

CLARIFICATION PAPER (FINAL - 20 JULY 1995)

IN-BATCH TESTING FOR REFERENCE SEDIMENTS FOR PSDDA BIOASSAYS

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INTRODUCTION

Reference sediments are collected from appropriate reference collection areas (i.e., removed from sources of contamination) and are similar in grain size characteristics to the material tested from the dredging area. The primary purpose of the reference is to determine the response of the bioassay organisms to sediments with physical characteristics similar to the proposed dredged material as a point of comparison for test responses. The reference sediment is compared directly with the test sediment response using a student t-test to evaluate whether there is a statistically significant difference in response. Any subtle difference in test conditions (e.g., temperature, dissolved oxygen, salinity, etc.) can influence the test outcome. For this reason, control and reference sediments should all be run within the same batch as the sediment being evaluated from any given dredging area. This will ensure that environmental conditions during the exposure period are similar for all exposures within any given batch. The PSDDA program clarified in-batch testing as a requirement for the saline Microtox bioassay at the second annual review meeting held in April 1990.

PROBLEM IDENTIFICATION

It has recently come to light that laboratories conducting PSDDA bioassays were unsure whether or not in-batch testing of reference sediment and test sediment is necessary to meet PSDDA program QA/QC requirements for the amphipod bioassay, sediment larval bioassay, and the 20-day *Neanthes* growth bioassay. The current PSEP (Puget Sound Estuary Program) bioassay protocols under revision do not explicitly state that in-batch testing of the above mentioned bioassays is required. The PSDDA program has consistently required in-batch analysis of test and appropriate reference sediments for all bioassays. This is necessary to ensure that reference sediments and test sediments are exposed to the same test conditions through the exposure period.

PROPOSED ACTION/MODIFICATION

This clarification is provided to specifically confirm that in-batch testing of test sediments and an appropriate reference sediment is required for all PSDDA bioassays. Statistical comparisons of reference and test sediment must be within batch. Failure to conduct in-batch testing of reference and test sediments may result in a requirement to retest as a quality control failure.

REFERENCES

PSDDA ARM. 1990. Second Annual Review Meeting Minutes. Prepared by the PSDDA agencies.