

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

101 WEBSTER STREET, SUITE 500

OAKLAND, CA 94612

(510) 286-1255

N00217.002733
HUNTERS POINT
SSIC NO. 5090.3

August 12, 1992

File No. 2169.6032(BMS)



Mr. Cyrus Shabahari
Department of Toxic Substances Control
700 Heinz Street, Building F, Suite 200
Berkeley, CA 94710

Subject: Supplemental ESAP Data Submittal and Data Validation Summary Analysis for Naval Station Treasure Island, Hunters Point Annex, San Francisco, California

Dear Mr. Shabhari:

The staff of the San Francisco Bay Regional Water Quality Control Board (SFRWQCB) has reviewed the above document received in our office on April 26, 1992. The SFRWQCB staff agrees with the majority of conclusions about the validity of the data presented by the Navy's contractor in this document.

The toxicity and bioaccumulation data reported in this document were supposed to constitute a major portion of the Ecological Assessment for sediments and stormwater from Hunters Point Annex. The design of the investigation was to provide information of high quality to feed into the Ecological Assessment of the Base-Wide Remedial Investigation (RI) Report. Due to the poor quality of much of the data, its usefulness in performing a quantitative Ecological Risk Assessment is extremely limited.

Because the valid data are few, it is difficult to make an adequate quantitative assessment of impact of the site on the ecology of the water column and sediments of San Francisco Bay to fulfill the requirements of the Ecological Risk Assessment. Additional data will probably need to be collected in order to fill the data gaps in the Ecological Assessment. Data gathering that is currently outlined for completion during Phase 1B (fish and invertebrate tissue analyses) will not substitute for the unuseable toxicity bioassay data because they address fundamentally different, although equally important, questions about contaminant transport pathways. The Phase 1B data should be collected to provide information about the current potential threats to human and non-human receptors from fish and invertebrate ingestion. These data may also be useful as a baseline to evaluate the effectiveness of future remediation of the sediments, should that become necessary.

The specific requirements for additional data necessary to complete the Ecological Assessment of the off-shore sediments are unknown at this time. After the submission of the Phase 1A Ecological Risk Assessment data in the technical meeting scheduled for November, 1993, in which data gaps will be identified, an appropriate Phase 1B Workplan can be developed. It is

anticipated that the data presentation will include a statistical analysis of data, e.g., Principal Components Analysis, showing the relationship between the bulk sediment chemistry and the tissue body burdens in the mussels, as well as between the bulk sediment chemistry or water chemistry data and the valid bioassay data, as appropriate.

The results of the limited valid data demonstrated some adverse biological effects in bioassay organisms exposed to stormdrain effluent from two stations, as well as consistent adverse effects in bioassay organisms exposed to whole sediments or sediment elutriates from several stations. Taken together, these data suggest that there are demonstrated adverse biological effects in shallow sediments at Hunters Point Annex. The sediment chemical analytical data showed elevated concentrations of heavy metals and organic compounds that exceeded screening criteria for potential adverse biological effects (NOAA Effects Range Low and Median [ERLs and ERM]). Using the same approach as has been used on the terrestrial portion of the site, when data gathered with the intent for use for RI purposes was found to be of insufficient quality, they were subsequently used as Site Inspection (SI) data, in a qualitative fashion. Therefore, using the accumulated ESAP data within the context of an SI for the off-shore sediments, there is now sufficient information to require that the RI phase of work, to determine the lateral and vertical extent of sediment contamination, should move forward. The determination of lateral and vertical extent of contamination is essential to the evaluation of remedial alternatives for contaminated sediments at the site.

Presented below are restatements of the results, as staff has interpreted them from the documents, and comments that should be addressed to ensure that the required Ecological Risk Assessment for the site may be completed.

GENERAL

1. A total of twelve different types of bioassays were conducted. Three types of freshwater bioassays were performed on stormdrain effluent samples from four stations. Three types of saltwater bioassays were performed on stormdrain effluent samples from four stations. Three types of (saltwater) whole sediment bioassays and three types of (saltwater) sediment elutriate bioassays were performed on sediments from 17 stations and 3 "reference areas".

Of the twelve types of bioassays, only five (of the six types which were performed within protocol limitations), had unequivocal results. Control mortality was a contributing factor in several cases where protocol limitations were not met, and synthetic seawater used in the bioassay laboratory appeared to be a culprit.

The results were reported as follows. Two of the six stormdrain effluent bioassays had useable data. The freshwater and saltwater stormdrain effluent fish tests showed toxic effects in some stormdrain effluent samples from two stations, when compared to laboratory controls. The freshwater invertebrate stormdrain effluent bioassay, although performed within protocol limitations, had inconclusive results because the dose-response

curve suggested factors other than sample dose were affecting results. No other types of stormdrain effluent bioassays were performed within protocol limitations.

Two of the three types of whole sediment bioassays and two of the three types of sediment elutriate bioassays were performed within protocol limitations. All four of these bioassays (amphipod, polychaete, bivalve, mysid) demonstrated toxicity in samples from some stations when compared to laboratory controls. No other types of whole sediment or sediment elutriate bioassays were performed within protocol limitations.

2. There were no data analyses presented for the results of the bioaccumulation testing performed. What conclusions can be drawn from those data?
3. Were there unexposed or baseline mussel tissues analyzed? Page 3-9 of the July 31, 1991 ESAP Workplan indicates that "the analysis will establish background body burdens and provide a basis for quality assurance". Where is that data? Please identify the mussel tissue samples "MR-2", "MRS-1", and "MRS-2". Is MR-2 the baseline tissue reference for the 04/07/92 group? If so, where is the baseline data for the 09/09/92 set of sites?

On the assumption that "MR-2" is the baseline for the 04/07/92 sites, all of the stations showed metal concentrations more than 10 percent higher than the "baseline". Heavy metal tissue concentrations at most stations exceeded those of the baseline tissues by more than 100 %. Although the "baseline" tissue sample contained detectable concentrations of butyltins, total tissue concentrations of butyltins (the sum of mono-, di-, and tributyl tins) were two to three times higher than the "baseline" at some stations.

4. Section 3.5 (Task 2) and Section 3.7 of the mussel exposure component of the July 31, 1991 ESAP Workplan stated that mussel shell lengths and mussel weights would be used for the evaluation of growth during deployment. Where is that data?
5. The project detection limits for organic contaminants in tissues were routinely exceeded. What additional steps will be taken to reduce this problem in the future?
6. What is the relationship between the results of the bulk sediment chemical analyses and the observed toxicity? What is the relationship between the results of the bulk sediment chemistry and the bioaccumulation data? What is the relationship between the bulk sediment chemistry data and the water analyses? What is the relationship between the stormdrain effluent chemistry and the results of the toxicity tests?

SPECIFIC

1. p. 39: The "data quality" is not "inconclusive". Rather, the results are inconclusive because the data quality is unacceptable or poor. Please clarify the sentence.

2. p. 39: The "reference" area samples chosen by the Navy may have been thought by the Navy to be "uncontaminated", but the agencies made no such assumption.
3. p. 43: See Comment 2.
4. p. 43: The text states that "control survival was marginally less than the criterion." Staff asserts that 80 % and 56 % survival in 100 % control sediment elutriate is higher than "marginal".
5. p. 47: The data quality is not "valid. Rather, the data are valid and the data quality is acceptable or good. Please clarify the first sentence on the top of the page.
6. p. 50: See Comment 5.
7. p. 51: Mysid survival in the Group One samples was markedly lower than that of Group Two samples.
8. p. 51: See Comment 2.
9. p. 54: Where did the seawater used to cover the sediments come from?
10. p. 54: Modify the text to read, "Based on the results of the data validation, the results are inconclusive, largely because most of the mortality was reported on the last day of the test,..."
11. p. 55: See Comment 2.
12. p. 58: See Comment 9.
13. p. 58: See Comment 10.
14. p. 59: See Comment 2.

The strategy for implementing the RI for the off-shore sediments and for completion of the Ecological Risk Assessment should be discussed in a meeting as soon as possible. For the RI, one possible approach is to identify the off-shore sediments as a separate "Parcel F" and negotiate a schedule for its investigation and cleanup in a separate amendment to the Federal Facilities Agreement. A second approach may be to extend the boundaries of the existing Parcel E, the schedule for which is to be submitted 1 2/21/93, since remediation of the off-shore sediments may include upland disposal.

Please direct your questions to me at (510) 286-4222.

Sincerely,

A handwritten signature in cursive script that reads "Barbara M. Smith". The signature is written in black ink and is positioned above the printed name.

Barbara M. Smith, Ph.D.
Remedial Project Manager