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2108725

Record of Decision
Operable Unit 1, Fritzsche Army Airfield
Fire Drill Area
Fort Ord, California

July 25, 1995

United States Department of the Army
Sacramento Corps of Engineers

Record of Decision
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1.0 DECLARATION

1.1 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 beach front 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.

1.2 Basis and Purpose

This Record of Decision (ROD) addresses the Fritzsche Army Airfield Fire Drill Area (FDA) and groundwater plume, also known as Operable Unit 1 (OU 1), in the northern portion of Fort Ord (see Plate 1). The ROD summarizes other decision documents pertaining to OU-1 and completes the Administrative Record which makes OU-1 available for property transfer consideration. Prior to the placement of Fort Ord on the National Priorities List (NPL), and prior to the signing of the Federal Facility Agreement (FFA), remedial investigations and cleanup at OU 1 were performed. This decision document presents the selected remedial action for OU 1 and underlying aquifer (A-aquifer). The remedy was selected in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended by the Superfund Amendment and Reauthorization Act (SARA), and, to the extent practicable, the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). This decision is based on the Administrative Record for Fort Ord. A summary of the remedial alternatives evaluated is presented in the Operable Unit 1 Feasibility Study (*HLA, 1995*).

The United States Environmental Protection Agency (EPA) and the California Environmental Protection Agency concur with the selected remedy.

1.3 Site Assessment

Actual or threatened releases of hazardous substances at the FDA, if not addressed by continuing implementation of the response action selected in this ROD, may present a current or future threat to public health, welfare, or the environment.

1.4 Description of the Remedy

The remedy described in this ROD addresses current or potential significant risks to human health and the environment posed by OU 1 at Fort Ord, California. The remedy involves the extraction, treatment (via carbon adsorption), and recharge of groundwater that contains volatile organic compounds (VOCs) from the A-aquifer at, and downgradient of, the FDA. This action removes VOCs from groundwater that pose threats to human health and the environment. Soil remediation at OU 1 is considered complete, and no further action is selected.

1.5 Statutory Determination

The selected remedy is protective of human health and the environment, complies with federal and state applicable or relevant and appropriate requirements for this action, and is cost effective. The remedy is intended to fully address the statutory mandate for permanence and treatment to the maximum extent practicable for the FDA and underlying A-aquifer. The remedy utilizes permanent solutions and alternative treatment (or resource recovery) technologies to the maximum extent practicable and satisfies the statutory preference for remedies that employ treatment that reduces toxicity, mobility, or volume as a principal element. Because this remedy (when completed) will not result in hazardous substances remaining onsite above health-based levels, the five-year review will not apply to this action.

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2.0 DECISION SUMMARY

2.1 Site Description

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 beach front 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. The Fire Drill Area (FDA) is located adjacent to Fritzsche Army Airfield, in the northern portion of the base (Plate 1).

2.2 Site History

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) was assigned to Fort Ord. Light infantry troops are those that perform their duties without heavy tanks, armor, or artillery. Fort Ord was selected for closure in 1991. The majority of the soldiers were reassigned to other Army posts in 1993. The property remaining in the Army's possession was redesignated as the Presidio of Monterey Annex on October 1, 1994. Although Army personnel still operate the base, no active army division is currently stationed there.

The FDA was established in 1962 as a training area for the Fort Ord Fire Department. A site plan is shown on Plate 2. The FDA consisted of an unlined burn pit, a drum loading area, a storage tank, and underground piping connecting the storage tank to a discharge nozzle. Fuel was discharged from the storage tank into the pit, ignited, and extinguished as part of firefighting training exercises. Approximately 90 percent of the fuel burned at the FDA was reported to be JP-4 helicopter fuel that was either contaminated with water or outdated. Other substances burned at the site included hydraulic and lube oils, gasoline, diesel fuel, and small quantities of industrial solvents. Training activities at the FDA were discontinued in 1985.

2.3 Enforcement and Regulatory History

Environmental investigations began at Fort Ord in 1984 at FAAF under Regional Water Quality Control Board (RWQCB) cleanup or abatement orders 84-92, 86-86, and 86-315. Investigations indicated the presence of residual organic compounds from fire drill burning practices at the FDA. The subsequent Remedial Investigation/ Feasibility Study (RI/FS) for OU-1 was completed in 1988, and cleanup of soil and groundwater began. A plan describing the cleanup process was presented to the public in June 1987. In 1990, Fort Ord was placed on the U.S. Environmental Protection Agency's (USEPA) National Priorities List (NPL), and a Federal Facility Agreement (FFA) under CERCLA Section 120 was signed by the Army, USEPA, DTSC, and RWQCB. The FFA establishes schedules for commencing remedial investigations and feasibility studies, and requires completion of remedial actions as expeditiously as possible. The basewide RI/FS began in 1991, and Fort Ord was placed on the Base Realignment and Closure List (BRAC). The Army submitted the Draft and Draft Final versions of the Basewide RI/FS for agency review on August 1, 1994 and December 5, 1994, respectively.

2.4 Highlights of Community Participation

On November 18, 1994, the United States Army presented the Proposed Plan for Operable Unit 1 at Fort Ord to the public for review and comment (*HLA, 1994d*). The Proposed Plan presented the preferred alternative and summarized

information in the OU 1 RI/FS and other documents in the Administrative Record. These documents are available to the public at the following locations: Chamberlain Library, Building 4275, North-South Road, Fort Ord, California, and Seaside Branch Library, 550 Harcourt Avenue, Seaside, California. The administrative record is available at 1143 Echo Avenue, Suite F, Seaside, California.

Comments on the Proposed Plan were accepted during a 30-day public review-and-comment period that began on November 22 and ended on December 22, 1994. A public meeting was held on December 8, 1994, at the Hyatt Regency, 1 Old Golf Course Road, in Monterey, California. At that time, the public had the opportunity to ask representatives from the Army, USEPA, and Cal/EPA questions and express concerns about the plan. In addition, written comments were accepted during the public comment period. Responses to the comments received during the public comment period are included in the Responsiveness Summary presented in Section 3.0 of this document.

2.5 Scope and Role of Operable Unit

A basewide RI/FS has been completed to evaluate environmental contamination at Fort Ord (*HLA, 1994e*). Within Fort Ord, two Operable Units have been identified for separate, expedited investigation and cleanup: which includes the OU 1 the Fritzsche Army Airfield FDA and the OU 2 which includes the Fort Ord Landfills. The term "operable unit" refers to specific investigations that address a geographic portion of a site or a specific site problem.

OU 1 contamination consists of two components: (1) a soil unit (0-30 feet) within the FDA, and (2) the A-aquifer. The first component, soil, has been remediated as described in the following sections to cleanup levels protective of human health and the environment. The second component, the A-aquifer, is not currently used to supply drinking water. However, it is identified in the Water Quality Control Plan - Central Coast Basin (November 1989) as a potential drinking water source. In other areas of Fort Ord, the A-aquifer is also in hydraulic communication with the underlying 180-foot aquifer, which is a drinking water source. The primary remedial objectives for the A-aquifer are hydraulic control and containment of contaminated groundwater in the A-aquifer, and extraction and treatment of groundwater exceeding aquifer cleanup levels. Remedial actions for these two components are intended to be final remedial solutions to risks posed by contaminants present within these units. The risks are described in Section 2.7.

2.6 Site Characteristics

2.6.1 Summary of the RI/FS

The results of the RI at the FDA indicated the following:

- The primary chemicals of concern in groundwater were benzene, trans-1,2-dichloroethene (DCE), methyl ethylketone (MEK), and trichloroethene (TCE). The highest concentrations were detected in water from wells within and downgradient (north) of the burn pit.

- The primary chemicals of concern in surface and shallow soil were light and heavy total petroleum hydrocarbons (TPH). The TPH-contaminated soil was generally confined to the central portions of the burn pit and the drum storage area. Soil generally contained low concentrations of TPH (light or heavy) with only sporadic detections of VOCs.

Details of these investigations are presented in the Soil RI/FS Report (*HLA, 1986*), Soil RI/FS Addendum (*HLA, 1987a*), and the Groundwater RI/FS Report (*HLA, 1987a*).

The Soil RI/FS Report and Soil RI/FS Addendum evaluated remedial alternatives for soil at the FDA using regulatory guidance available in 1987. Onsite bioremediation was selected as the remedial alternative for treatment of surface and shallow soil by the Army.

The Groundwater RI/FS report evaluated remedial alternatives for groundwater at the FDA using regulations and guidance available in 1987. Groundwater extraction and treatment by carbon adsorption was selected by the Army as the preferred remedial alternative.

2.6.2 Groundwater and Soil Treatment System Construction

Following approval of the remedial alternatives by the RWQCB, a Groundwater and Soil Treatment System (GWSTS) was constructed and operation began in August 1988. Details of the construction of the GWSTS are presented in the Construction Report (*HLA, 1989*). Construction of the GWSTS was completed in several phases. Approximately 4,000 cubic yards of TPH-contaminated soil was excavated and temporarily stockpiled. The maximum depth of the excavation was 31 feet below ground surface (bgs). Following excavation activities and demonstration that TPH was not detected in soil samples collected from the excavation side walls above 200 milligrams per kilogram (mg/kg), the excavation was backfilled to the original ground surface with clean soil. The excavated, stockpiled soil removed from the FDA was placed in an aboveground biotreatment area.

Biotreatment of the contaminated soil progressed incrementally in 1-foot layers of soil, or lifts, and was completed by August 1991. As each lift was remediated, it was removed and transported to the Fritzsche Army Airfield (FAAF) soil borrow area for use as fill in construction projects at Fort Ord.

The groundwater extraction and treatment system (GET) consists of two extraction wells and four piezometers screened in the A-aquifer, 14 monitoring wells, a granular activated carbon treatment system, a nutrient supplement tank, and an effluent spray system (Plate 3). Nutrients were added to the treated groundwater and the water sprayed on the soil in the biotreatment area to optimize growth of microbes that consume hydrocarbons.

Upon completion of biotreatment activities, nutrient enrichment of the effluent spray was discontinued and effluent was redirected to the recharge area.

2.6.3 GWSTS Monitoring Program Summary

The FDA GWSTS monitoring program has provided quarterly and annual assessments of soil and groundwater treatment progress. Soil monitoring was discontinued upon completion of soil bioremediation. Quarterly groundwater monitoring (water-level measurements and chemical analyses of groundwater samples) continues.

In general, the analytical results for the groundwater samples show that organic compounds, mainly VOCs, have been detected primarily in three wells, within or immediately downgradient of the former burn pit. Contaminants in other wells have been detected sporadically at lower concentrations. The groundwater system has been operating effectively for over 5 years, and VOC concentrations have generally decreased over 60 percent since the startup of the extraction and treatment system. The groundwater plume with flow directions is shown on Plate 2.

2.6.4 Remediation Confirmation Study

In 1993, a remediation (cleanup) confirmation study was undertaken to (1) demonstrate that the RI defined the nature and extent of soil contamination and that soil cleanup is complete, and (2) demonstrate that the lateral and vertical extent of groundwater contamination has been characterized and that operation of the groundwater extraction system is adequate and effective.

Confirmation sampling locations are shown on Plate 4. The results of the field investigation indicated that low concentrations of several organic chemicals remain in soil at the site. However, confirmation sampling results indicated that cleanup goals for soil were achieved. These chemicals include: 1,3-dichlorobenzene; methylene chloride; toluene; xylenes; chlorinated dioxins and furans; and TPH as diesel and gasoline. Lead was also detected in soil samples just above natural background concentrations in several samples (Table 3).

Groundwater capture analysis of the extraction wells and aquifer indicate that groundwater capture is adequate at the FDA and contaminated groundwater is not migrating offsite.

2.7 Summary of Site Risks

The future land use for the FDA is as a research and habitat management area. As such, no residential or commercial development will occur in the area, but may occur offsite. Based on this land use, soil cleanup is complete but continued groundwater cleanup is necessary, as discussed below.

2.7.1 Soil Health Risks

A Risk Assessment (RA) for soil was performed to evaluate possible adverse future impacts to human health and the environment from soil contaminants detected during the Remediation Confirmation Study. A RA calculates risks using mathematical models to evaluate the ways that humans, or other receptors, are exposed to chemicals at the site based on known toxic effects of the chemicals of concern.

To evaluate exposures that might occur during the identified future land use the human health risk assessment for soil used three hypothetical receptors:

- A worker, to address possible exposure to maintenance workers, park rangers, and others engaged in similar activities at the site.
- A student, to address possible exposure that might result from colleges or universities using the site for field research.
- A child visitor, to address possible exposure to children who might play at the site on a regular basis.

The ecological risk assessment used three receptors to evaluate possible ecological exposures which might occur during the future land use described above:

- Plant species typical of Coastal Live Oak Woodland, the habitat that surrounds the OU 1 area.
- The dusky-footed woodrat, which is known to live in live oak trees in the area.
- The great horned owl, a raptor known to live in the area and prey on the dusky-footed woodrat.

For protection of human health and the environment, the evaluations were designed to overestimate potential risks associated with potential exposures of the hypothetical receptors to the chemical residues present in soil at the site. The multiple exposure scenarios evaluated in the human RA were ingestion of soil, dermal contact with soil, and inhalation of airborne soil particles. Ecological exposures were evaluated using standard, EPA-accepted methods. The RA identified chlorinated dioxins and furans as the chemicals of concern (COC) for the human health assessment, and chlorinated dioxins, furans, and lead as the chemicals of concern for the ecological assessment.

The results of the RA indicated that human health and ecological risks associated with chemical residues remaining in soil at OU 1 are acceptably low. The resulting excess risk estimated for existing site conditions indicate an additional excess cancer risk of 2×10^{-8} to 1×10^{-7} (less than one in one million). In other words, if human receptors identified above were exposed to soil at the FDA less than one out of one million people would be at risk of developing cancer. These excess cancer risks are over ten times lower than the 10^{-4} to 10^{-6} levels (one in ten thousand to one in a million) identified in the National Contingency Plan (NCP) as acceptable residual risks for Federal Superfund sites. Thus, no further soil treatment activities for the intended land use are warranted. In addition, even if the Site was used for unrestricted use, risks from exposure to soils would be 3×10^{-6}, which is within the acceptable risk range.

2.7.2 Groundwater Health Risks

A Baseline Risk Assessment (BRA) was conducted for groundwater at the FDA. The BRA identified the chemicals of concern for human health and the environment as those that have been consistently detected in groundwater. The objective of the BRA was to qualitatively evaluate and characterize the potential human health impacts associated with conditions at the site as it existed prior to any remedial efforts associated with the GET. However, due to limitations in

the data collected prior to implementation of the GET, exposure point concentrations and resultant chemical intakes and health risks associated with these intakes could not be quantified. Therefore, the BRA presents a qualitative evaluation by comparing the maximum detected concentrations of the 10 chemicals of concern with Preliminary Remediation Goals (PRGs) developed by EPA Region IX (*EPA, 1995*).

The maximum concentrations, as shown in Table 1, ever detected for benzene; chloroform; 1,2-dichloroethane (1,2-DCA); 1,1-dichloroethene (1,1-DCE); total 1,2-dichloroethene (t1,2-DCE); tetrachloroethane (PCE); and trichloroethene (TCE) exceeded groundwater PRGs. Concentrations of the remaining COCs were all below PRGs. This evaluation indicates that cleanup of the groundwater was justified based on the exceedance of conservative human health-based guidance values.

Although some impacts to shallow groundwater were documented in the original RI/FS, no evidence exists to indicate that offsite migration of the contaminant plume took place. In addition, no private water supply wells have been documented in the immediate vicinity of the site. These facts, combined with the installation of recovery wells that prevent any downgradient migration as part of the GET, make the possibility of offsite exposure to impacted groundwater remote.

Monterey Bay is approximately 1.5 miles downgradient; upgradient surface-water bodies are further from the site. Impacts to groundwater quality have been documented at the site, but the possibility for subsurface and downgradient transport of COCs at concentrations sufficient to cause adverse impacts to aquatic biota is considered remote. This is due to the degradation, attenuation, and dilution of chemicals that would naturally occur, and the distance between the point of release and any potential point of discharge.

A post cleanup human health risk assessment (HHRA) was performed for the groundwater at the FDA. The purpose of the HHRA was to evaluate potential health risks associated with ingestion of tapwater (i.e, groundwater) at the proposed Aquifer Cleanup Goals (Table 1). The methods used to conduct the HHRA were consistent with EPA recommended guidance. Although it is unlikely that onsite groundwater will be used as a drinking water source, the exposure pathway evaluated was a child and adult receptor that might be exposed to the COCs through ingestion of tapwater (groundwater).

The results of the HHRA indicated that human health risks associated with chemicals in groundwater at the Aquifer Cleanup Goals will not result in adverse human health effects. The resulting excess cancer risk estimated for site conditions at the time that Aquifer Cleanup Goals are achieved is 2×10^{-6} to 3×10^{-5}. In other words, if the human receptors identified above were exposed to groundwater at the FDA less than three out of one hundred thousand people would be at risk of developing cancer. These excess cancer risks are within the 10^{-4} to 10^{-6} identified in the NCP as acceptable residual risks for Federal Superfund sites.

In summary, even if unlimited use occurred at this site, the resultant risks from exposure to soils and groundwater at remediation would be no greater than that described above for groundwater, and no institutional controls (i.e., deed restrictions) are needed. However, actual or threatened releases of hazardous substances for this site, if not addressed by continued implementation of the groundwater remedy, may present an imminent and substantial endangerment to public health, welfare, and the environment.

2.8 No Further Action for Soil

The results of the Remediation Confirmation Study field investigation and subsequent risk assessment indicated that the chemicals remaining in soil do not present an unacceptable risk to human health or to ecological receptors under the proposed land use and do not threaten groundwater quality.

The potential threat to groundwater from the TPH as diesel concentrations detected in soil at the site is predicted to be negligible. The results of a two-step modeling process performed as part of the (*HLA, 1994b*) *Draft Technical Memorandum: Approach to Evaluating Potential Groundwater Quality Impacts* indicated that the

heavy alkane components of a mixture containing 500 mg/kg TPH would not be found at concentrations above 1 μg/l in groundwater 80 feet below the contaminated soil during a 100-year period. Consequently, because the depths to groundwater and geologic materials at OU 1 are comparable to those simulated in the Technical Memorandum, TPH as diesel concentrations of up to 560 mg/kg are not considered to represent a threat to groundwater. Therefore, soil remediation at the site is considered complete, and no further action is selected.

2.9 The Remedial Action for Groundwater

To protect human health and comply with federal and state applicable or relevant and appropriate requirements (ARARs), groundwater must be returned through cleanup to a condition that will allow beneficial uses to occur, including future potential use as a drinking water source, without unacceptable risks to the users. Thus, the remedial cleanup goals for groundwater include cleaning up the contaminated groundwater to at least maximum contaminant levels (MCLs), as shown on Table 1. ARARs for the groundwater remedy are included in the Appendix.

Currently, no on or offsite residents are exposed to the COCs, because no residents or consumers of affected groundwater occupy or are immediately adjacent to the FDA. Furthermore, based on projected land use, commercial or residential development will not be allowed at the FDA. Nevertheless, the site at remediation is suitable for unrestricted use.

Table 1 presents the COCs identified in the OU I Feasibility Study that have been detected in groundwater at OU I. The maximum concentration ever detected in groundwater is presented for each detected COC along with the maximum concentration detected in 1994. Remediation goals are presented for COCs currently detected at the site.

It may become apparent, during implementation or operation of the groundwater extraction system and its modification, that contaminant levels have ceased to decline and are remaining constant at levels higher than the remediation goal over some portion of the contaminated plume. In such a case, the system performance standards and/or the remedy may be reevaluated.

The selected remedy will include groundwater extraction for an estimated period of 30 years, during which the system's performance will be carefully monitored on a regular basis and adjusted as warranted by the performance data collected during operation. Modifications may include any or all of the following:

- Discontinuing pumping at individual wells where cleanup goals have been attained
- Alternating pumping wells to eliminate stagnation points
- Pulse pumping to allow aquifer equilibration and to allow adsorbed contaminants to partition into groundwater; and
- Adding additional extraction wells to facilitate or accelerate cleanup of the contaminant plume.

The points of compliance for the remediation goals are any monitoring wells within the plume area. Remedial Design/Remedial Action documentation will define at what point the remediation goals will be considered to have been attained. To ensure that remediation goals continue to be maintained, the aquifer will be monitored in the vicinity of wells where pumping has ceased until the Army, EPA, and the State agree that cleanup is complete.

Remediation goals for chemicals present in contaminated groundwater are either based on ARARs or on values determined by the BRA and are presented in Table 1.

The estimated maximum total aggregate excess cancer risk for all chemicals at their respective remediation goals is 3×10^{-5}. This cumulative risk is within acceptable range, and is health protective.

2.10 The Remedy's Compliance with CERCLA

The 1987 RI/FS considered three alternatives for groundwater extraction and treatment and soil treatment: *Alternative A involved air stripping* with vapor phase carbon treatment of effluent and biodegradation of soil; Alternative B involved air stripping with vapor phase carbon off-gas treatment, aqueous carbon polishing of effluent, and biodegradation of soil; and Alternative C involved aqueous carbon effluent treatment and biodegradation of soil. Alternative C was the selected, approved, and implemented alternative.

The RI/FS for groundwater and soil contamination followed CERCLA regulations available at the time, which did not include screening alternatives using the current nine established criteria. The selected alternative for groundwater in the original FS, nevertheless, satisfies these nine screening criteria. Table 2 summarizes the evaluation of the remedy against the nine screening criteria.

Furthermore, the selected remedy meets the requirements of Section 121 of CERCLA to:

- **Be Protective of Human Health and the Environment** — The remedy is protective of human health and the environment by maintaining hydraulic control of the contaminant plume and by actively reducing containment levels.

- **Comply with Applicable or Relevant and Appropriate Requirements (ARARs)** — The remedy complies with the promulgated standards and regulations listed in the Appendix.

- **Be Cost Effective** — The remedy is cost effective, especially because significant capital and O&M costs have already been invested in the GET.

- ***Utilize Permanent Solutions and Resource Recovery Techniques to the Maximum Extent Practicable*** — The remedy is a permanent solution to contamination at the site. Infiltration of treated groundwater constitutes resource recovery. Carbon treatment unit canisters are to be recycled.

- **Use Treatment that Reduces Toxicity, Mobility, or Volume as a Principal Element** — The remedy uses groundwater extraction with treatment as a principal element.

The alternative selected (and successfully implemented) in the June 5, 1987, Remedial Investigation/Feasibility Study is still an effective, viable solution today. The selected alternative for soil has been successfully implemented. No further cleanup is required for soil at OU 1.

3.0 RESPONSIVENESS SUMMARY

3.1 Overview

This Responsiveness Summary provides a summary of the public comments and concerns regarding the OU 1 Proposed Plan at Fort Ord, California. At the time of the public review period, the Army had implemented a remedy for OU 1.

On the basis of the verbal and written comments received, the Army's Proposed Plan for OU 1 was generally accepted by the public and it was determined that no significant changes to the remedy, as identified in the Proposed Plan, were necessary. However, some citizens and/or organizations expressed concern regarding the level of public involvement in the overall process.

3.2 Background on Community Involvement

The Army has implemented a progressive public relations and involvement program for environmental activities at Fort Ord. A plan describing the initial soil and groundwater cleanup process was presented to the public in June 1987. The *Advance* is a newsletter published by the Army and sent to the public that highlights the status of ongoing and planned remedial activities at Fort Ord. The Army also conducts monthly Restoration Advisory Board meetings to involve the public in decisions made regarding remedial actions. In addition, a toll-free number (800/491-3230) is available for concerned citizens to comment and receive answers regarding the environmental restoration and transfer of Fort Ord property.

The Army held a public comment period on OU 1 actions from November 22, 1994, through December 22, 1994. Over 700 copies of the Proposed Plan were mailed for public review and comment to interested parties and were placed in the Chamberlain Library, Building 4275, North-South Road, Presidio of Monterey Annex, California and Seaside Branch Library, 550 Harcourt Avenue, Seaside, California. This Proposed Plan also invited readers to a public meeting to voice their concerns. The public meeting was held on December 8, 1994 to discuss the proposed plan for OU 1.

No comments were received from the public regarding OU 1 prior to the publication of the Proposed Plan and the start of the comment period. Comments received during the comment period are addressed below.

3.3 Summary of Comments Received during the Public Comment Period and Department of the Army Responses

Comments raised during the Fort Ord OU 1 Proposed Plan public comment period are summarized below. The comments received during the comment period are categorized by relevant topics.

3.3.1 Summary and Response to Local Community Concerns

Comments from the local community were voiced at the Public Meeting, and are summarized and addressed below. Three written comment letters were received from the community during the public comment period and are reprinted and addressed in Section 3.3.2.

3.3.1.1 Public Comments Regarding Community Relations

Comment: If there's a concern over public involvement, perhaps setting up a kiosk would be beneficial.

Army Response: The Army regularly sets up display boards containing information about the cleanup process at numerous locations throughout the community (e.g., Monterey County Library in Seaside, Monterey County Social Services in Salinas). Additionally, information sheets, brochures, and newsletters are also distributed to the public that summarize cleanup activities at Fort Ord. The Army also conducts monthly Restoration Advisory Board

meetings to involve the public in the decision making process regarding remedial actions at Fort Ord.

Comment: A survey of the community should be conducted to obtain community opinion regarding the Superfund cleanup process and community concerns.

Army Response: An initial survey was conducted in February 1991 to gather information from the community to develop the Community Relations Plan for Fort Ord. A questionnaire was developed to assess the community's knowledge and concerns about contamination at Fort Ord and identify appropriate means of communicating with the community. In early February 1991, the questionnaire was mailed to 61 individuals, local elected officials, and representatives of public agencies. The questionnaire was accompanied by a letter inviting responses and describing the Superfund process and related activities at the base. Followup phone calls lead to an initial round of 13 interviews which were conducted in mid-February 1991. Five written responses to the questionnaire were received. As a consequence of the initial interviews, names and addresses of approximately 25 additional private residents, special and environmental interest groups, and public agencies were added to the mailing list, and some were interviewed. The results of the interviews and surveys were incorporated into the Community Relations Plan which established procedures for (1) disseminating accurate and timely information to the community about the cleanup process; (2) developing ongoing two-way communication with the community; (3) encouraging community involvement; and (4) monitoring and responding to community concerns. The Community Relations Plan is available for public review in the information repositories and Administrative Record. The current mailing list for the public includes over 700 names and addresses of individuals and/or special interest groups and regulatory agencies.

The public also has the opportunity to provide input at the Restoration Advisory Board meetings, and numerous other public meetings. A Community Relations Coordinator has been established for Fort Ord and can be reached by calling 1-408-242-8017. A 24-hour hotline for the Army Corps of Engineers is available at 1-800-491-3230.

3.3.2 Summary and Response to Written Technical Questions

3.3.2.1 Reprint of, and Army Response to, the Letter Received from a Local Citizen

Reference is made to your November 18, 1994 report regarding "The cleanup of Fritzsche Army Airfield Fire Drill Area Site at Fort Ord, California".

The report recognizes that "the Army is the responsible party and lead agency for conducting Remedial Investigations, reporting and implementing cleanup actions at Fort Ord". There is no stated deadline for the completion of this process and rightfully so since the cleanup process, no matter how long term, will never provide complete safety for the occupation of Fort Ord. Thus, my concern for the rush, without any confirmed economic or educational necessity, to allow its immediate development.

The deeding of Fort Ord property by the Army will never remove the legal or moral liability of the Army for the safety of occupants whether on the conveyed property or elsewhere on Fort Ord.

"Future Land Use", as reported, is based upon "Fort Ord Reuse Authority (FORA) preliminary plan" and "that Operable Unit 1 (OU 1) Fritzsche Army Airfield Fire Drill Area (FDA) will be within a habitat management unit protected by the University of California Natural Reserve System for use by the University of California, Santa Cruz (UCSC) as a research area, and will not be developed for commercial or residential use." This statement indicates that you recognize the residual danger of ever using the property for any use that would entail occupancy by individuals and would record deed covenants outlawing such use. Deed covenants do not eliminate the danger of trespass, which could have dire consequences.

Certainly deeds of conveyance should not be executed until FORA's plan is finalized.

Certainly a California Environmental Impact Report is necessary for UCSC to accept property.

Certainly the University of California should recognize and accept the liability to not only protect their students but also any other individual who happens on the subject property or other properties conveyed to them.

Certainly our citizenry should recognize the increased danger inherent with the immediate development of Fort Ord.

The Report recognizes the impossibility of eliminating all contaminated groundwater but makes the questionable statement "...contaminated groundwater is not migrating offsite." While this may be true at the moment, geological occurrences could drastically change the situation and endanger offsite properties.

While you consider that the dangers of cancer resulting from the human exposure to chemical toxics, of the ingestion of contaminated groundwater, of the possible adverse impacts on the aquatic biota of our Marine Sanctuary, are remote, you cannot say that the cleanup has eliminated these risks.

The lack of any confirmed urgency and the ability of our natural elements over a period of years to dissipate the dangerous materials that have evaded cleanup, dictates that the Army maintain security at Fort Ord and the development of Fort Ord be postponed indefinitely until the danger to occupants is further minimized to a rational and acceptable level.

Army's Response to Comments

The schedule for cleanup actions underway at Fort Ord are mandated in a Federal Facilities Agreement that was signed by the Department of the Army and the regulatory agencies. All areas of Fort Ord that require investigation and cleanup are in various stages of the cleanup process. Under the federal Superfund law (CERCLA), properties that are clean or have been cleaned up to the satisfaction of the U.S. Environmental Protection Agency) are eligible for transfer to other parties.

The Army recognizes that it is responsible to provide for the safe occupation of Fort Ord. As such, the Army has undertaken an aggressive investigation and cleanup program for contaminated sites within Fort Ord.

The future land use for the Fire Drill Area (OU 1) reported in the Proposed Plan is based on the Army's understanding of the Fort Ord Reuse Authority Preliminary Plan. The FDA will be within a habitat management unit protected by the UC Natural Reserve System because of the presence of endangered plant and wildlife species, not because chemicals at the site pose a risk to human health. The Risk Assessment summarized in the Proposed Plan evaluated the risk to students, a child visitor, and a worker (including maintenance workers or park rangers). The risk resulting from exposure to chemicals remaining in soil at the site were found to be less than one in a million (the EPA's target risk range for Superfund sites is one in ten thousand to one in one million). The groundwater is currently being cleaned up, and will continue being cleaned up until the concentrations of chemicals remaining in groundwater are reduced to levels that pose an acceptable human health risk.. The risk to trespassers has been adequately evaluated in the risk assessment in the worker, student, and child visitor receptor scenarios. In addition, at cleanup the risks are protective for unrestricted use of the site.

The purpose of the Proposed Plan was to describe the selected remedial alternative for OU 1, not to discuss general land use issues, the moral obligation of UC to protect its students, or the general development of Fort Ord.

The groundwater extraction and treatment system currently operating at OU 1 has been proven effective at capturing and containing the chemical contaminant plume, and eliminating off-site migration of groundwater containing chemicals. A detailed study of the geologic and hydrogeologic characteristics of the site was conducted prior to designing the groundwater remediation system. The groundwater extraction and treatment system was designed for maximum effectiveness given site-specific conditions.

While the cleanup of contaminated groundwater will reduce the overall concentrations of

chemicals in the groundwater aquifer, it is unlikely that all of the detectable concentrations of chemicals will be completely eliminated. However, aquifer cleanup goals have been established that have been shown to be protective of human health and the environment and are within the EPA's target risk range for Superfund sites. The existing groundwater remediation system is designed to operate until the aquifer cleanup goals are achieved.

As stated above, the cleanup process is part of a Federal Facilities Agreement-established timeline and the transfer of property is consistent with the Superfund laws of this country.

3.3.2.2 Reprint of, and Army Response to, the Letters Received from UCSC

December 20, 1994, Letter

We have reviewed the report issued November 18, 1994 outlining the proposed plan for cleanup of the Fritzsche Army Airfield Fire Drill Site, also known as the "Burn Pit." As you may be aware, the Memorandum of Agreement between the U.S. Army and the University of California specifies this property for conveyance to the University upon the completion of its cleanup. To this end we have acute interest in the proposal.

In order to be able to respond to the notice, we need additional information. In particular, we request the following:

Soils:

1. Concentrations of all organic compounds and lead in the soil at the completion of treatment and baseline concentrations used in making the soil health risk assessment.

2. Details of the biotreatment process: what organisms; duration; concentrations of organics and metals before versus after biotreatment.

3. Copy of the "Draft Technical Memorandum: Approach to Evaluate Potential Groundwater Quality impacts in which it was concluded that the OU 1 site does not need the kind of impermeable cap that OU 2 does.

Groundwater:

1. Details of the groundwater extraction and treatment system; number and location of the monitoring and extraction wells; character of nutrients added to the treated groundwater.

2. Concentrations of the volatile organics through time (5 years), and evidence that the plume is confined to the A-aquifer and not migrating offsite.

3. The treatment process appears to be ineffective for tetrachloroethane and incomplete for trichloroethane. This clearly requires further work before the OU 1 property would be acceptable to UC even if it is eligible for transfer under CERCLA. Do you (*sic*) more information you can share with us on these treatment processes.

As you may also be aware, the University cannot take on the obligation to continue the cleanup activities that are prescribed. At some point we would like to further discuss the Army's intention to convey given the extension of the cleanup activities and the schedule for conveyance. Thank you for your help in this matter.

Army's Response to December 20, 1994, UCSC Letter

Specific to your request for additional information, baseline chemical concentrations used in the soil health risk assessment and chemical concentrations at the completion of soil treatment are presented in the *OU 1 Remediation Confirmation Study, Fritzsche Army Airfield Fire Drill Area, Fort Ord, California. May 1994.* Details of the groundwater extraction and treatment system, concentrations of contaminants with time, and evaluation of the groundwater extraction system are presented in the *Groundwater and Soil Treatment System Evaluation Report, August 1988 - May 1991, Fritzsche Army Airfield Fire Drill Area, Fort Ord, California. July 1992.* The Army has transmitted copies of these documents to UCSC. Additionally, these reports and others referenced

in this document detailing the investigations conducted at OU 1 are available for public review at two information repositories located at the Chamberlain Library, Building 4275, North-South Road, Presidio of Monterey Annex (formerly Fort Ord), California, and at the Seaside Branch Library, 550 Harcourt Avenue, Seaside, California. Copies of these reports are also part of the OU 1 Administrative Record, which is located at Harding Lawson Associates, 1143 Echo Avenue, Suite E, Seaside, California.

The groundwater extraction and treatment system is effectively removing volatile organic compounds, including tetrachloroethane and trichloroethane. Based on current information, it is estimated that aquifer cleanup goals may be met after ten years of continued system operation.

The federal Superfund Law (CERCLA) states that property can be transferred once the property is cleaned up or a remedy is in place and operating effectively to the satisfaction of the EPA. The Army will retain the responsibility for operating the groundwater remediation system and will retain right of access to the treatment system and wells at OU 1. The Army will address the schedule for conveyance with UCSC in future discussions held at the convenience of both parties.

December 21, 1994, Letter

This letter is to clarify issues surfaced in my 12/20/94 transmittal, and to reiterate our intention to respond to the information presented for review regarding the Army's plan to continue remedial action at OU 1. The University of California anticipates eventual acceptance of this property, subject to completion of the cleanup activities.

We have requested information that is substantial in content and will require some time to evaluate. We do not anticipate sending written response, beyond the limited concerns in my 12/20/94 transmittal, until after the close of the published comment period. It is not necessary for you to alter the comment period to receive our response, but you should be aware that we may have written remarks to forward early next year.

As mentioned in my prior letter, we will not absorb the responsibility of the cleanup activities that are prescribed for remediation at OU 1, given that we are prepared to discuss the Corps of Engineer's intention to convey.

Army's Response to December 21, 1994, UCSC Letter

The Army acknowledges that UCSC will be providing additional correspondence regarding cleanup activities at OU 1. This correspondence will not be received during the public comment period and therefore will not be addressed in this ROD. As stated above, the Army will retain the responsibility for operation and maintenance of the groundwater remediation system.

4.0 REFERENCES

Harding Lawson Associates, 1986. *Remedial Investigation/Feasibility Study of Soil Contamination, Fire Drill Area, Fort Ord, California.* Report prepared for the Department of the Army, Corps of Engineers, Sacramento District. April 14.

_____, 1987a. *Addendum, Remedial Investigation/Feasibility Study of Soil Contamination, Fire Drill Area, Fort Ord, California.* Report prepared for the Department of the Army, Corps of Engineers, Sacramento District. June.

_____, 1987b. *Remedial Investigation/ Feasibility Study of Groundwater Contamination, Fritzsche Army Airfield Fire Drill Area, Fort Ord, California.* Report prepared for the Department of the Army, Corps of Engineers, Sacramento District. June.

_____, 1989. *Construction Report, Groundwater and Soil Treatment System, Fritzsche Army Airfield Fire Drill Area, Fort Ord, California.* Report prepared for Department of the Army, Corps of Engineers, Sacramento District. May.

_____, 1994a. *OU 1 Remediation Confirmation Study, Fritzsche Army Airfield Fire Drill Area, Fort Ord, California.* Report prepared for the Department of the Army, Corps of Engineers, Sacramento District. May.

_____, 1994b. *Draft Final Technical Memorandum, Applicable or Relevant and Appropriate Requirements, Existing Carbon Adsorption Groundwater Extraction and Treatment System, Operation Unit 1.* May.

_____, 1994c. *Draft Final Technical Memorandum, Preliminary Remediation Goals, Fort Ord, California.* June 24.

_____, 1994d. Proposed Plan for the Fritzsche Army Airfield Fire Drill Area (OU 1), Fort Ord, California. *Completion of Soil Treatment Activities and continued Groundwater Extraction and Treatment Proposed for the Cleanup of Fritzsche Army Airfield Fire Drill Area Site at Fort Ord, California.* Prepared for Sacramento COE. November 18.

_____, 1994e. *Draft Final Remedial Investigation/ Feasibility Study, Fort Ord, California.* December.

_____, 1994f. *Draft Third Addendum to the Technical Memorandum, Preliminary Remediation Goals, Fort Ord, California.* December 15.

Jones and Stokes, 1994. *Installation-Wide Multispecies Habitat Management Plan for Fort Ord, California.* Report prepared by Corps with assistance from Jones & Stokes. February.

US Environmental Protection Agency (EPA), 1995. Memo from Standford J. Smucker, *Region IX Preliminary Remediation Goals (PRGs)* First Half 1995. February 1.

TABLES

Table 1. Chemicals of Concern in Groundwater and Aquifer Cleanup Goals

Chemicals of Concern	Federal MCL (ppb)	State MCL (ppb)	Maximum Concentration Detected (ppb)	Maximum Concentration Detected (1994) (ppb)	Aquifer Cleanup Goals (ppb)[1]	Discharge Limits for Treated Water[5] (ppb)
Benzene	5	1	76	ND (<0.5)	1	0.5
Chloroform	100	--	3.2	0.57	2.0[2]	0.5
1,1-Dichloroethane	--	5	40	1.4	5	0.5
1,2-Dichloroethane	5	0.5	1.2	ND (<1.0)	0.5	0.5
1,1-Dichloroethene	7	6	19	3.2	6	0.5
Total 1,2-dichloroethene	--	--	170	8	6[3]	0.5
Methyl Ethyl Ketone	--	--	1,700	400	1,900[4]	0.5
Tetrachloroethene	5	5	8	8	5	0.5
1,1,1-Trichloroethane	200	200	110	8.2	200	0.5
Trichloroethene	5	5	650	20	5	0.5

(1) The combined, or additive effect of exposure to all chemicals at the levels listed was found to range from 2×10^{-6} to 3×10^{-5}. This cumulative risk is within the acceptable risk range, and is health protective.
(2) Aquifer cleanup goal lower than federal or state MCL selected based on risk calculations.
(3) Cleanup goal based on the lowest MCL for isomers.
(4) Based on Preliminary Remediation Goal (*EPA, 1995*) from Region IX Preliminary Remediation Goals First Half 1995. February 1, 1995.
(5) Discharge to areas overlying contaminated groundwater plume need only meet aquifer cleanup goals. Discharges to waters outside the contaminated plume will be treated to "non-detected" as measured by EPA Method 502.2.
ND Chemical not detected during 1994 sampling events.
ppb Parts per billion.
MCL Maximum Contaminant Level.

Table 2. The Remedy's Compliance with CERCLA Guidance

CERCLA Screening Criteria	*The Remedy: Groundwater Extraction and Treatment by Carbon Adsorption and Soil Bioremediation*
Overall Protection of Human Health and the Environment	Currently protective of human health and the environment through containment and treatment of the groundwater plume. Soil is protective of human health and the environment.
Compliance with ARARs	Complies with applicable or relevant and appropriate requirements.
Short-Term Effectiveness	Effective in the short-term; already has reduced groundwater contaminant concentrations by approximately one half. Soil treatment is complete. GCT[1] = 10 years
Long-Term Effectiveness	Achieving final aquifer cleanup goals for groundwater may be technically impractical. Soil cleanup goals have been achieved.
Reduction of Toxicity, Mobility, and Volume	Reduces the toxicity, mobility, and volume of contaminants in groundwater and soil through treatment.
Implementability	Already has been implemented at OU 1.
Regulatory Agency Acceptance	The State of California and the U.S. EPA accept this alternative.
Community Acceptance	Based on comments received during the public comment period, the public generally accepts the remedy.
Estimated Cost (NPV)[2]	$950,000. Cost effective. Furthermore, capital cost for the installed treatment system has already been invested.

1 GCT = Groundwater cleanup time
2 NPV = Net present value costs are provided in 1994 dollars.

Table 3. Chemicals Detected in Soil Prior To and After Excavation and Preliminary Remediation Goals

	Maximum Concentration Prior to Excavation (ppm)	Maximum Concentration After Excavation (ppm)	Fort Ord Preliminary Remediation Goal (PRG)† (ppm)
Benzene	0.012	ND (0.001)	1.4/a/
Methyl Ethyl Ketone	2.9	ND (0.005)	620
Toluene	0.048	0.001	190
Ethyl Benzene	0.027	ND (0.001)	830
Xylenes	0.051	0.002	130
1,1,1-Trichloroethane	0.047	ND (0.001)	200
Trichloroethene	0.076	ND (0.001)	1.1
Methylene Chloride	0.008	0.003	0.90
1,4/1,2-Dichlorobenzene	0.007	ND (0.001)	7.4/a,b/
1,3-Dichlorobenzene	<0.001	0.001	330
2,3,7,8-TCDD **	NA *	3.5×10^{-6} *	1.2×10^{-6}
Lead	470	75.07	240

* 2,3,7,8-Tetrachlorodibenzo-p-dioxin-toxic equivalent concentration.

** Only COPC identified for soil in the Confirmation Study Risk Assessment.

NA Not analyzed for prior to excavation.

ppm Parts per million.

† Fort Ord PRGs are based on unrestricted use. The development of the PRGs is presented in Technical Memorandum (*HLA, 1994c, HLA, 1994f*).

/a/ EPA, 1995. Region IX Preliminary Remediation Goals (PRGs), First Half 1995.

/b/ Value is the lower of 1,2- and 1,4-dichlorobenzene.

PLATES

PLATE 1. FORT ORD LOCATION MAP

Record of Decision
Operable Unit 1
Fort Ord, California

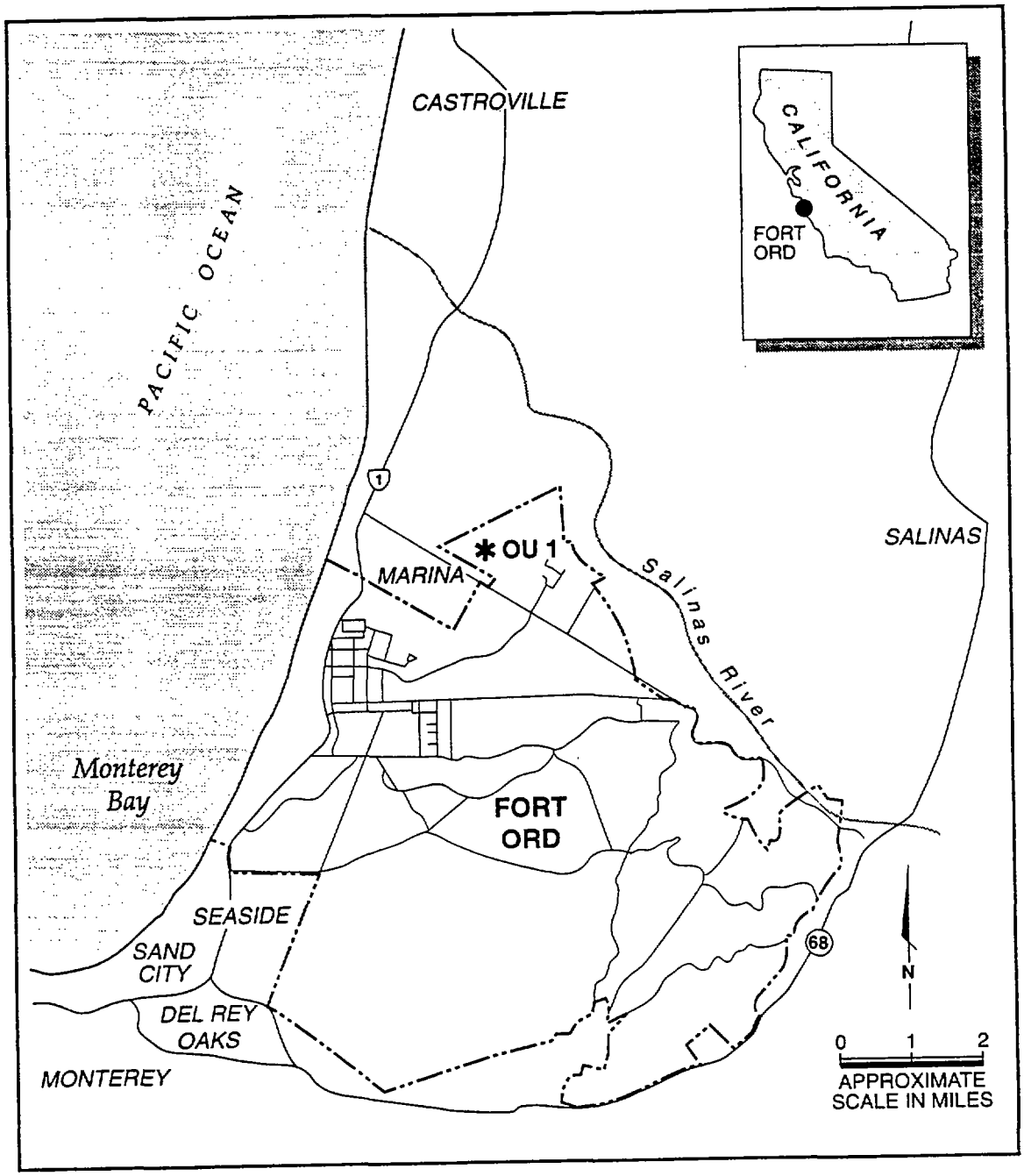

PLATE 2. SITE PLAN

Record of Decision
Operable Unit 1
Fort Ord, California

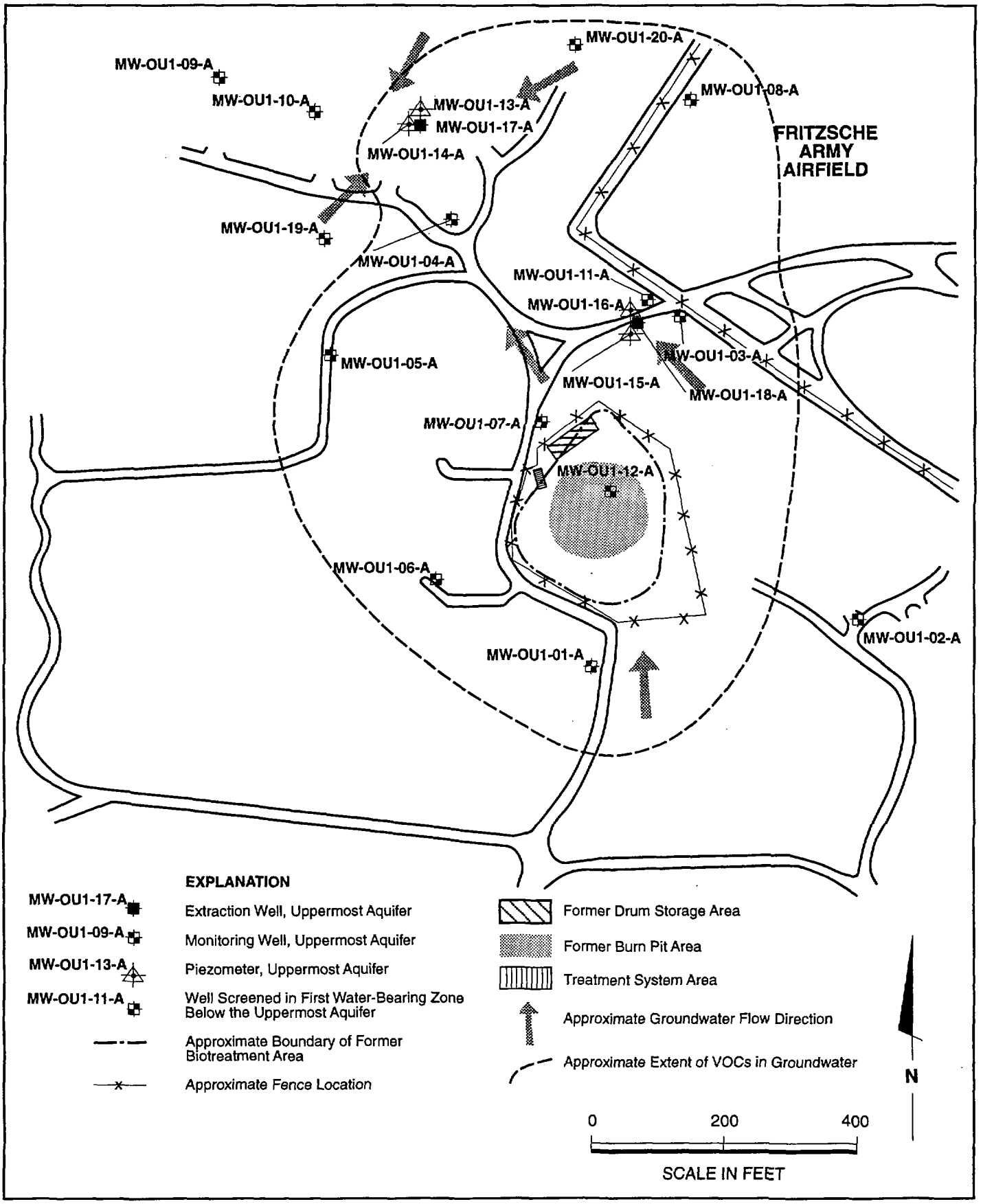

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PLATE 3. GROUNDWATER EXTRACTION SYSTEM

Record of Decision
Operable Unit 1
Fort Ord, California

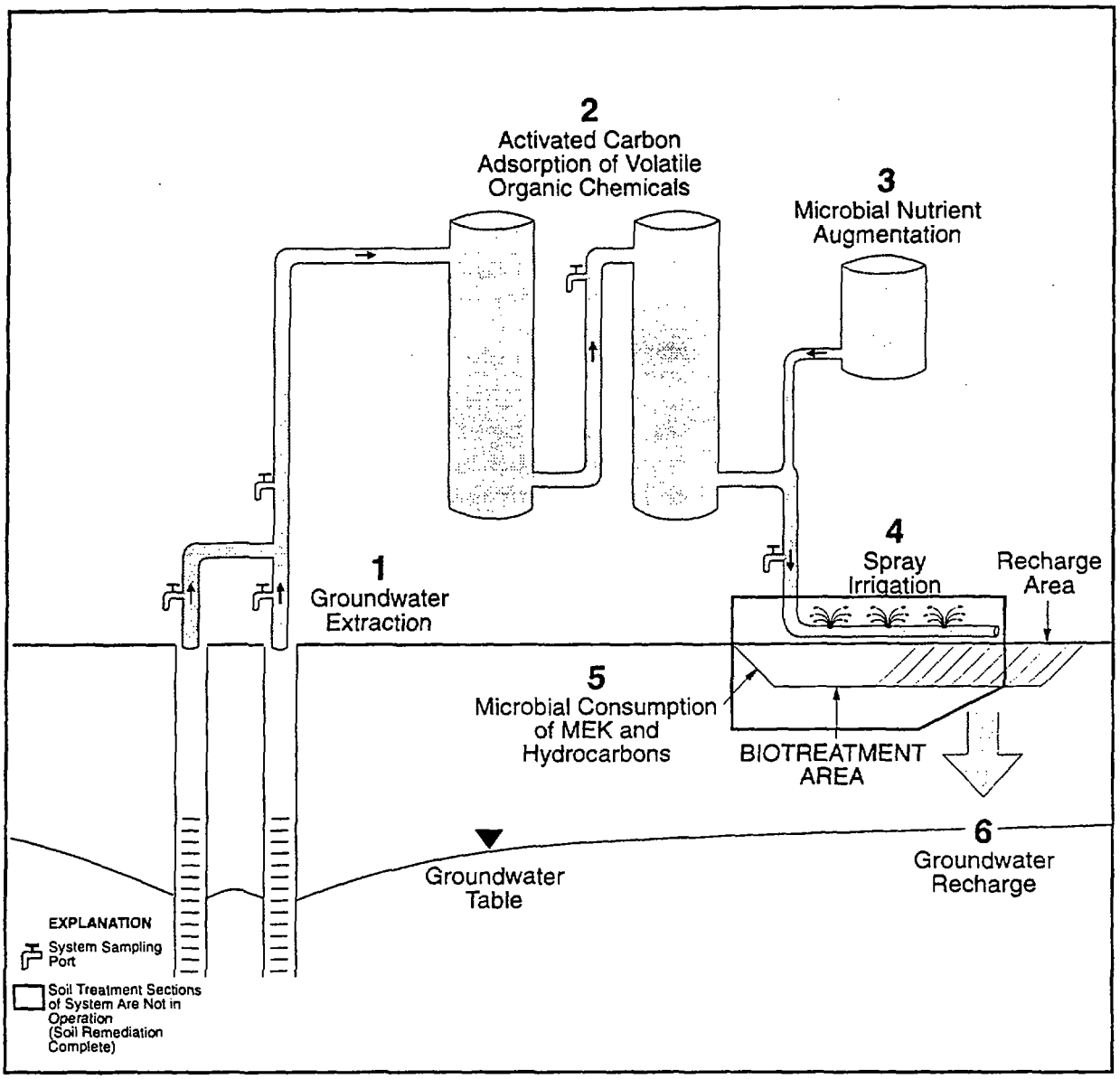

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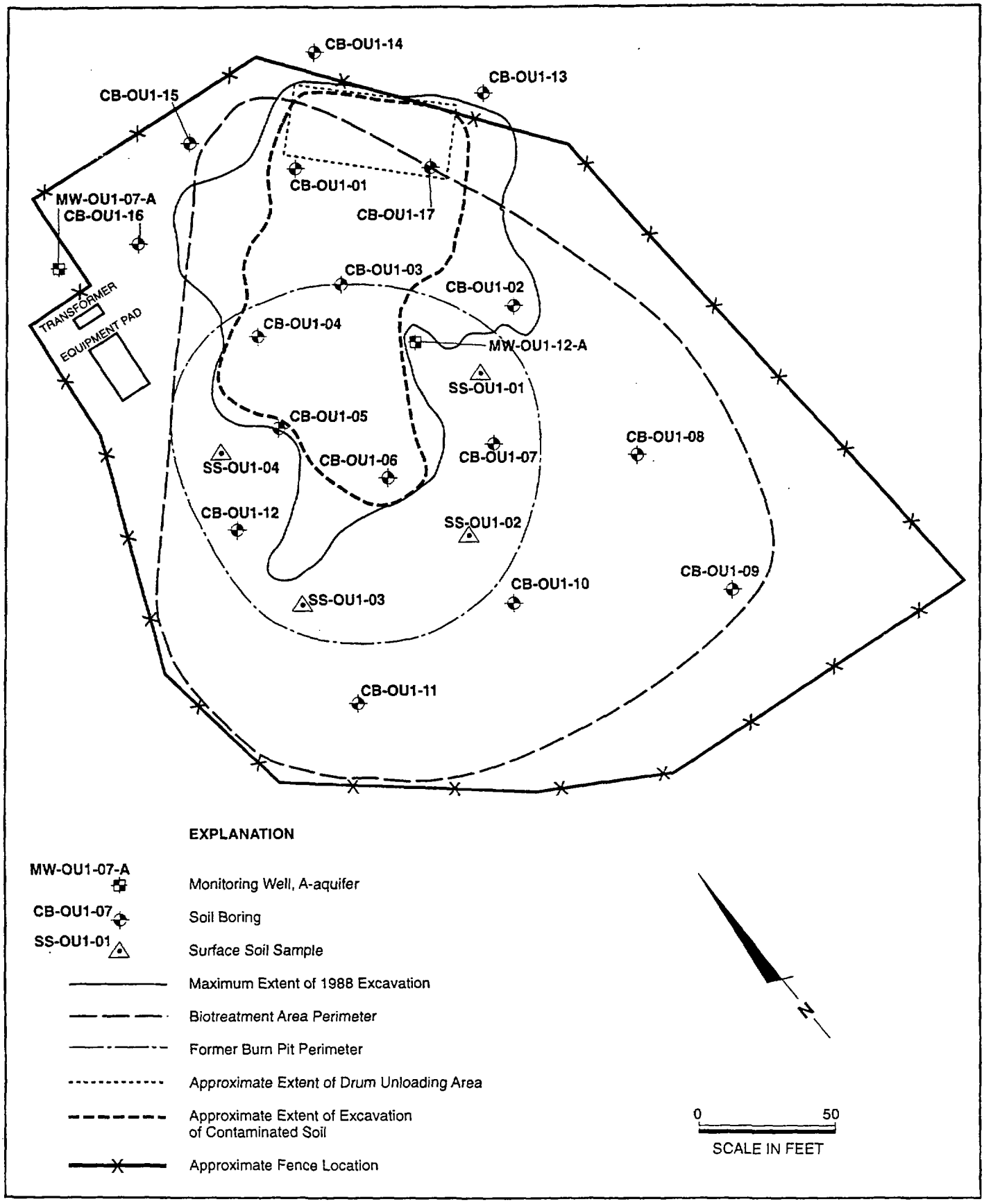
PLATE 4. CONFIRMATION BORING AND SURFACE SAMPLE LOCATIONS

Record of Decision
Operable Unit 1
Fort Ord, California



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APPENDIX

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS FOR THE SELECTED ALTERNATIVE

APPENDIX

CONTENTS

A1.0 ACTION-SPECIFIC ARARS 1

A2.0 CHEMICAL-SPECIFIC ARARS 3

A3.0 LOCATION-SPECIFIC ARARS 4

APPLICABLE OR RELEVANT AND APPROPRIATE REQUIREMENTS FOR THE REMEDY

The promulgated standards described below are action-, chemical-, and location-specific ARARS for the remedy. The standards described below are "applicable," or "relevant and appropriate," for groundwater remediation. These standards are designed to be protective of human health and the environment and to be technically achievable with existing analytical and treatment technologies.

A1.0 ACTION-SPECIFIC ARARS

Remedial action at OU 1 consists of an existing groundwater extraction and carbon adsorption treatment system, with surface reinfiltration of treated groundwater. Under this action, treated groundwater is reused; and onsite reuse does not require a water reclamation permit from the RWQCB. Treated water could also be used offsite for irrigation, subject to approval from the Monterey County Water Resources Agency; however, onsite reuse has been the only practice to date. To maximize the opportunity for effective management of treated water and minimize chemical concentrations in discharges, the Army will treat groundwater impacted with volatile organic compounds (VOCs) to Maximum Contaminant Level (MCL) concentrations or to method detection limits. These discharge limits were chosen for OU 1 after considering site-specific conditions, including the contaminants to be discharged and the designated beneficial uses of the receiving waters, available treatment technologies and cost, as discussed in the OU 1 Proposed Plan (*HLA, 1994d*).

A list of ARARs are discussed below:

- **National Pollutant Discharge Elimination System (NPDES) Permit (40 CFR 122)**
  NPDES substantive permit requirements must be met for effluent discharges to surface water. If a selected remedial action results in a discharge to surface waters, compliance with NPDES requirements must be achieved. However, at present, the existing GET system does not discharge directly to surface waters or storm drains.

- **National Primary and Secondary Ambient Air Quality Standards (NAAQS), 40 CFR 50**
  The federal Clean Air Act, 42 USCA 7401-7642 defines National Primary and Secondary Ambient Air Quality Standards (NAAQS), which are listed in 40 CFR 50. Under certain circumstances, these may be applicable; however, the Monterey Bay Unified Air Pollution Control District (MBUAPCD) requirements, if applicable, would be the standard because they are more stringent.

- **Monterey Bay Unified Air Pollution Control District (MBUAPCD) Regulation II (New Sources) and Regulation X (Toxic Air Contaminants)**
  The MBUAPCD regulates New Sources under requirements described in Regulation II, Rule 207, and restricts specific discharges of organic compounds to the atmosphere through remedial actions (such as fugitive odors from consolidation of waste and removal of organic compounds from groundwater) in accordance with Rule 1000 of the above-mentioned regulation. The MBUAPCD requirements may limit emissions of total and individual organic compounds on a site-specific basis and/or may require emission controls.

  Under Rule 207, emissions of most individual organic compounds are generally restricted to 25 lbs/day using Best Available Control Technology (BACT). In addition, the MBUAPCD regulates releases of certain identified or potential air toxics at levels determined to be "appropriate for review." In some cases, a Risk Assessment may be required. The MBUAPCD requirements would be ARARs for treatment of groundwater by methods generating emissions; however, the existing GET system using carbon adsorption does not generate emissions.

- **Health and Safety Standards for Management of Hazardous Waste, CCR Title 22, Divisions 4.5, Chapter 14, Article 9, Sections 66264.170-178**
  These standards apply to owners and operators who store hazardous waste for longer than 90 days in containers. They cover use and management of containers, containment, inspection, and closure. These standards are applicable to spent carbon drums that are stored at OU 1 awaiting offsite regeneration only if they contain hazardous levels of VOCs and exceed 90 days of storage.

- **Standards for owners and operators of hazardous waste treatment, storage, and disposal facilities sections, CCR Title 22, Division 4.5, Chapter 14, Article 16, 66264.600-603**
  Applies to owners and operators of facilities that treat, store, or dispose of RCRA hazardous waste in miscellaneous units. Covers environmental performance standards, monitoring, inspections, and post-closure activities. These standards are applicable to spent carbon drums that are stored at OU 1 awaiting offsite regeneration only if they contain hazardous levels of VOCs and exceed 90 days of storage.

  Adsorbents and other solid materials used for treatment of water containing VOCs, such as activated carbon, may contain levels of chemicals after use that are considered to be hazardous waste. Title 22 regulations pertaining to the treatment, storage, or disposal of such hazardous wastes will be applicable to the extent that wastes are managed on site.

- **Standards for owners and generators of hazardous waste treatment, storage, and disposal facilities, CCR Title 22, Chapter 14, Article 2, Section 66264.14**
  Owners and operators of hazardous waste treatment, storage, or disposal (TSD) facilities must prevent the unknowing entry of persons or livestock onto the active portions of the facility and warning signs must be posted.

- **Standards for owners and generators of hazardous waste treatment, storage, and disposal facilities, CCR Title 22, Chapter 14, Article 7, Section 66264.119.**
  This standard requires that certain notices may be placed in a deed.

- **Land Disposal Restriction, CCR Title 22, Chapter 18, Article 1, Section 66268.7**
  These restrictions requires laboratory analysis of wastes intended for landfill disposal to establish that the waste is not restricted from landfill disposal.

- **Standards Applicable to Generators of Hazardous Waste, CCR Title 22, Chapter 12 Article 3, Section 66262.34**
  Establishes standards for generators of hazardous waste. If hazardous waste is generated at the site, the substantive portions of these regulations will apply, such as labelling and manifesting waste prior to disposal. A generator may accumulate hazardous waste for 90 days or less.

- **Hazardous Material Release Response Plans and Inventory (Health and Safety Code, Division 20, Chapter 6.95; 19 CCR, Chapter 3, Subchapter 3): Emergency Response Actions**
  An emergency response plan (ERP) and inventory must be in place during remedial actions involving hazardous waste if carbon drums contain hazardous levels of chemicals.

- **Water Quality Control Plan, Central Coast Basin**
  The Basin Plan establishes numerical and narrative water quality standards. The Plan also contains requirements for implementation plans or action plans for attaining compliance with these standards. The requirements of the Basin Plan are applicable to groundwater remediation activities. Each Regional Board promulgates and administers a Water Quality Control Plan for ground and surface water basin(s) within its region. The State Board also promulgates statewide water quality control plans that the regional boards administer. The Plans establish water quality standards (including beneficial use designations, water quality objectives to protect these uses, and implementation programs to meet the

objectives) that apply statewide or to specific water basins.

Portions of the Central Coast Region Basin Water Quality Control Plan (*RWQCB, 1989*) are ARARs. The Basin Plan classifies groundwater based on beneficial uses. This classification is based on "data collected by the local agencies and/or dischargers regarding the quality and use of waters in their vicinity." The State Water Resources Control Board Resolution 88-63 is also incorporated into the Basin Plan to provide guidance for determining "sources of drinking water." Under this guidance, groundwater is generally considered to be potential drinking water unless it fails one or more of three criteria in Resolution 88-63 (discussed below).

- **State Water Resources Control Board Antidegradation Policy, Resolution No. 68-16**
  The State Water Resources Control Board's (SWRCB) Resolution No. 68-16 *Statement of Policy with Respect to Maintaining High Quality of Waters in California* is an ARAR if a discharge to high quality waters of the state occurs. Resolution 68-16 is not a 'zero discharge' standard but rather a statement that existing quality be maintained when it is reasonable to do so. Specifically, where any activities result in discharges to high quality waters, dischargers shall use the best practicable treatment or control of the discharge necessary to avoid pollution or nuisance and to maintain water quality consistent with maximum benefit to the people of the State. Discharges to high quality waters (outside the contaminated plume) will be treated to "nondetected" as measured by EPA Method 502.2. Discharges to water overlying the groundwater plume are not considered discharges to high quality water and will be treated to MCLs. Discharge levels (Table 1) were chosen for OU 1 considering site-specific conditions, including the contaminants to be discharged and the designated beneficial uses of the receiving water, available treatment technologies, and cost.

- **Sources of Drinking Water Policy, Resolution No. 88-63**
  This resolution specifies that all ground and surface water is an existing or potential source of drinking water unless TDS are greater than 3,000 ppm, the well yield is less than 200 gallons per day from a single well, or the groundwater is unreasonable to treat using best management practices or best economically achievable treatment practices. This resolution is applicable to OU 1. The resolution can be used to establish a general criteria for designating water use. Groundwater in the upper aquifer at the FDA site is not currently used for drinking water; however, the upper aquifer has been identified as having beneficial uses including domestic, agricultural, and industrial water supplies.

- **State Water Resources Control Board, Resolution No. 92-49, III.g.**
  Authorizes Regional Water Boards to ensure that dischargers are required to clean up and abate the effects of discharges in a manner that promotes attainment of either background water quality or the best water quality which is reasonable if background levels cannot be restored. This requirement is applicable to the aquifer cleanup levels. Cleanup to the MCLs or lower risk-based level satisfies this requirement.

- **Discharges of Waste to Land, CCR Title 23, Division 3, Chapter 15, Article 5, Sections 2550.4**
  This title regulates discharges of waste to land. Groundwater cleanup requirements under this chapter may be relevant and appropriate to the GET system operated at OU 1. Article 5 includes requirements for monitoring and cleanup. Cleanup to the MCLs or lower risk-based level satisfies the requirements.

A2.0 CHEMICAL-SPECIFIC ARARS

From the list of all chemicals detected at OU 1, chemicals of potential concern were identified in groundwater in the RI/FS (*HLA, 1986; 1987a, b*) and were used to identify ARARs and target cleanup levels for the FDA site. Chemicals of potential concern are listed in Table 1 of the main text.

- **National Primary Drinking Water Standards (40 CFR Part 141)**
  Chemical-specific drinking water standard MCLs have been promulgated under the Safe Drinking Water Act (SDWA). Drinking-water MCL goals (MCLGs) have also been promulgated under the SDWA. MCLGs above zero are considered chemical-specific ARARs under the NCP (40 CFR 300.430[e][2][i][B]). When MCLGs are equal to zero (which is generally the case for any chemical considered to be a carcinogen), the MCL is considered to be a chemical-specific ARAR, instead of the MCLG (40 CFR 300.430[e][2][i][C]). These requirements are considered relevant and appropriate.

- **California Safe Drinking Water Act, CCR Title 22, Division 4, Chapter 15, Articles 4, 5.5, and 8**
  California primary drinking water standards establish enforceable limits for chemicals that may affect public health or the aesthetic qualities of drinking water. However, only those State requirements that are more stringent than federal standards are ARARs.

  These requirements (State MCLs) are summarized in the RI/FS and Proposed Plan for OU 1.

- **Identification and Listing of Hazardous Wastes Title 22, CCR Chapter 11**
  The Cal/EPA identification and listing of hazardous wastes may be an ARAR if chemicals are identified at hazardous levels. Establishes and defines procedures and criteria for identification and listing of Resource Conservation and Recovery Act (RCRA) and non-RCRA hazardous waste. This ARAR is applicable if hazardous levels of chemicals are present.

A3.0 LOCATION-SPECIFIC ARARS

The following location-specific ARARs are considered for OU 1:

- **Fault Zone**
  Under 40 CFR 264.18a, new hazardous waste treatment, storage, or disposal (TSD) units are prohibited from being located within 200 feet of a geologic fault displaced in Holocene time. The FDA site is located within a seismically active region, but not near such a fault. Therefore, this regulation does not apply to the site.

- **Floodplain**
  Requirements under 40 CFR 264.18b state that a hazardous waste TSD facility should not be located within a 100-year floodplain unless it is design to prevent washout of any waste by a 100-year flood. The FDA site is not located within a 100-year floodplain; therefore 40 CFR 264.18b is not an ARAR.

- **Archaeological Areas**
  Remedial actions that may cause irreparable harm, loss, or destruction of significant artifacts are restricted under the National Historical Preservation Act (16 USC 469). The law requires action to recover and preserve such artifacts. The FDA site is not known to be located within a historically significant area. Therefore, this statute is not an ARAR.

- **Critical Habitat for Endangered Species**
  The Endangered Species Act of 1973 (16 USC 1531 et seq.) requires action to conserve endangered species and preserve or restore a critical habitat. The FDA site is not known to be a critical habitat for any endangered species; therefore, this statute is not an ARAR.

- **Coastal Zone**
  The Coastal Zone Management Act (16 USC 1451 et seq.) requires activities conducted within the coastal zone to be conducted in a manner consistent with the state-approved management program. The FDA is not within the coastal zone; therefore, this statute is not an ARAR.

- **Areas Affecting Streams or Rivers**
  The Fish and Wildlife Coordination Act (16 USC 661 et seq.) requires fish and wildlife to be protected if remedial actions modify the drainage channel or other features of the stream or river. No foreseeable remedial action at the FDA site would modify a drainage or other stream feature. Therefore, this statute is not an ARAR.

AGENCY COVER LETTERS

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

September 29, 1995

Commander
U.S. Army DLIFLC and POM (Fort Ord)
ATTN: ATZP-EP (Gail Youngblood)
Presidio of Monterey, CA, 93944-5006

Re: Fort Ord Superfund Site
Final ROD- Operable Unit 1
Fritzsche Army Airfield FDA

Dear Ms. Youngblood:

Attached is EPA's concurrence signature for the OU 1 ROD for the Fritzsche Army Airfield Fire Drill Area. Our concurrence is based on the draft final ROD dated June 7, 1995 and received at EPA on June 8, 1995. Under the terms of the Federal Facility Agreement for Fort Ord, the document became final on July 8, 1995.

It is our understanding that the final ROD has not been signed by the Army, pending some non-substantive changes in the ROD text. Please forward a copy of the proposed modifications to the ROD to John Chesnutt prior to signature.

If you have any questions about this issue, please contact John Chesnutt at (415)-744-2387.

Sincerely,

Julie Anderson

Julie Anderson
Director, Federal
Facilities Cleanup Office

Attachment: Signature Page of OU 1 ROD
cc: Mr. Jim Austreng. CA DTSC

Printed on Recycled Paper

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

Gail Youngblood Date
Acting BRAC Environmental Coordinator
Presidio of Monterey

U.S. Environmental Protection Agency

Julie Anderson 9/29/95
Julie Anderson Date
Director, Federal Facilities Cleanup Office
U.S. Environmental Protection Agency,
Region IX

California Environmental Protection Agency

Anthony J. Landis, P.E.
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

STATE OF CALIFORNIA—CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY

PETE WILSON, *Governor*

DEPARTMENT OF TOXIC SUBSTANCES CONTROL
REGION 1
10151 CROYDON WAY, SUITE 3
SACRAMENTO, CA 95827-2106

(916) 255-3545

May 9, 1996

Department of the Army
Commander, DLIFIC and POM (Fort Ord)
Attention: ATZP-EP (Ms. Gail Youngblood)
Presidio of Monterey, California 93944-5006

OPERABLE UNIT 1 RECORD OF DECISION, FORT ORD

Dear Ms. Youngblood:

This letter transmits four copies of the June 7, 1995 version of the Operable Unit One Record of Decision. Each of the copies contains a signature page with original signatures by Mr. Anthony Landis, of the Department of Toxic Substances Control and Mr. Roger Briggs, of the Central Coast Regional Water Quality Control Board. Upon signing by the United States Army, please return one copy with original signatures to me and one to Mr. Grant Himebaugh, of the Regional Water Quality Control Board. One copy should also be sent to Ms. Lida Tan, of the United States Environmental Protection Agency.

If you have any questions, please call me at (916) 255-3738.

Sincerely,

Daniel T. Ward

for William Kilgore
Project Manager
Office of Military Facilities

Enclosure

cc: Mr. Grant Himebaugh (w/o enclosure)
Regional Water Quality Control Board
Central Coast Region
81 Higuera Street, Suite 200
San Luis Obispo, California 93401-5414

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cc: Ms. Lida Tan (H-9-4) (w/o enclosure)
United States Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, California 94105