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Gayle Garman
Remedial Project Manager
U.S. Environmental Protection Agency
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Dear Ms. Garman:

The following written comments are submitted on behalf of the Massachusetts Sierra Club in regards to the Proposed Plan for the Phase 2 and Phase 3 clean-ups at the New Bedford Harbor Superfund Site. Phase 3 refers to the Addendum Proposed Plan released in May 1992 for the mitigation of the bay area, while Phase 2 refers to the Proposed Plan released in January 1992 for the estuary and lower harbor areas. We do not support either the preferred alternative (SW-8) or any of the other 8 alternatives discussed for Phase 2. We feel that the Phase 2 action level should be 5 ppm PCBs (certainly not more than 10 ppm of total polychlorinated biphenyls) and that the dredged sediments should be treated to reduce the PCB contamination to this action level. Those sediments with PCB concentrations greater than this action level should either be disposed of in upland landfills or in RCRA (Resource Conservation & Recovery Act) certified hazardous waste landfills (if land availability necessitates disposal within the 100 year flood plain). For PCB-contaminated sediments in wetlands which have an EPA designated action level in Phase 2 of 500 ppm, we recommend in situ bioremediation be explored as a relatively non-intrusive method to reduce the PCB levels to a 5-10 ppm PCB target level over time.

For Phase 3 we recommend Alternative 5: dredging, solvent extraction, and on-site dosposal with one change, replacing the Confined Disposal Facility (CDF) with either a RCRA-hazardous waste landfill in the 100 year floodplain or upland disposal in a landfill. The location of the CDF's either in the water or adjacent to the water at the edge of the harbor/estuary would allow disruption of the cap or the CDF side walls by storms/hurricane surge, thus releasing the trapped PCB-contaminated sediments (10 to 500 ppm PCB levels). Also if the CDF is located within the water normal tidal action and groundwater can exchange through the sides of the CDF, resulting in ongoing PCB contamination as the dissolved organic carbon leaches the PCBs from the confined sediments. A recent Corps of Engineers (COE) publication on contaminant migration pathways in CDFs (Brannon et al., 1990) suggests that little quantitative information is available on the ability of CDFs to prevent leaching, volatilization, etc. of contaminants out of the CDFs. The EPA Feasibility Study would give one the impression that CDFs are a proven option for containing hazardous chemicals. In the Phase 2 preferred cleanup alternative proposed by EPA the CDFs would contain PCB contaminated sediments with concentrations up to 500 ppm and it makes no sense to locate such hazardous wastes in CDFs which will be in harms way. Even EPA recognizes that a safe PCB-residual level in the sediments is 1 ppm to meet the FDA tolerance level in lobsters, but cost constraints and land availability caused EPA to invoke the fund balancing

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waiver.

Depending on institutional controls to prevent the harvesting of potentially PCB-contaminated clams and lobsters in upper Buzzards Bay is an exercise in futility. To date they have not stopped ongoing harvesting and they are less likely to be successful in the future if fishing effort is controlled in the offshore fisheries as a consequence of the Conservation Law Foundation lawsuit against the New England Fishery Management Council (NE FMC). Sea-based enforcement has not proven to be a successful strategy in controlling excess harvesting of the offshore groundfish/scallop resources, thus the NE-FMC recently proposed an effort-based strategy to restore the depleted stocks. The other aspect to be considered is that PCB-contaminated lobsters and winter flounder move from the inshore to the offshore (where fishing-based institutional controls imposed by EPA and the Ma. DEP do not apply)on either a seasonal basis or as part of an age-based migration pattern. One cannot assure the public that the seafood is safe for consumption unless the PCBs are removed from the source sediments in New Bedford Bay/Lower Harbor/Estuary (B/LH/E). A recent National Academy of Sciences report on seafood safety (Ahmed, 1991) stated that PCBS represent the single largest toxic chemical risk to the consumers of seafood.

The PCB acceptable health risk level for edible tissue in seafood was listed as 0.2 ppm of PCBs which is an order of magnitude less than the FDA tolerance limit of 2 ppm PCBs. The EPA health risk standard of 0.2 ppm PCBs was based upon the risk to an adult who eats 8 oz of fish/shellfish each month over a 70 year lifetime. PCBs from fish consumption can cause reproductive impacts (reduced birth weight, neurological performance, reduced gestational age, anemia in mothers, and increased microbial infection in mothers) in babies and their mothers (Swain, 1991). EPA should incorporate risk assessment analysis based upon the effect of PCBs in producing such reproductive impacts, instead of basing the health related safe PCB levels solely on the ability to cause death from cancer. Even though incidences of acute PCB poisoning are associated with chloracne,hyperkeratinosis, liver necrosis, and hypertrophy of the heart and possibly pericarditis, the chronic exposure to PCBs is thought to pose a more serious health hazard to humans than does acute exposure (Hooper et al., 1990).The analysis of the chronic effects of PCB exposure have been hampered by estimating exposure from total PCBs, rather than the concentration of the individual congeners that are thought to bo biologically active (induce mixed function oxidase activity). In any event the PCB action level in sediments should be related to the most-sensitive health based acceptable risk level, rather than the FDA tolerance limit which incorporates health risks and economic cost/benefit analysis in establishing national standards.

Besides the PCB risk to humans that either consume seafood or are exposed directly to PCBs in the water or sediments, one must consider the impact on wildlife. For example, roseate terns and common terns from the Massachusetts Audubon Refuge on Bard Island (Near Marion, Ma.) feed in the New Bedford Harbor region and have measureable levels of heavy metal and PCB contaminants. Fish eating birds are quite sensitive to PCB contamination (Borlakoglu and Haegele, 1991) and marine mammals, especially cetaceans, are also sensitive to low levels of PCBs (Tanabe et al., 1987). Cape Cod is an important breeding area for endangered birds (least terns and piping plovers) and a feeding area for endangered cetaceans (North Atlantic Right Whale). Studies in the Great Lakes have related low levels of PCB contamination to reproductive impairment in Foster's tern (Sterna fosteri), a fish-eating bird (Kubiak et al., 1989; Schwartz and Stalling, 1991). PCBs have

also been implicated in increasing egg mortality and decreased fry survival in a number of Great Lakes fish species (Mac and Edsall, 1991; Williams and Giesy, 1992). The numerous examples relating PCB contamination in wildlife to reproductive effects supports the importance of examining possible reproductive impacts in humans. The susceptibility of fish-eating birds and marine mammals to PCB contamination is thought to be a consequence of food chain magnification of the PCB concentrations, the long term storage of PCBs in lipid tissues, and the ability of these animals to metabolize/eliminate PCBs (Borlakoglu and Haegele, 1991).

We are encouraged to see that the Phase 2 and 3 cleanup program includes plans for a 30-year monitoring program of sediment, water, and biota at 50 locations. It would be advisable to conduct the PCB analysis on a congener specific basis rather than reporting the results as total PCBs (Schwartz and Stalling, 1991). Since total PCBs are composed of 209 possible congeners which exhibit widely varying environmental transport and degradation plus exhibit differentdegrees of toxicity in wildlife and humans, it is important to measure the concentration of individual congeners if one wishes to extrapolate to their health impacts. The PCB congener distribution/concentration in wildlife is often much different in composition and concentration than the parent Aroclors which were used by EPA and the FDA to develop the toxicity standards for wildlife and humans. As I mentioned in my public testimony the more highly chlorinated PCB congeners (which tend to be biologically persistent and to exhibit the greatest toxicity) tend to move from sediments into fish and lobsters (Connolly, 1991; Thomann et al., 1991), rather than moving from the water column into fish/shellfish tissues as was assumed in EPA's food chain model (Lake et al., 1990). The practical import of this being that the uptake of contaminants is coming from a sediment reservoir (10 to 50 ppm) rather than a water reservoir (20 to 50 ppt), which implies that the clearance rate of PCBs from lobsters and fish will take much longer than EPA's model predicts. At the December 1990 workshop at the Woods Hole Oceanographic Institution (WHOI) which evaluated EPA's New Bedford Harbor models, Dr. Judy Pederson stated that after 40 years of PCB levels under the no action scenario there was no statistical downward trend apparent in the PCB levels in lobsters from the New Bedford region. This suggests that lobsters in the field have extremely low clearance rates for PCBs. This provides additional support for our contention that it is necessary to treat the PCB contaminated sediments down to a 5 ppm PCB target level in order to achieve PCB-levels that ensure seafood safety in lobsters, clams, and winter flounder, plus insuring the absence of reproductive impairment in other wildlife (fish-eating birds, marine mammals, and piscivorous fish).

One final point is a recent paper by Brown and Wagner (1990) on PCB movement and dechlorination in the Acushnet Estuary suggests that the PCB load in the lower estuary (outer harbor) biota comes from two PCB contaminated sediment sources. The PCB source in the Upper Estuary is highly contaminated, but has been 75% detoxified as a result of microbial degradation in the sediments coupled with volatilization. The PCB source in the Lower Estuary is lightly contaminated (1 to 10 ppm PCBs), but has not undergone microbial degradation which means that the most toxic PCB congeners in the outer harbor have a local source. If this is true, then it is hard to see the relevance of the statement on page 18 of the Addendum Proposed Plan that incineration of PCB-contaminated sediments at the Hot Spot operable unit indicate that the overall site remedy includes a significant treatment component. The Phase 2 and 3 PCB-contaminated sediments are independent of those at the Hot Spot and neither of the EPA recommended Phase 2 or Phase 3 preferred cleanup options has a treatment component. The Massachusetts Sierra Club feels that both Phase 2 and Phase 3 should have a treatment

component to reduce the PCB contaminated sediment target level to 5 ppm which will reduce the risks to humans and the potential harm to wildlife.

Thank you for your consideration in this matter.

Yours truly,

David Dow

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