

Corps of Engineers' Response to Dr. Philip T. Gidley's
"Preliminary Notes and Comments on U.S. Army Corps of Engineers
Feasibility Study: PCB Dredging and Disposal - New Bedford,
Part 1 of 3"

1. Selenium.

EPA is analyzing selected sediment cores collected by NED for priority pollutants. These analyses should include selenium. If concentrations detected indicate problem areas different from the PCB problems, then further analyses could be performed on archived samples.

2. Dibenzo Furans and Hexachloro Benzene.

EPA is spot checking selected cores for priority pollutants. A priority pollutant scan may not include dibenzo furan.

3. Tide Gate.

Our study will consider physical barriers to contaminant transport, including weirs, tide gates, silt curtains, and other techniques or combinations of techniques.

4. Standard Methods: Sampling and Analyses.

We use standard methods for sampling and analysis whenever such methods meet the needs of the study. Sampling often requires some deviation in equipment or procedures specified by standard methods in order to collect a sample that is of adequate volume and that is in samplers or containers appropriate for chemical and physical analyses. Laboratory analyses generally follow standard methods approved by EPA.

5. Standard Methods: Leachate Tests.

The proposed leach tests are state-of-the-art procedures that add significant theoretical improvements to the procedures that are currently available. These improvements utilize concepts from mass transport theory and are designed to provide a technical basis for extrapolating laboratory results to the field. Without a sound technical basis for extrapolating to the field, laboratory leach data are of limited value to decisionmakers at the planning level.

Several useful references were cited by P.T. Gidley. One in particular, ASTM STP 760, was extensively studied as part of the literature review that preceded the design of the leach tests that have been proposed for the New Bedford sediment. (The procedures are now being applied to contaminated sediments from Lake Michigan and Puget Sound.) ASTM STP 746 is also a useful reference as are the others cited.

However, we disagree, in principle, that "standard" leach tests should be used. First, there are no standard leach tests developed specifically for dredged material, other than the proposed tests. The available tests should not be applied because they are not realistic analogs of the leach-

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ing environment in a confined disposal facility. In particular, arbitrary adjustments of pH, oxidation-reduction potential, and liquid-solid ratio can be seriously misleading and should be avoided.

6. Chemical Clarification Tests (Polymer).

For salt water sediments, dredged material slurry can generally be clarified satisfactorily by plain sedimentation, provided sufficient surface area is available for settling. However, polymer addition can reduce the area required for settling, may produce an effluent with lower suspended solids concentrations, and will provide improved filterability of the materials remaining in suspension. Since the finer particles at the New Bedford site could represent substantial contaminant concentrations, effluent from a containment area should be designed for a very low suspended solids concentration. Polymer addition may provide the mechanism in whole, or in part, to achieve this goal. Laboratory jar tests based on WES's prior experience with their application to dredged material can be accomplished with a relatively small amount of resources and we think they are worthy of consideration for this project.

7. Sediment Stabilization Tests.

P.T. Gidley's comments are noted as generally favorable. We appreciate the sources of information on stabilization cited and request copies of two reports as follows:

a. "Dredging Fly-Ash and Sludge Disposal," GIDLAB Report EN-799, 10/12/74.

b. P.T. Gidley, Addition of Lime to Dredgings of New Bedford Harbor On-Site or Via Venturi,--1972--Report for New Bedford Harbor Committee.

These materials may be useful in developing the experimental design for the stabilization research for New Bedford sediments.

8. Disposal Site Drainage and Monitoring.

The need for a drainage system will be addressed in the engineering feasibility study.

9. Ground-Water Contamination.

Leachate tests will characterize the liquid draining (disposal site drainage) from the dredged material when placed in a confined facility. Knowledge of these characteristics is necessary to assess the leachate's impact on surface water and groundwater and to define the type of leachate treatment that may be required.

10. Sampling Tube Procedure.

Our testing program was designed to characterize the material for subsequent sample compositing and testing for dredging alternatives and disposal. Because the dredging operation combines a much thicker layer, we are not testing centimeters, but feet. This is sufficient for our purpose of providing relative comparisons of contamination levels within the area.

11. Definition of "Clean" Sediment.

This definition is an EPA call.

12. Local Clay Liner Testing.

The statement that no suitable clays are available is helpful information. This suggests we will need to concentrate on synthetic liner materials.

13. Containment Sites.

a. WES plans to evaluate contained aquatic sites located below the elevation of the existing estuary bed. The sites would be excavated, dredged material would be placed in the cavity, and clean material would be added to bring the site back up to preconstruction elevation. The capping material will be evaluated from the standpoint of erosion and scouring, as well as bioturbation. As far as preventing disturbance by future construction, precautions and warnings to the public will be required. We feel that this could be accomplished for the contained aquatic disposal option as well as for other confined disposal options through cooperation with local governments.

b. Isolation of existing hot spots as is may be difficult because of their size, their number and the difficulty in defining their area of coverage. Containment behind sheet pile walls may not adequately isolate the contaminants from the environment. However, this concept could be a viable option and we will consider it in our engineering feasibility study.

TO: Norm Franangues, WES

FROM: Al Randall, NED

1. Draft responses as requested:

Dr. Gidley's Comment #5 Geotechnical Investigation, p.3 Introduction "Characteristics of soil, rock and groundwater flow are largely available from existing data and maps of USGS (Boston office)."

Response: We will use all available data including the USGS information to provide the general site information. Then a small number of borings probs and observation wells will be installed to provide site specific engineering data needed to determine engineering feasibility.

b. Dr. Gidley's Prel. Notes & Comments on USACE FEASIBILITY Study:

PCB Dredging and Disposal New Bedford.

#10 Sampling Tube Procedure (p.5, EFS)

Procedure of drill hole at sediment water interface allows considerable fine particles containing significant amounts of PCB and metals to escape.

Response: Our testing program was designed to characterize the material for subsequent sample compositing and testing for dredging alternatives and disposal.

Because the dredging operation combines a much thicker layer, we are not testing centimeters, but feet. This is sufficient for our purpose of providing relative contamination within the area.

2. Please contact me if you have any questions.

Alan Randall

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