CTH-102

Draft
Environmental Baseline Survey
University of California at Santa Cruz Parcel
Fort Ord, California

Prepared for

Department of the Army
Corps of Engineers
Sacramento District
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SELECTED ACR NYMS

ACM	Asbestos-Containing Material
AEC	Army Environmental Center
AR200-1	Army Regulation 200-1
ARAR	Applicable or Relevant and Appropriate Requirement
AST	Aboveground Storage Tank
BCP	BRAC Cleanup Plan
BCT	BRAC Cleanup Team
BEC	Base Environmental Coordinator
BRAC	Base 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
DRMO	Defense Reutilization and Marketing Office
EBS/EBST	Environmental Baseline Survey/Environmental Baseline Survey for Transfer
EIS/EIR	Environmental Impact Statement/Environmental Impact Report
FAAF	Fritzsche Army Airfield
FORG	Fort Ord Reuse Group
FOST	Finding of Suitability for Transfer
FOSL	Finding of Suitability for Lease
IAROD	Interim Action Record of Decision
IFR	Interim Final Report
LBP	Lead-Based Paint

NEPA	National Environmental Policy Act
NPL	National Priorities List
NoFAROD	No Further 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
UST	Underground Storage Tank
UXO	Unexploded Ordnance

1.0 INTR DUCTION

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 University of California at Santa Cruz (U.C. Santa Cruz) parcel, as shown on Plates 2 and 3. Information presented in this EBS will be used to prepare a parcel-specific Finding of Suitability for Transfer (FOST) for a portion of the U.C. Santa Cruz parcel, should the Army determine that such a FOST is appropriate, as discussed below.

Fort Ord has been an active military installation since 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 (*COE, 1993*), 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 a number 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 18 high-priority reuse parcels for which Fort Ord is currently preparing parcel-specific EBSs. These 18 parcels were identified by the community-based Fort Ord Reuse Group (FORG) over the past few months through ongoing discussions between FORG, which proposed an initial list of priority reuse sites (*FORG, 1993*), and Fort Ord.

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 Number DACA05-86-C-241, Modification P00091.

1.1 Purpose and Objectives

Under current Department of Defense (DOD) procedures, the transfer of excess property associated with base closures involves a two-step process culminating in preparation of a FOST. The first step in the process includes review of currently available information and the preparation of an EBS. Following preparation of the EBS, the Army determines whether the property is suitable for transfer, in terms of specific criteria. If the Army finds that the property is suitable for transfer, the Army prepares a FOST to document the property's suitability for transfer in terms of the specified criteria. Draft 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 DOD correspondence (*Baca, 1992*). Additional, revised draft guidance on the EBS/FOST process is also contained in undated internal draft DOD documents. The draft guidance dated October 16, 1992, is the only formally issued EBS/FOST guidance, so it was used in preparing this EBS.

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 regulated under CERCLA (Comprehensive Environmental Response, Compensation, and Liabilities 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 non-federal 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 draft EBS/FOST guidance (*Baca, 1992*), a FOST has the following objectives:

- Protection of human health and the environment

- Preparation of EBSs in a consistent manner

- Ensuring transfer of property without interfering with cleanup actions

- Compliance with applicable environmental requirements, allowing DOD to make the covenant required by CERCLA Section 120(h)(3) before property is transferred, while providing for timely transfer and reuse of the property.

1.2 Procedures for Environmental Baseline Survey (EBS)

Draft procedures for conducting an EBS are contained in DOD correspondence noted above (*Baca, 1992*). 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

- Review of existing records

- Description of known current or past activities on the parcel

- Description of known hazardous substance or hazardous waste management practices

- Documentation of observations made during visual inspections

- Description of possible sources of contaminants on the parcel or on adjacent parcels, on the basis of available information.

1.3 Procedures for Finding of Suitability for Transfer (FOST)

Draft procedures for conducting a FOST are also contained in DOD correspondence noted above (*Baca, 1992*). A FOST is expected to be a relatively brief document, only a few pages in length. 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 (*Baca, 1992*), 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 under CERCLA to protect human health and the environment has been taken)

- No hazardous substances were stored for 1 year or more, known to have been released, or disposed on the parcel.

The Draft DOD guidance does not specify a format for a FOST. Therefore, a proposed model format for the FOST is presented in Appendix A. In the format shown in Appendix A, a FOST would contain six parts, specifically:

- References, with a listing of documents supporting the transfer, including those from previous investigations

- Authority, with a listing of DOD document(s) that provide appropriate authority to transfer the parcel

- Background, including a brief overview of the salient steps leading to the signing of the FOST, with reference to appropriate public laws associated with the government's decision to transfer the property

- Findings, summarizing known current or historical environmental conditions in the parcel

- Conclusions, providing a specific certification regarding remedial actions or the storage, release, or disposal of hazardous substances on the parcel, as noted above

- Signature, according to the signature authority discussed above.

1.4 Summary

The EBS and FOST are coordinated and complimentary documents that provide information regarding the environmental suitability of a parcel for transfer with respect to available information and specific criteria. Both are internal DOD documents based on draft DOD guidance (*Baca, 1992*). 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 in light of the two specified criteria from the DOD guidance.

1.5 Report Organization

The remaining sections of this EBS describe environmental conditions relevant to transfer of the U.C. Santa Cruz parcel. Section 2.0 describes the Fort Ord setting and general characteristics of the U.C. Santa Cruz parcel, including parcel location and boundaries, current and historical land use, anticipated land use following transfer, and adjacent land use. Section 3.0 describes the specific activities conducted for the U.C. Santa Cruz parcel EBS and FOST. Section 4.0 presents the results of the EBS, describing available information about existing environmental conditions on the U.C. Santa Cruz parcel. Section 5.0 summarizes the findings and conclusions of the EBS and describes the status of FOST preparation for the U.C. Santa Cruz 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 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 and of this report is to identify and describe available information; in the EBS and this report, 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 DESCRIPTI N

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 located 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 beach-front 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.

Since its opening in 1917, Fort Ord has 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 1989, but troop reallocation was not completed until 1993. Although Army personnel still operate the base, no active Army divisions are currently stationed at Fort Ord.

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 are 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 serves 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, 1993b*). Although Fort Ord covers approximately 44 square miles, only a few soil types are present; they generally consist of sand deposits. The average depth to groundwater for much of Fort Ord is in excess of 150 feet, and, in many places, the first major clay barrier between aquifers does not occur until 600 to 700 feet below ground level.

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; 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 (including the Salinas Valley Aquiclude) are present. Overlying these sediments are dune sand deposits.

The Salinas Basin and the Seaside Basin are the two main hydrogeologic structures underlying Fort Ord. The Salinas Basin underlies approximately the northern one-third of Fort Ord; 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 are 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; 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 (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 SVA. Where the SVA

pinches out beneath the Main Garrison area, groundwater appears to flow from the upper 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 to the east as a result of pumping from Salinas Valley and Fort Ord supply wells. Current and historical pumping has resulted in salt water 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 Santa Margarita Formation aquifer, the Paso Robles Formation aquifer, and a perched aquifer.

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 subdivide the Seaside Basin into several subbasins, including the Northern Seaside Basin, Southern Seaside Basin, Fort Ord and Coastal Subbasins, and Laguna Seca Subbasin.

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 U.C. Santa Cruz Parcel Reuse

The U.C. Santa Cruz parcel will be developed into a multi-institutional science, technology, and policy research center. Other plans for parcel development include facilities for a language center, environmental research center, advanced degree and training programs, an alternative high school program, health professions training, cultural and performing arts, multicultural professional development, studies of Pacific-Rim countries, hotel and restaurant management programs, and agricultural research (*FORG, 1993*).

2.4 U.C. Santa Cruz Parcel Description

The U.C. Santa Cruz parcel encompasses approximately 980 acres along the northern border of Fort Ord, including a portion of FAAF. In general, the parcel is bordered to the north by FAAF, to the east by the Salinas River Valley, to the south by open space and housing areas, and to the west by the City of Marina.

The western and southern portions of the parcel (approximately 480 acres) are proposed for use as research areas. These areas contain more sensitive species per acre than anywhere else on Fort Ord and will be held and managed as habitat by the University of California Natural Reserve System. The remaining portions of the parcel are proposed for use as university science offices and office park.

Land uses within the U.C. Santa Cruz parcel consist of:

- Open space/training areas, including a former fire drill burn pit and open fields

- Military support, including helicopter takeoff/landing areas, aircraft fueling facilities, and an aircraft cannibalization yard.

All or part of several National Priorities List (NPL) sites are within the U.C. Santa Cruz parcel and are being investigated as part of the Superfund program at Fort Ord. These sites are:

- Site 34: FAAF Fueling Facility

- Site 35: Aircraft Cannibalization Yard

- OU 1: FAAF Fire Drill Burn Pit.

Site 34 is an Interim Action site. Site 35 is a no further action site and OU 1 is an operable unit or site that is further along in the Superfund process than other sites. A more complete description of activities conducted at these site is presented in Section 4.9.2.

2.5 Previous and Current Activities on Parcel

As noted above, the U.C. Santa Cruz parcel includes a portion of FAAF, which was constructed in the early 1960s. The Fueling Facility (Site 34) consists of five wash racks with oil/water separators that were used for helicopter and vehicle cleaning. The buildings remain today and are in various stages of decommissioning due to base closure. The Aircraft Cannibalization Yard (Site 35) was used to salvage usable parts from small aircraft and helicopters and was also used as a training ground. The FAAF Fire Drill Burn Pit (OU 1) was used from 1962 to 1985 by the Fort Ord Fire Department to train firefighters in extinguishing fires. An active groundwater treatment system exists at the burn pit today. The majority of the remaining land within the parcel is open space.

2.6 Historical Uses on Property Adjacent to Parcel

The area surrounding the U.C. Santa Cruz parcel consists of both developed and undeveloped property. The developed properties within approximately 1 mile of the parcel boundary include the following:

- Housing Areas: Abrams, Frederick, Patton, 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

- Military support/industrial areas including motor pools, machine shops, and maintenance facilities to the north, south, and east

- FAAF bounding the parcel to the north

- East Garrison Sewage Treatment Plant to the east and FAAF Sewage Treatment Plant to the north.

Surrounding undeveloped properties include the following:

- Fort Ord Landfills and Operable Unit 2 to the south

- Open space and training grounds to the north, south, and east.

Several sites in the vicinity of the parcel are actively being investigated a part of a RI/FS program at Fort Ord, including:

• Site 30: Driver Training Area	0.5 mile southeast
• Site 31: Former Dump Site	1.0 mile southeast
• Site 34: FAAF Fueling Facility	North boundary or within U.C. Santa Cruz parcel
• Site 35: Aircraft Cannibalization Yard	within U.C. Santa Cruz parcel
• Site 36: FAAF Sewage Treatment Plant	1.0 mile north
• Site 40: FAAF Defueling Area	1.0 mile north
• Operable Unit 1, Fire Drill Burn Pit	within U.C. Santa Cruz parcel
• Operable Unit 2, Fort Ord Landfills	1 mile south-southwest

Many of the maintenance facilities and motor pools at Fort Ord contained grease racks, hazardous waste temporary storage areas and USTs. As with facilities within the U.C. Santa Cruz parcel, many USTs in the adjacent properties have been removed and the majority of the remaining USTs are slated for removal in Spring 1994.

According to a literature review and base inventory report prepared for the Army DEH by EA Engineering, Science, and Technology (EA) in March 1991, several facilities have USTs in the city of Marina. The closest reported leaking UST is approximately 0.6 mile north of the base boundary. It was not determined whether testing has been conducted on any of these USTs (*EA, 1991*).

Based on a data search prepared for Arthur D. Little, Inc. (ADL), by Environmental Database, Inc., five RCRA facilities and two leaking UST locations in the city of Marina are within approximately 1 mile of the U.C. Santa Cruz parcel (*ADL, 1993*).

3.0 APPR ACH T C NDUCTING ENVIRONMENTAL BASELINE SURVEYS

This section describes the activities performed for the U.C. Santa Cruz EBS. The procedures followed are generally described in Section III of Army draft EBS guidance (*Baca, 1992*), which outlines the process for preparing an EBS and subsequent FOST. This EBS for the U.C. Santa Cruz parcel considered currently available information from various sources, including interviews with representatives of Fort Ord and results of investigations conducted under the RI/FS or other programs, which have included UST investigations, results of building inspections, and evaluation of the potential for adverse impacts from other parcels in the vicinity of the U.C. Santa Cruz parcel. 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 beneath a few buildings, management of PCB-containing transformers, evaluation of potential releases from onpost SWMUs, and an assessment for the presence of Ordnance and Explosive Waste (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 the suitability for transfer, or the Army's decision to transfer, for all or portions of the U.C. Santa Cruz parcel.

Based on an evaluation of the information in this EBS, regulatory requirements, including CERCLA 120(h)(3), and Army policies for property transfer, including AR 405-90, the Army may prepare a FOST for the U.C. Santa Cruz parcel.

3.1 Records Search

Existing reports and other available records, including government records, have been reviewed to identify past or current activities relating to environmental conditions within the U.C. Santa Cruz parcel. Documents and information that were reviewed for this EBS included 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 U.C. Santa Cruz parcel
- Results of building surveys for asbestos, lead-based paint, radon, and radiological decommissioning 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 unexploded ordnance (UXO)

- Documentation of searches of federal and state environmental databases, including the EPA's National Priorities List (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 draft CERFA report (*ADL, 1993*). Information from federal and state environmental databases is contained 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 under way. 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. In all cases, the source of information obtained from interviews is 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 previous investigations and assessments conducted to date, only a limited number of visual inspections for the U.C. Santa Cruz parcel were conducted during the EBS. Previous visual inspections of the U.C. Santa Cruz parcel were performed routinely during other investigations, such as site investigations at NPL sites within or adjacent to the U.C. Santa Cruz 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 U.C. Santa Cruz parcel, investigations are being conducted or are planned for areas identified as RI/FS sites, as noted above. Soil and water samples have been collected at RI/FS sites within the U.C. Santa Cruz 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. Building surveys for asbestos, lead-based paint, radon, and radiological decommissioning are also under way for a number of structures within the U.C. Santa Cruz parcel. The respective scopes of these investigations are described briefly in Sections 4.1 through 4.4. Many 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 the U.C. Santa Cruz 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, 1990*)
- Fort Ord Underground Storage Tank Management Plan (*HLA, 1991a*)
- Verification of Solid Waste Management Units, Fort Ord, California (*HLA, 1993d*)
- Fort Ord Spill Prevention, Control, and Countermeasures Plan, Table 1 and Section VI, Detailed Spill History (SPCC; *Dynamac Corporation, 1993*)

Additionally, 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 interviews of Ms. Claire Murdo and Mr. Rick Schmitt. Ms. Murdo was interviewed in December 1993 (*Murdo, 1993*) and in February 1994 (*Murdo, 1994*). Ms. Murdo 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 (*R. Schmitt, 1994*).

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 that are within approximately 1 mile of the U.C. Santa Cruz 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 U.C. Santa Cruz parcel were first located on a Fort Ord site map. The areas surrounding the U.C. Santa Cruz 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 U.C. Santa Cruz parcel. Groundwater flow directions were considered in identifying potential effects of groundwater contamination on the U.C. Santa Cruz 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 identified by reviewing the results of a search of environmental databases maintained by federal, state, and local agencies, as noted above.

Information from the identification of potential impacts is presented in Section 4.10. For the U.C. Santa Cruz parcel, most of the areas considered fall within the installation boundary. An area to the north and west of Fort Ord was also considered, because the northern and western boundaries of the U.C. Santa Cruz parcel are within 1 mile of the Fort Ord boundary. This is the only offpost area searched during the U.C. Santa Cruz parcel EBS.

3.7 Installation Restoration Program

Fort Ord was placed on the NPL on February 21, 1990. Since then, the Army has conducted 41 site investigations assessing the nature and extent of contamination at Fort Ord. Thousands of soil, groundwater, air, and biota samples have been collected at Fort Ord. The scopes of 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 39 site investigation reports that are either completed or in preparation and that 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.

Approximately 11 NPL sites are located within or near the boundaries of the U.C. Santa Cruz 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 U.C. Santa Cruz parcel EBS. Information from other site investigation activities, including evaluation of potential soil contamination associated with USTs, was also included in the U.C. Santa Cruz parcel EBS.

4.0 RESULTS OF ENVIR NMENTAL BASELINE SURVEY FOR U.C. SANTA CRUZ 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 January 1994). Asbestos surveys, testing, sampling or analyses, or assessment or evaluations of the precision, accuracy, or applicability of the methodologies 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 material (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 (LBP) 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

- 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

  - A property is intended to be used as a school or child care facility

  - A property is unsalable without removal or its removal prior to sale is cost-effective

  - A property will be disposed by demolition

- 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

A basewide asbestos survey of approximately 350 non-family housing 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 the presence of 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 (*Weston, 1990* and *DEI, 1993*).

From October 1991 to April 1993, another basewide asbestos survey of an additional 2,700 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 by June 1994. A summary report for the housing surveys is expected to be issued by June 1994 (*Reese, 1994*).

Draft Army policy guidance indicates that friable ACM will be removed from BRAC installations and nonfriable ACM will be disclosed (*Temple, 1993a*). This draft policy has not been adopted or confirmed as of the date of this document.

4.1.2 Program Status and EBS Results

Of the nine buildings within the U.C. Santa Cruz parcel, five have been surveyed for ACM. Available results are summarized in the table in Appendix C, which list the buildings within the U.C. Santa Cruz parcel by their numbers, construction dates, whether they have been surveyed for asbestos, whether friable and/or nonfriable ACM was 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. Information in Appendix C was prepared by DEI from its Fort Ord asbestos survey database

(*DEI, 1993*). In this survey, ratings ranged from 0 to 13, with a rating of 1 indicating the highest priority. None of the buildings surveyed within the U.C. Santa Cruz parcel contain ACM that have been rated 1 to 5. Two buildings, Buildings 508 and 509, contain ACM that have been rated 0 or 6 to 13. Plate 4 indicates buildings in which (1) no ACM was found (2) ACM with ratings 1 to 5 was identified, (3) ACM with ratings 0 or 6 to 13 was identified, and (4) no asbestos survey information is available.

No information was available for the U.C. Santa Cruz parcel regarding planned or scheduled abatement (removal, encapsulation, or enclosure) of asbestos.

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 January 1994). Neither LBP surveys, testing, sampling, or analyses nor evaluations of the precision, accuracy, or applicability of the methodologies or data presented herein were performed by HLA as part of the 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 that were constructed before 1978, are planned for disposal before January 1995, and are intended to be used for residential habitation. Target facilities are Army-owned or Army-leased facilities constructed prior to 1978 and used regularly by children 6 years or younger or by pregnant women as family housing, child development centers, family child care homes, schools, playgrounds, and similar facilities.

In 1978, the Consumer Products Safety Commission reduced the allowable lead concentrations in residential paint to 0.06 percent. Based on this revised allowable lead concentration, painted,

varnished, and glazed surfaces in residential structures built prior to 1978 are likely to contain lead. According to 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 LBP 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

  - Performance of LBP surveys and assessments of BRAC properties to identify and treat (remove, cover, or scrape/repaint [for small areas only] immediate LBP hazards [paint that is cracking, scaling, chipping, peeling, or loose])

  - In accordance with Title X, 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, "LBP Policy Guidance"

April 18, 1993

The purpose of this memorandum is to provide Army guidance for LBP inspection, risk assessment, management, removal, and disposal in pre-1978 buildings where any child younger than 6 years of age or a pregnant woman may or does reside. The memorandum requires the following:

- Grouping of buildings by type and year of construction and maintenance history and prioritization of inspections on a worst-first basis

- Performing inspections in accordance with Housing and Urban Development guidance (24 CFR 35) for sampling and assessment

- Depending on results of investigation, either removing or managing LBP in place.

4.2.1 Summary of Program

LBP surveys of representative pre-1978 family housing structures are being conducted by the U.S. Army Environmental Hygiene Agency (AEHA) in accordance with the above-referenced guidance and 24 CFR Part 35. Preliminary results have indicated that LBP has been primarily identified in exterior surfaces (*Reese, 1994*). After the surveys are complete, the Army intends to perform walkthroughs of all of the housing units in order to identify and sample defective surfaces.

No other LBP surveys or LBP abatement activities are scheduled as of the date of this report.

4.2.2 Program Status and EBS Results

LBP surveys began in October 1993 and are expected to be completed by February 1994 (*Reese, 1994*); however, no specific LBP data are anticipated for the U.C. Santa Cruz parcel, because no housing units are known to exist within the U.C. Santa Cruz parcel. The only available data regarding LBP in structures on the U.C. Santa Cruz parcel are contained in the draft CERFA report, which indicated that all pre-1978 structures are likely to contain LBP (*ADL, 1993*). Post-1978 structures in the U.C. Santa Cruz parcel are shown on Plate 4; building construction dates were obtained from the list of buildings that have been surveyed for asbestos (Appendix C). No buildings in the U.C. Santa Cruz parcel have been identified as post-1978 structures.

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 January 1994). Radon testing or evaluations of the precision, accuracy, or applicability of the methodologies or data presented herein was not performed by HLA 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 Mark Reese, 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"
  April 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, 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, 1983

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. The testing 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 U.C. Santa Cruz parcel had radon test results above 4 pCi/l; therefore, none are being retested (*Ludwig, undated*)(Table 3).

4.4 Radiological Decommissioning 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

4.5.1 Summary of Program

Fort Ord's OEW activities comprise two primary programs. Under the first program, UXO is being managed by the U.S. Army Corps of Engineers, Huntsville (USAEDH), Mandatory Center of Expertise (MCX), for UXO at Army installations. Activities included in the UXO program include (1) an archive search to identify the types of ordnance and locations of ordnance use at Fort Ord, (2) a sampling program to verify information collected during the archive search, and (3) clearance of UXO.

Under the second program, evaluation of training areas containing potential ordnance-related chemical residues is being managed by the Sacramento District COE as part of Fort Ord's RI/FS. Activities included in this program include a research task to define the conceptual model for potential impacts to human health and the environment from metals and other ordnance-related chemicals. A draft data summary and work plan for Site 39 was issued by the Army in February 1994 (*HLA, 1994a*).

Investigation of UXO areas identified within or immediately adjacent to the U.C. Santa Cruz parcel consisted of site visits, interviews, records search, and historical map review. Site visits of potential ordnance-related areas were performed as appropriate. Information regarding the various types of ordnance and their functions was compiled in an effort to identify the chemical composition of the ordnance. The information was used to refine the investigative strategy for the site. In addition, HLA performed an evaluation of the toxicity, fate, and transport potential of selected constituents such as propellants and explosives typically found in various ordnance.

4.5.2 Program Status and EBS Results

The archive search conducted as part of the UXO program is complete, and the results are presented in the Archive Search Report (*USAEDH, 1993*). The Archive Search Report identifies the types of ordnance used at Fort Ord and describes areas where ordnance was used, both inside and outside of the Inland Ranges. A Phase I work plan was prepared at the direction of USAEDH that describes the proposed UXO sampling program for areas near high-priority reuse parcels (*HFAI, 1993*). This work plan will be updated to include all areas identified in the Archive Search Report. Surveys for priority parcels began in the first week of January 1994. Sites at which UXO is found and that USAEDH considers to be contaminated will require the preparation of a Land Disposal Site Plan (LDSP) prior to remediation.

The research task conducted as part of the ordnance-related waste program was completed in December 1993. As noted above, a draft work plan describing the sampling and analysis program was issued on February 1, 1994 (*HLA, 1994a*). Results of the sampling and analysis program will be incorporated into the Basewide RI/FS, as appropriate.

The following paragraphs discuss the status and the results of the investigation of the only UXO site identified within the U.C Santa Cruz Parcel, the Fritzsche 3.5-Inch Rocket Site.

The so-called Fritzsche 3.5-Inch Rocket Site is approximately 1 mile east of the intersection of Blanco and Reservation roads (Plate 6). According to Chief Fletcher of the Fort Ord fire department, a 3.5-inch rocket was found in a bush in this area sometime around 1975 to 1978 and removed by Explosive Ordnance Disposal (EOD) personnel shortly thereafter (*Fletcher, 1993*). No EOD report was available for review. Because this area was not used for ordnance training, the 3.5-inch rocket was most likely removed from one of the official ranges and left at the site in the U.C. Santa Cruz parcel (*Durham, 1993*). Ordnance-related chemical residues are not expected in this area and this area will

not be investigated further because this appears to be a single occurrence. The USAEDH did not identify the Fritzsche 3.5-Inch Rocket Site for investigation under the UXO sampling program.

4.6 Polychlorinated Biphenyls Management Program

The descriptions of the PCB management program and status are based on information that the Army made available to HLA (current through January 1994). The purpose of the PCB management program at Fort Ord is to identify transformers and other potential PCB-containing devices and materials 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 (*Army, 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 EPA Rule on PCBs, 40 CFR parts 761, 761.120, and 268, and any other applicable environmental statutes. These guidelines are also to 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, 1994*) 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 kilovolt-amp (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 located in Building 3702 had PCB

concentrations ranging from 360,000 to 860,000 ppm. In addition, oil from a transformer located near Building 2066 (Main Garrison Sewage Treatment Plant) had a PCB concentration of 100 ppm. None of these transformers are located in the U.C. Santa Cruz parcel, and no other transformer oils showed PCB levels exceeding the Toxic Substance Control Act (TSCA) limit of 50 ppm. Basewide, 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

All transformers at Fort Ord with PCB concentrations greater than 50 ppm have been replaced (*Weston, 1990*). No reported releases of PCBs are known to have occurred within the U.C. Santa Cruz parcel.

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 U.C. Santa Cruz parcel are based on data available through January 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 HWMP (*Fort Ord, 1990*). Army UST standards state that USTs permanently taken out of service or

abandoned will be removed from the ground. USTs determined to be leaking and abandoned are emptied, taken out of service, and removed from the ground. Appropriate state and regulatory officials must be notified. According to Chapter 5-7 of AR 200-1, abandoned tanks were to be removed by 1992. Exceptions to these policies may only be granted by Army headquarters on a case-by-case basis. According to Fort Ord personnel, known abandoned or leaking tanks that were present at Fort Ord have been removed (*Schmitt, 1993*).

The Fort Ord UST Management Plan reported the number and regulatory status of existing USTs at Fort Ord so that recommendations for compliance with UST regulations could be developed (*HLA, 1991a*). During development of the UST Management Plan, UST information and location data were compiled, and a basewide listing of existing USTs was prepared. This list, the Management Plan List, documented various elements of the status of the identified USTs, including location, age, materials stored in the tanks, tank size, and whether the tank was 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.

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 abandoned
- USTs whose purpose could be replaced by another facility or by an alternate energy source or system
- Hazardous waste (primarily waste oil) USTs that should be replaced or eliminated.

Recommendations for each UST generally fell into one of the above groups or lists. Tables containing UST Summary Sheets and illustrations containing site plans were included as appendixes to the *Underground Storage Tank Management Plan, Fort Ord, California (HLA, 1991a)*.

According to a list provided by the DEH, approximately 39 ASTs are located at Fort Ord (*Temple, 1993b*). The condition of these ASTs is unknown. In August 1993, the DEH requested registration of the ASTs at Fort Ord by the California Regional Water Quality Control Board, in accordance with applicable guidelines (Aboveground Petroleum Storage Act). In that letter, the DEH stated that no changes, modifications, deletions, or additions had been made to the ASTs since its last storage statement on April 13, 1993. HLA understands that DEH has no current plans to remove any of the ASTs.

HLA interviewed Claire Murdo, DEH, on January 4, 1994, requesting information about any known spills from ASTs on Fort Ord property. One reported spill from an AST is discussed in Section 4.7.1 of the California State University, Monterey Bay Parcel Environmental Baseline Survey report (*HLA, 1994c*). Ms. Murdo 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 barrels of waste oil were poured accidently 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, 1994b*):

- One hundred thirty-three USTs were removed from Fort Ord, primarily between 1991 to 1993

- Of the sites from which those 133 USTs were removed, approximately 20 sites were found to be contaminated

- Site characterization studies are under way on 19 of the 20 contaminated sites to evaluate the vertical and horizontal extent of contamination. A site characterization will be required on the twentieth site

- Remediation at the 20 sites will likely include excavating, removing, and treating the contaminated soil

- Approximately 119 USTs remain in place for storage of heating fuel, vehicle and aircraft fuel, waste oil, or Stoddard solvent or as emergency storage reservoirs

- Of the remaining USTs, approximately 77 have been identified recently 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 double-walled tanks or ASTs (*Schmitt, 1994*).

An inventory of existing and former USTs on the U.C. Santa Cruz parcel was compiled from various sources of information, including a database and a map of the parcel boundaries provided by the DEH and COE, respectively, the draft CERFA report (*ADL, 1993*), and the Fort Ord *Underground Storage Tank Management Plan, Fort Ord, California* (*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.

Approximately 18 existing and former USTs are or were located within or immediately adjacent to the boundaries of the U.C. Santa Cruz parcel (Plate 5). Of those 18 tanks, 14 are currently in place, and 4 have been removed (Table 5). In January 1994, the Monterey County Health Department (County) granted closure to three of the four former USTs (Table 5). Fort Ord is in the process of meeting with the County to assemble proper documentation pertaining to the fourth former UST, for which closure has not been granted.

The 14 USTs still in place at the U.C. Santa Cruz parcel are scheduled for removal. A work plan has been prepared for the removal of 13 of the 14 tanks. The other remaining UST is slated for removal under a separate program. As of the end of January 1994, removals of existing tanks within the U.C. Santa Cruz parcel had not been initiated. Additionally, although the 14 tanks within the

U.C. Santa Cruz parcel are slated for removal, changes in UST program objectives may change priorities in tank removals.

A search for ASTs on the U.C. Santa Cruz parcel was performed by reviewing a list provided by the DEH (*Temple, 1993b*). No ASTs were located within the currently defined boundaries of the U.C. Santa Cruz parcel (Table 6).

4.8 Solid and Hazardous Waste Management Program

Fort Ord's procedures for managing hazardous wastes were identified by reviewing available documents and through interviews of personnel responsible for implementation of those programs. The specific reviewed documents are described in Section 3.5. According to information from these sources, management of hazardous wastes at Fort Ord is conducted in accordance with applicable federal, state, and local laws and regulations for managing hazardous wastes (Fort Ord HWMP (*Fort Ord, 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.

Information from the Fort Ord Spill Prevention, Control, and Countermeasures Plan (SPCC) indicates that hazardous materials were stored at locations on Fort Ord. According to Table 1 of the SPCC, materials such as brake fluid, acetylene, paint and paint strippers, batteries, transmission and motor oils, waste oils, acids, solvents, and adhesives were stored at Fort Ord. Storage of these materials was at motor pools, maintenance shops, equipment sheds, and the Defense Reutilization and Marketing Office (DRMO) yard. Storage containers typically ranged from 1 gallon to 55 gallons, although, at a few locations, waste oils were reportedly stored in containers of up to 400 gallons. Compressed gas cylinders were used for materials such as oxygen and acetylene. Table 1 of the SPCC lists known container volumes and quantities. Information in Table 1 of the SPCC was current through the end

of 1993, but does not reflect the status of hazardous materials storage resulting from downsizing and closure of operations. Current storage of these materials is expected to be significantly reduced from that listed in Table 1 of the SPCC.

According to Ms. Claire Murdo of the Fort Ord Directorate of Public Works (DPW), spill plans contained in the HWMP identify requirements for addressing emergencies and spills. Spill reports have been prepared by Fort Ord as necessary over the past 2 to 3 years and document specific releases, but are not currently available for review (*Murdo, 1994*). However, according to Ms. Murdo and Section VI of the SPCC, during the period covered by the spill reports, no "reportable-quantity" spills or California-regulated spills have occurred. No other information about the management of hazardous waste or materials at Fort Ord is currently available for review. As noted previously, Fort Ord is updating hazardous waste or materials management documents in response to closure of Fort Ord.

4.8.1 Summary of Program

Information about the status of Solid Waste Management Units at Fort Ord was reviewed (*AEHA, 1988* and *HLA, 1993d*). these documents identified operations at each SWMU and whether further assessment of the SWMU was recommended to identify potential releases. The following text discusses the types of SWMUs at Fort Ord, the locations of SWMUs within the U.C. Santa Cruz parcel, and previous evaluations of the SWMUs.

In 1988, AEHA performed an assessment of SWMUs to identify, describe, and evaluate SWMUs at Fort Ord. The purpose of the AEHA study 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 methodology 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 issued an Interim Final Report (IFR) (*AEHA, 1988*), which identified 58 SWMUs at Fort Ord. The IFR subdivided the SWMUs 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 IFR and included:

- Inclusion of the IFR with the Part B permit renewal application for review by state and EPA Region IX regulatory authorities

- Coordination with the state and 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 from the numerous motor pools in temporary storage buildings.

The SWMU evaluation presented in the IFR was updated in 1993 (*HLA, 1993d*). The scope of work performed in the update included:

- Review of the IFR

- Development of a site map showing the location of each of the 58 SWMUs

- Site visits under the supervision of Fort Ord personnel to verify the location and status of each SWMU

- Preparation of a report.

4.8.2 Program Status and EBS Results

Three former or existing SWMUs were identified on or immediately adjacent to the U.C. Santa Cruz parcel (Table 7). SWMU FTO-001 is an active remediation site also known as OU-1. Additional discussion about the status of remedial activities at OU-1 are presented in Section 4.9. SWMUs FTO-042 and FTO-047 had no evidence of an environmental release according to the IFR and required no further action. SWMU FTO-047 has also been listed in the EBS for the FAAF parcel (*HLA, 1994d*), because of uncertainties in the position of the FAAF and U.C. Santa Cruz parcel boundary in that area.

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. As explained below, the CERFA program involves the identification of uncontaminated real property. The RI/FS program involves the characterization and cleanup of contaminated property and 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 (OU 1). The discussion below presents an overview of the CERFA and RI/FS programs, the location of sites within and adjacent to the boundaries of the U.C. Santa Cruz 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 status and preliminary findings of the draft Fort Ord CERFA report.

4.9.1.1 Summary of CERFA Program

CERFA was passed into law (Public Law 102-426) on October 19, 1992, amending CERCLA in two principal areas. First, CERFA added CERCLA 120(h)(4), requiring the identification of uncontaminated property ("CERFA parcels"). The fundamental purpose of making this addition was to expedite identification of real property with the greatest opportunities for redevelopment at facilities on which federal operations are terminating. The identification is accomplished by evaluating current and historical use of real property at these installations. Specific procedures for

conducting the evaluation are contained 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 air 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. Discussions are ongoing among EPA, DOD, and state governments regarding the vehicle for such concurrence.

Second, CERFA provides a clarification of the requirements for declaring that all necessary remedial actions pursuant to CERCLA 120(h)(3) have been taken. Generally, CERFA recognizes that remedial action has been taken if an approved remedial system has been constructed and demonstrated to the Administrator of EPA to be operating properly and successfully. This revision permits the transfer of real property in a significantly more favorable time frame for revitalization of communities surrounding closing installations by allowing such transfer potentially well before remedial actions can be terminated.

As noted above, a focus of the CERFA program is the identification of Uncontaminated Property, but CERFA does not directly support property transfer. The CERFA report does provide information,

however, that supports the parcel-specific EBSs currently in preparation for Fort Ord. Because real property identified as uncontaminated property under CERFA appears to have no history of storage, release, or disposal of 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)(3) 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 Army Environmental Center (AEC) on behalf of Fort Ord. On December 6, 1993, the draft CERFA report was issued to Fort Ord and the regulatory agencies (*ADL, 1993*). On January 28, 1994, a meeting was conducted to discuss preliminary comments on the draft CERFA report. A final CERFA report is scheduled for release in April 1994, with EPA concurrence on the CERFA clean parcels scheduled for April 19, 1994.

The principal product of the CERFA assessment is a map showing the areas identified as uncontaminated property. Plate 7 presents information from the draft CERFA report for areas in the vicinity of the U.C. Santa Cruz parcel. The distribution of 1-acre CERFA-defined parcels (CERFA parcels, CERFA with Qualifiers parcels, CERFA Disqualified parcels, and CERFA Excluded parcels) is taken directly from the draft CERFA report (*ADL, 1993*). Table 8 provides definitions of the categories developed in the CERFA report.

Plate 7 shows a number of 1-acre plots within the U.C. Santa Cruz parcel that have been categorized as uncontaminated or CERFA parcels, as defined by CERFA. Based on available information that was developed and considered in the CERFA report, these areas potentially offer the greatest opportunity for development by the surrounding 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. On the basis of information from the draft CERFA report and Plate 7, approximately 900 acres on the U.C. Santa Cruz parcel have been defined as CERFA parcels. Also, approximately 80 acres in the U.C. Santa Cruz parcel have been as CERFA disqualified parcels. No CERFA with qualifiers parcels have been defined on the U.C. Santa Cruz parcel. As such, the CERFA parcels on the U.C. Santa Cruz parcel meet the requirements under CERCLA 120(h)(3). According to EPA, no other decision documents are necessary to provide a covenant in the deed warranting that necessary remedial action under CERCLA has been taken for these CERFA and CERFA with Qualifiers parcels, in accordance with CERCLA 120(h)(3) (*EPA, 1994*).

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. Environmental Protection Agency, Region IX (EPA), 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 (FAAF) 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.

On the basis of the results from these basewide programs, 41 individual 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 further action sites: Sites where screening risk evaluations of collected samples indicated that the threat to human health or the environment, if any, is acceptably low. These sites will not require additional investigation or remediation. Sixteen 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. Nine 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. Eleven sites have been assigned to this category.

- Uncategorized sites: Sites where additional investigations are required before the site can be assigned to one of the categories listed above. Five sites are in the 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 ultimate 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 Sampling and Analysis Plan (*HLA, 1991b*); the Work Plan (*HLA, 1991c*); basewide study reports prepared by HLA, including the results of the basewide stormwater outfall and storm drain and sanitary sewer investigations (*HLA, 1993a* and *HLA, 1992b*); and individual site characterization reports prepared by HLA.

4.9.2.2 Program Status and EBS Results

Two NPL characterization sites (Sites 34 and 35) and one Operable Unit (OU 1) are located partly or entirely within the boundaries of the U.C. Santa Cruz Parcel (Plate 6).

The investigation at Site 34, which encompasses part of the U.C. Santa Cruz parcel, 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 Recoverable Petroleum Hydrocarbons (TRPH) 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 as 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 located within the boundaries of the U.C. Santa Cruz parcel (*HLA, 1992a*). On the basis of these results, Site 34 has been designated as an interim action site (Table 9). An Interim Action ROD for Site 34 is scheduled to be finalized in Spring 1994. Contaminated soils at wash apron 516 will be remediated under the interim action. Concentrations of contaminants detected in soil samples collected from the helicopter wash aprons 512, 517, 525, and 534 were below levels requiring remediation and these areas are considered no further action areas (*HLA, 1992a*). Interim actions for Site 34 are scheduled to begin in mid-1994.

The investigation at Site 35, the FAAF Aircraft Cannibalization Yard, was conducted to evaluate the potential presence of contamination in soil from aircraft debris scattered throughout the site and to identify whether the site was a potential source of chlorinated solvents in detected groundwater samples from downgradient monitoring wells in OU 1. Thirty-four soil gas samples were collected and analyzed for TRPH, VOCs, and vinyl chloride. In addition, three soil borings were drilled to a maximum depth of 20 feet, and nine samples were analyzed for TPHg, TPHd, VOCs, and priority pollutant metals. Site characterization results indicate that there are no unacceptable risks to human health and the environment at Site 35 (*HLA, 1993c*). The site has been designated as a no further action site (Table 9).

OU 1, FAAF Fire Drill Area, is an area where fuel was discharged into an unlined pit, ignited, and extinguished as part of firefighting training exercises. During the remedial investigation, shallow soil was found to be contaminated with petroleum hydrocarbons with sporadic detections of VOCs. Chemicals of concern detected in groundwater included benzene, trans-1,2-DCE, methyl ethyl ketone

(MEK), and TCE. Biotreatment of contaminated soils began in August 1988 and continued through August 1991. A groundwater extraction and treatment system has been in operation since August 1988. A confirmation study at OU 1 verified that the soil remediation is completed and that the groundwater treatment system is adequate and effective (*HLA, 1994b*). This report is presently under agency review.

Two stormwater outfall, OF-19 and OF-27, discharges adjacent to or within the U.C. Santa Cruz parcel. Chemical data from soil samples collected at the stormwater outfalls is presently being reviewed and evaluated (*HLA, 1993a*).

4.10 Potential Impacts from Adjoining Properties

This section summarizes potential environmental impacts from property outside of the U.C. Santa Cruz parcel but within approximately 1 mile of the U.C. Santa Cruz parcel. Discussions in this section are based on documents furnished by the Army and review of reports pertaining to specific environmental concerns.

Asbestos: Asbestos surveys found the presence of both friable and nonfriable ACM in numerous buildings adjacent to the U.C. Santa Cruz parcel (*Weston, 1990* and *DEI, 1993*). Buildings containing ACM in and near the U.C. Santa Cruz parcel are shown on Plate 4.

Lead-Based Paint: LBP surveys of family housing structures at Fort Ord are expected to be completed by February 1994, although data were not available as of the date of this EBS. Based on available information, pre-1978 structures are likely to contain LBP (*ADL, 1993*). Pre-1978 structures in the area surrounding the U.C. Santa Cruz parcel are shown on Plate 4.

Radon: Radon testing for Fort Ord buildings within approximately 1 mile of the U.C. Santa Cruz parcel found no buildings with concentrations exceeding 4 pCi/l.

Radiological Decommissioning: Buildings where radiological decommissioning activities are under way adjacent to the U.C. Santa Cruz parcel are shown on Plate 5. Analytical results from radiological testing are not available at this time.

Unexploded Ordnance: The four locations nearest to the parcel that are potential UXO training areas are shown on Plate 6 and listed in Table 10. All of these locations were assessed during the Site 39 investigation as having no known ordnance-related chemical hazards (*HLA, 1994a*).

Polychlorinated Biphenyls: Transformers with concentrations of PCBs above 50 ppm reportedly have been removed from Fort Ord. The transformers were subsequently uncovered and the fluid pumped out and disposed. Dielectric fluid removed from the transformers was stored in drums at the East Garrison DRMO (Site 29, 0.6 mile southeast). Reportedly, transformers were also stored at Site 29 and leaked dielectric fluid to the soil. PCBs were not detected in soil samples collected during an investigation of Site 29. There are no documented releases of transformer oil containing PCBs within the area immediately surrounding the U.C. Santa Cruz parcel.

Underground and Aboveground Storage Tanks: Approximately 38 existing and former USTs are located in the region surrounding the parcel. Of those 38 tanks, about 25 are currently in place, and 13 have been removed. The tanks currently in place are scheduled for removal in Spring 1994. Five existing ASTs are present in this area. The condition of these tanks is unknown and none were noted to be contained by a berm.

Solid Waste Management Units: Ten former or existing SWMUs were identified within about 1 mile of the parcel (Table 10). Seven of the SWMUs had no evidence of an environmental release

according to the IFR and required no further action (*AEHA, 1988*). The IFR discussions of two of the SWMUs, FTO-006 and FTO-008, had recommendations for changes in general housekeeping; however, no evidence of releases beyond those minor releases associated with handling practices was noted in the IFR. SWMU FTO-002, Fort Ord Landfills (Operable Unit 2; OU2), has had documented environmental releases. A RI/FS for OU2 is currently being finalized and remedial design is anticipated to begin in mid-1994. Plate 5 presents SWMU locations near the U.C. Santa Cruz parcel.

Remedial Investigation/Feasibility Study Program: In the vicinity of the parcel, eight NPL sites, including OU 2, are being investigated as part of the RI/FS at Fort Ord. The eight sites are listed in Table 10. At four of the locations, Sites 27, 29, 32, and 36, investigations have been completed, and no further action has been recommended. The remaining four locations in the study area, Sites 30, 31, 40, and OU 2, all have some level of documented soil and/or groundwater contamination and are currently undergoing or are slated for further site characterization or remediation. Plate 5 presents 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 were found, however, that might indicate that methane was migrating to the surface and presenting a health or explosive hazard. Sampling in the air space immediately above the landfill detected 6 parts per million (ppm) total organic compounds. Low levels of 1,1-dichloroethylene (1,1-DCE) were detected in the LFG and the ambient air both up 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 Fort Ord, including the U.C. Santa Cruz parcel, when the base 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 along the coast and comprises approximately 780 acres. The portion of the ranges closest to the base is approximately 12,000 feet west of the U.C. Santa Cruz 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 undertaken in three locations in the eastern (downwind) side of Site 3. The prevailing breeze is onshore from the west and southwest. The samples with the greatest mass of particulates were analyzed for lead, copper, zinc, and antimony. Analytical results will be available in Spring 1994.

5.0 FINDINGS AND CONCLUSIONS

This EBS presents an overview of information about existing environmental conditions on the U.C. Santa Cruz parcel. This EBS was based on available information. Although many 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 the environmental conditions on the U.C. Santa Cruz parcel has been gathered and described. Findings of the EBS for the U.C. Santa Cruz parcel include:

- The parcel boundaries used in this study and shown in this report are approximate and are based on information from the Army and COE. Surveys of the parcel boundaries are planned, but have not been completed to date.

- Asbestos surveys have been completed for approximately five of nine nonhousing structures on the U.C. Santa Cruz parcel. Available information shows that three structures contain no ACM. Two structures contain nonfriable ACM. No structures were found to contain friable ACM.

- Lead-based paint surveys are not scheduled at this time, as there are no pre-1979 housing structures or barracks known to be located on the U.C. Santa Cruz parcel.

- Radon surveys showed that no buildings within the U.C. Santa Cruz parcel had radon levels above 4 pCi/l.

- Radiological decommissioning is expected to be conducted for Building 509, located in the U.C. Santa Cruz parcel. Additionally, groundwater and air samples for radiological testing are being collected at locations within or near the U.C. Santa Cruz parcel. Sampling began in

January 1994 and is scheduled to be completed in April 1994. No analytical results are currently available.

- Unexploded ordnance is being addressed under two separate sampling programs. One potential UXO training area, the Fritzsche 3.5-inch Rocket Site, was identified within the U.C. Santa Cruz parcel. A 3.5-inch rocket was reported to have been found in a bush in this area sometime around 1975 to 1978 and was removed by EOD personnel shortly thereafter. According to Fort Ord Range Control, this area was not used for ordnance training and the rocket was most likely removed from one of the ranges and left where it was found. Because this appears to be an anomalous single occurrence, ordnance-related chemical residues are not expected and this area will not be investigated further. The USAEDH did not identify the Fritzsche 3.5-Inch Rocket Site for investigation under the UXO Sampling Program.

- PCBs in transformer dielectric fluids have been examined in two basewide sampling programs, encompassing approximately 1,000 transformers. No reported spills of transformer fluids have occurred at locations on the U.C. Santa Cruz parcel.

- Approximately 18 former or current USTs have been located in the U.C. Santa Cruz parcel. Four USTs have been removed over the past several years. The County has granted closure to three of the four tanks that have been removed. Fort Ord is coordinating with the County to obtain closure on the remaining UST. The 14 remaining USTs are slated for removal, and a work plan detailing the activities to remove 13 of the tanks has been prepared. No known releases from USTs have been reported. There are no ASTs known to be located on the U.C. Santa Cruz parcel.

- Three SWMUs have been identified in or immediately adjacent to the U.S. Santa Cruz parcel. One of these sites is undergoing active environmental cleanup (OU 1). The other two SWMUs

(FTO-042 and FTO-047) have been investigated and assigned to the no-further-action category. The Army is preparing to conduct a RCRA RFA/RFI-equivalent program addressing SWMUs at Fort Ord.

- The draft CERFA report is currently undergoing regulatory agency review. The draft CERFA report identifies CERFA and CERFA Disqualified Parcels within the U.C. Santa Cruz parcel boundary. CERFA Disqualified Parcels include NPL sites and current or former storage tank locations. CERFA disqualified parcels cover approximately 80 acres. CERFA parcels (i.e., those not defined as disqualified or qualified) encompass approximately 900 acres.

- NPL sites on the parcel include Sites 34 and 35 and OU 1. The categorization of sites is based on available information and the status of site investigations at each location. Site 35 is categorized as a no further action site. The Army expects to complete a NoFAROD for this site by mid 1994. Site 34 has been identified as an IA site. The Army expects to complete an IAROD in June 1994. Following completion of the IAROD, the Army plans to conduct interim actions at Site 34 and expects regulatory approval by August 1, 1994, assuming all remedial actions have been taken for these sites. A confirmation study at OU 1 verified that the soil remediation is completed and that the groundwater treatment system is adequate and effective (*HLA, 1994b*). The draft confirmation report is presently under agency review. A record of decision is anticipated in fall of 1994.

In general, the requirements of CERCLA 120(h)(3) do not appear to have been met for the NPL sites noted above. For no further action sites, CERCLA 120(h)(3) requirements will be met after NoFAROD 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.

On the basis of available information, the requirements of CERCLA Section 120(h)(3) appear to have been met on the U.C. Santa Cruz parcel, outside of the NPL sites. On the basis of draft FOST guidance criteria, the non-NPL areas may be considered by the Army as suitable for transfer by deed. Several health-related environmental conditions currently exist or are suspected to exist on the U.C. Santa Cruz parcel and could pose a health risk to workers or occupants of structures. Areas in which such conditions exist include areas otherwise considered suitable for transfer by deed according to draft FOST guidance criteria. In most cases, these environmental conditions are being further evaluated or investigated by the Army, but these further activities are not complete at this time.

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