

MEC

ANALYTICAL SYSTEMS, INC.

April 22, 1999
Project 4850.01

Mr. Ernesto M. Galang
Remedial Project Manager
Department of the Navy
Engineering Field Activity, West
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, California 94066-5006

Subject: Review of *Draft Final Remedial Investigation Offshore Sediments Operable Unit*
Naval Station Treasure Island
San Francisco, California

Dear Mr. Galang:

This letter presents the results of a review of the *Draft Final Remedial Investigation Offshore Sediments Operable Unit* (draft final Offshore RI). This review was performed by MEC Analytical Systems, Inc. (MEC) with input from Geomatrix Consultants, Inc., on behalf of the City and County of San Francisco, Mayor's Office, Treasure Island Project (the City). The City provided comments (dated July 27, 1998) on the previous (June 1998) draft version of this document. The subject report presents new evaluations (food chain analysis and statistical analysis of sediment toxicity test results for the Clipper Cove area), and responds to the City's comments on the June 1998 draft Offshore RI.

Our comments focus on the technical defensibility of the new evaluations presented in the Draft Final Offshore RI report, responses to the City's comments on the June 1998 draft report, and potential affects of environmental conditions on reuse of the site. Our comments and recommendations are summarized below.

Comments

- The food chain analysis presented in the report provides an adequate representation of the exposure pathways, receptors, and risks associated with trophic transfer of contaminants at

NAVSTA TI. Both the data and conclusions are reasonable and representative for the study area.

- The report presents a new statistical analysis of the sediment toxicity data (Appendix J). The use of a discriminant function analysis is a reasonable approach to discerning multiple effects from a group of potential causative agents. The results of this analysis were that several metals (As, Cu, Cr, and Ni) and sediment grain size were found to be significant drivers for toxicity. The conclusion drawn from this was that metals could be discounted as a source of toxicity since the metals concentrations were near ambient bay levels. We agree that sediment grain size probably played a major role in the toxicity observed in the amphipod study, but as the City pointed out in its July comments, further study using an amphipod species that is more tolerant to grain size issues is warranted. It has been our experience that significant toxicity is not found from metals in Bay sediments at or near ambient levels (i.e. a discriminant analysis should not have shown metals at or near ambient concentrations as a driver of toxicity). The fact that the Navy's statistical test showed metals as a source of toxicity indicates that further information is needed to understand fully the interaction between metals, grain size, and observed toxicity. New investigations should include amphipod species tolerant to grain size effects and incorporate chronic sub-lethal effects.
- Data and conclusions presented in the report indicate that lead resulting from Navy activities is present throughout the Skeet Range area, but at depths that do not pose a significant ecological risk under current conditions. It is likely, however, that the City will require some level of dredging as part of the TI redevelopment project. If this buried lead is left in place the City may incur significant additional costs associated with future dredging activities (both in dredging and disposal costs) than otherwise would not be incurred.

Recommendations

- We recommend that the Navy pursue additional whole sediment toxicity to evaluate the chronic sub-lethal effects using an amphipod species that is more tolerant to fine grain sediments. Such chronic sub-lethal test protocols using *Leptocheirus plumulosus* have been developed and would be applicable in this case. Results of this study, combined with the data that the Navy has already collected, could be used to further determine the true level of toxicity found in Clipper Cove sediments.

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- We recommend that the Navy proceed with the additional effort necessary to characterize the sediment in the Clipper Cove area in order to determine the feasibility and disposal options of potential dredged material containing lead shot. This additional information is necessary for the City and Navy to evaluate more accurately the additional costs associated with the dredging and disposal of the Clipper Cove sediment.

Sincerely yours,



Paul Krause, Ph.D.
Senior Toxicologist
MEC ANALYTICAL SYSTEMS, INC.

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Attachment: Map

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