

OTH-110

**Environmental Baseline Survey
Fritzsche Army Airfield Parcel
Fort Ord, California**

OTH-110

Prepared for

**Department of the Army
Corps of Engineers**
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HLA Project No. 25894 00175



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Version 2.0

January 24, 1995



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DISTRIBUTION

SELECTED ACRONYMS

ACM	Asbestos-Containing Materials
ARAR	Applicable or Relevant and Appropriate Requirement
BCP	BRAC Cleanup Plan
BCT	BRAC Cleanup Team
BEC	BRAC Environmental Coordinator
BRAC	BRAC Realignment and Closure
BTC	Base Transition Coordinator
CEQA	California Environmental Quality Act
CERFA	Community Environmental Response Facilitation Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)
COE	U.S. Army Corps of Engineers
DEH	Directorate of Engineering and Housing
DENR	Directorate of Environmental and Natural Resources Management
DoD	Department of Defense
EBS/EBST	Environmental Baseline Survey/Environmental Baseline Survey for Transfer
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
ENRD	Environmental and Natural Resources Management Division, DEH
FORA	Fort Ord Reuse Authority
FORG	Fort Ord Reuse Group
FOST	Finding of Suitability to Transfer
FOSL	Finding of Suitability to Lease
IAROD	Interim Action Record of Decision
LBP	Lead-Based Paint
NEPA	National Environmental Policy Act

NPL	National Priorities List
NoAROD	No Action Record of Decision
OEW	Ordnance and Explosive Waste
OU	Operable Unit
PCB	Polychlorinated Biphenyl
RAB	Restoration Advisory Board
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROC	Record of Concurrence
ROD	Record of Decision
SOC	Statement of Conditions
SWMU	Solid Waste Management Unit
USAEC	U.S. Army Environmental Center
USEPA	U.S. Environmental Protection Agency
UST/AST	Underground Storage Tank/Aboveground Storage Tank
UXO	Unexploded Ordnance

EXECUTIVE SUMMARY

This parcel-specific Environmental Baseline Survey (EBS) presents the results of an assessment of known existing environmental conditions for a portion of Fort Ord, Monterey County, California. The area encompassed by this EBS is known as the Fritzsche Army Airfield (FAAF) parcel. It is to be conveyed to the City of Marina for use as a municipal airport.

The purpose of the EBS is to support transfer of real property by deed or by lease by identifying available information about existing environmental conditions on the parcel and adjacent areas. A draft Finding of Suitability to Transfer (FOST), which documents the environmental suitability of a parcel for transfer on the basis of specified criteria, has been prepared on the basis of the information in this EBS. According to Department of Defense (DoD) guidance (*DoD, 1994*), the appropriate official of the respective military department will certify through a FOST that one of the conditions listed below is true:

- The requirements of CERCLA §120(h)(3) have been met (i.e., all remedial action necessary to protect human health and the environment has been taken), or
- The requirements of CERCLA §120(h)(4) have been met for the parcel because no CERCLA hazardous substances were stored for 1 year or more, known to have been released, or disposed on the parcel.

The EBS and FOST are coordinated and complementary documents that provide information regarding the environmental suitability of a parcel for transfer with respect to available information and specific criteria. These documents are reviewed by the appropriate federal and state agencies and the agency staff comments are incorporated as appropriate into subsequent versions of the documents.

On the basis of available information, the FAAF parcel EBS indicates that the requirements of CERCLA §120(h)(3) or (4) appear to have been met for areas outside of NPL sites present within the FAAF parcel. On the basis of FOST guidance criteria, those FAAF parcel areas outside NPL sites may be considered by the Army as suitable for transfer by deed. Other health- or safety-related environmental conditions currently exist or are suspected to exist on the FAAF parcel, including the presence of asbestos-containing materials in buildings, lead-based paint, and unexploded ordnance. Areas in which such conditions exist include areas otherwise suitable for transfer by deed according to FOST guidance criteria. In most cases, such environmental conditions are being further evaluated or investigated by the Army, but these further activities are not complete at this time.

1.0 INTRODUCTION

This parcel-specific Environmental Baseline Survey (EBS) presents the results of an assessment of existing environmental conditions for a portion of Fort Ord, Monterey County, California (Plate 1). The area examined in this EBS is the Fritzsche Army Airfield (FAAF) parcel, as shown on Plates 2 and 3. Information presented in this EBS will be used to prepare a parcel-specific Finding of Suitability to Transfer (FOST) for a portion or portions of the FAAF parcel (phases), should the Army determine that such a FOST is appropriate, as discussed below and in Section 2.0. This EBS, Version 2, incorporates updated environmental information for the FAAF parcel as well as responses to comments received from regulatory agencies on the draft (Version 1) EBS issued March 11, 1994 (Appendix A).

Fort Ord became an active military installation in 1917 and was selected for closure pursuant to the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510; BRAC91). On July 11, 1991, the President approved the BRAC91 list of recommended closures and realignments, including the closure of Fort Ord and the realignment of troops from Fort Ord to Fort Lewis, Washington. On February 13, 1992, the Army filed a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) to examine the impacts of closing Fort Ord and realigning troops to Fort Lewis. The EIS was completed, and an EIS Record of Decision (ROD) was signed in December 1993.

In Fall 1993, the Army initiated several EBSs to support the transfer of excess real property at Fort Ord. The approach developed for Fort Ord includes consideration of issues that affect real property transfer, including the nature and extent of contamination at the installation and other health and safety issues associated with the condition of buildings. To accommodate the reuse needs of the surrounding community, the Army has prioritized the preparation of parcel-specific EBSs on the basis of requests received from the community. Table 1 shows the reuse parcels for which Fort Ord is currently preparing

parcel-specific EBSs or FOSTs. These priority parcels were identified by Fort Ord and the community-based Fort Ord Reuse Group (FORG), which proposed an initial list of priority reuse sites (FORG, 1993). FORG has since been replaced by the Fort Ord Reuse Authority (FORA), which was established in mid-1994 pursuant to California Senate Bill 899 (SB 899).

This EBS was prepared for Fort Ord on behalf of the U.S. Army Corps of Engineers (COE), Sacramento District, which has been retained by the Army to conduct surveys to support real-property transfer at Fort Ord. This EBS was prepared by Harding Lawson Associates (HLA) in accordance with the COE Supplemental Scope of Work (SSOW) dated September 2, 1993, under Contract DACA05-86-C-241, Modifications P00091 and P00130.

1.1 Purpose and Objectives

Under current Department of Defense (DoD) procedures, the Army's determination on transferability of excess property associated with base closures includes the following steps: (1) review of currently available information on the environmental conditions on the property, (2) preparation of an EBS, (3) a determination by the Army in terms of specific criteria that the property is suitable for transfer, and (4) preparation of a FOST to document the property's suitability for transfer in terms of those specified criteria. DoD policy on the preparation of an EBS and subsequent FOST, including the specific criteria to be used by the Army in assessing the suitability of a parcel for transfer, is contained in the most recent DoD guidance on the EBS/FOST process, released on June 1, 1994 (DoD, 1994). This Version 2 EBS was prepared based on the 1994 DoD guidance.

The purpose of the EBS is to support transfer of real property by deed or lease by providing an assessment of the existing environmental conditions on a parcel and adjacent areas on the basis of pre-existing information. To the extent

that information is available to the authors, the EBS discusses the following:

- Status of site investigations
- Nature and extent of known contamination, if any
- Solid and hazardous waste management practices
- Underground storage tank management practices
- Status of building surveys for asbestos, lead-based paint, or radon
- Other information pertaining to environmental conditions on the parcel.

The EBS is focused on identification and documentation of environmental site characterization activities and of the presence or likely presence of hazardous substances or hazardous wastes on a portion of real property considered for transfer. The EBS addresses hazardous substances or wastes, including certain substances not usually regulated under CERCLA (Comprehensive Environmental Response, Compensation, and Liability Act), such as petroleum products, asbestos, and lead-based paint in structures. The EBS includes consideration of soil or groundwater contamination and a description of potential public health and safety issues, such as those associated with the condition of buildings, that may affect the Army's ability or decision to transfer such property, to the extent that relevant information is available. The EBS may not constitute a complete site characterization because it is based on existing available information. An EBS may be updated to reflect more recently acquired information or to support transfer of additional areas.

The FOST is prepared on the basis of the EBS. The purpose of the FOST is to document the environmental suitability of a parcel for transfer to nonfederal agencies or the public, in terms of specified criteria. The FOST compares these criteria with known site characteristics documented in the EBS.

As stated in the most recent guidance (*DoD, 1994*), the EBS/FOST program has the following objectives:

- Protecting human health and the environment
- Preparing EBSs and FOSTs, in a consistent manner to assess, determine, and document the environmental suitability of properties for transfer
- Ensuring transfer of property without interfering with cleanup actions
- Ensuring compliance with applicable environmental requirements, allowing DoD to demonstrate compliance with CERCLA Section 120(h) before property is transferred
- Providing for adequate public and regulatory participation without unduly encumbering the DoD's authority and mandate to make property available for reuse in a timely manner
- Ensuring sufficient environmental review of the real property being considered for transfer is conducted to avoid unwarranted risks of future liability.

1.2 Procedures for Conducting an Environmental Baseline Survey (EBS)

Procedures for conducting an EBS are contained in DoD guidance noted above (*DoD, 1994*). The EBS is similar to a CERCLA Preliminary Assessment (PA) and may include information from many sources, including ongoing programs, such as Fort Ord's CERCLA remedial investigation/feasibility study (RI/FS), building surveys for asbestos, lead-based paint, and radon, solid waste management activities, and other programs, as discussed in Section 3.0. Specific activities may include the following:

- Identification of parcel boundaries
- Search and review of existing records regarding environmental conditions on the parcel

- Description of known current or past activities on the parcel
- Interviews with current and/or former employees involved in operations on the parcel
- Description of known hazardous substance or hazardous waste management practices on the parcel or an adjacent property
- Documentation of observations made during visual and physical inspections
- Description of possible sources of contaminants on the parcel or on adjacent parcels, on the basis of available information
- Documentation of ongoing response actions.

1.3 Procedures for Preparing a Finding of Suitability to Transfer (FOST)

Procedures for conducting a FOST are also contained in DoD guidance noted above (*DoD, 1994*). A FOST is expected to be a relatively brief document, only a few pages long. A FOST is prepared by DoD to document its certification of the suitability of a parcel for transfer, based on information in the EBS and the specific certification criteria described in FOST guidance. According to DoD guidance (*DoD, 1994*), a senior-level environmental official, equivalent to at least a Deputy Assistant Secretary from the military department, will certify through the FOST that one of the conditions listed below is true:

- The requirements of CERCLA §120(h)(3) have been met for the parcel being transferred (i.e., all remedial action necessary to protect human health and the environment has been taken), or
- The requirements of CERCLA §120(h)(4) have been met for the parcel because no CERCLA hazardous substances were stored for 1 year or more, known to have been released, or disposed on the parcel.

DoD guidance specifies the format for a FOST. A FOST should contain:

- Purpose
- Property Description
- Regulatory Coordination, describing state agencies and USEPA review of draft documents
- Findings of the EBS review, summarizing known current or historical environmental conditions in the parcel
- Discussion of environmentally sensitive areas, listing any such areas, including wetlands, cultural or historic resource areas, or areas containing endangered species
- Finding of suitability to transfer
- Signature, according to the signature authority discussed above.

1.4 Summary

The EBS and FOST are coordinated and complementary documents that provide information regarding the environmental suitability of a parcel for transfer with respect to available information and specific criteria. The EBS summarizes existing environmental information and provides a technical basis for the FOST. The EBS also provides a mechanism for documenting both known CERCLA and non-CERCLA information (e.g., possible health-related conditions associated with the presence of non-CERCLA asbestos-containing materials). The FOST provides a brief overview of the contents of the EBS and presents conclusions about the parcel's suitability for transfer.

1.5 Report Organization

The remaining sections of this EBS describe environmental conditions relevant to transfer of the FAAF parcel. Section 2.0 describes the Fort Ord setting and general characteristics of the FAAF parcel, including parcel location and boundaries, current and historical land use, anticipated land use following transfer, and land

use adjacent to the FAAF parcel. Section 3.0 describes the specific activities conducted for the FAAF parcel EBS and FOST. Section 4.0 presents the results of the EBS, describing available information about existing environmental conditions on the FAAF parcel. Section 5.0 summarizes the findings and conclusions of the EBS and describes the status of FOST preparation for the FAAF parcel.

1.6 Limitations

This document was prepared for the sole use of HLA's client, the Department of the Army, Corps of Engineers, Sacramento District, the only intended beneficiary of our work. No other party should rely on the information contained herein without the prior written consent of HLA. Distribution of this document to other parties does not constitute HLA's consent for those or other parties to rely on the information contained herein. This document may not contain sufficient information for the purposes of other parties.

HLA's professional services in this EBS, including the preparation of this document, were

conducted in accordance with practices and procedures generally accepted in the environmental consulting field in northern California at this time; no other warranty is given or implied by this report.

Information about the presence or absence of hazardous substances in the area discussed in this report is based on limited data and observations. Environmental conditions may change over time and may be different away from locations where data or samples were collected or observations made. HLA does not and cannot have complete knowledge of environmental conditions in the area discussed. Furthermore, this report is complete and accurate only to the extent that cited reports and agency information are complete and correct, and that all relevant information has been provided to HLA. The purpose of the EBS is to identify and describe available information. In the EBS, HLA has not attempted to independently verify the completeness or accuracy of the presented information, or to independently assess the environmental condition of the area described.

2.0 PARCEL DESCRIPTION

This section presents relevant parcel descriptive information, including an overview of Fort Ord's physical setting, proposed parcel reuse, previous and current activities on the parcel, and historical uses of adjacent parcels.

2.1 Fort Ord Physical Setting

Fort Ord is adjacent to Monterey Bay in northwestern Monterey County, California, approximately 80 miles south of San Francisco (Plate 1). The base comprises approximately 28,000 acres adjacent to the cities of Seaside, Sand City, Monterey, and Del Rey Oaks to the south and Marina to the north. The Southern Pacific Railroad and Highway 1 pass through the western part of Fort Ord, separating the beachfront portions from the rest of the base. Laguna Seca Recreation Area and Toro Regional Park border Fort Ord to the south and southeast, respectively. Land use east of Fort Ord is primarily agricultural, as was land use at Fort Ord before the Army acquired the property.

After it opened in 1917, Fort Ord primarily served as a training and staging facility for infantry troops. No permanent improvements were made until the late 1930s, when administrative buildings, barracks, mess halls, tent pads, and a sewage treatment plant were constructed. From 1947 to 1975, Fort Ord was a basic training center. After 1975, the 7th Infantry Division (Light) occupied Fort Ord. Light infantry troops are those that perform their duties without heavy tanks, armor, or artillery. Fort Ord was selected for decommissioning in 1991 and placed on the BRAC91 list, but troop realignment was not completed until 1993. Fort Ord officially closed September 30, 1994.

The three major developed areas within Fort Ord are the Main Garrison, Fritzsche Army Airfield (FAAF), and the East Garrison. The remaining approximately 20,000 acres of undeveloped property was used for training activities.

The Main Garrison contains commercial, residential, and light industrial facilities.

Construction began in 1940 and ended in the 1960s, starting in the northwest corner of the base and expanding southward and eastward. During the 1940s and 1950s, a small airfield was in the central portion of the Main Garrison. This airfield was decommissioned when FAAF was completed, and the earlier airfield facilities were redeveloped as motor pools or for other operations.

FAAF, which served as the general airfield for Fort Ord, is in the northern portion of the base, adjacent to the City of Marina. FAAF was originally outside the formal boundaries of Fort Ord but was incorporated into Fort Ord in 1960 and expanded in 1961.

The East Garrison occupies 350 acres on the northeastern edge of the base and consists of military and industrial support areas, recreational facilities, and recreational open space.

2.2 Geology/Hydrogeology at Fort Ord

This section briefly summarizes information on geology and hydrogeology in the Fort Ord area; a detailed discussion is presented in the Draft Basewide Hydrogeologic Investigation (HLA, 1993a).

Fort Ord is within a geologically complex area in the central California Coast Ranges. The region is underlain, starting with the deepest known formations and moving up to the ground surface, by one or more of the following units: Mesozoic granodiorite; Miocene marine siltstone and shale of the Monterey Formation; upper Miocene to lower Pliocene sandstone of the Santa Margarita Formation; Pliocene marine sediments possibly the Pursima Formation; upper Pliocene to Pleistocene alluvial fan, lake, and flood deposits of the Paso Robles Formation; and the Aromas Sand, a Pleistocene sand and gravel unit. Above these units, unconsolidated gravel, sand, silt, and clay of the Pleistocene age Valley Fill deposits (including the Salinas Valley Aquiclude, FO-SVA) are present. Over much of the base

these geologic units are overlain by dune sand deposits. Surface soil, developed from the dune sands, Aromas Sand, and Paso Robles Formation that cover the majority of the base, is typically sandy.

The Salinas Basin and the Seaside Basin are the two main groundwater basins underlying Fort Ord. The Salinas Basin underlies approximately the northern one-third of Fort Ord where groundwater typically occurs at depths in excess of 100 feet and is separated from deeper aquifers by an extensive clay (FO-SVA); the Seaside Basin underlies approximately the southern two-thirds of the base. The location and characteristics of the boundary between these two basins are uncertain.

2.2.1 Salinas Basin

In the area of Fort Ord, four relatively well-defined aquifers occur within the Salinas Basin: the unconfined A-aquifer and the confined 180-, 400-, and 900-foot aquifers. The latter three aquifers were originally named to reflect their average depths in the Salinas Valley proper; however, these aquifers are generally deeper at Fort Ord than in the Salinas Valley.

The A-aquifer is separated from the 180-foot aquifer throughout much of Fort Ord by the Salinas Valley Aquiclude (FO-SVA). This aquiclude becomes thinner and apparently disappears (pinches out) in some areas west of the Main Garrison and near the southern Salinas Basin boundary, resulting in pathways for water movement between the A- and 180-foot aquifers. Groundwater flow in the A-aquifer is significantly influenced by the configuration of the top of the FO-SVA. Where the FO-SVA pinches out beneath the Main Garrison area, groundwater appears to flow from the A-aquifer into the 180-foot aquifer.

Groundwater flow directions in the 180- and 400-foot aquifers vary across the base. Historical data suggest that flow was originally to the northwest in both aquifers. However, recent data indicate that groundwater flow in these aquifers is generally eastward as a result of pumping from Salinas Valley and Fort Ord supply wells. Current and historical pumping has resulted in

saltwater intrusion into the 180- and 400-foot aquifers in the vicinity of the City of Marina and the Fort Ord Main Garrison.

2.2.2 Seaside Basin

The limited data available for the Seaside Basin indicate that its water-bearing zones do not correlate with those of the Salinas Basin. The Seaside Basin reportedly consists of the following three aquifers, from deepest to shallowest: the confined Santa Margarita Formation aquifer, the confined Paso Robles Formation aquifer, and an unconfined uppermost aquifer in the dune sands and Aromas Sand.

Unlike the Salinas Basin, the Seaside Basin is structurally complex and contains several northwest- trending faults and folds. The basin is bounded on the south by the Chupines fault and on the north by a subsurface bedrock high. Faults that have displaced the Santa Margarita and lower portions of the Paso Robles aquifer are believed to divide the Seaside Basin into several subbasins, including the Seaside Coastal southern, northern, and Fort Ord subbasins and the Seaside and Laguna Seca subbasins.

Water-supply wells in the city of Seaside produce water primarily from the Santa Margarita and Paso Robles aquifers of the Seaside Basin.

2.3 Proposed FAAF Parcel Reuse

The FAAF parcel is proposed for use as a municipal airport for the City of Marina. Portions of the parcel will also be used for airport business parks and open space habitat preservation (COE, 1993).

2.4 FAAF Parcel Description

The FAAF parcel encompasses approximately 836 acres in the northernmost portion of Fort Ord. As shown on Plates 1, 2, and 3, the parcel is bordered to the north and east by the Salinas River Valley, to the south by the southernmost portion of the present day FAAF and Reservation Road, and to the west by the City of Marina. Land uses within the FAAF parcel consist of the following:

- Open space/training grounds
- Military support/industrial facilities, including a sewage treatment plant, motor pools, aircraft parking aprons, aircraft maintenance and service facilities, administrative buildings, and airport runways.

Three National Priorities List (NPL) sites being investigated as a part of the RI/FS at Fort Ord are included within the FAAF parcel. These NPL sites are:

- Site 34: FAAF Fueling Facility
- Site 36: FAAF Sewage Treatment Plant
- Site 40: Helicopter Defueling Area.

The locations and discussion of investigative activities conducted at Sites 34, 36, and 40 are presented in Section 4.9.2.

The boundaries of the FAAF parcel shown on Plate 3 encompass the entire area that will eventually comprise the City of Marina Municipal Airport according to current information. This EBS addresses that entire area. However, because of known environmental conditions on the parcel, including three NPL sites and one ordnance and explosive waste (OEW) area, there will be planned phasing of development of the parcel. The outline of the Phase I parcel (approximately 750 acres) is shown on Plate 3 and includes the "middle marker" radio beacon approximately 0.5 mile east of the main runway. The FAAF Phase I parcel includes those areas requested by the City of Marina and transferable under CERCLA §120(h)(3) or (4). Subsequent phases will include the NPL sites and the OEW area when remedial activities progress to the point where they become suitable for transfer under CERCLA §120(h)(3).

2.5 Previous and Current Activities on FAAF Parcel

Historically, the land on which FAAF is located was open space or used for ranching and agriculture. The remains of an old windmill and

well site are present approximately 1,200 feet northwest of the main runway. A circular area of arbitrary 100-foot radius is shown around the site on Plate 3. The historical importance of this site, its final size, and its transferability are still being evaluated.

FAAF was constructed in the late 1950s and early 1960s. The airfield supported military aircraft maintenance, fueling, flight, and training operations. The buildings and runways within the parcel are present today as originally built but are decommissioned due to base closure.

In addition to the airport facilities of FAAF itself, there are two radar installations in the extreme northern tip of the parcel. The northernmost installation is the U.S. Navy Postgraduate School Doppler Radar Facility. This approximately 2-acre facility contains rebuilding and radar antenna. The equipment is used to measure wind velocity and turbulence. Immediately south of the Navy facility is a Federal Aviation Administration (FAA) radar site used for aircraft surveillance and cloud ceiling measurements. The 3.4-acre fenced facility contains two buildings, radar antenna, and reportedly a fuel tank. Both facilities are operated independently of the FAAF facility under permits from the Department of the Army.

2.6 Historical Uses on Property Adjacent to Parcel

The area surrounding the FAAF parcel consists of both developed and undeveloped property. Developed properties outside of FAAF but within a study area extending approximately 1 mile beyond the FAAF parcel boundaries include the following:

- Housing areas: Abrams, Frederick, and Schoonover parks to the south and the southeastern limits of the City of Marina to the west-southwest
- Local services and commercial areas in the City of Marina to the west-southwest.

Undeveloped properties outside of FAAF but within a study area extending approximately

1 mile beyond the FAAF parcel boundaries include the following:

- Open space and agricultural land to the northwest and northeast and training grounds to the south.

As shown on Plate 6, the former FAAF Fire Drill Area (OU1) is located immediately south of the southern boundary of the FAAF parcel. The Fire Drill Area encompasses approximately 1 acre where fuel was discharged into an unlined pit, ignited and extinguished as part of firefighting training exercises. During the OU 1 RI, shallow soil and groundwater contamination was found in this area. The draft final OU 1 Confirmation Study report was recently submitted to the regulatory agencies for review and comment (HLA, 1994b). Additional information about the nature and extent of contamination associated with former activities and the status of remedial actions at the Fire Drill Area are presented in Section 4.10. The OU1 groundwater plume does not extend beneath the FAAF parcel.

Most of NPL Site 34, FAAF Fueling Facility, lies within the FAAF reuse parcel and consists of four helicopter wash aprons with oil/water separators. However, a portion of Site 34 consisting of aircraft fueling facilities and motor park areas is outside the FAAF parcel, immediately west of the access road leading to the main part of FAAF (Plate 6). Activities in this area included storage of aviation fuel and use of vehicle wash racks, including the vehicle wash rack 516. The wash rack is under

investigation under the NPL program, as discussed in Section 4.9.2.

NPL Site 27, Army Reserve Motor Pool, and NPL Site 35, Aircraft Cannibalization Yard, are also south of the FAAF parcel boundary. Site 27 has been used as a storage and maintenance yard for both light and heavy vehicles and equipment. The site includes a wash rack, oil/water separator, a 500-gallon waste oil UST, hazardous waste storage area, and Building 701. At the Aircraft Cannibalization Yard, aircraft debris, including helicopter and small plane fuselages, jet engines, and wing sections, were scattered over an area of approximately 11 acres. The aircraft have subsequently been removed from the site. The status of investigations at these two sites is summarized in Section 4.10.

According to a literature review and base inventory report prepared for the Army DEH in March 1991, several facilities in the City of Marina have USTs (EA, 1991). The closest reported leaking UST in the vicinity of the City of Marina is approximately 0.65 mile north of the base boundary. It was not determined whether testing has been conducted on any of these USTs (EA, 1991). On the basis of a data search prepared for Arthur D. Little, Inc. (ADL), by Environmental Database, Inc., only two permitted RCRA facilities in the City of Marina are within approximately 1 mile of the FAAF parcel boundary, although a total of seven permitted RCRA facilities were identified in the City of Marina near the northern Fort Ord boundary (ADL, 1994; Appendix B).

3.0 APPROACH TO CONDUCTING ENVIRONMENTAL BASELINE SURVEYS

This section describes the activities performed for the FAAF EBS. The procedures followed are described in EBS guidance (*DoD, 1994*), which outlines the process for preparing an EBS and subsequent FOST. This EBS for the FAAF parcel considers currently available information from various sources, including interviews with Fort Ord personnel and results of investigations conducted under the RI/FS or other programs. These include UST investigations, results of building inspections, and evaluation of the potential for adverse impacts from other parcels in the vicinity of the FAAF parcel. The information obtained in conducting this EBS is presented in Section 4.0.

A number of environmental programs are currently ongoing at Fort Ord, including the Basewide RI/FS, the UST program, building surveys for asbestos and lead-based paint, resampling for radon levels beneath a few buildings, radiological surveys, management of PCB-containing transformers, evaluation of potential releases from onpost solid waste management units (SWMUs), and an assessment for the presence of OEW. New information will likely be available in the future because the programs are ongoing. The availability of new information could change the assessment of suitability or the Army's decision to transfer portions of the FAAF parcel.

3.1 Records Search

Existing reports and other available records, including federal government and state and local agency records, have been reviewed to identify past or current activities relating to environmental conditions within the FAAF parcel. Documents and information reviewed for this EBS include the following types of reports or investigative or management plans developed by Fort Ord as part of the Installation Restoration Program (IRP) and BRAC programs:

- RI/FS literature surveys and base inventory reports

- Preliminary assessment/site inspections
- Enhanced preliminary assessments
- Work plans
- Sampling and analysis plans
- Construction information for buildings within the FAAF parcel
- Results of building surveys for asbestos, lead-based paint, radon, and radiological programs
- Inventories and management programs for USTs and SWMUs
- Hazardous waste management surveys, including surveys for management of transformers containing polychlorinated biphenyls (PCBs) and oils and Fort Ord's Defense Environmental Restoration Program - Management Inventory System (DERP-MIS) records
- Air monitoring reports
- Documents developed during the Community Environmental Response Facilitation Act (CERFA) assessment
- Records of an archive records search for UXO and OEW
- Documentation of searches of federal and state environmental databases, including the USEPA NPL and Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) databases and the list of California state Superfund sites, which was obtained from the CERFA report (*ADL, 1994*). Information from federal and state environmental databases is in Appendix B.

3.2 Interviews

Interviews of Fort Ord or COE personnel have been conducted as necessary to support the EBS. For each of the various environmental programs being conducted at Fort Ord, a specific point of contact was identified by the Army. The points of contact for this EBS are listed in Table 2. As specifically noted in Section 4.0, these personnel were contacted at various times to obtain updates of schedules and the status of assessment and abatement or remedial actions that were underway. In addition to the point-of-contact personnel identified in Table 2, other current or former employees of Fort Ord were contacted to gather information about past or current activities. In some cases, interviews documented in this EBS were conducted as part of previous assessments. The sources of information obtained from interviews are documented in appropriate sections of Section 4.0.

3.3 Visual Inspections

Visual inspections were conducted as necessary either to confirm information generated in the EBS or to identify additional potential problems. Because of the extensive investigations and assessments conducted to date, only a limited number of visual inspections for the FAAF parcel were conducted during the EBS. Previous visual inspections of the FAAF parcel were performed routinely during other investigations, such as site investigations at NPL sites within or adjacent to the FAAF parcel. Additionally, specific inspections have been conducted previously by other contractors in support of building surveys for asbestos and lead-based paint. The results of the visual inspections are noted in appropriate portions of Section 4.0.

3.4 Sampling

The EBS and FOST are typically based on available data. However, according to DoD guidance, sampling of various environmental media, including soil, groundwater, or building materials, is appropriate in the EBS to support decision-making and the preparation of a FOST. For the FAAF parcel, investigations are being conducted or are planned for areas identified as RI/FS sites, as noted above. Approximately

150 soil and water samples have been collected at RI/FS sites within the FAAF parcel, as discussed in more detail in Section 4.9. Additionally, samples are being collected in support of the UST removals being conducted under the UST Management Program, as discussed in Section 4.7. Asbestos, lead, radon, and radiological surveys have been completed for a number of structures within the FAAF parcel. The respective scopes of these investigations are described briefly in Sections 4.1 through 4.4. Some of these programs are not complete, but on the basis of the reported scopes and objectives of the individual programs and selected other assessment activities, additional sampling in the EBS did not appear necessary to support decision-making and possible preparation of a FOST for portions of the FAAF parcel.

3.5 Identification of Hazardous Substance/Waste Management Practices

Procedures for management of hazardous materials and waste at Fort Ord were reviewed on the basis of documents identified by Fort Ord and from interviews with Fort Ord personnel. Relevant documents identified by Fort Ord and reviewed for this EBS include the following:

- Evaluation of Solid Waste Management Units (AEHA, 1988)
- Fort Ord Regulation 200-1 of the Fort Ord Hazardous Waste Management Plan (HWMP), September 4, 1990
- Fort Ord Underground Storage Tank Management Plan (HLA, 1991a)
- Verification of Solid Waste Management Units, Fort Ord, California (HLA, 1993b)
- Fort Ord Spill Prevention, Control, and Countermeasures Plan (SPCC), Table 1 and Section VI, Detailed Spill History (Dynamac Corporation, 1993)
- Pest Management, Army Regulation 420-76 (June 3, 1986).

Use of pesticides at Fort Ord is governed by Army Regulation 420-76, Pest Management. Areas where above normal use of pesticides (herbicides, insecticides, rodenticides) occurred have been identified as part of the basewide investigation at NPL Sites 15, 24, and 33. No other areas of above-normal pesticide use have been identified at Fort Ord.

A database list of hazardous waste generators, dated April 19, 1990, was reviewed. Other potentially relevant documents, including the HWMP, Hazardous Waste Facility Inventory Report, Spill Plan, and site-specific spill reports were not available for review.

Interviews of selected Fort Ord personnel were also conducted, including Ms. Claire Murdo and Mr. Richard Schmitt. Ms. Murdo was interviewed in December 1993 and in February 1994. She provided information about the status of revisions to various management documents and provided some background to development of these documents. Mr. Schmitt provided the database list of hazardous waste generators and summarized the development and evolution of hazardous waste management activities at Fort Ord.

Information from these documents and interviews is summarized in Section 4.8.

3.6 Identification of Potential Impacts from Adjoining Properties

Identification of potential impacts from adjoining properties is based on available information for land uses associated with properties within approximately 1 mile of the FAAF parcel boundary. The 1-mile search distance is consistent with the American Society for Testing and Materials (ASTM) standard for property transfer investigations. Several activities were conducted to evaluate potential impacts from adjoining properties within the 1-mile search distance boundary. The boundaries of the FAAF parcel were first located on a Fort Ord site map, which was prepared using a computer-aided design/drafting (CADD) program. The areas surrounding the FAAF parcel then were searched for known or suspected locations of Fort Ord NPL

sites, SWMUs, USTs, and other previously identified areas where potentially hazardous materials may have been stored, released, or disposed onpost. The process also considered the nature of the potentially contaminated medium and the likelihood for contamination in that medium to affect the FAAF parcel. Groundwater flow directions were considered in identifying potential effects of groundwater contamination on the FAAF parcel. Details of the potential impacts from adjoining properties are discussed in Section 4.10.

Additionally, the results of known building surveys for asbestos, lead-based paint, and radon were considered in identifying possible sources of potentially hazardous materials. For sites near the Fort Ord installation boundary, potential impacts from areas immediately offpost were also identified by reviewing the results of a search of environmental databases maintained by federal, state, and local agencies, as noted above. Information from this process is presented in Section 4.10.

3.7 Installation Restoration Program

Fort Ord was placed on the NPL on February 21, 1990. Since then, the Army has conducted site investigations at 41 identified sites to assess the nature and extent of contamination at Fort Ord. Thousands of soil, groundwater, air, and biota samples have been collected at Fort Ord. The investigations are described in numerous basewide or site-specific reports, including the RI/FS Work Plan (HLA, 1991c), Sampling and Analysis Plan (HLA, 1991b), and 41 site investigation reports that are either completed or in preparation (see Section 6.0, References), which themselves contain site-specific work plans for subsequent site characterization activities. The scopes of the investigations documented in these reports were developed in coordination with relevant regulatory agencies.

Six NPL sites are located within or near the boundaries of the FAAF parcel, as discussed in Sections 4.9 and 4.10. These sites are being investigated under the installation's RI/FS program. Information from investigations of these NPL sites was included in development of

the FAAF parcel EBS. Information from other site investigation activities, including evaluation of potential soil contamination associated with USTs, was also included in the FAAF parcel EBS.

4.0 RESULTS F ENVIR NMENTAL BASELINE SURVEY F R FAAF PARCEL

4.1 Asbestos Management Program

The descriptions of the asbestos management program and its status are based on information that the Army made available to HLA (current through December 1994). Asbestos surveying, testing, sampling, or analysis, or assessment or evaluation of the precision, accuracy, or applicability of the methods or data presented herein were not performed by HLA as part of the EBS.

The purpose of the asbestos management program at Fort Ord is to identify asbestos-containing materials (ACM) in Army-controlled buildings, evaluate the ACM's friability, condition, and potential for damage, and implement response actions appropriate to the findings. According to Mark Reese, Environmental Protection, HQ 7th ID AFZW-DE-ERND, asbestos-related work at Fort Ord is performed in accordance with the following documents/guidelines:

- Department of the Army Regulation (AR) 200-1, *Environmental Protection and Enhancement* Chapter 10, "Asbestos Management Program" May 23, 1990

To control asbestos and minimize environmental release and subsequent occupational and incidental exposure, Chapter 10 of AR 200-1 requires that the following objectives be met:

- Exclude ACM from procurements and uses where possible
- Handle, store, transport, and dispose of asbestos and perform asbestos-related work in accordance with applicable regulations
- Perform building surveys to maintain an inventory of ACM, assess the potential for exposure to asbestos, and implement

operations and maintenance programs and management plans to minimize exposure until removal is accomplished

- Maintain a nonoccupational environment safe from asbestos exposure.
- Department of the Army Memorandum, "Policy Guidance - Lead-Based Paint and Asbestos in Army Properties Affected by Base Realignment and Closure" November 15, 1993

The purpose of this memorandum is to provide Army policy guidance on identifying and eliminating lead-based paint and asbestos hazards for properties affected by Base Realignment and Closure (BRAC). The guidance requires the following:

- Compliance with all applicable regulations and coordination with regulators to ensure compliance
- Maintenance of minimum essential operations, maintenance, and repair standards to prevent deterioration of BRAC properties and to assure sufficient protection of human health and the environment
- Verification that asbestos surveys and assessments have been or will be performed for BRAC properties prior to disposal
- ACM will be removed from BRAC properties if:
 - Protection of human health requires removal, such as for damaged friable ACM
 - A property is intended to be used as a school (K-12) or child care facility

- A property is unsalable without removal or its removal prior to sale is cost-effective
- The Army intends to demolish the building prior to property disposal
- Friable or potentially friable asbestos that presents a health hazard and that has been stored or disposed underground or elsewhere on the property that presents a health hazard will be properly disposed
- Final BRAC actions taken regarding asbestos will be dependent on the overall disposal plan and any reuse of the building
- If the Army is pressed for early release of vacant property, where it is known that the buyer intends to demolish the property or remove the asbestos before reoccupancy in accordance with applicable regulations, removal of threatening asbestos may not be required. Negotiations are necessary to ensure that the Army's liability is minimized and notice and disclosure of any restrictions are required in the transfer language.

4.1.1 Summary of Program

An asbestos survey of approximately 350 nonhousing buildings (i.e., retail stores, office buildings, lavatories, dining halls, barracks, general purpose buildings, vehicle maintenance and storage, oil storage, bus/taxi stations, and ammunition bunkers) performed in 1989 and 1990 found both friable and nonfriable ACM. ACM was found in tank and pipe insulation, HVAC vibration joint cloths, exhaust flues, acoustic ceiling treatment, floor tile, linoleum and associated mastics, and debris in the buildings (*Weston, 1990, DEI, 1993*).

From October 1991 to April 1993, a basewide asbestos survey of an additional 2,689 nonhousing and barracks structures was performed and found both friable and nonfriable ACM such as tank and pipe insulation, HVAC vibration joint cloths, exhaust flues, acoustic ceiling treatment, floor tile, linoleum and

associated mastics, and debris in the buildings (*DEI, 1993*). This report included the information from *Weston, 1990*, referenced above.

Surveys of housing units that are scheduled for disposal began in October 1993 and are expected to be completed in June 1995. The final summary report for the housing surveys will be made available to the recipients of the property (*Reese, 1994*).

4.1.2 Program Status and EBS Results

All of the 43 buildings within the FAAF parcel have been surveyed for ACM. Available results are summarized in the tables in Appendix C, which lists buildings within the FAAF parcel by their building numbers, the building construction dates, whether the building has been surveyed for asbestos, whether friable and/or nonfriable ACM were identified, and, if ACM was found, whether a survey rating of 1 to 5 was assigned to any of the ACM, indicating that it is of immediate concern. In those surveys, which were conducted by another subcontractor, ratings range from 1 to 13, with the rating of 1 indicating the highest concern. According to ACM survey results, none of the buildings surveyed within the FAAF parcel contain ACM having ratings 1 to 5; 31 buildings contain ACM rated 6 to 13; and no ACM (rating 0) was found in 12 buildings. Plate 4 indicates buildings within the FAAF parcel in which (1) no ACM was found (rating 0), (2) ACM with ratings 6 to 13 were identified, and (3) structures for which no asbestos survey information is available. Information in Appendix C was prepared by ATC/DEI from its Fort Ord asbestos survey database (*DEI, 1993*).

4.2 Lead-Based Paint Management Program

The descriptions of the lead-based paint (LBP) management program and status are based on information that the Army made available to HLA (current through December 1994). HLA performed no lead-based paint surveys, testing, sampling, or analysis, and no evaluation of the precision, accuracy, or applicability of the

methods or data presented herein as part of this EBS.

The purpose of the LBP management program at Fort Ord is to identify and control LBP and lead-contaminated dust in target facilities and eliminate LBP hazards in BRAC properties in accordance with Title X of Public Law 102-550 Residential Lead-Based Paint Reduction Act of 1992. It applies to buildings constructed prior to 1978, planned for disposal after January 1995, and intended to be used for residential habitation. Target facilities are Army-owned or leased facilities constructed prior to 1978 and used regularly by children 6 years old or younger or by pregnant women as family housing, child development centers, family child care homes, schools, playgrounds, or similar facilities.

In 1978, the Consumer Products Safety Commission reduced the allowable lead concentration in residential paint to 0.06 percent. On the basis of this revised allowable lead concentration, painted structures built prior to 1978 that have not been surveyed as of the date of this report are suspected of containing LBP.

According to Mr. Mark Reese, the LBP Management Program at Fort Ord is performed in accordance with the following Army documents/guidelines:

- Department of the Army Memorandum, "Policy Guidance - Lead-Based Paint and Asbestos in Army Properties Affected by Base Realignment and Closure" November 15, 1993

The purpose of the memorandum is to provide Army policy guidance on identifying and eliminating lead-based paint and asbestos hazards for properties affected by BRAC. The guidance requires the following:

- Compliance with all applicable regulations and coordination with regulators to ensure compliance
- Maintenance of minimum essential operations, maintenance, and repair standards to prevent deterioration of BRAC properties and to assure sufficient

protection of human health and the environment

- In accordance with Title X of Public Law 102-550, inspection of housing constructed before 1978 in which any child younger than 6 years of age may reside or be expected to reside and abatement of LBP in housing constructed prior to 1960
- Taking steps to ensure that properties sold for residential habitation are free of immediate LBP hazards prior to residential habitation or, if a property is transferred before the Army can perform the LBP investigation, that conditions of sale will prevent use of the property for residential habitation until hazards existing at the time of transfer have been eliminated by the Army or the recipient
- Management of nondefective surfaces in place to prevent them from becoming hazards
- Notification of potential transferee if evidence suggests that LBP may be present.
- Department of the Army Memorandum, "Lead-Based Management Program" April 28, 1993

The purpose of this memorandum is to determine the greatest health risks and target resources to achieve acceptable environmental standards for individuals exposed to lead. The memorandum requires the following:

 - Assess lead water levels
 - Assess blood levels in children
 - Assess lead-based paint contamination
 - Develop abatement programs for high risk health areas
 - Establish data tracking system.

4.2.1 Summary of Program

LBP surveys of pre-1978 housing areas were conducted by U.S. Army Environmental Hygiene Agency (AEHA) in accordance with modified HUD guidelines, and as described in the AEHA lead-based paint inspection report (AEHA, 1994a). The scope of the AEHA lead survey did not include the FAAF parcel as there are no housing units within the parcel. No hazard assessment was conducted as part of the AEHA survey or this EBS. No other LBP surveys or LBP abatement activities for structures within the FAAF parcel had been scheduled as of the date of this report.

4.2.2 Program Status and EBS Results

LBP surveys began in November 1993 and were completed by March 1994. However, no FAAF-specific data are available because no housing units are within the FAAF parcel. Of the 43 structures on the FAAF parcel, 24 were constructed before 1978 and are suspected of containing LBP, 2 were built in 1978 and may contain LBP, and 17 have no known construction dates and should be considered to contain LBP.

Plate 5 shows the following information for buildings within the FAAF parcel: (1) structures that were not within the scope of the survey but are suspected of containing LBP due to their pre-1978 construction date, (2) structures that were built in or after 1978 and are not suspected of containing LBP and (3) structures for which construction dates are not available. Construction dates were obtained from the list of buildings that have been surveyed for asbestos (Appendix C). It should be noted that not all buildings present on the FAAF parcel are shown on Plate 5 because of the date of the base map.

4.3 Radon Reduction Program

The descriptions of the radon reduction program and status are based on information that the Army made available to HLA (current through December 1994). HLA did not perform radon testing or evaluations of the precision, accuracy, or applicability of the methodologies or data presented herein as part of the EBS.

The purpose of the radon reduction program at Fort Ord is to assess indoor levels of radon and mitigate elevated levels of radon. According to Mr. Mark Reese, previous radon testing was performed in accordance with the following Army documents/guidelines:

- Department of the Army Regulation (AR) 200-1, *Environmental Protection and Enhancement* Chapter 11, "Radon Reduction Program" May 23, 1990

To identify indoor levels of radon and mitigate elevated levels of radon, Chapter 11 of AR 200-1 requires that the following objectives be achieved:

- Identify structures owned or leased by the Army that have indoor radon levels greater than 4 picocuries per liter of air (pCi/l), which is the EPA's occupancy standard
 - Modify all structures found to have levels greater than 4 pCi/l to reduce levels to less than 4 pCi/l.
- Department of the Army Army Radon Reduction Program (ARRP) Instructions Manual for Field Personnel Prepared by Keller & Gannon August 1991
- The purpose of this document is to provide step-by-step procedures to ensure proper deployment, retrieval, and storage of radon detectors. The manual requires the following:
- Alpha track monitors (ATMs) are placed in the lowest living area and left undisturbed for a period of 90 days
 - Charcoal canister monitors (CCMs) are placed in the lowest living area and left undisturbed for a period of 72 hours and analyzed within 24 hours.

- Department of the Army Memorandum, Army "Radon Reduction Program Completion and Installation Status Update" September 24, 1993

The purpose of this memorandum is to request that (1) radon testing and mitigation programs be completed as soon as possible and (2) the annual installation ARRP Status Report be updated.

4.3.1 Summary of Program

Radon testing using ASTM procedures was originally performed in the 1989-1990 fiscal year. Those surveys included approximately 2,900 housing and office buildings basewide. Army policy dictates that buildings with radon levels above 4 pCi/l be retested for 12 months. Those buildings with levels above 8 pCi/l must undergo complete remediation within 1 to 4 years.

4.3.2 Program Status and EBS Results

No buildings within the FAAF parcel had radon test results above 4 pCi/l; therefore, none are being retested (*Ludwig, undated*; Table 3).

4.4 Radiological Survey Program

The radiological survey program being performed at Fort Ord is outlined in a memorandum titled "Base Closure Actions - Radiological Surveys; Trip Report of Mr. John Manfre to Fort Ord, CA, 14 - 16 Sep 93," dated September 20, 1993 (*Rankin, 1993*). The major points included in the memorandum are:

- Closeout radiological surveys will be required at Fort Ord due to Nuclear Regulatory Commission (NRC) and state interest
- The survey procedures will follow the requirements set forth in NRC Regulatory Guide CR 5489
- U.S. Army Environmental Hygiene Agency (AEHA) was retained by the Corps of Engineers (COE) to serve as one of its

radiological base closure consultants. AEHA is considered the project manager for the radiological surveys

- The schedule for conducting radiological surveys must consider the need to initiate transferring certain parcels in April 1994
- If any contamination is found, remediation will be required. Minor remediation/decontamination will be performed by the survey teams. Major remediation/decontamination will be handled through the Army Material Command (AMCCOM), Low-Level Radioactive Waste (LLRW) Office.

4.4.1 Summary of Program

Buildings and areas at Fort Ord identified as potential storage and maintenance areas for licensed radioactive materials or equipment were identified in a memorandum titled "Revised List of Buildings at Fort Ord Recommended for Radiological Decommissioning," dated December 8, 1993 (*Chmar, 1993*).

4.4.2 Program Status and EBS Results

According to Mr. Joe R. Daniels, the former Installation Radiological Protection Officer, Directorate of Logistics, radiological survey activities began in January 1994 and were completed in April 1994 (*Daniels, 1994*). A 13-member survey team from Seneca Army Depot performed the radiological surveys. A three-person mobile radiological laboratory from the U.S. Army Communications-Electronics Command (CECOM) analyzed the samples. The survey team was briefed on the procedures for the radiological surveys by personnel from AEHA.

Seven buildings and areas were identified by Fort Ord for radiological surveys within the FAAF parcel. The buildings are listed in Table 4; their locations are shown on Plate 6. The radiological surveys were completed in April 1994. According to AEHA survey documents (*AEHA 1994b,c*), all of the buildings were surveyed and sampled; no radiological

health hazards were identified and the buildings were recommended for radiological decommissioning.

4.5 OEW Assessment Programs

This section describes the investigations regarding the potential presence of ordnance and explosive waste (OEW) resulting from past training activities at Fort Ord. Ordnance-related training at Fort Ord has occurred primarily at the Beach Trainfire Ranges along the western boundary of Fort Ord, and within the Inland Ranges, which comprise approximately 8,000 acres in the southwest portion of Fort Ord. In addition, several areas outside the Beach Trainfire and Inland Ranges have been identified as potential ordnance-related training areas. As a result of past training activities, OEW may be present in these areas.

OEW comprises the following materials: bombs and warheads; guided and unguided ballistic missiles; artillery, mortar, and rocket ammunition; small arms ammunition; antipersonnel and antitank mines; demolition charges; pyrotechnics; grenades; torpedoes and depth charges; containerized or uncontainerized high explosives and propellants; and all similar or related items designed to cause damage to personnel or material. Any ordnance-related chemical residues, metals, and shrapnel are also considered OEW. Unexploded ordnance (UXO), a subset of OEW, consists of unexploded bombs, warheads, artillery shells, mortar rounds, and chemical weapons. The investigations regarding the potential physical hazards and potential contamination from OEW at Fort Ord are discussed below.

4.5.1 Summary of Programs

Two programs comprise Fort Ord's OEW assessment activities. The first program, which includes the investigation and removal of OEW, is being managed by the U.S. Army Engineer Division, Huntsville (USAEDH), Mandatory Center of Expertise (MCX) for OEW at Army installations. The main objective of this program is to evaluate and address the physical hazards that may exist from OEW at Fort Ord. USAEDH's program includes (1) an archive search to identify

the types of ordnance and locations of ordnance training areas at Fort Ord, (2) a sampling program to verify information collected during the archive search, and (3) a clearance program to remove and dispose of OEW.

The second program is an evaluation of the presence of potential soil and/or groundwater contamination from ordnance-related chemical residues at ordnance training areas. This investigation was performed by HLA and was managed by the Sacramento District COE as part of Fort Ord's RI/FS. The investigation consisted of (1) a research task to identify potential ordnance-related training areas and to develop a list of potential ordnance-related contaminants; (2) a sampling and analysis program to evaluate the nature and extent of explosive compounds and metals in selected areas of ordnance use at Fort Ord, and (3) a risk assessment and feasibility study using data collected during the sampling and analysis program.

Information obtained during and after these two investigations was used to identify sites containing potential OEW. Areas in the vicinity of the FAAF parcel identified during and after these investigations as potential ordnance training areas (i.e., areas containing potential OEW) are shown on Plate 7. One potential OEW site was identified within the FAAF parcel:

- Practice Bazooka and Rifle Grenade Range.

4.5.2 Program Status and EBS Results

The archive search conducted by USAEDH is finished and the results are presented in the Archives Search Report (USAEDH, 1993). The Archives Search Report identifies the types of ordnance used at Fort Ord and describes areas both inside and outside of the Inland Ranges where potential ordnance-related training occurred. As described below, the potential OEW area within the FAAF parcel was not included for investigation initially, but has since been added and is currently under investigation.

Information indicating potential ordnance-related training activities at the FAAF parcel was obtained from a 1946 training facilities map

provided by Fort Ord. The map showed a practice bazooka and rifle grenade range north of the western end of the air field. This information became available after the completion of the December 1993 ASR. At Fort Ord's request, USAEDH initiated a sampling and clearance program for this area of the FAAF parcel. Eighteen bazooka rounds (2.36-inch rockets) and eight practice rockets have been identified and removed from the site (Temple, 1994d). The investigation of the practice bazooka and rifle grenade range is ongoing.

4.6 Polychlorinated Biphenyls Management Program

The description of the PCB management program and status are based on information that the Army made available to HLA (current through October 1994). The purpose of the PCB management program at Fort Ord is to identify transformers and other materials that may contain PCBs and evaluate their potential to contain PCBs. As part of this program, HLA also examined transformer storage locations and areas where transformers were reportedly buried.

According to an Army memorandum dated August 25, 1982, all PCB transformers and PCB-filled electromagnets at Fort Ord are to be inspected on a weekly, quarterly, or annual basis as required by The EPA's Rule on PCBs, 40 CFR Parts 761, 761.120, and 268, and any other applicable environmental regulations. These guidelines also apply to the handling, use, storage, and disposal of PCBs and PCB-contaminated material.

4.6.1 Summary of Program

Several sampling episodes for PCBs in transformer oils have been conducted at Fort Ord. According to the Fort Ord Enhanced Preliminary Assessment (Weston, 1990), all transformers at Fort Ord were tested for PCBs in 1987. Information from Fort Ord personnel (Temple, 1994b), indicates that additional sampling was conducted between 1985 and 1987. The sampling programs encompassed approximately 1,000 transformers throughout Fort Ord, ranging in size from 1.5 KVA to 750 KVA. Most of the sampled transformers

were pole-mounted, although pad- or ground-mounted transformers were also included in the sampling program. PCB test results indicated that dielectric fluids from three transformers in Building 3702 (Main Garrison) had PCB concentrations ranging from 360,000 to 860,000 ppm and that oil from a transformer located near Building 2066 (Main Garrison Sewage Treatment Plant) had a PCB concentration of 100 ppm. No other transformer oils had PCB levels exceeding the Toxic Substances Control Act (TSCA) limit of 50 ppm. Approximately 168 transformers had PCB levels between 5 and 50 ppm and were considered PCB contaminated based on State of California guidelines at that time. The remaining transformers at Fort Ord had PCB levels under 5 ppm (Weston, 1990).

4.6.2 Program Status and EBS Results

No reported releases of PCBs are known to have occurred on the FAAF parcel. All transformers with between 50 and 500 ppm PCBs in the dielectric fluid have been replaced (Weston, 1990). The last transformers containing greater than 500 ppm PCBs were removed and replaced with non-PCB transformers in 1992 (Temple, 1994b). There was no basewide program to replace transformers with PCB levels between 5 and 50 ppm; these are replaced with non-PCB transformers on an as-needed basis (Weston, 1990). HLA's review of Army documents indicates that many transformers have been removed and disposed and that dielectric fluid from the transformers has been tested for PCBs, changed out, and disposed as necessary. Little supporting documentation is available to match test results and disposal manifests to specific transformers and their current or former locations.

4.7 Petroleum Storage Tanks

This section provides a summary of the underground storage tank (UST) management program and additional information regarding the status of aboveground storage tanks (ASTs) at Fort Ord. The current status of the program and the status of USTs and ASTs within the FAAF

parcel are based on data available through December 1994.

4.7.1 Summary of Program

This summary section describes the Army's UST program, regulatory compliance objectives, and the goals of the Fort Ord UST Management Plan (HLA, 1991a). The Army UST program requires compliance with federal, state, and local requirements as outlined in AR 200-1 and the Fort Ord Hazardous Waste Management Plan (HWMP; Fort Ord, 1990). Army UST standards state that USTs permanently taken out of service will be removed from the ground. Any UST determined to be leaking is emptied immediately and taken out of service. The UST is then either repaired and retested, or removed from the ground. Monterey County Department of Health (MCDOH) permits are obtained for all UST repairs and removals. According to Chapter 5-7 of AR 200-1, abandoned tanks were to be removed by 1992.

Fort Ord's UST Management Plan (HLA, 1991a) located and mapped all known existing and former USTs at Fort Ord, documented their regulatory status so that recommendations for compliance with UST regulations could be developed, and identified their location, age, and capacity, the materials they stored, and whether they were in use. Based on information available at the time, some of the identified USTs were also placed on one of the three following lists:

- Removal List - USTs designated for removal
- Phase II Vapor Recovery List - USTs designated for piping system upgrades with Phase II vapor recovery systems to reduce emissions into the atmosphere from gasoline-dispensing facilities
- Environmental Assessment List - USTs for which additional documentation or environmental assessments are necessary to properly close the UST locations.

The results of the field work, site plan development, and a regulatory review were evaluated to formulate recommendations to abandon, replace, or upgrade each UST on the

above lists. USTs that were no longer in service (those on the "removal list" in the UST Management Plan) were removed during 1991. MCDOH permits were obtained for all of the UST removals.

Specific criteria such as age, construction, pressure test results, documentation of leaks or spills, and costs associated with upgrading were used to further categorize the USTs into groups:

- USTs that met current requirements
- USTs that were suitable for upgrading
- USTs that should be replaced
- USTs that were no longer in use and should be removed
- USTs whose purpose could be replaced by another facility or by an alternative energy source or system
- Hazardous waste (primarily waste oil) USTs that should be replaced or eliminated.

Each UST was assigned one of the above groups or lists. UST summary sheets and site plans were included as appendixes to the UST Management Plan (HLA, 1991a).

According to a list provided by the ENRD, approximately 39 ASTs are located at Fort Ord (Temple, 1994a). Their condition is unknown. In August 1993, the ENRD registered one 210,000-gallon diesel AST at Fort Ord with the California Regional Water Quality Control Board, in accordance with applicable guidelines (Aboveground Petroleum Storage Act, 1990; see California Health and Safety Code). In that letter, the ENRD stated that no changes, modifications, deletions, or additions had been made to the ASTs since its last storage statement on April 13, 1993.

HLA interviewed Ms. Claire Murdo, ENRD, on January 4, 1994, requesting information about any known spills from ASTs on Fort Ord property. She was unaware of any reportable spills or leaks from the ASTs other than a 50-gallon diesel spill near Building 2722, which

is outside of the FAAF parcel. She did state, however, that for many years 55-gallon barrels of waste oil were emptied into fuel pods that were parked temporarily in various motor pools throughout the base. Spills occurred when waste oil was accidentally poured over the sides of the pods and onto the ground. These spills reportedly occurred in motor pool areas that were most likely paved with asphalt.

4.7.2 Program Status and EBS Results

This section summarizes the status of the UST program at Fort Ord, including a listing of the number of tanks removed recently or that are in place, a description of site characterization activities, and a listing of the number of tanks anticipated for future removal. Information presented below was obtained from Fort Ord (Schmitt, 1994):

- There were 139 USTs removed from Fort Ord, primarily between 1991 to 1994
- Sixteen of the sites where those 139 USTs were removed were found to be contaminated
- Site characterization studies are underway at the 16 contaminated sites to evaluate the vertical and horizontal extent of contamination
- Remediation at the 16 sites will likely include excavating, removing, and treating the contaminated soil
- There are 113 formerly used USTs remaining in place. The tanks were used for storage of heating fuel, vehicle and aircraft fuel, waste oil, or Stoddard solvent or as emergency storage reservoirs
- Of the remaining USTs, approximately 91 have been identified for removal due to base closure. USTs associated with operation of water wells, sewage lifts, or emergency facilities or that are in areas to be retained by the Army will be replaced with ASTs (Schmitt, 1994).

An inventory of existing and former USTs on the FAAF parcel was compiled from various sources of information, including a database and a map of the parcel boundaries provided by the ENRD and COE, respectively, the CERFA report (ADL, 1994), and the Underground Storage Tank Management Plan (HLA, 1991a). The potential exists for some minor discrepancies in the exact number of tanks, planned removals, or other remedial actions because of recent changes in or uncertainties regarding the parcel boundaries.

Eleven existing and former USTs are or were located within or immediately adjacent to the boundaries of the FAAF Parcel (Plate 6). Of those 11 tanks, 5 are currently in place, and 6 have been removed (Table 5). The 5 USTs remaining in place at the FAAF parcel are scheduled for removal, and the work plan has been prepared. As of December 1994, tanks removals within the FAAF parcel had not been initiated. The MCDOH has granted closure to 5 of the former USTs (Table 5).

Two of the former USTs on the FAAF Parcel, 550A and 550B, were located within radio tower compounds known as the "outer" and "middle" markers, respectively. The radio towers delivered a homing beacon for aircraft landing at FAAF and were located in a line approximately 0.5 mile (550B) and 5 miles (550A) southeast of the main runway at FAAF. The USTs were used to store regular leaded gasoline as standby fuel for a backup generator. Both USTs were removed in 1992, and closure has been granted for the former UST at 550B ("middle marker"). Petroleum hydrocarbons were released to the soil and groundwater in the immediate vicinity of the former UST at 550A ("outer marker"). Contaminated soil has been excavated and removed, and contaminated groundwater has been pumped from around the former UST. Groundwater monitoring is continuing at 550A; closure is pending.

An inventory of existing ASTs on the FAAF parcel was compiled from a list provided by the ENRD (Temple, 1994c). One AST is located at the FAAF facility itself (Plate 6). The tank was noted to be double-walled, but not contained by a berm (Table 6). There is also an AST at the FAA radar facility. It is reportedly a double-

walled unit with integral secondary contaminant installed in 1991 (*Ostergren, 1995*).

4.8 Solid and Hazardous Waste Management Program

Fort Ord's procedures for managing hazardous wastes were identified by reviewing available documents and interviewing people responsible for implementing those programs. The documents reviewed are described in Section 3.5. According to information from these sources, hazardous wastes at Fort Ord are managed in accordance with applicable federal, state, and local laws and regulations for managing hazardous wastes (Fort Ord Hazardous Waste Management Plan (HWMP), Fort Ord Regulation 200-1, September 4, 1990; and AR 200-1). Other sections of the Fort Ord HWMP were not available for review because those sections are being updated on the basis of changes in command and changes in operations resulting from Fort Ord's closure.

The Fort Ord Spill Prevention, Control, and Countermeasure Plan (SPCC) (*Dynamac, 1993*) indicates that hazardous materials, such as brake fluid, acetylene, paint and paint strippers, batteries, transmission and motor oils, waste oils, acids, solvents, pesticides, and adhesives, were stored at Fort Ord (Table 1 of the SPCC, *Dynamac, 1993*). These materials were stored at motor pools, maintenance shops, equipment sheds, and the DRMO yard. Storage container capacities typically ranged from 1 gallon to 55 gallons, although at a few locations, waste oils were reportedly stored in containers holding up to 400 gallons. Materials such as oxygen and acetylene were stored in compressed gas cylinders. Table 1 of the SPCC lists known container volumes and quantities; information was current through the end of 1993. Because of base closure, fewer hazardous materials are likely to be stored at Fort Ord today.

According to Ms. Claire Murdo, DENR, spill plans contained in the HWMP identify requirements for addressing emergencies and spills. Internal Army spill reports have been prepared as necessary over the past 2 to 3 years and document specific releases, but could not be retrieved from the files at the time of EBS

preparation because of recent changes in DENR office facilities and personnel. However, according to Ms. Murdo and Section VI of the SPCC, during the period covered by the spill reports, no "reportable-quantity" spills have occurred that would have required notification of regulatory agencies. As noted previously, Fort Ord is updating hazardous waste or materials management documents in response to closure of Fort Ord.

Information about the status of solid waste management units (SWMUs) at Fort Ord was reviewed (*AEHA, 1988; HLA, 1993b*). These documents identified operations at each SWMU and whether further assessment of the SWMU was recommended to identify potential releases. This section summarizes information about the SWMUs at Fort Ord. The following section discusses the types of SWMUs at Fort Ord, the locations of SWMUs within the FAAF parcel, and previous evaluations of the SWMUs.

4.8.1 Summary of Program

In 1988, the AEHA performed an assessment to identify, describe, and evaluate SWMUs at Fort Ord. The purpose of the AEHA assessment was to assist Fort Ord in bringing the SWMUs into compliance with state and federal regulations and to identify SWMUs requiring environmental sampling and/or remedial action. The methods used by AEHA to identify and assess the SWMUs included:

- A literature search that included review of the installation assessment previously performed by the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA)
- Site visits and inspection of conditions at each site.

AEHA's Interim Final Evaluation of Solid Waste Management Units (*AEHA, 1988*) identified 58 SWMUs at Fort Ord (Table 7) and divided them into three categories:

- SWMUs with evidence of release to the environment

- SWMUs with no evidence of release to the environment
- SWMUs that required environmental sampling to complete the requirements of the Resource Conservation and Recovery Act (RCRA) facility assessment (RFA).

Recommendations to ensure environmental compliance at Fort Ord were also presented in the 1988 SWMU report and included:

- Inclusion of the 1988 SWMU report with the RCRA Part B permit renewal application for review by state and U.S. EPA Region IX regulatory authorities
- Coordination with the state and U.S. EPA Region IX for visual inspections of the identified sites
- Completion of environmental sampling and/or investigations at seven SWMUs: FTO-001, FTO-002, FTO-010, FTO-014, FTO-025, FTO-026, and FTO-041
- Completion of the closure process for abandoned landfills in accordance with state and federal regulations
- Consolidation of all hazardous waste at the numerous motor pools in temporary storage buildings.

The 1988 SWMU evaluation was updated in 1993 (HLA, 1993b). The scope of work performed in the update included:

- Reviewing the 1988 SWMU report
- Developing a site map showing the location of each of the 58 SWMUs
- Conducting site visits under the supervision of Fort Ord personnel to verify the location and status of each SWMU
- Preparing a report.

4.8.2 Program Status and EBS Results

The status of the original 58 SWMUs identified in the 1988 report was summarized in the 1993 SWMU update as follows:

- Nine SWMUs have been closed or are no longer in existence
- Nine SWMUs have different associated units
- Two SWMUs are now used differently than as described in the 1988 report
- One SWMU location is still in operation but stores its waste elsewhere
- Thirty-seven SWMUs are essentially unchanged since the 1988 report was prepared.

No changes are known to have occurred since the 1993 SWMU update.

4.8.3 SWMUs Within the FAAF Parcel

Six former SWMUs were identified within the FAAF parcel (Table 7, Plate 6). Five of the SWMUs (FTO-006, FTO-039, FTO-043, FTO-046, and FTO-047) were identified as being former hazardous material storage areas for motor pool operations; however, no evidence of an environmental release was present at any of them according to the 1988 AEHA SWMU report. This status was confirmed in 1993 (HLA, 1993b). SWMUs FTO-006 and FTO-046 are no longer in existence. The remaining SWMU, FTO-003, is the location of the former FAAF Sewage Treatment Plant (NPL Site 36). HLA completed an investigation at this site and anticipates the facility will be designated as a No Action Site.

4.9 Environmental Restoration Program

This section discusses two principal components of Fort Ord's overall environmental restoration program, the CERFA program and the RI/FS

program. The CERFA program involves the identification of uncontaminated real property. The RI/FS program which involves the characterization and cleanup of contaminated property, (was formally initiated in 1991), following Fort Ord's 1990 listing on the NPL, although investigation of Fort Ord soil and groundwater contamination began in 1984 at the FAAF Fire Drill Area (Operable Unit 1). The discussion below presents an overview of the CERFA and RI/FS programs, the locations of sites within and adjacent to the FAAF parcel, the status of site investigation and remedial activities, and the overall strategy for completing the programs.

4.9.1 Community Environmental Response Facilitation Act (CERFA)

This section discusses the CERFA program, including the purpose of CERFA legislation, the effect of the legislation on real property transfer, and the findings of the Fort Ord CERFA report.

4.9.1.1 Summary of CERFA Program

CERFA became law (Public Law 102-426) on October 19, 1992, and amended CERCLA in two principal areas. First, CERFA added CERCLA §120(h)(4), which requires the identification of uncontaminated property ("CERFA parcels"). The fundamental purpose of this section is to expedite identification of real property having the greatest opportunities for redevelopment at facilities at which federal operations are terminating. Properties are identified by evaluating their current and historical uses. Specific procedures for conducting the evaluation are described in the CERFA legislation. In general, the procedures encompass the following:

- A search of government records
- Review of recorded chain of title documents
- Review of aerial photographs reflecting prior uses
- Physical inspection of the property
- Review of information for adjacent properties.

For installations on the NPL, the identification of uncontaminated property is not considered complete until the EPA concurs.

Second, CERFA clarifies the requirements for declaring that all necessary remedial actions pursuant to CERCLA §120(h)(3) have been taken. Generally, according to CERFA, remedial action has been taken if an approved remedial system has been constructed and demonstrated to the regulatory agency administrator to be operating properly and successfully. This revision permits the transfer of real property within a time frame significantly more favorable to communities surrounding closing installations by allowing such transfer to proceed potentially well before remedial actions are concluded.

As noted above, a focus of the CERFA program is the *identification of uncontaminated property*. The CERFA report functions as a basewide EBS for Fort Ord and provides information that supports the parcel-specific EBSs currently in preparation. Because real property identified as uncontaminated under CERFA appears to have no history of storage, release, or disposal of CERCLA hazardous substances or petroleum products or their derivatives, and because no remedial actions are, therefore, considered necessary, a deed for transfer of such real property can indicate that the requirements of CERCLA §120(h)(4) have been met.

4.9.1.2 Program Status and EBS Results

A CERFA assessment was initiated for Fort Ord in Fall 1992. The CERFA program for Fort Ord was conducted by the U.S. Army Environmental Center (USAEC) on behalf of Fort Ord. On December 6, 1993, the draft CERFA report was issued to Fort Ord and the regulatory agencies. On January 28, 1994, a meeting was conducted to discuss preliminary comments on the draft CERFA report. The final CERFA report was released April 8, 1994 (*ADL, 1994*). USEPA and DTSC concurrences on the CERFA clean parcels were received April 18 and 19, 1994, respectively.

The principal result of the CERFA assessment is a map showing the areas identified as

uncontaminated. Plate 8 presents information from the final CERFA report for areas near the FAAF parcel. Table 8 provides definitions of the categories developed in the CERFA report. The distribution of CERFA-defined parcels (CERFA parcels, CERFA with qualifiers parcels, CERFA disqualified parcels, and CERFA excluded parcels) is taken directly from the CERFA report.

Plate 8 shows the areas in the FAAF parcel that have been categorized as uncontaminated or CERFA parcels, as defined by CERFA. Based on information that was developed for and considered in the CERFA report, these areas potentially offer the greatest opportunity for development by the local community. CERFA and CERFA with qualifiers parcels have no history of storage of CERCLA-regulated hazardous substances, petroleum, or petroleum derivatives for 1 year or more, and no release or disposal of CERCLA-regulated hazardous substances, petroleum, or petroleum derivatives, or threat of migration of such contamination from adjacent property. As such, they meet CERCLA §120(h)(4) requirements. According to the USEPA (USEPA, 1994), no other decision documents are necessary to provide a covenant in the deed warranting that necessary remedial action has been taken for these CERFA and CERFA with qualifiers parcels, in accordance with CERCLA §120(h)(4). However, the Army intends to transfer CERFA with qualifier parcels under CERCLA §120(h)(3) with appropriate deed restrictions.

Environmental information made available subsequent to the preparation of the CERFA report has rendered some of the CERFA designations obsolete. The OEW area was discovered after the CERFA report was finalized, and portion of the practice bazooka and rifle grenade area was categorized as a CERFA parcel before this OEW information was known. This area would probably now be categorized as CERFA with qualifier.

In addition, at the time the CERFA report was prepared, NPL Site 34 was considered to include the entire FAAF. Site 34 has subsequently been redefined to comprise only five specific wash racks (see Section 4.9.2.2). Therefore, the area indicated as CERFA disqualified in the CERFA

report and on Plate 8 is greatly overstated. It should actually include only the NPL sites not the majority of the FAAF facility.

4.9.2 Remedial Investigation/Feasibility Study (RI/FS)

4.9.2.1 Summary of RI/FS Program

Fort Ord was added to the National Priorities List (NPL) of hazardous waste sites (55 Federal Register 6154) on February 21, 1990. A Federal Facilities Agreement (FFA) was signed by Fort Ord for the U.S. Army with the U.S. EPA, Region IX, the California Department of Health Services (DHS), and the California Regional Water Quality Control Board, Central Coast Region (RWQCB), in July 1990. Under the FFA, the Army is required to perform a remedial investigation/feasibility study (RI/FS) at Fort Ord.

To date, the Army and regulatory agencies have identified two RI/FS Operable Units (OUs) at Fort Ord:

- OU 1 Fritzsche Army Airfield Fire Drill Burn Pit
- OU 2 Main Garrison Landfill Areas.

The RI/FS includes basewide investigation programs and individual site characterizations. Five basewide studies have been conducted, as listed below:

- Background Soil and Groundwater Investigation
- Basewide Biological Inventory
- Basewide Hydrogeologic Characterization
- Basewide Surface Water Outfall Investigation
- Basewide Storm Drain and Sanitary Sewer System Investigation.

Forty-one sites at Fort Ord have been identified for inclusion in the RI/FS. Site characterization activities were designed to screen sites for contamination. The primary objective of the site

characterizations was to assess the absence or presence and nature of contaminants at each site.

Based on the results of the investigations, the 41 sites have been characterized as follows:

- No action sites: Sites where screening risk evaluations of collected samples indicate that the threat to human health or the environment, if any, is acceptably low. These sites will not require additional investigation or remediation. Eighteen sites have been assigned to this category.
- Interim action sites: Sites where small areas of contamination have been delineated and remedial action can be implemented quickly by excavation. Fourteen sites have been assigned to this category.
- Remedial investigation sites: Sites where soil and/or groundwater data indicated that a complete RI/FS will be necessary prior to remediation. Nine sites have been assigned to this category.

The 41 Fort Ord NPL sites and their assigned categories are summarized in Table 9. The assignment of sites to these categories is based on available information. The designation of a site will not be considered final until the appropriate decision document has been completed. Additional information on the RI/FS Investigation is provided in the Basewide RI/FS (HLA, 1994e); sampling and Analysis Plan (HLA, 1991b); the Work Plan (HLA, 1991c); basewide study reports prepared by HLA; and individual site characterization reports prepared by HLA.

4.9.2.2 Program Status and EBS Results

Three NPL characterization sites (Sites 34, 36, and 40) are within the FAAF Parcel (Plate 6) and are discussed below. Additionally, three other NPL Sites (OU 1, Site 27, and Site 35) are near the southern boundary of the FAAF parcel (see Section 4.10).

Site 34 - The investigation at Site 34 (FAAF Fueling Facility) which originally encompassed all of FAAF, was conducted to evaluate

environmental conditions associated with potential sources of contamination at FAAF. The areas evaluated include helicopter and vehicle wash racks and associated oil/water separators. Soil and soil gas samples were collected in the vicinity of helicopter wash aprons 512, 517, 525, and 534, and vehicle wash rack 516. Twenty-four soil gas samples were collected at these areas and analyzed for total hydrocarbons (THC) and volatile organic compounds (VOCs), including vinyl chloride. In addition, nine soil borings were drilled to a maximum depth of 20 feet, and 27 soil samples were analyzed for total petroleum hydrocarbons as gasoline (TPHg) and diesel (TPHd), VOCs, and priority pollutant metals.

Site characterization results indicate limited petroleum hydrocarbon contamination in the soil at vehicle wash rack 516, which is outside the FAAF parcel. On the basis of these results, Site 34 has been redefined to include the five wash racks and designated as an interim action (IA) site (Table 9). An Interim Action ROD (IAROD) for Site 34, including areas of Site 34 outside of the FAAF parcel, was signed in March 1994. Contaminated soil at wash rack 516 will be excavated under the IAROD. Concentrations of contaminants detected in soil samples collected from helicopter wash aprons 512, 517, 525, and 534 were below levels requiring remediation and are considered no further action areas within the FAAF parcel (HLA, 1994c). Interim actions for Site 34 are scheduled to begin in mid-1995.

Site 36 - The investigation at Site 36 (FAAF Sewage Treatment Plant) was conducted to evaluate the potential presence of contamination in the soil and groundwater from the sewage plant operation. Site characterization activities included drilling and sampling six 20-foot-deep soil borings and one 10-foot-deep soil boring and collecting groundwater samples from an existing monitoring well during three sampling events.

Several organic and inorganic compounds were detected in one or more of the 21 soil samples analyzed. A screening risk assessment (SRE) conducted for the site, using the detected potential chemicals of concern, indicates that the low levels of chemicals reported at the site

present a minimal risk to human health and the environment and are not expected to have an adverse impact on groundwater (HLA, 1994d). On the basis of field observations, chemical analytical results, and the SRE, no additional soil investigation is recommended for Site 36.

Carbon tetrachloride, detected in one of three sampling rounds, was the only compound detected above the California maximum contaminant level in groundwater samples from the monitoring well at Site 36. The Site 36 monitoring well is recommended for inclusion in the quarterly basewide monitoring program because of the detection of carbon tetrachloride (HLA, 1994d).

Site 40 - The investigation at Site 40 (FAAF Helicopter Defueling Areas) was conducted to evaluate the potential presence of contamination in soil and groundwater from past defueling operations. On the basis of historical aerial photographs, site reconnaissance, and interviews with site personnel, four separate areas of concern were identified for investigation. These areas are locations where helicopters have been defueled or where chemicals associated with helicopter maintenance may have been released. One of these areas is also a suspected landfill site.

Sixty-seven soil gas samples were collected and analyzed for total recoverable petroleum hydrocarbons (TRPH) and VOCs, including vinyl chloride. Three soil borings were drilled to a maximum depth of 105 feet, and eight samples were analyzed for TPHg, TPHd, VOCs, semivolatile organic compounds (SOCs), and priority pollutant metals. Six water samples were also collected from the borings using a HydroPunch and were analyzed for VOCs, TPHd, and TPHg. A geophysical survey was conducted, and six exploration trenches were excavated at the suspected landfill area. Seventeen soil samples were collected from the trenches and analyzed for TPHd, TPHg, VOCs, SOCs, and priority pollutant metals.

On the basis of the preliminary results, near-surface soil in one of the three areas will likely require soil excavation under the IAROD because of the presence of elevated

concentrations of unknown TPHd. There is no evidence of dumping at the suspected landfill site or of groundwater contamination (HLA, 1994e). This site characterization is ongoing.

The Basewide Surface Water Outfall Investigation evaluated the quality of the discharges from the surface drainage system (including the storm drain system) and characterized the impact of those discharges on soil at the outfalls. The basewide surface water outfalls were prioritized based on their potential to transport contaminants to the outfall, sampling and analyzing soil gas samples, and obtaining soil boring samples and sediment samples at each prioritized outfall.

Five stormwater outfalls (Locations 20N, 20S, 21, 22, 23) discharge into the FAAF parcel (HLA, 1993a). The chemical data from soil and sediment samples collected at the stormwater outfalls are presented in the Basewide Remedial Investigation/Feasibility Study (HLA, 1994e).

4.10 Potential Impacts From Adjoining Properties

This section summarizes potential environmental impacts from properties within approximately 1 mile of the FAAF parcel. Discussions in this section are based on review of documents furnished by the Army and reports pertaining to specific environmental concerns.

Asbestos: Asbestos surveys found friable and nonfriable ACM in numerous buildings adjacent to the FAAF parcel (Weston, 1990; DEI, 1993). Buildings containing ACM in and near the FAAF parcel are shown on Plate 4.

Lead-Based Paint: LBP surveys of family housing structures at Fort Ord have been completed. Based on available information, pre-1978 structures are likely to contain LBP (ADL, 1994). Pre-1978 structures in the area surrounding the FAAF parcel are shown on Plate 5.

Radon: Radon testing for buildings within approximately 1 mile of the FAAF parcel found no buildings with concentrations exceeding 4 pCi/l (Plate 5).

Radiological Surveys: A radiological survey of buildings adjacent to the FAAF parcel has been completed. A review of survey results indicates that no radiological health hazards were identified and the buildings were recommended for radiological decommissioning.

Ordnance and Explosive Waste: Areas containing or potentially containing OEW within approximately 1 mile of the FAAF parcel include the Fritzsche 3.5-inch Rocket Site (Plate 7), which is southeast of the parcel. No known ordnance-related chemical hazards were identified with this site during the Site 39 investigation (HLA, 1994a). Although this site was not identified in the Archive Search Report (USAEDH, 1993), the Army reportedly conducted a preliminary survey for OEW at the Fritzsche 3.5-inch Rocket Site; no OEW was found (Temple, 1994d).

Polychlorinated Biphenyls: Transformers with concentrations of PCBs above 50 ppm reportedly have been removed from Fort Ord. There are no documented releases of transformer oil or PCB containing materials within the area immediately surrounding the FAAF parcel.

Underground and Aboveground Storage Tanks: Approximately 25 existing or former USTs are or were located outside of, but within about 1 mile of, the FAAF parcel. Of those 25 tanks, 21 are currently in place, and 4 have been removed. One AST is present in this area. The condition of the tank is unknown, and it reportedly is not contained by a berm.

Solid Waste Management Units: Three former or existing SWMUs were identified outside but within about 1 mile of the FAAF parcel. Two of the SWMUs had no evidence of an environmental release and required no further action (AEHA, 1988). SWMU FTO-001 has had documented environmental releases and is currently undergoing remediation as part of NPL Site OU1. Table 10 and Plate 6 present SWMU locations near the FAAF parcel.

Remedial Investigation/Feasibility Study Program: In the vicinity of the FAAF parcel, three NPL sites, including OU 1, are being investigated as part of the RI/FS at Fort Ord. The three sites are

listed in Table 10. At two of the locations, Sites 27 and 35, investigations have been completed, and the sites have been placed in the no-action category. The remaining location in the study area, OU1 (400 feet southwest), has documented soil and groundwater contamination. Soil remediation at OU1 is complete and groundwater remediation is ongoing. A ROD for OU1 is expected to be completed in mid-1995. Plate 6 shows NPL site locations in the study area.

4.11 Air Quality

Air quality issues at Fort Ord have been investigated in three major studies undertaken at the base. These studies and the years they were conducted are:

- Solid Waste Air Quality Assessment Test (SWAQAT) at the Fort Ord Landfills (OU 2), 1987
- Toxic Air Emissions Inventory Report, Headquarters 7th Infantry Division and Fort Ord, 1990
- Site 3 - Beach Trainfire Ranges, 1993.

Each study and its results are summarized below.

The SWAQAT was undertaken to evaluate the presence and distribution of landfill gas (LFG) and the ambient air quality in the vicinity of the landfill. The LFG contained methane, carbon dioxide, and nitrogen in ratios consistent with those found in landfills of similar age. Methane was found to have migrated outside the landfill into the soil of bordering recreational areas north of Imjin Road. No bare areas or dead vegetation was found, however, that might indicate that methane was migrating to the surface and presenting a health or explosive hazard. Analysis of samples collected in the air space immediately above the landfill detected 6 parts per million (ppm) total organic compounds. Low levels of 1,1-dichloroethene (1,1-DCE) were detected in the LFG and the ambient air both upwind and downwind of the landfill. The prevailing wind direction during sampling was from the west.

The Toxic Air Emissions Inventory measured emission rates of chemicals from various sources around the base, including the FAAF parcel, when it was fully active in 1990. This investigation quantified emissions from:

- Diesel-fired boilers
- Natural gas-fired boilers
- Pathological waste incinerator
- Stationary engines
- Munitions use
- Painting booths
- Offset printing presses
- Miscellaneous paint and solvent use
- Ozalid (blueprint) printers
- Gasoline storage and transfer
- Laboratory chemical use.

The six most significant emissions to the air and their sources were found to be:

- Gasoline vapors (110,000 lbs/yr) from filling stations

- Toluene (2,700 lbs/yr) from paint and solvent use
- Chlorofluorocarbons (CFCs) (1,900 lbs/yr) from paint booths
- Ammonia (1,550 lbs/yr) from munitions and ozalid
- Trichloroethylene (TCE) (1,350 lbs/yr) from solvent use.

The remaining chemical emissions to air were estimated to amount to less than 900 lbs/yr. Note that all these emissions, excluding a portion of the gasoline emissions, have been drastically reduced or eliminated by base closure.

Site 3, the Beach Trainfire Range, forms the western portion of Fort Ord. Site 3 extends for 3.2 miles and comprises approximately 780 acres along the Pacific Ocean. The portion of the ranges closest to the base is approximately 11,000 feet west of the FAAF parcel. The chemicals of concern for air monitoring were heavy metals related to expended munitions (bullets) in the target area. During the summer of 1993, high-volume ambient air monitoring for particulates was attempted in three locations in the eastern (downwind) side of Site 3. The monitoring effort was not successful and air quality modeling was performed instead to estimate particulate loading.

5.0 FINDINGS AND CONCLUSIONS

5.1 Findings

This EBS presents an overview of existing environmental conditions on the FAAF parcel based on available information. Although some of the environmental programs discussed in the preceding portions of this EBS are not complete and not all documentation is available, information that is available about environmental conditions on the FAAF parcel has been gathered and summarized. Findings of the EBS for the FAAF parcel include:

- The parcel boundaries used in this study and shown in this report are approximate and are based on information from the Army, COE, and on subsequent revisions by City of Marina officials.
 - Asbestos surveys have been completed for 43 nonhousing structures on the FAAF parcel. These surveys show that 12 structures contain no ACM. The remaining 31 structures surveyed contain friable or nonfriable ACM. No structures within the FAAF parcel were found to contain friable ACM in damaged condition.
 - Lead-based paint surveys of housing structures have been completed. However, no FAAF-specific data are available because no housing structures or barracks are present on the FAAF parcel. Of the 43 total nonhousing structures on the FAAF parcel, 24 are suspected of containing LBP and 2 may contain LBP on the basis of their construction dates. No construction dates were available for the other 17 structures and these structures should be considered to contain LBP. Presently no other conclusions can be made about the condition of the LBP or whether it represents a health hazard.
 - Radon surveys showed that no buildings within the FAAF parcel had radon levels above 4 pCi/l.
 - The seven buildings in the FAAF parcel identified for radiological surveys were surveyed and sampled. No radiological health hazards were identified and the buildings were recommended for radiological decommissioning.
 - One area containing potential OEW was identified within the FAAF parcel. The presence of OEW at the practice bazooka and rifle grenade range within the FAAF parcel was confirmed and clearance activities are in progress. This portion of the site is not proposed for transfer in Phase 1.
 - Transformer dielectric fluids have been examined for PCBs in two basewide sampling programs encompassing approximately 1,000 transformers. There have been no reported releases of PCB-contaminated dielectric fluids within the FAAF parcel.
 - Eleven former or current USTs have been located on the FAAF parcel. Six USTs have been removed during the past several years. Monterey County has granted closure for five of the tank removals. The five remaining USTs are slated for removal. There was a release of petroleum hydrocarbons from the former UST at the Former Radio compound at 550A. Contaminated soil and groundwater have been removed from around the former UST. Groundwater monitoring is continuing; closure is pending.
- Two ASTs are located on the FAAF parcel. Little information is available regarding the status of these ASTs at the FAAF facility itself, but no releases have been reported. The AST at the FAA radar facility is a double-walled unit installed in 1991.
- Six inactive SWMUs are located at five locations on the FAAF parcel. In 1988 these SWMUs were evaluated, and the 1988 report was updated in 1993 confirming the previous results. All SWMUs were recommended for no further action.

- The Final CERFA report, which is equivalent to a basewide EBS, identifies CERFA and CERFA disqualified parcels within the FAAF parcel boundary. CERFA disqualified parcels include several NPL sites and approximately 12 current or former UST and AST locations. This categorization is the result of the entire FAAF facility being originally included as NPL Site 34. This categorization is no longer correct and should now pertain only to the revised NPL sites. CERFA parcels include the western and northern areas of the FAAF parcel.
- NPL sites on the parcel include Sites 34, 36, and 40. The categorization of sites is based on available information and status of site investigations at each location. Site 36 has been categorized as a no action site. The Army expects to complete a No Action ROD (NoAROD) for this site by mid-1995. The areas included in Sites 34 and 40 have been revised and identified as Interim Action (IA) sites. An IAROD was signed in March 1994 and interim actions at Sites 34 and 40 are expected to begin in mid-1995. The NPL sites are not included in the Phase 1 portion of the FAAF parcel.
- In addition to the site-specific investigations noted above, the Basewide Surface Water Outfall Investigation evaluated the quality of the discharges from the surface drainage system (including the storm drain system) and characterized the impact of those discharges on soil at the outfalls. The chemical data from soil and sediment samples collected at the outfalls are presented in the Basewide Remedial Investigation/Feasibility Study (HLA, 1994e).

5.2

conclusions

On the basis of the draft (Version 1) EBS, this Version 2 EBS, and FOST guidance criteria, it may be concluded that much of the FAAF parcel is transferable by deed under the provisions of CERCLA §120(h)(3) or (4). The Phase I portion of the FAAF parcel (approximately 750 acres) includes these areas (Plate 9). The NPL sites and OEW area are not included in Phase I. A copy of the draft FOST for Phase I of the FAAF parcel is attached as Appendix D. A legal description of the Phase I parcel is also included in Appendix D.

Several health-related environmental conditions currently exist or are suspected to exist on the FAAF parcel in areas considered suitable for transfer by deed according to draft FOST guidance criteria. In most cases, these environmental conditions have been evaluated or investigated by the Army and the results have been summarized in this Version 2 EBS. Further activities which are not complete at this time will be made available to recipients of the parcel.

In general, the requirements of CERCLA §120(h)(3) do not appear to have been met for the NPL sites and the OEW area noted above. For no further action sites, CERCLA §120(h)(3) requirements will be met after NoAROD and subsequent approval memoranda have been signed by regulatory agencies. Following completion of the IAROD, completion of interim actions and regulatory agency signature of approval memoranda, CERCLA §120(h)(3) requirements for the interim action sites will be met. These sites will then be eligible for transfer as subsequent phases. The practice bazooka and rifle grenade range will be transferred after clearance for OEW has been completed.

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