



**U.S. DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL OCEAN SERVICE  
OFFICE OF OCEANOGRAPHY AND MARINE ASSESSMENT  
OCEAN ASSESSMENTS DIVISION  
Hazardous Material Response Branch  
7600 Sand Point Way N.E. - Bin C15700  
Seattle, Washington 98115

July 7, 1988

Attention: Mr. Alex E. Dong, Code 1146  
Commander, Western Division  
Naval Facilities Engineering Command  
P. O. Box 727  
San Bruno, CA 94066-0720

Dear Mr. Dong:

NOAA is trustee for marine mammals, numerous marine fish and invertebrate species which utilize the southern portion of San Francisco Bay as nursery, spawning and foraging areas. Some of these species utilizing these habitats are summarized in Table 1. The proximity of contaminated sites to habitats of NOAA resources, the potential for offsite contaminant migration, and the magnitude and broad chemical diversity of contaminants (e.g., chlorinated solvents, PCBs, petroleum hydrocarbons, metals and possible radioactive materials) documented at the site pose considerable potential risk of injury to NOAA resources. For this reason, we appreciate the recent opportunity to review a number of documents related to the site and look forward to continuing coordination with the Navy during remedial investigations at the Hunters Point Annex Site. If possible, we would also like to arrange a site visit sometime in the near future.

In reviewing the documents provided to us (See Attachment 1), we were unable to determine the likelihood of whether NOAA trust resources have been impacted by contamination from the Hunters Point Annex site. This is primarily due to a lack of data on sediment contamination along the shoreline. The documents reviewed mentioned the existence of sediment chemistry data, but did not cite any specific sources or present any of the data. The fact that the Initial Assessment Study (WESTEC 1984) concluded that "these sediments were best left undisturbed as they would pose a greater threat to the environment if disturbed" suggests significant sediment contamination is present. There also was no mention in any of the documents reviewed of any biological impact or bioaccumulation studies. In assessing the potential threat to our resources, NOAA would appreciate reviewing any available studies or data on sediment contamination, bioaccumulation or biological impacts.

Based on information presented in the documents reviewed, transport of contaminants from certain sites to the Bay is likely. Several important pathways for contaminant transport to NOAA habitats are not adequately addressed in the documents we reviewed: contaminant transport via direct surface water runoff and erosion into the Bay during storm events; contaminant transport via leachate seepage and groundwater transport into the Bay; and contaminant transport via discharges, spills, surface runoff, and leachate entering the storm drain/sewer system and discharging to the Bay. Specific comments and recommendations related to the documents reviewed are discussed below.



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## Work Plan and Preliminary Public Health and Environmental Evaluation

A fundamental concern we have in the approach outlined in the work plan (in terms of environmental risk assessment in general, and NOAA resources in particular) is the heavy emphasis on the human health risk assessment approach. The approach outlined in the work plan and used in the Preliminary PHEE appears to rely exclusively on human toxicology for identifying contaminants of concern and places more emphasis on human exposure pathways (e.g., dermal contact, ingestion, and inhalation) than on exposure pathways to biota (especially marine organisms, e.g., groundwater and surface water transport of contaminants to the Bay). Partly as a result of the emphasis on human health, contamination of groundwater, soils, and air is well characterized, but no data are available on contamination of surface water and sediments. Additional potential pathways for offsite contaminant migration also need to be evaluated and are discussed below in our comments on sampling.

We recommend that a hazard identification, exposure assessment and risk characterization be conducted independent of human health issues using data on environmental toxicology (particularly toxicity to aquatic organisms where available), the potential for offsite migration, concentrations in relevant media (i.e., sediment and biota), and chronic and acute toxicity. A separate list of indicator chemicals and a risk characterization discussion should be compiled. The results based on environmental concerns can then be combined with those for human health in determining overall risk management strategies.

### Sampling of Group I Sites

The proposed soil and groundwater sampling of Group I sites should be adequate to characterize the extent of on-site contamination. Additional sampling is necessary to characterize potential or actual impact to adjacent environmental resources in the Bay. There is significant potential for historical or ongoing offsite transport of contaminants from Group I sites via surface runoff and, possibly erosion, which may not be addressed by the proposed sampling. Leachate was observed flowing from the Industrial Landfill into the Bay, and in 1975 an unsuccessful attempt was made to construct a slurry wall along the Bay front to prevent leachate migration. The shoreline along much of the Bay Fill area appears to have receded 15-80 meters from its 1950 contour. This may mean significant quantities of hazardous materials have been eroded into the Bay. We recommend that a reconnaissance survey be added to the proposed sampling plan which will identify surface water pathways (past and present), including storm drains and combined sewers, and ensure sampling of these areas is included.

Given the nature of the fill material and the proximity to the Bay, we recommend that groundwater sampling include provisions for monitoring hydrostatic head levels during tidal cycles, in conjunction with conductivity measurements, to determine the extent of tidal pumping and saltwater infiltration. This is especially of concern in areas with exceptionally high contaminant concentrations (e.g., volatile organic contaminants in the Industrial Landfill).

The adequacy of proposed sediment sampling is difficult to assess because of a lack of information on existing conditions, potential contaminant transport pathways (e.g., the presence of leachate seeps), shoreline energetics, and shoreline features (e.g., riprap, piling, or beach). If available, we would like to review this information before making specific sampling recommendations. Assuming the high potential for contaminant transport to the shoreline environment, the existing sampling should probably be considered as a "tier one" sampling plan. We recommend samples be analyzed for volatile and semivolatile organic compounds, PCBs, priority pollutant metals, total petroleum hydrocarbons, oil and grease, total organic carbon, total sulfides, grain size, and radiation parameters. If laboratory results on these chemical analyses indicate significant contamination (based on observed or predicted biological effects from other areas, or in comparison to chemical-specific sediment quality values), it may be warranted to implement a "tier two" sampling and analyses program (e.g., benthic infauna surveys, bioassays, bioaccumulation studies, and/or fish histopathology.)

#### Sampling of Group II Sites.

Two sites within this group are of particular concern to NOAA. Contaminated rinse water from the Pickling and Plate Yard operations was reportedly discharged directly to the combined storm/sewer drain system. In addition, waste acids containing heavy metals, cyanide wastes, and chromates were reportedly spilled onto the floor and dock loading areas at the Battery and Electroplating shop and washed into the floor drains and storm drain/sewer system which discharges to the Bay. We recommend that a reconnaissance survey of the drain system and discharge points for all Group II sites be done. Sediment samples should be collected from within the combined storm drain/sewer system servicing these sites and around their points of discharge to the Bay. If analytical results indicate elevated levels of contaminants, tiered biological surveys should be conducted to determine the extent of impacts to resources in the Bay.

Proposed sampling at the tank farms should be augmented with hydrostatic and conductance studies to determine tidal influence on groundwater flow. Additional sampling recommendations may be warranted if there is a potential for significant transport of contaminants to the marine environment. We request that sampling plans and study results for PA site 15 be provided to us when available for screening of potential threats to NOAA resources.

#### GROUP III and IV SITES

Proposed sampling for Group III and IV sites is adequate for determining the nature and extent of on-site contamination in soil. Groundwater transport of contaminants at these sites may be facilitated by preferential pathways (e.g., gravel fill) and tidal pumping. We recommend including hydrostatic monitoring at wells to evaluate tidal effects on groundwater flow and to better determine the potential for offsite migration of contaminants

in the groundwater. A reconnaissance survey of the storm drain/sewer system for Group III and IV sites should be conducted and samples collected within the combined system and around discharge locations in the Bay.

If you have any questions on NOAA's comments, please contact me at 206-526-6829.

Sincerely,

  
Sharon K. Christopherson  
Coastal Resource Coordinator

Attachment 1

TABLE 1. HABITAT USE BY NOAA RESOURCES IN THE SOUTHERN PORTION OF SAN FRANCISCO BAY

SPECIES	SPAWN. AREA	NURS. AREA	ADULT AREA	REC. FISH.	COMM. FISH.	MIGR. ROUTE
Dungeness crab		x				
Rock crab	x	x	x			
Bay shrimp	x	x	x	x	x	
Soft shell clam	x	x	x			
Bent-nose clam	x	x	x			
Shiner perch	x	x	x			
Barred perch	x	x	x			
Top smelt		x				
Jack smelt		x				
Pacific herring		x				
Anchovy		x				
Sand dab		x	x			
English sole		x	x			
Starry flounder		x	x			
California tonguefish		x	x			
Yellowfin gobies	x	x	x			
Staghorn sculpin	x	x	x			
Striped bass		x	x	x		
Leopard shark		x	x			
Spiny dogfish		x	x			
Bat ray		x	x			
Harbor seal		x	x			

Southern San Francisco Bay is a typical highly productive estuary where juvenile and young-of-the-year fish of many species forage. During periods of favorable temperature, salinity, and water volume, sloughs and tidal creeks entering the Bay are also utilized by fish for foraging. Species such as smelt and herring spawn in the central areas of the bay and use the nearshore estuarine areas for a nursery ground. Several flatfish species also utilize southern bay estuarine areas as juvenile nursery grounds and can be found in these areas to some extent as adults. Sea perches are year-round residents of the southern bay and are often found just beyond the intertidal zone. Leopard sharks, dogfish, and bat rays frequent the

mudflats during high tide where they feed on fish and benthic invertebrates. Large concentrations of commercially important shrimp species are also present in the southern bay where juvenile shrimp are found in nearshore waters and adults are found in the central portions of the bay.

In addition to the species presented in Table 1, a small number of anadromous salmonids (Pacific salmon and steelhead) use several of the riverine watersheds in the southern bay area. Juvenile and adult salmonids can therefore be expected to use southern bay habitats to some extent.

Attachment 2

List of Documents Reviewed  
(July 8, 1988)

Aqua Terra. June 1988. Work plan volume 6: Public health and environmental evaluation plan, remedial investigation/feasibility study - Naval Station Treasure Island, Hunters Point Annex, San Francisco, CA. Aqua Terra Technologies, Inc. Walnut Creek, CA.

Harding Lawson Associates. January 1988. Quality assurance project plan, Naval Station Treasure Island - Hunters Point Annex, San Francisco, California. Prepared for Western Division, Naval Facilities Engineering Command. Harding Lawson Assoc., Novato, CA.

\_\_\_\_\_. December 1987. Sampling plan for Group II sites, remedial investigations/feasibility studies, Naval Station Treasure Island - Hunters Point Annex, San Francisco, California. Prepared for Western Division, Naval Facilities Engineering Command. Harding Lawson, Assoc., Novato, CA.

\_\_\_\_\_. March 3, 1988. Scoping document remedial investigations/feasibility studies, Naval Station Treasure Island - Hunters Point Annex, San Francisco, California. Prepared for Western Division, Naval Facilities Engineering Command. Harding Lawson, Assoc., Novato, CA.

\_\_\_\_\_. March 7, 1988. Work plan volume 2A: Sampling plan for Group I sites, remedial investigations/feasibility studies, Naval Station Treasure Island - Hunters Point Annex, San Francisco, California. Prepared for Western Division, Naval Facilities Engineering Command. Harding Lawson, Assoc., Novato, CA.

\_\_\_\_\_. March 8, 1988. Work plan volume 2C: Sampling plan for group II sites, remedial investigations/feasibility studies, Naval Station Treasure Island - Hunters Point Annex, San Francisco, California. Prepared for Western Division, Naval Facilities Engineering Command. Harding Lawson, Assoc., Novato, CA.

\_\_\_\_\_. March 9, 1988. Work plan volume 2D: Sampling plan - Group IV site, remedial investigations/feasibility studies, Naval Station Treasure Island - Hunters Point Annex, San Francisco, California. Prepared for Western Division, Naval Facilities Engineering Command. Harding Lawson, Assoc., Novato, CA.

\_\_\_\_\_. February 12, 1988. Work plan volume 2E: Air sampling plan, remedial investigations/feasibility studies, Naval Station Treasure Island - Hunters Point Annex, San Francisco, California. Prepared for Western Division, Naval Facilities Engineering Command. Harding Lawson, Assoc., Novato, CA.