Document	EPA Response to Comments Hudson River Sloop Clearwater on Engineering Performance Standards – Public Review Copy Hudson River PCBs Superfund Site
Document Date	October 10, 2003

Reviewer	#	Comment	Topic	Response
HR Sloop	1	One of EPA's remedial objectives is to "minimize long-term downstream transport of PCBs." Throughout the period leading up to the signing of the Environmental Protection Agency (EPA) Record of Decision (ROD), and beyond, it has been our understanding that mechanical barriers, such as silt curtains, silt screens or metal pilings, would be employed around areas being dredged to prevent the downstream transportation of resuspended PCBs. In fact, when asked by members of the public about transportation of resuspended material to downriver communities, our response has always been to assure them that work areas in the Upper Hudson would be surrounded by protective barriers to minimize resuspension. In our public outreach, we helped the public to distinguish between resuspension (a small amount of which is unavoidable) and remobilization, assuring them that if the amount of material resuspended was at all significant, it would be contained and captured by a second round of dredging, before the silt curtains or other protective measures were removed.	**Resuspension** Containment	The Resuspension Standard and action levels have been developed with a framework that provides incentive to keep resuspension within an acceptable range. USEPA has performed analyses to demonstrate that the Resuspension Standard is protective of the downstream water supplies and fish body burdens. By these measures, compliance with the standard will ensure that the dredging operations are protective. The Resuspension Standard did not make any assumptions regarding the use of containment methods. Therefore, the standard and action levels were developed assuming no benefits from any engineering contingencies. Modeling efforts were performed for the tiered action levels, specifically for the Control Level (350 ng/L Total PCB) and Concern Level (600 g/day Total PCB). The model predictions showed that at these action levels, the impacts from resuspension are minimal or low. The use of containment methods such as sheet pilings, silt screens or silt curtains will be considered during the Remedial Design, and

				may further reduce resuspension. However, USEPA recognizes that the deployment of such containment methods must be balanced with the need to complete the project in a timely manner and without unnecessarily hindering river use and recreation. .In addition, there may be engineering issues that preclude the deployment of physical containment barriers in certain areas. In preparing the engineering design documents, General Electric Company will evaluate the use of appropriate engineering controls and contingencies. USEPA will review the GE design, which is subject to USEPA approval pursuant to the Agency's Administrative Order on Consent for Remedial Design.
HR Sloop	2	Unfortunately, the approach taken by EPA in the draft engineering performance standards is to minimize resuspension after the fact by reacting to small increases in pollution, first by increased monitoring, and only later by mechanical containment. We consider this approach to be reactive, rather than proactive. Such an approach will not prevent, and will not as effectively minimize resuspension, as direct containment would. Put another way, this approach will allow more remobilization of sediment than a preventative approach would. It's as if a little bit of resuspension is acceptable to EPA – to be expected. While we acknowledge that sediment is continuously being resuspended by natural turbulence in riverine conditions, we are of the opinion that any	**Resuspension** More preventive approach	The tiered level approach that is the framework of the Resuspension Standard is preventive in two ways. The standard is proactive in that it leads to detection of elevated rates of release and requires actions in the form of engineering studies and engineering contingencies prior to the point where the level of release results in harm to human health or the environment. The action levels also provide a basis for development of the design so that exceedences can be avoided.

		additional burden from dredging should be prevented at the worksite.		
HR Sloop	3	However, EPA has decided to rely on near and far field monitoring to alert them to the need for silt curtains, sheet piling or other mechanical controls. That is, mechanical barriers will be put in place only after the concentration of resuspended PCBs reaches the Control Level, and then only for as long as it takes for the concentration levels to come back within the acceptable range. Surely there are areas of the river where it is already clear that mechanical barriers should be used preventatively, rather than after resuspension has occurred. These should be predetermined by EPA, and General Electric's contractor should be required to employ appropriately protective measures before, not after, resuspension occurs. Clearwater strongly encourages EPA to require that mechanical barriers be employed to prevent concentrations of resuspended materials from reaching the Control Level. To take the stance that it will be sufficient to respond to resuspension problems as they arise seems may cause unnecessary delays in the dredging process while mechanical barriers are erected and dismantled after the fact on an ad hoc basis. It would be more appropriate to incorporate, as part of the project design, the use of mechanical barriers around dredges, as opposed to delaying the dredging as the need for mechanical barriers becomes evident.	**Resuspension** Containment	The Performance Standards have been designed to allow flexibility for the designers and Construction Manager to find creative and effective solutions to project challenges. The Engineering Performance Standards, including the Resuspension Standard, have been designed with tiered thresholds by which performance and success are judged. The contingency solutions proposed by the designers will be subject to review and approval by USEPA prior to implementation. This approach allows for innovative thinking in the use of proven technologies and places the responsibility for success squarely on the shoulders of the designers, while affording USEPA the opportunity to reject any proposed solutions that are deemed undemonstrated, unreliable or inappropriate. Because prototype designs for all anticipated contingency solutions must be approved by USEPA during the design phase, there is only a small risk that inordinate time will be spent during implementation in negotiating appropriate actions. This risk is further minimized by the existence of the Productivity Standard.

HR Sloop	4	Furthermore, Clearwater has long been a proponent of using hydraulic dredging to minimize resuspension by creating a one-way flow of sediment out of the river. Recognizing that hydraulic dredging requires extensive dewatering and is not applicable under all conditions, Clearwater believes EPA should specify that this technology be used in all appropriate locations, rather than leaving equipment selection for contractor to determine. To quote Clearwater's public comment on EPA Proposed Remediation Plan: 2. EPA's final ROD should specify hydraulic suction as the default technology, and establish criteria which must be met before mechanical dredging is permitted. There are many reasons for hydraulic dredging to be so specified: a) Hydraulic dredging produces the lowest levels of resuspension. b) Hydraulic dredging can be engineered to minimize volatilization. c) Hydraulic dredging works faster than mechanical dredging. d) The ability to pipe the spoils as far as ten miles can reduce heavy equipment traffic on the river.	**Resuspension** Dredge type	The type of dredging equipment implemented will depend on various factors that are being examined as part of the Remedial Design. Hydraulic dredging will be considered, but the use of this technology may be limited in some regions of the river because of, among other things, the need to transport the sediment over long distances.
HR Sloop	5	The choice of dredging technologies, and the values they embody, must not be left to a contractor.	**Resuspension** Dredging Technologies	In preparing the engineering design documents, General Electric Company will evaluate the various dredging technologies available that will meet the Engineering Performance Standards. USEPA will review

				the GE design, which is subject to USEPA approval pursuant to the Agency's Administrative Order on Consent for Remedial Design.
HR Sloop	6	Monitoring of the resuspended material should be conducted in such a way as to account for the changing current and flow patterns in any given river section. The monitors must be placed to ensure that the plume of water column that passes through the dredged area is the same water that passes through the near field monitoring stations. Placement of near field monitoring stations outside of the river flow and current pattern are not likely to pick up any resuspended material, and therefore would not be giving an accurate assessment of the amount of resuspended PCBs.	**Resuspension** Monitoring placement	The near-field monitoring will assess the amount of resuspension occurring. No PCB monitoring is required in the near-field. In order to capture the conditions within the plume, the sampling locations will be frequently adjusted. Some method of locating the plume will be necessary. For instance, real-time turbidity monitors can be used to locate the plume by dragging them across the river transect being sampled before choosing where to take the sample.
HR Sloop	7	Clearwater also strongly encourages the use of monitors within the area defined by any mechanical barriers that have been established. The placement of a monitor in close proximity to the dredge will give an accurate measure of the amount of resuspension occurring within the mechanical barrier which can then be compared to the results from other near field monitoring stations to determine the effectiveness of the barriers.	**Resuspension** Monitoring placement	The Resuspension Standard requires that suspended solids and turbidity are monitored within any containment systems.
HR Sloop	8	Air Quality Issues It has been well documented that volatilization of PCBs is a significant route of exposure to humans and to wildlife. Cycles of volatilization and redeposition cause	**General** Air Quality	The 2002 Record of Decision (p. iv) states that, with respect to air emissions, operations and facilities will comply with the ARARs listed in Table 14-3 of the ROD which deal with such emissions (e.g., the National

		PCBs to be actively transported from Hudson River to distant lands. PCBs, moved by a combination of atmospheric and oceanic transport, gravely threaten the reproductive capabilities of marine mammals in the Arctic, such as polar bear and seal. Clearwater strongly believes that volatilization of PCBs is now, and will continue to be, a significant threat to public health and the environment. With this in mind we are concerned that air quality issues were not addressed in the context of engineering performance standards, and will instead be dealt with as part of the quality of life standards, which are not subject to peer review. Again, we are concerned that volatilized PCBs will be addressed only after air quality standards have been violated, or have reached an established level of concern, rather than taking a proactive approach to prevent volatilization from occurring in the first place. Clearwater strongly encourages EPA to require sediment handling that will limit the exposure of any dredged material, using enclosed collection systems and storage buildings that kept under negative air pressure so that any PCB containing emissions will be filtered before being released back into the environment. We also encourage the use of tarps or other covers to contain any dredged material that is being transported by barge and/or truck to treatment facilities.		Primary and Secondary Ambient Air Quality Standards). Air quality issues will also be addressed as part of the Quality of Life Performance Standards.
HR Sloop	9	The Hudson River PCB remediation must be a world class clean-up, one that prevent any additional global transport PCB contamination and alleviates the burden to humans and wildlife that was caused by its irresponsible use and careless disposal some 26 to 56 years ago.	**General**	Comment noted.