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ALAMEDA POINT
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PRC

March 11, 1994

Lt. Mike Petouhoff
Environmental Officer
Naval Air Station Alameda
250 Mall Square
Alameda, California 94501-5000

Subject: Ecological Assessment, Naval Air Station Alameda Executive Summary

Dear Lt. Petouhoff:

The executive summary for the Naval Air Station (NAS) Alameda ecological assessment was inadvertently omitted when the copies of the document were distributed. Enclosed is a copy of the executive summary.

If you have any questions regarding this matter, please call Mr. George Kikugawa, Code T4A2GK, (415) 244-2559, Fax (415) 244-2553.

Sincerely,

T.L. Ruiter, Esq.
PRC Project Manager

TLR/jem

Distribution:
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DRAFT REPORT ECOLOGICAL ASSESSMENT (EA)

DATED 17 FEBRUARY 1994

IS ENTERED IN THE DATABASE AND FILED AT ADMINISTRATIVE RECORD NO. **N00236.001032**

EXECUTIVE SUMMARY

The U.S. Navy is conducting a remedial investigation and feasibility study (RI/FS) at Naval Air Station Alameda (NAS Alameda). The RI/FS is being conducted in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA, or Superfund), as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA). In order to ensure protection of public health and the environment, a human health and an ecological assessment are underway concurrently with the RI/FS. This document is the ecological assessment (EA) for NAS Alameda. The EA has been conducted in accordance with U.S. Environmental Protection Agency (EPA) risk assessment guidelines (EPA 1992), and the apparent effects threshold (AET) approach to evaluating ecological effects caused by contaminated sediments in aquatic systems (Chapman and others 1986; Long and Morgan 1990).

The EA is designed to identify ecological impacts on biota that may be caused by hazardous materials used at, and disposed within, NAS Alameda. Five study areas are included in the EA: (1) the West Beach Landfill Wetland; (2) the Runway Wetland; (3) the Seaplane Lagoon; (4) the Western Bayside (San Francisco Bay), and (5) the Oakland Inner Harbor. These study areas were identified as sites where impacts are likely to be observed. The evaluative processes leading to identification of these sites for further study included an initial assessment study (IAS) (Ecology & Environment 1983) and a characterization study/verification step (CS/VS) (Wahler Associates 1985). This EA was carried out according to the ecological assessment work plan developed jointly by the Navy, the National Oceanic and Atmospheric Administration (NOAA), the California Environmental Protection Agency Department of Toxic Substances Control (DTSC), and the San Francisco Bay Regional Water Quality Control Board (RWQCB). The EA is part of Phase IV of the RI/FS being conducted for the entire NAS Alameda site. Phases I through III of the site-wide RI/FS have been completed or are nearing completion.

Samples from numerous stations at NAS Alameda, in San Francisco Bay, and in the Oakland Inner Harbor were identified in this study as containing metals and organic contaminants in concentrations that exceeded guidance values for potential toxicity published by Long and Morgan (1990). The study also identified a number of stations in the study areas where very high concentrations of toxicants were detected in samples, but toxicity was not expressed.

Stormwater samples contained measurable concentrations of cadmium, lead, and zinc; other metals measurements were below the detection limits for this project. Stormwater samples did not contain any measurable concentrations of chlorinated organic compounds and only very low concentrations of semivolatile organic compounds (SVOCs) (primarily phthalates). Samples of stormwater from one station caused mortality among fathead minnow larvae; stormwater from all three stormwater stations caused a reduction in growth of fathead minnows.

The aquatic ecosystem in the vicinity of NAS Alameda and the Oakland Inner Harbor is heavily stressed, receiving the combined discharges of NAS Alameda, the City of Oakland, and the numerous port and industrial facilities located within the City of Oakland and the City of Alameda. Sediments throughout the region have long been known to contain elevated concentrations of numerous toxic and potentially toxic chemicals (Long and others 1988; Word and others 1988; Long and Markel 1992). Whereas testing criteria for dredged material from the Oakland Inner Harbor and Outer Harbor have infrequently been used to identify sediments as posing a hazard to the biota of San Francisco Bay, these conclusions may be suspect since dredged material from the existing Alcatraz disposal site has historically been designated as the material to be used as bioassay test reference material.

The apparent gradient in toxic materials from the West Beach Landfill toward the adjacent wetland suggests active transport of chemical toxicants from the disposal site toward San Francisco Bay. Sediments from the northern and eastern margins of the West Beach Landfill Wetland were found to be toxic. Sediments from the remainder of the wetland were not toxic and did not contain elevated concentrations of metals or organic compounds.

Sediment samples from one location in the Runway Wetland were toxic and contained elevated concentrations of toxic materials. Samples from the other Runway Wetland locations contained low concentrations of contaminants and were not toxic to bioassay organisms.

The Seaplane Lagoon is highly contaminated; DDT and polychlorinated biphenyl (PCB) concentrations in sediment cores are among the highest that have been observed in San Francisco Bay. Metals concentrations in sediment cores were significantly greater than in the surficial sediments and suggest a major historical source. Concentrations of metals entering the Seaplane Lagoon in stormwater were greater, by an order of magnitude, than concentrations of metals in San Francisco Bay water. Stormwater, therefore, represents a significant contribution of metals to the Seaplane Lagoon and connected waters surrounding NAS Alameda.

Sediment samples from the Western Bayside did not show any specific trends. Some sediments from the Western Bayside contained elevated concentrations of toxic metals and organic compounds and were toxic to bioassay organisms. Some did not. There was no clear pattern to the distribution and location of contaminated and toxic sediments along the Western Bayside, nor was there a clear correlation between sediment chemistry, sediment physical characteristics, and sediment toxicity among Western Bayside samples. Sediment core samples from the Western Bayside study area did not show chemical contamination increasing with depth in the sediments.

Sources of contamination of the Western Bayside and Oakland Inner Harbor are not readily identifiable.