SD043, LF044, SD045, SS046, and LF007. This report serves as the official record of the results of the 2005 inspection.



The following list provides a brief summary of the organization and content of the 2005 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 – Building 755 (DP039). Describes the environmental conditions at Building 755 and the status of LUCs at that site.
- Section 4.0 – Building 916 (SD043). Describes the environmental conditions at Building 916 and the status of LUCs at that site.
- Section 5.0 – Landfill X (LF044). Describes the environmental conditions at Landfill X and the status of LUCs at that site.
- Section 6.0 – Former Small Arms Range (SD045). Describes the environmental conditions at the Former Small Arms Range and the status of LUCs at that site.
- Section 7.0 – Railhead Munitions Staging Area (SS046). Describes the environmental conditions at the Railhead Munitions Staging Area and the status of LUCs at that site.
- Section 8.0 – Landfill 2 (LF007). Describes the environmental conditions at the CAMU portion of this closed municipal landfill and the status of its LUCs.
- Section 9.0 – Conclusion and Summary of Findings. Summarizes the third year of managing LUCs in the WABOU.
- Section 10.0 – Works Cited. Lists the documents used in the development of this annual report.

## Appendices

- Appendix A – Photographs. Shows photographs of sites with LUCs.

## 2.0 Performance Measures

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Section 5.4 (Land Use Controls) of the WABOU Soil 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, the ROD describes four 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 the 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 were completed in November 2003 and consist of two parts. The first part updated the existing text to incorporate the LUC concept and how it impacts future property development. The following GP sections were revised:

- Section 2.3.2 (Future Use of ERP Sites) – definitions for the WABOU Soil ROD and LUCs and a description of the impact of LUCs on future development were added.
- Section 4.2.2.4 (RCRA, ERP, and Toxic Substances) – minor text updates were made.
- Table on Page 4-35 – this is a table of all ERP sites and the constraints that they impose. This table was updated to incorporate the selected remedies that are promulgated in the WABOU Soil ROD.
- Section 4.2.4.2 (Installation Opportunities) – minor text updates were made.

The second part consists of a new Appendix E (Land Use Controls) for the GP. Appendix E discusses LUCs in depth and provides a detailed description of the specific controls required at each site. It also lists the responsibilities of base personnel and organizations in maintaining LUCs. An individual attachment for each site contains the site-specific LUC maintenance instructions. Each attachment contains a site map and a recent photograph of the controlled area. The 60th Civil Engineer Environmental Flight will prepare an attachment for each site whenever a soil remedial action is completed and the need for LUCs is identified. Appendix A of the *Annual Report on the Status of Land Use Controls on Restoration Sites* (Travis AFB, 2004) contains the new Appendix E of the Travis AFB GP.

During the 2003 LUC inspection, the reviewers noted that Travis AFB had updated the GP during the period that the draft final WABOU Soil ROD was awaiting signature by all Federal Facility Agreement signatories. As a result, the specific GP sections that are listed in the second paragraph of section 5.4.1 of the WABOU Soil ROD had changed. However, the GP revisions that are described above meet the intent of the requirements of section 5.4.1 of the ROD.

Prior to the 2004 LUC inspection, the reviewers learned that the GP is undergoing a significant upgrade. The new GP will be entirely web-based and will be located on the Travis AFB Intranet, so it will only be accessible to personnel with authorization to use the Travis AFB local area network. HB&A, Inc. is the contractor that was selected to create the new web interface. They began in September 2004 and have completed about 90% of the web site construction. Internal review and revision will begin in February 2006, and final approval of the new GP format and content by the base is scheduled for March 2006. The Environmental Flight will assist in the testing of the new GP.

The Environmental Flight views the web-based GP as a major advancement in base planning and an improved tool for LUC management. Along with the goal of bringing the GP into compliance with recent Air Force policy directives, the web-based version will be much easier to update, will increase emphasis on planning rather than its current reference-book appearance, and will provide 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 will allow users to identify and show LUC restrictions in planning documents for future construction activities with greater ease and accuracy. Even though this project is not a part of the Environmental Restoration Program, it will serve to enhance Travis' ability to track and enforce its LUC restrictions.

## **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 the use restrictions and assumptions described in the WABOU Soil ROD, 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 the six sites that are addressed in this report, there were no land use change proposals or activities in 2005 that were inconsistent with, disruptive of or negated the need for LUCs. Also, no property transfers took place in the vicinity of the six sites.

## **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 Environmental 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 Environmental Flight is able to verify that environmental issues pertaining to the proposed project are properly considered and addressed.

During the 2005 LUC inspection, the reviewers noted that all LUCs at the six 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 2005, 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 the WABOU Soil ROD. 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 ROD provides the flexibility to select a different monitoring schedule as long as all parties agree with it and if the change reasonably reflects the risk presented by the site.

The 60th Civil Engineer Environmental Flight has an environmental field manager who checks on the status of various environmental and construction projects on a frequent basis. Also, the Environmental Flight project managers conduct site visits routinely to support a variety of environmental activities. As a result, site visits take place on at least a quarterly and often more frequent basis. 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 ROD requires the following measures at some sites:

### **2.5.1 Signs**

Specific sites as mutually agreed among the Remedial Project Managers will have appropriate signs on display to warn site visitors of potential hazards associated with surface soil contamination.

In 2003, Travis AFB placed signs at all WABOU sites with LUCs. Appendix A (Photographs) presents photographs taken during the 2005 inspection that show the signs at each LUC site.

## 2.5.2 Use of Clean Soil

At the five 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.

In 2002 and 2003, Travis AFB conducted soil cleanup actions at four of the five ERP sites that are addressed in the ROD. They are LF008, RW013, SS041, and SD042. All four actions achieved residential cleanup levels, 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).

## 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).

Travis AFB has not yet begun to use the Landfill X area for heavy equipment training and the temporary staging of construction debris. There are other safety and natural resource considerations to be resolved prior to the reestablishment of these activities. Before training and material staging takes place on this property, the base will verify that it is in compliance with all OSHA regulations.

## 2.5.4 Report Submittal

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.

Travis AFB has met this requirement through the submission of this report. 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 Travis AFB Environmental Web Site. 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 Building 755 (DP039)**

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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.

### **3.1 Environmental Conditions**

Surface soil around the edges of the former sump area contains lead residue. 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.

### **3.2 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 the use of this small area to industrial activities only.

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 use of the contaminated soil for playground or other play activities. The LUCs for DP039 are described in detail in Attachment 1 of Appendix E of the Base General Plan. Appendix A of the *Annual Report on the Status of Land Use Controls on Restoration Sites* (Travis AFB, 2004) contains a copy of this attachment.

The 2005 inspection of the LUCs at DP039 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 lead-impacted soil has been disturbed. Photograph 1 in Appendix A of this report shows the controlled area at DP039. The warning sign in the vicinity of the LUC area that ensures that visitors and occupants of Building 755 are aware of the presence of LUCs can be seen in the background. There are identical signs in the other LUC areas in the WABOU.



## 4.0 Building 916 (SD043)

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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.

### 4.1 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 the groundwater sampling effort.

### 4.2 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 the use of this small area to industrial activities only. 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 detail in Attachment 2 of Appendix E of the Base General Plan. Appendix A of the *Annual Report on the Status of Land Use Controls on Restoration Sites* (Travis AFB, 2004) contains a copy of this attachment.

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 GP, and the Environmental Flight will ensure that the new footprint becomes a part of the GP upgrade, as described in section 2.1.

The 2005 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 2005. Photograph 2 in Appendix A shows the east side of the generator and pad south of Building 916, and photograph 3 shows the warning signs in relation to the west side of the controlled area at SD043.

The inspectors noted the improvements to the signs that were completed in early 2005 by Shaw E&I. This environmental contractor placed an additional sign on the southeast side of Building 916. The sign is identical in appearance to the existing two signs and ensures that base workers who approach the site from the east are aware of the presence of the LUC restrictions. Shaw E&I also attached one of the existing signs to a more durable post and used larger anchor bolts to secure the second sign to the outer concrete wall of the building.

## 5.0 Landfill X (LF044)

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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 site is located within a field that meets important worker safety training and construction needs on Travis AFB. The soil contaminants are attributed to the asphalt and other construction debris that are stockpiled onsite.

### 5.1 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 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.

### 5.2 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 the use of this small area to industrial activities only. 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 LF044 LUCs are described in detail in Attachment 3 of Appendix E of the Base General Plan. Appendix A of the *Annual Report on the Status of Land Use Controls on Restoration Sites* (Travis AFB, 2004) contains a copy of this attachment.

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.

#### 5.2.1 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 2005 inspection of the LUCs at LF044 found the fence and signs to be in excellent physical condition. There is no evidence to suggest that the property is being used for other than industrial purposes. Both gates were locked, and the Environmental Flight keeps a copy of the keys. Photograph 4 of Appendix A shows the warning sign at the north access gate, and photograph 5 shows the warning signs on the fence and behind the south access gate. Shaw E&I installed the sign behind the south access gate in early 2005. The gates are in excellent physical condition, and warning signs at each gate are clearly visible.

### 5.2.2 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 2005 inspection of the LUCs at LF044 found the berm to be in excellent physical condition. Small amounts of native grass have begun to grow over portions of the berm, which serves to increase its cohesiveness. There was no evidence of damage to the berm from base activities. Photographs 6, 7 and 8 of Appendix A were taken during the inspection of the LF044 berm.

## **6.0 Former Small Arms Range (SD045)**

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The Former Small Arms Range comprises 2.8 acres of flat, grassy terrain in the southwest corner of the base. No traces of previous firing range activities are visible, and the presence of the site was identified from an inspection of historical photographs. The range was used for small arms training until the mid-1970's, when it was decommissioned to support the construction of an ammunition loading pad.

Currently, the former range is part of a Grazing Management Unit (GMU) which is leased to private cattle owners to graze their stock. The GMU is surrounded by animal fences, and access is controlled through a gate. Periodically the site is disked to create fire breaks.

### **6.1 Environmental Conditions**

Lead is the main contaminant at this site, both in surface and subsurface soil. Other chemicals of ecological concern in surface soil are antimony and copper. Sections 4.10.7 and 4.10.8 of the WABOU RI report present a detailed description of the human health and ecological risk assessments for the Former Small Arms Range, respectively.

### **6.2 Status of SD045 Land Use Controls**

Section 5.3.7 of the WABOU Soil ROD states that Alternative S6 (Excavation/On-base Consolidation) is the selected remedial action for this site. Alternative S5 (Excavation/Off-base Disposal) is the selected contingency remedy for soil that exceeds the CAMU acceptance criteria.

Alternative S2 (Land Use and Access Restrictions) is also a selected remedial action for the site. However, it will not be implemented if Alternative S6 achieves the residential cleanup values as presented in the ROD. The purpose of Alternative S2 is to restrict the use of the site to industrial activities only.

The soil cleanup of SD045 had been scheduled for the summer of 2003 along with several other remedial actions in the WABOU. However, the remedial action contractor for SD045 ran out of time to schedule the transport of all excavated soil from SD045 to the CAMU as well as funds to complete all tasks associated with this project. So, this soil action has been rescheduled for 2007. This is the earliest construction season in which the CAMU will be open to accept contaminated soil from NEWIOU soil sites. This construction season is contingent upon the finalization of the NEWIOU Soil, Sediment, and Surface Water ROD in 2006.

During the period leading up to the next scheduled construction season for soil cleanup actions, Travis AFB will maintain the current level of controls at SD045, since the property is not currently available for residential or many industrial uses. Once the SD045 soil cleanup action is complete, Travis AFB will update its GP to document the presence of metals in the soil and enforce restriction on residential land use, including day care center activities and for playground and other play activities, if needed.

The 2005 inspection of the LUCs at SD045 found that the existing controls are adequate to prevent unauthorized use of the property. There is no evidence that the metals-impacted soil has been disturbed. A sign at the entrance to the GMU notifies visitors and base workers of the presence of ecologically sensitive areas in the vicinity of SD045 as well as the controlled area. Photograph 9 of Appendix A of this report shows the access gate that leads to SD045.

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

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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.

### **7.1 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.

### **7.2 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 the use of this small area to industrial activities only.

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 use of the contaminated soil for playground or other play activities. The SS046 LUCs are described in detail in Attachment 4 of Appendix E of the Base General Plan. Appendix A of the *Annual Report on the Status of Land Use Controls on Restoration Sites* (Travis AFB, 2004) contains a copy of this attachment.

The 2005 inspection of the LUCs at SS046 found that administrative controls 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 10 of Appendix A of this report shows the east side of the controlled area at SS046, and photograph 11 shows the west side of the controlled area. Shaw E&I installed a second warning sign in the west side of the LUC area in early 2005 to improve the awareness of the controlled area by site visitors and base workers.



## 8.0 CAMU at Landfill 2 (LF007)

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LF007 is a closed municipal landfill that was active from the 1950s to 1974. It is a restoration site within the North/East/West Industrial Operable Unit (NEWIOU). It was selected as a favorable location for the construction of the Corrective Action Management Unit (CAMU).

The CAMU is being built in 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 field work for Phase 2 in November 2003. Phase 3 involves the placement of contaminated soil from NEWIOU sites into the CAMU and the completion of the CAMU cap. Based on the current schedule, field work for Phase 3 should begin in 2007.

### 8.1 Environmental Conditions

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 field work 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.

### 8.2 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. Travis AFB has applied land use controls to the CAMU to maintain its integrity and to prevent the site from being used for residential purposes. The Air Force is to restrict the use of the CAMU to limited industrial activities only.

The Travis AFB General Plan has been revised to document the presence of the CAMU and enforce the land use restriction. Travis AFB has also limited the industrial activities at LF007 to ensure that the integrity and function of the CAMU remains intact. The LUCs for the CAMU are described in detail in Attachment 5 of Appendix E of the Base General Plan. Appendix A of the *Annual Report on the Status of Land Use Controls on Restoration Sites* (Travis AFB, 2004) contains a copy of this attachment.

The 2005 inspection of the LUCs at the CAMU found that the current administrative and physical controls are adequate to enforce the restrictions. There is no evidence that the contaminated soil in the CAMU or the closed landfill has been disturbed. Photograph 12 in Appendix A of this report shows the warning sign that has been placed at the entrance to the

CAMU and the locking chain that controls access to LF007, and photograph 13 shows one of the four No Trespassing signs that mark the four corners of the CAMU.

## 9.0 Conclusion and Summary of Findings

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On 29 December 2005, base representatives from the 60th Civil Engineer Environmental Flight conducted a formal inspection of the LUCs at six ERP sites on Travis AFB. The six sites are designated as DP039, SD043, LF044, SD045, SS046, and LF007. This inspection complies with section 5.4 (Land Use Controls) of the WABOU Soil ROD.

The inspection team found the controls at the six sites to be in place and effective at restricting land use to industrial purposes only. Also, corrective measures at site SD043 in response to a 2003 construction project within its LUC area are in place and working as designed.

The LUC annual report for 2003 described several steps that the Environmental Flight took to improve upon the management of the LUCs at WABOU soil sites. The Flight has completed the following steps:

- The placement of warning signs at all WABOU sites with LUCs.
- Reemphasis with base personnel on the requirement to complete an AF Form 813 (Request for Environmental Impact Analysis) before an excavation permit is submitted for approval.
- Verification that maps used at excavation permit meetings clearly show all LUC sites on them.

As described in section 2.1, the GP is undergoing a major upgrade, and the Environmental Flight will be supporting the Base Community Planner's efforts to convert the GP into a web-based planning tool and database. This Geographical Information System-based format will improve the project manager's access and understanding of LUC data and the base's enforcement of LUC restrictions.

The 2005 inspection of the LUCs at the six ERP sites found that administrative controls are adequately enforcing the restrictions, so additional physical barriers are not needed. There is no evidence that any soil disturbances in the vicinity of the controlled areas took place in 2005. Additional signs for LUC sites SD043, LF044, and SS046 were installed by Shaw E&I in early 2005.

In 2006, Travis AFB expects to implement LUCs at several sites in the NEWIOU, assuming that the NEWIOU Soil, Sediment and Surface Water ROD is finalized in the April – May 2006 timeframe. The base will meet all LUC requirements that are presented in the NEWIOU ROD. The base also expects to complete its revision of the Base General Plan (GP), replacing the current paper version with a web-based format on the Travis Intranet. Although this work did not originate within the Travis AFB Environmental Restoration Program, it will improve the base's ability to track and enforce its LUC restrictions.

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**Appendix A**  
**Photographs**



Photograph 1: Controlled Area at DP039.



Photograph 2: Southeast Corner of Installed Generator at SD043.





Photograph 3: Generator Pad and Warning Signs at SD043. Stanchion of Former Pad with Leaking Transformers is visible in the foreground.



Photograph 4: Warning Signs at Entrance and on fence near the North Access Gate.



Photograph 5: Warning Signs on Fence and behind the South Access Gate.



Photograph 6: Start of LF044 Fencing and Berm.





Photograph 7: LF044 Berm, Facing East.



Photograph 8: LF044 Berm, Facing North.





Photograph 9: Fence Access to SD045. Warning sign is posted on gate entry.



Photograph 10: Warning Sign at East Side of SS046.





Photograph 11: Warning Sign at West Side of SS046.



Photograph 12: Entrance to Travis AFB CAMU.



Photograph 13: No Trespassing Sign at CAMU.