



# Proposed Plan for Installation Restoration Site 25 Soil Former NAS Alameda

# BRAC PMO

Alameda, California

August 2006

## U.S. NAVY ANNOUNCES PROPOSED PLAN

The U.S. Navy requests public comments on the proposed second and final phase of the response action for soil at Installation Restoration (IR) Site 25, located on the former Naval Air Station (NAS) Alameda on Alameda Point (Figure 1). The U.S. Environmental Protection Agency (EPA), the Department of Toxic Substances Control (DTSC), and San Francisco Bay Regional Water Quality Control Board (RWQCB) worked with the Navy in the evaluation of alternatives and in the selection of the preferred alternative.

This Proposed Plan announces the Navy's preferred alternative for the second and final phase of the response action addressing soil at Site 25, where polynuclear aromatic hydrocarbons (PAHs)\* are the site contaminants. These PAHs are not related to a Navy release, but appear to be associated with fill at the site that was placed there prior to the Navy obtaining the property. The United States Coast Guard (USCG) North Village Housing, Estuary Park, and USCG Housing Maintenance Office are located on Site 25. USCG North Village Housing is no longer occupied, but the USCG Housing Maintenance Office is still at Site 25.

To protect the public and residents, the Navy completed two removal actions at Site 25. The Navy removed over 66,700 cubic yards of PAH-contaminated soil across about 26 acres where the PAH concentrations were the highest. Post-removal evaluations of the soil testing results show that there is no immediate risk to children or adults in these areas. The Navy proposes the preferred alternative of

institutional controls (ICs) as the second phase of the response action and the final remedy, which will secure the site and will address potential long-term risks.

This Proposed Plan summarizes the alternatives evaluated per the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and explains the basis for choosing the preferred alternative.



Figure 1. Former NAS Alameda Location

**- NOTICE -**

**Public Comment Period**

**August 21 through  
September 20, 2006**

**Public Meeting**

**September 12, 2006**

**Alameda Point  
Main Office Building, Room 201  
950 West Mall Square  
Alameda, California**

**6:30 to 8:00 p.m.**

## THE CERCLA PROCESS

The Navy is issuing this Proposed Plan as part of its public participation responsibilities under Section 117(a) of CERCLA and Section 300.430(f)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). The flowchart to the right illustrates the current status of Site 25 in the CERCLA process.

This Proposed Plan summarizes information detailed in the remedial investigation (RI) and feasibility study (FS) reports and other documents contained in the administrative record file for this site. The Navy encourages the public to review these documents to gain an understanding of the environmental assessment and investigation activities that have been conducted. The documents are available for public review at the locations listed on page 10.

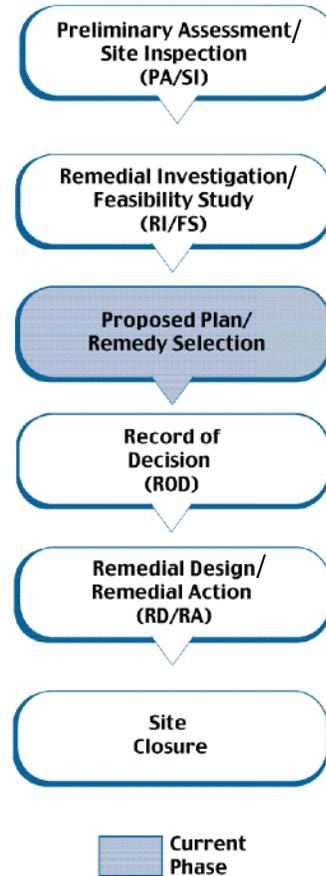
A public comment period will be held from August 21, 2006 through September 20, 2006, and public comments can be submitted via mail, fax, or e-mail throughout the period. A public meeting will be held on September 12, 2006 at Alameda Point, 950 West Mall Square, Room 201 from 6:30 to 8:00 p.m. Members of the public may submit written and oral comments on this Proposed Plan at the public meeting. Comments must be provided no later than September 20, 2006.

In consultation with the regulatory agencies, the Navy may modify the preferred alternative or select another alternative remedy based on feedback from the community or on new information. Therefore, the community is strongly encouraged to review and comment. A final decision will not be made until all comments are considered.

## SITE DESCRIPTION AND BACKGROUND

The former NAS Alameda is located on Alameda Point (Figure 1) and ceased operations in 1997. Site 25 is located on the northeastern corner of Alameda Point. Housing was the historical land use. As shown in Figure 2 (next page), Site 25 includes the USCG North Village residential housing area (Parcel 181), Estuary Park (Parcel 182), and USCG Housing Maintenance Office (Parcel 183). USCG residential housing is vacant. There is some industrial/recreational/open space in the Estuary Park area. The Site 25 planned future use is for housing.

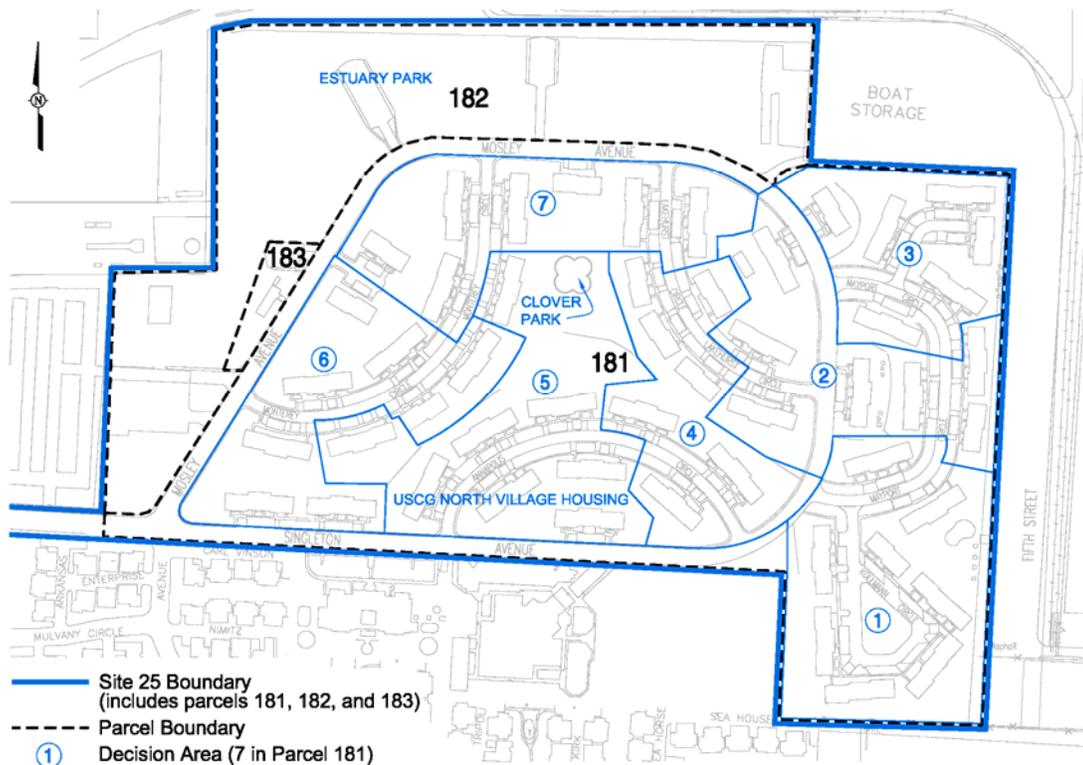
## COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION AND LIABILITY ACT (CERCLA) PROCESS



This Proposed Plan addresses the second phase of the Navy's response action, which is the final remedy for soil at Site 25. Site 25 was previously referred to as Operable Unit 5 (or OU-5) in some reports, including the RI and FS reports. Based on input from EPA and to avoid confusion, the soil remedy for this site is now referred to as Site 25 soil, and the groundwater remedy for Site 25 and other adjacent areas is referred to as Operable Unit 5/IR-02 groundwater.

Alameda Point is relatively flat land created by filling tidelands, marshlands, and sloughs between Oakland Inner Harbor and the western tip of Alameda Island. The fill largely consisted of dredge from the surrounding San Francisco Bay, Oakland Inner Harbor, and Seaplane Lagoon.

From the late 1800s until the 1920s, two gas plants, an oil refinery, and other manufacturing businesses were located near the present-day site. These facilities may have discharged gas plant and refinery wastes along the sides of



**Figure 2. Site 25 Layout**

tidal channels and on the surface of marshlands. As the marshlands and intertidal areas were filled in, discharged gas plant and refinery wastes became entrapped, creating what is now referred to as the Marsh Crust. This Marsh Crust layer consists of entrapped petroleum wastes that contain PAHs (i.e., the byproducts of incomplete combustion from refinery and coal gasification processes).

Subsequent filling actions have buried the Marsh Crust at depths ranging from 8 to 20 feet below ground surface (bgs). The fill material itself, i.e., the material that overlies the Marsh Crust, consists mostly of dredged sediment from the Oakland Inner Harbor. This sediment contains deposits of similar waste materials to that forming the Marsh Crust, and these deposits appear to have originated from the coal gasification plants, several of which were historically located in what is now Jack London Square. As the sediment was dredged and used as fill on Alameda Point, the contaminants from the sediment were spread throughout the filled areas. There are clear trends that show that the areas filled first, i.e., Estuary Park and the northern portion of Site 25 North Housing, exhibit higher levels of PAH contamination, which stands to reason as the sediment dredged first had the highest levels of deposited PAH contamination. It is important to distinguish that the Marsh Crust is not the

source of the PAH contamination found in the upper artificial fill, and that the presence of PAHs in the soil at Site 25 is not due to “upward migration” of Marsh Crust contaminants.

The Site 25 fill history shows that the fill was in place by 1930, and most of the fill, particularly in the northern part of the site, was in place by 1919. The Navy acquired NAS Alameda in 1936. Aerial photographs show that the Site 25 area, which was not then part of NAS Alameda, was developed as housing in the 1940s. These houses remained through the mid-1960s. The Navy acquired the Site 25 area in two separate transactions in 1966 and 1968 for the purpose of housing. The majority of the site was acquired in April 1966. The eastern part of the site was acquired in March 1968. The Navy constructed housing at Site 25 in 1969.

## SITE INVESTIGATIONS

A comprehensive soil RI was performed in 2001 to expand upon previous investigations. It included the collection of subsurface soil, groundwater, and soil gas samples at Site 25. Analysis for several possible contaminants, including polychlorinated biphenyls (PCBs), pesticides, metals, and volatile organic compounds, was conducted.

During the soil RI, Parcel 181 was further divided into seven decision areas (DAs) as

shown on Figure 2. As summarized in the FS, these DAs were identified as having distinct and different patterns in the distribution of PAHs. A statistical analysis was used to group data into areas that had the same range of PAH concentrations, balanced with neighborhood boundaries. These DAs were used during the 2001 and 2002 removal of the soil containing the highest PAH concentrations and to provide conservative estimates of potential human-health risks.

The RI identified PAHs as the contaminants of concern in soil. Metals are naturally occurring, and no localized areas of metals concentrations were found that would indicate a Navy source. This is consistent with the historical use of the site for housing. The RI report concluded that metals were found at concentrations consistent with background levels.

## COMPLETED REMOVAL ACTIONS

As the first phase of the response action for soil at Site 25, the Navy conducted two soil removal actions to remove soil from areas with the highest concentrations of PAHs and the greatest likelihood for human exposure. In 2000, the Navy removed PAH-contaminated soil from the Clover Park area of Site 25 to a depth of 4 feet below surface to eliminate potential exposure to children playing in the park. The park is a clover leaf-shaped play area, approximately 45 by 45 feet, edged by a concrete berm and filled with imported sand.

Based on the results of the 2001 RI, the Navy conducted another soil removal during 2001 and 2002 for Estuary Park and several housing areas (Parcel 181 DAs 4, 5, and 7 and all of Parcels 182 and 183). Removal involved excavation of 66,763 cubic yards of soil to a depth of 2 feet below surface in unimproved (soil-covered) areas and offsite disposal of this soil.

An excavated depth of 2 vertical feet was selected because it would protect the residents, did not interfere with utilities located at 3 feet and below, and was not cost prohibitive. A 1.8 milligrams per kilogram (mg/kg) action level for PAHs was used as a value to identify the DAs that most needed the soil removal. Removal was conducted in DAs 4, 5, and 7 and Parcels 182 and 183 because these areas had the greatest number of samples with concentrations of PAHs over 1.8 mg/kg in the upper 2 feet of soil. The removal action excavated all soil in the upper 2 feet of areas

without hardscape for DAs 4, 5, and 7 and Parcels 182 and 183, including soil with PAH concentrations below 1.8 mg/kg. The excavated areas were backfilled with clean imported fill. Following this removal action, the PAH concentrations in soil from the upper 2 feet across all undeveloped (non-paved) areas of Site 25 was calculated to have an average PAH equivalent value of 0.4 mg/kg. Post-removal evaluations show that there is no immediate risk to children or adults, and soil to a depth of 4 feet is protective of human health.

## RISK ASSESSMENT

Within the context of environmental investigations and actions, "risk" is the likelihood or probability that a hazardous substance, when released to the environment, will cause adverse effects on exposed human or other biological receptors. Risk is further classified as carcinogenic (causes cancer) or non-carcinogenic (causes other illnesses).

A human health risk assessment (HHRA) was performed for Site 25 that included multiple and comprehensive exposure pathways including consumption of homegrown produce. Chemicals were compared to EPA and DTSC criteria to identify which chemicals were likely to be of concern, and PAHs in the soil were identified.

Risk assessments are designed to provide a margin of safety to protect public health and the environment by using conservative assumptions that assure risks are not underestimated. Actual human exposures and associated risks are likely to be less than those calculated for the risk assessment because each input value is conservative and the site is assumed to be unpaved.

The Navy used EPA guidance to evaluate the different ways that people might be exposed to the chemical, the possible concentration of the chemical that potentially could be encountered in those exposures, and the potential frequency and duration of exposure. Exposure pathways and potential receptors (i.e., who may be at risk) for Site 25 soil are shown in Table 1.

**Table 1. Exposure Pathways for Potential Future Human Receptors**

### Soil Pathways

- Direct contact with soil (ingestion, inhalation of dust, and dermal absorption) for all receptors
- Consumption of home-grown produce for future residents

These exposure pathways are based on current and reasonable future exposure scenarios. To account for uncertainty, and to be representative, the risk calculations use statistical methods and a reasonable maximum exposure to assure that risks are not underestimated.

The likelihood of any kind of cancer resulting from exposure to chemicals is generally expressed as an upper bound probability. For example, a 1 in 10,000 chance is a risk of  $1 \times 10^{-4}$ . In this case, for every 10,000 people, one additional cancer case may occur as a result of exposure. A 1 in 1,000,000 chance is a risk of  $1 \times 10^{-6}$ . In this case, for every 1,000,000 people, one additional cancer case may occur as a result of exposure. In accordance with EPA guidance, the risk management range is  $10^{-4}$  to  $10^{-6}$ . The risk management range was established by EPA to set guidelines for making risk management decisions.

For non-cancer effects, a hazard quotient (HQ) is calculated. An HQ of 1 or greater indicates that a lifetime of exposure may have potential for causing adverse health effects. The HQ is based upon effects of a single chemical. For multiple chemicals, the HQs are added together to obtain the hazard index (HI). As a useful reference for assessing health effects, the HI is commonly used to express health effects of chemical mixtures.

EPA guidance states "Where the cumulative carcinogenic site risk to an individual based on reasonable maximum exposure for both current and future land use is less than  $10^{-4}$  and the non-carcinogenic HQ is less than 1, action generally is not warranted unless there are adverse environmental impacts. However, if [maximum contaminant levels] MCLs or non-zero [maximum contaminant level goals] MCLGs are exceeded, action generally is warranted." Site-specific factors are typically considered at sites where the cancer risks are in the  $10^{-4}$  to  $10^{-6}$  range when decisions are being made about whether action will be taken. Cancer risks below  $10^{-6}$  are generally considered insignificant. For cancer risks above the risk management range of  $10^{-4}$  to  $10^{-6}$ , action is generally required.

### **Cancer Risk for Soil**

The Navy removed the upper 2 feet of soil in Parcel 181 in DAs 4, 5, and 7 and all of Parcels 182 and 183 and replaced it with clean soil.

Risks for these areas were recalculated using the concentration data from the fill material. Using a residential scenario, all human receptors were evaluated for direct contact exposure with soil, and the future residents' evaluation included exposure through ingestion of homegrown produce (see Table 2, next page).

Table 2 presents the estimated PAH risk values for soil in each DA where soil was previously removed and replaced with clean soil. Table 3 presents the estimated PAH risk values for soil in each DA for the areas where soil was not previously removed.

For DAs 4, 5, and 7 and Estuary Park (Parcels 182 and 183), which were subject to the previous soil removal, the cancer risk from soil exposure ranged from  $2 \times 10^{-7}$  to  $1 \times 10^{-4}$  for depth intervals to 4 feet below surface. These risks are lower than or within the risk management range. For DA 7 and Estuary Park (Parcels 182 and 183), the soil below a depth of 4 feet exceeds the risk management range and has an HI greater than 1.

The risks associated with exposure to PAHs in the upper 2 feet in the post-removal areas are based on samples collected from the imported clean fill, and the cancer risks are consistently  $2 \times 10^{-7}$ . These cancer risks are below  $10^{-6}$  and are considered insignificant. In the upper 2 feet in the post-removal areas, the HI was 0.0003 for non-cancer risk, which is well below the 1.0 HI that indicates a potential for causing adverse health effects.

The risk assessment for Parcel 181 DAs 1, 2, 3, and 6 that were not subject to the soil removal had a cancer risk for all depths (to 8 feet below surface) ranging from  $9 \times 10^{-6}$  at DA 1 to  $9 \times 10^{-5}$  at DA 6 (Table 3). The non-cancer HI was below 1.0 for all locations.

The maximum risk from exposure to PAHs in soil of  $9 \times 10^{-5}$  (non-removal areas) and  $8 \times 10^{-4}$  (removal areas) is for exposure to soil at depths below 4 feet at DAs 6 and Parcels 182/183. Since the maximum soil risks are localized in these areas and below a depth of 4 feet, exposure to residents is considered unlikely.

The estimated risks associated with soil for Site 25 have a high level of confidence based upon extensive soil samples (greater than 600) and the evaluation of comprehensive exposures including ingestion of home-grown produce and ingestion of soil for 350 days per year for 30 years. This process assures that the risks

**Table 2. Estimated Cancer Risk and Non-Cancer Hazard for Soil Removal Areas**

Soil	Values Calculated by EPA Methods	
	Depth Interval (feet bgs)	Cancer Risk (PAH)
<b>Decision Area 4</b>		
0-2*	$2 \times 10^{-7}$	0.0003
0-4	$3 \times 10^{-5}$	0.04
0-8	$4 \times 10^{-5}$	0.05
<b>Decision Area 5</b>		
0-2*	$2 \times 10^{-7}$	0.0003
0-4	$6 \times 10^{-5}$	0.08
0-8	$6 \times 10^{-5}$	0.07
<b>Decision Area 7</b>		
0-2*	$2 \times 10^{-7}$	0.0003
0-4	$4 \times 10^{-5}$	0.08
0-8	$3 \times 10^{-4}$	2
<b>Parcels 182 and 183</b>		
0-2*	$2 \times 10^{-7}$	0.0003
0-4	$1 \times 10^{-4}$	0.3
0-8	$8 \times 10^{-4}$	1

\* new, imported soil

**Table 3. Estimated Cancer Risk and Non-Cancer Hazard for Non-Removal Areas**

Soil	Values Calculated by EPA Methods	
	Depth Interval (feet bgs)	Cancer Risk (PAH)
<b>Decision Area 1</b>		
0-2	$1 \times 10^{-5}$	0.02
0-4	$9 \times 10^{-6}$	0.02
0-8	$9 \times 10^{-6}$	0.02
<b>Decision Area 2</b>		
0-2	$4 \times 10^{-5}$	0.05
0-4	$6 \times 10^{-5}$	0.07
0-8	$6 \times 10^{-5}$	0.08
<b>Decision Area 3</b>		
0-2	$2 \times 10^{-5}$	0.02
0-4	$1 \times 10^{-5}$	0.01
0-8	$7 \times 10^{-5}$	0.04
<b>Decision Area 6</b>		
0-2	$3 \times 10^{-5}$	0.04
0-4	$4 \times 10^{-5}$	0.06
0-8	$9 \times 10^{-5}$	0.1

are not underestimated, and in fact, tend to overestimate actual health risks. Because of the high confidence level and extensive site characterization, risks within the risk management range are protective of human health for the residential exposures at Site 25.

### Non-Cancer Risk for Soil

All non-cancer HI values were equal to or less than 1.0 except for a value of 2.0 from the 0- to 8-foot interval at DA 7 (Tables 2 and 3).

ICs will address the potential impacts in this case (see Table 4, next page).

### ECOLOGICAL RISK ASSESSMENT

An ecological risk assessment (ERA) was conducted for soil. The ERA did not find a significant risk to terrestrial ecological receptors. A significant factor was the marginal quality of the general area with respect to habitat for and/or presence of terrestrial ecological receptors.

### REMEDIAL ACTION OBJECTIVES

To evaluate remedial alternatives, remedial action objectives (RAOs) are developed. During the FS, the RAOs provide a means of identifying areas for potential remedial action, for screening the types of appropriate technologies, and for assessing a remedial alternative's ability to achieve required objectives.

The RAO developed for soil is to prevent human exposure to soil containing PAHs at concentrations that represent a lifetime cancer risk exceeding the risk management range or a non-cancer HI greater than 1. The RAO may be achieved by reducing exposure.

Because extensive removal of contaminated soil has been conducted and human health risks now are within the risk management range from surface to a depth of 4 feet, the preferred alternative at Site 25 is Alternative 2, ICs.

## Table 4. Institutional Controls

ICs described in this Proposed Plan include land use restrictions that would be established to limit human exposure to soil. ICs are applicable to all alternatives evaluated for soil (except Alternative 1, no action) and will be implemented as soon as feasible.

If the property within Site 25 is transferred to a non-federal entity, the land use restrictions will be incorporated into and implemented through two separate legal instruments:

1. Restrictive covenants included in a "Covenant to Restrict Use of Property" entered into by the Navy and DTSC as provided in Cal Code Regs. tit. 22, §67391.1, and consistent with the Navy/DTSC 2000 Memorandum of Agreement.
2. A Quitclaim Deed from the Navy to the property recipient.

If the property within Site 25 is transferred to a federal department or agency, the land use restrictions will be incorporated into a Memorandum of Agreement or similar agreement.

Proposed land use restrictions:

- *Prohibit* excavation of soil from depths greater than 4 feet in areas that are not covered by existing hardscape unless future landowner gains regulatory and DoN approval of, and complies with a soil management plan (SMP). EPA and DTSC will require the future landowner to enter into an enforceable agreement for building removal and major site work.
- *Require* the future landowner to gain written approval from the regulatory agencies and the Navy and comply with a SMP before the demolition or removal of hardscape, buildings, and structures (e.g., concrete roadways, parking lots, foundations, sidewalks) existing at the time of the record of decision (ROD) issuance. EPA and DTSC will require the future landowner to enter into an enforceable agreement for building removal and major site work.

Access provisions are required to ensure the Navy and regulatory agencies have access to the site for the purpose of implementing the remedy, and conducting inspections.

## SUMMARY OF REMEDIATION ALTERNATIVES

Remedial alternatives evaluated ranged from "no action" to extensive remediation and were screened and evaluated in the FS. The results of those evaluations are briefly summarized below. ICs, which are included in each remedial alternative, are presented in Table 4.

### REMEDIAL ALTERNATIVES

Five alternatives were developed and evaluated in the Site 25 Soil FS. Two alternatives, 4 and 5, which were removal of soil to 4 and 8 feet below surface, respectively, were screened out during the FS evaluations.

Alternatives 4 and 5 did not undergo a detailed evaluation in the FS because these two alternatives have significantly greater costs (\$18.8 million and \$31.4 million, respectively), still require ICs for protection, and achieved only a minor increase in protectiveness relative to the increase in costs.

For Alternatives 4 and 5, the soil removal also would be complex because of shallow groundwater and numerous utilities, and it would be disruptive to site use over a long duration. The soil alternatives evaluated in

detail in the FS, Alternatives 1 through 3, are summarized in Table 5 (next page).

## COMPARISON OF ALTERNATIVES

Selection of the preferred alternative is based on the National Oil and Hazardous Substances Contingency Plan (NCP) criteria (see Table 6, page 9). A discussion of the three remedial alternatives as they relate to the nine criteria follows and is summarized in Table 7 (page 10).

1. **Overall Protection of Human Health and the Environment.** All of the alternatives, except Alternative 1, are protective of human health and the environment by reducing the risks posed by soil through ICs. For Alternative 2, soil in the upper 4 feet in the undeveloped open space is considered protective of human health without ICs because following the removal of the upper 2 feet of soil in areas with the highest PAH concentrations, risks throughout the site are lower than or within the risk management range. Based on the high level of confidence that risks are not underestimated, and extensive site characterization, risks within the risk management range are protective of human health for the residential exposures at Site 25. For soil deeper than 4 feet, ICs will

**Table 5. Remedial Alternatives**

Alternative	Description	Cost (millions)
1. No Action	The No Action Alternative is required by CERCLA to be evaluated as an alternative to establish a baseline from which to compare the other alternatives. In this scenario, no actions are performed.	0
2. Institutional Controls (IC)	Alternative 2, ICs, will be implemented for all of Site 25 to limit human contact with soil that contains PAHs that may be harmful to human health. The ICs will require the future landowner to obtain written approval from the regulatory agencies and the Navy and comply with a soil management plan for excavation of soil below a specified depth and removal of hardscape or buildings. EPA and DTSC will require the future landowner to enter into an enforceable agreement for building removal and major site work.	0.25
3. IC and excavation from 0 to 2 feet depth in Parcel 181	This alternative includes ICs as in Alternative 2 and excavation of about 14,800 cubic yards of PAH-impacted soil. Plastic fencing barrier and 2 feet of clean backfill would add a physical barrier to inhibit human access to residual PAH-impacted soil at depths greater than 2 feet.	4.3

be implemented to limit human contact with this soil. For Alternative 3, excavation to 2 feet bgs is for the remaining non-hardscape areas, so risks associated with soil below 2 feet and hardscape areas remain unchanged. Alternative 1, which failed this first criterion, will not be compared further. The no action alternative provides a basis of comparison and is required by the NCP.

2. **Compliance with ARARs (See Table 8, page 12).** Alternative 2 and Alternative 3 both comply with ARARs.
3. **Long-Term Effectiveness and Permanence.** Alternatives 2 and 3 are moderately effective and permanent by limiting access to impacted soil at depths greater than 4 feet bgs in non-hardscape areas.
4. **Reduction of Toxicity, Mobility, or Volume through Treatment.** None of the alternatives include treatment as a component of the remedy.
5. **Short-Term Effectiveness.** Alternative 2 has greater short-term effectiveness and Alternative 3 is moderately effective. Alternative 2 has greater short-term effectiveness because it does not involve construction (excavation), transportation, or treatment activities; therefore, Alternative 2 does not pose potential health and safety risks to site workers or local residents. Alternative 3 has moderate short-term effectiveness because it poses a short-term risk to the public during construction activities, including excavation and loading

of trucks, and increased truck traffic associated with transporting excavated soil containing PAHs. However, engineering controls would be used to minimize the generation of dust and airborne particulates, and truck traffic would avoid residential routes as much as possible.

6. **Implementability.** All of the alternatives are implementable. For Alternative 2 and Alternative 3, IC negotiations between agencies and the Navy would be required to determine the content of the ICs. Alternative 3 is easy to implement because the excavation is above the water table and above the depth of numerous onsite utilities. Excavation with offsite disposal is proven to be simple and readily available technology, used onsite for the prior removal actions. The offsite disposal would not require hazardous waste disposal because the impacted soil should pass hazardous waste criteria based on concentrations of impacted soil in previous removal actions.
7. **Cost.** Alternative 2 is estimated to cost \$253,000, and Alternative 3 is estimated to cost \$4.3 million.
8. **State Agency Acceptance.** The State of California as a participant in the decision-making team has reviewed the Proposed Plan and supports the preferred alternative.
9. **Community Acceptance.** This will be evaluated after the public comment period ends. A responsiveness summary in the ROD will document responses to public comments.

**Table 6. NCP Evaluation Criteria**

1. **Overall protection of human health and the environment** addresses whether or not a remedy provides adequate protection and describes how risks posed through each pathway are eliminated, reduced, or controlled.
2. **Compliance with ARARs** addresses whether or not a remedy will meet all applicable or relevant and appropriate federal and state environmental laws and regulations or provide grounds for a waiver.
3. **Long-term effectiveness and permanence** refers to the ability of a remedy to provide reliable protection of human health and the environment over time.
4. **Reduction of toxicity, mobility, or volume through treatment** refers to preference for a remedy that reduces health hazards, the movement of contaminants, or the quantity of contaminants at the site through treatment.
5. **Short-term effectiveness** addresses period of time needed to complete remedy and any adverse effects to human health and the environment that may be caused during construction and implementation of the remedy.
6. **Implementability** refers to the technical and administrative feasibility of the remedy, including availability of materials and services needed to carry out the remedy and coordination of federal, state, and local governments to work together to clean up the site.
7. **Cost** evaluates estimated capital and operation and maintenance costs of each alternative in comparison to other equally protective measures.
8. **State acceptance** indicates whether the state agrees with, opposes, or has no comment on the alternative.
9. **Community acceptance** includes determining which components of the alternatives interested persons in the community support, have reservations about, or oppose (not complete until public comments on proposed plan are received).

NCP evaluation criteria are divided into three categories:

- **Threshold.** These criteria (1 and 2) must be satisfied for an alternative to be eligible.
- **Primary balancing.** These criteria (3, 4, 5, 6, and 7) are used to weigh major trade-offs among alternatives.
- **Modifying.** Once all comments are evaluated, state and community acceptance (8 and 9) may prompt modifications of the final remedy and are thus designated modifying criteria.

## **PREFERRED ALTERNATIVE**

The Navy, in coordination with the regulatory agencies, developed the preferred alternative, Alternative 2 ICs. The Preferred Alternative represents the second phase of the Navy's response action and is the final remedy for Site 25 soil. In 2002, the Navy completed the first phase, which was removal of over 66,700 cubic yards of soil from the ground surface to a depth of 2 feet throughout the areas with the greatest PAH concentrations. Post-removal evaluations of the human health risk from exposure to soil at Parcels 181, 182, and 183, show that in the undeveloped areas, the soil from surface to a depth of 4 feet is protective of human health and there is no

immediate risk to children, future residents, or others. Soil below a 4-foot depth and beneath hardscape and buildings in developed areas will be managed by the preferred alternative. The Navy proposes the Preferred Alternative as the second and final phase of the response action that secures the site and manages the potential long-term risks by implementing the preferred alternative of ICs.

Alternative 2 uses ICs to manage long-term risks by minimizing exposure to impacted soil that contains unacceptable levels of contaminants that occur below a depth of 4 feet in the undeveloped areas and potentially beneath hardscape and buildings. ICs are outlined in Table 4 (page 7).

**Table 7. Comparative Analysis of Alternatives for Soil**

NCP Criteria	1 No Action	2 IC	3 IC, Excavation
Protective overall?	No	Yes	Yes
Compliant w/ ARARs?	No	Yes	Yes
Long-term effectiveness and permanence	○	◐	◑
Reduction of toxicity, mobility, or volume via treatment	None	None	None
Short-term effectiveness	○	●	◑
Implementability	●	●	●
Cost (\$M)	○	0.25	4.3
State acceptance	State concurs with the Proposed Remedy		
Community acceptance	To be evaluated after the Public Comment Period		

○ = low

◐ = moderate

● = high

Excavation to 2 feet bgs

IC – Institutional Controls

**Alternative 2 is the Preferred Alternative**

## SUMMARY STATEMENT

Based on information currently available, the preferred alternative for soil is protective of human health and is the most appropriate, feasible, and cost-effective remedy that can be implemented at the earliest possible time.

Based on the high confidence level that risks are not underestimated, and extensive site characterization, the risk management range is protective of human health for the residential exposures at Site 25. The first phase of the response action removed soil with the highest PAH concentrations; the second and final phase of the response action secures the site and addresses long-term risk by reducing exposure through implementation of ICs. The Preferred Alternative meets the threshold criteria and satisfies the following statutory requirements of CERCLA 121(b):

1. Protective of human health and the environment.
2. Compliant with ARARS.
3. Cost-effective.
4. Utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

### Multi-Agency Environmental Team Concurs with Preferred Remedy

The environmental team, which has been working cooperatively to address remedial decisions for Alameda Point Site 25 soil and will sign the ROD, consists of:

- The Navy
- EPA Region 9
- DTSC
- RWQCB

## OPPORTUNITIES FOR PUBLIC INVOLVEMENT

### Information Repositories

Individuals interested in the full technical details beyond the scope of this Proposed Plan should visit either of the two local Information Repositories in Alameda:

- Alameda Point - 950 West Mall Square, Bldg. 1, Rooms 240 and 241
- Alameda Public Library - 2200A Central Avenue

Supporting documents describing the field investigation, laboratory analysis, and risk assessment are part of the Alameda Point Administrative Record (AR) and are available for your review at the Information Repositories in Alameda. These reports include:

- 2002 - Operable Unit 5 Remedial Investigation Report
- 2005 - Final Soil Feasibility Study Report, Operable Unit 5

### Site Contacts

Community involvement in the decision-making process is encouraged. If you have any questions or concerns about environmental activities at Alameda Point, please feel free to contact any of the following project representatives:

- **Mr. Thomas Macchiarella**  
BRAC Environmental Coordinator  
Department of the Navy  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, CA 92108-4310  
(619) 532-0907
- **Ms. Anna-Marie Cook**  
Project Manager  
U.S. EPA, Region 9  
75 Hawthorne Street  
San Francisco, CA 94105  
(415) 972-3029
- **Ms. Judy Huang**  
Project Manager  
San Francisco Bay RWQCB  
1515 Clay Street, Suite 1400  
Oakland, CA 94612  
(510) 622-2363
- **Ms. Dot Lofstrom**  
Project Manager  
Department of Toxic Substances Control  
8800 Cal Center Drive  
Sacramento, CA 95826  
(916) 255-6449

### Administrative Record

The AR is the collection of reports and historical documents used by the decision-making team in the selection of cleanup or environmental management alternatives. The AR file provides the RI, the FS, and the removal action reports completed by the Navy for the site discussed in this Proposed Plan. The AR File is located at:

- **Naval Facilities Engineering Command, Southwest**  
1220 Pacific Highway  
San Diego, CA 92132-5190  
ATTN: Diane Silva FISC Building 1, 3rd Floor  
Phone (619) 532-3676

### PUBLIC COMMENT PERIOD

The 30-day public comment period for the Proposed Plan is August 21 through September 20, 2006.

#### Submit Comments

There are two ways to provide comments during this period:

- Offer oral comments during the public meeting
- Provide written comments by mail, e-mail, or fax (no later than September 20, 2006)



#### Public Meeting

The public meeting will be held on September 12, 2006 at Alameda Point, 950 West Mall Square, Room 201 from 6:30 pm to 8:00 pm. It will be an opportunity to discuss the information presented in this Proposed Plan. Navy representatives will provide visual displays and information on the environmental investigations and the remedial alternatives evaluated. You will have an opportunity to ask questions and formally comment on this Proposed Plan.



#### Send Comments to:

Mr. Thomas Macchiarella  
BRAC Environmental Coordinator  
Department of the Navy  
BRAC Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, CA 92108-4310  
Phone (619) 532-0907  
Fax (619) 532-0940  
Website address is:  
[www.bracpmo.navy.mil](http://www.bracpmo.navy.mil)  
thomas.macchiarella@navy.mil



**Table 8. Applicable or Relevant and Appropriate Requirements**

CERCLA requires that remedial actions meet federal or state (if more stringent) environmental standards, requirements, criteria, or limitations that are determined to be applicable or relevant and appropriate requirements (ARARs). Significant potential ARARs that will be met by the preferred remedy for soil impacted with PAHs are listed below.

**Potential Federal ARARs**

There are no Federal ARARs specific to the Preferred Alternative.

**Potential State of California ARARs**

Substantive requirements of the following requirements of the California Code of Regulations and the California Health and Safety Code (HSC) have been determined to be state action-specific ARARs for implementation of ICs for property that will be transferred to a non-federal entity:

- Cal. Code Regs. tit 22, §67391.1, Land Use Covenants
- HSC §§25202.5; 25222.1; 25355.5(a)(1)(C), 25232(b)(1)(A)-(E), 25233(c), and §25234

**GLOSSARY OF TECHNICAL TERMS**

**Administrative Record (AR)** - The reports and historical documents used in selection of cleanup or environmental management alternatives.

**applicable or relevant and appropriate requirements (ARARs)** - Federal or state (if more stringent) environmental standards, requirements, criteria, or limitations.

**BBase Realignment and Closure (BRAC) Program** – Program established by Congress under which Department of Defense installations undergo closure, environmental cleanup, and property transfer to other federal agencies or communities for reuse.

**below ground surface (bgs)** - Collection depth of a sample or depth of an excavation.

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)** – Also known as Superfund, this federal law regulates environmental investigation and cleanup of sites identified as possibly posing a risk to human health or the environment.

**California Environmental Protection Agency Department of Toxic Substances (DTSC)** – California’s environmental protection agency. Also known as Cal/EPA, but herein referred to as DTSC.

**ecological risk assessment (ERA)** - Evaluation of potential hazard to plants, animals, and habitat as a result of environmental exposure to chemicals.

**exposure pathway** – Mechanism by which a chemical comes into contact with a living organism.

**feasibility study (FS)** - Analysis of proposed remedial alternatives to evaluate their effectiveness in reduction of risk to human health and the environment.

**hazard index (HI)** – Summation of hazard quotients for multiple chemicals.

**hazard quotient (HQ)** – Ratio of exposure to toxicity of an individual chemical.

**human health risk assessment (HHRA)** – Estimate of potential harmful effects humans may experience as a result of exposure to chemicals.

**institutional controls (ICs)** - Administrative and legal controls, established and administered to restrict use of property to limit human exposure to contaminated waste, soil, sediment, or groundwater.

**Installation Restoration Program (IR)** – Department of Defense’s comprehensive program to investigate and clean up environmental contamination at military facilities in full compliance with CERCLA.

**polychlorinated biphenyls (PCBs)** – Man-made industrial chemicals previously synthesized and commercialized in North America in 1929 and used until the late 1970s.

**polynuclear aromatic hydrocarbon (PAH)** – Specific class or group of semivolatile organic compounds whose molecules consist of multiple benzene rings; some are suspected as cancer-causing compounds. Commonly associated with non-combusted fuels and waste oil. "Polynuclear" means multi-ringed.

**reasonable maximum exposure** - Potential duration and frequency estimated by dividing daily intake by time of exposure.

**record of decision (ROD)** – A legal document that explains the selected cleanup method to be used. It is signed by the Navy and regulatory agencies and is a binding agreement regarding the final remedy.

**Regional Water Quality Control Board (RWQCB)** – The California water quality authority.

**remedial action objective (RAO)** – Cleanup objective.

**remedial investigation (RI)** – One of the two major studies that must be completed before a decision can be made about how to clean up a site (the FS is the second study). The RI is designed to evaluate the nature and extent of contamination at the site.

**risk** - Likelihood or probability that a hazardous substance released to the environment will cause adverse effects on exposed human or other biological receptors. Classified as carcinogenic or non-carcinogenic.

**risk management** - Evaluation and implementation of options or measures to reduce risk, including but not limited to, such options as no further action, monitoring only, or gathering additional data before making a decision.

# Proposed Plan Comment Form

## Alameda Point Site 25 Soil

The public comment period for the Proposed Plan for Operable Unit Site 25 Soil, Former Naval Air Station (NAS) Alameda at Alameda Point, Alameda, California is from August 21, 2006 through September 20, 2006. A public meeting to present the Proposed Plan will be held at the Alameda Point Main Office Building, Room 201, 950 West Mall Square, Bldg. 1, Alameda, California on September 12, 2006 from 6:30 to 8:00 pm. You may provide your comments verbally at the public meeting where your comments will be recorded by a stenographer. Alternatively, you may provide written comments in the space provided below or on your own stationary. All written comments must be postmarked no later than September 20, 2006. You may also submit this form to a Navy representative at the public meeting. Comments are also being accepted by e-mail; please address e-mail comments to: [thomas.macchiarella@navy.mil](mailto:thomas.macchiarella@navy.mil).

Name: \_\_\_\_\_

Representing: \_\_\_\_\_

Phone Number: \_\_\_\_\_

Address: \_\_\_\_\_

Comments:

Mail to:

Mr. Thomas Macchiarella  
BRAC Environmental Coordinator  
Department of the Navy  
Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, CA 92108-4310

Ms. Tommie Jean Damrel  
Community Involvement Coordinator  
SulTech  
135 Main Street, Suite 1800  
San Francisco, CA 94105



**Proposed Plan for  
Installation Restoration Site 25 Soil  
Former NAS Alameda**

**BRAC  
PMO**