New Bedford Harbor Superfund Site Community Forum

EPA Responses to Concerns Listed by the Towns of Acushnet and Fairhaven

November 29, 1995

The purpose of this document is to list and respond to recent concerns voiced by the Towns of Acushnet and Fairhaven in regards to the EPA's proposed remedy for phase 2 of the Superfund cleanup for New Bedford Harbor. The concerns are listed first in bolded italics, followed by the EPA's response.

A. Town of Acushnet Concerns

1. ***The Federal EPA has laws that prohibit the storage of untreated toxic waste to be stored for no longer than one year. What will this mean, that once again the EPA will change the law to suite (sic) their needs and not take into consideration their own law which was developed to protect the public?***

The "law" referred to in this comment is actually not a law, but a supporting regulation of the federal Toxic Substance Control Act (TSCA). That regulation (40 CFR 761.65(a)) requires that commercial facilities which need to store PCBs prior to disposal limit the storage period to one year or less. Another TSCA regulation (40 CFR 760.60(a)(5)) more specifically addresses the disposal of dredged material containing PCBs. This regulation allows for the disposal of PCB-contaminated dredged material in one of three ways - either in an incinerator, in a chemical waste landfill, or with an alternate disposal method, approved by the EPA's Regional Administrator, which provides adequate protection to health and the environment. To make this finding of adequate protection, the regulation also requires that other applicable Agency guidelines, criteria and regulations be considered. The Record of Decision for this remedy will identify those guidelines, criteria and regulations which are "applicable or relevant and appropriate" to this remedy and will identify how they will be met or, if not, the reason for not meeting them.

EPA's proposed CDF-based remedy falls under the third disposal category listed above for the TSCA dredged material regulation, because incineration or a chemical waste landfill is not reasonable or appropriate for the phase 2 remedy. EPA has presented the basis for its findings that CDFs are protective of public health and the environment numerous times at the Forum, and will again present those reasons in the Proposed Plan and Record of Decision for this remedy. Thus, EPA by no means has "changed the law to suit our needs," as charged in the above comment.

2. ***According to the EPA's map and explanation CDF 1B will be approximately 1700 feet long and 200 to 400 feet wide stretching into the river behind the Aerovox Corp. This means that there is***

a strong chance that we the citizens of Acushnet will be looking at a wall 8 feet above high tide which will look like another hurricane dike. We are also concerned that once these CDF's are built that Acushnet will loose (sic) a number of important footage of our wet lands which have been the homes and breeding grounds of hundreds of rear (sic) water fowl which have returned to our shores in the (last) several years. Could you please give us the scientific study that shows the displacement of the water levels to the Acushnet banks of the river? And the overall impact to the wildlife and natural beauty that we have been working for during this clean up?

To take these comments in the order given, the conceptual design of CDF 1B measures 1630 feet at its longest, and 345 feet at its widest (although the MOST the CDF would jut into the river is about 315 feet). The proposed height is - as stated - 8 feet above high tide, but it is inappropriate to compare this to the hurricane dike. At 17.6 feet above high tide, the hurricane dike is over twice as high as the proposed CDF! A comparison to the existing hot spot CDF is somewhat more appropriate in terms of height, but at 12.6 feet above high tide, even the hot spot CDF is more than half-again higher than CDF 1B.

Furthermore, the EPA and Corps of Engineers believe that the surface of the slopes of the "in-water" berm above the high tide level could be constructed in a way that mixes vegetation in amongst the protective stone. This would be done to provide a surface which is more aesthetically pleasing and perhaps more valuable as habitat. The surface of the berm's slope below the high tide level would in time become covered with marine flora, so that it too would become more natural in appearance. As for the top plateau of the CDF, the digitally-enhanced picture generated for EPA by Ebasco (see Forum posters) gives one a sense of how natural-looking this top area could look as well.

In terms of any impacts CDF 1B might have in changing the water levels in the Acushnet wetlands, two sets of technical calculations exist which illustrate that CDF 1B will not disrupt normal water levels in the river. The first set, which is part of a 1987 Flood Plain Assessment performed by the Corps of Engineers, concludes that in the event of a major storm large enough to activate the hurricane barrier, CDF 1B would cause additional flooding of less than one inch in elevation. (Note that this conclusion is biased high since the assessment used a much larger footprint for CDF 1B than currently proposed.)

The second set of calculations was done just recently in response to the concerns voiced by Acushnet in this regard. This preliminary assessment considered the cross-sectional areas of river flow at two different points along CDF 1B (see the attached map), using conditions of both before and after CDF construction. The poster-size illustrations of these two cross-sections

developed for the Forum was used to calculate the various areas within the cross-sections. The purpose of this effort was to compare the cross-sectional area or vertical plane (measured in square feet) through which the river water now flows to the cross-sectional area through which it will flow after the river is dredged and the CDF constructed.

The two transect locations were used since the cross-sectional areas within the river change as the shorelines weave in and out. In addition, the cross-sectional areas were calculated using both high and low tide conditions, so that a total of eight cross-sectional areas were calculated (two cross-sections, high and low tide, before and after CDF 1B). The underlying premise is that if the cross-sectional areas after the CDF is constructed are greater than or equal to the areas before CDF construction, then the river flow will not be "choked off" or diverted, and the overall tidal levels in the harbor will determine the water level in the wetlands. In other words, if the CDF were to inhibit the flow of water, it is assumed that the water would tend to "flood" the low-lying wetlands. This is a conservative approach since even if the cross-sectional areas were lower after construction, the water could move at a faster velocity through that area in order to move the same amount of water through. (One local example of this process is at the severe constrictions at the Coggeshall Street and Route 195 bridges.)

These calculations indicate that the cross-sectional areas after CDF 1B construction will typically be GREATER than before construction. This is due to the fact that 2 feet of sediment will be removed during the remedial dredging operations. Given the underlying premise of the analysis, this indicates that the water levels will NOT be impacted by the CDFs. The results are summarized below:

	Before CDF 1B	After CDF 1B
Section A-A' at high tide	3401 ft^2	3706 ft^2
Section A-A' at low tide	361 ft^2	1326 ft^2
Section B-B' at high tide	3225 ft^2	3011 ft^2
Section B-B' at low tide	478 ft^2	1237 ft^2

The one set of conditions where the area after CDF construction is slightly lower than before construction is for the high tide condition at section B-B'. Three issues need to be noted in conjunction with this to illustrate why impacts are not expected in the wetlands. First, as brought up at the recent Sea Change expert panel session, the "topography" of the river bottom will be more elliptical in nature after dredging (see the cross-section poster), which will allow for greater flow than the flat-like topography before dredging - due to less "friction loss". Second, the wide disparity for the low tide numbers for section

B-B' (478 ft^2 versus 1237 ft^2) indicate that only at peak high tide will the before and after areas be similar. Third, as mentioned above, the conservative nature of this approach adds additional factors of safety to the analysis (again, think of the Coggeshall Street and Route 195 bridges).

The final point to make on this issue is that during the detailed design phase of the cleanup effort, the potential for hydraulic impacts on the river from the CDF as designed will be assessed in greater detail than this preliminary analysis. This additional assessment will be performed to ensure that CDF 1B will NOT have impacts on the Acushnet wetlands. The local community will be invited to be fully involved in this design process.

The last question brought up in Acushnet's comment #2 asked about the overall impact to wildlife and "natural beauty" from the proposed remedy. The bottom line is that the overall impacts to the harbor ecosystem, including the wetlands, would be very beneficial. The contaminated sediment would be sequestered or isolated in the various CDFs, and thus the benthic habitat throughout the river would be tremendously improved. This in turn would mean that sediment-dwelling species and the food chain based on these species would not bioaccumulate high levels of PCBs, and that PCB inputs from sediment to the water column would be drastically reduced. Eventually a reduction in area-wide fish tissue PCBs is expected to a degree where the fishing ban could be reversed. In terms of aesthetic effects from the remedy, the proposal calls for a 50 ppm action level in the wetlands, rather than a 10 ppm action level, to minimize destruction of these valuable areas. Furthermore, those areas of wetlands which would require dredging would be replanted as close as possible to pre-dredging conditions.

3. *The Town of Acushnet is improving our land and natural beauty and we need to inform you, (the EPA) that we are not all happy with the present proposal and insist that all alternatives no matter how costly or time consuming they maybe (sic), be looked into (so that) when the Acushnet River is once again returned to its pristine condition we will be assured that our future generations will be able to look over the river and see natural beauty and not piles of stone or steel framed CDFs.*

As explained in previous EPA responses to Forum concerns, many other alternatives WERE considered for the phase 2 cleanup plan. Over 100 different approaches and technologies were initially inventoried and evaluated. The August 1990 Feasibility Study (which can be found in the New Bedford Wilkes Branch library) is the best source for a detailed discussion of these other alternatives. The CDF-based proposed remedy is preferred by EPA because it offers both protectiveness AND cost-effectiveness. As discussed at the October 25, 1995 Forum

meeting, other remedies involving treatment of the contaminated sediments would require in the range of $200 to $400 million just for treatment. For perspective, these costs are about the same as EPA's ENTIRE budget for Superfund cleanups NATIONWIDE for one to two years. And even if a treatment process were employed, the same amount (or more) of CDF disposal volume would be required since the treated sediments would have residual levels of contamination present.

In terms of what people will see when they look across the river, the discussion above for comment #2 describes that CDF 1B will actually be much lower than people generally perceive, and that every effort will be made to keep it as natural looking as possible. One would certainly not see steel bulkheading at CDF 1B. Again, people concerned about the aesthetics of CDF 1B are referred to the photo-enhanced aerial view of it to get a better sense of how it could ultimately look.

B. Town of Fairhaven Concerns

1. *Could we see all cost estimates associated with CDFs and the permanent storage of PCBs along the shore, including annual monitoring costs, broken out in detail? The breakdown should note whether each cost listed is a one-time or annual expense, whether it would occur with another alternative, and when (e.g., month/year) each expense is expected to occur.*

The attached cost estimate for EPA's preferred remedy provides the requested level of detail regarding CDF construction, dredging, water treatment, O&M (operations and maintenance) and annual monitoring costs. The bottom line, total present worth cost of this estimate is just over $40 million. However, it should be noted that this cost estimate was prepared in March 1993, and that - based on lessons learned from the hot spot dredging - costs would likely be greater than this current estimate. Costs would also be greater than this estimate if a different arrangement of CDFs were used other than CDFs 1, 1B and 7. Once consensus for the phase 2 cleanup plan is developed at the Forum, EPA intends to updated this cost estimate to more accurately estimate what the ROD 2 costs would be.

Regarding the difference between one-time and annual costs for the proposed remedy, two line items on the attached cost estimate represent the costs for annual activities. These two activities are CDF O&M and environmental monitoring. These two annual costs TOTALED over 30 years were estimated to be about $6.7 million ($0.9m and $5.8m, respectively). Total capital costs were estimated to be $33.4 million ($33.4 + $6.7 = $40.1 million). On an annual basis, it is currently estimated that CDF O&M costs would be approximately $79,000 per year (total for all three CDFs), and that the environmental monitoring costs would be about $373,000 per year. As explained in previous Forum

responses, the state is responsible for these costs once the CDFs are deemed to be "operational and "functional".

The comment also asks whether these costs would be required with other alternatives. The short answer is yes, unless the "monitoring-only" alternative were selected, in which case there would not be CDFs or other remedial components (e.g., underwater caps) to build or maintain. For example, if any of the alternatives involving sediment treatment were selected, CDFs, dredging, water treatment, CDF O&M, and an environmental monitoring program would still be required above and beyond the $200 to $400 million for treatment. For more detailed information about the estimated costs of other alternatives, the 1990 Ebasco Feasibility Study and the January 1992 Proposed Plan should be consulted (both of these documents are located in the New Bedford Wilkes Branch Library).

2. *Please forward a copy of the cost analysis (and its assumptions) that was completed to determine that permanent storage using CDFs was a more cost-effective method for our PCB problem than treating or eliminating immediately using a proven technology (include the same detail as above). The question was asked at a Forum meeting, and it was stated that treating was not a cost-effective solution.*

When comparing costs of the proposed CDF-based remedy to other alternatives involving some kind of permanent treatment, it is, again, important to remember that CDFs (and CDF O&M) would still be required. This is because the treated sediments would still have residual levels of contamination present. A disposal "home" would still be required for the ten football fields or more (each piled 25 feet high) of treated phase 2 sediments.

One simplified approach to comparing costs is to add the costs of the treatment "step" to the estimate for the proposed remedy without treatment. Assuming that about 608,000 cubic yards (cy) would require treatment (using the proposed cleanup levels), and that each cubic yard weighs about 1.45 tons, it is a simple process to estimate treatment costs on a per-ton basis. From EPA's experience at other Superfund sites, the unit costs for treatment could easily be in the $200 to $500 per ton range, if not greater, depending on the technology used. Thus the costs JUST for treatment could range between $176 to $441 million, if not greater (e.g., 608,000 cy x 1.45 tons/cy x $200/ton = $176 million). Again, this amount of funding would require EPA's ENTIRE budget for Superfund cleanups NATIONWIDE for one to two years.

More important than the cost analysis, however, is the question of whether the CDF-based proposed remedy without sediment treatment is fully protective of human health and the

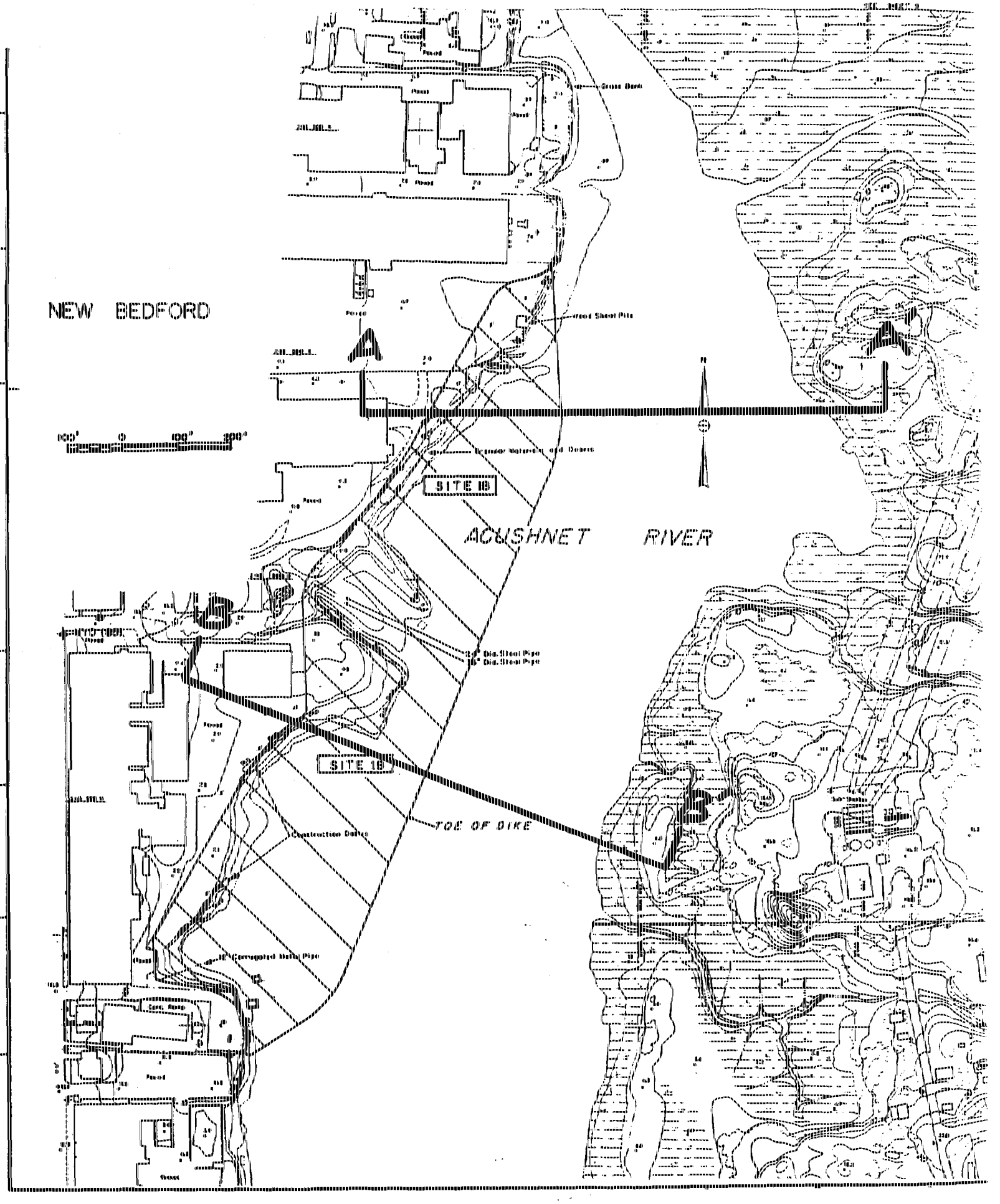
environment. Based on extensive analysis of this question, including worst-case laboratory leaching studies, the governmental agencies involved with this site conclude that the CDF-based remedy IS protective. Moreover, this conclusion was echoed by the independent expert panel recently convened by Sea Change, Inc. to assist the Forum with these difficult issues.

Much more detailed cost information on the other remedial alternatives is available, again, in the 1990 Feasibility Study at the Wilkes Branch Library. A summary of the cost estimates of the other final alternatives, taken from the January 1992 Proposed Plan, is attached. Using the labeling system from this cost summary, the currently proposed remedy is a combination of EST/LHB-3 ($108 million) and SW-8 ($33 million).

3. *It is my understanding from the discussions at the Forum meetings that the interest (from the harbor settlement) is credited to the general Superfund account...We should attempt to correct this since it is the same as not getting any interest at all.*

The comment is correct in so far as the interest from the settlement monies allocated for site cleanup work does not get credited specifically to the site. During the appeal stage of the settlement, about $2 million in interest WAS collected for site cleanup work, but agency rules regarding settlement interest prohibit this from continuing once the settlement is finalized. More detailed information on the settlement amounts are contained in a handout provided to the Forum at the 9/5/95 meeting. Note, however, that that handout incorrectly states that the $20.1 million natural resource damage (NRD) settlement account does not receive interest: all of the NRD settlement monies, as opposed to the Superfund settlement monies, DO earn interest.

Location of Cross-section Views for CDF 1B



NEW BEDFORD HARBOR

COST ESTIMATE: SELECTED REMEDY
DREDGE ESTUARY @ 10 ppm & LOWER HARBOR/BAY @ 50 ppm
SHORELINE SEDIMENT DISPOSAL IN CDFs 1, 1b & 7

ACTIVITY	COST
I. DIRECT COSTS	
A. Dredging	$4,597,000
B. Water Treatment	$3,731,000
C. CDF Construction	$14,231,000
DIRECT COST	$22,559,000
II. INDIRECT COSTS	
A. Health & Safety (@ 5%) Level D Protection [Activities: A, B & C]	$1,128,000
B. Legal, Administration, Permitting (@ 6%)	$1,354,000
C. Engineering (@ 10%)	$2,256,000
D. Services During Construction (@ 10%)	$2,256,000
E. Turnkey Contractor Fee (@ 15%)	$3,384,000
INDIRECT COST	$10,378,000
SUBTOTAL COST	$32,937,000
CONTINGENCY (@ 20%)	$6,587,000
TOTAL CAPITAL COST	$39,524,000
PRESENT WORTH COST – 1989 (@ 5% for 6 years)	$33,435,000
O&M COSTS (CDFs) (present worth @ 5% for 30 years upon completion)	$906,000
MONITORING PROGRAM (present worth @ 5% for 30 years)	$5,817,000
TOTAL COST – SELECTED REMEDY	$40,158,000

Exhibit 6

Summary of Alternatives

Alternatives	Description	Approx. Cost
EST/LHB-1	Minimal No-Action	$7.5 Million
10 ppm PCB Action Level Alternatives		
EST/LHB-2	Capping	$106 Million
EST/LHB-3	Dredge, Dispose	$103 Million
EST/LHB-3d	Dredge, Dewater, Dispose	$164 Million
EST/LHB-4	Dredge, Solidify, Dispose	$308 Million
EST/LHB-5	Dredge, Solvent Extraction, Dispose	$530 Million
EST/LHB-6	Dredge, Incinerate, Dispose	$627 Million
50 ppm PCB Action Level Alternatives		
SW-7	Dredge, Cap	$36 Million
SW-8	Dredge, Dispose	$33 Million
SW-9	Dredge, Treat>500 ppm, Dispose	$80 - 93 Million

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EXECUTIVE SECRETARY

November 28, 1995

TO: New Bedford Harbor Superfund Forum

FROM: Board of Selectmen

RE: CDF's

Dear Forum Members:

It is not without reservation that we write this letter. For the last 18 months or so, our PCB Town Representative and our Board have always taken a strong stand against the future of the Acushnet River being dotted with dike like CDF's. After several meetings and Sub-Committees that our town Representative, (Roland E. Pepin) has been involved in, he has continued to keep us up to par on what has and is transpiring in regards to the CDF issue and the clean up of the river, etc.

After the Sea Change meeting of November 14, 1995, Mr. Pepin asked the Board of Selectmen to watch all televised programs on our local cable channel that aired during the week of November 20, 1995. All three Selectmen viewed this program that was very educational. The Board of Selectmen met with Mr. Pepin on November 27, 1995, at which time he asked our opinion of the program and how we as a Board felt relative to CDF's? After a brief discussion, it was the consensus of the Board that we would "Tolerate the CDF's. With the understanding that there be wording in the record of decision (ROD II) that in the future if a proven technology is discovered that would be able to treat the large amount of dredged material and destroy the PCB's and other toxic material that the Federal Government or EPA reopen the (ROD) and treat this toxic waste without delay."

The other issue at hand is the Acushnet Board of Selectmen only agree to Tolerate CDF's as long as the shore and waters of the Town of Acushnet are not considered for any CDF's. We feel that all CDF's should be on the New Bedford side of the Acushnet River and Harbor as the river was polluted by industry located in this City.

Sincerely,

Peter W. Koczera

Everett L. Hardy, Jr.

Robert J. St. Jean
BOARD OF SELECTMEN

Roland Pepin
PCB Representative