

TRAVIS AIR FORCE BASE
ENVIRONMENTAL RESTORATION PROGRAM

**ANNUAL REPORT
ON THE STATUS OF
LAND USE CONTROLS
ON RESTORATION SITES
IN 2014**

FINAL



Air Force Civil Engineer Center
Western Region Installation Support Team
Travis Air Force Base, California

MAY 2015

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Western Region Installation Support Team
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List of Acronyms and Abbreviations

AFB	Air Force Base
AFCEC	Air Force Civil Engineer Center
AFCEE	Air Force Center for Engineering and the Environment
ANSI	American National Standards Institute
BGP	Base General Plan
CAMU	Corrective Action Management Unit
CEMIRT	Civil Engineer Maintenance, Inspection and Repair Team
CERCLA	Comprehensive Response, Compensation, and Liability Act of 1980
COC	Chemical of Concern
COEC	Chemical of Ecological Concern
DCA	Dichloroethane
DCE	Dichloroethene
ECC	Environmental Chemical Corporation
EPA	U. S. Environmental Protection Agency
ERP	Environmental Restoration Program
GET	Groundwater Extraction and Treatment
GMU	Grazing Management Unit
GRISR	Groundwater Remedial Implementation Status Report
IDP	Installation Development Plan
IST	Installation Support Team
LUC	Land Use Control
LUCIP	Land Use Control Implementation Plan
MCL	Maximum Contaminant Level
MILCON	Military Construction
MNA	Monitored Natural Attenuation
NEWIOU	North/East/West Industrial Operable Unit
NOU	North Operable Unit
OSHA	Occupational Safety and Health Administration
OWS	Oil/Water Separator
PAH	Polycyclic Aromatic Hydrocarbon
PCB	Polychlorinated Biphenyl
POCO	Petroleum Only Contamination
POL	Petroleum, Oil, Lubricant
ppb	parts per billion
RA	Remedial Action
RD	Remedial Design
RI	Remedial Investigation
ROD	Record of Decision
RPM	Restoration Program Manager
SFPP	Santa Fe Pacific Pipeline
SSA	Solvent Spill Area
TCE	Trichloroethene
TPH	Total Petroleum Hydrocarbon
WABOU	West/Annexes/Basewide Operable Unit

1.0 Introduction

This Annual Report on the Status of Land Use Controls (LUCs) on Restoration Sites describes the status of environmental restrictions on the use of property on Travis Air Force Base (Travis AFB) in 2014. The restrictions on property use are based on the presence of residual chemicals of concern (COCs) in the soil or groundwater that could pose a potential risk to human health or the environment if human or ecological receptors were to come into contact with these COCs. The contaminated property has been investigated and the LUC implementation has been conducted under the Travis AFB Environmental Restoration Program (ERP). Parcels of property in the ERP are referred to as ERP sites.

The primary purpose of LUCs is to prevent the uncontrolled movement of, or exposure of human or ecological receptors to, COCs that are present in either soil or groundwater or both media. In risk assessment terms, LUCs block the pathway between the COC and all potential receptors in order to prevent adverse health impacts.

LUCs can either be the only remedy that is assigned to an ERP site, or they can be a part of a more active remedy that is designed to achieve a level of remediation that would preclude the need for environmental restrictions. For a soil example, LUCs would remain in place until a soil remedy (such as excavation and landfill disposal) attained a cleanup level that no longer posed a potential risk to all receptors. For a groundwater example, LUCs would remain in place as long as the groundwater treatment technology (examples are groundwater extraction and treatment, or reductive dechlorination via emulsified vegetable oil injection) is in operation.

For sites with more than one medium of concern, LUCs are assigned to each medium and are treated as separate remedies. For example, Site SD033 has separate remedies for soil (Alternative 17 – LUCs), sediment (Alternative 18 – Excavation with Alternative 17 – LUCs as a contingency remedy), surface water (Alternative 10 – No Action), and groundwater (Monitored Natural Attenuation [MNA] with LUCs as an integral part of the remedy). When Travis AFB conducted a sediment cleanup action at Site SD033 in 2009 and achieved residential cleanup levels, LUCs were no longer needed for the sediment at this site. However, all other LUCs assigned to the other media of concern remained in place.

A secondary purpose of LUCs is to provide awareness of the presence of COCs and manage base activities that could damage treatment technology infrastructure or reduce the effectiveness of the selected remedy. For example, LUCs ensure that soil excavation associated with base construction or repair projects does not damage monitoring/extraction/injection wells or piezometers that are a part of a groundwater remedy.

On 28 January 2015, Mr. Glenn Anderson and Mr. Lonnie Duke from the Air Force Civil Engineer Center (AFCEC) Installation Support Team (IST) office on Travis AFB conducted a formal inspection of the Travis AFB LUCs at nine soil sites, 14 on-base groundwater sites, and three off-base groundwater sites. The nine soil sites are listed as SS015, SS016, SD033, SD037, DP039, SD043, LF044, SS046, and LF007. The 14 on-base groundwater sites are listed as FT004, LF006, SS015, SS016, ST027B, SS029, SD031, SD033, SD034, SS035, SD036, SD037,

DP039, and SD043. The 3 off-base groundwater sites are listed as FT005, LF007, and SS030. 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 2014 LUC Status Report:

- Section 1.0 – Introduction. Provides descriptions of the purpose and content of this annual report.
- Section 2.0 – Regulatory Framework. Describes the documentation that mandate LUC requirements for Travis AFB.
- Section 3.0 - Performance Measures. Describes the performance measures for LUCs. Subsections describe how these measures have been met.
- Section 4.0 – Fire Training Area #3 (FT004). Describes the environmental conditions at Fire Training Area #3 and the status of groundwater LUCs at that site.
- Section 5.0 – Fire Training Area #4 (FT005). Describes the environmental conditions at Fire Training Area #4 and the status of groundwater LUCs at that site.
- Section 6.0 – Landfill #1 (LF006). Describes the environmental conditions at Landfill #1 and the status of groundwater LUCs at that site.
- Section 7.0 – Landfill #2 (LF007). Describes the environmental conditions at Landfill #2 and the status of the soil and groundwater LUCs at that site as well as that of the Travis AFB Corrective Action Management Unit (CAMU).
- Section 8.0 – Solvent Spill Area (SS015). Describes the environmental conditions at the Solvent Spill Area and Facilities 550 and 552 and the status of soil and groundwater LUCs at that site.
- Section 9.0 – 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 soil and groundwater LUCs at that site.
- Section 10.0 – Facilities 1918, 1919, and 1754 (ST027B). Describes the environmental conditions at Facilities 1918, 1919, and 1754 and the status of groundwater LUCs at that site.
- Section 11.0 – Monitoring Well (MW) 329 Area (SS029). Describes the environmental conditions at the MW 329 area and the status of groundwater LUCs at that site.
- Section 12.0 – MW 269 Area (SS030). Describes the environmental conditions at the MW 269 area and the status of groundwater LUCs at that site.

- Section 13.0 – Facility 1205 (SD031). Describes the environmental conditions at Facility 1205 and the status of groundwater LUCs at that site.
- Section 14.0 – Storm Sewer System B, Facilities 810 and 1917, and South Gate Area (SD033). Describes the environmental conditions at Storm Sewer System B, Facilities 810 and 1917, and the South Gate Area and the status of soil and groundwater LUCs at that site.
- Section 15.0 – Facility 811 (SD034). Describes the environmental conditions at Facility 811 and the status of groundwater LUCs at that site.
- Section 16.0 – Facilities 818 and 819 (SS035). Describes the environmental conditions at Facility 818 and 819 and the status of groundwater LUCs at that site.
- Section 17.0 – Facilities 872/873/876 (SD036). Describes the environmental conditions at Facilities 872/873/876 and the status of groundwater LUCs at that site.
- Section 18.0 – 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 groundwater LUCs at that site.
- Section 19.0 – Building 755 (DP039). Describes the environmental conditions at Building 755 and the status of soil and groundwater LUCs at that site.
- Section 20.0 – Building 916 (SD043). Describes the environmental conditions at Building 916 and the status of soil and groundwater LUCs at that site.
- Section 21.0 – Landfill X (LF044). Describes the environmental conditions at Landfill X and the status of soil LUCs at that site.
- Section 22.0 – Railhead Munitions Staging Area (SS046). Describes the environmental conditions at the Railhead Munitions Staging Area and the status of soil LUCs at that site.
- Section 23.0 – Conclusion and Summary of Findings. Summarizes the eleventh year of managing soil LUCs in the WABOU and the eighth year of managing soil LUCs in the NEWIOU. Summarizes the implementation of groundwater LUCs where assigned by the 2014 Travis AFB Groundwater Record of Decision (ROD).
- Section 24.0 – Works Cited. Lists the documents used in the development of this annual report.

Appendices

- Appendix A – Photographs. Shows photographs of sites with LUCs.
- Appendix B – Documentation of Remedial Actions that Resulted in Land Use Control Removal. Summarizes the cleanup actions that resulted in the removal of previously assigned LUCs.

2.0 Regulatory Framework

In 1983, the Air Force initiated the Installation Restoration Program to investigate the nature and extent of hazardous waste releases to the environment. Based on an EPA evaluation of IRP data, Travis AFB was placed on the National Priorities List on 21 November 1989. On 27 September 1990, the Air Force, the U.S. Environmental Protection Agency, the California Department of Toxic Substances Control, and the San Francisco Bay Regional Water Quality Control Board signed a Federal Facility Agreement that established the framework and schedule for environmental cleanup at Travis AFB.

The investigation and cleanup of hazardous waste releases are governed by the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA). CERCLA establishes the methodology for selecting the most appropriate cleanup strategies or technologies. Before hazardous waste cleanup can start, the best available cleanup actions are selected and described in a legally-binding ROD. This selection is based on an evaluation of potential cleanup options against nine (9) CERCLA criteria.

The following subsections identify the RODs that selected LUCs for specific restoration sites and summarize the purposes of the LUCs at these sites.

2.1 Soil LUCs

The *Soil 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).

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 LUC 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 active remedy is required to reduce COC 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 five NEWIOU soil sites (SS015, SS016, ST032, SD033 [soil], and SD037 Area 6), Alternative #17 is the only selected soil remedy. Alternative 16 (No Action) is the soil remedy for SD037 Areas 1 through 5. For the remaining NEWIOU sites (SD001, FT003, FT004, FT005, LF007, and SD033 [sediment]), the NEWIOU SSSW ROD selected an active remedy and Alternative #17 as a contingency remedy. Because the active remedy is required to reduce COC concentrations to industrial cleanup levels, Alternative #17 serves to restrict activity at those sites to industrial uses only. Section 5.4 (Land Use Controls [LUC]) of the NEWIOU SSSW ROD describes these requirements in more detail.

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. The CAMU received contaminated soil from other soil sites during the 2003 and 2007 soil remedial actions. The CAMU is now closed and is not available to receive contaminated soil in the future. See Sections 7.1 and 7.2 for additional information regarding the CAMU.

2.2 Groundwater LUCs

The *Travis AFB Groundwater ROD* (CH2M HILL, 2014) supersedes the *Groundwater Interim ROD for the WABOU* (CH2M HILL, 1999) and the *Groundwater Interim ROD for the NEWIOU* (URS, 1997) and describes the selected remedies for nineteen groundwater ERP sites on Travis AFB.

Unlike the soil RODs, the Travis AFB Groundwater ROD does not have a separate LUC alternative. Rather, LUCs are built into every active groundwater remedy to prevent the exposure of base personnel and contractors to contaminated groundwater or any associated vapors and to protect treatment and monitoring systems from inadvertent damage or any other base activity that could degrade the remedy's ability to achieve groundwater cleanup levels.

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 the Duck Pond, an on-base recreational area.

For the on-base sites, a records review revealed no drinking water wells have been constructed. The on-base controls are procedural in nature and are based primarily 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. All on-base plumes are located in industrial areas, and the footprint of most of them is covered by other, more stringent controls

that are associated with aircraft/military operations. For example, the footprint of the LF008 plume is covered by quality distance safety arcs that prevent unauthorized activities near munitions storage facilities, and the footprint of the SS016 plume lies under aircraft runways and parking ramps and is covered by Federal Aviation Administration restrictions. There are no physical controls associated with these groundwater restrictions that can be inspected, so the weekly review by regulatory staff of excavation permits, work requests and environmental impact analyses is an effective means to ensure groundwater restrictions are enforced. Section 4.1.2 (Institutional Controls on Groundwater Use) of the *Third Five-Year Review Report* (Endpoint Consulting, 2013) provides a detailed description of the implementation of groundwater land use controls.

For the three groundwater sites with off-base components (FT005, LF007C, and SS030), the base purchased four easements that allow the base to carry out environmental investigations and restoration activities on private property. Each easement contains enforceable restrictions preventing the landowner from interfering or bridging the exercise of the government's rights under the easements and also prevents landowners from engaging from water development or soil disturbing activities that could interfere with cleanup activities. The Air Force views any residential development and any well drilling on the properties covered by the four easements as interference with the government's easements. Each easement has been recorded. If an easement expires before the solvent concentrations in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health, then the base will negotiate a subsequent easement with the property owner. The Air Force monitors and will continue to monitor for inconsistent usage by the landowners. To date, there has been no interference by the landowners through inconsistent usage. Thus, the easement serves as an important tool for the implementation and enforcement of off-base LUCs on privately owned property.

The off-base groundwater plumes at Sites FT005, LF007C, and SS030 are enclosed entirely by the respective easements. Rather than assigning LUC boundaries to the plumes based on changing contaminant isoconcentration lines, the base considers the off-base LUC boundary for each site to be the entire footprint that is covered by the easement. Once cleanup levels for all chemicals of concern are achieved over the entire off-base portions of the plumes, the Air Force and the regulatory agencies will review the site conditions and determine whether the restrictions contained in the easements continue to be necessary to support site remediation.

For groundwater sites with solvent contamination, LUCs are established to prevent a potential exposure to indoor air vapor. The Travis AFB Groundwater ROD placed restrictions for residential and industrial land uses above solvent plumes; these restrictions can only be removed when the concentrations of volatile chemicals of concern emanating from groundwater to indoor air do not pose an unacceptable risk to human health. Figure 1 shows the boundaries of the land use controls associated with the Travis AFB groundwater sites.

The *Vapor Intrusion Assessment Report* (CH2M HILL, 2010) described a phased approach that was used to evaluate the potential vapor intrusion risk associated with solvent plumes beneath current office buildings. The assessment compared available groundwater data against screening levels, collected and analyzed subsurface soil vapor and indoor air samples to establish site-specific risk-based concentrations, and identified buildings where there was a potential human health risk

associated with the vapor intrusion pathway. A subsequent *Vapor Intrusion Assessment Update Technical Memorandum* (CH2M HILL, 2012) updated the original vapor intrusion assessment, based on revised risk-based concentrations and developed residential and industrial groundwater-to-indoor air LUC boundaries to support the *Travis AFB Groundwater ROD* (CH2M HILL, 2014).

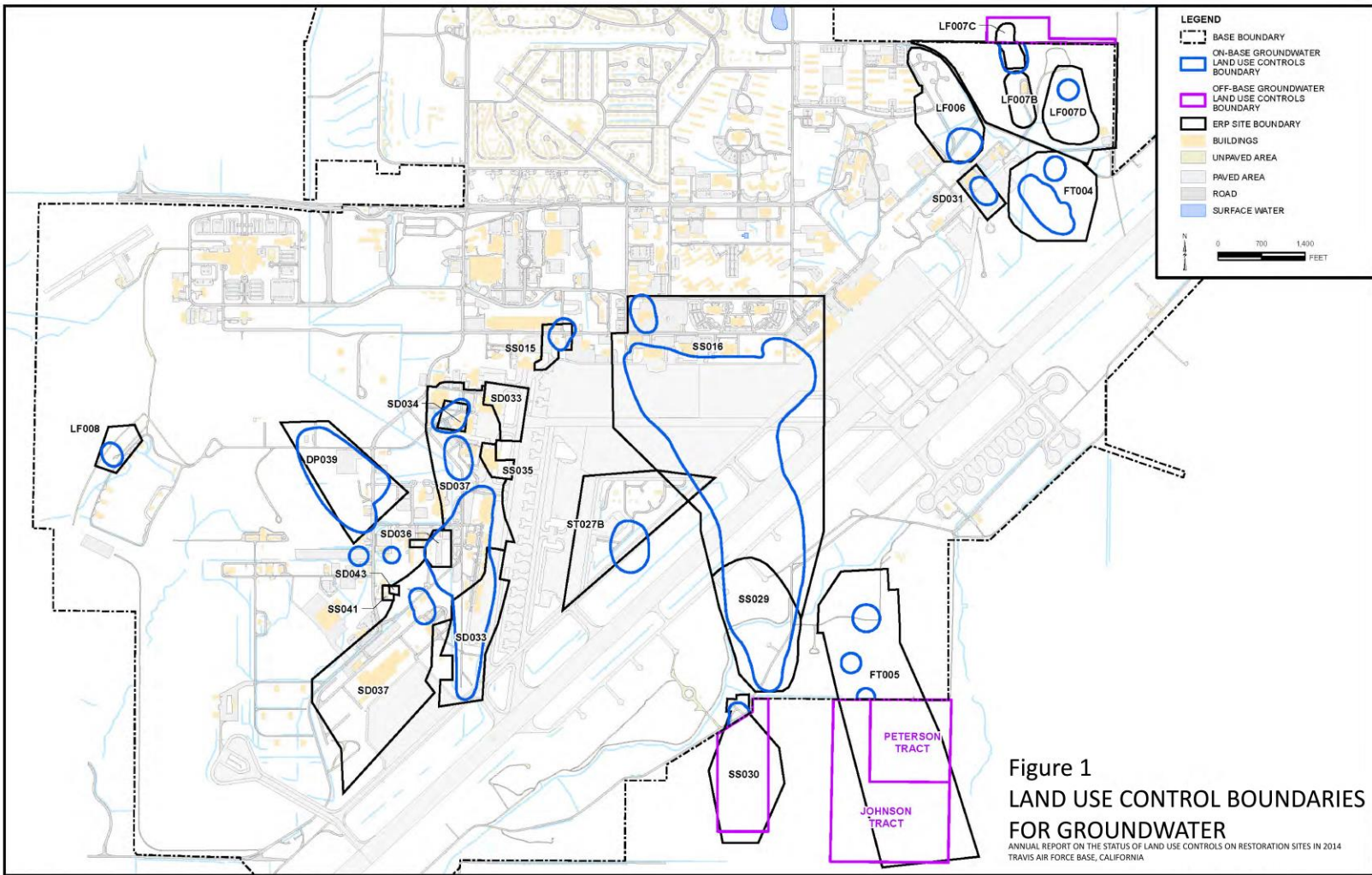
Groundwater LUCs do not prevent the construction of new office buildings above solvent plumes. However, to ensure that the occupants of these buildings are not exposed to contaminated vapor from the solvent plumes, the new construction projects include the installation of a passive ventilation system beneath the office spaces that blocks the pathway between the occupants and the contaminated subsurface soil gas. The requirement to incorporate a passive ventilation system into the building design is identified during the siting of the new building as part of the administrative controls. Figure 2 shows the boundaries of the land use controls associated with industrial groundwater-to-indoor air values that exceed acceptable risk levels, and Figure 3 shows the boundaries of the land use controls associated with residential groundwater-to-indoor air values that exceed acceptable risk levels.

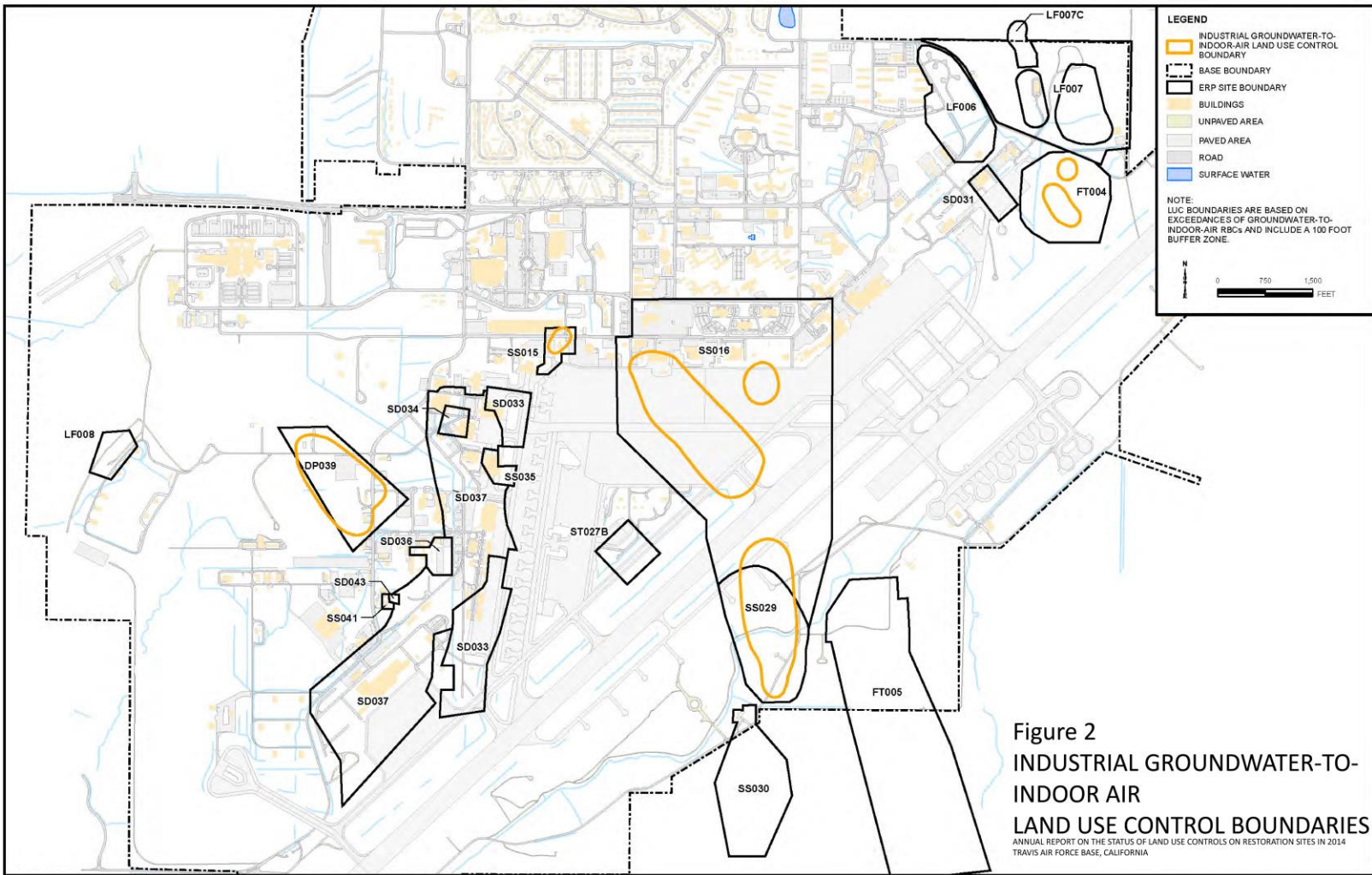
2.3 Petroleum Only Contaminated (POCO) Sites

The Travis AFB ERP also addresses several sites with petroleum contamination only. Petroleum cleanup is not authorized under CERCLA, so the base established a Petroleum Only Contamination (POCO) program, which addresses locations with fuels and other petroleum COCs. POCO sites receive regulatory oversight from the San Francisco Bay Regional Water Quality Control Board.

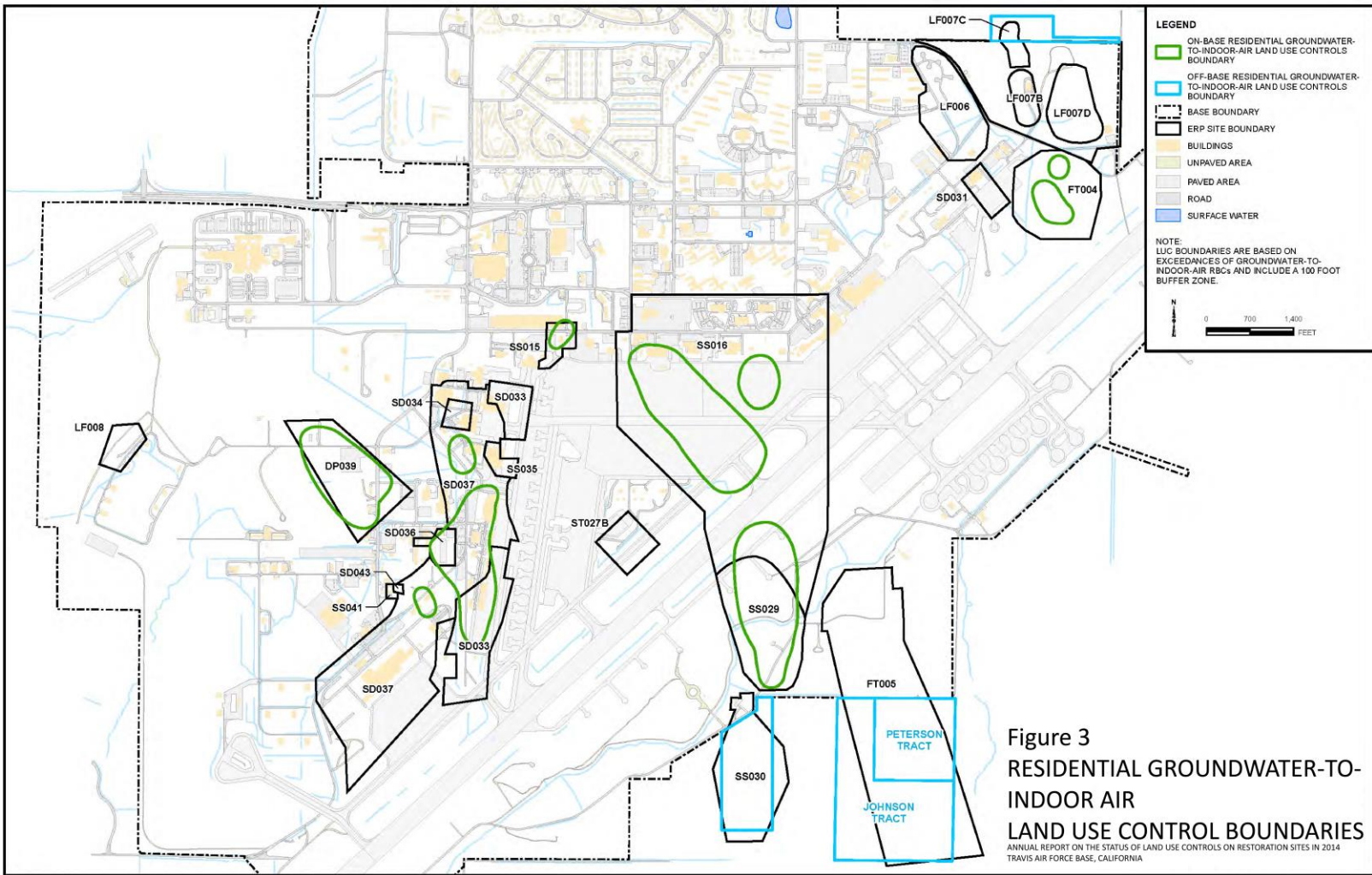
Although POCO sites are not mentioned in this report, they receive similar administrative on-base controls as ERP sites. The controls are designed to prevent inadvertent exposure of petroleum contamination in soil and groundwater to base personnel and contractors during construction activities that involve soil excavation.

Site ST032 is a site that had been a part of previous inspections and had been discussed in previous annual LUC reports. In April 2009, ST032 was transferred to the POCO program. The final *Recommendation to Transfer ERP Site ST032 to the POCO Program Technical Memorandum* (CH2M HILL, 2009) provides the rationale for this transfer to the POCO program. This transfer did not change the field activities at ST032; however, this site will no longer be mentioned in annual LUC reports.





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3.0 Performance Measures

Sections 5.4 (Land Use Controls) of both the WABOU Soil ROD and the NEWIOU SSSW ROD as well as Section 2.12.2.8 (Land Use Controls) of the Travis AFB Groundwater ROD address 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.

3.1 Base General Plan Revisions

The first performance measure pertains to the Base General Plan (BGP). The BGP is a long-range planning document that provides a framework for selecting the locations of future facilities needed to carry out the base mission. Each ROD required Travis AFB to incorporate within its BGP 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 updates the BGP to include the site-specific restrictions, if needed.

Section 3.1 of the *Travis Air Force Base Annual Report on the Status of Land Use Controls on Restoration Sites in 2013* provides a history of the maintenance and challenges associated with the BGP. It also stated that congressionally-mandated Department of Defense budget cuts prevented the Air Force from maintaining a web-based version of the Travis AFB BGP. At the time of the 2014 LUC inspection, access to the base GP was available on the Travis AFB Share Point site. The Plan is a PDF document, and it includes a folder with the LUC data files. The LUC data files are updated and maintained by ERP personnel. The SharePoint site can only be accessed by personnel with authorization to use the Travis AFB local area network.

To support the long-term planning function at Travis AFB and other AF installations, AFCEC issued a contract to Jacobs Engineering Group to develop an Installation Development Plan (IDP) for each installation. Similar in structure and content to the original BGP, the IDP summarizes the AF Comprehensive Planning Process and applies geospatial and written data (text, maps, tables, figures, photographs, etc.) to allocate resources through project programming, promote airfield safety, and enhance the general health and welfare of the natural and built environment.

To ensure that base project planners have direct access to the latest detailed LUC data to support future projects, the AFCEC IST at Travis AFB has scheduled the production of a Land Use Control Implementation Plan (LUCIP) for 2015. The LUCIP will describe the responsibilities of base personnel in maintaining LUCs, provide site-specific LUC data for each site, and present figures that show the boundaries of the groundwater and indoor air restrictions. The schedule for the LUCIP production will be placed on the Travis AFB Master Meeting and Document Schedule.

At the time of the 2014 LUC inspection, the AFCEC IST at Travis AFB had reviewed a 30% version of the IDP and had requested necessary text and figure revisions to the IDP contractor. Because the IDP contract covers multiple Air Force installations, it has taken more time to complete the Travis AFB IDP than originally programmed. The final version of the IDP is scheduled for completion and implementation by the end of 2015. The subsequent sections of this report will refer to the contents of the Travis AFB BGP.

3.2 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 LUC 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 the soil and groundwater sites that are addressed in this report, there were no land use change proposals or activities in 2013 that were inconsistent with, disruptive of, or negated the need for LUCs. Also, no property transfers took place in the vicinity of these sites.

Section 5.4 of the NEWIOU SSSW ROD and Section 2.12.2.8 of the Travis AFB Groundwater ROD specify a period up to 10 days after discovery for regulatory agency notification of LUC changes or breaches as described above. They also describe the notification of how the Air Force has addressed or will address the breach. Since Travis AFB made no notifications in 2014, the LUC inspection did not evaluate notification timeliness.

3.3 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 BGP 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 proposed 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 2014 LUC inspection, the reviewers noted that all LUCs at the soil and groundwater 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 2014, the reviewers concluded that the existing administrative measures are properly maintaining the LUCs.

3.4 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 AFCEC IST at Travis AFB has two restoration project managers who routinely visit 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 4 through 22 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 LUC deficiencies that required restoration, repair or correction.

3.5 Other Monitoring Requirements

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

3.5.1 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 Unified Facilities Criteria 3-120-01 (Air Force Sign Standard), which supersedes AFP 88-40 (Sign Standards).

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 and SD037 did not receive signage because of incompatibilities with safe vehicle or aircraft operations. To ensure that base personnel can contact an environmental restoration representative when needed, the phone numbers and other contact information on the signs are checked during the annual inspections. Appendix A (Photographs) presents photographs taken during the 2014 inspection that show the signs that have been posted at LUC sites.

The Travis AFB Groundwater ROD does not have a signage requirement mainly because of the expectation that the boundaries and COC concentrations in plumes will fluctuate during the life of remedial actions. Signage is only effective when the COC boundaries are stationary.

3.5.2 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 COCs. If there is any residual contamination at depth, the excavation 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 appropriate mitigation measures.

3.5.3 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). Section 21.0 of this report describes the elimination of heavy equipment training at the Landfill X area as provided for in the WABOU Soil ROD.

3.5.4 Report Submittal

In accordance with the three 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 Cultural Center 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). Although this report is not subject to approval and/or revision by EPA and the State of California regulatory agencies, Travis AFB will voluntarily consider any suggestions from the regulatory agencies and the public to improve the format and/or content of future reports.

4.0 Fire Training Area #3 (FT004)

FT004 is in the northeastern part of Travis AFB and consists of the former Fire Training Area #3, an unoccupied 30-acre open field that was used to train fire fighters from about 1953 to 1962. Waste fuels, oils, and solvents were burned on open ground, contaminating the groundwater with chlorinated solvents, mainly trichloroethene (TCE).

4.1 Environmental Conditions

The maximum TCE concentration in the groundwater at FT004 is 165 parts per billion (ppb). The federal and State of California drinking water standard for TCE is 5 ppb. Appendix D 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 FT004.

The Travis AFB Groundwater ROD selected Alternative 2 (Monitored Natural Attenuation [MNA]) to address the residual dissolved solvent contamination. The interim Groundwater Extraction and Treatment (GET) system is shut down. The progress that MNA has made in reducing COC mass and concentrations is reported in annual Groundwater Remediation Implementation Status Reports (GRISRs).

4.2 Status of FT004 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at FT004 also poses an indoor air vapor intrusion risk to industrial workers, so the LUCs also restrict residential and industrial land uses until concentrations of solvents in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health.

The 2014 inspection of the groundwater LUCs at FT004 found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater, and no new construction has taken place at the site. Photograph 1 in Appendix A of this report shows the controlled area at FT004.

FT004 is located across the street from the base Corrective Action Management Unit (CAMU) and lies adjacent to Site SD031. Because of the significant amount of field activity that took place at SD031 over the last seven (7) months, at least one restoration project manager and/or contractor field specialist has driven by the controlled area of FT004 every two weeks.

5.0 Fire Training Area #4 (FT005)

FT005 is in the southeastern part of Travis AFB and consists of the former Fire Training Area #4, an unoccupied 30-acre open field that was used to train fire fighters from about 1962 to 1987. From 1962 to the early 1970's, waste fuels, oils, and solvents were burned on open ground. From the early 1970's to when Fire Training Area #4 was closed, only waste fuels were burned. These activities contaminated the groundwater with chlorinated solvents, mainly 1,2-dichloroethane (DCA).

5.1 Environmental Conditions

The maximum 1,2-DCA concentration in the groundwater at FT005 is 5.8 parts per billion (ppb). The federal and State of California drinking water standard for 1,2-DCA is 0.5 ppb. Appendix E 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 FT005.

A portion of the FT005 plume has migrated off-base and is located beneath private property. To allow the base to carry out environmental investigations and restoration activities on private property, the base purchased an easement that covers the lateral extent of the 1,2-DCA plume. The easement restricts the activities of the property owner that could potentially interfere with the selected groundwater remedy for FT005. This easement expires and will have to be renewed in 2026.

The Travis AFB Groundwater ROD selected Alternative 3 (GET) to address the residual dissolved solvent contamination. The progress that GET has made in reducing COC mass and concentrations is reported in annual GRISRs.

5.2 Status of FT005 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. Because the COC concentrations at FT005 are not high, the groundwater does not pose an indoor air vapor intrusion risk to industrial or residential workers.

FT005 is one of three restoration sites with a solvent plume that extends beyond the base boundary. To allow the base to carry out environmental investigations and restoration activities on private property, the base purchased an easement that covers the lateral extent of the 1,2-DCA plume. The easement restricts the activities of the property owner that could potentially interfere with the selected groundwater remedy for FT005. If the easement expires before the solvent concentrations in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health, then the base will negotiate a subsequent easement with the property owner.

The 2014 inspection of the groundwater LUCs at FT005 found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel or the off-base property owner to contaminated groundwater, and no new construction has taken place at the site. Photograph 2 in Appendix A of this report shows the off-base portion of FT005 that is under the easement. Photograph 3 shows the on-base portion of FT005.

FT005 is located on the south side of the flight line, and it takes some time to drive around the runways to get to it. Because of its remote location, it is visited on average once a quarter primarily by contractor representatives.

6.0 Landfill 1 (LF006)

LF006 is a former waste disposal landfill in the northeastern portion of Travis AFB that was operated from about 1943 through 1950. The waste contained chlorinated solvents, mainly TCE, and petroleum fuel hydrocarbons that contaminated the local groundwater.

6.1 Environmental Conditions

The maximum concentration of TCE in groundwater has declined to only about 4.7 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. Petroleum fuel hydrocarbons have not been recently detected.

The Travis AFB Groundwater ROD selected Alternative 2 (Monitored Natural Attenuation) to address the residual dissolved solvent contamination. The progress that MNA has made in reducing COC mass and concentrations is reported in annual GRISRs.

6.2 Status of LF006 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at LF006 does not pose an indoor air vapor intrusion risk to industrial workers or future residents.

The 2014 inspection of the groundwater LUCs at LF006 found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater, and no new construction has taken place at the site. Photograph 4 in Appendix A of this report shows the controlled area at LF006.

LF006 is located across the street from the base Corrective Action Management Unit (CAMU) and lies near Sites FT004 and SD031. Because of the significant amount of field activity that took place at SD031 over the last seven (7) months, at least one restoration project manager and/or contractor field specialist has driven by the controlled area of LF006 every two weeks.

7.0 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).

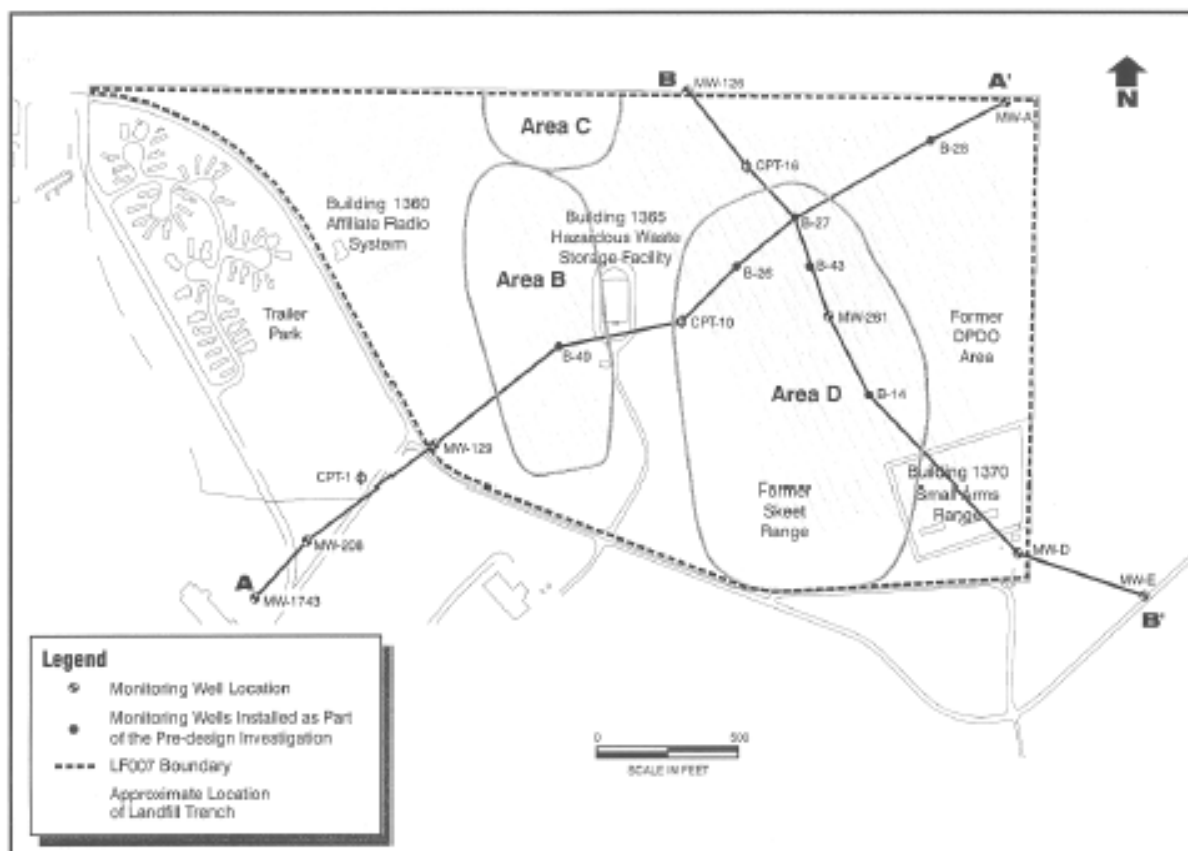


Figure 4 Physical Features and Area Designations at LF007

7.1 Environmental Conditions

During the North Operable Unit (NOU) Remedial Investigation (RI), the human health risk assessment identified seven (7) subareas for investigation. This annual LUC report focuses on Areas B, C, and D for groundwater and the CAMU. LF007E was located in the vicinity of the former Defense Property Disposal Office and had polychlorinated biphenyl contamination in surface soil that extended beyond the base boundary. Appendix B documents the cleanup of PCB-contaminated soil in Area E. Figure 4 shows the primary features at LF007 and the three subareas.

LF007 Area B (LF007B) covers north-south trending disposal trenches northwest of Building 1365. The NOU RI identified several groundwater COCs (benzene; 1,4-dichlorobenzene; chlorobenzene, etc.), but none of these COCs have been detected after years of monitoring under the Groundwater Sampling and Analysis Program. Therefore, the groundwater COC concentrations are below cleanup levels, and LF007B has no plume dimensions. The Travis AFB Groundwater ROD selected Alternative 2 (Monitored Natural Attenuation) to address the residual dissolved solvent contamination. The progress that MNA has made in reducing COC mass and concentrations is reported in annual GRISRs.

LF007 Area C (LF007C) is located near the northern NOU boundary in a low, swampy area and contains a solvent plume that extends beyond the base boundary. To allow the base to carry out environmental investigations and restoration activities on private property, the base purchased an easement that covers the lateral extent of the TCE plume. The easement restricts the activities of the property owner that could potentially interfere with the selected groundwater remedy for LF007C. If the easement expires before the solvent concentrations in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health, then the base will negotiate a subsequent easement with the property owner. This easement expires and will have to be renewed in 2018. The Travis AFB Groundwater ROD selected Alternative 3 (GET) to address the residual dissolved solvent contamination. The progress that GET has made in reducing COC mass and concentrations is reported in annual GRISRs.

LF007 Area D (LF007D) is located east of Building 1365 and has a groundwater plume that is limited to one small area in the vicinity of MW261x07. The COCs in this plume consist of benzene, chlorobenzene, and 1,4-dichlorobenzene. The concentrations of benzene and 1,4-dichlorobenzene still exceed their cleanup levels. The Travis AFB Groundwater ROD selected Alternative 2 (Monitored Natural Attenuation) to address the residual dissolved solvent contamination. The progress that MNA has made in reducing COC mass and concentrations is reported in annual GRISRs.

Alternative #17 (Land Use Controls) is the selected remedial action in the NEWIOU SSSW ROD for the CAMU cover, CAMU associated features, the Landfill cover and associated buried wastes. For PCB-contaminated soils in Area E, Alternative #18 (Excavation) is the selected remedy and Alternative #17 is the contingency remedy. Appendix B describes the cleanup of the PCB-contaminated soil at LF007E.

The CAMU was built in three phases. Phase 1 consisted of landfill maintenance and the placement of large quantities of clean soil into subsidence trenches that formed in the original soil cap. The soil also served 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 *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 this landfill. 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.

7.2 Status of LF007 Soil 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 soil remedial action for LF007 Areas B through D.

The Travis AFB General Plan describes the presence of the CAMU cover, CAMU associated features, and Landfill 2, and 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 its integrity and function 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 sample collection 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 LF007 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 two or more years until all soil and groundwater remedies are in place.

Currently, the CAMU is in an Operation and Maintenance phase. Now that all CAMU phases are complete, the base prepared the CAMU for the eventual transition to a Long-Term Management phase by building a 6-foot high security fence with triple-strand barbed wire at the top around it. The fence was positioned to provide sufficient room for heavy equipment to move around the CAMU, and two custom-designed gates were placed at both ends to allow easy access for future field work.

The 2014 inspection of the soil 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 or that the active operations at Buildings 1360, 1365 and 1370 are compromising the LUCs in place on the portions of LF007 discussed above. Photograph 5 in Appendix A of this report shows the northwest gate. Photograph 6 shows the northwest corner of the CAMU fence (and the bright orange delineators that are stored within the fenced area).

As a result of the monitoring of the large vernal pool to the north of the CAMU and inspections by AFCEC and contractor personnel, LF007 is visited an average of about once a month.

7.3 Status of LF007 Groundwater Land Use Controls

The following subsections describe the LUCs associated with the three groundwater subareas.

7.3.1 Status of LF007B Groundwater Land Use Controls

There are no groundwater COCs at LF007B that exceed their cleanup standards, but LUCs are still in place to ensure that groundwater is not used for potable purposes. Travis AFB will eventually request from the regulatory agencies to remove the LF007B Groundwater LUCs in a future decision document.

7.3.2 Status of LF007C Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at LF007C also poses an indoor air vapor intrusion risk to future residents, so the LUCs also restrict residential land uses until concentrations of solvents in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health.

The 2014 inspection of the groundwater LUCs at LF007C found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater, and no new construction has taken place that could create a potential vapor intrusion risk. Photograph 7 in Appendix A of this report shows the extraction and monitoring well network, including the off-base infrastructure within the LF007C easement.

LF007C is located adjacent to the base Corrective Action Management Unit (CAMU) and lies near Sites FT004 and SD031. Because of the significant amount of field activity that took place at LF007C to build the LF007 Groundwater Treatment Plant and at SD031 to install the infrastructure for a remedial action demonstration project, at least one restoration project manager and/or contractor field specialist has driven by the controlled area of LF007C every two weeks.

7.3.3 Status of LF007D Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. However, the groundwater contamination at LF007D does not pose an indoor air vapor intrusion risk to future residents.

The 2014 inspection of the groundwater LUCs at LF007D found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater.

8.0 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. These activities contaminated the groundwater with TCE, 1,2-dichloroethene (DCE), and vinyl chloride.

Facility 552 consisted of a fenced, bermed, concrete pad constructed in 1964 and 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 build a petroleum, oil, and lubricants (POL) facility under a military construction (MILCON) project. The facility consists of an office building, a fuel truck maintenance building, and a large, concrete truck parking area.

8.1 Environmental Conditions

Surface soil in the vicinity of the former metals-plating shop in Facility 550 contains cadmium residue. The maximum concentrations of TCE, 1,2-DCE, and vinyl chloride in the groundwater at SS015 are 432 ppb, 7680 ppb, and 3220 ppb, respectively. The federal and State of California drinking water standards for TCE, 1,2-DCE, and vinyl chloride are 5 ppb, 6 ppb, and 0.5 ppb, respectively. 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 the 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.

The maximum TCE concentration in the groundwater at SS015 is 150 parts per billion (ppb). The federal and State of California drinking water standard for TCE is 5 ppb. The Travis AFB Groundwater ROD selected Alternative 5 (Emulsified Vegetable Oil [EVO] and Enhanced Attenuation [EA]) to address the residual dissolved solvent contamination. The progress that EVO and EA have made in reducing COC mass and concentrations is reported in annual GRISRs.

8.2 Status of SS015 Soil 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 describes the presence of cadmium in the surface soil and the associated land use restrictions, particularly on the unauthorized disturbance and use of the soil beneath the concrete at this site.

The 2014 inspection of the soil 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 8 in Appendix A 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. SS015 is located between the AFCEC IST office and the CH2M HILL office on Travis AFB, so at least one restoration project manager and/or contractor field specialist drive by the controlled area of SS015 every month.

8.3 Status of SS015 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SS015 also poses an indoor air vapor intrusion risk to industrial workers, so the LUCs also restrict residential and industrial land uses until concentrations of solvents in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health.

The 2014 inspection of the groundwater LUCs at SS015 found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater, and no new construction (other than the installation of remedial action infrastructure) has taken place at the site. The reviewers noted the presence of the exterior piping associated with the passive ventilation system beneath the office of the fuel truck maintenance facility.

9.0 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 wash rack, oil-water separator, and four 250-gallon above-ground storage tanks. Facility 20 is the aircraft control tower. The activities at these facilities contaminated the groundwater with chlorinated solvents, mainly TCE.

9.1 Environmental Conditions

Surface soil in a grassy field west of facility 18 contains polycyclic aromatic hydrocarbon (PAH) residue. A small portion of PAH-contaminated soil is covered by concrete and a brick walkway. The maximum concentration of TCE in groundwater is 319,000 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. 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.

The maximum TCE concentration in the groundwater at SS016 is 29.000 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. The Travis AFB Groundwater ROD selected Alternative 4 (Bioreactor and GET) to address the residual dissolved solvent contamination. The progress that the bioreactor and GET have made in reducing COC mass and concentrations is reported in annual GRISRs.

9.2 Status of SS016 Soil 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 unrestricted use and unlimited exposure. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site.

The Travis AFB General Plan describes the presence of PAH in the surface soil and the associated land use restrictions, particularly on the unauthorized disturbance and use of soil at this site.

The 2014 inspection of the soil 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. 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 9 in Appendix A of this report shows the controlled area at SS016.

The controlled area at SS016 is located three blocks from the AFCEC IST office, and an AFCEC restoration project manager drives by the controlled area during visits to the Central Groundwater Treatment Plant. As a result, at least one AFCEC restoration project manager drives by the controlled area on a monthly basis.

9.3 Status of SS016 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SS016 also poses a significant indoor air vapor intrusion risk to industrial workers. Building 18 (located just north of the SS016 Bioreactor) is the only existing office facility on Travis AFB that is restricted in its use (for storage purposes only), based on the potential vapor intrusion risk that is posed by solvent COCs associated with Site SS016. So, the LUCs also restrict residential and industrial land uses until concentrations of solvents in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health.

The 2014 inspection of the groundwater LUCs at SS016 found that administrative controls are adequate to enforce the groundwater and vapor intrusion restrictions. Most of the solvent plume is located beneath the aircraft flight line, which receives a high level of security. There is no evidence of any activities that could expose base personnel to contaminated groundwater or vapor, and no new construction has taken place at the site.

10.0 Facilities 1918, 1919, and 1754 (ST027B)

ST027B is located in a restricted access area in the central part of the NEWIOU. It is bound by aircraft taxiways and parking ramps that were formerly used for fuel storage and aircraft engine testing. These industrial activities contaminated groundwater with petroleum hydrocarbons and TCE. The portion of the plume with petroleum contamination is referred to as ST027A and is managed under a separate program. The portion of the plume with TCE contamination is referred to as ST027B.

10.1 Environmental Conditions

The maximum TCE concentration at ST027B is 474 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. The *Site ST027 – Area B Human Health Risk Assessment* (CH2M HILL, 2013) presents a more detailed description of the human health risk assessment for this site. The Travis AFB Groundwater ROD selected Alternative 2 (Monitored Natural Attenuation) to address the residual dissolved solvent contamination. The progress that MNA has made in reducing COC mass and concentrations is reported in annual GRISRs.

10.2 Status of ST027B Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at ST027B does not pose an indoor air vapor intrusion risk to industrial workers or future residents.

The 2014 inspection of the groundwater LUCs at ST027B found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater, and no new construction has taken place at the site. Photograph 10 in Appendix A of this report shows the controlled area at ST027B.

The controlled area at ST027B is located in the middle of the high security flight line and is inaccessible to most base personnel. As a result, one AFCEC restoration project manager may visit the controlled area a few times each year to support groundwater sampling.

11.0 Monitoring Well (MW) 329 Area (SS029)

SS029 is located in the southern portion of the NEWIOU. Unknown historical activities on undeveloped land between the southern base boundary and an aircraft taxiway contaminated groundwater with chlorinated solvents, primarily TCE.

11.1 Environmental Conditions

The maximum concentration of TCE in groundwater is 680 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. Groundwater monitoring suggests that the SS016 and SS029 plumes have merged, so the SS016 groundwater remedy focuses on COC mass removal, while the SS029 groundwater remedy prevents the COC mass that flowed beneath the flight line from migrating past the base boundary. Appendix K 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.

11.2 Status of SS029 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SS029 also poses an indoor air vapor intrusion risk to industrial workers, based on the potential vapor intrusion risk that is posed by solvent COCs associated with Site SS029. So, the LUCs also restrict residential and industrial land uses until concentrations of solvents in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health.

The 2014 inspection of the groundwater LUCs at SS029 found that administrative controls are adequate to enforce the groundwater and vapor intrusion restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater or vapor, and no new construction has taken place at the site. Photograph 11 in Appendix A of this report shows the controlled area at SS029.

Most of SS029 is located south of the flight line, and an AFCEC restoration project manager will drive by it during visits to the South Base Boundary Groundwater Treatment Plant. As a result, at least one AFCEC restoration project manager drives by the controlled area on a quarterly basis.

12.0 MW 269 Area (SS030)

SS030 is in the southern part of the NEWIOU and consists of a solvent plume from unknown historical activities on undeveloped land near the southern base boundary. The COC plume extends onto off-base private property that is used for animal grazing.

12.1 Environmental Conditions

The maximum concentration of TCE in groundwater is 50.4 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. Appendix L 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 portion of the SS030 plume has migrated off-base and is located beneath private property. To allow the base to carry out environmental investigations and restoration activities on private property, the base purchased an easement that covers the lateral extent of the TCE plume. The easement restricts the activities of the property owner that could potentially interfere with the selected groundwater remedy for SS030. This easement expires and will have to be renewed in 2030.

The Travis AFB Groundwater ROD selected Alternative 3 (GET) to address the residual dissolved solvent contamination. The progress that GET has made in reducing COC mass and concentrations is reported in annual GRISRs.

12.2 Status of SS030 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SS030 also poses an indoor air vapor intrusion risk to future residents, so the LUCs also restrict residential land uses until concentrations of solvents in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health.

To allow the base to carry out environmental investigations and restoration activities on private property, the base purchased an easement that covers the lateral extent of the TCE plume. The easement restricts the activities of the property owner that could potentially interfere with the selected groundwater remedy for SS030. If the easement expires before the solvent concentrations in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health, then the base will negotiate a subsequent easement with the property owner.

The 2014 inspection of the groundwater LUCs at SS030 found that administrative controls are adequate to enforce the groundwater and vapor intrusion restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater or vapor, and no

new construction has taken place at the site. Photograph 12 in Appendix A of this report shows the off-base portion of the controlled area at SS030 that is under the easement.

The controlled area at SS030 is located south of the flight line, and most of the solvent plume is located off-base. An AFCEC restoration project manager drives by the controlled area during visits to the South Base Boundary Groundwater Treatment Plant. As a result, at least one AFCEC restoration project manager drives by the controlled area on a quarterly basis.

13.0 Facility 1205 (SD031)

SD031 is a concrete and asphalt industrial area that is used by the Civil Engineer Maintenance Inspection and Repair Team (CEMIRT). The maintenance and repair of diesel generators, wash rack activities, the operation of an oil/water separator (OWS), and aircraft maintenance from about 1957 to the present day contaminated the local groundwater with chlorinated solvents, primarily 1,1-dichloroethene (1,1-DCE).

13.1 Environmental Conditions

The maximum concentration of 1,1-DCE in groundwater is 98.7 ppb. The federal and State of California drinking water standard for 1,1-DCE is 6 ppb. The *East Industrial Operable Unit Remedial Investigation Report* (Roy F. Weston, 1995) presents a more detailed description of the human health risk assessment for this site.

13.2 Status of SD031 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SD031 does not pose an indoor air vapor intrusion risk to industrial workers or future residents.

The 2014 inspection of the groundwater LUCs at SD031 found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater, and no new construction has taken place at the site. Photograph 13 in Appendix A of this report shows the controlled area at SD031.

The controlled area at SD031 is located about 1/2 of a mile from the AFCEC IST office, and an AFCEC restoration project manager drives by the controlled area during visits to the Corrective Action Management Unit (CAMU). Because SD031 was the subject of a groundwater demonstration project toward the end of the 2014 construction season, at least one AFCEC restoration project manager drove by the controlled area about once every three weeks.

14.0 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 has sumps and an oil/water separator that are no longer in use.

14.1 Environmental Conditions

Surface soil on the east and west side of facility 810 contains cadmium and benzo(a)pyrene residue. All 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.

The maximum TCE concentration in the groundwater at SD033 is 81 parts per billion (ppb). The federal and State of California drinking water standard for TCE is 5 ppb. The Travis AFB Groundwater ROD selected Alternative 2 (Monitored Natural Attenuation) to address the residual dissolved solvent contamination. The interim GET system in the West Industrial Operable Unit is shut down. The progress that MNA has made in reducing COC mass and concentrations is reported in annual GRISRs.

14.2 Status of SD033 Soil 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 unrestricted use and unlimited exposure. The Air Force is to restrict residential development and unauthorized disturbance and relocation of soil at this site.

The Travis AFB General Plan describes the presence of cadmium and benzo(a)pyrene in the surface soil and the land use restriction, particularly on the unauthorized disturbance and use of soil at this site.

The 2014 inspection of the soil 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 areas. Photographs 14 and 15 in Appendix A of this report show the controlled soil areas at SD033.

The two controlled areas at SD033 are located in an industrial area adjacent to the west side of the aircraft parking ramp. However, because of the site's somewhat detached location in relation to nearby solvent plumes, the AFCEC IST restoration project managers visited both controlled areas an average of about once a quarter.

14.3 Status of SD033 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SD033 also poses an indoor air vapor intrusion risk to future residents, so the LUCs also restrict residential land uses until concentrations of solvents in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health.

The 2014 inspection of the groundwater LUCs at SD033 found that administrative controls are adequate to enforce the groundwater and vapor intrusion restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater or vapor, and no new non-environmental construction has taken place at the site.

15.0 Facility 811 (SD034)

SD034 is located in the western part of the NEWIOU and consists of an aircraft wash rack facility with an oil/water separator (OWS) and an overflow pond. Leaks from the OWS resulted in a layer of Stoddard Solvent, containing dissolved solvents, floating on the groundwater table. The leaking OWS was replaced in 1994.

15.1 Environmental Conditions

Stoddard Solvent by itself does not pose a potential risk to human health and the environment, so the potential risk is derived from the chlorinated solvents within the Stoddard Solvent layer. The maximum concentration of TCE in groundwater is 5.8 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. Appendix O 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.

The Travis AFB Groundwater ROD selected Alternative 7 (Passive Skimming and EA) to address the residual solvent contamination. The progress that Passive Skimming and EA have made in reducing COC mass and concentrations is reported in annual GRISRs.

15.2 Status of SD034 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SD034 does not pose an indoor air vapor intrusion risk to industrial workers or future residents.

The 2014 inspection of the groundwater LUCs at SD034 found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater, and no new construction has taken place at the site. Photograph 17 in Appendix A of this report shows the controlled area at SD034.

The controlled area at SD034 is located over 2.5 of a mile from the AFCEC IST office. Because of its location in an industrial area away from most groundwater activities, at least one AFCEC restoration project manager drove by the controlled area about once a quarter.

16.0 Facilities 818 and 819 (SS035)

SS035 is located in the western part of the NEWIOU and consists of an aircraft hangar and wash rack with an OWS. Historical practices during aircraft repair, painting and washing contaminated the local groundwater with chlorinated solvent, primarily TCE.

16.1 Environmental Conditions

No TCE has been recently detected at the site at a concentration that exceeds the federal or California drinking water standard of 5 ppb. Appendix P 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.

The Travis AFB Groundwater ROD selected Alternative 2 (Monitored Natural Attenuation) to address the residual dissolved solvent contamination. The interim GET system in the WIOU is shut down. The progress that MNA has made in reducing COC mass and concentrations is reported in annual GRISRs.

16.2 Status of SS035 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SS035 does not pose an indoor air vapor intrusion risk to industrial workers or future residents.

The 2014 inspection of the groundwater LUCs at SS035 found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater, and no new construction has taken place at the site.

The controlled area at SS035 is located over 2.5 of a mile from the AFCEC IST office. Because of its location in an industrial area away from most groundwater activities, an AFCEC restoration project manager drove by the controlled area about twice a year.

17.0 Facilities 872/873/876 (SD036)

SD036 is located in the western part of the NEWIOU and consists of a number of multiple-use shops, including a wash rack and OWS. Past industrial activities have contaminated the local groundwater with chlorinated solvents, primarily TCE.

17.1 Environmental Conditions

The maximum TCE concentration in the groundwater at SD036 is 6,700 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. Appendix Q 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. The Travis AFB Groundwater ROD selected Alternative 5 (EVO and EA) to address the residual dissolved solvent contamination. The progress that EVO and EA have made in reducing COC mass and concentrations is reported in annual GRISRs.

17.2 Status of SD036 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SD036 also poses an indoor air vapor intrusion risk to industrial workers, based on the potential vapor intrusion risk that is posed by solvent COCs associated with Site SD036. So, the LUCs also restrict residential and industrial land uses until concentrations of solvents in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health.

The 2014 inspection of the groundwater LUCs at SD036 found that administrative controls are adequate to enforce the groundwater and vapor intrusion restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater or vapor, and no new construction has taken place at the site. Photograph 18 in Appendix A of this report shows the controlled area at SD036.

SD036 is located within a Civil Engineer complex, and an AFCEC restoration project manager drives by this site routinely (about once every two weeks on average) to attend excavation permit meetings.

18.0 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.

Past industrial activities associated with wastewater management, aircraft maintenance, heavy equipment maintenance, air cargo handling, vehicle washing, fuel transport, and waste accumulation have contaminated the local groundwater with chlorinated VOCs, SVOCs, and petroleum hydrocarbons. TCE is the most prevalent COC at this site.

The West Industrial Operable Unit RI divided SD037 into the following six (6) areas:

- Area 1 – Designated by a surface soil sample collected for the sanitary sewer investigation.
- Areas 2 and 3 – Locations between the sanitary sewer system and the jet fuel pipeline.
- Area 4 – Facility 919 along with an OWS and hazardous waste accumulation point.
- Area 5 – Facility 981 along with an OWS and hazardous waste accumulation point.
- Area 6 – Facility 977.

18.1 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. The maximum concentration of TCE in groundwater is 2,070 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. 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. The Travis AFB Groundwater ROD selected Alternative 5 (EVO and EA) to address the residual dissolved solvent contamination. The progress that EVO and EA have made in reducing COC mass and concentrations is reported in annual GRISRs.

18.2 Status of SD037 Soil 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 Area 6; because PAH, lead, and TPH concentrations in the soil exceed levels that allow for unrestricted use and unlimited exposure. The Air Force is to restrict

residential development and unauthorized disturbance and relocation of soil at this site. Alternative 16 (No Action) is the selected remedy for Areas 1 through 5.

The Travis AFB General Plan describes the presence of PAH, lead, and TPH in the surface soil and the land use restriction, particularly on the unauthorized disturbance and use of soil at this site.

The 2014 inspection of the soil 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 on the west side of the base. However, because of a major road construction project that diverted traffic away from an ammunition loading parking ramp, access to SD037 requires a more time-consuming, indirect route. On an average, an environmental restoration project manager views the controlled area about three times annually.

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 19 and 20 in Appendix A of this report show the controlled areas within the open work areas at SD037.

18.3 Status of SD037 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SD037 also poses an indoor air vapor intrusion risk to industrial workers, based on the potential vapor intrusion risk that is posed by solvent COCs associated with Site SD037. So, the LUCs also restrict residential and industrial land uses until concentrations of solvents in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health.

The 2014 inspection of the groundwater LUCs at SD037 found that administrative controls are adequate to enforce the groundwater and vapor intrusion restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater or vapor, and no new construction has taken place at the site. Photograph 21 in Appendix A of this report shows the groundwater controlled area at SD037.

19.0 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.

19.1 Environmental Conditions

Lead residue is the COC 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 2008, the base constructed a sustainable in situ bioreactor over the footprint of the former sump. Funded by the Technology Transfer Office at the Air Force Center for Engineering and the Environment, the DP039 bioreactor is designed to clean up residual solvent contamination associated with the former sump. Travis AFB obtained regulatory approval to authorize the construction of the bioreactor as a demonstration project. Data from this project supported the selection of final groundwater remedies in the *Travis AFB Groundwater ROD* (CH2M HILL, 2014). 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 removed first and placed in a large bin. Soil sample collection and analysis was used to characterize the waste and to determine the amount of residual lead remaining in the soil at DP039. The details of the bioreactor construction and the disposal of the contaminated soil will be presented in an upcoming technical memorandum. The schedule for this technical memorandum has not been established, because the upcoming Travis AFB Groundwater ROD has a higher priority. Also, even if the soil LUC at DP039 was removed, the base would still be required to control the same square footage to protect the DP039 bioreactor. Once the ROD is signed, the base will issue the draft technical memorandum for regulatory review.

The maximum concentration of TCE in groundwater is 803 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. The Travis AFB Groundwater ROD selected Alternative 6 (Bioreactor, Phytoremediation, EVO Permeable Reactive Barrier, and EA) to address the residual dissolved solvent contamination. The progress that EVO and EA have made in reducing COC mass and concentrations is reported in annual GRISRs.

19.2 Status of DP039 Soil 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 describes the presence of lead in the surface soil and the land use restriction, particularly on the unauthorized disturbance and use of soil at this site.

The 2014 inspection of the soil 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 had been excavated and sent by truck to an appropriate landfill as a result of the bioreactor demonstration project, as described in the *Site DP039 Lead-Contaminated Soil Excavation Technical Memorandum* (CH2M HILL, 2015). Travis AFB will continue to enforce the soil restrictions until the base receives approval through an amendment to the WABOU Soil ROD to remove the soil restrictions from this part of the site. Photograph 22 in Appendix A 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 AFCEC IST restoration project managers visited the controlled area at DP039 in 2014 to observe maintenance on the bioreactor and the phytoremediation study area. On average, they visited the site about once a quarter.

19.3 Status of DP039 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at DP039 also poses an indoor air vapor intrusion risk to industrial workers, based on the potential vapor intrusion risk that is posed by solvent COCs associated with Site DP039. So, the LUCs also restrict residential and industrial land uses until concentrations of solvents in groundwater are reduced to the point where they no longer pose an unacceptable risk to human health.

The 2014 inspection of the groundwater LUCs at DP039 found that administrative controls are adequate to enforce the groundwater and vapor intrusion restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater or vapor, and no new construction has taken place at the site. The inspectors noted that the enforcement of groundwater LUCs could be improved with the addition of signage on the north side of the

phytoremediation tree stand to inform visitors of the groundwater cleanup that is performed by the red iron-bark eucalyptus trees.

20.0 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. It is possible that this activity contaminated the local groundwater with solvents, primarily TCE.

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.

20.1 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. The maximum concentration of TCE in groundwater is 0.72 ppb. The federal and State of California drinking water standard for TCE is 5 ppb. 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. The Travis AFB Groundwater ROD selected Alternative 2 (Monitored Natural Attenuation) to address the residual dissolved solvent contamination. The progress that MNA has made in reducing COC mass and concentrations is reported in annual GRISRs.

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.

20.2 Status of SD043 Soil 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 describes the presence of PCB-1254 in the soil and the land use restriction, particularly on the unauthorized disturbance and use of soil at this site.

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 LUCs 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 BGP.

The 2014 inspection of the soil 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 2014. Photograph 23 in Appendix A shows the east side of the generator and pad south of Building 916, and photograph 24 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, AFCEC IST restoration project managers visit the controlled area at SD043 about two to three times a year on average.

20.3 Status of SD043 Groundwater Land Use Controls

Section 2.12.2.8 of the Travis AFB Groundwater ROD states that LUCs are required to ensure that groundwater is not used for potable purposes until it is remediated to MCLs that allow for unlimited use and unrestricted exposure. The groundwater contamination at SD043 does not pose an indoor air vapor intrusion risk to industrial workers or future residents.

The 2014 inspection of the groundwater LUCs at SD043 found that administrative controls are adequate to enforce the environmental restrictions. There is no evidence of any activities that could expose base personnel to contaminated groundwater, and no new construction has taken place at the site.

21.0 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 and is located within Grazing Management Unit (GMU)-2, a 126-acre parcel of land that had been used to graze horses. The soil COCs are attributed to the asphalt and other construction debris that had been stockpiled onsite.

21.1 Environmental Conditions

Chemicals of Concern (COCs) detected in surface soils include benzo(a)anthracene, benzo(a)pyrene, and dibenz(a,h)anthracene. These COCs 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 COCs 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 the spring of 2010, Kinder Morgan for SFPP, LP (under a ground lease with Travis AFB and an agreement with the Defense Energy Support Center) made the preparations to construct a new above-ground storage tank (AST) fuel facility within the footprint of the LF044 controlled area. The placement of the fuel facility in the LF044 area was based on its proximity to an existing AST facility on base, as well as to an off-base fuel pipeline. The placement also avoided the destruction of vernal pools and other sensitive habitats at the alternative construction locations.

Prior to the start of the tank construction, earth-moving equipment removed vegetation, construction debris, and contaminated soil from the construction area. Most of the concrete debris was taken to Concrush, a construction material recycling company in Fairfield, CA. The vegetation, weathered asphalt, contaminated soil and other miscellaneous debris were sent to the Hay Road Landfill in Vacaville, CA. When this phase of the project was complete, the construction area had been scraped to the point where only native soil was exposed. Earth-moving operations continued to ensure that the foundations for the ASTs were level and met specified geotechnical standards and soil compaction requirements. Clean soil was then brought onto the construction site to build the secondary containment walls for the AST enclosures. Tank construction was complete by the summer of 2012.

21.2 Status of LF044 Soil 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 COCs 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 COCs and apply land use controls to prevent the site from being used for residential purposes.

The Travis AFB General Plan describes the presence of the soil COCs and the land use restrictions, particularly on the unauthorized disturbance and use of soil at this site. Now that the AST facility construction is complete, the base has reassessed the footprint of the controlled area while continuing to enforce the land use controls over the entire site. For the new tank facility, the restrictions associated with fuel operations are more stringent than the previous environmental restrictions and are under contractor management. For example, tank facility visitation is significantly limited and requires prior coordination. The *Report on the Environmental Impact of the SFPP Fuel Tank Project on the Land Use Controls at Site LF044* (AFCEC and AMEC, 2014) is a joint data report from the base and the construction contractor that describes the excavation and disposal of contaminated soil and construction materials from the construction area. The joint report reduces the footprint of the LF044 controlled area to the area outside of the new tank facility. The footprint of the Landfill X area that is not a part of the aboveground tank construction project is now too small to use as a heavy equipment training area. Figure 5 shows the Landfill X area and the remaining portions of the soil site that is under LUCs.

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.

21.2.1 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 2012 inspection of the LUCs at LF044 found the fence and signs along all but the southern sides of the controlled area as well as the north gate had been removed and replaced with security fencing and a new gate to control entry into the tank facility. All contaminated soil and construction debris within the footprint of the new tank facility had been excavated and taken off-site. A significant portion of the security fence around the southern side of the new tank facility now serves as part of the fence around the remaining LF044 controlled area.

The 2014 inspection noted the replacement of several signs and fence repairs that have taken place since the completion of the tank facility construction. There is no evidence to suggest that the property is being used for other than industrial purposes. Photograph 25 of Appendix A shows the small strip of land between the berm and the new AST containment enclosure.

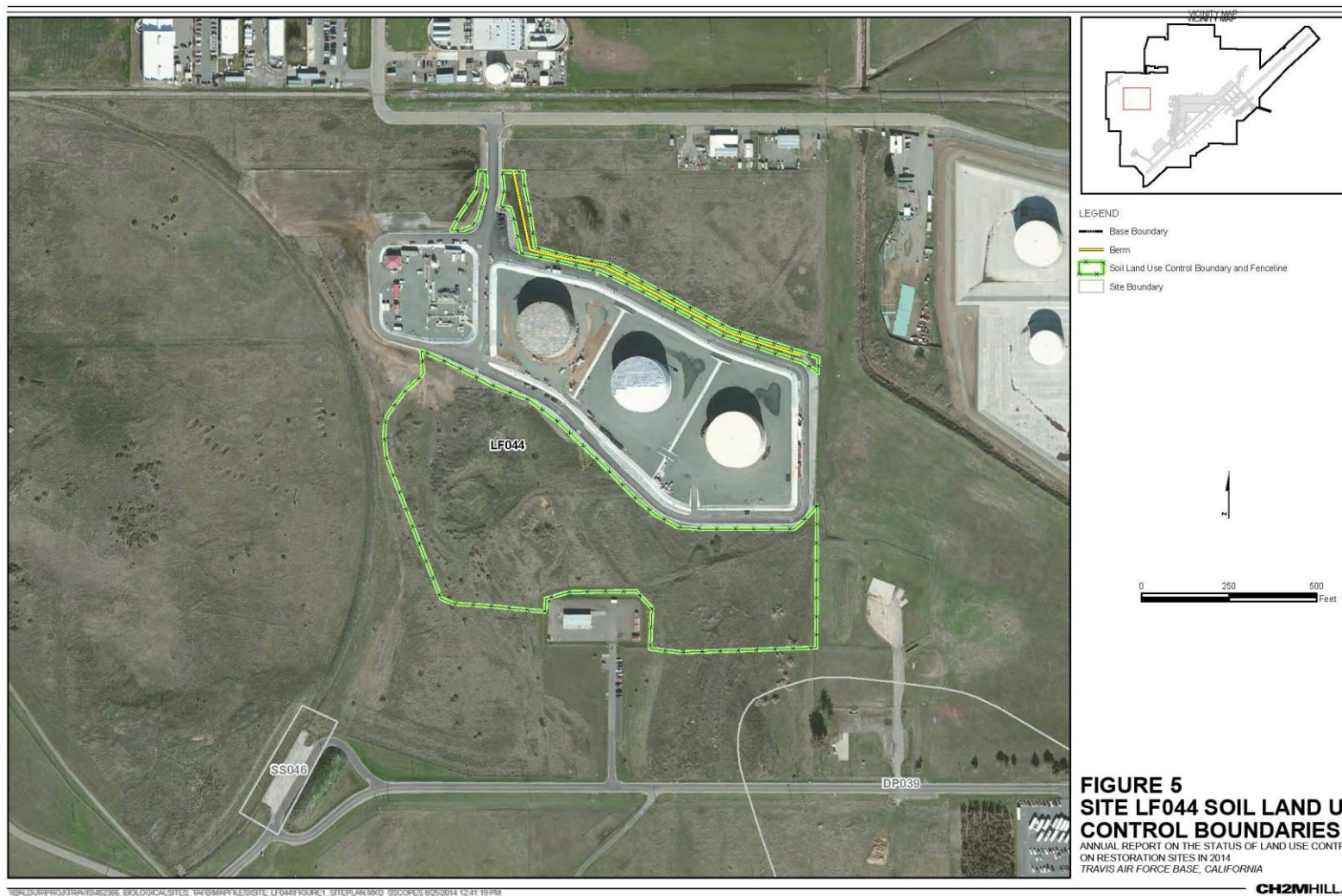
Photograph 26 shows the north side of the LF044 fence, and photograph 27 shows the south gate and a warning sign.

21.2.2 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.

The 2014 inspection of the LUCs at LF044 found the berm to be in good to excellent physical condition. However, there are secondary containment walls next to the LF044 berm that are designed to capture and hold 110% of the contents of the new tanks. These walls are much larger than the LF044 berm. As a result, the berm no longer serves its original purpose, which was to prevent the flow of contaminated sediment into nearby vernal pools. This is because the contaminated materials next to the berm have been removed, and the amount of land between the berm and the secondary containment walls is very small (as shown in Photograph 25), so a large amount of water will not accumulate between the berm and the containment walls. It is likely that the base will eventually seek regulatory concurrence to remove the requirement for a berm from the LF044 controlled area.

The AST facility construction contractor received a considerable amount of environmental oversight from the Asset Management Flight during the 2010 and 2011 summer construction seasons, primarily consisting of attendance in project review meetings and signing non-hazardous waste manifests. This level of involvement dropped when the tank facility construction was complete. On average, the LF044 controlled area was visited about five times in 2014 by both base personnel and contractors.



22.0 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 and is within the explosive safety clear zone of a nearby conventional weapons storage facility.

22.1 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.

22.2 Status of SS046 Soil 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 COCs 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 describes the presence of COCs in the surface soil and the land use restriction, particularly on the unauthorized disturbance and use of soil at this site.

The 2014 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 28 of Appendix A of this report shows the warning sign at the west end of the SS046 controlled area, and photograph 29 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 AFCEC restoration project managers have to plan to check on its condition when visiting other nearby groundwater sites. They average a visit once a quarter.

23.0 Conclusion and Summary of Findings

On 28 January 2015, representatives from the AFCEC Restoration IST conducted a formal inspection of the LUCs at nine (9) soil sites, 14 on-base groundwater sites, and three (3) off-base groundwater sites associated with the Travis AFB ERP. The nine soil sites are designated as LF007, SS015, SS016, SD033, SD037, DP039, SD043, LF044, and SS046. The 14 on-base groundwater sites are designated as FT004, LF006, SS015, SS016, ST027B, SS029, SD031, SD033, SD034, SS035, SD036, SD037, DP039, and SD043. The 3 off-base groundwater sites are designated as FT005, LF007, and SS030. This inspection complies with Section 5.4 (Land Use Controls) of the WABOU Soil ROD, Section 5.4 (Land Use Controls [LUC]) of the NEWIOU SSSW ROD, and Section 2.12.2.8 (Land Use Controls) of the Travis AFB Groundwater ROD.

The inspection team found the LUCs at the 9 soil sites and the 14 on-base groundwater sites to be in place and effective at restricting land use to industrial purposes only, protecting ecological receptors from CERCLA COCs, preventing the construction of office space without appropriate vapor intrusion mitigation measures above solvent plumes, or protecting groundwater treatment infrastructure from damage. There is no evidence that any unauthorized land uses or unauthorized soil disturbances in the controlled areas took place in 2014. In addition, a records review revealed no on-base drinking water wells have been constructed. There are no physical controls associated with these groundwater restrictions that can be inspected. The three off-base properties that are under easements were also inspected to verify that no residential development or well drilling activities other than base remedial activities had taken place.

The inspectors made the following observations:

1. The inspectors did not identify any sites where the addition of physical barriers could improve LUC management. However, they did notice some signage that required replacement or could be added to improve the awareness of base personnel as to the location of active groundwater remediation systems.
2. The inspectors walked the remaining portion of the LF044 footprint that is outside of the new aboveground storage tank (AST) facility. The final *Report on the Environmental Impact of the SFPP Fuel Tank Project on the Land Use Controls at Site LF044* (AFCEC and AMEC, 2014) describes the environmental activities that took place during tank construction and the impact of the new facility on the LF044 LUC footprint. The base will continue to enforce LUCs on the three LF044 subareas. Any future revisions to the LF044 LUC footprint will be coordinated with and approved by the environmental regulatory agencies before implementation.
3. The high security fence and two access gates that were built around the CAMU significantly improve the access control to this soil repository.
4. Although the base is maintaining the DP039 soil LUCs, they are no longer necessary, since 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). They are also redundant; the groundwater LUCs associated with the bioreactor cover a footprint that exceeds the footprint of the soil LUC area. The base has taken the first step to remove the soil LUCs by publishing a Proposed Plan that supports the removal of the soil LUCs through an amendment to the WABOU Soil ROD. This amendment is scheduled to be finalized by the end of 2015.

5. As described in section 3.1, the Travis AFB General Plan (BGP) is no longer web-based. The BGP files were placed on the Travis AFB SharePoint site so that base project managers still have access to them. In lieu of a BGP, the Air Force has contracted the production of a Travis AFB Installation Development Plan (IDP). Additionally, the Travis Restoration IST is working on a Land Use Control Implementation Plan (LUCIP) that will describe the responsibilities of base personnel in LUC management and will include the LUCs associated with the groundwater remedies that were selected in the Travis AFB Groundwater ROD.

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Appendix A

Photographs



Photograph 1: Controlled Area (Groundwater) at FT004



Photograph 2: Off-base Controlled Area (Easement) at FT005



Photograph 3: On-base Controlled Area (Groundwater) at FT005



Photograph 4: Controlled Area (Groundwater) at LF006



Photograph 5: Northwest CAMU Gate with Warning Sign



Photograph 6: Northwestern Corner of CAMU Fence



Photograph 7: View of LF007C Extraction/Monitoring Well Network



Photograph 8: Controlled Area at SS015



Photograph 9: Controlled Area at SS016



Photograph 10: Controlled Area (Groundwater) at ST027B



Photograph 11: View of SS029 Monitoring Wells



Photograph 12: View of SS030 Easement from South Groundwater Treatment Plant



Photograph 13: Controlled Area (Groundwater) at SD031



Photograph 14: Warning Sign at Controlled Area on East Side of SD033



Photograph 15: Warning Sign at Controlled Area on West Side of SD033



Photograph 16: Controlled Area (Groundwater) at SD033



Photograph 17: Controlled Area (Groundwater) at SD034



Photograph 18: Controlled Area (Groundwater) at SD036



Photograph 19: Controlled Area on Southeast Side of SD037



Photograph 20: Controlled Area on Southwest Side of SD037



Photograph 21: Controlled Area (Groundwater) at SD037



Photograph 22: Controlled Area at DP039 (Post Bioreactor Construction)



Photograph 23: Warning Sign near East Side of Installed Generator at SD043



Photograph 24: Generator Pad and Warning Signs at SD043. Stanchion of Former Pad with Leaking Transformers is visible just behind the warning sign post.



Photograph 25: Area between Berm and new AST Containment Enclosure



Photograph 26: North Side of LF044 Fence



Photograph 27: Gate and Warning Sign on South Side of LF044



Photograph 28: Warning Sign at East Side of SS046



Photograph 29: Warning Sign at West Side of SS046

Appendix B

Documentation of Remedial Actions that Resulted in Land Use Control Removal

Documentation of Remedial Actions that Resulted in Land Use Control Removal

Land Use Controls (LUCs) are applied to a restoration site with COCs that are present in an environmental medium of concern at concentrations that pose a potential human health or ecological risk and do not allow for unrestricted use and unlimited exposure. LUCs can either be a selected standalone remedy or a contingency remedy in conjunction with an active remedy that has the potential to reach residential cleanup levels. When residential cleanup levels are achieved, the restoration site has no restrictions to its present or future use, and there is no limit to the amount of time that a person can occupy that site. If an active remedy reduces COC levels to those that allow for unrestricted use and unlimited exposure, then there is no need for LUCs. The Remedial Action Report documents the attainment of cleanup levels for all chemicals of concern (COCs) and the removal of LUCs for that particular environmental medium of concern.

Each ROD states that the LUC alternative requirements will be deleted for a site in the event that the cleanup achieves levels for all COCs that allow for unlimited use and unrestricted exposure. This appendix provides a list of restoration sites that had received environmental restrictions based on the presence of COCs, the medium in which the COCs were present, the remedial action(s) that attained residential cleanup levels for the particular medium, and the remedial action report that documents the attainment of residential cleanup levels and the removal of LUCs for the particular medium.

As the Travis AFB Environmental Restoration Program completes cleanup actions that achieve residential cleanup levels and removes LUCs for a particular medium, those cleaned sites will be removed the main body of this report and placed in this appendix. Future annual LUC reports will update this appendix, which will help future project managers to track the status of LUCs on Travis AFB and eventually support the partial or complete delisting of Travis AFB from the National Priority List.

Tables 1 through 3 list the sediment, soil and groundwater sites that received cleanup actions that achieved residential cleanup levels and had their LUCs removed. Table 4 lists the restoration sites that were transferred into the Petroleum Only Contamination (POCO) program; these sites receive regulatory oversight from the San Francisco Bay Regional Water Quality Control Board.

Table 1: Travis AFB Restoration Sites with Previous Sediment Contamination				
Site	Primary Chemicals of Concern	Cleanup Action	Cleanup Year	Documentation
SD001 – Storm Sewer Systems A and C, Union Creek	Benzo(a)pyrene	Alternative 18 (Excavation) ¹	2009	Sites SD001 and SD033 Remedial Action Report (ITSI, 2010)
SD033 – Storm Sewer System B (includes West Branch of Union Creek)	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Dibenz(a,h)anthracene Cadmium	Alternative 18 (Excavation) ¹	2009	Sites SD001 and SD033 Remedial Action Report (ITSI, 2010)

¹ Selected in North, East, West Industrial Operable Unit Soil, Sediment, and Surface Water Record of Decision

² Selected in West/Annexes/Basewide Operable Unit Soil Record of Decision

Documentation of Remedial Actions that Resulted in Land Use Control Removal

Table 2: Travis AFB Restoration Sites with Previous Soil Contamination				
Site	Primary Chemicals of Concern	Cleanup Action	Cleanup Year	Documentation
FT003 – Fire Training Area #2	Benzo(a)anthracene Benzo(a)pyrene 2,3,7,8-TCDD	Alternative 18 (Excavation) ¹	2007	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)
FT004 – Fire Training Area #3	Lead 2,3,7,8-TCDD	Alternative 18 (Excavation) ¹	2007	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)
FT005 – Fire Training Area #4	Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene	Alternative 18 (Excavation) ¹	2012	FT005 Remedial Action Report (ITSI Gilbane, 2012)
LF007E – Landfill #2 Area E and Sample Location E19	Polychlorinated Biphenyl (PCB)-1260	Alternative 18 (Excavation) ^{1 3}	2007	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)
LF008 – Landfill #3	Alpha-Chlordane Gamma-Chlordane Heptachlor Heptachlor Epoxide	Alternative S5 (Excavation/ Off-base Disposal) ²	2003	Remedial Action Report for Soil Remedial Action at Site LF008 (Shaw Environmental and Infrastructure [E&I], 2004)
RW013-	Uranium-234	Alternative S5	2002	Remedial Action Report

Documentation of Remedial Actions that Resulted in Land Use Control Removal

Table 2: Travis AFB Restoration Sites with Previous Soil Contamination				
Site	Primary Chemicals of Concern	Cleanup Action	Cleanup Year	Documentation
Radioactive Burial Site #2/ Dry Waste Landfill	Uranium-235	(Excavation/ Off-base Disposal) ²		for Soil Remedial Actions at Site RW013 (Environmental Chemical Corporation [ECC], 2003)
SS041 – Building 905	Alpha-Chlordane Gamma-Chlordane Heptachlor Epoxide Toxaphene	Alternative S6 (Excavation/ On-base Consolidation) ²	2003	Remedial Action Report for Soil Remedial Actions at Site SS041 (ECC, 2003)
SD042 – Buildings 929/931/940	Benzo(a)pyrene Dibenz(a,h)anthracene Benzo(b)fluoranthene Cadmium Chromium	Alternative S6 (Excavation/ On-base Consolidation) ²	2003	Remedial Action Report for Soil Remedial Action at Site SD042 (Shaw E&I, 2003)
SD045 – Former Small Arms Range	Lead Antimony Copper	Alternative S6 (Excavation/ On-base Consolidation) ²	2007	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)

¹ Selected in North, East, West Industrial Operable Unit Soil, Sediment, and Surface Water Record of Decision

² Selected in West/Annexes/Basewide Operable Unit Soil Record of Decision

³ Alternative 17 (Land Use Controls) is the selected remedy for the remaining LF007 subareas

Table 3: Travis AFB Restoration Sites with Previous Groundwater Contamination				
Site	Primary Chemicals of Concern	Cleanup Action	Year of LUC Removal	Documentation
SS041 – Building 905	Heptachlor Epoxide	Groundwater Extraction and Treatment	2014	Travis AFB Groundwater Record of Decision (CH2M HILL, 2014)

Documentation of Remedial Actions that Resulted in Land Use Control Removal

Table 4: Travis AFB Restoration Site Transfers into POCO Program			
Site	Primary Chemicals of Concern	Transfer Year	Documentation
ST032	Total Petroleum Hydrocarbons – Gasoline (TPH-G)	2009	Technical Memorandum: Recommendation to Transfer ERP Site ST032 to the POCO Program (CH2M HILL, 2009)