
**EXPLANATION OF SIGNIFICANT DIFFERENCES
CONSOLIDATION OF REMEDIATION WASTE IN A CORRECTIVE ACTION
MANAGEMENT UNIT (CAMU), OPERABLE UNIT 2 LANDFILL
FORT ORD, CALIFORNIA**

United States Department of the Army

January 13, 1997

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. 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.

Two previous Explanation of Significant Differences (ESD) documents to the OU2 ROD addressed: (1) groundwater cleanup goals for the Upper 180-foot aquifer beneath the landfill, and (2) preliminary remediation goals for excavation areas in the landfill, and excavation and consolidation of refuse from Area A into the main landfill (August, 1995, August 1996). This explanation of significant differences (ESD) addresses soil and debris (remediation waste) that will be excavated from remediation areas at Fort Ord and consolidated within the main landfill boundaries. The remediation waste will be used as foundation layer material in lieu of "clean" (uncontaminated) soil as described in the OU2 ROD. 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 landfill was planned, and clean soil

was intended for use in construction of the cap's foundation layer. Subsequent evaluations indicated that foundation layer material could be provided from excavation of remediation areas instead of procuring clean soil.

Additionally, to allow excavated soil containing residual lead contamination to be placed in the OU 2 landfill, the landfill will be designated a Corrective Action Management Unit pursuant to California Code of Regulations and the Resource Conservation and Recovery Act (RCRA) regulations. Consolidation of waste in the landfill meets the intent and purpose of the Corrective Action Management Unit regulations for onsite management of waste in an innovative, cost effective and protective manner. The Army will be managing all wastes onsite in a closed landfill which will meet all regulatory requirements and will be protective of human health and the environment. Furthermore, significant cost savings will be realized by placing the waste in the landfill as foundation layer material because: (1) the volumes of imported soil required for the foundation layer will be reduced, and (2) transportation and disposal costs for offsite disposal will 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 and cap maintenance) will be placed on the property to protect people from exposure to materials in the landfills in the future.

DESCRIPTION AND BASIS OF SIGNIFICANT DIFFERENCES

Waste from remediation sites (such as Sites 3, 12, 16 and 17, 31, and 39) will be excavated and placed in the OU 2 landfill. The existing landfill

contains primarily household and commercial waste from previous base activities. Waste from most remediation sites contains soil and debris which can be placed under the landfill cap without any additional restrictions. The waste consolidation will incorporate approximately 157,000 cubic yards of material from Remedial Investigation sites as described in the Proposed Plans for these sites (May 3, 1996), and 6,000+ cubic yards from Interim Action sites will be incorporated into the OU 2 landfill to be used as a foundation layer. The consolidated waste will account for approximately 6% of the total landfill volume.

Waste from Site 3, 31, and portions of Site 39, and some Interim Action sites is of a different nature from the other sites, primarily due to the presence of spent ammunition (bullets) from small arms target practice exercises at these sites and pesticide contamination at one Interim Action site. In addition, incinerated metal debris containing lead was previously deposited at Site 31. Because of the contaminant concentrations in soil at these sites, these wastes are considered hazardous wastes.

In order to place hazardous waste from remediation sites in the landfill, Corrective Action Management Unit (CAMU) regulations must be followed. Placement of hazardous waste from the remediation sites in the landfill will constitute approximately 3% of the total volume of the landfill. The Army and regulatory agencies evaluated the compatibility and leaching potential of wastes from the various remediation sites in the subsurface landfill environment at OU 2 in the *Technical Memorandum RI and IA Sites' Waste Compatibility and Leaching Potential*, January 1997. Results of the evaluation indicate that wastes from these sites can be placed in the landfill and will not react with the cap material or other wastes within the landfill. Furthermore, compounds present in the waste are not anticipated to leach to groundwater when placed in the landfill. After these wastes are placed in the landfill, the cap will be installed and no additional waste will be accepted. The cap will be inspected and maintained by the Army in perpetuity and groundwater will be monitored at regular intervals.

CAMU Regulations and Their Application to the OU 2 Landfill

As defined in California Code of Regulations (CCR), Title 22 Section 66264.552, a CAMU is an area within a facility designated for purposes of carrying out corrective action requirements under CCR Title 22 and RCRA Section 308(h). In general, the CAMU regulations were developed to give regulatory agencies flexibility in selecting and implementing the most effective and appropriate waste management strategies for the cleanup of large, complex sites such as Fort Ord. Fort Ord is a large facility with numerous remediation sites and an existing landfill that requires fill material for closure. The Army and the regulatory agencies have designated the OU 2 landfill as a CAMU (Figure 2). The following seven decision criteria were evaluated to assess the viability to place remediation waste from cleanup activities at Fort Ord in the OU 2 landfill following CAMU regulations.

The seven evaluation criteria include:

- (1) The CAMU must facilitate the implementation of reliable, effective, protective, and cost effective corrective action measures.
 - Foundation layer material (fill) is required to construct the cover system, and waste from remediation sites at Fort Ord is suitable fill material, eliminating the need for imported fill material and reducing associated truck traffic, fuel consumption, and air emissions.
- (2) Waste management activities associated with the CAMU shall not create unacceptable risks to humans or the environment.
 - Remediation wastes will be placed beneath an engineered landfill cover at the OU 2 landfill, which includes a barrier layer that protects humans and the environment from contact with waste. In addition, transport of wastes will be limited to Fort Ord, thereby limiting potential risks associated with offsite disposal.
- (3) The CAMU shall incorporate uncontaminated areas only if the inclusion of such areas allows better protection.

- The remediation waste will be placed within the present boundaries of the OU 2 landfill; therefore, no uncontaminated area will be impacted.
- (4) Areas within the CAMU, where wastes remain in place after closure of the CAMU, shall be managed and contained so as to minimize the potential for future releases.
- The cap will be maintained to minimize potential future releases, and long-term monitoring of the landfill is required.
- (5) The CAMU shall expedite the implementation of corrective action measures.
- Corrective action measures are expedited since less time will be required to transport waste to the existing OU 2 landfill than would be required to treat or dispose offsite.
- (6) The CAMU shall enable the use of treatment technologies to enhance long term effectiveness of corrective actions by reducing the toxicity, mobility, or volume of wastes.
- Leaching of waste components into groundwater, and mobility of the material will be minimized by installation of the cap. In addition, the volume of waste will be reduced by separation and recycling of spent ammunition.
- (7) To the extent practicable, the CAMU shall minimize the land areas where wastes will remain in place after closure of the CAMU.
- The remediation waste will be placed within the present boundaries of the OU 2 landfill.

In summary, placement of remediation wastes at the OU 2 landfill meets the evaluation criteria outlined for designation of a CAMU. CAMU regulations applicable to Fort Ord were presented in the January 1997 *Technical*

Memorandum. This document is part of the Administrative Record. 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.

AFFIRMATION OF STATUTORY DETERMINATIONS

This final remedy satisfies the requirements of CERCLA Section 121. Consolidation of remediation waste into the main landfill required that CAMU criteria be evaluated and the OU2 Landfill designated as a CAMU under this ESD. 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. A public meeting concerning this ESD and consolidation of remediation waste in the CAMU was held on October 29, 1996, and public comments were accepted from October 8 through November 8, 1996. 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

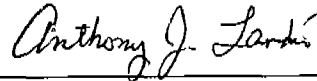


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Daniel D. Devlin
Colonel, U.S. Army
Commander

Date

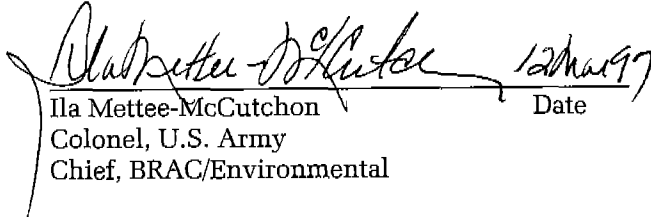
California Environmental Protection Agency



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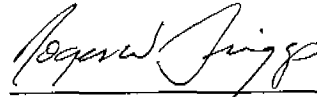
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12 MAR 97

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4-9-97

Roger W. Briggs
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3/12/97

Gail Youngblood
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U.S. Environmental Protection Agency



1/17/97

Daniel Opalski
Director, Federal Facilities Cleanup Branch
U.S. Environmental Protection Agency,
Region IX

Date

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

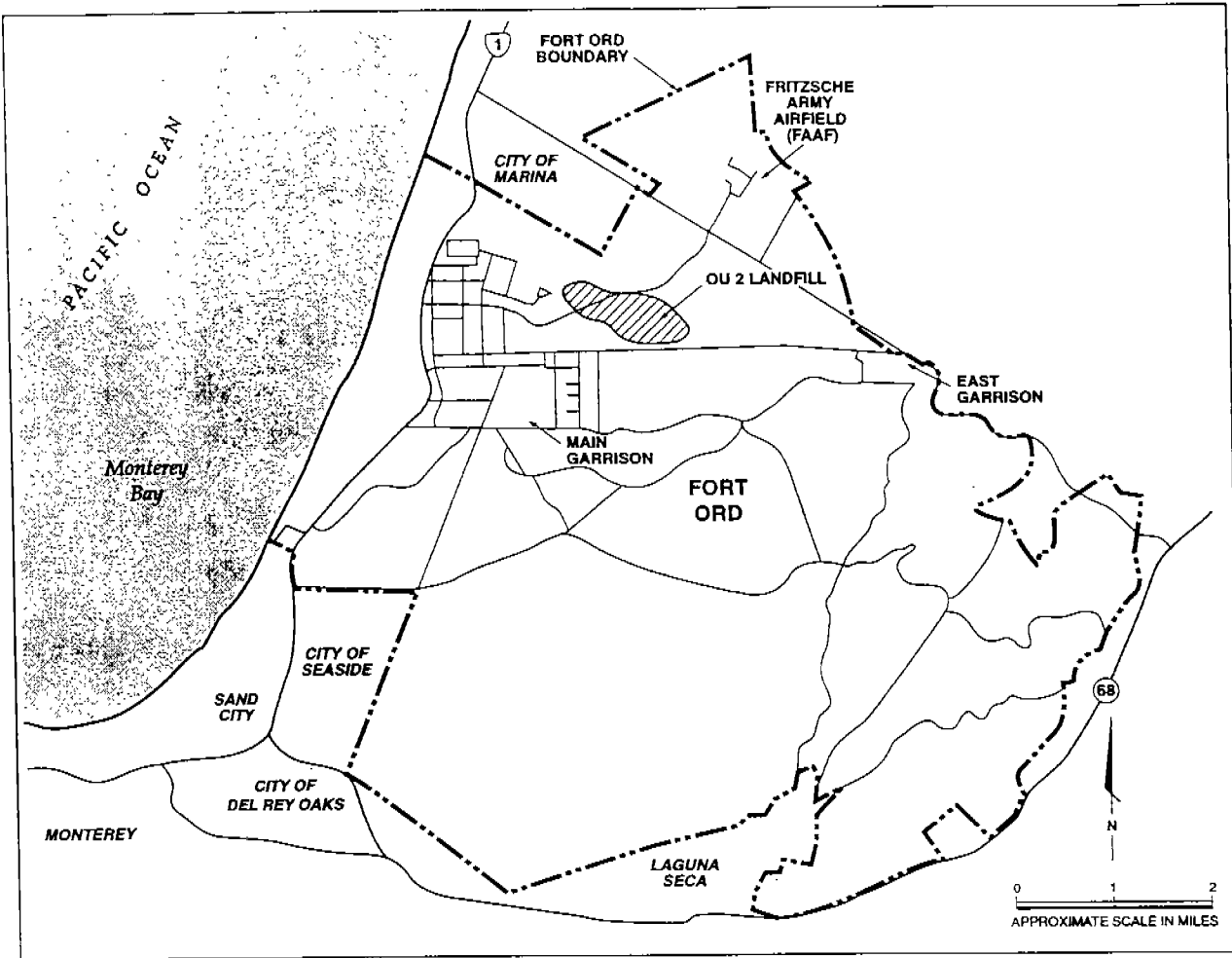


Figure 2. Site Map
Operable Unit 2
Fort Ord, California

