is cost-effective and that utilizes permanent solutions and alternative treatment technologies or resource recovery technologies to the maximum extent practicable; and c) a preference for remedies in which treatment permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances is a principal element over remedies not involving such treatment. For this operable unit, response alternatives were developed to be consistent with these Congressional mandates.

To assist in the development and screening of alternatives, and based on the contaminants at the Site, the environmental media of concern, and potential exposure pathways, remedial action objectives were developed to mitigate existing and potential future threats to public health and the environment. These remedial action objectives can be summarized as:

1. To reduce risks to human health by reducing PCB concentrations in seafood, by lowering PCB concentrations in sediment and in the water column;

2. To ensure that contact with shoreline sediments does not present excessive risks to human health as a result of dermal contact with or accidental ingestion of PCB-contaminated sediment in areas prone to beach combing or in areas where residences abut the Harbor; and

3. To improve the quality of the seriously degraded marine ecosystem by

    a) reducing marine organisms' exposure to PCB contaminated sediment while minimizing consequent harm to the environment, and

    b) reducing surface water PCB concentrations to comply with chronic AWQC by reducing PCB sediment concentrations.

B. Alternative and Technology Development and Screening

CERCLA and the NCP set forth the process by which remedial actions are evaluated and selected. In accordance with these requirements and the remedial action objectives listed above, a range of cleanup alternatives was developed for the upper and lower harbor. An important part of this process was the evaluation of target cleanup levels (TCLs). Because sediments in New Bedford Harbor are the major source of PCB and metals contamination in all media (e.g., water, biota, air), the focus of the TCL evaluation was on sediments.

Although the ecological risk assessment pointed to a 1 ppm sediment PCB threshold for protection of marine organisms (see section VI.B), achieving this TCL was believed to cause more harm than good due to the radical alterations to the harbor and adverse environmental impacts that would result given the widespread nature of the PCB contamination. Remediation to this 1 ppm level would entail the removal or capping of huge amounts of contaminated sediment (approximately 1,000 acres and 2.1 million cubic yards of sediment). Of particular concern was the destruction of valuable saltmarsh habitat that would result. Thus sediment TCLs of 10, 50 and 500 ppm PCBs (as well as a no-action alternative) were used to establish more realistic and less damaging categories of cleanup alternatives.

In addition, Chapter 5 of the 1990 Feasibility Study identified, assessed and screened remedial approaches and technologies for the upper and lower harbor based on effectiveness, implementability and cost. These included methods to a) remove contaminated sediment from the harbor, b) treat these removed sediments as well as water drained from these sediments to destroy or immobilize contaminants, c) dispose of the removed sediments without such treatment, and d) contain or treat contaminated sediments in place without removing them from the sea floor. The purpose of the initial screening was to narrow the number of remedial approaches and technologies carried forward for detailed analysis, while preserving a broad range of remedial approaches. Of the 104 remedial technologies screened in Chapter 5, 38 were retained for detailed analysis. Table 5-1 in the 1990 FS identifies these 104 technologies, and Figure 5-2 of the FS identifies the 38 technologies that were retained for detailed analysis within the generalized outline of the different remedial approaches available.

Using a 10 ppm TCL, Chapter 6 of the 1990 FS combined these 38 technologies with the overall response objectives to develop complete remedial alternatives for the upper and lower harbor. Chapter 7 of the FS then presents a detailed analysis of these alternatives (six for the upper harbor and six for the lower harbor), with the idea that any upper harbor alternative could be combined with any lower harbor alternative.

Using a 50 ppm TCL, Volume III of the 1990 FS developed three additional "site-wide" alternatives covering both the upper and the lower harbors. Volume III used remedial strategies which either left sediments in place for capping or removed them for containment or treatment. These alternatives were developed in order to supplement those using a 10 ppm TCL given the serious challenges and adverse impacts posed by a site-wide 10 ppm TCL: Approximately 400 acres would be affected involving roughly 926,000 cy of sediment at a cost of about $146-148 million.

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