

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION  
1800 HARRISON STREET, SUITE 700  
OAKLAND, CA 94612

Phone: Area Code 415  
464-1285



Date: February 20, 1991  
File No.: 2199.9080A (RAD)

Ms. Bella Dizon  
Department of the Navy  
Naval Facilities Engineering Command  
P.O. Box 727  
San Bruno, CA 94066-0720

SUBJECT: Sampling Plan, Seaplane Lagoon and Estuary Site  
Alameda Naval Air Station RI/FS  
San Francisco Bay RWQCB Comments

Dear Ms. Dizon:

The following summarizes our review of the sampling plan for the Seaplane Lagoon and Estuary (Oakland Inner Harbor) Sites:

#### 1) General Comments

- a. Sampling Frequency  
Sampling should occur at least once during the dry season and once during the wet season.
- b. Tidal Height  
Sampling should occur during low slack tide in the morning to ensure that the water and sediments are at their most undisturbed state.
- c. Sampling Collection  
Water samples should be taken one day and sediment samples the next day. This is to ensure that sediments from one sampling station do not affect water samples from adjacent stations.
- d. Sampling Locations  
The use of a grid is acceptable if it will only be used once. Trying to find the same point in the water a second time will be very difficult. Sampling locations could also be chosen in the vicinity of the outfalls and at several random points within the site.

#### 2) Sediment Sampling

- a. Sampling Protocol  
We suggest using the Puget Sound Protocol which was designed to obtain samples for metals, organics, and bioassays. We will provide you with copies of the sampling protocol if it is not available to you. For analyses with low detection limits, care must be taken to prevent contamination before, during, and after sample collection

- b. Detection Limits  
Minimum detection limits should be low enough to guarantee detectable results. No more than 10% of the samples can be non-detect. All other samples must have reportable values.
- c. Replication of Sediment Samples  
Each sample location should yield three replicates. Each replicate should be a composite of at least 3 to 5 sediment grabs.
- d. Sediment Analyses (Table 3.20.1)  
Grain Size Analysis should be performed on all replicates. Specify which metals will be analyzed. Specify minimum detection limits for all constituents.

### 3) Water Sampling

- a. Sample Collection  
Samples should be collected one meter below the surface.
- b. Detection Limits  
Minimum detection limits should be based on the State Water Board's draft Enclosed Bays and Estuaries Plan, and Inlands Waters Plan; and this Board's Basin Plan (see attached table).  
  
Method detection limits must be 5 to 10 times lower than the objectives in order to reliably evaluate compliance with objectives.
- c. Water Sample Analyses (Table 3.20.1)  
Total Suspended Solids and Dissolved Organic Carbon should also be performed. Specify which metals will be analyzed. Specify minimum detection limits for all constituents.

### 4) Bioassays

- a. Reference Site  
The Regional Board must approve the "clean site." Specify the location of the site(s) and prove that they are clean.
- b. Procedures  
Bioassay procedures should be explained in more detail. Provide information on species used, protocols, location of control sediments, how many tests for each control, etc.
- c. Test Organism  
We suggest using *Eohaustorius ssp.* as the test organism. The Regional Board has used this species for bioassays in other areas of the Bay and they may be used regionally in the future. They are fairly sensitive to chemicals but not to grain size.
- d. Replication of Bioassay Tests  
More than one bioassay should be done for each station. We suggest that 3 field replicates per station be done.

e. Control Sediments

Control tests are used to determine the toxicity of the sediment samples. Clean laboratory sediments should be used instead of sediments taken from the reference site. Because grain size data is not available for the study areas, some "pre-sampling" to determine grain size should be done. If fine grained sediments are common, it will be necessary to run a fine grain control.

Bioassays could also be done on sediments taken from the mouth of the study areas to determine reduced toxicity.

5) **Tissue Residue Analyses**

a. Tissue Analyses

Smelt and anchovies are water column feeders and will go in and out of the study areas randomly. Fish caught within the study areas will probably be the same as those designated as background fish caught outside the study areas.

Tissue analyses should be conducted on organisms that reflect uptake from the sediments. It would be more useful to do bioaccumulation analyses on infaunal organisms that live in the study areas rather than on fish which are highly mobile.

Does a living infaunal population actually exist? We suggest taking 4 to 5 benthic grab samples, sieving to 1 mm mesh, and identifying the species that are present. Finding few or no species at all would suggest a severe sediment problem. If organisms are present, are there enough of a single species to test for bioaccumulation?

b. Water Column Bioaccumulation

Water column tests might be done if water quality objectives are being exceeded or at focused areas where there are current inputs of pollution. We suggest hanging bagged mussels using Mussel Watch protocol and comparing with data from previous data collected from the Bay or from samples hung from clean sites.

Please contact Rico Duazo at (415) 464-0837 or Cheryl Niemi at (415) 464-1262 if you have any questions.

Sincerely,



Donald D. Dalke, Chief  
Toxics Cleanup Division

Attachment:

Water Quality Objectives Table

cc: Mark Malinowski  
California Department of Health Services  
700 Heinze Avenue, Building F  
Berkeley, CA 94710

~~ADONIS 254220~~

## Water Quality Objectives

Constituent	Unit	Objective
Arsenic	ug/l	36
Cadmium	ug/l	9.3
Chromium	ug/l	50
Copper	ug/l	2.9
Lead	ug/l	5.6
Nickle	ug/l	8.3
Selenium	ug/l	5
Silver	ug/l	2.3
Zinc	ug/l	86
Mercury	ug/l	1