



October 18, 1996



Cal/EPA

Department of
Toxic Substances
Control

700 Heinz Avenue
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Berkeley, CA
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Commanding Officer
Engineering Field Activity West
Attn: Code 18, Mr. Ernesto Galang
Naval Facilities Engineering Command
900 Commodore Drive
San Bruno, California 94066-5006

Pete Wilson
Governor

James M. Strock
Secretary for
Environmental
Protection

**RE: Phase II Ecological Risk Assessment Draft Quality Assurance Project
Plan, Naval Station, Treasure Island**

Dear Mr. Galang:

The Department of Toxic Substances Control (Department) has completed our review of the above document. Attached please find our comments.

If you have any questions regarding this letter, please contact me at (510) 540-3822.

Sincerely,

Chein Ping Kao, P.E.
Senior Hazardous Substance Engineer
Office of Military Facilities

Enclosure

cc: Ms. Gina Kathuria
California Regional Water Quality Control Board
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, California 94612

Ms. Rachel Simons [H-9-2]
U. S. EPA, Region 9
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PAUL HEHN, RAB Alt. Com. Co-Chair
Admin Record (3 copies)
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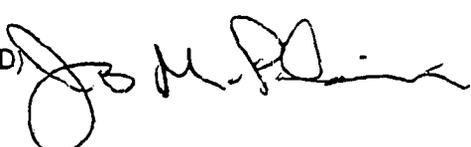


DEPARTMENT OF TOXIC SUBSTANCES CONTROL

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**MEMORANDUM**

TO: Chein Kao, Project Manager
Office of Military Facilities, Region 2
700 Heinz, Building F, Second Floor
Berkeley, CA 94704

FROM: James M. Polisini, Ph.D.
Human and Ecological Risk Division (HERD) 

DATE: September 12, 1996

SUBJECT: TREASURE ISLAND PHASE II ECOLOGICAL ASSESSMENT
DRAFT FINAL QUALITY ASSURANCE PROJECT PLAN
[PCA 14740 SITE 200231-47 H:24]

Background

We have reviewed the document titled *Phase II Ecological Risk Assessment Draft Final Quality Assurance Project Plan, Naval Station Treasure Island*, dated June 28, 1996 and prepared by PRC Environmental Management, Inc. of San Francisco, California. This review is in response to your written work request.

We have reviewed previous drafts of the Phase II Ecological Risk Assessment Work Plan in memoranda dated February 8, 1995 and September 1, 1995 in addition to attending a meeting at PRC offices in San Francisco to discuss the Phase II ecological assessment risk work plan on August 15, 1995.

Naval Station Treasure Island occupies both Treasure Island and Yerba Buena Island in San Francisco Bay midway between San Francisco and Oakland. Treasure Island (TI) is manmade and approximately 450 acres in size. Yerba Buena Island (YBI) is a natural island in San Francisco Bay approximately 130 acres in size. The U.S. Army first occupied YBI in 1866. The Navy began operations on YBI in 1896. TI was constructed in 1936 and 1937 as a site for the Golden Gate International Exposition in 1939. TI was leased to the Navy in 1941 for use as a training and personnel processing facility. Naval Station Treasure Island (NAVSTA TI) is used today for processing personnel, and training such as fire fighting. YBI is mainly a residential facility.

General Comments

A cursory review of planned recovery and relative standard deviation for the analytical chemical work was made. We recommend that details of the analytical chemistry should be reviewed by the DTSC Hazardous Materials Laboratory (HML).



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Specific Comments

1. Please specify the '...other measures of bioavailability...' (Section 2.4, page 11) which will be used to assess ecological risk. Bioavailability has been discussed during development of the Phase II ecological risk assessment work plan, but sediment pore water is the only measure of 'bioavailability' currently presented in the work plan.

2. How will the Phase II ecological risk assessment be performed for aquatic receptors in the event the San Francisco Bay-specific Low Screening Value (LSV) and the High Screening Value (HSV) are not developed prior to completion of the Treasure Island (TI) investigations? Please include some alternate sediment screening methodology or criteria (Section 2.4, page 12).

3. Offshore sediment samples are designated as '1500 feet offshore' (Section 2.4, page 12 and Section 3.0, page 16). In planning discussions for the Phase II ecological risk assessment these offshore sediment samples were proposed and discussed as transects of sediment sampling consisting of several sediment samples along a transect extending outward from the TI shore to evaluate any trends in sediment concentration. Please amend the text to indicate that these 'offshore' sediment samples will be obtained as part of the transect sediment sampling. Additional discussions may be necessary if a stratified random sampling strategy has replaced the originally-proposed transect sampling to evaluate sediment concentration trends.

4. The discussion of Type I and Type II statistical error and null and alternative hypotheses (Section 3.0, page 17) incorrectly states the null and alternate hypotheses. There are actually two independent null hypotheses and two alternative hypotheses. One tests whether TI is the source of the sediment contamination and the other tests whether the sediment sampling location is toxic or non-toxic. It is possible for the sediment to be toxic and TI not the source of the contamination as well as for the sediment to be non-toxic but there exist a trend in sediment concentration from the TI shore outwards. Please amend the discussion of null and alternative hypotheses to clearly separate the two hypotheses being evaluated.

5. What type of litigation is 'anticipated' in which the TI sediment and pore water may be used (Section 3.2, page 18)? We propose removing this phrase from the QAPP.

6. We do not agree with the general statement that 'Sediment and tissue samples are not routinely analyzed with duplicates.' (Section 3.4, page 21). Field duplicate samples may be appropriate, and are used, for investigations which require a finer level of discrimination than the risk characterization purposes of the TI Phase II ecological risk assessment. We propose that the sentence be amended to state 'Sediment and tissue samples are not routinely evaluated with field duplicates in CERCLA investigations.'

7. Footnote 'b' of Table 1 (page 23) refers to 'elutriates' for bioassays on echinoderm and bivalve larvae. The bivalve larvae test also discusses preparation of an elutriate (Section 5.0, page K-4). Elutriates are not a measure of potential ecological threat from in-place sediments. If the elutriate samples are meant to determine the difference in bioassay response between sediment pore water and sediment elutriate that purpose should be clearly stated.

8. A footnote designated 'g' in Table 2, referring to a 1-to-1 slurry of water, does not appear in the body of the table. Please correct this error.

9. Laboratories are certified by the Environmental Laboratory Accreditation Program (ELAP), which is in the California Department of Health Services, not the California Department of Toxic Substances Control (Section 8.0, page 46).

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10. The proposed quantitation limits and contract-required quantitation limits (Tables 11, 12, 13, 14 and 15) should be evaluated by the Hazardous Materials Laboratory (HML) to determine if they are appropriate for the individual analytical method. The quantitation limit of 0.026 ug/kg for polycyclic aromatic hydrocarbons (PAHs) (Table 12, page 54) in sediment, however, is more than sufficient to assess the ecological hazard associated with these compounds in sediment.

11. There appear to be several inconsistencies in the descriptions of the bioassay tests:

- a) In the echinoderm bioassay, it is impossible to have an 'average survival in the control' equal to or greater than 70 percent (Second bullet item, page 69) when the test acceptability criterion is 'Greater than 80 percent normal shell development in the controls' (Test Acceptability, page 68). If the test acceptability criterion is 80 percent normal shell development in the surviving echinoderm larvae, please state the Test Acceptability criterion in that manner.
- b) In the echinoderm bioassay, the Test Chamber (page 68) is listed as 20 ml minimum while the Sample Volume Required (page 68) is listed as 500 ml. If the Sample Volume Required is 500 ml of sediment to produce the required pore water, please list the Sample Volume Required as sediment.
- c) The amphipod bioassay lists Illuminance in units of lux (page 65) while all other descriptions use foot candles (ft-c) (page 71). Please be consistent in the use of illumination units.
- d) The echinoderm bioassay lists the actual concentrations of 100 percent, 50 percent, 25 percent, 12.5 percent and 6.25 percent while the bivalve shell development test lists the dilution factor of 0.5 rather than the actual concentrations. Please be consistent in the description of the dilution series.
- e) The echinoderm bioassay (page 68) lists a Photoperiod of 16 hours light and 8 hours dark (16L:8D) while the reference toxicant testing (Section 8.0, page E-8) lists the Photoperiod as 'None'. The reference toxicant should be tested under the same conditions as the TI samples. Please amend these sections so that they are correct and agree or provide justification for the difference.
- f) The amphipod whole sediment test (Section 8.8.1, page 65) lists a Photoperiod of 24 hours light and 0 hours dark. The amphipod protocol lists a Photoperiod of 24 hours dark for reference toxicant testing (Section 9.0, page G-7). Please amend these sections so that they are correct and agree or provide justification for the difference.

12. Please indicate the negative control for the pore water bioassays. The discussion of negative controls (Section 9.4.1, page 86) concentrates on negative controls in sediment bioassays.

13. Recommended holding time for frozen tissue is first proposed as '...a maximum of 1 year' (Section 2.4, page H-3) and then as '... a maximum holding time of 6 months..' (Section 3.2, page H-6). What will be the maximum holding time for frozen tissues?

14. There is no discussion of the initial amphipod bioassay of sediments and the final amphipod bioassay of selected sediments to assess the effect of the extended sediment holding time. There is, also, no discussion of the initial echinoderm larvae test of pore water and the final echinoderm test of pore water to evaluate the effect of freezing the extracted pore water. Both of

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these demonstrations were agreed to in the discussion of the Phase II ecological risk assessment. Please include these demonstrations in the discussion of the pore water and sediment bioassays.

Conclusions

In general, the Ecological Risk Assessment Quality Assurance Project Plan (QAPP) agrees with the Phase II Ecological Risk Assessment Work Plan. There are several omissions and inconsistencies which should be corrected.

Reviewed by: Brian K. Davis, Ph.D.
Staff Toxicologist
Human and Ecological Risk Division

cc: Michael J. Wade, Ph.D., Senior Toxicologist, OMF Liaison, HERS

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Memorandum

Date: October 10, 1996

To: Chien Kao
Office of Military Facilities
Department of Toxic Substances Control

From:  Bart Simmons, Ph. D.
Hazardous Materials Laboratory
Department of Toxic Substances Control
2151 Berkeley Way, Room 515
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Subject: Draft Quality Assurance Plan (QAPP)
Phase II Ecological Risk Assessment
Naval Station Treasure Island

We have reviewed the QAPP and our comments are as follows:

1. Page 15, section 3.0 discussed the Quality Objectives and Criteria for Measurement Data (DQO).

This process does not fully follow the Guidance for Planning for Data Collection in Support of Environmental Decision Making Using the Data Quality Objectives Process, EPA QA/G-4, Interim Final. The Guidance document has a seven step process to establish Data Quality Objectives. The QAPP should be revised to conform with the DQO process.

2. Page 11, section 2.4, Project narrative and page 16, section 3.0, Quality Objectives and Criteria for Measurement Data.

The QAPP stated that the whole sediment total chemistry values will be compared to the San Francisco Bay specific LSVs/HSVs and the contaminant results in the pore water will be compared to San Francisco Bay water quality objectives (RWQCB 1995) or the federal AWQC (EPA 1994e). These standards or action levels (San Francisco Bay LSVs/HSVs, RWQCB 1995, federal AWQC) are referenced to Section 7.1 of the EA WP and is not provided.

These standards or actions levels used for decision making should be listed in the QAPP. The proposed analytical methods together with the contract required detection limit (CRDL), quantitation limits or detection limits should be reviewed to ensure that they can achieve the listed standards or action levels of the San Francisco Bay or the federal.

3. Page 18, the reference Phase II EA WP (PRC 1996), which discussed the rational for selection of sampling locations, number of samples to be collected and the methods for collecting samples, is not available for review. The sampling locations, number of samples and methods of collecting samples should be reviewed to ensure that they would provide the necessary information to meet the project needs.

If you have any questions, please feel free to contact Lorna Garcia/Fred Seto at (510) 540-3003.

cc: Fred Seto, Ph.D., Cindy Dingman, James Cheng, Lorna Garcia