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June 9, 1992

Dr. Gayle Darman
Project Manager New Bedford Superfund Site
EPA Region I
U.S. Environmental Protection Agency
Waste Management Division (HRM-CAN3)
JFK Federal Building
Boston, Massachusetts 02203

Dear Dr. Darman,

I enclose a revised copy of comments on the January 1992 Proposed Plan and the May 1992 Addendum Proposed Plan for the New Bedford Superfund Site. The earlier version suffered from my inept manipulation of personal computers interfaced with printers in a network. If your staff has distributed the earlier version, please distribute this newer version to the same people. Please accept my apologies for this inconvenience.

Sincerely,

John W. Farrington

SDMS DocID 53539

COMMENTS BY:

Dr. John W. Farrington, Senior Scientist, Woods Hole Oceanographic Institution, Marine Biogeochemist.

May 31, 1992
(Corrected for a few typographic errors 6/8/92)
PERTAINING TO:

EPA Proposes Expanded Cleanup to Address Contamination in Parts of Upper Buzzards Bay, New Bedford Harbor Superfund Site. Addendum Proposed Plan May, 1992; and Proposed Plan January, 1992 for Lower Harbor/Bay at the New Bedford Harbor Site.

My comments are my own and should not be construed as representing the views of my colleagues at Woods Hole Oceanographic Institution nor an official position of the Institution.

The elected and appointed local, state, and federal officials, and public and private parties interested in the New Bedford Superfund Site have a very difficult task of assessing available information and balancing significant environmental quality concerns for human health and biotic resources against significant expenditures of funds for remedial measures. I have been aware of much of the early research on the New Bedford Superfund Site and have followed the acquisition and assessment of new data and the evaluation of plans for remediation via the reports issued by EPA Region I. There is no doubt in my mind that there has been significant progress in addressing this problem, albeit this progress has been slow. Despite this progress, I have several significant concerns about the information set forth in the present document. These concerns are stated below. I have not had time to extensively study the supporting documents and perhaps some of my concerns are addressed in those documents.

Comments on the Addendum Proposed Plan, May, 1992

1. The document states on page 9 that one of four Proposed Cleanup Objectives is to " Reduce human exposure to PCB contaminated sediment". This objective is the first of four listed. Although it is not explicitly stated that the list is in order of priority, the reader might assume that the first objective in the list is the most important. I submit that the risks from human exposure to PCB contaminated sediment, especially submerged sediment, are minimal compared to risk associated with consumption of PCB contaminated seafood if

such seafood is harvested from the Superfund Site areas under consideration in this document. There is a greater chance of success at reducing public access to the contaminated sediments compared to success in controlling harvesting of the seafood by posting notices and enforcement of restricted access or fishing bans.

I am concerned that having set a relatively low risk objective up front, i.e. "Human exposure to contaminated sediment", EPA has given the appearance of more significant progress than is warranted by having remedial actions which achieve this objective.

2. PCBs are treated as if all mixtures of PCBs found in the environment were the same in terms of human health risk and ecological risk. This may be acceptable from the perspective of strict adherence to certain of the current laws, rules and regulations. However, it should be explicitly stated that scientific evidence published for several years in the peer reviewed scientific journals has documented that different individual components of the PCB mixtures and different mixtures have significant differences in terms of potential for human health risk and ecological risk. Analyses of shellfish, fish, and lobsters from the New Bedford Superfund Site area many years ago in my laboratory documented the wide variety of mixtures found in the different species. Subsequent analyses by EPA scientists and contractors have collected much more extensive data on this important point.

The present document should acknowledge that current laws, rules and regulations are based on data from many years ago and, while these laws, rules, and regulations are the main guidance for EPA in the present document, it is recognized that new information may update these laws, rules and regulations in the not too distant future because of the scientific evidence emerging during the past decade. The public has a right to know about the uncertainties and imperfections of the current laws, rules and regulations.

For example, it may be that assessments of the dominant PCB congeners (this is the designation for individual polychlorinated biphenyl molecules within the total mixture of PCBs) in edible lobster tissue will yield a much reduced risk for human consumption and allow the consumption of lobsters currently designated as above the 2 PPM (wet weight) FDA guideline. Conversely, the situation may be more risky than current assessments because the concentrations of the "bad" congeners will be higher in some of the fish and lobsters.

I realize EPA must take action on current rules and regulations as promulgated under the existing laws, but it is not prudent to ignore totally the realities of new knowledge gained during the past decade.

3. The only human health risks identified explicitly in the document in the Glossary definition of PCBs(p.22) are liver damage and cancer. Are these the only expected human health concerns if there is human contact with PCB contaminated sediment? If we should be concerned with human contact with PCB contaminated sediment, what about chloracne and other well documented human health concerns from work place exposures via skin contact? More important, are there new data which refute earlier documented concerns about adverse PCB effects on the fetal stage and babies born to women who have significant body burdens of PCBs? I thought that this was a much more significant and more thoroughly documented concern than the carcinogen concerns. If there are not new data refuting these earlier concerns, then these earlier concerns should be included under human health risk assessment in the present document.

Furthermore, the Glossary description of PCBs states that " PCBs are extremely persistent in the environment because they do not break down to new and less harmful chemicals." This is an incorrect statement. Some PCBs are metabolized by marine organisms such as fish and some PCBs are degraded by bacteria - albeit slowly. This incorrect statement should be corrected. Slow biodegradation does not mean no biodegradation, especially when considering time spans of decades as is the case for the remedial action plans.

4. The only chemicals addressed in the risk assessment for the Superfund Site are PCBs. It is well known that these sediments also contain significant quantities of other chemicals of environmental concern such as the polynuclear aromatic hydrocarbons. The issue of synergistic and antagonistic effects (the enhancing or suppressing actions of one group of chemicals on the biological effects of another group of chemicals) are not addressed in the document. The effects of these other compounds in concert with PCBs, or alone, as in the case of the PAH need to be addressed in the risk assessment.

More importantly, EPA has ignored the findings of one of their own laboratories with respect to chemicals of environmental concern in this area. Pruell et al of the EPA Environmental Research Laboratory in Narragansett, R.I. published a report in 1990 in Marine Environmental Research 29: 77-101 ," Geochemical study of sediment contamination in New Bedford Harbor, Massachusetts." They report data which suggests that there are elevated concentrations of polychlorinated dibenzofurans(PCDFs) in the harbor area near Clarks Point and outside the hurricane barrier. They hypothesized that these compounds may have been generated in the incomplete combustion of PCBs in sludge or other materials collected in part of the sewage treatment plant and

the subsequent release of these compounds to nearby waters. PCDFs are of much greater environmental concern compared to PCBs on an equal amount basis. The absence of any reference to the presence of these compounds and appropriate discussion pertaining to these compounds in the areas of sediment specifically addressed by the current report should be rectified.

5. There must be some realistic assumptions which presume that the sediment capping proposed in Alternatives 3 and 4 will stay in place for the thirty year duration of the project. Having analyzed some of the sediments in the regions under consideration (areas A,B, and C in the present document) and having read the literature about sediment resuspension and transport, I have a difficult time accepting that the capping material has a high probability of staying in place.

Furthermore, as stated in the current document, capping in area C would seem to be unwise until the issue of the future of any outfall pipe or pipes is resolved for the sewage treatment plant.

6. It is imperative that any action involving incineration of extracted PCBs and other compounds (i.e. the " oils") requires very careful attention to proper operation procedures and monitoring of the incinerator stack gases. Otherwise, the human health risk of that option might be far more than the human health risk of any other option.

7. The assertion on page 18 under item 3. that "The magnitude of this decrease may not be large system-wide, although it is expected that water column PCB concentrations in the immediate vicinity of the areas remediated would show permanent, measurable decrease" is counter to what I believe to be well established knowledge of the relatively rapid mixing of waters in the outer harbor. Any temporary concentration gradients of PCBs in the water column should be alleviated by mixing forced by tidal exchange, wind driven circulation, exchange of PCBs to the atmosphere, and sorption of PCBs on particulate matter in the water column followed by deposition.

<u>Comments on the January 1992 Proposed Plan.</u>

1. The preceding comments are applicable in a general sense to the January 1992 Proposed Plan ". In addition, on p.13, I have a concern that the model used by EPA does have limitations and focuses only on PCBs as a mixture or isomer groupings and does not use state-of-the-art knowledge for the biogeochemistry of individual PCB congeners. The human

health risk and ecological risk issues associated with the individual congener approach are discussed above.

2. p.17 Given the proposed long-term monitoring, What is proposed? What are the expected key decision action levels for chemical contaminants/pollutants? Who gets to see the data and engage in interpretation? Will chemicals other than PCBs be monitored? These questions need an answer now and the answer can be changed (i.e. upgraded) as time goes on and data and new knowledge become available. This is a key issue in the whole scheme. The monitoring needs to be appropriately designed and implemented to assess successes (or failures) of the remedial actions.

3. 4th paragraph. "Technically impracticable" should be replaced with "econmically not feasible"

OVERALL COMMENT. There are many aspects of the documents that are well written and informative. It is especially apparent that there should be a balancing of expenditure of limited national, state and local financial resources with expected significant reduction in human health risk and ecological risk; a formidable task within the context of imperfect knowledge. I find the existence of the aforementioned deficiencies in the present documents disturbing and hope that they do not reflect a more fundamental lack of understanding of the current state of knowledge and scientific principles important to assessing human health risk and ecological risk and appropriate remedial action for this Superfund Site. It may be that in an attempt to present a document understandable to the lay person, EPA Region I has simplified too much and left out some essential details well known to agency officials.