RETURN TO 1998 ROD AR INDEX

(Handout for 8/22/95 Forum meeting)

60629

ROD II Concerns Identified at the 7/25/95 Forum Meeting

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4. Given that treatability studies are now underway for the hot spot sediments, shouldn't we keep the issue of sediment treatment on the table rather than completely ruling it out?

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6. How will the Native American artifacts on the Acushnet shore be protected during dredging?

7. Can the CDFs be designed to enhance the natural biodegradation processes that occur in CDFs?

8. What will the leachate monitoring system around the CDFS be like?

9. How will the CDFs be designed to ensure long-term structural durability? What is the projected lifespan of CDFs?

10. Who takes over O&M of the CDFs after 30 years?

11. Aesthetically, what will the CDFs look like?

12. Some locations for CDFs seem better than others. Selection criteria for siting CDFs need to be established.

13. What is the potential for beneficial reuse of the CDFs?

14. Are there other examples of Superfund CDFs nationally?

15. Could implementation of ROD II help provide some of the disposal volume required for the City's navigational dredging?

New Bedford Harbor
60629

SDMS DocID 60629

The EPA Responds to the Forum's ROD II Concerns

1. How much will the CDFs (Confined Disposal Facilities) leak, and how will the public's safety be guaranteed?

Over the long term, the WORST-CASE total amount of leakage from all CDFs is estimated (based on computer modeling) to be approximately **0.008** pounds of PCBs per day. The actual leakage amounts will be much less than this since the computer model deliberately assumed that the bottom of the CDFs would not restrict water or leachate flow at all. Significant restriction to leachate flow (or soil impermeability) will occur naturally for two reasons: 1) the silty, fine-grained nature of the underlying harbor sediments and 2) the process of "self-weight consolidation" wherein the dredged sediments will compress upon themselves over time to form an almost clay-like bottom liner.

To put this 0.008 lb/day leakage amount into perspective, we know from current water quality monitoring performed at the Coggeshall St. bridge that **0.5** pounds per day of PCBs currently leave the estuary area to contaminate the lower harbor and bay areas of the site. Thus, even though the 0.008 lb/day CDF leakage figure is biased-high, it nevertheless represents over a 98% reduction in contaminant migration based on the current amount of "estuary leakage" (see the attached graph).

Another point to be made is that, counter to what one would expect, the amount of leakage from the CDFs gets less and less with time. This is due to the fact that once in the CDFs, most of the PCB loss is associated with the dredged sediments' pore water. Pore water is the water located in the minute spaces between the sediment particles within the dredged material, and which gets "squeezed out" during settlement of the sediments. The amount of pore water that gets squeezed out decreases with time, so that the amount of PCBs lost also decreases with time. The initial 2-3 year period after disposal in the CDFs is considered to be the period of most loss of pore water and associated PCBs. The computer model estimated that PCB losses during this initial period would be approximately **0.36** pounds of PCB per day. Thus the short-term initial rate of leakage is much more than the long-term rate (0.36 lbs/day verses 0.008 lbs/day), but the short-term rate is still less than the current "estuary leakage" rate of 0.5 lb/day mentioned above.

It's important to note that an engineering solution has been developed to minimize this initial release of sediment pore water and associated PCBs. This solution involves preloading the dredged sediment with a preliminary cap layer that uses "wick drains" as part of its construction. Wick drains are synthetic mats which are used to collect the pore water as it is "squeezed-out". This collected water is then sent to the project's water treatment plant. Without these wick drains, the pore water would

leach out from the CDFs in all directions; with the wick drains, the pore water is controlled and collected for treatment. Thus this pre-loading and pore-water collection step can be considered a type of treatment since it removes PCBs for treatment. Furthermore, the non-Superfund dredged material from the harbor's navigational dredging could be used for this preliminary cap layer. This is VERY significant since much of this navigational dredged material will not be clean enough for open water disposal, and since other disposal options for the navigational material will be hard to find and expensive to implement.

2. The availability of funding for implementation of ROD II may be in jeopardy.

There are two things to keep in mind when considering the funding question for the New Bedford Harbor site. First, we currently have about $56 million in a special settlement account (from the site's litigation) for future site work. This money is separate from the national Superfund trust fund, so that the current national debate about Superfund potentially "drying up" does not immediately effect the NBH site. We say "immediately," and this brings up the second point, because this $56 million is not expected to cover all future costs for the hot spots and RODs II and III. So at some point in the future, we will most likely need to go to the national trust fund for additional funding. This fact argues for moving forward with the ROD II decision-making as soon as possible, in order to maximize the potential for using whatever national money is available if and when the site's special account is used up.

3. What other alternatives were considered for the proposed remedy, and how were they evaluated? What is the process for coming up with a proposed remedy?

Formulating a proposed Superfund remedy is a multi-step process consisting of identifying, screening, and evaluating various cleanup methods to meet the overall cleanup goals. For the NBH site, this process began with the development of an inventory of over 100 potentially applicable technologies and approaches. This initial inventory can be found in the August 1990 Feasibility Study (FS) at pages 5-3 through 5-6 (section 5 is in Volume II of the FS). This inventory was then screened on the basis of technical implementability to produce a subset of remedial technologies that were retained for additional screening and evaluation. These remedial technologies are shown on the attached "Figure 5-2" from the August 1990 FS.

The final step in the process was a highly detailed evaluation of six different remedial approaches for ROD II. These six alternatives are:

- monitoring only (i.e., no action)
- capping
- removal and on-site disposal
- removal, treatment using solidification, and on-site disposal
- removal, treatment using solvent extraction, and on-site disposal, and
- removal, treatment using incineration, and on-site disposal

As required by Superfund regulations, these various alternatives were then evaluated on the basis of:

- short-term effectiveness
- long-term effectiveness and permanence
- reduction of mobility, toxicity or volume of wastes
- implementability
- cost
- compliance with relevant regulatory criteria (i.e., "ARARs"), and
- overall protection of human health and the environment

Sections 7 and 8 of the 1990 FS describe the results of this detailed analysis of alternatives.

4. Given that treatability studies are now underway for the hot spot sediments, shouldn't we keep the issue of sediment treatment on the table rather than completely ruling it out?

Consistent with the Superfund statute, the EPA is always open to reconsideration of a given remedy if appropriately-relevant new information is made available. We have doubts that any new treatment technology will be developed that will be cost-effective given the great scale of contaminated sediments at hand (about half a million cubic yards worth), and we believe that additional treatment offers little advantage over the CDF-based approach. However, the EPA will not necessarily foreclose on the issue of treatment.

Should a technology be developed that does look promising for ROD II, the use of the preliminary cap discussed in #1 above would seem to make the job of changing to treatment somewhat more implementable. In other words, use of the preliminary cap could "buy some time", and should the cap need to be dug up to access the underlying Superfund sediments, it would be somewhat less difficult and less expensive to sacrifice the preliminary cap than it would a final cap.

5. The time-frames involved before dredging actually begins seem too long. This could delay the harbor restoration efforts.

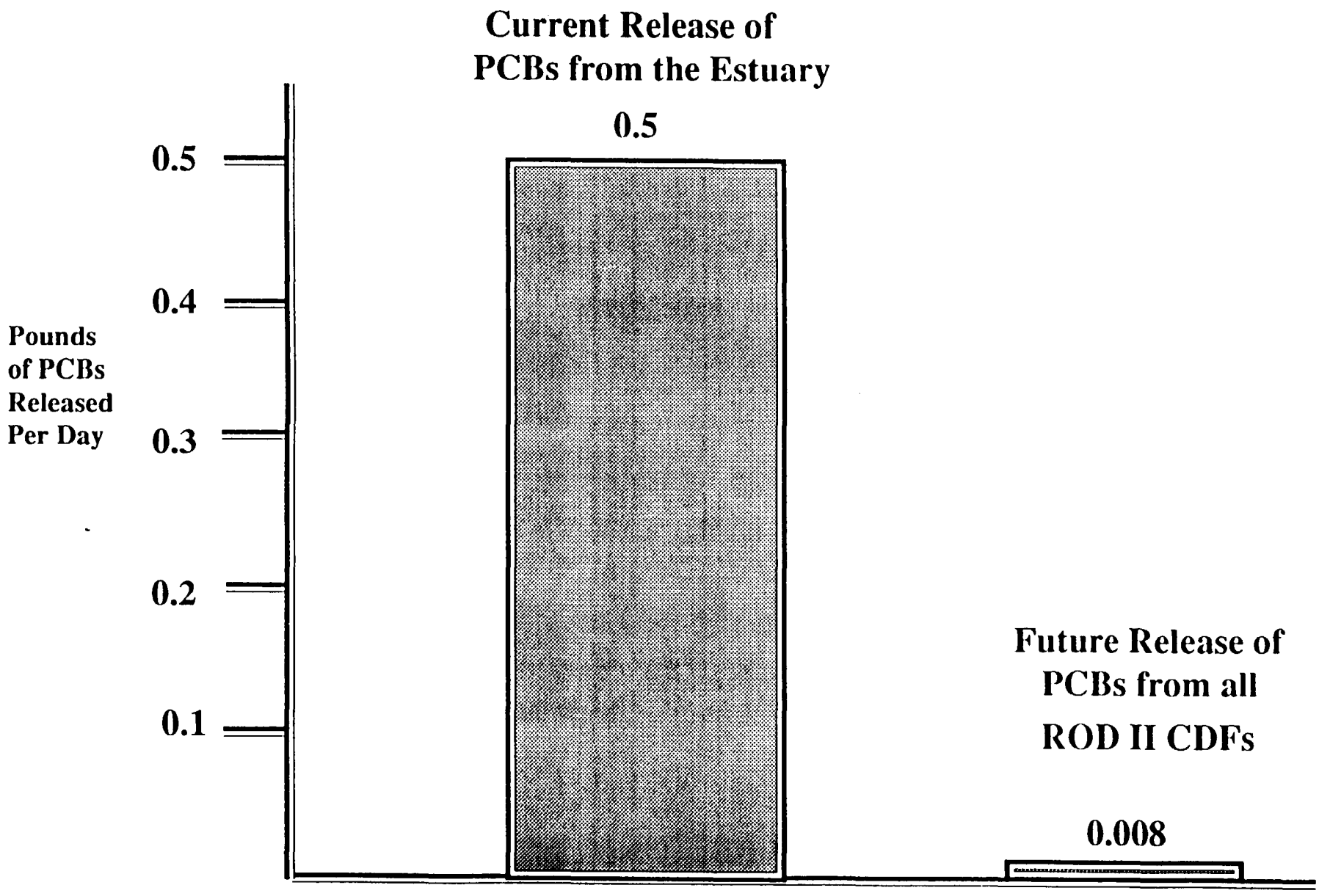
Our best estimate of when construction of the CDFs and dredging would begin is about 4 years after ROD II is finalized. This estimate is highly dependent on the amount of real estate-type work that is involved in obtaining access rights for the government to start building the various CDFs. More or less time would be involved depending on what access-related problems are encountered. Additional "remedial design" efforts during this period include, among others: the development and finalization of engineering plans and specifications (i.e., the blueprints) for the CDFs, the water treatment plant(s) and the dredging process; the contractual process of getting contractors on board to perform the work; and the archeological efforts discussed below in #6. Again, given the great scale of the problem at hand (approximately 200 acres of "surgical" dredging and half-a-million cubic yards of contaminated dredged material), this design and development work takes time. This fact also argues for moving forward with finalization of ROD II as fast as possible in order to "start the clock".

As to the impacts on the natural resource Trustees' harbor restoration efforts, the Trustees' are pursuing both short term and long term projects, so that the 4 year remedial design period does not necessarily hamper their activities. More important to the Trustees is the issuance of ROD II so that they can begin to plan their long term restoration projects around the finalized remedial plan.

6. How will the Native American artifacts on the Acushnet shore be protected during dredging?

At a minimum, EPA will be guided by the National Historic Preservation Act when considering dredging in areas of historical significance. Our conceptual plan in this regard is to implement any site investigations or archeological digs on a parallel track with the other ROD II remedial design efforts, so that schedule impacts on the overall project are minimized. However, we can not necessarily guarantee at this time that the dredging schedule will not be delayed as a result of these preservation efforts. The EPA will continue to work through the Forum to keep everyone "in the loop" and to accept suggestions on the best approach in this matter.

THE ROD II CDF LEAKAGE QUESTION IN PERSPECTIVE



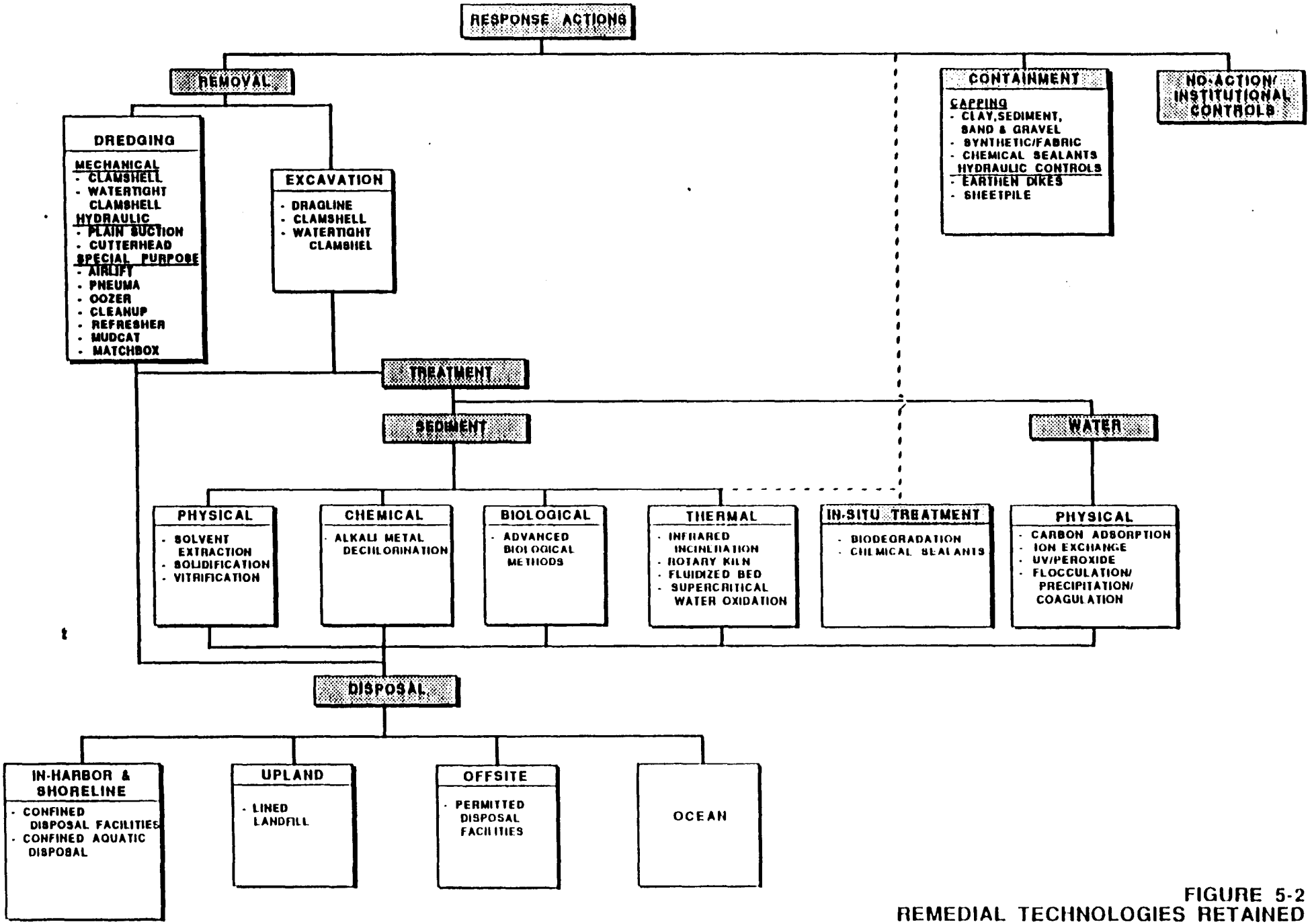


FIGURE 5-2
REMEDIAL TECHNOLOGIES RETAINED
FOR DETAILED EVALUATION
ESTUARY AND LOWER HARBOR AND BAY FEASIBILITY STUDY
NEW BEDFORD HARBOR

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