



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX

75 Hawthorne Street  
San Francisco, CA 94105-3901

October 15, 1996

Ernesto M. Galang  
EFA, West - Code 1832.5EG  
Naval Facilities Engineering Command  
900 Commodore Drive  
San Bruno, California 94066-2402

Re: Phase II Ecological Risk Assessment Draft Final Quality Assurance Project Plan for Naval Station Treasure Island dated June 28, 1996

Dear Mr. Galang,

The U. S. Environmental Protection Agency (EPA) has received and reviewed the subject document. EPA's comments are enclosed.

If you have any questions, please call me at (415) 744-2383 or Eugenia McNaughton at (415) 744-1636.

Sincerely,

A handwritten signature in cursive script that reads "Rachel D. Simons".

Rachel D. Simons  
Remedial Project Manager  
Federal Facilities Cleanup Office

Enclosures

cc: Jim Sullivan, NAVSTA TI  
Chein Kao, DTSC  
Gina Kathuria, CRWQCB  
H-9-2 File  
Pat Nelson, RAB Comm. Co-Chair  
Paul Hehn, RAB Alt. Comm. Co-Chair  
PRC EMI  
Admin Record (3 copies)



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

October 15, 1996

MEMORANDUM

SUBJECT: Phase II Ecological Risk Assessment Draft Final Quality Assurance Project Plan Naval Station Treasure Island (QA Program DCN 8RCA009Q96VSF1)  
*Eugenia McNaughton*  
FROM: Eugenia McNaughton, Ph.D., Environmental Scientist  
Quality Assurance Program (P-3-2)  
*Vance S. Fong*  
THROUGH: Vance S. Fong, P.E., Chief  
Quality Assurance Program (P-3-2)  
TO: Rachel Simons, Environmental Engineer  
Federal Facilities Cleanup Office, Navy Section (H-9-2)

The subject Quality Assurance Project Plan (QAPP), prepared by PRC Environmental Management, Inc., and dated June 28, 1996, was reviewed. Review of this document was based on the documents "EPA Requirements for Quality Assurance Project Plans for Environmental Data Operations," May 1994 (QA/R-5), "Guidance for the Data Quality Objectives Process," September 1994 (QA/G-4), "Methods for Assessing the Toxicity of Sediment-associated Contaminants with Estuarine and Marine Amphipods," June 1994 ((EPA/600/R-94/025), and "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms," August 1995 (EPA/600/R-95/136).

It is recommended that the QAPP not be approved until the information requested has been provided and the discrepancies between bioassay procedures presented in the body of the QAPP and the Standard Operating Procedures (SOPs) included in the appendices have been addressed.

**Major Concerns**

1. [Analytical Methods] The SOPs for all bioassays include analysis of the test water or overlying water for pH, ammonia, sulfides, dissolved oxygen, salinity and temperature during testing, but the methods for salinity and temperature are not included in the tables of analytes to be measured. These should be included, along with pH, ammonia and any other analyte that may be measured using methods different from those used in chemical analysis.

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2. [Control Water] The source of natural sea water should be included in the discussion of natural and artificial sea water.
3. [Section 3.4.5: Comparability] It is stated that the data quality indicators of precision, accuracy and completeness are listed in Appendix A. Completeness requirements have not been included in the appendix tables. This omission should be addressed.
4. [Section 6.0: Calibration Procedures and Frequency, Table 6. Field Equipment Calibration] In addition to daily calibration in air, the dissolved oxygen meter should be calibrated by a Winkler titration on a regular schedule.
5. [Section 8.8: Bioassay Protocols] The general statement is made that any bioassay will be repeated if more than 10% of the control animals die. In the specific protocols, the requirement for control animal survival ranges from 90% (worms) to 50% (bivalve larvae). The general statement should be changed to refer to the different test requirements. Specific requirements listed in the protocol sections should be consistent with those listed in the appendices.
6. [Section 8.8.2: Echinoderm Development Test] There are several issues that need to be addressed in this section:
  - A. The test parameters include a dilution series. A dilution series is not generally run with a pore water bioassay. If it is intended that a dilution series be run, except for the reference toxicant, some explanation should be included in the discussion of the test. Test concentrations have also been included in the list of test parameters in Appendix E. The discussion should include this list as well.
  - B. A brine control is listed among the test concentrations, but there is no discussion of the use of brine in the test. The appropriate use of brine should be discussed in this section. In addition, the salting up protocol that will be used to meet the test requirement of 34 ppt should be included in the appendices.
  - C. Test acceptability is stated to be "greater than 80% shell development," but the echinoderm larvae do not develop shells. The endpoint for this test is development to the pluteus larvae stage; this is

discussed in Appendix E. The references to the endpoint should be corrected throughout this section.

- D. All references to the organisms during the test should include the word "larvae," so that it is clear that it is the embryo life stage that is being used in the test. The conditions for test acceptability, therefore, should state that the echinoderm larvae should be less than one hour old at test initiation, and that the larvae must be randomly distributed.
7. [Section 8.8.3: Polychaete Whole Sediment Test] Several issues should be addressed in this section.
- A. The genus/species of the organism to be used should be included in the title of the test.
  - B. Both "test solution" and "overlying water" are listed among the test parameters. Since it is the sediment that is being tested, it would be clearer if all references to "test solution" were changed to "overlying water."
  - C. Among the performance based criteria for test organisms is the discussion of reference toxicant tests to determine organism condition. It is stated that reference toxicant data will either be obtained from the organism supplier or from a laboratory data base of at least five tests, as well as monthly tests performed using the same species. In the introduction to the bioassay section (Section 8.8) and in Section 9.4.2 (Positive Controls), it is stated that reference toxicants will be run with every test. The apparent discrepancy between using external data, monthly data generated in house or concurrent reference toxicants tests for determination of organism condition should be resolved.
8. [Section 8.8.4: Bivalve Shell Development Test] Several issues should be addressed in this section.
- A. The genus/species of the organism to be used should be included in the title of the test.
  - B. The test parameters indicate that a dilution series is to be run with the elutriate. As this is an in-place sediment, rather than an introduced contaminated material, it is not clear why a dilution series is required. The rationale for using dilutions should be presented in this section.

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- C. The test parameters include "overlying water," listing the measurements to be taken in this medium. The bivalve test does not include overlying water; there is no sediment in the test chambers. The reference to overlying water should be changed to "test solution."
  - D. Please refer to Comment 7D. This is also relevant to Appendix K: Standard Operating Procedure for 48-Hour Embryo-Larval Development Test Using the Blue Mussel *Mytilus edulis*, Section 10.0., Acceptability of the Test.
9. [Section 9.4: Bioassay Quality Control] This section should include discussion of preparation and use of a brine control.
10. [Appendix E: Standard Operating Procedure for 72-Hour Development Abnormality Toxicity Test using the Echinoderm *Strongylocentrotus purpuratus*] Several issues need to be addressed.
- A. [Section 2.0: Test Organisms and Section 4.0: Test Parameters] It is stated that the biological criterion of test acceptability is no more than 10% abnormal development in the control. Test acceptability is listed in the test procedures of Section 8.8.2 and in the Test Parameters section (4.0) of the appendix as 80% normal development. This discrepancy needs to be addressed.
  - B. [Section 5.0: Sediment Preparation and Pore Water Extraction Before Testing] The information in this section contradicts the information provided in Table 5 (QAPP Section 4.0). In this section, sediments from which pore water is to be extracted may be held for 14 days; in the QAPP table, the pore water may be held up to 14 days, with no indication of sediment holding time. This issue should be expanded and all references to sediment and pore water holding times made consistent.
  - C. [Section 6.0: Bioassay Procedure] It is stated that although the best way to determine the concentration of organisms in the test chambers would be to subsample, the presence of sediment in the chambers prevents the achievement of adequate mixing for representative sampling. Following the procedure for preparing pore water, there should be no or very little sediment in the test chambers. This discussion should be changed to reflect the procedures being followed in this test.

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- D. The test parameter of number of organisms/chamber should be changed to 25/mL. Test acceptability, 90% control survival, does not coincide with test acceptability with test solutions. This discrepancy needs to be addressed.
  - E. [Section 10.0: Acceptability of the Test] Please refer to Comment 7D.
11. Appendix F: Standard Operating Procedure for Extraction of Pore Water, Section 1.2. Pore Water Sample Extraction Process and Handling] It is recommended that the pore water be extracted at 2500 g for 30 minutes, in order that the method be comparable to that used to develop the extensive pore water data base developed for the Bay Toxics Cleanup Program (Regional Water Quality Control Board, 1996).

#### Other Concerns

- 1. [Section 4.0: Sampling Procedures, Table 1. Analytical and Toxicological Testing Parameters] From the presentation of the bioassay protocols in later sections, it appears that the bivalve test will be run with elutriate and the echinoderm test with pore water. In Table 1, the bivalve test is included among the sediment tests and the echinoderm test is included among the elutriate tests. These discrepancies need to be resolved.
- 2. [Section 4.0: Sampling Procedures, Table 5. Sample Container, Holding Time, and Preservative Requirements for Sediment, Pore Water and Elutriate Bioassays, Item h] A reference should be provided for the information concerning the holding time for sediment from which pore water is to be extracted.
- 3. [Appendix F: Standard Operating Procedure for Extraction of Pore Water, Section 1.2. Pore Water Sample Extraction Process and Handling] The "g" after the number indicating the speed at which the centrifuge is to be run refers to "gravity," not "gram," as is stated in the text.

The water that has been separated from the sediment by centrifugation is referred to as the "filtrate." This should be changed to "supernatant."

- 4. [Appendix G: Standard Operating Procedure for 10-Day Whole Sediment Toxicity Test Using the Estuarine Amphipod *Eohaustorius estuarius*, Section 10.0 Test Completion and Appendix J: Standard Operating Procedure for 20-Day Whole Sediment Survival and Growth Test Using the Marine

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Polychaete *Neanthes arenaceodentata*, Section 9.0 Test Completion] The statement, made in both sections, that "Any animal that is not living is presumed dead" is a tautology. It should be changed to read "Any animal that does not respond is presumed dead."

If you have any questions about issues raised in this memorandum, please call Eugenia McNaughton at (415) 744-1636.