Proposed Plan for Installation Restoration Site 20 Former NAS Alameda

Alameda, California **February 2008**

U.S. NAVY PROPOSES NO FURTHER ACTION

The U.S. Navy requests public comments on its Proposed Plan for no further action at **Installation Restoration (IR)*** Site 20, in Oakland Inner Harbor, located on the former Naval Air Station (NAS) Alameda, in Alameda, California (Figure 1). The U.S. **Environmental Protection Agency (EPA)**, California EPA **Department of Toxic Substances Control (DTSC)**, and the **San Francisco Bay Regional Water Quality Control Board (Water Board)** worked with the Navy and concur that no further action is required at IR Site 20.

This Proposed Plan presents the Navy's no further action recommendation and summarizes the results of the environmental investigation at offshore IR Site 20, which is located in Oakland Inner Harbor, on the former NAS Alameda, now referred to as Alameda Point. This recommendation is based on extensive field investigations, laboratory analyses, data evaluations, review of current and future land use, and thorough assessment of the potential human health **risk** and ecological risk.

The environmental investigation and associated evaluations, referred to as a **remedial investigation (RI)**, was conducted in accordance with the governing federal law known as the **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)**. Based on these RI evaluations, the current and future conditions at IR Site 20 do not present an unacceptable risk to human health or the environment. No land-use restrictions, environmental monitoring, or other cleanup actions are required at this site.

Figure 1. Former NAS Alameda Location

- NOTICE -

Public Comment Period

February 19, 2008
through
March 20, 2008

Public Meeting

March 12, 2008

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

6:30 to 8:00 p.m.

*Words in **bold** typeface are defined in the glossary on page 6.

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)**. Under the CERCLA process, the Proposed Plan follows the environmental investigation, known as the RI, when the results of the risk assessment show that cleanup is not needed. In this case, a feasibility study evaluating different options for cleanup is not required. The flowchart to the right illustrates the current phase of IR Site 20 in the CERCLA process.

This Proposed Plan summarizes information detailed in the RI report completed in August 2007. The Navy encourages the public to review this document to gain an understanding of the environmental investigation activities and risk assessments that have been conducted. The RI report is available for public review at the locations listed on page 5. Information about the public meeting for this Proposed Plan and on submitting public comments during the 30-day public comment period is also presented on page 5.

In consultation with the regulatory agencies, the Navy may modify the proposed remedy based on feedback from the community or on new information. Therefore, the community is encouraged to review and comment on this Proposed Plan. A final decision, documented in the **record of decision (ROD)**, will not be made until all comments are considered.

SITE DESCRIPTION AND BACKGROUND

Former NAS Alameda ceased operations in 1997. Alameda Point is located on the western tip of Alameda Island, which is on the eastern side of San Francisco Bay. Offshore IR Site 20 is located on the southern side of the Oakland Inner Harbor Channel, adjacent to the northern shoreline of the eastern portion of Alameda Point (Figure 2). The Oakland Inner Harbor Channel is a major industrial waterway serving marine terminals and repair facilities in the cities of Oakland and Alameda.

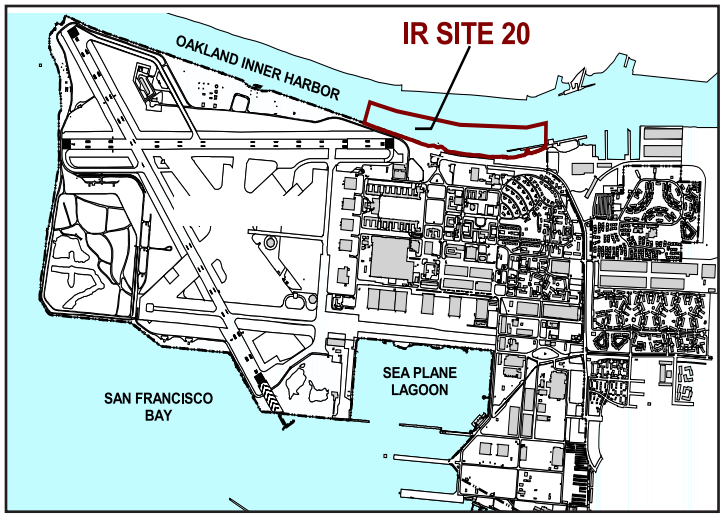
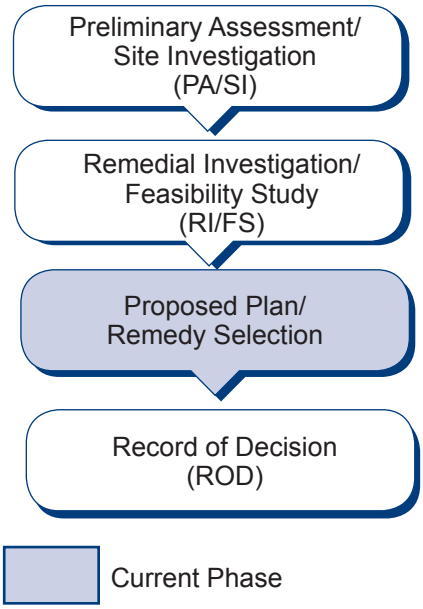


Figure 2. Location of IR Site 20

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



A variety of industries are located along the length of Oakland Inner Harbor and IR Site 20, including port facilities, a ship-building and repair facility, sand and gravel offloading areas, and marinas. There are four storm-sewer outfalls along the IR Site 20 shoreline. The Navy removed sediments in the storm-sewer lines for these outfalls during a 1997 removal action.

SITE INVESTIGATIONS

Several environmental investigations have been conducted at IR Site 20. In 1993 and 1994, four samples were collected within the IR Site 20 area as part of an ecological assessment for Alameda Point. Based on the industries in this area and the limited site data, a sediment screening study was then conducted at IR Site 20. The RI sediment sampling for IR Site 20 was conducted in 2005 and included both surface sediment and subsurface sediment. The purpose of the RI sampling was to characterize the sediment quality, identify the nature and extent of contamination as well as the potential risks to human health and ecological receptors, and determine which areas, if any, might require further evaluation in a feasibility study of cleanup alternatives.

Consistent with the previous sampling events at IR Site 20, the samples collected during the RI were analyzed for organic chemicals and inorganic constituents (metals). The organic chemicals that were analyzed include **polychlorinated biphenyls (PCBs)** and pesticides.

The RI conducted at IR Site 20 evaluated the sampling data from the previous investigations as well as the 2005 RI data. Three separate data sets were evaluated for IR Site 20, representing different time periods and exposure

scenarios. These data sets were as follows: 1) historical data collected in the surface sediment data from 0–5 centimeters (cm); 2) 2005 surface sediment data (0–5 cm); and 3) 2005 subsurface sediment data (5–25 cm), as well as deeper core samples (25–50 cm).

The RI report for IR Site 20 was combined with the RI report for IR Site 24. This was done because at both offshore IR sites, the RI samples were collected in 2005 in accordance with the same work plan. Separate risk assessments and evaluations were conducted for each site and are presented in the RI report. A feasibility study is being conducted at IR Site 24, and it is not addressed in this Proposed Plan.The Final RI Report for IR Site 20 (Oakland Inner Harbor) and IR Site 24 (Pier Area) was issued in August 2007. The RI report compared the site sediment results to **ambient** values for IR Site 20, and presented the human health and ecological risk assessments. The RI human health and ecological risk assessments for IR Site 20 are summarized in subsequent sections. A brief summary of the IR Site 20 RI follows.

Arsenic was the primary risk driver for the metals. Pesticides were seldom detected, with the exception of 4,4-**DDD**, 4,4-**DDE**, and 4,4-**DDT**. The average surface sediment concentrations for the historical and RI samples collected between 1993 and 2005 are compared to ambient values for the San Francisco Bay in Table 1 below. In the IR Site 20 subsurface samples, metals and organic concentrations were generally uniform with depth, and metals were generally consistent with ambient reference concentrations. The **human health** and **ecological risk assessments** evaluated both the historical and 2005 RI data and concluded that no further action is required.

HUMAN HEALTH RISK ASSESSMENT

Within the context of environmental investigations and actions, “risk” is the likelihood 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 noncarcinogenic (causes other illnesses).

Table 1. Surface Sediment Concentrations Compared to Ambient Concentrations

Chemical Name*	Average Concentration ppm**	Ambient Concentration ppm**
Arsenic	5.93	15.3
Lead	40.1	43.2
4,4-DDD	0.0057	None
4,4-DDE	0.0025	None
4,4-DDT	0.0213	None
Total PCBs	0.157	0.2

* Chemicals listed were primary contributors to the risk estimates. All the risk estimates were below screening levels or ambient concentrations.

**ppm = parts per million

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. Therefore, actual human exposures and associated risks are likely to be lower than those calculated for the risk assessment. Health risk estimates do not predict actual health effects, but are a tool for making **risk management** decisions on the need for action to reduce possible exposure.

A human health risk assessment was performed for IR Site 20 as part of the RI evaluation. The Navy used EPA guidance to evaluate the different ways that people might be exposed to the chemicals, possible concentrations of the chemicals that potentially could be encountered in those exposures, and the potential frequency and duration of exposure. These **exposure pathways** are based on current and reasonable future exposure scenarios.

IR Site 20 is a heavily industrialized area and is publicly accessible. It was assumed for risk assessment purposes that shellfish observed along the shoreline areas were accessible to people who harvest and consume them. Fishing also was considered a complete exposure pathway. In addition, exposure to chemicals through dermal (skin) contact and through incidental ingestion of sediment was evaluated (see Table 2).

Table 2. Exposure Pathways for Current and Potential Future Human Receptors

- Dermal contact with sediment
- Ingestion of fish and shellfish
- Incidental ingestion of sediment

Cancer risk is expressed as a statistical probability that an individual could have an increased risk of cancer incidence. A 1 in 10,000 chance is a risk of 1×10^{-4}. For every 10,000 people, one additional cancer risk may occur as a result of exposure. A 1 in 1,000,000 chance is expressed as 1×10^{-6}. In this case, for every 1,000,000 people, one additional cancer case may occur as a result of exposure. Therefore, a 1×10^{-4} cancer risk is a higher risk than 1×10^{-6}.

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. Site-specific factors are typically considered at sites where the cancer risks are in the 10^{-4} to 10^{-6} range. Risks below 10^{-6} are generally considered insignificant, and no action is required.

For noncancer effects, a **hazard quotient (HQ)** is calculated. An HQ of 1 or greater indicates that a lifetime

Table 3. Summary of Human Health and Ecological Risk Assessments	
Risk Assessment Endpoint	**Conclusion**
Human Health Risk: Direct contact, shellfish ingestion, fish ingestion	No Unacceptable Risk: • Cancer risks either below 10^{-6} or comparable to ambient conditions • Noncancer HQs below 1 or comparable to ambient conditions
Ecological Risk: Benthic invertebrate community	No Unacceptable Risk: • Little or no toxicity observed in bioassays
Ecological Risk: Fish community	No Unacceptable Risk: • Fish tissue concentrations (modeled) did not exceed protective toxicity reference values
Ecological Risk: Avian community (Least Tern, Surf Scooter, Double-Crested Cormorant)	No Unacceptable Risk: • Low toxicity • Risks comparable to ambient conditions

of exposure may have the potential to cause adverse health effects. The HQ is based upon effects of a single chemical. To express health effects for multiple chemicals, the HQs are added together to obtain the **hazard index (HI)**.

As part of the CERCLA risk assessment process, the site risks associated with potential exposure to chemicals are compared to risks for reference stations that represent ambient conditions. At IR Site 20, site risks associated with potential exposure to chemicals in sediment were compared with those from reference stations throughout the San Francisco Bay.

Risks to human health from IR Site 20 sediments are similar to risks for ambient conditions at the reference stations. Because site risks were often lower than ambient risks at the reference locations, incremental risk was not calculated. For direct contact with sediment, shellfish ingestion, and fish ingestion, cancer risks are either lower than 10^{-6} or comparable to ambient conditions (see Table 3). For noncancer risks, HQs are either less than 1 or comparable to ambient conditions. Total cumulative risks for all exposure scenarios were comparable to or even less than those estimated for reference conditions. The human health risk assessment concluded that there are no unacceptable risks at IR Site 20.

ECOLOGICAL RISK ASSESSMENT

The ecological risk assessment presented in the RI report was conducted following EPA and Navy guidelines to estimate potential risk from chemicals at IR Site 20 to ecological receptors including **benthic invertebrates**, fish, and **benthic-feeding birds**. The ecological risk assessment evaluated IR Site 20 data from sediment chemical analysis, sediment toxicity tests, and clam tissue analysis from clams exposed to IR Site 20 sediment in laboratory studies.

Table 3, shown above, summarizes the results of the ecological risk assessment, as well as the human health risk assessment. The survival, growth, and development of benthic invertebrates measured in toxicity tests were not adversely affected. Toxicity tests also show that sediments are not toxic to benthic invertebrates. Estimated fish tissue concentrations were below protective screening values, showing that there is no unacceptable risk to fish. Risk estimates for birds such as the least tern were low and similar to ambient risk estimates. In addition, the risk for marine mammals such as the harbor seal is considered minimal. The ecological risk assessment concluded that there are no unacceptable risks to ecological receptors at IR Site 20.

SUMMARY AND CONCLUSIONS

Overall, concentrations of metals and organic chemicals in sediments at IR Site 20 are relatively uniform, both in the surface and at depth, and generally do not exceed ambient concentrations. Additional information on the evaluation of the IR Site 20 sediment can be found in the RI report, which is available for public review at the locations listed on page 5.

No further action at IR Site 20 is proposed for the following reasons.

- Human health risks were determined to be consistent with ambient conditions or were less than 10^{-6} for cancer risk or a HQ of 1 for noncancer risk.
- No unacceptable risk was identified for any of the ecological receptors at IR Site 20.

Multi-Agency Environmental Team Concurs with No Further Action

The environmental team, which has been working cooperatively to address remedial decisions for Alameda Point IR Site 20, concurs with no further action for this site and consists of:

- The Navy
- EPA Region 9
- DTSC
- Water Board

SITE CONTACTS

Community involvement in the decision-making process is encouraged. If you have any questions or concerns about environmental activities at IR Site 20, please feel free to contact any of the following project representatives:

- **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
  (619) 532-0907
- **Ms. Xuan-Mai Tran**
  Project Manager
  U.S. EPA, Region 9
  75 Hawthorne Street
  San Francisco, CA 94105
  (415) 972-3002
- **Ms. Dot Lofstrom**
  Project Manager
  Department of Toxic Substances Control
  8800 California Center Drive
  Sacramento, CA 95826
  (916) 255-6449
- **Mr. John West**
  Project Manager
  San Francisco Bay Water Board
  515 Clay Street, Suite 1400
  Oakland, CA 94612
  (510) 622-2438
- **Mr. Marcus Simpson**
  Public Participation Specialist
  Department of Toxic Substances Control
  8800 California Center Drive
  Sacramento, CA 95826
  (916) 255-6683 or toll free at (866) 495-5651

OPPORTUNITIES FOR PUBLIC INVOLVEMENT

Information Repository

Individuals interested in the full technical details beyond the scope of this Proposed Plan can visit the local Information Repository in Alameda:

- **Alameda Point – 950 West Mall Square, Building 1, Room 240**

Supporting documents describing the field investigations, laboratory analyses, and risk assessments are part of the Alameda Point **Administrative Record (AR)** and are available for your review at the Information Repository in Alameda. These reports include the August 2007 Final Remedial Investigation Report for IR Site 20 (Oakland Inner Harbor) and IR Site 24 (Pier Area). In addition, the Alameda Public Library maintains new Navy environmental documents during review periods and is located at 1550 Oak Street, Alameda, CA 94501.

PUBLIC COMMENT PERIOD

The 30-day public comment period for the IR Site 20 Proposed Plan is February 19 through March 20, 2008.

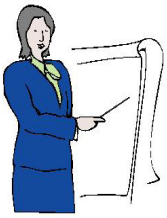
Submit Comments

There are two ways to provide comments during this period:

- Offer oral comments during the public meeting
- Provide written comments by mail, email or fax (no later than March 20, 2008)

Public Meeting

The public meeting will be held on Wednesday, March 12, 2008 at Alameda Point, 950 West Mall Square, Room 201 from 6:30 p.m. to 8:00 p.m. This meeting offers the community an opportunity to discuss the information presented in this Proposed Plan. Navy representatives will provide visual displays and information on the environmental investigations. 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
thomas.macchiarella@navy.mil

For More Information:
http://www.bracpmo.navy.mil

Administrative Record

The AR is the collection of reports and historical documents used by the decision-making team in the selection of the cleanup or environmental management alternatives for a site. The AR file includes the August 2007 Final Remedial Investigation Report for IR Site 20 (Oakland Inner Harbor) and IR Site 24 (Pier Area) discussed in this Proposed Plan [AR File #2900]. You may view the AR documents by appointment during working hours (Monday through Friday, 8 a.m. to 5 p.m.). Please contact Ms. Silva at the number provided to make an appointment.

The AR file is located at:

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

GLOSSARY OF TECHNICAL TERMS

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

ambient – Sediment concentrations considered normal in San Francisco Bay based primarily on values developed by the Water Board.

Base 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.

benthic-feeding birds – Birds that dive and eat bottom-dwelling (benthic) organisms.

benthic invertebrates – Bottom-dwelling marine organisms such as worms, sand dollars, and crustaceans.

Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) – Also known as Superfund, this federal law regulates environmental investigation and cleanup of sites in a manner that is protective of human health and the environment.

Department of Toxic Substances Control (DTSC) – A department within the California Environmental Protection Agency charged with overseeing the investigation and cleanup of hazardous waste sites, herein referred to as DTSC.

dichlorodiphenyldichloroethane (DDD) – A historically used pesticide that is closely related chemically and similar in properties to DDT.

dichlorodiphenyldichloroethylene (DDE) – A persistent organochlorine that is produced by the breakdown of DDT.

dichlorodiphenyltrichloroethane (DDT) – A historically used colorless, odorless, and water-insoluble crystalline pesticide.

ecological risk assessment – The evaluation of potential harmful effects to plants, animals, and habitat as a result of exposure to chemicals in the environment.

Environmental Protection Agency (EPA) – The Federal agency established to protect human health and the environment.

exposure pathway – The way that a chemical comes into contact with a living organism.

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) – The estimate of potential harmful effects humans may experience as a result of exposure to chemicals.

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

National Oil and Hazardous Substances Pollution Contingency Plan (NCP) – The federal regulation that guides the CERCLA (Superfund) program.

polychlorinated biphenyls (PCBs) – Category of organic compounds in which the biphenyl molecule has been chlorinated to varying degrees. In the past PCBs were often used in industry in electrical transformers because of their insulating properties.

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

remedial investigation (RI) – A major study that must be completed before a decision can be made about how to clean up a site. The RI is conducted to evaluate the nature and extent of contamination at the site and includes the human health and ecological risk assessments.

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

risk management – Evaluation and implementation of options or measures to reduce risk, including but not limited to such options as no further action, monitoring, active treatment, or collecting additional data before making a decision.

San Francisco Bay Regional Water Quality Control Board (Water Board) – The California water quality authority. California is covered by nine regional boards; Alameda is within the San Francisco Bay Region (Region 2).

Proposed Plan Comment Form

Alameda Point IR Site 20, Oakland Inner Harbor

The public comment period for the Proposed Plan for IR Site 20, Former Naval Air Station (NAS) Alameda at Alameda Point, Alameda, California is from February 19, 2008 though March 20, 2008. 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 March 12, 2008 from 6:30 to 8:00 pm. You may provide your comments orally 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 stationery. All written comments must be postmarked no later than March 20, 2008. 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.

Name: _____

Representing:
(if applicable) _____

Phone Number:
(optional) _____

Address:
(optional) _____

☐ Please check here if you would like to be added to the Navy's Environmental Mailing List for Alameda Point.

Comments:

Mail 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

Don't forget: A Public Meeting for the Proposed Plan will be held on March 12, 2008, at the Alameda Point Main Office Building.

Proposed Plan for
Installation Restoration Site 20
Former NAS Alameda

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