

**EXPLANATION OF SIGNIFICANT DIFFERENCES  
AREA A, OPERABLE UNIT 2 LANDFILL  
FORT ORD, CALIFORNIA**

*United States Department of the Army*

*August 13, 1996*

**INTRODUCTION**

**Site Name and Location**

Fort Ord is located near Monterey Bay in northwestern Monterey County, California, approximately 80 miles south of San Francisco. 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 portion of Fort Ord, separating the beachfront 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. Operable Unit 2 (OU 2), the Fort Ord Landfills, comprises approximately 150 acres in the northern portion of Fort Ord.

The OU 2 landfills are in the northwest portion of Fort Ord (Figure 1). A playing field and roads are located on the landfill north of Imjin Road. The north landfill, known as Area A, covers approximately 30 acres, and is separated from the main landfill to the south by Imjin Road (Figure 2). Area A is the only portion of the landfill that is developed and near houses. The main landfill encompasses about 120 acres of undeveloped land.

**Identification of Lead and Support Agencies**

Environmental investigations began at Fort Ord in 1984 at Fritzsche Army Airfield (FAAF) under California Regional Water Quality Control Board (RWQCB) cleanup or abatement orders 84-92, 86-86, and 86-135. In 1986, further investigations began at the OU 2 Landfills, and the preliminary site characterization was completed in 1988. In

1990, Fort Ord was placed on the U.S. EPA's National Priorities List (NPL), primarily because of volatile organic compounds (VOCs) found in groundwater beneath OU 2. A Federal Facility Agreement (FFA) was signed by the Army as the lead agency, and the EPA, the California Environmental Protection Agency's Department of Toxic Substances Control (DTSC; formerly the Toxic Substances Control Program of Department of Health Services or DHS) and RWQCB as support agencies.

**Explanation of Significant Differences**

If the lead agency (the Army) determines that a significant change to the selected remedy, as described in the Record of Decision (ROD), is necessary after the ROD is signed, Section 117(c) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and 40 CFR 300.435 (c)(2)(i) require the lead agency to address post-ROD significant changes.

This explanation of significant differences (ESD) addresses the identification of cleanup criteria for areas outside the main landfill that will be excavated and consolidated within the main landfill boundaries. The regulatory agencies agree with the changes proposed in this ESD. When the OU 2 ROD was prepared, placing an engineered cover system, or cap, over the existing landfill boundaries was planned, with excavation on the perimeter of the northern portion of the landfill. Subsequent evaluations indicated that all of Area A and some perimeter areas of the main landfill should be removed and consolidated into the main landfill south of Imjin Road. This approach would provide fill material necessary to construct the landfill cap cover system for the main landfill, and consolidate landfilled waste. In addition, the need for cap

maintenance and monitoring in the area north of Imjin Road would be eliminated.

The ESD will become part of the Administrative Record for Fort Ord, and will be available to the public at the following locations: Chamberlain Library, Building 4275, North-South Road, Presidio of Monterey Annex (formerly Fort Ord), California, and Seaside Branch Library, 550 Harcourt Avenue, Seaside, California.

## **SUMMARY OF SITE HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY**

### **Site History**

From its opening in 1917, Fort Ord primarily served as a training and staging facility for infantry troops. In 1991, Fort Ord was selected for closure. In 1993, the majority of the soldiers were reassigned to other Army posts. The post was officially closed in 1994.

OU 2 comprises two adjacent landfill areas. Both were used for residential and commercial waste disposal. The north landfill (Area A) was used from 1956 to 1966. The main landfill was operated from 1960 to 1987 and may have received a small amount of chemical waste along with household and commercial refuse. The main landfill facility stopped accepting waste for disposal in May 1987 because interim closure of the facility began.

### **Site Characteristics**

The results of the remedial investigation (RI) at the OU 2 Landfills indicate that landfill materials were buried in relatively uniform sand dune deposits in shallow trenches that were approximately 30 feet wide and 10 to 12 feet deep. Chemicals associated with landfilled materials have been detected in vapor samples from soil overlying the landfills and in groundwater samples collected from underneath the landfills. The chemicals are believed to have migrated away from the landfilled materials as vapors or as solutes in leachate. However, soil samples collected below the landfills did not contain chemicals associated with the landfills.

### **Selected Remedy**

The ROD for OU 2 was signed on August 23, 1994, and included the following remedy for soil:

- A cover system for the landfills was selected to prevent rainwater from percolating through the landfilled areas and into the underlying drinking water aquifers; to contain and collect and remove methane offgas (if necessary), and to prevent sanitary waste in the landfills from exposure to the surrounding environment. The cover system specifications are driven by applicable or relevant and appropriate requirements (ARARs) for landfill closure. Institutional controls (i.e., deed restrictions) will be placed on the property to ensure that the integrity of the cover system is maintained and to protect people from direct exposure to chemicals in the landfills in the future.

### **DESCRIPTION AND BASIS OF SIGNIFICANT DIFFERENCES**

Soil cleanup criteria for areas to be excavated outside the main landfill need to be established. The areas that will be excavated include all of Area A and some perimeter areas of the main landfill. These areas and the boundaries of the landfill are shown on Figure 2. Some areas on the perimeter of the main landfill may be capped if cleanup criteria cannot be achieved without significant excavation and relocation of the waste is not justified. The Army has determined this revised approach to cleanup of the landfills is beneficial for the following reasons:

- The grading plan designed for the main landfill cap indicates that up to 495,000 cubic yards of foundation layer fill material would be required to construct the cover system. Refuse and soil from Area A and the perimeter of the main landfill will be suitable and economical fill. Use of clean, imported fill material would then be minimized or eliminated. In addition, using the excavated soil and refuse as foundation layer material would

reduce use of trucks and fuel, as well as dust emissions associated with importing fill material from offsite sources.

- Area A, located on the north side of Imjin Road (Figure 2), is the only portion of the landfill that is currently developed and is planned for future residential development. Therefore, a sound management approach to the existing and potential future use of Area A and its surroundings would be to excavate all waste from Area A and consolidate waste in the main landfill. Area A would not need to be capped, the associated capital and O&M costs would be eliminated, and the areal extent of contamination would be reduced.

### **Cleanup Criteria for Closure of Excavated Areas**

Because the remedy for the OU 2 landfill is being revised from capping of both landfills to excavation of Area A and consolidation with the main landfill, applicable or relevant and appropriate requirements (ARARs) relating to soil cleanup levels have been considered. As discussed in the ROD, CCR Title 22 regulations under the California Resource Conservation and Recovery Act (RCRA) are not applicable because there is no evidence that hazardous waste was disposed in the landfills. Thus, RCRA Land Disposal Restrictions do not apply to the excavation and consolidation activities. Additionally, no numerical soil cleanup levels have been promulgated by EPA or the State of California that would apply. Fort Ord, however, has developed soil cleanup criteria, referred to as Preliminary Remediation Goals (PRGs), as discussed more fully below. Because the PRGs are not promulgated, they will be relied upon as to be considered (TBC) requirements, rather than ARARs. Upon finalization of the ESD, they will become enforceable cleanup standards for the excavated areas.

As part of the RI, a Baseline Risk Assessment (BRA) was performed. The BRA evaluated current or future potential health risks and environmental impacts associated with sites at

Fort Ord. Mathematical models were used to evaluate the ways that humans or other receptors would be exposed to chemicals at sites, as well as the known toxic effects of the chemicals of potential concern (COPCs). Preliminary Remediation Goals (PRGs) were developed for Fort Ord for COPCs known to exist at the sites for which a potential risk was calculated. These PRGs are summarized in Table 1, and have been approved by the regulatory agencies. If additional chemicals are present, EPA Region IX PRGs will be used as cleanup criteria.

The methods used to calculate PRGs employ conservative assumptions consistent with EPA and Cal/EPA risk-management policies. Conservative EPA-developed models and EPA default assumptions were used where site-specific information was unavailable, and agency-established toxicity values (reference doses and slope factors) were used. Also, concentrations of chemicals below PRGs are not expected to have an impact on groundwater quality. Nevertheless, the cleanup criteria requires that groundwater modeling be performed to ensure no impact to groundwater above maximum contaminant levels as set forth in the ROD.

The Fort Ord PRGs will be used as cleanup criteria for areas from which waste will be excavated and consolidated into the main landfill. Application of cleanup criteria in excavated areas is as follows:

- The PRG for each chemical will be used to evaluate the need for further excavation of Area A or perimeter areas containing that chemical in soil; i.e., if concentrations of chemicals are below the cleanup criteria following excavation of refuse, these areas would be backfilled, if necessary, and no further action would be taken.
- To the extent practical, excavation areas along the perimeter of the main landfill where cleanup criteria are not met will be further excavated and resampled until concentrations in soil are below the cleanup criteria. If necessary, a risk assessment will be performed to assess if there is a risk to

human health or the environment associated with remaining soils. If these risks cannot be eliminated through a combination of excavation, backfilling, or access control, the area will be covered and maintained as part of the main landfill.

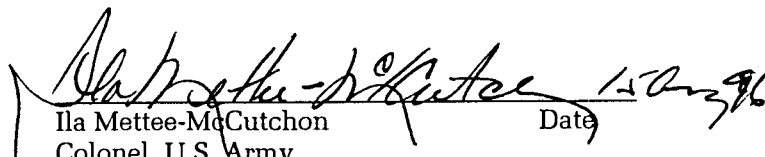
### **AFFIRMATION OF STATUTORY DETERMINATIONS**

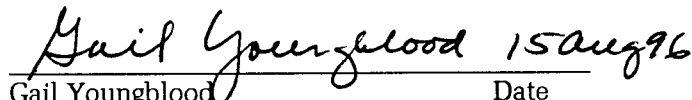
This final remedy satisfies the requirements of CERCLA Section 121. Consolidation of waste into the main landfill required that cleanup criteria be established under this ESD for the excavated areas. The Army, U.S. EPA, and Cal/EPA believe that this approach remains protective of human health and the environment, complies with federal and state ARARs for this remedial action, and is able to be achieved in a cost effective manner.

### **PUBLIC PARTICIPATION**

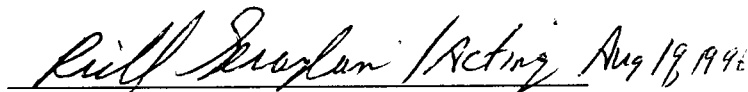
A notification to the public concerning this ESD will be made in a local newspaper after signature. The Administrative Record is available for review by the public at the following locations: Chamberlain Library, Building 4275, North-South Road, Presidio of Monterey Annex (formerly Fort Ord), California, and Seaside Branch Library, 550 Harcourt Avenue, Seaside, California.

### **United States Department of the Army**

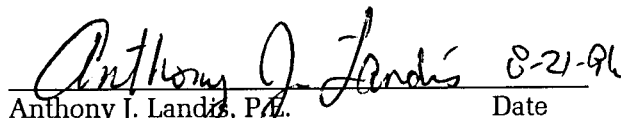
  
Ila Mettee-McCutcheon Date  
Colonel, U.S. Army  
Garrison Commander  
Presidio of Monterey

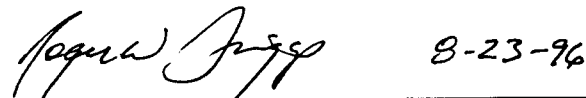
  
Gail Youngblood Date  
BRAC Environmental Coordinator  
Presidio of Monterey

### **U.S. Environmental Protection Agency**

  
Paul Dragan Acting Date  
Director, Federal Facilities Cleanup Office  
U.S. Environmental Protection Agency,  
Region IX

### **California Environmental Protection Agency**

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

  
Roger W. Briggs Date  
Executive Officer  
California Environmental Protection Agency  
Central Coast Regional Water Quality  
Control Board

**TABLES**

Table 1. Preliminary Remediation Goals

Chemical	Preliminary Remediation Goal* (mg/kg)**
Acenaphthene	960
Acetone	220
Aldrin	0.011
Anthracene	15000
Antimony	27
Arsenic	0.87
Barium	1000
Benzo(a)anthracene	0.15
Benzo(a)pyrene	0.015
Benzo(b)fluoranthene	0.15
Benzo(ghi)perylene	2100
Benzo(k)fluoranthene	1.5
Beryllium	0.39
Bis(2-ethylhexyl)phthalate	13
Bromoform	7.6
Butylbenzylphthalate	15000
Cadmium	8.1
Carbon disulfide	0.96
Carbon tetrachloride	0.025
Chlordane	0.14
Chlorobenzene	50
Chloromethane	0.12
Chromium III	67000
Chromium VI	0.23
Chrysene	15
Cobalt	2000
Copper	2500
4,4'-DDD	0.74
4,4'-DDE	0.53
4,4'-DDT	0.53
Di-n-butylphthalate	7700
Dibromochloromethane	0.13
1,3-Dichlorobenzene	1200
1,2-Dichloroethane	0.074
Dieldrin	0.011
Diethylphthalate	61000
Endosulfan II (beta)	310
Endosulfan sulfate	310
Ethylbenzene	830
Flourene	640
Fluoranthene	3100
gamma-BHC (Lindane)	0.14
Heptachlor	0.031
Heptachlor epoxide	0.014
Indeno(1,2,3-cd)pyrene	0.15
Lead (a)	240
Mercury	20
Methyl ethyl ketone	620
Methylene chloride	0.9
2-Methylnaphthalene	640
4-Methyl-2-pentanone (MIBK)	400
Naphthalene	640
Nickel	130
PCBs	0.02
Pentachlorophenol	1.5
Phenanthrene	640
Pyrene	480
Selenium	340
Silver	340
2,3,7,8-TCDD	1.20E-06
1,1,2,2-Tetrachloroethane	0.28
Tetrachloroethene	0.16
Thallium (as Thallic oxide)	4.7
Toluene	190
Total Petroleum Hydrocarbons	500
1,2,4-Trichlorobenzene	49
1,1,1-Trichloroethane	1100
Trichloroethene	1.1
Vanadium	470
Xylenes	130
Zinc	20000

\* These PRGs are taken from the Draft Final Technical Memorandum, Preliminary Remediation Goals, Fort Ord, California, dated June 24, 1994, and the Second and Third Addendums, dated September 7 and December 19, 1994.

\*\* mg/kg = milligrams of chemical in one kilogram of soil

**FIGURES**

Figure 1. Fort Ord Location Map  
Operable Unit 2  
Fort Ord, California

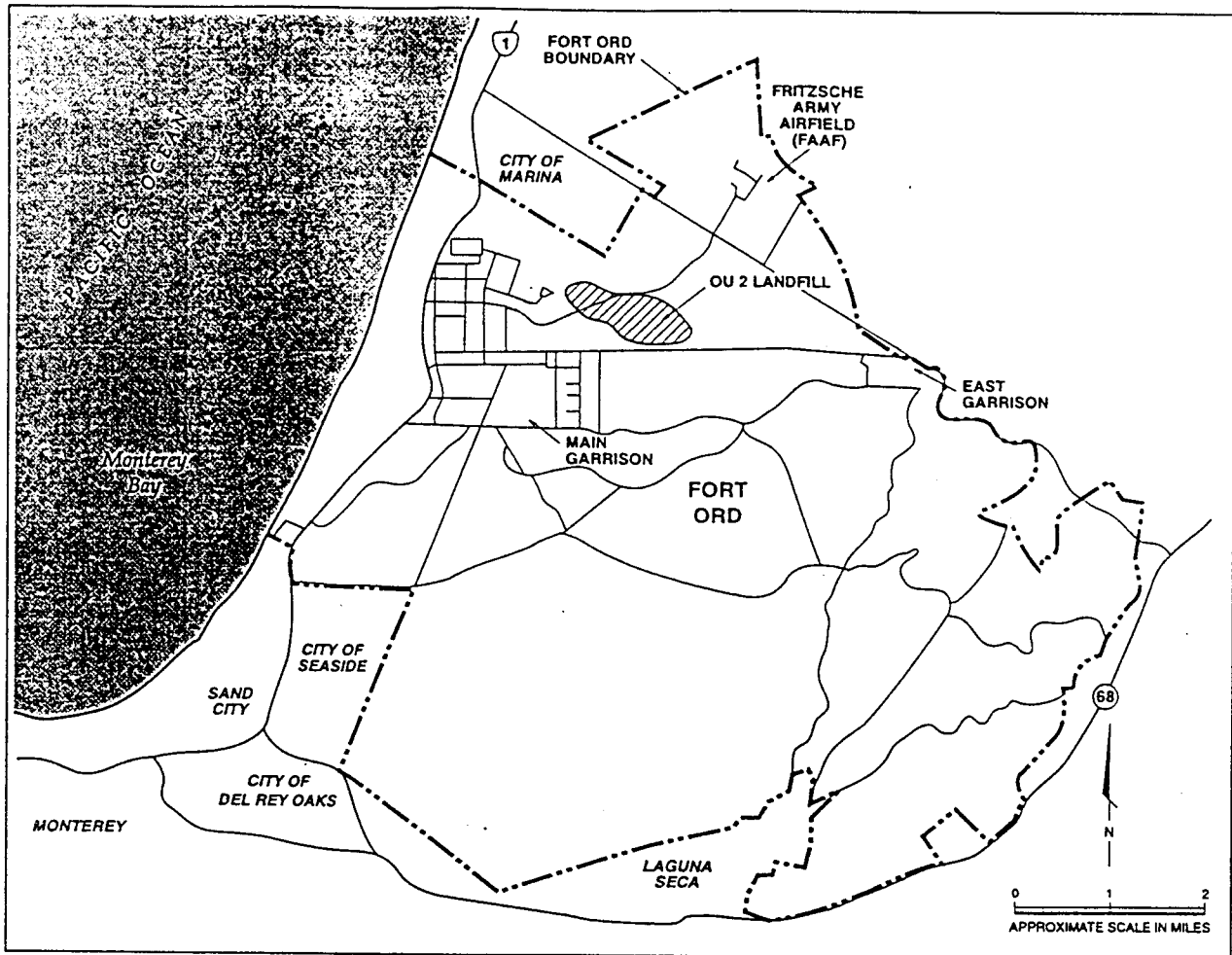




Figure 2. Site Map  
Operable Unit 2  
Fort Ord, California

