



# PROPOSED PLAN

## for Installation Restoration Program Site 7

Former Long Beach Naval Complex, Long Beach, California

October 2006

### INTRODUCTION

The Department of the Navy (Navy) presents this *Proposed Plan* for harbor *sediments* of the former Long Beach Naval Complex, Los Angeles County, California (Figure 1). This Proposed Plan describes the preferred remedies proposed for the submerged sediments, which comprise *Installation Restoration (IR) Program Site 7* at the former Long Beach Naval Complex. Your comments on this Proposed Plan and site-related

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Figure 1. Aerial view of the former Long Beach Naval Complex, Long Beach, CA. IR Site 7 is the 700-acre harbor shown in the center of the photograph.

PHOTO BY PERMISSION OF PORT OF LONG BEACH

### Preferred Remedial Alternative

The *remedial alternatives* outlined in this document are based on the evaluation of results from sampling and analyses of IR Site 7 sediments. Results of these studies indicate that actions are required in specific areas of IR Site 7 due to the adverse effect on the marine environment attributed to certain chemicals reported in the harbor sediments. These areas are identified as *Areas of Ecological Concern (AOECs) A through G* (see Figure 3). The preferred remedies are:

- **AOECs A and C: removal and discharge at off-site projects of chemically impacted AOEC sediments**
- **AOECs B and D: no remedial action - no action necessary to protect the environment**
- **AOECs E, F, and G: limited action - institutional controls** (legal ways to limit property use and access to reduce possible risk to the environment)

### Opportunities for Public Involvement

**Public Meeting: October 25, 2006, 6:00 to 7:00 pm**  
**AirFlite (located at Long Beach Airport)**  
**3250 AirFlite Way, Long Beach, CA**

Join us for a public meeting to discuss this Proposed Plan for IR Site 7 at the former Long Beach Naval Complex. At the meeting, Navy representatives will give a presentation on the preferred cleanup alternatives for IR Site 7. You will have the opportunity to ask questions and formally comment on the alternatives. A comment form is included on page 11.

**Comment Period: October 16 through November 16, 2006**

You are encouraged to comment on this Proposed Plan and site-related documents during the 30-day public comment period. Comments should be postmarked no later than November 16, 2006 and sent to:

Mr. John Hill  
Base Realignment and Closure Environmental Coordinator  
Base Realignment and Closure Program Management Office West  
1455 Frazee Road, Suite 900  
San Diego, CA 92108-4310

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documents are being sought by the Navy during the 30-day public comment period, from October 16 to November 16, 2006, and at the public meeting on October 25, 2006.

This Proposed Plan summarizes the results of environmental investigations and studies the Navy has conducted on the harbor sediments at IR Site 7. It also describes the potential *remedial alternatives* that have been evaluated, including the alternatives that the Navy and state and federal regulatory agencies and natural resources trustees believe will offer the best way to protect the environment at IR Site 7.

This evaluation is based on technical information presented in reports prepared since 1993 and discussed with the public during quarterly meetings of the community-based *Restoration Advisory Board (RAB)* for the former Long Beach Naval Complex. These documents, which formed the basis of this Proposed Plan, are available to the public in the *Information Repository* for the Navy's project, located at the Long Beach Public Library, and also available at the Navy's *Administrative Record* file in San Diego (see back page).

## Regulatory Framework for Environmental Investigation and Remedial Actions

The Navy's Installation Restoration (IR) Program follows **CERCLA**, the ***Comprehensive Environmental Response, Compensation, and Liability Act of 1980***, commonly known as "Superfund" (as amended by the Superfund Amendments and Reauthorization Act of 1986). CERCLA addresses sites that are contaminated as a result of past hazardous material disposal and handling practices. The CERCLA process includes such investigation and response steps as Remedial Investigation, Feasibility Study, and Proposed Plan (see flow diagram on page 9). In 1980 the Department of the Navy initiated its IR Program to implement CERCLA requirements. The IR Program allows the Navy to identify, study, and remediate potentially contaminated sites at its facilities.

This Proposed Plan was developed in accordance with Section 117 of CERCLA and Section 300.430(f)(2) of the ***National Oil and Hazardous Substance Pollution Contingency Plan (NCP)***, and fulfills the public participation requirements of the lead agency, the Navy.

## Partners in the Remedial Activities at the Former Long Beach Naval Complex

The Navy is the lead federal agency for environmental investigations at the former Long Beach Naval Complex. The Navy works closely with federal, state, and local environmental regulatory agencies and natural resources trustees to assure that studies and remedies selected meet the relevant and appropriate laws and regulatory requirements. Partners for IR Site 7 include:

- **California Department of Toxic Substances Control**—the lead state regulatory agency for military installation investigations and cleanup in California
- **California Regional Water Quality Control Board**—provides state oversight of activities involving sediments, surface water, and groundwater
- **United States Environmental Protection Agency**—provides federal oversight of activities involving sediments, surface water, and groundwater
- **California Department of Fish and Game**—as a state trustee for natural resources, DFG assists the Navy regarding the protection of trust resources such as California threatened and endangered species
- **National Oceanographic and Atmospheric Administration**—as a federal trustee for natural resources, NOAA assists the Navy regarding the protection of trust resources such as marine fisheries and marine mammals
- **United States Fish and Wildlife Service**—as a federal trustee for natural resources, FWS assists the Navy regarding the protection of trust resources such as migratory birds and federal threatened and endangered species
- **Port of Long Beach**—current user of former Long Beach Naval Complex
- **Restoration Advisory Board (RAB)**—this community-based advisory group plays a key role in making sure the public's concerns and comments are heard and addressed
- **YOU!**—by reviewing and commenting on this Proposed Plan, you are making sure your voice is heard with respect to remedial alternatives proposed at the former Long Beach Naval Complex.

**The agencies, trustees, and Port of Long Beach have reviewed and commented on this Proposed Plan, and they concur with the proposed action presented in this document.**

## FACILITY HISTORY AND CURRENT USE

**P**rior to World War II, Congress authorized funds to construct a naval facility in Long Beach. The Navy acquired a strip of coastline from the city of Long Beach—open beachfront and submerged land—along the southern portion of Terminal Island. This land, located within the Los Angeles/ Long Beach harbor districts and approximately 3 miles west of downtown Long Beach, was then expanded through hydraulic fill operations conducted between 1938 and the early 1940s.

By 1946, Naval Station Long Beach began maintaining facilities for the operation and berthing of tugboats, barges, and naval vessels. In 1968, Naval Station Long Beach began providing support for active service ships and inactive ships of the Reserve Fleet. After over 50 years of service, Naval Station Long Beach was closed on September 30, 1994, and Long Beach Naval Shipyard was closed on September 30, 1997, under the *Base Closure and Realignment (BRAC) Act of 1990*.

Former Long Beach Naval Complex contained two major naval entities: the former Long Beach Naval Shipyard occupied the eastern portion and the former Naval Station Long Beach occupied the western portion (Figure 2). Both entities used the waters and sediments of IR Site 7 for their respective operations. The overall Long Beach Naval Complex property is bounded by oil fields and cargo containers of Terminal Island on the north, Los Angeles Harbor on the west, San Pedro Bay on the south, and Long Beach Harbor Channel on the east.

Certain portions of IR Site 7 have reverted to the ownership of the Port of Long Beach (Port). Currently, approximately 90 percent of the site is owned by the Port and the remaining 10 percent is owned by the United States under the custody of the Navy. Pier 12 (Fuel Pier) is part of an active naval installation. The Port has constructed a new wharf and docking facilities along the northern perimeter of IR Site 7. The former Long Beach Naval Complex area is currently being used by the Port for port-related container storage and shipping terminal facilities.

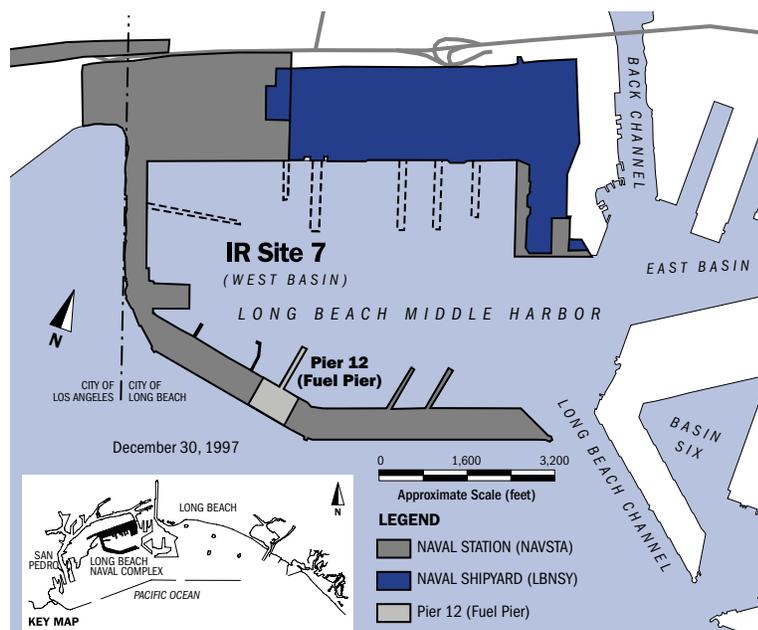


Figure 2. The location of IR Site 7 within the former Long Beach Naval Complex

## Restoration Advisory Board—A Key Player in the Navy’s Installation Restoration Program

**T**he community-based Restoration Advisory Board, or RAB, is composed of members of the public and representatives of regulatory agencies/trustees and the Navy. The RAB currently meets semi-annually to discuss environmental issues at IR Site 7 and at the former Long Beach Naval Complex.

RAB members attend meetings, listen to presentations, review technical documents, and provide input to the process of investigating and remediating areas of the former naval facility. The RAB has reviewed and discussed the Remedial Investigation Report for IR Site 7, as well as other IR Site 7-related documents such as the Feasibility Study Report and numerous technical memoranda and work plans prepared for IR Site 7 sediments. The RAB will also review this Proposed Plan.

For more information on the Restoration Advisory Board, contact Mr. John Hill, the Navy’s RAB Co-Chair, at (619) 532-0985; Ms. Jill Votaw, BRAC Public Affairs Officer, at (619) 532-0941; or Mr. John Essington, the RAB’s Community Co-chair, at (562) 421-4305.

In developing the Naval Station Long Beach in the early 1940s, a sea wall was constructed along the northern boundary of IR Site 7, and the area between the seawall and the former shoreline was filled with dredged and imported fill materials. During this period, piers and dry docks were also constructed. The *Navy Mole*, which forms the western and southern boundaries of IR Site 7, was constructed in late 1944 through 1945 using materials dredged from the near vicinity, including the area that is now IR Site 7, and with imported rock. Completion of Long Beach Naval Shipyard and Naval Station Long Beach, and construction of the Navy Mole created the area now called IR Site 7 in its present form (Figure 2). Since the creation of IR Site 7, periodic dredging of sediments has been conducted for the purposes of construction or relocation of piers, and maintenance dredging has been conducted between these piers.

IR Site 7, which also comprises the West Basin of Long Beach Harbor, is bounded on the south and the west by the Navy Mole and on the north by the former Naval Station Long Beach and the former Long Beach Naval Shipyard properties. IR Site 7 is approximately 700 acres in size, with water depths on the order of 45 feet. During Naval Station Long Beach and Long Beach Naval Shipyard operation there were 13 piers at IR Site 7 where ships docked for maintenance and loading. At the time the Remedial Investigation and Feasibility Study for IR Site 7 were conducted, 11 of these piers remained, along with three dry docks located on the Naval Shipyard, along the northern shore of IR Site 7.

During Naval Station Long Beach and Long Beach Naval Shipyard operation, IR Site 7 harbored an active berthing and repair shipyard. From the early 1940s to the mid-1970s, wastes from various industrial areas of the Long Beach Naval Complex and from cleaning of process tanks were discharged into IR Site 7. Wastes were also discharged into IR Site 7 through the storm drain system and from flushing of the dry docks. Due to the history and nature of activities at the Naval Station Long Beach and Long Beach Naval Shipyard, investigations were begun in 1983 to assess the potential for impacts to the quality of the harbor sediments.

### Did You Know?

You can read more about the Navy's environmental program at IR Site 7 on the internet! The web address is [www.bracpmo.navy.mil/bracbases/california/lbnc/default.aspx](http://www.bracpmo.navy.mil/bracbases/california/lbnc/default.aspx)

After closure of the Long Beach Naval Complex, the Port demolished and removed six of the 11 piers and filled in and covered all three of the dry docks. Five piers remain, as shown on Figure 2 and Figure 3. The Port also managed the harbor sediments along the northern portion of IR Site 7 as part of its development of a new wharf and docking facilities.

## SITE INVESTIGATIONS

### REMEDIAL INVESTIGATION

**A** Remedial Investigation at IR Site 7, including direct sampling of sediments, was completed in 1997. The objective of the Remedial Investigation was to determine whether the organisms that inhabit the surface sediments were adversely affected by the chemicals reported in these sediments. The results of the human health risk assessment determined that there was no appreciable difference between eating fish caught in the waters of IR Site 7 and eating fish caught in Los Angeles/Long Beach Harbor. Therefore, it was determined that any potential threat likely would be to the organisms that inhabit the surficial sediments of IR Site 7.

In light of this conclusion, an Ecological Risk Assessment was conducted as part of the Remedial Investigation. Studies included chemical, physical, and biological analyses of the IR Site 7 sediments. Sediment samples were also gathered from areas located in the outer Long Beach/Los Angeles Harbor area, outside of IR Site 7, to represent sediments exposed to normal port activities but not located in areas used by the former Long Beach Naval Complex. These sediment samples served as "reference samples" for comparison with sediment samples taken from within IR Site 7. Samples were collected from surface sediments (up to 4 inches deep) and from subsurface sediments (4 inches to approximately 15 feet), as well as from sediments beneath the Navy piers. The sediment samples were subjected to laboratory analyses to determine the presence of petroleum hydrocarbons, polychlorinated biphenyls (PCBs), pesticides, metals, and other chemical compounds.

Biological analyses included *benthic* (bottom-dwelling) organisms and toxicity *bioassays*. Benthic organisms were collected from the surface sediments

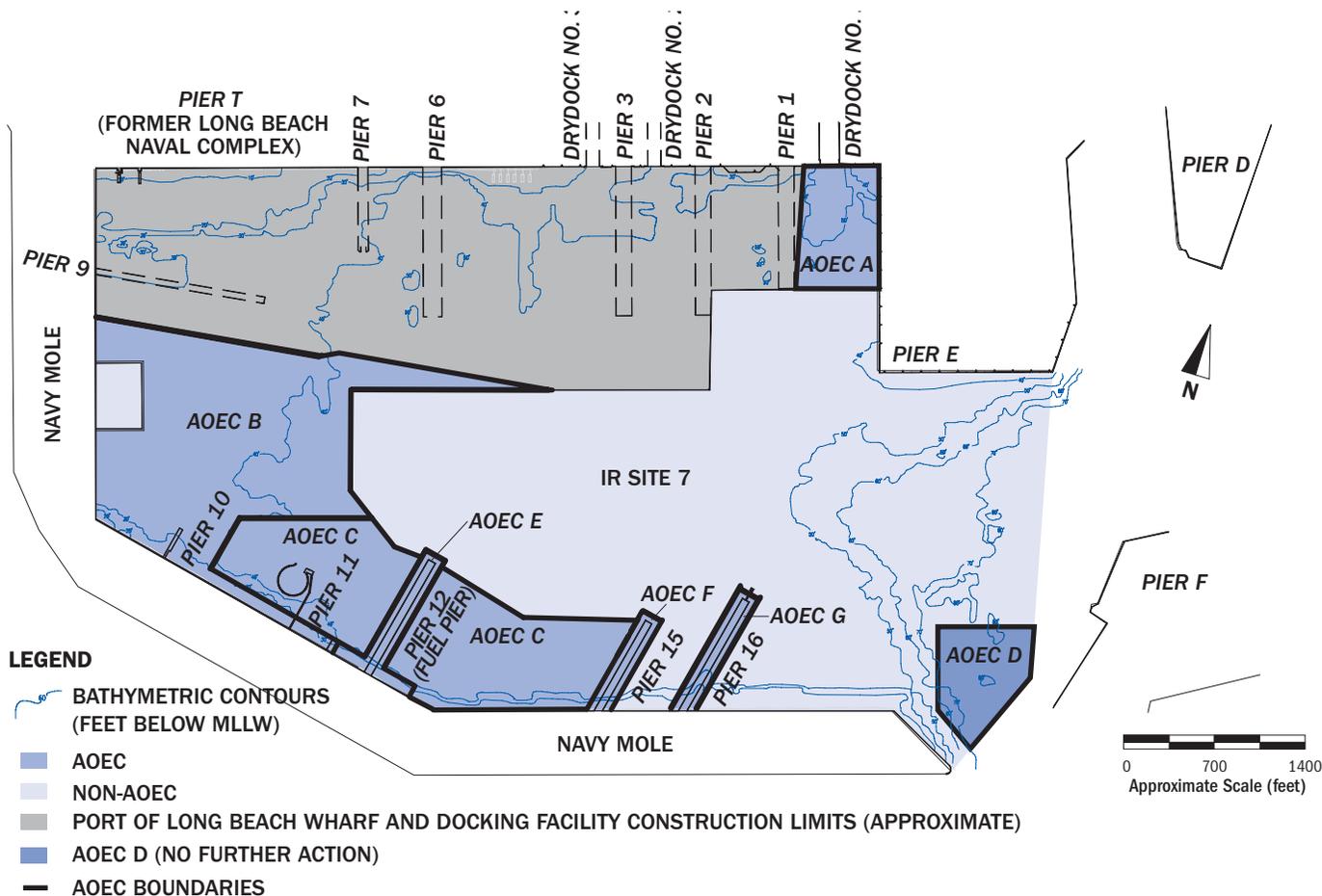


Figure 3. Areas of Ecological Concern (AOECs) for IR Site 7 Sediments

and evaluated for abundance and diversity, and for potential toxic effects of chemicals in the sediment. Tests were conducted to determine whether certain chemicals would accumulate in tissues.

Bioassays were performed using standard test creatures such as amphipod crustaceans, polychaete worms, and sand dollar larvae to evaluate survivability in the sediment bed (see box, right).

The results of the Ecological Risk Assessment led the Remedial Investigation to conclude that *Areas of Ecological Concern (AOECs)* were present within IR Site 7, due to the effects of certain chemicals (called “chemicals of ecological concern”). Of the 45 locations where sediments were sampled, 30 locations were identified as AOECs. The remaining sediment sampling locations, which generally included the entrance and central portions of IR Site 7, were not considered AOECs (see Figure 3).

The chemicals of ecological concern associated with these AOECs were the metals copper, lead, mercury, silver, and zinc; petroleum hydrocarbons; the pesticide

### What are Bioassays?

In the context of this study, bioassays are biological tests conducted in a laboratory setting on typical organisms that live on and in sediments to find out whether these organisms can live and reproduce there successfully.



**Amphipods** were placed in sediment samples collected from IR Site 7 to see if they would survive and could rebury themselves in the sediment.



**Polychaete worms** were also placed in sediment samples and checked for their ability to grow and thrive.



**Sand dollar larvae** were studied for their ability to grow and develop normally in the pore waters of IR Site 7 sediment samples.

The results of these bioassays helped determine the health of the sediment bed benthic community relative to the chemicals reported in the sediments.

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DDT (dichlorodiphenyltrichloroethane); and PCBs. The Remedial Investigation concluded that the CERCLA process for IR Site 7 should continue with a *Feasibility Study* that would look at ways and means of reducing the adverse biological effects seen on benthic communities living in the chemically impacted sediments of the IR Site 7 AOECs.

**FEASIBILITY STUDY**

Based on information obtained during the Remedial Investigation, a Feasibility Study was conducted. The Feasibility Study evaluated several remedial alternatives designed to protect the environment. The Feasibility Study evaluations provided the basis for the Proposed Plan you are reading. This Proposed Plan describes and documents the potential remedial alternatives being considered for sediments at the IR Site 7 AOECs. These are summarized in Table 1.

The Feasibility Study included collecting additional sediment and benthic organism samples from within IR Site 7 AOECs and obtaining laboratory analyses of these samples, with the goal of refining the boundaries and depths of the AOECs. Samples were collected and analyzed in 1998.

**Portions of IR Site 7 were accepted as No-Action areas by the regulatory agencies/trustees, including the non-AOEC area in the center of IR Site 7 and AOEC D, because the 1998 sampling and analysis results indicated that the sediments in these areas posed very little ecological risk. The No-Action areas also include the area located along the northern shoreline of IR Site 7, which is a part of the development program implemented by the Port (Figure 3). These portions of IR Site 7 were briefly discussed in the Feasibility Study, but were not evaluated in that document. Since they did not require a remedy, they are not discussed further in this Proposed Plan.**

As part of the Feasibility Study, a *Remedial Action Objective* was developed for IR Site 7 AOECs. The Remedial Action Objective was based on regulatory requirements, land use in the IR Site 7 area, and ecological risk considerations. **The Remedial Action Objective selected for the IR Site 7 AOECs and described in the Feasibility Study is to protect the presence of ecologically productive and diverse benthic communities in the sediments of IR Site 7 AOECs, consistent with existing land use (industrial and port-related).**

**IR Site 7 AOECs**

**AOEC A:**

- Sediments located between former Pier 1 and existing Pier E, near entrance to former Dry Dock No. 1
- 15 acres in areal extent
- Contains 3 surface and 2 subsurface sediment sampling locations
- Elevated concentrations of chemical compounds reported for surface sediments but no **sediment toxicity** and no benthic community effects reported
- Elevated concentrations of subsurface sediment chemicals reported, which would represent a probable exposure of benthic community to unacceptable levels of chemical concentrations if these subsurface sediments were to be released or exposed

**AOEC B:**

- Sediments located between former Pier 9 and existing Pier 10
- 80 acres in areal extent
- Contains 6 surface and 3 subsurface sediment sampling locations
- Elevated chemical concentrations reported for surface sediments, but no sediment toxicity and no benthic community effects reported; none reported for subsurface sediments

**AOEC C:**

- Sediments located between existing Pier 10 and existing Pier 15
- 62 acres in areal extent
- Contains 7 surface and 3 subsurface sediment sampling locations
- Elevated chemical concentrations, sediment toxicity, and adverse benthic community effects reported for surface sediments; none reported for subsurface sediments

**AOEC D:**

- Sediments located in the area offshore of the tip of the Navy Mole in the main shipping channel in the entrance to West Basin
- 13 acres in areal extent
- One surface sediment sampling location
- One chemical compound slightly exceeded the reference value
- Low toxicity and no benthic effects reported

**Pier AOEC E:**

- Sediments located beneath and in the vicinity of existing Pier 12
- 5 acres in areal extent
- Contains 3 surface and 1 subsurface sediment sampling locations
- Elevated chemical concentrations and some sediment toxicity reported, but no adverse benthic community effects reported

**Pier AOEC F:**

- Sediments located beneath and in the immediate vicinity of existing Pier 15
- 4 acres in areal extent
- 1 surface and 1 subsurface sediment sampling locations
- Elevated chemical concentrations reported but no sediment toxicity or adverse benthic community effects reported

**Pier AOEC G:**

- Sediments located beneath and in the immediate vicinity of existing Pier 16
- 5 acres in areal extent
- 1 surface and no subsurface sediment sampling location
- Elevated chemical concentrations and some sediment toxicity reported, but no adverse benthic community effects reported

**R**emedial alternatives, or remedies, are developed and evaluated in the Feasibility Study. This study looks at a range of possible actions that could achieve the remedial action objective, such as the one discussed above, and compares their effectiveness. The alternatives can vary greatly in their ability to address site problems and to reduce or remove contamination, their cost, and the time they take to achieve the remedial action objective. Any selected alternative must be able to protect human health and the environment.

Alternatives evaluated in a Feasibility Study are developed in accordance with CERCLA and the NCP, as well as guidance issued by the U.S. Environmental Protection Agency. In all cases, a "No-Action" alternative must be considered on its own and as a baseline against which other alternatives can be evaluated. Under the No-Action alternative for IR Site 7 AOECs, for example, chemically impacted sediments would remain in place and would not be treated, monitored, or otherwise remediated. In addition to the No-Action alternative for IR Site 7, the remedial alternatives proposed and evaluated as possible remedies consist of engineering controls and institutional controls.

Engineering controls (remedial technologies) are used to reduce contaminant toxicity, movement, or volume. Examples would include covering an AOEC with a cap of sediments, or dredging chemically impacted sediments and removing these

sediments off-site for disposal. The second example represents a permanent remedy because it removes the chemically impacted sediments into a controlled enclosure, thus eliminating from the site the toxic effects, potential movement, and volume of these sediments.

Chemically impacted sediments located beneath the piers of IR Site 7 represent potential ecological risk if these sediments are disturbed and the benthic organisms are exposed to them. ***Institutional controls***—such as deed restrictions—can be used alone or with engineering controls to reduce the potential for exposure of benthic organisms that live in the surface sediments to chemicals in subsurface sediments. Examples of deed restrictions would include limiting future use of IR Site 7 to port-related activity to maintain access control and oversight, and not allowing disturbance of the subsurface sediments (e.g., dredging or construction) without prior authorization and evaluation.

The Feasibility Study presents a summary of the potential remedial alternatives evaluated for IR Site 7, including the No-Action alternative (see Table 1). Note that institutional controls do not entail any active measures to extract, treat, or contain contamination, so they are considered “limited action”. Institutional controls on sediment removal are intended to limit potential exposure and risk to the benthic community.

Table 1. Summary Listing of Potential Remedial Action Alternatives for Sediments of IR Site 7 AOECs

Description of Remedial Action Alternative	AOEC A	AOEC B	AOEC C	AOEC E	AOEC F	AOEC G
	Dry Dock No. 1 Area—Between Pier 1 and Pier E	Western Area—Between Pier 9 and Pier 10	Area Between Pier 10 and Pier 15	Pier 12 (Fuel Pier)	Pier 15	Pier 16
No remedial action	✓	✓	✓	✓	✓	✓
Limited action - institutional controls	✓	✓	✓	✓	✓	✓
Limited action—periodic sediment quality monitoring	✓	✓	✓	✓	✓	✓
<i>In situ</i> capping of AOECs with “clean” imported sediments	NA	✓	✓	NA	NA	NA
Removal and on-site (inside IR Site 7) containment of AOEC sediments—discharge of dredged sediments inside Navy Mole	✓	✓	✓	✓	✓	✓
Removal and off-site (outside IR Site 7) containment of AOEC sediments—discharge of dredged sediments outside Navy Mole	✓	✓	✓	✓	✓	✓
Removal and discharge of AOEC sediments at off-site (outside IR Site 7) projects	✓	✓	✓	✓	✓	✓

✓ = Alternative considered for this AOEC. NA = not applicable

## CRITERIA USED TO EVALUATE REMEDIAL ACTION ALTERNATIVES

In accordance with regulations, the proposed remedial alternatives must be evaluated in detail on the basis of nine required criteria (see below).

Each remedial alternative has already been evaluated against the Threshold Criteria and the Primary Balancing Criteria.

The remedial alternatives are then subjected to the Modifying Criteria, public review and comment—the current step. The preferred alternatives may be modified based on public and agency/trustee review and comment.

### Threshold Criteria

Threshold criteria must be met by a remedial alternative for it to be acceptable for further consideration as a possible remedy.

- **Overall protection of human health and the environment**— Does the alternative provide adequate protection to public health and the environment? How will the risks posed by the site be eliminated, reduced, or controlled through treatment, engineering controls, or institutional controls?
- **Compliance with federal and state “applicable or relevant and appropriate requirements” (ARARs)**—Are the ARARs identified for the site going to be met by the proposed alternative?

### Primary Balancing Criteria

These criteria may be met by a remedial alternative to varying degrees and are used to weigh the pros and cons of each alternative.

- **Long-term effectiveness and permanence**—Can the remedial alternative maintain protection over time, after the remedial action objective has been accomplished?
- **Reduction of toxicity, mobility, or volume**—How well does this alternative use treatment technologies that permanently and significantly reduce the toxicity, movement, or volume of the contaminants?
- **Short-term effectiveness**—How well are human health and the environment protected from risk during construction and implementation of the remedial alternative? How long does it take to achieve the remedial action objective? Are there new risks involved with an alternative?
- **Implementability**—How feasible is it to implement this remedial alternative? Are the technology and materials required readily available? Are the services required commonly performed?
- **Cost**—What will the total cost be today for a remedial alternative, including capital costs and future operation and maintenance costs?

### Modifying Criteria

The evaluation of the remedial alternatives against the two modifying criteria will be completed during review of all comments received from the agencies/trustees and the community on this Proposed Plan. The results of the final evaluation will be incorporated into the Record of Decision.

- **State acceptance**—What is the apparent acceptability of the remedial alternative to the state regulatory agencies/trustees?
- **Community acceptance**—What is the apparent acceptability of the remedial alternative to the community?

## WHAT ARE “ARARs?”

Consideration of **A**pplicable or **R**elevant and **A**ppropriate **R**equirements (or “ARARs”, pronounced “ay-rars”) is required by CERCLA. The intent of meeting ARARs is to select and put in place a remedy that protects human health and the environment. There are three kinds of ARARs:

**Chemical-specific:** health-based numerical values, established by federal or state statutes or regulations;

**Location-specific:** regulations that may require actions to preserve or protect certain natural or cultural resources that may be affected by the remedy; and

**Action-specific:** regulations that apply to specific activities or technologies used to remediate a site.

For the IR Site 7 AOECs, federal and state regulations and statutes will apply and must be met in order for a remedy to be selected. These include, for example, requirements addressing water quality, endangered species, coastal preservation, land use, and disposal of dredged materials.

## RESULTS OF APPLYING THE CRITERIA TO THE REMEDIAL ALTERNATIVES FOR IR SITE 7

The Feasibility Study presents in detail the application of seven of the nine criteria (excluding the two Modifying Criteria) to the potential remedial alternatives for the sediments at AOECs A, B, C, E, F, and G at IR Site 7. The rationale for each of the preferred remedies presented in this Proposed Plan are summarized below.

### **AOEC A and AOEC C—Separating the benthic community from the chemicals of ecological concern by removal and discharge at off-site locations of the chemically impacted sediments**

- Provides the greatest level of protection to IR Site 7 benthic communities
- Achieves the remedial action objective
- Provides the greatest level of long-term effectiveness and permanence
- Easily implementable through dredging

### **AOEC B—No action needed; chemical concentrations have not resulted in sediment toxicity or adverse effects on the benthic community**

### **AOECs E, F, G—Limited action - institutional controls (such as deed restrictions) to prevent unauthorized or uncontrolled disturbance and/or exposure of beneath-pier sediments**

- Chemicals in the beneath-pier sediments represent potential ecological risk if these sediments are disturbed and typical benthic communities are exposed to them
- Locations of the piers and access requirements make institutional controls the most practical remedy
- Will be applied to the areal extent of these AOECs



## GLOSSARY

**Administrative Record**—A file of all documents used to select and justify remedial alternatives (see below) and selected actions at an Installation Restoration site. These documents are available for public review.

**AOEC (Area of Ecological Concern)**—Sediment area where apparent or probable adverse effects to the benthic community were attributable to site-related chemical compounds.

**Base Closure and Realignment Act of 1990 (BRAC)**—An act passed by Congress to close or realign (reorganize) a number of existing military facilities across the United States.

**Benthic**—Used to describe the location or condition at the bottom of a body of water, frequently mentioned as ‘benthic community’ to describe the various invertebrate organisms living in or on the surface of the sediment bed at the bottom of a body of water.

**Bioassays**—Biological tests conducted in a laboratory setting on typical benthic (see above) organisms to find out whether these organisms can live and reproduce successfully.

**Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)**—Commonly referred to as “Superfund”, this act was passed to address contamination resulting from past practices of handling and disposing of hazardous materials which, although acceptable at the time, often resulted in the release of pollutants into surrounding soil and groundwater.

**Feasibility Study**—An engineering evaluation of technologies that may be used to remedy a site. The study looks at site conditions, potential technical problems, costs, and human and environmental impacts to determine how effective the remedial technologies may be.

**Information Repository**—The physical location, usually at a local library or other publicly accessible place, where a collection of Installation Restoration Program site information is maintained. Although not usually as comprehensive as the Administrative Record (see above), the Information Repository contains copies of documents available for public review.

**Installation Restoration (IR) Program**—The program initiated by the Department of Defense, in compliance with CERCLA (see above), to identify, investigate, assess, characterize, clean up, or control past releases of hazardous substances.

**Institutional Controls**—Legal means for limiting access or use of property to prevent an increase in exposure risks at a site; for example, deed restrictions imposed by a property owner on a parcel of land.

**National Oil and Hazardous Substance Pollution Contingency Plan (NCP)**—The federal regulation that implements CERCLA (see above).

**Navy Mole**—A protective structure of stone, concrete, or soil that extends from shore into the water to protect a body of water or a shoreline from wave energy.

**Proposed Plan**—A plan that summarizes information from the Remedial Investigation and Feasibility Study. It includes a summary of the environmental conditions at a site, describes the remedial alternatives, evaluates the alternatives according to nine required criteria, and provides a brief analysis supporting the preferred alternative for the site. The Proposed Plan also satisfies federal requirements for public participation under CERCLA.

**Remedial Action Objective**—Clearly defined objective or goal of the remedy based on the measured physical, chemical, and toxicity characteristics of the environmental medium of interest and the ecosystem of interest at each AOEC.

**Remedial Alternatives**—A range of possible remedies or actions for addressing contamination at a site. These may include engineering controls and institutional controls (see above).

**Remedial Investigation**—A phase of environmental study that includes collecting sediment samples to evaluate the amount and type of contamination present at a site. This information is used to help develop remedies in the Feasibility Study.

**Restoration Advisory Board (RAB)**—An advisory group comprising community members and representatives of the Navy and regulatory agencies/trustees for the purpose of providing input to the Installation Restoration Program at a military facility. The RAB process, initiated by the Department of Defense under the IR Program, provides two-way communication between the community and the Navy and regulatory agencies.

**Sediment**—Natural particulate matter that has been transported to, and deposited at the bottom of, water bodies such as harbors, oceans, rivers, and lakes.

**Sediment Toxicity**—The toxic characteristic of sediments such that organisms in contact with the sediment experience acute effects such as mortality or chronic effects such as impaired growth and reproduction.

## WANT MORE INFORMATION?

For more information on the technical documents, public comment period, or public meeting, please contact any of the following individuals.

**Mr. Dennis Parker**  
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**INSIDE: Proposed Plan for Former Long Beach Naval Complex, IR Site 7**

**Public Comment Period: October 16 to November 16, 2006**

**Public Meeting: October 25, 2006, 6:00 PM**  
**AirFlite (at Long Beach Airport)**  
**3250 AirFlite Way, Long Beach, CA**

**Restoration Advisory Board Meeting Immediately Following**

## **Information Repository and Administrative Record File**

An information repository for the former Long Beach Naval Complex's Installation Restoration Program is located at the Long Beach Public Library. The local community has the opportunity to review project documents and reports produced for the Long Beach IR Program at the following location:

Long Beach Public Library  
Government Publications Department  
101 Pacific Avenue  
Long Beach, CA 90822  
(562) 570-7500

Hours:  
Tuesday - 10 AM to 8 PM  
Wednesday through Saturday - 10 AM to 5:30 PM  
Closed Sunday and Monday

An Administrative Record file, which contains all the documents used to select and justify the remedial alternatives and selected actions at Long Beach Naval Complex, is also available to the public. For an appointment, please contact: Ms. Diane Silva, Southwest Division, Naval Facilities Engineering Command, 937 North Harbor Drive, 3rd Floor, San Diego, CA 92132, (619) 532-3676. Hours: Monday through Friday, 8 AM to 4 PM.