INSTALLATION RESTORATION PROGRAM

West/Annexes/Basewide Operable Unit
Travis Air Force Base

SOIL
RECORD OF DECISION
FOR THE WABOU

FINAL

60TH CIVIL ENGINEER SQUADRON
Travis Air Force Base, California

E012003004RDD_01

DECEMBER 2002

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

December 11, 2002

MEMORANDUM FOR DISTRIBUTION

FROM: 60 CES/CEVR
580 Hickam Ave
Travis AFB CA 94535-2176

SUBJECT: Final West/Annexes/Basewide Operable Unit (WABOU)
Soil Record of Decision (ROD)

1. The attached document constitutes the final WABOU Soil ROD in support of the Travis AFB Environmental Restoration Program. This ROD presents the selected and accepted remedies for the WABOU soil sites. If you have any questions concerning the WABOU Soil ROD, please contact Mr. Glenn Anderson at (707) 424-4359.

ALLEN L. BRICKEEN, P.E.
Remedial Program Manager

Attachment:
Final WABOU Soil ROD

Distribution: (See attached)

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Final

West/Annexes/Basewide Operable Unit Soil Record of Decision for Travis Air Force Base

Prepared for

60 CES/CEVR

Travis Air Force Base, California

December 2002

CH2MHILL
2525 Airpark Drive
Redding, CA. 96001

Contents

Contents, Continued

Contents, Continued

Section **Page**

Contents, Continued

Section **Page**

Contents, Continued

Section **Page**

Tables

Contents, Continued

Contents, Continued

Section **Page**

Figures

Acronyms List

AFB	Air Force Base
AFCEE	Air Force Center for Environmental Excellence
AMC	Air Mobility Command
AMW	Air Mobility Wing
Annex	Potrero Hills Annex
ARARs	Applicable or Relevant and Appropriate Requirements
BAF	bioaccumulation factor
Base	Air Force Base
bgs	below ground surface
BRAC	Base Realignment and Closure
CAL-EPA/DTSC	California Environmental Protection Agency/Department of Toxic Substances Control
CAMU	Corrective Action Management Unit
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
COC	chemical of concern
COEC	chemical of ecological concern
COPC	chemical of potential concern
COPEC	chemical of potential ecological concern
CRP	Community Relations Plan
CSM	Conceptual Site Model
CTV	Critical Toxicity Value
DI WET	de-ionized waste extraction test

EE/CA	Engineering Evaluation/Cost Analysis
EIOU	East Industrial Operable Unit
EPC	Exposure Point Concentration
ERA	Ecological Risk Assessment
FFA	Federal Facility Agreement
FS	Feasibility Study
GMU	Grazing Management Unit
GP	General Plan
GSAP	Groundwater Sampling and Analysis Program
HHRA	Human Health Risk Assessment
HQ	Hazard Quotient
HWAA	Hazardous Waste Accumulation Area
HWCL	California Hazardous Waste Control Law
IRP	Installation Restoration Program
ISA	Initial Screening of Alternatives
LCRS	leachate collection and recovery system
LDR	land disposal restrictions
LUC	Land Use Control
MAP	Management Action Plan
MCL	maximum contaminant level
mg/kg	milligrams per kilogram
msl	mean sea level
MTR	minimum technology requirements
NCP	National Contingency Plan
NEWIOU	North/East/West Industrial Operable Unit
NFA	No Further Action
NOAEL	no observed adverse effect level
NOEC	no observed effect concentration
NOU	North Operable Unit
NPDES	California National Pollutant Discharge Elimination System

NPL	National Priorities List
NRC	Nuclear Regulatory Commission
OEAA	OEA Aerospace
O&M	Operations and Maintenance
OSHA	Occupational Safety and Health Administration
OSWER	Office of Solid Waste and Emergency Response
OU	Operable Unit
P2 MAP	Pollution Prevention Management Action Plan
PCB	polychlorinated biphenyl
PCWQCA	Porter-Cologne Water Quality Control Act
PHOU	Potrero Hills Operable Unit
POCOS	Petroleum-only Contaminated Sites
PP	Proposed Plan
ppm	parts per million
PRG	Preliminary Remediation Goal
RA	Remedial Action
RAB	Restoration Advisory Board
RACER	Remedial Action Cost Engineering and Requirements System
RAGS	Risk Assessment Guidance for Superfund
RAO	Remedial Action Objective
RAP	Remedial Action Plan
RCRA	Resource Conservation and Recovery Act
RD	Remedial Design
RD/RA	Remedial Design/Remedial Action
RI	Remedial Investigation
ROD	Record of Decision
RPM	Remedial Project Manager
RTV	Reference Toxicity Value
RWQCB	Regional Water Quality Control Board
SARA	Superfund Amendments and Reauthorization Act of 1986

SVOC	semivolatile organic compound
TBC	to be considered
TCE	trichloroethene
U.S. EPA	U.S. Environmental Protection Agency
UST	underground storage tank
VOC	volatile organic compound
WABOU	West/Annexes/Basewide Operable Unit
WIOU	West Industrial Operable Unit

PART I

Declaration

Site Name and Location

Department of the Air Force
Travis Air Force Base
Fairfield, California 94535-5000

Statement of Basis and Purpose

This Record of Decision (ROD) presents the soil remedial actions for the West/Annexes/Basewide Operable Unit (WABOU) at the Travis Air Force Base (AFB or Base) Superfund Site in Solano County, California. The Air Force selected the soil remedial actions in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA) 42 USC § 9601 *et seq.*, and with the National Oil and Hazardous Substances Pollution Contingency Plan, 40 Code of Federal Regulations (CFR) Part 300 (National Contingency Plan [NCP]). The Administrative Record contains the documents used in the selection of the soil remedial actions. The Administrative Record is available for review at Travis AFB.

The U.S. Environmental Protection Agency (U.S. EPA), Region IX, concurs with the selected soil remedies. The State of California, through the California Environmental Protection Agency's Department of Toxic Substances Control (Cal-EPA/DTSC) and the San Francisco Bay Regional Water Quality Control Board (RWQCB), concurs with the selected soil remedies.

Assessment of the Site

As a result of past industrial activities, releases of semivolatile organic compounds (SVOC), metals, polychlorinated biphenyls (PCB), and/or pesticides have contaminated the soil at 10 WABOU sites at Travis AFB. Actual or threatened releases of hazardous substances from these sites, if not addressed by implementing the response actions selected in this WABOU Soil ROD, may present a potential threat to public health, welfare, or the environment.

Forty-one sites with potential contamination resulting from past industrial activities were originally identified during the WABOU Remedial Investigation (RI). Table I-1 presents the current status of the sites that were evaluated during the WABOU RI. Table I-2 presents the average and maximum concentrations of the major contaminants at each site.

The WABOU RI identified the need for the evaluation of remedial alternatives at 10 soil sites. Four of these 10 sites (Building 755, Building 905, Building 916, and Landfill 3) require an action to address groundwater contamination and are included in the *Groundwater Interim Record of Decision for the West/Annexes/Basewide Operable Unit.* (Travis AFB, 1999).

TABLE I-1
Listing and Summary of Current Status of Sites
Evaluated during the WABOU Remedial Investigation
WABOU Soil ROD
Travis AFB, California

Site Name	Site Designation	Annex Designation	Status
Building Sites			
Building 755	DP039		Remedy Selected in WABOU Soil ROD
Building 905	SS041		Remedy Selected in WABOU Soil ROD
Building 916	SD043		Remedy Selected in WABOU Soil ROD
Building 929/931/940	SD042		Remedy Selected in WABOU Soil ROD
Building 938			NFA [a]
Building 942			NFA
GMUs, Landfills, Firing Ranges			
GMUs 7 and 8 [b]			NFA
Landfill 3	LF008		Remedy Selected in WABOU Soil ROD
Landfill X	LF044		Remedy Selected in WABOU Soil ROD
Skeet Range			Removed from the WABOU and receiving RWQCB oversight (see page I-4) [c,g]
Former Small Arms Range	SD045		Remedy Selected in WABOU Soil ROD
Second Former Small Arms Range			NFA
Railhead Munitions Staging Area	SS046		Remedy Selected in WABOU Soil ROD
Railroad Sites			
Former Northern Sacramento Railroad Right-of-Way			NFA
Active Northern Sacramento Railroad Right-of-Way			NFA
Northern Sacramento Railroad Right-of-Way		A-11	NFA
Storage Tank Sites			
UST 935 [d]			NFA
UST 943			NFA
UST 944			NFA
Reservoir Sites and Golf Course			
Reservoir Facilities 1510 & 1516		A-7	NFA
Reservoir Facilities 1512 & 1520		A-8	NFA
Reservoir Facilities 1514 & 1518		A-9	NFA determined during the finalization of the WABOU Soil ROD (see page I-5)
Cypress Lakes Golf Course	SS041	A-10	NFA – cleanup completed as removal action (see page I-7)
Navigational Aid Terminal Very-High Frequency Omni Range		A-2	NFA
Navigational Aid Middle Marker		A-3	NFA
Navigational Aid Outer Marker		A-4	NFA
Cement Hill Communications		A-5	NFA
Miscellaneous Sites			
Suisun Dock Annex		A-1	Annex determined not to be part of the National Priorities List (NPL) site [e]
Potrero Hills Annex		A-6	Transferred to new Potrero Hills OU. Under investigation via Water Board Order (see page I-5) [c,f]
New Base Hospital			NFA
East Side Runway			NFA

TABLE I-1
Listing and Summary of Current Status of Sites
Evaluated during the WABOU Remedial Investigation
WABOU Soil ROD
Travis AFB, California

Site Name	Site Designation	Annex Designation	Status
Patriot Housing			NFA
Base Housing			NFA
Radiological Sites			
Radioactive Burial Site 1/UST			NFA
Radioactive Burial Site 2/Dry Waste Landfill	RW013		Remedy Selected in WABOU Soil ROD
Building 903			Removed from IRP because WABOU RI detected no release (see page I-6)
Building 925			NFA
Buildings 932-936			NFA
Building 943			NFA
B-29 Crash Site			NFA

[a] NFA = No Further Action determined at conclusion of WABOU Remedial Investigation.
[b] GMU = Grazing management unit.
[c] This site was taken out of the WABOU to prevent a delay in starting soil remedial actions in the WABOU.
[d] UST = Underground storage tank.
[e] The Air Force and U.S. EPA made this determination in 1995.
[f] An appropriate remedial alternative for the site has not been selected at this time, and additional site characterization will be conducted via the California Regional Water Quality Control Board Order No. 99-072, Site Cleanup Requirements, OEA Aerospace, Inc. & Travis AFB, dated 22 Sep 1999.
[g] RWQCB letter, Unauthorized Discharge of Pollutants into Travis AFB Skeet Range Vernal Pool, Travis AFB, California, dated 9 December 1999

TABLE I-2
Major Contaminants at WABOU Soil Sites
WABOU Soil ROD
Travis AFB, California

Site Name (Designation)	Major Contaminants	Average Concentration in parts per million (ppm)	Maximum Concentration (ppm)
Building 755 (DP039)	Lead	830	7040
Building 905 (SS041)	Alpha-Chlordane	0.49	6.50
	Gamma-Chlordane	0.54	7.20
	Heptachlor Epoxide	0.02	0.27
	Toxaphene	3.26	25.00
Building 916 (SD043)	PCB-1254	0.58	2.0
Building 929/931/940 (SD042)	Benzo(a)pyrene	0.09	1.20
	Bibenz(a,h)anthracene	0.04	0.59
	Cadmium	4.38	24.60
	Zinc	206.69	1040.00
Landfill 3 (LF008)	Alpha-Chlordane	5.49	68.00
	Gamma-Chlordane	4.47	50.00
	Heptachlor	1.13	12.00
Landfill X (LF044)	Benzo(a)pyrene	5.59	69.00
	Cadmium	0.69	2.00
	Lead	16.94	107.00
	Silver	1.16	17.8

TABLE I-2
Major Contaminants at WABOU Soil Sites
WABOU Soil ROD
Travis AFB, California

Site Name (Designation)	Major Contaminants	Average Concentration in parts per million (ppm)	Maximum Concentration (ppm)
Former Small Arms Range (SD045)	Lead	574.08	7370
Railhead Munitions Staging Area (SS046)	Benzo(a)pyrene Benzo(b)fluoranthene Cadmium	0.05 0.15 1.88	0.61 2.30 18.70
Cypress Lakes Golf Course (SS041)	DDE Dieldrin Endosulfan	0.32 0.05 0.006	5.60 0.44 0.049
Radioactive Burial Site 2/Dry Waste Landfill (RW013)	Uranium-234 Uranium-235	1425 pCi/g 72.5 pCi/g	11160 pCi/g 595.50 pCi/g

The WABOU RI concluded that there is no contaminated surface water in the WABOU. If the WABOU Remedial Design discovers surface water contamination, then any surface water remedial actions would be documented in an amendment to the WABOU Groundwater IROD, if necessary.

Even though there is a basewide component to the WABOU, it is one of three operable units currently on Travis AFB. The North/East/West Industrial Operable Unit (NEWIOU) contains most of the soil and groundwater sites on Travis AFB, and the Potrero Hills Operable Unit (PHOU) will address the Potrero Hills Annex. Section 2.2.2 (Operable Units) provides a more detailed description of the operable units on Travis AFB. The NEWIOU Soil ROD will document the selection of remedies for the soil sites in the NEWIOU. The Travis AFB Groundwater ROD will document the final selection of remedies for all groundwater sites on Travis AFB.

As shown in Table I-1, there are four sites that have been removed from the WABOU. A description of each site follows:

A.) Skeet Range

The Skeet Range is an active recreational skeet and trap facility that was temporarily closed in the early 1990s. The WABOU RI detected lead residue in the soil from past skeet range activities above the acceptable risk range. The Air Force considers this site to be no longer a part of the Travis AFB Installation Restoration Program (IRP), because it is an active skeet range and will remain active for the foreseeable future. The RWQCB is providing regulatory oversight of the range as a result of the presence of vernal pools in the area. Travis AFB Compliance Branch will assume responsibility for ensuring that current recreational activities comply with all federal and state regulations.

If Travis AFB decides to close the range, then all skeet and trap activities will cease and the Air Force will remove the lead shot and any residual lead residue in the soil to an acceptable risk level. The Air Force will notify the U.S. EPA prior to initiating closure of the range and will perform the site closure in accordance with applicable Federal and State of California laws and regulations. Travis AFB will use its Base digging permit procedures to prevent the

removal of soil with lead shot and lead residue from the skeet range. Also, no construction or maintenance project on Travis AFB will use soil from the skeet range. Travis AFB will evaluate the need for additional actions, if any, based on the results of the lead removal activities. Travis AFB will periodically report to U.S. EPA and to the State of California on the current status of the range and any plans for lead mitigation or site closure.

U.S. EPA considers the lead in the soil at the skeet range to be a release under CERCLA. Therefore, until appropriate response actions at the site have been documented under CERCLA, U.S. EPA will not be able to concur with the project closeout report (see Federal Facilities Agreement Sec. 30), nor will U.S. EPA be able to remove Travis AFB from the National Priorities List. U.S. EPA agrees to remove this site from the WABOU so as not to delay completion of this ROD, and agrees to continue discussions with the Air Force and State on how best to address the contamination at this Site.

B.) Reservoir Facilities 1514 and 1518

Reservoir Facilities 1514 and 1518 comprise one of three sets of water storage facilities that provide drinking water to Travis AFB. The WABOU RI detected fluoride contamination in the soil from a leaking aboveground hydrofluosilicic acid storage tank. The tank was removed from its concrete foundation in 1992. The WABOU RI included this fenced annex and identified fluoride in the groundwater and soil. The screening human health risk assessment estimated the hazard index for potential future residential exposure to the soil at or below the non-cancer risk level of 1. The risk assessment also determined that fluoride is not a carcinogen and does not pose a cancer risk to people. The ecological risk assessment concluded that the fluoride does not pose a significant risk to potential ecological receptors. The Air Force and the regulatory agencies have agreed that the potential ecological impacts are within an acceptable risk range, and no further remedial action is required for soil contamination at the Reservoir Facilities site. However, land use controls are in place at the site to provide protection associated with groundwater contamination. The Air Force will include the final groundwater remedial alternative for the Reservoir Facilities site in the subsequent Final Basewide Groundwater ROD for Travis AFB. The Air Force will amend the WABOU Feasibility Study (FS) with a focused FS to assist in the selection of the final groundwater remedial alternative.

C.) Potrero Hills Annex

The Potrero Hills Annex has been transferred to a new operable unit to manage its future remedial activities and will be addressed in a subsequent ROD.

The Potrero Hills Annex (Annex) is a 25-acre parcel that was originally part of a former NIKE missile battery. The WABOU RI detected PCB-1254 adjacent to an electrical transformer pad and metals and explosives in the vicinity of currently active explosive test facilities.

On 22 September 1999, the California Regional Water Quality Control Board issued a Site Cleanup Requirements Order to OEA Aerospace (OEAA) and Travis AFB. The Order tasks both parties with the environmental investigation of the Annex and the adjacent 525-acre OEAA property and the selection and implementation of appropriate remedial actions on both properties.

To allow Travis AFB to comply with this Order, the Air Force and regulatory agencies agreed to pull the Annex out of the WABOU and postpone the application of CERCLA to the Annex while OEAA and Travis AFB take action under the Water Board order. At the time of the signing of this Record of Decision, the investigation under the Water Board Order is ongoing. Once the investigation is complete, and any appropriate remedial action is in place, the agencies will review the results of the Water Board Order and determine whether any other CERCLA-related activities are required for both properties.

D.) Building 903

Building 903 is a former nuclear weapons maintenance facility. The WABOU RI detected radioactive residue inside a concrete vault that served as a neutron source storage area. This site has been removed from the Travis AFB IRP, because the WABOU RI concluded that no release occurred, and all radioactive residue remains inside the vault as anticipated by design. The Travis AFB Compliance Branch assumed the responsibility for the removal and proper disposal of the radioactive residue in the vault prior to the future demolition of the building. Travis AFB will perform all handling and disposal of the radioactive residue in the vault in accordance with the Nuclear Regulatory Commission (NRC) and other applicable regulations.

Description of the Selected Soil Remedies

The Air Force evaluated seven potential remedial alternatives to address contaminated soil in the WABOU. Table I-3 presents the potential soil remedial alternatives.

TABLE I-3
Potential Soil Remedial Alternatives
WABOU Soil ROD
Travis AFB, California

Cleanup Alternative	Description
S1 – No Action	Federal regulations require the use of this alternative as a starting point for comparing the other alternatives. No soil treatment takes place.
S2 – Land Use and Access Restrictions	Land use restrictions are used to prohibit the excavation or disturbance of contaminated soil. They ensure that sites with residual contaminant concentrations that exceed residential cleanup levels, even after cleanup, will not be used for residential development or similar use (e.g., daycare facilities). Fences and signs are posted to prevent access.
S3 – Containment: Capping	A multilayer cap is placed over contaminated soil to prevent access to the soil. A cap is an impermeable covering made of layers of compacted clay and/or synthetic material. Land use and access restrictions are included to protect the cap.
S4 – Excavation/Treatment/ Onbase Consolidation	Contaminated soil is excavated, treated using a chemical stabilization process, and placed in an onbase Corrective Action Management Unit (CAMU). Land use and access restrictions may be included, depending on the soil cleanup level that is attained.
S5 – Excavation/Offbase Disposal	Contaminated soil is excavated and transported by truck to an offbase landfill. Land use and access restrictions may be included, depending on the soil cleanup level that is attained.
S6 – Excavation/Onbase Consolidation	Contaminated soil is excavated and placed in an onbase CAMU. Land use and access restrictions may be included, depending on the soil cleanup level that is attained.
S7 – In Situ Treatment/ Capping	Contaminated soil is treated using a chemical stabilization process. The resulting soil/slurry mix is covered with an asphalt cap, surrounded by a fence, and protected with land use restrictions.

Subsequent to the evaluation of alternatives, the Air Force selected a remedy for the nine WABOU sites addressed in this WABOU Soil ROD. Table I-4 presents the selected soil remedies. The Air Force chose these remedies as the most appropriate strategies for addressing contaminated soil in the WABOU. These remedies address the potential human health and environmental risks that could result from exposure by human (e.g., workers and residents) and ecological (e.g., terrestrial) receptors or migration of contaminants to groundwater.

TABLE I-4
Selected Soil Remedial Alternatives
WABOU Soil ROD
Travis AFB, California

Site Name	Site Designation	Selected Alternative
Building 755	DP039	S2—Land Use and Access Restrictions
Building 905	SS041	S6—Excavation/Onbase Consolidation (Contingency: S5—Excavation/ Offbase Disposal and S4- Excavation/Treatment/Onbase Consolidation)
		S2—Land Use and Access Restrictions
Building 916	SD043	S2—Land Use and Access Restrictions
Buildings 929/931/940	SD042	S6—Excavation/Onbase Consolidation (Contingency: S5—Excavation/ Offbase Disposal and S4- Excavation/Treatment/Onbase Consolidation)
		S2—Land Use and Access Restrictions
Landfill 3	LF008	S5—Excavation/Offbase Disposal
		S6—Excavation/Onbase Consolidation
		S2—Land Use and Access Restrictions
Landfill X	LF044	S2—Land Use and Access Restrictions
Former Small Arms Range	SD045	S6—Excavation/Onbase Consolidation (Contingency: S5—Excavation/ Offbase Disposal and S4- Excavation/Treatment/Onbase Consolidation)
		S2—Land Use and Access Restrictions
Railhead Munitions Staging Area	SS046	S2—Land Use and Access Restrictions
Cypress Lakes Golf Course Annex	SS041	No Further Action – cleanup completed as removal action (see page I-7)
Radioactive Burial Site 2/ Dry Waste Landfill	RW013	S5—Excavation/Offbase Disposal
		S2—Land Use and Access Restrictions

The Air Force completed the Cypress Lakes Golf Course Annex removal action in January 2001. The removal action met the residential cleanup levels of the selected remedial action; therefore, the remedial action for this site is complete, and Alternative S2 (Land Use and Access Restrictions) is not required at the site. This site is clear for unrestricted land use. Section 2.2.3 (Removal Actions) provides a more detailed description of the Cypress Lakes Golf Course Annex removal action.

Differences between Proposed Plan and Soil ROD

Table I-4 includes two major changes to the proposed remedies that were described in the WABOU Proposed Plan at two sites. The remedial action for Building 916 changed from Alternative S6 (Excavation/Onbase Consolidation) to Alternative S2 (Land Use and Access Restrictions), based on the results of a subsequent groundwater investigation. Section 5.8.1 provides the rationale for the change to the Building 916 remedy. Also, the remedial action

for the Railhead Munitions Staging Area changed from Alternatives S2 and S6 to Alternative S2, based on a revision to the risk management approach used at the site. Section 5.8.2 provides the rationale for the change to the Railhead Munitions Staging Area remedy.

Table I-4 also includes several additional selected and contingency remedies. Alternative S2 (Land Use and Access Restrictions) is now a selected remedy for each site (except for the Cypress Lakes Golf Course Annex), and Alternative S4 (Excavation/Treatment/Onbase Consolidation) is a contingency remedy for those sites that have Alternative S6 (Excavation/Onbase Consolidation) as its selected remedy.

Onbase Consolidation

Alternative S6 is the selected alternative for three of the WABOU soil sites (SS041, SD042, and SD045). Alternative S6 consists of excavation and placement of contaminated soil in a corrective action management unit (CAMU). The Air Force will build a CAMU within the boundaries of LF007, which is an inactive landfill within the NEWIOU that will require closure. The Air Force will build the CAMU in two general phases. This WABOU Soil ROD addresses the first phase, which involves the construction of a foundation layer for the CAMU and the placement of contaminated soil from the WABOU onto the foundation. A protective landfill cap will be built over this contaminated soil. The subsequent NEWIOU Soil, Sediment, and Surface Water ROD will address the second phase, which involves the placement of contaminated soil from NEWIOU soil sites into the CAMU and the extension of the cap over all of the contaminated soil. The NEWIOU Soil, Sediment, and Surface Water ROD will also address the closure requirements for LF007.

The Air Force and regulatory agencies have established CAMU soil acceptance levels to determine the contaminant types and soil concentrations that can be placed in the CAMU. These requirements are presented in Table II-5-9 (CAMU Soil Acceptance Levels). If the contaminant levels within excavated soil exceed CAMU acceptance requirements, the Air Force will implement Alternative S5 (Excavation/Offbase Disposal) as a contingency action. Although the WABOU Soil Proposed Plan did not identify Alternative S4 (Excavation/Treatment/Onbase Consolidation) as a contingency action, the Air Force agreed with a request from the regulatory agencies to evaluate Alternative S4 to determine whether it is more appropriate than offbase disposal. Section 4.2 describes the CAMU, and Section 5.1.4 provides more details concerning the construction of the CAMU at Travis AFB and the development of the CAMU soil acceptance levels.

Remedial Design/Remedial Action Documents

The Air Force will implement soil remedial actions as described in this WABOU Soil ROD. Several primary documents under the Travis AFB Federal Facility Agreement (FFA) will support the implementation of these actions. The Air Force has prepared the final *Basewide Soil Remedial Design/Remedial Action (RD/RA) Plan* (URS, 2002) that covers the general approach to implementing the soil remedies at all Travis AFB soil sites. The RD/RA Plan includes a description of primary documents that require regulatory approval under the Travis AFB FFA. The Air Force has also prepared the final *LF007 Soil Remedial Action Design Report and Post-Construction Maintenance Plan (CH2M HILL, 2002)* that addresses the CAMU

construction. It describes the CAMU location and approximate dimensions, waste characterization procedures, CAMU acceptance requirements, waste treatment alternatives, estimated volume of contaminated soil from all Travis AFB soil sites, procedures for contaminated soil segregation, liner and cover design, operation and maintenance procedures, monitoring requirements, and closure procedures.

In addition, the Air Force will prepare site-specific RD/RA work plans for each WABOU soil site that will provide a detailed approach for the selected remedy at the appropriate site. The regulatory agencies will review each of these documents. The Air Force and regulatory agencies will review the analytical and performance data from these actions to verify their effectiveness at meeting remedial action objectives.

Soil Cleanup Levels

The soil cleanup levels presented in Section 5.3 are based on the protection of human health, protection of ecological receptors, and groundwater and surface water beneficial uses. The Air Force used industrial soil cleanup values, based on a 10^{-6} risk exposure for a typical industrial worker, in the derivation of cleanup levels. As a result, all sites that achieve industrial cleanup levels but not residential cleanup goals will require land use controls. Sections 5.2.3 and 5.2.4 discuss how the human health risk assessment from the WABOU RI was used to derive inputs to the soil cleanup levels for carcinogenic and non-carcinogenic compounds, respectively. Section 5.2.5 discusses how the ecological risk assessment from the WABOU RI was used to derive inputs to the soil cleanup levels that are protective of ecological receptors. Section 5.2.6 discusses the rationale for determining soil cleanup levels that will be protective of groundwater beneficial uses.

Land Use Controls

Alternative S2 (Land Use and Access Restrictions) is a selected remedial alternative for the nine WABOU soil sites that require remedial action. The Air Force identifies herein the essential Land Use Controls (LUCs) applicable to the WABOU units that the Air Force deems necessary for future protection of human health and environment. Alternative S2 includes administrative and physical measures to restrict future land use and ensure the effectiveness of the remedy at all nine sites. As part of these measures, the Air Force will include in the Base General Plan any specific controls required at each site, that controls are required because of the presence of pollutants or contaminants, the current land users and uses of the site, the geographic control boundaries, and the objectives of the controls. Unless a site is cleaned up to levels appropriate for unrestricted use, the General Plan will reflect the applicable use restrictions, with all sites restricted from use for residential development, play areas, or day care facilities. Upon completion of a remedial action at a site, the Base will update the Base General Plan to include the site-specific use restrictions if needed. The General Plan will also contain a map indicating all areas where contaminated soil and groundwater are located, and what land use controls are in effect for each of those areas. It is understood and agreed upon by the Air Force, EPA, and the State of California that the remedies implemented by this decision document are of a permanent nature unless the sites in question become suitable for unrestricted use. If the Air Force determines that it cannot meet specific LUC requirements, it is further understood that the remedy may be

reconsidered and that additional measures may be required to ensure the protection of human health and the environment. Section 5.4 provides a more detailed description of the LUCs.

WABOU ROD Data Certification Checklist

The following information is included in the Part II—Decision Summary section of this Record of Decision. Additional information on these sites can be found in the Travis AFB Administrative Record.

1. Chemicals of concern and their respective concentrations [Table II-3-2 (Chemicals of Concern, Chemicals of Ecological Concern, and Potential Risks at WABOU Soil Sites) – page II-3-10]
2. Baseline risk represented by the chemicals of concern [Table II-3-2 (Chemicals of Concern, Chemicals of Ecological Concern, and Potential Risks at WABOU Soil Sites) – page II-3-10]
3. Cleanup levels established for chemicals of concern and the basis for these levels [Tables II-5-1 through II-5-8 – pages II-5-14 through II-5-33 and Section 5.2 (Criteria Used to Determine Soil Cleanup Levels) – page II-5-5]
4. How source materials constituting principal threats are addressed [Section 5.3 (Site-Specific Remedial Actions) – page II-5-13]
5. Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater used in the baseline risk assessment and ROD [Section 5.2.1 (Residential/Industrial Exposure Scenarios) – page II-5-5, Section 1.4.3 (Groundwater Use) – page II-1-10, and Section 5.2.6 (Groundwater Protection) – page II-5-10]
6. Potential land use that will be available at the sites as a result of the Selected Remedies [Section 5.4.2 (Residential Cleanup Levels) – page II-5-36]
7. Estimated capital, annual operation and maintenance (O&M), and total present worth costs, discount rate, and the number of years over which the remedy cost estimates are projected [Section 4.4.7 (Cost) – page II-4-14]
8. Key factor(s) that led to selecting the remedies [Section 5.3 (Site-Specific Remedial Actions) – page II-5-13]

Declaration

These soil remedial actions are protective of human health and the environment, are compliant with federal and state ARARs directly associated with these actions, and are cost-effective. These actions utilize permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable. The Air Force and the regulatory agencies have addressed the statutory preference for remedies that reduce toxicity, mobility, or volume as a principle element in this WABOU Soil ROD. This ROD implements the substantive requirements of Federal and State of California CAMU laws and regulations for

the purpose of authorizing the construction of a CAMU as part of the CERCLA remedial actions on Travis AFB.

Lead and Support Agency Acceptance
of the Soil Record of Decision for
the WABOU, Travis Air Force Base, California

This signature sheet documents agreement between the United States Air Force and the United States Environmental Protection Agency, and the state of California, by the California Environmental Protection Agency, Department of Toxic Substances Control, and the San Francisco Bay Regional Water Quality Control Board on the Soil Record of Decision for the WABOU at Travis Air Force Base. The respective parties may sign this sheet in counterparts.

Deborah Jordan
Chief
Federal Facilities Cleanup Branch
U.S. Environmental Protection Agency, Region IX

Date

The state of California, Department of Toxic Substances Control (DTSC) had an opportunity to review and comment on this Record of Decision, and our concerns were addressed.

Anthony J. Landis, P.E.
California Environmental Protection Agency
Department of Toxic Substances Control
Chief of Operations
Office of Military Facilities

Date

Loretta K. Barsamian
California Regional Water Quality Control Board
San Francisco Bay Region
Executive Officer

Date

John R. Baker
Lieutenant General, USAF
Air Mobility Command
Chairperson, Environmental, Safety,
and Occupational Health Committee

2 Dec 02
Date

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of the Soil Record of Decision for
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Deborah Jordan — Date
Chief
Federal Facilities Cleanup Branch
U.S. Environmental Protection Agency, Region IX

The State of California, Department of Toxic Substances Control (DTSC) had an opportunity to review and comment on this Record of Decision, and our concerns were addressed.

Anthony J. Landis, P.E. — Date
California Environmental Protection Agency
Department of Toxic Substances Control
Chief of Operations
Office of Military Facilities

Loretta K. Barsamian — 12.9.02
Loretta K. Barsamian — Date
California Regional Water Quality Control Board
San Francisco Bay Region
Executive Officer

John R. Baker — Date
Lieutenant General, USAF
Air Mobility Command
Chairperson, Environment, Safety,
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_____ _____

Deborah Jordan — Date
Chief
Federal Facilities Cleanup Branch
U.S. Environmental Protection Agency, Region IX

The State of California, Department of Toxic Substances Control (DTSC) had an opportunity to review and comment on this Record of Decision, and our concerns were addressed.

_____ 12-11-02

Anthony J. Landis, P.E. — Date
California Environmental Protection Agency
Department of Toxic Substances Control
Chief of Operations
Office of Military Facilities

_____ _____

Loretta K. Barsamian — Date
California Regional Water Quality Control Board
San Francisco Bay Region
Executive Officer

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John R. Baker — Date
Lieutenant General, USAF
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Deborah Jordan — 12-3-02
Chief — Date
Federal Facilities Cleanup Branch
U.S. Environmental Protection Agency, Region IX

The State of California, Department of Toxic Substances Control (DTSC) had an opportunity to review and comment on this Record of Decision, and our concerns were addressed.

Anthony J. Landis, P.E. — Date
California Environmental Protection Agency
Department of Toxic Substances Control
Chief of Operations
Office of Military Facilities

Loretta K. Barsamian — Date
California Regional Water Quality Control Board
San Francisco Bay Region
Executive Officer

John R. Baker — Date
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