

<b>Document</b>	<b>EPA Response to Comment from Clean Ocean Action on Engineering Performance Standards – Public Review Copy Hudson River PCBs Superfund Site</b>
Document Date	October 10, 2003

<b>Reviewer</b>	<b>#</b>	<b>Comment</b>	<b>Topic</b>	<b>Response</b>
Clean Ocean Action	1a	Performance standard and action levels for dredging resuspension (i.e., Resuspension Standard) are not adequately protective. Clean Ocean Action urges EPA to develop and implement a Resuspension Standard that reflects ambient loadings and concentrations in the river so that increases above ambient, baseline levels are unacceptable and require contingency actions.	<b>Resuspension</b> Not protective	<p>USEPA believes the performance standard is protective of human health and the environment. Compliance with the resuspension performance standard criteria will ensure that the Total PCB water column concentrations meet the requirements of the Safe Drinking Water Act. In addition, compliance with the standard is expected to not adversely affect fish body burdens over the long-term (there may a short-term increase in fish body burdens during the dredging itself, but body-burdens are forecast to decline rapidly upon completion of the dredging).</p> <p>Further, the sensitivity analysis performed in support of the Resuspension Standard showed that the PCB concentration and load criteria established for the Resuspension Standard and action levels are protective of the river system. Total PCB concentrations at far-field locations during dredging is expected to be within the variability of baseline concentrations of the river system, despite unavoidable increases in PCB concentrations in the vicinity of the dredge. Therefore, localized short-term increases in PCB</p>

				<p>concentrations are not considered to pose additional risks to the Upper or Lower Hudson, and will be offset by long-term risk reduction offered by the removal of an estimated 150,000 pounds of PCBs from the Upper Hudson.</p>
Clean Ocean Action	1b	<p>Turn-around time for PCB analyses and corrective measures: The Resuspension Standard and action levels depend on a 24-hour turnaround time for PCB sampling, analysis, and evaluation. Although a contracted laboratory may promise this 24-hour turnaround time, problems can occur that make this time frame impossible to meet (for example, quality assurance/control problems, lost samples, instrumentation failure, etc.).</p> <p>Therefore, COA recommends that USEPA require contingency plans in the case that a laboratory can not meet its analysis deadline. Additionally, COA urges EPA to develop a suspended solid or turbidity Resuspension Standard (based on correlated Total PCB loads) so that results (and corrective actions if needed) can be guaranteed almost immediately upon sampling. COA knows that USEPA recognizes turbidity as a real-time indicator of PCB concentration and urges the agency to develop and implement such a standard.</p>	<p><b>Resuspension Time contingency</b></p>	<p>In order to implement this program successfully, laboratories with the capacity to meet the demands of the monitoring requirements will have to be contracted. In addition, samples will be collected from more than one far-field station. Even so, it is possible that there will be isolated incidents when the turnaround time is not met. The Environmental Monitoring Plan to be submitted to EPA by General Electric Company as part of the Remedial Design should address this possibility.</p> <p>The Resuspension Standard, confirmed exceedences of which would cause temporary halting, cannot be based on suspended solids and turbidity levels because the levels of these parameters were found to vary too widely during normal river conditions. The concentration of the resuspended sediment will also vary from place to place. Although a semi-quantitative relationship between suspended solids or turbidity and PCBs may be developed during Phase 1, the dredging-related increase in water column PCB concentrations cannot be estimated based on TSS or turbidity with enough certainty to</p>

				<p>justify temporary halting of operations. Instead, exceedances of the suspended solids concentrations prompt limited additional far-field PCB sample to better estimate the PCB water column concentration.</p> <p>However, if a lab error were to delay the turn-around time of a sample, decisions could be based on the previous PCB results and the TSS/turbidity concentrations as measured in real-time. If a semi-quantitative relationship between the turbidity and TSS (and possibly PCBs) can be developed, a more timely response to elevated resuspension can be made and operations will not be solely reliant on laboratory samples. Nonetheless, PCB concentrations are required to demonstrate compliance with the standard, since other non-PCB-related sources of turbidity exist in the Hudson River. The action levels are currently configured to include both TSS and PCB-based criteria.</p>
Clean Ocean Action	1c	<p>Monitoring during dredging: No monitoring is proposed for the Lower Hudson and NY/NJ Harbor during the dredging. Presumably, this is because USEPA's aim is to focus on far-field sites closer to the dredging site to detect problems as soon as possible. However, effects to Lower Hudson resources during the dredging must be quantified especially if problems during dredging are encountered. One way to perform this sampling is to work with the other organizations and research groups performing toxics, and specifically PCB, sampling and monitoring in the Lower Hudson and NY/NJ Harbor.</p>	<p><b>Resuspension</b> Lower Hudson</p>	<p>Because the Lower Hudson has sources of PCBs other than the Upper Hudson, USEPA does not expect impacts to the water column concentration from dredging in the Upper Hudson in compliance with the Resuspension Standard to be discernible in the Lower Hudson. Nonetheless, under the Resuspension Standard for Phase 1, routine monitoring of Lower Hudson River water quality is required at a low frequency to gather the data needed to evaluate whether there are any impacts to</p>

		<p>For example, Rutgers University is tracing PCB loads in the Hudson River plume out to the NY Bight and the Contaminant Assessment and Reduction Program (CARP) monitors PCBs as part of the Harbor Estuary Program (HEP).</p>		<p>the Lower Hudson from dredging in the Upper Hudson.</p> <p>The frequency of sampling in the Lower Hudson will be increased in response to greater loads and concentrations in the Upper Hudson. For example, when Troy (downstream from Waterford) is expected to exceed 350 ng/L Total PCB by considering the reduction in concentration resulting from the addition of water to the river from tributaries and drainage, an increased level of sampling will be required in order to measure the concentration entering the public water intakes (see Attachment G of the draft Resuspension Standard). The details of the increased monitoring will be described in the Community Health and Safety Plan that General Electric Company is required to submit to USEPA as part of the Remedial Design.</p>
Clean Ocean Action	2a	<p>Sediment Sampling: COA supports discrete sampling and does not support compositing. COA (1) requests additional documentation of the justification for not requiring the top “vener” (i.e., surface sediment) to be collected as a discrete sample in addition to a composited sample down to a 6-inch depth and (2) urges EPA to delineate the method for determining when discrete samples are necessary and to pose this issue to peer reviewers for comment.</p>	<p><b>Residuals</b> Sampling of the residual</p>	<p>EPA agrees that discrete sampling is preferred to composite sampling for the Residuals Standard. For this reason, the Residuals Standard is based on a discrete sampling program. The standard requires discrete sampling of the 0-6 inch layer, generating data that is comparable to low resolution sediment sampling programs conducted by USEPA and NYSDEC and the ongoing sampling program being conducted by General Electric Company for the remedial design. EPA determined from the New</p>

Bedford Harbor pilot study results that sampling a residuals veneer identifies only a thin layer of contaminated material that contributes little PCB mass, which is not appropriate for a residuals standard in a dynamic river system. The thickness of the veneer will vary depending on the type of dredge used. The thickness of the residuals following removal is expected to be thicker and more homogenized if a hydraulic dredge were used than if a mechanical dredge were used. Because the thickness of the most contaminated layer could vary from centimeters to feet in thickness, it is not practical to set the sampling depth based on this criterion. The SPI data collected can be used to define more appropriate sample depths for Phase 2, if needed.

The 0-6 inch sample interval accounts for several concerns:

1. The need for simple, rapid sampling.
2. The need to confirm both inventory reduction and concentration reduction.
3. The need to obtain confirmatory results quickly by keeping the number of samples as low as possible.
4. The recognition that there may be thin residual layers of high concentration, but representing little inventory, i.e., little impact after backfill.
5. The recognition that dredging will mix surface material downward below the cut line, creating a relatively thick

				disturbed layer (2-6 inches).
Clean Ocean Action	2b	<p>Monitoring Residuals: USEPA expects that removal of PCBs should be achievable and anticipates that remedial dredging will reduce PCB concentrations by 96% to 98%, based on the range of concentration-reductions found at other remedial dredging projects. In the case where the cleanup goal of 1 ppb Tri+PCBs is not met, action levels may require actions such as re-dredging and/or capping. In all cases (cleanup goal is met, re-dredging, capping, etc), long-term monitoring to ensure compliance with the cleanup goal should be required and detailed as part of the draft Performance Standards to meet the remedial objective of minimizing the long-term downstream transport of PCBs in the river.</p>	<p><b>Residuals</b> Long term monitoring</p>	<p>Long-term monitoring of the sediments, water column, and fish after the dredging is completed is required as part of the monitored natural attenuation component of USEPA's 2002 Record of Decision, which sets forth the cleanup remedy for the Site. This long-term, post-dredging monitoring program will be developed separately from the Engineering Performance Standards. Also, USEPA notes that the residuals goal for remediated areas is 1 mg/kg Tri+ PCBs (and not 1 part per billion) prior to backfilling.</p>