N00217.001576
HUNTERS POINT
SSIC NO. 5090.3

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

Commanding Officer
Naval Facilities Engineering Command
Western Division
ATTN: Louise Lew (1811)
PO Box 727
San Bruno, CA 94066

Dear Ms. Lew:

Enclosed are EPA's comments on the draft **Environmental Sampling and Analysis Plan** dated August 28, 1990 for Hunters Point Annex. We have included a copy of comments submitted to us by the National Oceanic and Atmospheric Administration.

Given the number and detail of the comments presented here, and in comments submitted separately by the State, we believe it would be beneficial to meet after the Navy has had a chance to review the comments, in order to discuss the comments and the approach the Navy plans to take to address them. While the FFA provides for such a meeting within 15 days of a request (Section 7.7(e)), I am open to meeting after that 15-day period if additional time is needed for the Navy to review the comments.

Please let me know if you believe such a meeting would be useful and, if so, what dates may be good for you.

Sincerely,

Chuck Flippo
Remedial Project Manager

cc: Eddie Sarmiento, NSTI
Mark Malinowski, DHS
Tom Gandesbery, SFRWQCB
Scott Lutz, BAAQMD
David Wells, SFPHD
Chip Demarest, NOAA
Bill Allen, DOI

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EPA COMMENTS ON
DRAFT ENVIRONMENTAL SAMPLING AND ANALYSIS PLAN
FOR HUNTERS POINT ANNEX

GENERAL COMMENTS

1. The plan excludes the dredged areas. These should be included in the study. Studies conducted as part of the USS Missouri Homeporting project found that the most contaminated sediments lay in the deeper strata proposed for dredging in the project. These materials were shown to have severe toxic effects on organisms even in some of the less sensitive types of tests (i.e., the Liquid/Suspended Particulate Phase test). Therefore, maintenance dredging which periodically removes only surface and near-surface material cannot be assumed to be remediating the sediment contamination problem. In fact, depending on the configuration of the area being dredged, slumping of deeper material along the edges of the side slope cuts of the berth(s) may result in increased exposure of contaminated material to the aquatic environment.

2. Additional discussion of the rationale for determining the number of sample areas and samples from each area should be included in Sections 2-2 and 4.2.

3. We have several comments on QA/QC-related issues:

There is no information on sample containers and preservatives required for each type of sample. A table summarizing the sample locations, the number and types of samples at each location, the sample matrices, the sample containers and preservatives, and analytical methods needed for each sample should be developed to aid in the review of the plan and to assist the field personnel.

A Request for Analyses table indicating the number of samples and matrices of the sample, required analytical procedures, required holding times, and the number of QC samples should be developed to aid the laboratory.

Field measurements should be described in detail. These descriptions should include radioactivity, as well as bioassay water quality parameters (pH, temperature, etc.). In addition, the calibration procedures and frequency of field instrumentation should be discussed.

The disposal of contaminated materials should be discussed.

Decontamination procedures should be discussed in greater detail. Will equipment be decontaminated after each sample?

There is no discussion on sample handling and shipment. In addition, there is insufficient discussion of sample packaging. The following information is needed:

a. How will samples be labeled and identified?
b. Will custody seals be used?
c. How will the samples be packaged to prevent cross-contamination and breakage?
d. What are the sample handling procedures?
e. What tracking forms and packing lists will be used?

There is no discussion of the required QC samples. The number, frequency, types, and sample locations where they should be obtained are not discussed. The use of duplicates, blanks, and laboratory QC samples should be discussed in detail. This should also address the laboratory blanks. If this information is addressed in the QAPjP, this can be referenced.

4. There is no site safety plan.

[EPA recognizes that some of the matters addressed in comments # 3 and 4 above may be addressed in other volumes of the RI/FS Workplan for Hunters Point. If that is the case, appropriate cross-references should be made in the ESAP. Where the RI/FS Workplan does not adequately address matters specific to the ESAP, the ESAP should expand on the Workplan. For example, safety of the field personnel involved in collection of samples under the ESAP may not be adequately addressed in the overall Site Safety Plan.

In general, EPA believes it is beneficial to develop stand-alone documents for the benefit of field personnel. That is, it is awkward for field personnel to have to cross reference several volumes of reports to determine what they need to do in the field. Therefore, we recommend that information needed by field personnel to carry out the ESAP be included in this document (or other stand-alone documents), even if that involves some duplication from earlier HPA RI/FS workplans.]

SPECIFIC COMMENTS

5. **Page 2-1, Section 2.1, first paragraph.** Please provide a rationale for defining "surficial" as the upper 2.5 feet. Also, why are only acute effects from sediment contamination being investigated when water column studies (Mussel transplants) are testing for chronic effects? If sediment contaminants are bioavailable, one might expect both acute and chronic effects. At a minimum, 28-day sediment accumulation studies as described in the 1990 Draft EPA/Corps of Engineers Greenbook should be considered.

Second paragraph. It is not clear why previous testing at Hunter's Point for the purpose of permitting dredged material disposal will not be comparable to the sediment testing proposed in this ESAP. The methodology will be similar and a comparison may serve to relate contamination levels at non-dredged sites to contamination levels from dredging projects around the Bay. This could place the sediments in context with "industrial background" levels from nearby areas.

Last paragraph. Although EPA's Ocean Dumping Program is not yet authorized to use the 1990 Draft Greenbook for sediment testing for dredged material disposal, this manual contains many updated procedures which the program has been requiring for several years under its Regional Testing Guidance. Therefore, we recommend that sampling and testing procedures follow the 1990 Draft Greenbook because it more accurately reflects state-of-the-art sediment testing procedures. In addition, revisions to the Greenbook before it becomes final are expected to be minimal.

The objectives of dredged material testing are to determine the effects of the material's disposal both to the water column and to benthic organisms once it has been deposited on the bottom. The objective of the Solid Phase Bioassay is to indicate the magnitude of benthic effects of the material and so does not differ from the objective of the sediment toxicity testing proposed in the ESAP.

6. Page 2-3, Section 2.3.1. Clams are not an appropriate bioassay test organism as they can close up and survive from 14 to 30 days without physiological damage. Macoma nasuta, though not appropriate for toxicity testing, may be an appropriate species for bioaccumulation testing. The amphipod selected is sensitive to low salinities and is a suspension feeder, not a deposit feeder. Neomysis is not appropriate for a solid-phase bioassay but is for a suspended solid-phase bioassay.

The EPA Region IX Ocean Dumping Program recommends the following species for its solid phase bioassay testing:

Neanthes sp. or Nephtys sp.
Holmesimysis costata (formerly Acanthomysis sculpta)
Rhepoxynius abronius or Ampelisca abdita

The SF Bay Regional Water Quality Control Board suggests that the amphipod Eohaustoris spp. be substituted for Rhepoxynius or Ampelisca as it is a more appropriate species for Bay testing.

7. Page 2-4, Section 2.3.2, first paragraph. How will a "known uncontaminated field location" be determined?

We recommend the following:

- Sieve through a 0.5 mm screen;
- Transfer organisms with large diameter pipettes, not forceps;
- Decrease the amount of handling: one at capture, one at test;
- Use prepared seawater. (See also following comment.)

8. Page 2-4, Section 2.3.3. If artificial sea water is used, it must be held and filtered for 10 days before the bioassay organisms are exposed to it.

Should the acclimation period of two weeks be defined prior to the start of the bioassay? Starting the bioassay when there has been no organism mortality for a number of days may be another way to establish the length of the acclimation period.

9. Page 2-5, last paragraph. Indicate where the reference sample will come from.

10. Page 2-6, Section 2.5, second paragraph. By using prepared seawater, there will be no uncertainties about the water quality "purity" of the water above the reference sediment sample.

Third paragraph. The static-renewal schedule should be constructed so that 75% replacement should occur every 48 hours, as referenced in the 1990 Greenbook.

11. Page 2-7, Section 2.6.1. Use a 0.5 mm sieve screen.

12. Page 2-7, last paragraph. The organisms should not be stressed by water replacement if DO, pH, salinity, and temperature are constant. Since these factors should be constant, stressed organisms should be an indicator of "pollutants" in the sediments.

Delete the following comment per phon con btwn. EPA Chuck Filippo/WESTON/Julie Carver of 14 NOV. 1990

13. Page 2-7, Section 2.6.3. Why use 5 replicate tanks for each station? The control is the contractor's reference to compare the dilution series to.

14. Page 2-8, Section 2.6.5. While placing more than one species of organism in a testing tank is acceptable, placement of Nephtys sp. or Neanthes sp. in the same tank as the amphipod is not recommended.

15. Page 2-8, Section 2.6.6. Removal of dead organisms during an "acclimation" period is not a valid procedure for this type of test. The sediments, as a body, are being tested and therefore dead organisms indicate non-healthy sediments if all procedures are followed prior to the beginning of the tests.

Conduct the bioassays at home range temperature and salinity. There should be no changes.

16. Page 2-9, Section 2.6.7. Maintain DO at a minimum of 5 ppm.

17. Page 2-9, Section 2.6.8. What criteria will be used to determine a paralyzed worm, amphipod, or clam from a recently dead one?

18. Page 2-9, Section 2.7. According to the QA/QC procedures presented in the 1990 Greenbook, if **control** mortality is greater than 10% the test is invalidated. Because of background contamination levels in San Francisco Bay it is conceivable that **reference** mortality could be greater than 10%. This, however, would not invalidate the test.

19. Page 2-9, Section 2.8. Statistical analysis of the testing results should consist of Levine's test for homogeneity of variances, an Analysis of Variance and Dunnett's test for multiple comparisons of means as outlined in the 1990 Greenbook.

20. Page 2-9, Section 2.9. Statistically significant mortality could occur even if the percent mortality is less than 50%. Chemical analyses of sediment should be performed for all stations with statistically significant mortality in the solid phase bioassay at a minimum.

21. Page 2-10, Section 2.9 and page 3-8, Section 3.9. What is the rationale for the determination of the chemical analytical parameters? Considering that diesel fuel and other hydrocarbon fuels and oils were used extensively on-site, why are there no analyses planned for total petroleum hydrocarbons (TPH)?

22. Page 2-10, Section 2.9, last paragraph. EPA and the Corps of Engineers are currently recommending the method suggested in the 1990 Greenbook (Rice et.al, 1987; Greenbook page 9-8) for analysis of Tributyltin for ocean disposal dredged material testing.

23. Page 2-11, Section 2-10, top bullet. Again, greater than 10% mortality in the control replicate will invalidate the bioassay. Greater than 10% mortality in the reference replicate may be cause for concern but would not necessarily invalidate the test.

24. Page 3-1, Section 3-1. What was the rationale for using <u>Mytilus edulis</u> instead of <u>Mytilus californianus</u>? If interlaboratory calibration will be done with the State Mussel Watch (SMW) or another CDFG laboratory, it will be necessary to use <u>M. californianus</u> for comparison.

25. Page 3-2, Section 3.2. Why avoid the dry dock area? Is it isolated so that no water flows to the rest of HPA?

26. **Page 3-5, Section 3.6.** If the contractor is planning to use a transplant period of only 30 days, how will they compare the tissue analysis data with the SMW?

27. **Page 3-7, 6th bullet.** How will "visible growth" be determined if no measurements are taken prior to initiation of the testing program?

28. **Page 3-9, Section 3.9.4.** The measurement of tributyltin using the GS/FPD method is fine if good derivitization is used. To make the compound more volatile, the Grignard derivitization step followed by the GS/FPD method should be used.

29. **Page 3-9, 2nd bullet.** We also recommend collecting mussels in the area of HPA for a 3-level comparison: "uncontaminated" background, "existing" conditions at HPA, and increases in contaminated tissue levels compared to 1 and 2.

30. **Page 3-9, Section 3.11.** What are the QA/QC criteria for the tissue sample analysis?

31. **Page 4-1.** The test species identified are marine, not brackish water, organisms. The test organisms should be brackish water species.

32. **Page 4-3, Section 4.3.** Change the selection criteria to reflect the salinity of the testing media.

33. **Page 4-3, Section 4.3.** D. excentricus spawns from April to October, so this species cannot be used until Spring. Sea urchins, which spawn from October to April, are usually used.

34. **Page 4-4, Sections 4.4.3 and 4.4.4.** Why take a reference sample and dilute it to match the storm water sample? We recommend using artificial sea salt as San Pablo Bay water may be "contaminated" from river runoff during the wet season.

35. **Page 4-5, Section 4.6.2, 1st bullet.** The test organisms selected prefer cold water (approximately 10°C) and test temperature should be within 1°C of the habitat of concern (winter water temperatures are not that warm). Refer to page 2-8, 2nd paragraph, also.

36. **Page 4-6, Section 4.7.3.** There is a more accurate protocol for S. costatum than the modified algae test. Refer to **Bioassay Procedures for Ocean Disposal Permit Program,** EPA publication 600/9-78-010.

37. **Plates.** The sample map should indicate the direction of ground water and surface water flow.

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL OCEAN SERVICE
OFFICE OF OCEANOGRAPHY AND MARINE ASSESSMENT
OCEAN ASSESSMENTS DIVISION
HAZARDOUS MATERIALS RESPONSE BRANCH
c/o U.S. Environmental Protection Agency (H-8-4)
75 Hawthorne Street
San Francisco, CA 94105

November 7, 1990

Charles W. Flippo
Environmental Protection Specialist (H-6-3)
U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

reference: Naval Station Treasure Island, **Hunters Point Annex** Superfund site
Draft Environmental Sampling and Analysis Plan (dated 28 August 1990)

Dear Mr. Flippo:

The U.S. Department of Commerce/National Oceanic and Atmospheric Administration (NOAA), as a Federal trustee for natural resources, appreciates the opportunity to review and comment on the Draft *Environmental Sampling and Analysis Plan for Naval Station, Treasure Island, Hunters Point Annex, San Francisco, California* (dated 28 August 1990). NOAA carries out responsibilities as a Federal trustee for natural resources under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Superfund Amendments and Reauthorization Act (SARA), and the National Oil and Hazardous Substances Contingency Plan (NCP). As a trustee, NOAA is responsible for identifying sites that could affect natural resources, evaluating the injury to the resources, determining dollar values (when appropriate) for resource loss, and providing technical advice on remedial and restoration actions.

In summary, the Draft Environmental Sampling and Analysis Plan (ESAP) addresses potential environmental effects associated with the release of contaminants from the Hunters Point Annex site to San Francisco Bay and is designed to supplement on-going and planned remedial investigations of potential contamination at specific identified sites on base. Bioassays will be used to evaluate the acute toxicity of site-related contaminants to organisms in contact with Bay sediments and storm water runoff. Transplanted mussels will be used to monitor the release of bioaccumulating contaminants via groundwater discharge and surface runoff. Criteria used to select sampling locations, procedures to be followed, tests to be performed, and how test results will be interpreted are clearly defined. Overall, the ESAP should provide some valuable data regarding the extent and impact of the contamination in the near shore areas and in the storm runoff, however, NOAA does have some important recommendations, both specific and general, for improvements to the draft ESAP. These comments are outlined below.

2.0 TASK 1 - EVALUATION OF SEDIMENT TOXICITY

Section 2.1 Statement of Purpose

While it is commendable that bioassays are proposed in the evaluation of this site, it must be recognized that the bioassay tests that are currently available are limited in their ability to respond to the presence of all contaminants that may be of concern. A good example of this situation is the fact that PCBs are generally a problem primarily because they accumulate in tissues of higher organisms (including humans). PCBs are not, however, acutely toxic to most aquatic organisms. The test protocol proposed might not detect high levels of such substances in the sediments because they would not elicit the requisite bioassay response. In addition, while bioavailability of the substances present in the sediments may vary, it is usually the chemical levels in an area that are used to define the spatial extent of the areas that need to be cleaned up, if any. Comparisons among the bioassay responses and the chemical levels, including areas where the bioassay tests were unresponsive, will be important in making those decisions.

Section 2.2.1 Selection of Test Station Areas

The dry dock area, between proposed Sediment Station Areas S-4 and S-5, should not be excluded from sampling. Minimally, two more sediment test station areas in this vicinity should be established: one station offshore of Dry Docks #2 and #3, and another station offshore of Dry Dock #4.

Section 2.2.2 Selection of Reference Station Area

If a reference area for sediment investigations is to be chosen from within the greater San Francisco Bay system, San Pablo Bay is, indeed, probably the best choice. It should be noted, however, that virtually all reaches of the San Francisco Bay estuary have been impacted by one source of contamination or another. The proposed reference sampling area within San Pablo Bay should be located precisely on a chart and be mindful of the following criteria:

- avoid the navigation channel to Mare Island;
- be east of Pinole Point and north of Wilson Point; and,
- avoid the area southwest of the Petaluma River.

Section 2.3.1 Selection of Test Species

A number of the organisms selected for the sediment and surface runoff bioassays are inappropriate for determining if contaminants in sediments are likely to affect NOAA resources. The bentnose clam (*Macoma nasuta*), a pollution-tolerant organism, is typically used in bioaccumulation studies rather than in acute bioassays. Similarly, the worm species selected, *Nephtys caecoides*, is considered to be relatively insensitive to pollution compared to other species. Because of their pollution tolerance, these species would not be the best indicators of potentially toxic conditions in the sediments.

In place of the bentnose clam test, it is suggested that the bivalve larvae bioassay -- a much more sensitive test -- be used. Larvae of either the oyster (*Crassostrea gigas*) or the Bay mussel (*Mytilus edulis*) are employed as the test organisms and a well-established protocol

is available[1]. A chronic bioassay using the marine worm, *Neanthes* sp., considered to be more sensitive than *Nephtys caecoides*, has recently become available and is recommended instead of the latter[2]. If the worm tests cannot be used, then it is recommended that the solid phase/elutriate form of the echinoderm fertilization test be substituted[3].

Also, the amphipod *Ampelisca milleri/abdita*, although found in San Francisco Bay, may not be the best organism for indicating toxicity of test sediments. Because this specie of amphipod constructs a tube within its burrow, it does not come into direct contact with the sediments. For this reason it is suggested that either of the amphipods *Rhepoxynius abronius* or *Eohaustorius estuarius* be used instead of *Ampelisca* spp. Both of these species burrow into the sediments. *Rhepoxynius* can be used when the salinity is 25 parts per thousand (ppt) or greater while *Eohaustorius* is useful when salinities range from 3 to 25 ppt. Test protocols with these organisms are also well established.

Section 2.4 Sediment Sampling Procedures

The workplan proposes to store the sediments from the offshore bioassay survey until the results of those tests are completed in order to select only the "toxic" samples for chemical analyses. This procedure may jeopardize the sample integrity because allowable holding times may be exceeded for many of the substances of concern. As noted above, it is recommended that chemical analyses be performed on all of the sediment samples, in part to avoid the holding time problem.

Section 2.8 Statistical Analysis and Interpretation of Results

The endpoint suggested for determining that a response has occurred in the bioassays may be too conservative. Toxicity would be better represented by any response that varies *statistically* from the control, e.g., statistically greater mortality.

The ESAP does not detail what will happen if Cochran's Test for Homogeneity of Variances shows that the hypothesis of equal variances for the analysis of variance (ANOVA) is to be rejected. A description should be included in the ESAP of how statistical analyses will be handled if assumptions for the ANOVA are invalidated.

Section 2.9 Chemical Analytical Confirmation

The detection limits proposed in the ESAP exceed levels associated with adverse biological effects for some of the contaminants being analyzed (Table 5. CLP Analytical Methods for Sediment Analyses). The units are given as µg/kg for organics. The detection limits to be

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[1] Chapman, P. and F. Ecker. 1986. Recommended Protocols for Conducting Laboratory Bioassays on Puget Sound Sediments. Puget Sound Estuary Program, U.S. Environmental Protection Agency, Seattle, WA; 55 pp.

[2] PTI. 1988. Puget Sound Dredge Disposal Analysis Sublethal Test Demonstration. U.S. Army Corps of Engineers, Seattle District; October 1988; 94 pp.

[3] Dinnel, P., J. Link, and Q. Stober. 1987. Improved Methodology for a Sea Urchin Sperm Cell Bioassay for Marine Waters. Archives Environmental Contamination Toxicology 16: 23 - 32.

used for PCBs and some pesticides exceed sediment levels associated with adverse biological effects (ER-L values)[4]:

	Detection limit (mg/kg)	ER-L (mg/kg)
PCB	0.08	0.05
Endrin	0.016	0.00002
p,p-DDE	0.016	0.002
p,p-DDD	0.016	0.002
p,p-DDT	0.016	0.001

The detection limits for inorganic substances in sediments are given in units of µg/l. This reporting of sediment inorganic contaminant concentrations in µg/l is confusing unless, however, it is the interstitial waters which are being analyzed. If the units are indeed µg/l, then the detection limits are too high in comparison to Ambient Water Quality Criteria (AWQC):

	Detection Limit (µg/l)	AWQC value (µg/l)
Copper	10	2.9
Mercury	0.2	0.025
Silver	10	2.3

Typically, sediment contaminant concentrations are reported as mg/kg. Associated detection limits should be sufficiently low to permit comparison with adverse biological effects levels (ER-L values):

	ER-L value (mg/kg)
Antimony	2
Arsenic	33
Cadmium	5
Chromium	80
Copper	70
Lead	35
Mercury	0.15
Nickle	30
Silver	1
Zinc	120

[4] Long, E.R., and L.G. Morgan. 1990. The Potential for Biological Effects of Sediment-Sorbed Contaminants Tested in the National Status and Trends Program. NOAA Technical Memorandum NOS OMA 52, March 1990; National Oceanic and Atmospheric Administration, Seattle, WA; 175 pp. + appendices.

3.0 TASK 2 - EVALUATING WHETHER PERSISTENT AND BIOACCUMULATIVE SUBSTANCES MAY BE ENTERING SAN FRANCISCO BAY FROM HPA

Section 3.1 Statement of Purpose

Task 2 is designed to evaluate whether persistent and bioaccumulative substances may be entering the Bay. Essentially, this section of the ESAP is a pathway analysis employing filter feeding bivalves. There may be other potential bioaccumulation pathways operating within this system (e.g., benthic feeding fish) and these possibilities should also be considered.

It should be recognized that the potential contaminant migration pathways being examined in Task 2 -- groundwater seepage, direct surface water runoff, and discharge from storm sewer outfalls -- vary over the period of a year, and from year to year as well. The 30-day test period selected for mussel deployment should coincide with an anticipated worst case scenario for the migration pathways being examined (i.e., a period of significant rainfall). Regardless of what 30-day test period is selected for mussel deployment, if analyses results demonstrate contaminant bioaccumulation, then it will be known that bioaccumulative substances are present in the waters surrounding Hunters Point Annex. If, however, the analyses results are inconclusive or negative for bioaccumulated contaminants for a particular 30-day test period, it can not be concluded that bioaccumulative substances are not or will not be present in the waters surrounding Hunters Point Annex at other times during the year. Therefore, it is recommended that if the first 30-day test period has inconclusive or negative results, then additional 30-day intervals, representing different precipitation and runoff conditions, be tested.

Section 3.2 Selection of Mussel Transplant Stations

The dry dock area, between proposed Mussel Transplant Stations M-4 and M-5, should not be excluded from testing. Minimally, two more mussel transplant stations in this vicinity should be established: one station offshore of Dry Docks #2 and #3, and another station offshore of Dry Dock #4.

Section 3.3 Selection of Test Species

The ESAP is proposing to use the Bay mussel (*Mytilus edulis*) as the test specie and to harvest transplant mussel stock from Bodega Head. Two complications arise from this choice. First, the comparative database for Bay mussel is significantly limited. Second, it is unlikely that Bay mussels will be found at Bodega Head. Bodega Head is a good source for "clean" California mussels (*Mytilus californianus*). The Bay mussel, however, is found farther away from Bodega Head in the quieter harbor area and the probability of harvesting "unclean" transplant stock increases the closer the mussels are to the harbor. Tomales Bay would probably be a better source for clean Bay mussels than Bodega Harbor. The California mussel, mentioned as an alternative test species in the ESAP, would actually be the preferred test specie.

Section 3.4 Determination of Size of Test Population

Typically, the California State Mussel Watch Program deploys their test mussels between August and January to reduce potential mortality of the test mussels due to reduced salinity associated with precipitation and runoff. If test mussels at Hunters Point are to be deployed outside the August - January time period, the sample size used in the bioaccumulation study should be increased to compensate for potential mortality among the test mussels. The present sample size (40 mussels, with no replicate) does not allow for mortality which may occur during the experiment, since 15 mussels are needed for the metal analysis, 20 for the organic analysis, and 5 for radioactive screening. It is recommended that the number of mussels used at each station be increased to at least 50, particularly if the mussels are deployed between February and July.

4.0 TASK 3 - EVALUATION OF STORM WATER RUNOFF TOXICITY

Section 4.3 Selection of Test Species

The three species proposed for use in the runoff bioassays are sensitive marine or estuarine species. In the proposed storm water runoff bioassay, concentrations of 1, 3, 10, 30, and 100 percent runoff are to be used. Dilution water will be prepared with deionized water and either artificial sea salts or concentrated Bodega Bay water to achieve the same salinity as the storm water samples. The dilution water will be used in the five dilution series and a control. However, the test organisms could be physiologically stressed due to low salinity under some runoff conditions. Since the low salinity stress could be greater than that due to toxic levels of contaminants within the runoff, care should be taken ensure that salinities in the tests are appropriate for the organisms.

If the salinity is very low in the storm water runoff bioassays, it is suggested that freshwater organisms be substituted for those originally proposed. Rainbow trout (*Oncorhynchus mykiss*), the freshwater invertebrate *Ceriodaphnia dubia*, and the freshwater alga *Selanastrum* spp. could be used as alternative test species.

Other General Comments

- The ESAP does not discuss remediation, however, data collected during the environmental assessment would be incorporated into the remedial investigations at the individual sites. Integrating these data meaningfully back into the Remedial Investigations/Feasibility Studies for the designated Operable Units will be difficult. If sediment chemistry and toxicity testing confirm sediment contamination, consideration should be given to creating a separate Operable Unit of the Bay shore and sediments.

- While Task 1 of the ESAP is designed to examine acute lethality in the evaluation of sediment toxicity, sublethal effects are all but ignored. There is mention in Section 2.6.8 (page 2-9) that sublethal effects such as paralysis will be recorded, however, there is no plan for a comprehensive evaluation of sublethal effects of the sediments. The larger and sometimes more difficult question of potential chronic environmental effects will remain unanswered.

- It should be recognized that this ESAP alone does not constitute and should not take the place of a more comprehensive Ecological Assessment of the potential environmental impacts of contaminants at Hunters Point Annex. U.S. Environmental Protection Agency guidance documents for designing, implementing, and interpreting Ecological Assessments at hazardous waste sites were cited in Section 1.2 "Scope of Plan" and in the "References" section of the ESAP and it is recommended that such an Ecological Assessment of Hunters Point Annex be designed and implemented. This ESAP would become a component of a more comprehensive Ecological Assessment.

- A formal wetland delineation[5] should be conducted at Hunters Point Annex. An emergent wetland, characterized by saltmarsh vegetation, exists along a strip of shoreline approximately 30 m wide in the industrial landfill area.

- If sediment chemistry and toxicity testing confirm sediment contamination in the selected near shore test areas, it is recommended that a second phase of such testing be planned and implemented for new test areas more distant from the shore.

If you have any questions about these comments or require further elaboration, I can be reached at 744-2317.

Sincerely,

Chip Demarest
Coastal Resources Coordinator

cc: William C. Allan (U.S. DOI/OEA, San Francisco)
Robin Kohn (NOAA/GCSW, Terminal Island)
Richard Powell (Navy/WESDIV, San Bruno)
Steve Schwarzbach (USFWS, Sacramento)

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[5] Federal Interagency Committee for Wetland Delineation. 1989. Federal Manual for Identifying and Delineating Jurisdictional Wetlands. U.S. Army Corps of Engineers, U.S. Environmental Protection Agency, U.S. Fish and Wildlife Service, and U.S.D.A. Soil Conservation Service; Washington DC Cooperative Technical Publication; 76 pp. + appendices.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, Ca. 94105

VIA FACSIMILE AND REGULAR MAIL

November 14, 1990

Commanding Officer
Naval Facilities Engineering Command
Western Division
ATTN: Louise Lew (1811)
PO Box 727
San Bruno, CA 94066

Dear Ms. Lew:

Enclosed are some additional comments on the **Environmental Sampling and Analysis Plan** dated August 28, 1990, provided by the Department of the Interior, which we inadvertantly left out of the set of comments we sent you yesterday. Please include these comments as part of the EPA comment package.

If you have any questions, please call me at (415) 744-2388.

Sincerely,

Chuck Flippo
Remedial Project Manager

cc: Eddie Sarmiento, NSTI
Mark Malinowski, DHS
Tom Gandesbery, SFRWQCB
Scott Lutz, BAAQMD
David Wells, SFPHD

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UNITED STATES
DEPARTMENT OF THE INTERIOR
OFFICE OF THE SECRETARY
Office of Environmental Affairs
Box 36098 - 450 Golden Gate Avenue
San Francisco, California 94102
(415) 556-8200

November 2, 1990

Mr. Charles W. Flippo
U.S. Environmental Protection Agency
75 Hawthorne Street (H-6-3)
San Francisco, CA 94105

Dear Mr. Flippo,

I am commenting on the Navy's proposed environmental risk assessment for the Hunter's Point Annex under which they consider the effects of past contamination and proposed remediation activities upon the natural environment. In particular, I am commenting on plans as presented to the Ecological Assessment Group meeting at Ft. Cronkhite on October 26, 1990.

Since the Hunter's Point property appears to contain salt marsh wetlands, it is appropriate for the Navy to have a formal wetlands delineation conducted. Additionally, Habitat Evaluation Procedures should be utilized to determine the productivity of the wetlands and ensure that important habitat values are not lost during remediation. Similarly, the Navy must comply with the Endangered Species Act to ensure that remediation does not affect any listed species or critical habitat.

Indications have been received that sediments in the vicinity of the dry docks have been contaminated with TBT, copper sulphate and other toxic materials, and these sediments are acutely toxic to aquatic life.

The Navy appeared to indicate, on October 24 at the Technical Review Committee and October 25 at the Ecological Assessment Group, that they feel it is unnecessary to assess contamination in areas not subject to dredging. However, they might have contributed to contamination of the sediment and and should assess all contamination on their property. Evaluation of the alternative treatment means, including no action, should be conducted subsequent to determination of contamination.

Similarly, the Navy should survey and compare benthic organisms in sediment areas with appropriate reference areas to determine the general health of the aquatic communities. Sterile sediments may be indicators of the presence of acute toxicants.

I continue my interest in the proposed remediation actions at Hunter's Point. If you have any questions concerning my comments, please contact me at (415) 556-8200.

Thank you for your consideration.

Sincerely,

William C. Allan
Regional Environmental Assistant

cc: Mark Malinowski, CA DHS
Chip Demarest, NOAA
Tom Maurer, FWS