

# Chapter 10. Hazardous Substances, Waste, and Site Remediation

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## Affected Environment

### Data Sources

The information presented in this section is based on existing data and previous reports that apply to the proposed Hamilton wetland restoration site. Descriptions of hazardous materials investigations or cleanup are limited to areas of concern within the HAAF and SLC parcels. Possible sources of introduced hazardous substances from fill materials are also described.

DoD is preparing assessments for cleanup activities at HAAF through the Corps Sacramento District. The Corps has prepared and is preparing environmental assessments (EAs) for area-specific remediation plans.

DoD is also responsible for investigating and remediating toxic or hazardous substances in the SLC parcel through the Defense Environmental Restoration Program for Formerly Used Defense Sites (FUDS) (10 USC 2701 et seq.). Investigation and remediation activities are being performed through the Corps, and a draft work plan for investigation of known sites was ~~expected to be~~ submitted to regulatory agencies ~~in early June on~~ September 11, 1998. The field investigation is anticipated during mid-July 1998 (Call pers. comm.).

The primary sources of information about the HAAF parcel are the following:

- ◆ Comprehensive Remedial Investigation Report, BRAC Property, Hamilton Army Airfield, Novato, CA (U.S. Army Corps of Engineers 1998c) and
- ◆ Site Investigation Work Plan and Contractor Quality Control Sampling and Analysis Plan, North Antenna Field, General Services Administration, Hamilton Army Airfield, Novato, CA (IT Corporation 1998).

The primary source of information regarding potential introduction of hazardous substances from dredged materials, aside from the draft Hamilton Wetlands Conceptual Restoration Plan (Woodward-Clyde Consultants 1998), was the Oakland Harbor

## Regulatory Overview

Several federal and state agencies have regulations that govern the use, generation, transport, and disposal of hazardous substances. The principal federal regulatory agency is EPA. The primary state agency in California with similar authority and responsibility is the California Environmental Protection Agency (Cal-EPA), which may delegate enforcement authority to other local agencies that have agreements with Cal-EPA. Federal regulations applicable to hazardous substances are contained primarily in Titles 29, 40, and 49 of the Code of Federal Regulations (CFR). State regulations have been consolidated into CCR Title 26.

This subsection describes the governing agencies responsible for oversight and cleanup of hazardous substances at the HAAF and SLC sites and for determining the suitability of dredged material for use in wetland restoration at the project site.

### HAAF Parcel

The identification, decontamination, and disposal of hazardous waste at HAAF is regulated by the Resource Conservation and Recovery Act (RCRA); Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); CCR Titles 22 and 23; and all applicable or relevant appropriate requirements (ARARs). The Army is responsible for the cleanup process and is doing so with funding provided through BRAC (U.S. Public Law 100-526). Cal-EPA is the lead agency for regulatory enforcement and oversight of those cleanup activities; however, the Army also must submit findings to EPA and the San Francisco Bay RWQCB.

Any transfer of property must be accompanied by a Finding of Suitability for Transfer (FOST) issued by the Army. A FOST is issued when a property has been determined to be environmentally suitable for transfer. CERCLA Section 120(h)(3) identifies the requirements for environmental suitability.

Regardless of the assessment and cleanup methods used by the Army, the ultimate condition of contaminated areas of HAAF must comply with regulatory cleanup levels established on the basis of the reuse plan for the property. Under certain circumstances, a Finding of Suitability for Transfer can be issued for a property with ongoing remediation of previous contamination when CERCLA Section 120(h)(3) requirements have been met, the proposed land use (e.g., wetlands) is compatible with the environmental condition of the property, no additional public or environmental health risk exists, and issuing such a finding does not interfere with ongoing actions.

The BRAC parcel at HAAF is not on the National Priorities List of contaminated sites requiring cleanup. A decision was made to pursue a programmatic approach for fast-track cleanup based on EPA's Guidance on Conducting Time-Critical Removal Actions under CERCLA (U.S. Army Corps of Engineers 1998b). Non-contiguous sites (outparcels) that have been contaminated primarily by petroleum products will be cleaned up using a process recommended by the State Water Quality Control Board for the implementation of corrective action plans (CAPs) (23 CCR Chapter 16).

~~The BRAC parcel will be cleaned up under a fast-track sequence of regulatory phases.~~ The Army identified the nature and extent of contamination at the BRAC parcel during a series of assessments and investigations culminating in the Comprehensive Remedial Investigation Report (U.S. Army Corps of Engineers 1998c). Based on those investigations, site-specific removal actions during 1998 and 1999 will be used to clean up contamination to preliminary screening levels recommended by oversight regulatory agencies. A combination of confirmatory sampling, toxicity testing, and ecological and human health risk assessments will provide information used to determine final cleanup goals (remedial action objectives) in a focused feasibility study during 1999. It is intended that all remedial action required to meet those goals will be completed during the removal and confirmatory stages of fieldwork, leading to an environmental Record of Decision that does not require further work.

## **SLC Parcel**

The SLC parcel was owned by the Air Force and was operated as part of Hamilton Air Force Base until 1974. While the base was in active use by the Air Force, the parcel was used for a variety of purposes, including a rifle range, a pistol range, skeet shooting, fire-fighting training, and as a communication facility with a number of large antennae. Following the decommissioning of Hamilton Air Force Base, the State of California acquired the parcel and leased a portion of the rifle range to the City of Novato Police Department for small arms training.

Because ownership of the SLC parcel was transferred from DoD in 1974, environmental cleanup falls under the Formerly Used Defense Site (FUDS) program. The FUDS program, an element of the Defense Environmental Restoration program (DERP) (10 USC 2701 et seq.), requires remediation of contaminated sites consistent with CERCLA. The objective of the FUDS program is to reduce, in a timely, cost-effective manner, the risk to human health, safety, and the environment resulting from past DoD activities. Apportionment of liability for contamination associated with the subsequent property owner, or third parties, is addressed through the Potentially Responsible Party (PRP) component of the DERP FUDS process. The goal of the PRP process is to negotiate a fair and equitable settlement that represents DoD's responsibility for contamination at a property.

The SLC parcel is currently in the preliminary assessment/site investigation portion of the CERCLA process. This investigation includes the rifle range, which is a PRP site. Subsequent investigation of the SLC parcel will be conducted, if necessary, during a remedial investigation. It is currently planned to adopt remedial cleanup values developed

for the HAAF parcel because of the similarity in contaminants, geology, and anticipated future land use. An interim removal action is planned at the conclusion of the site investigation. This interim removal action will include the rifle range if PRP negotiations have resulted in a settlement. After a Record of Decision is agreed to by DoD and federal and state regulators, any remaining cleanup will be conducted.

## **Chemical Suitability of Dredged Material**

In the San Francisco Bay region, a consortium of regulatory agencies has been established to address the long-term management of disposal of dredged materials from the bay. The LTMS Agencies, comprising the Corps, EPA, Cal-EPA, the San Francisco Bay RWQCB, BCDC, and SLC, have established a Dredged Material Management Office (DMMO) that evaluates dredged materials and makes recommendations on their chemical and biological suitability for reuse in wetlands based on testing specific to the proposed site environment, using criteria from federal and state laws and guidance documents.

Regional testing guidelines for dredged material are provided by the LTMS Agencies in Public Notice 93-2, Testing Guidelines for Dredged Material Disposal at San Francisco Bay Sites, issued by the Corps' San Francisco District. RWQCB criteria for determining the chemical suitability of dredged material for use in tidal and seasonal wetland restoration projects, upland habitat creation, and other upland uses are contained in Interim Sediment Screening Criteria and Testing Requirements for Wetland Creation and Upland Beneficial Reuse (Wolfenden and Carlin 1992).

## **Source Areas of Hazardous Substances and Waste**

This subsection describes the areas where previous operations or activities generated hazardous wastes at portions of the HAAF and the SLC parcels that are within the proposed Hamilton wetland restoration area. The contaminants identified and the current remedial status of the sites are described. This subsection also describes the quality of dredged sediments from various locations that have been proposed as source areas for fill material to create the wetlands under Alternative 3 or 5.

### **Hamilton Army Air Field**

The type and source of contamination at each site and the status of investigation and remediation activities are summarized in Table 10-1. (U.S. Army Corps of Engineers 1998c.)

**Table 10-1.**  
**Summary of Contaminated Areas at HAAF**  
**within the Proposed Wetland Restoration Area**

Site Name/ Former Use	Identified Contaminants	Status
Airfield UST/AST sites	TPH-ext, BTEX, PNAs, lead, PCBs	Tanks removed, soil removal in 1998
Aircraft maintenance and storage facility (AMSF)	TPH-ext, BTEX, PNAs, lead, PCBs, VOCs	Transformer and soil removal in 1998
Former transformer sites	PCBs, TPH-ext	Transformers removed, pad and soil removal in 1998
Former sewage treatment plant (FSTP)	TPH-ext, BTEX, PNAs, VOCs, PCBs, pesticides, metals	Treatment units removed, remove soils, decommission pipelines in 1999
Pump station area UST/AST-6,7	TPH-ext, BTEX, lead, PNAs	UST removed, ASTs in use, soil removal in 1999
Former boat dock levee transformer	PCBs	Pad and soil removal in 1998
East levee generator/AST pad	TPH-ext, PCBs, metals	Generator and tanks removed, pad and soil removal in 1998
East levee construction debris disposal area burn pit	TPH-ext, BTEX, lead, PNAs, PCBs, pesticides	Soil removal, habitat mitigation in 1999
Coastal salt marsh sediment	Lead, PCBs, PNAs, TPH-ext, pesticides	Toxicity testig in 1998, sediment removal and habitat mitigation in 1999
Perimeter drainage ditch sediments (PDD) and ditch maintenance spoils piles	PNAs, PCBs, metals, pesticides, herbicides	Sediment and spoils removal in 1998
Revetment area turnouts	Metals, PNAs, TPH-ext	Toxicity testing, risk management decision in 1998
Revetment burn area	PCBs, TPH-ext, TPH-purg, PNAs	Pavement and soil removal in 1998
Onshore fuel line	TPH-ext, BTEX, PNAs	Fuel line removed, risk management decisions in 1998

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Notes: AST = aboveground storage tank.  
SVOC = semivolatile organic compound.  
BTEX = benzene, toluene, ethylbenzene, and xylenes.  
TPH = total petroleum hydrocarbons.  
MEK = methyl ethyl ketone.  
VOC = volatile organic compound.  
PCB = polychlorinated biphenyl.  
PNA ≡ polynuclear aromatic hydrocarbons.

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Source: U.S. Army Corps of Engineers 1996a.

## SLC Parcel

Assessment and investigation of the potential contamination in the SLC parcel has yet to be performed. Based on information provided by the Corps, potentially contaminated sites include a rifle range, a former firefighting facility, a pistol range, a night firing range, transformers, miscellaneous aboveground fuel storage tanks and underground storage tanks (USTs), and several unexploded grenades (unexploded ordnance) are present on this parcel (Call pers. comm.).

## Sediment Quality

An estimated 5,000–40,000 tons of contaminants, comprising at least 65 types of materials, are deposited in San Francisco Bay annually. These contaminants include trace elements such as copper, nickel, silver, zinc, and synthetic organic compounds (e.g., organochlorine pesticides, polychlorinated biphenyls [PCBs], and polynuclear aromatic hydrocarbons). The contaminants originate with numerous industrial, agricultural, natural, and domestic activities and reach the estuary through various means, such as river flow, storm drains, discharges from maritime vessels, and disposal of dredged materials. Many persistent contaminants become bound to particulate matter and accumulate in areas of sediment deposition. Once these contaminants enter the bay and estuary, their fate is determined by a combination of physical, chemical, and biological processes (U.S. Army Corps of Engineers 1994b).

The processes of dredging and disposing of dredged materials in San Francisco Bay or in nonaquatic environments such as the proposed project site may disturb and redistribute contaminants that have been buried or otherwise sequestered in the sediments. These contaminants, once disturbed, may become biologically available in sediments and water at the site and exert toxic effects upon organisms that come in contact with them. The behavior of contaminants associated with sediments is difficult to predict but is influenced by temperature, amount of oxygen available, degree of acidity, sediment organic carbon content, salinity, and biological activity. The specific characteristics of each environment in which sediments are deposited will determine the mobility and toxicity of the contaminants and, in turn, the way in which those contaminants can affect organisms.

It is not possible to identify the specific dredged materials that would be deposited at the proposed project site. However, the following potential sources of dredged material have been identified:

- ◆ routine maintenance dredging projects,
- ◆ Port of Oakland 50-foot project,
- ◆ Concord Naval Weapons Station deepening,
- ◆ Southhampton Shoal deepening, and
- ◆ Redwood City Harbor deepening.

Each dredging project requires a dredging permit, and the quality of sediments is reviewed as part of each permit application by the RWQCB, EPA, and, for nonfederal projects, the Corps. Sufficient data are available to identify, in general terms, the chemical constituents that may be present in dredged sediments from the various potential source locations around the bay. (U.S. Army Corps of Engineers 1994b.)

As stated previously, the suitability of dredged material for the project site will be determined through the existing testing and suitability framework used by the state and federal agencies charged with approving disposal of material dredged from San Francisco Bay through the DMMO. The agencies require dredging project applicants to sample and test sediments proposed to be dredged for chemical constituents of concern and for toxicity, using protocols acceptable to the agencies. The adequacy of the sampling and testing is evaluated by the DMMO, which then reviews the test results to evaluate the acceptability of the dredged material for disposal at proposed sites in the bay, ocean, wetland, or upland environments.

To aid in determining the suitability of dredged material for use in wetland environments, the RWQCB has developed guidelines, known as the Wolfenden and Carlin guidelines (Wolfenden and Carlin 1992), that identify acceptable contaminant levels for use in wetland projects. The DMMO will use these guidelines to assess any dredged material proposed for use at the project site. Although the Wolfenden and Carlin document specifies slightly differing guidelines for "cover" material (which can be used anywhere in a wetland) and "noncover" material (which needs to be properly buried), only material appropriate for "cover" as determined by the DMMO will be accepted for use at the project site. Separate tests for contaminant leaching are used to evaluate the acceptability of material for upland disposal. Only material found suitable by the DMMO will be used as part of the upland components of the project.

## **Environmental Consequences and Mitigation Measures**

### **Approach and Methods**

The approach and methods used to evaluate hazardous substances, waste, and site remediation consisted of reviewing available reports regarding contaminants present at the site. In addition, data were reviewed regarding contaminant concentrations in potential dredged material proposed for reuse at the site. Potential impacts on public health from the release of onsite or imported contaminants were reviewed, including an assessment of toxicity and potential exposure pathways.

## Thresholds of Significance

According to Appendix G of the State CEQA Guidelines, professional criteria and judgment, and applicable regulations and plans, the wetland restoration project could result in a significant impact if it would:

- ◆ create a potential public health hazard or
- ◆ involve the release of onsite contaminants or imported contaminants that pose a hazard to human, animal, or plant populations in the area affected.

## Impacts and Mitigation Measures of Alternative 1: No Action

No new impacts related to hazardous waste would occur under Alternative 1. Regardless of final disposition of the proposed project site, identification, decontamination, and disposal of hazardous waste must be performed by DoD in accordance with all appropriate local, state, and federal regulations. The required level of remediation, however, may vary based on the selected final use of the project area.

No impacts associated with sediment quality would occur because no dredged material would be imported onto the HAAF or SLC parcels.

## Impacts and Mitigation Measures Common to Alternatives 2, 3, 4, and 5

### **Impact 10.1: Potential Exposure of Humans, Plants, or Wildlife to Contaminants as a Result of Remediation Activities for the Proposed Action**

The Army is required to perform appropriate cleanup of all hazardous waste sites located in the HAAF and SLC parcels in accordance with RCRA, CERCLA, CCR Titles 22 and 23, and all ARARs. Cal-EPA is the lead agency for regulatory enforcement and oversight of cleanup activities; however, the Army also must submit findings to EPA and the RWQCB.

Regardless of the assessment and cleanup methods used by the Army, the ultimate condition of contaminated areas at HAAF must meet regulatory cleanup requirements established in the reuse plan for the property. The Army is currently performing remedial activities at HAAF, with wetlands the presumptive future use (Eberline and Zianno pers. comms.). Under certain conditions, the property may be suitable for transfer as wetlands with ongoing remediation of previous contamination. However, these conditions include the stipulation that no additional public or environmental health risk exists.

The SLC parcel is regulated under the FUDS program. The Army is required to investigate and remediate identified toxic or hazardous substances to reduce the risk of exposure to humans and prevent ecological degradation.

Because of the cleanup requirements discussed above, the potential to expose humans, plants, and wildlife to contaminants is considered less than significant.

## **Impacts and Mitigation Measures Unique to Alternative 2**

No impacts and mitigation measures are unique to Alternative 2.

## **Impacts and Mitigation Measures Unique to Alternative 3**

### **Impact 10.2: Potential Exposure of Humans, Plants, or Wildlife to Hazardous Chemicals Contained in Dredged Material Used as Fill Material**

The process of dredging material from various sources and placing these materials to expedite creation of wetlands may disturb and redistribute contaminants that have been buried or otherwise sequestered in the sediments. These contaminants, once disturbed, may become biologically available in sediments and water while being deposited at the site and may exert toxic effects on organisms that come in contact with them. Extensive sediment screening will be conducted in accordance with the interim screening criteria for sediment established by the RWQCB in 1992. These sediment screening and testing requirements were developed specifically for projects using sediments for "wetlands and upland beneficial reuse".

Two types of material may be placed at upland/bayland sites and used for wetland creation or restoration, based generally on the concentration of particular contaminants and the results of bioassays:

- ◆ **Cover sediments** are those that would pass leaching and bioassay tests and contain certain contaminants at concentrations less than those specified in the RWQCB's interim screening criteria. The interim screening criteria are shown in Table 10-2 and compared to average levels of the same contaminants in the bay. Cover material must comply with the RWQCB's criteria for aquatic, wetland, and upland disposal. Cover material can be used in wetland creation and restoration areas, for levee construction, and for covering noncover material.
- ◆ **Noncover sediments** are those that pass leaching tests and have contaminant concentrations that exceed criteria for cover material, but do not exceed the less-stringent criteria for noncover material. Noncover material must be covered on the top and sides by a minimum of 3 feet of cover material or material native to the site.

**Table 10-2.**  
**Interim Screening Criteria**

Constituent	Nonaquatic Criteria <sup>a</sup>		San Francisco Bay Reference Sediments <sup>b</sup>
	Noncover (mg $\mu$ g/kg)	Cover (mg $\mu$ g/kg)	Average (Range) (mg $\mu$ g/kg)
Arsenic (As)	85 - 33	<33	--
Cadmium (Cd)	9 - 5	<5	0.25 (0.12 - 0.74)
Chromium (Cr)	300 - 220	<220	76 (61 - 87)
Copper (Cu)	390 - 90	<90	45 (22 - 124)
Lead (Pb)	110 - 50	<90	39 (8 - 110)
Mercury (Hg)	1.3 - 0.35	<0.35	--
Nickel (Ni)	200 - 140	<140	76 (62 - 90)
Selenium (Se)	1.4 - 0.7	<0.7	--
Silver (Ag)	2.2 - 1.0	<1.0	0.60 (0.10 - 1.16)
Zinc (Zn)	270 - 160	<160	112 (77 - 137)
PCBs	0.4 - 0.05	<0.05	--
Pesticides (Total DDT)	0.1 - 0.003	<0.003	--
PAHs (Total)	35 - 4	<4	--
PAHs (lmw)	NA		--
PAHs (hmw)			--

Notes:  $\mu$ g = microgram.

kg = kilogram.

PAHs = polynuclear aromatic hydrocarbons.

lmw = low molecular weight.

hmw = high molecular weight.

The reference sediment levels are baywide combined averages and ranges based on data from fall 1991 in dry weather.

<sup>a</sup> Source: Wolfenden and Carlin 1992.

<sup>b</sup> Source: Taberski and Carlin 1992.

Because the proposed Hamilton wetland restoration project would make use of only cover-quality dredged material that satisfies the interim cover criteria, this impact is considered less than significant and no mitigation is required. Noncover sediments are not proposed to be used.

### **Impacts and Mitigation Measures Unique to Alternative 4**

No impacts and mitigation measures are unique to Alternative 4.

### **Impacts and Mitigation Measures Unique to Alternative 5**

Impacts and mitigation measures under Alternative 5 are the same as those described for Alternative 3.

## **Potential Issues and Resolutions under the Bel Marin Keys V Scenario**

Potential issues and resolutions under the BMKV Scenario are similar to the impacts and mitigation measures common to Alternatives 2, 3, 4, and 5 and those unique to Alternative 3.