

<b>Document</b>	<b>EPA Response to Comments from Town of Fort Edward 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>EPA Response</b>
Town of Fort Edward	1	The Peer Reviewers must be given wide latitude to ask the questions and to be given the answers to all questions deemed necessary by the Panel in order for the members to pass judgment on the Performance Standards.	Peer Review	USEPA has contracted with ERG, a consultant firm experienced in facilitating peer reviews, to help the Agency with the peer review of the Engineering Performance Standards. The peer review includes a two-day briefing session for the panel on the Engineering Performance Standards, including presentations from USEPA and stakeholders and a question and answer session. USEPA will seek to provide the peer reviewers with all the information they need to perform their reviews.
Town of Fort Edward	2	The Peer Reviewers' evaluations following Phase 1 should be completed and necessary adjustments made to the work plan before Phase 2 begins.	Peer Review between Phase 1 and Phase 2	Consistent with USEPA's 2002 Record of Decision, the report prepared at the end of the first phase of dredging will be the subject of peer review. This report will evaluate the Phase 1 dredging with respect to the engineering performance standards. USEPA will use the evaluation to determine whether any adjustments are necessary to the dredging operations in Phase 2 or to the standards.

<p>Town of Fort Edward</p>	<p>3</p>	<p>The Engineering Performance Standards should outline how decisions will be made in situations where the interactions among the standards could result in potentially competing goals (e.g., use of more dredges and support equipment to boost production, which could increase resuspension or adversely impact quality-of-life aspects of the project such as recreational use of the river, noise, lights, and odor). How will the general public, the Community Advisory Group and elected officials be involved in the decision-making process?</p>	<p><b>Resuspension Residuals Productivity</b> Productivity and standards conflict</p>	<p>During Remedial Design (RD), the dredging project will be carefully designed by General Electric Company pursuant to the USEPA Administrative Order on Consent for RD. The engineering design documents will be subject to review and approval by USEPA.</p> <p>The interactions among the Engineering Performance Standards were considered when the standards were developed. EPA does not believe that compliance with one standard will preclude compliance with another. In the event that a standard is exceeded during dredging, each of the standards requires steps to be taken to cure the exceedence. Because the specific steps to be taken in response to an exceedence will depend on the exact circumstances of the exceedence, those steps cannot be specified up-front as part of the Engineering Performance Standards. However the interactions among the Engineering Performance Standards, as well as other standards for the project (e.g., quality-of-life standards) must be considered in determining the preferred course of action. Consistent with its Community Involvement Plan for the site, USEPA will maintain ongoing open communication with the public regarding the progress of the dredging project.</p>
----------------------------	----------	---	---	---

Town of Fort Edward	4	The Town of Fort Edward is also concerned that many of the issues outlined in the “Interactions Among Performance Standards” will impact the Quality of Life standards. We reserve the right to comment further on the Engineering Performance Standards following our review of the Quality of Life Standards.	<b>General</b> Quality of life standards	Comment noted. The public will have an opportunity to comment on the draft quality-of-life standards during a formal public comment period.
Town of Fort Edward	5	The Town of Fort Edward recommends that all data should be immediately available to the public.	<b>General</b> Data availability	The public will have access to the monitoring data as soon as possible after USEPA receives and reviews the data. USEPA will make the data available using the mechanisms identified in the Community Involvement Plan.
Town of Fort Edward	6	In the “Monitoring and Recordkeeping” section of the productivity standard (pp. ES-16-17), there is no indication of the course of action should a standard be exceeded that would prompt more monitoring. Do you continue dredging before the new monitoring data are available?	<b>General</b> Monitoring	<p>For the resuspension standard, exceedence of any of the three action levels below the threshold of 500 ng/L Total PCBs would trigger additional monitoring requirements as well as engineering contingencies (i.e., engineering evaluations or engineering solutions). Dredging operations would be continued with the enhanced monitoring program associated with the action level, until such time as the data justify a step-down to a lower action level. Note that the action levels are based mostly on running averages.</p> <p>Dredging operations will continue as long as the 500 ng/L Total PCBs standard (confirmed) at a far-field station has not been contravened. If there is a single sample with Total PCB concentration at 500 ng/L or</p>

				<p>greater, additional samples are required. The dredging operations may be modified, but this is not mandated by the standard. If the average concentration of the five samples (initial exceedence plus the four samples collected on the following day) is greater than 500 ng/L, the dredging operations must temporarily halt pending the results of an engineering evaluation and selection of an engineering solution in consultation with USEPA.</p>
Town of Fort Edward	7	<p>Because resuspension is critical to a successful project, the Town Board of the Town of Fort Edward feels that it is imperative to conduct a very limited "demonstration" project as a part of the design phase and prior to Phase 1. The "demonstration" project would be used to test standards and would be an opportunity to test equipment. In addition, a "demonstration" project would ascertain the resuspension rate in the Hudson. Once that rate is determined, the HUDTOX and the FISHRAND models should be rerun in order for everyone to clearly see that there would be a quantifiable benefit at the end of the project.</p>	<p><b>Resuspension Demonstration project</b></p>	<p>In developing its 2002 Record of Decision for the site, USEPA carefully considered, and rejected, the concept of a demonstration project for the Upper Hudson. Instead, USEPA decided to conduct the dredging project in two phases over six years. Phase 1 will be the first year of dredging to be conducted initially at a reduced rate of dredging; Phase 2 will be the remaining five years at full scale. USEPA will use the results of Phase 1 to allow comparison of operations with the pre-established performance standards and evaluation of necessary adjustments to dredging operations in Phase 2 or to the standards. Further, USEPA already has considered the effects of a range of resuspension rates on the HUDTOX and FISHRAND model outputs, and on the relative risk reduction afforded by different remedial alternatives, in a sensitivity analysis performed for the Responsiveness Summary (see, White Paper – Model Forecast</p>

				for Additional Simulations in the Upper Hudson River, and White Paper - Human Health and Ecological Risk Reduction Under Phased Implementation).
Town of Fort Edward	8	The Town of Fort Edward also questions if the EPA relied upon dredging companies to provide much of the information that is contained in the “Case Studies of Environmental Projects.” These are companies that would reasonably be expected to bid the work here in the Hudson, and a message that, “trust us- we can successfully accomplish the work in the Hudson River” begs the question of conflict of interest.	<b>General</b> Case studies	Of the 14 reports listed in the reference section of Appendix: Case Studies of Environmental Dredging Projects, 13 were prepared by consultants and one was prepared by a government agency. Seven of the consultants prepared their reports on behalf of clients who are potentially responsible parties, or “PRPs”, at various Superfund sites, and the remaining six prepared their reports on behalf of government agencies. The consultants are environmental consulting firms or academics that have experience with dredging projects, but do not sell the technology. USEPA is unaware of any information indicating that the analyses presented in the case studies are biased or otherwise inaccurate.
Town of Fort Edward	9	The installation of a sub-aqueous cap was not a part of the Record of Decision. The Town of Fort Edward feels that a thorough analysis and environmental impact study of this type of cap is warranted. Has capping been evaluated for its affect on the environment and on wildlife? EPA admits that the installation of a sub-aqueous cap may require additional dredging to accommodate the cap thickness. This is a major change to the ROD and should be put out to public comment.	<b>Residuals</b> Cap issue	The placement of a cap in limited areas that have been dredged, for the purpose of isolating recalcitrant residual sediments that have unacceptably high concentrations of PCBs, is not a fundamental change to the 2002 ROD. The purpose of capping under the Residuals Standard is to isolate recalcitrant PCBs in sediments after dredging, and in that respect is similar to the use of backfill to isolate residual PCBs in sediments, as described in the ROD.

				USEPA notes that the limited capping specified in the Residuals Standards already has been subject to public comment. However, the USEPA will not make a final decision on what appropriate steps, if any, need to be taken regarding this issue until, at the earliest, the capping component of the residuals standard has been peer reviewed and the Agency has had an opportunity to consider the peer reviewers' recommendations.
Town of Fort Edward	10	<p>EPA needs to set a time frame for either dredging or capping which will take adverse weather into consideration. EPA must include a plan for assuring that there will be time to complete each year's work prior to the onset of winter in order to avoid leaving areas with higher concentrations of PCBs or heavy metals exposed.</p> <p>What happens to production rates once the process is slowed as a result of having to dredge? And-what will be the EPA decision? This is truly a balancing act, but sacrificing the quality of life for our residents in the interest of dredging speed is not an acceptable answer.</p>	<b>General Time restraints</b>	<p>The Productivity Standard requires that dredging work (including backfilling or capping) be completed in all dredged areas by the end of the calendar year, to prevent the exposure of a dredged surface to storm and Spring flows. The schedule for remediation will be developed by General Electric Company as a part of the RD. The project schedule to be submitted by GE during the design will be reviewed by USEPA to ensure that adequate time is scheduled for dredging, backfill, bank stabilization, and habitat replacement work. The schedule will also be reviewed to ensure that it can accommodate potential delays, such as the need to re-dredge certain areas or delays associated with inclement weather.</p> <p>The conceptual production schedule developed as part of the supporting analyses for the Productivity Standard included an</p>

				<p>allowance for re-dredging equal to 50 percent of the time needed to dredge to the initial design elevation. Under this assumption, the project was completed within the 6 dredging seasons. It is anticipated that re-dredging will be performed by a separate dredge dedicated to re-dredging, but it is not possible to accurately estimate the amount of re-dredging that will be required. Overall, the example production schedule is a conservative schedule. The ROD establishes the time frame for the project and the designers must develop their approach to the project with this schedule in mind.</p>
Town of Fort Edward	11	24-hour dredging was not a part of the ROD and is intolerable.	<p><b>Productivity</b> Dredging time</p>	<p>The details regarding the schedule for remediation will be developed by General Electric Company as a part of the RD. The ROD does not specify the dredging schedule, other than requiring completion of the overall project duration in two phases over six years.</p> <p>The Quality of Life performance standards being prepared by USEPA will address potential noise and other quality of life impacts.</p> <p>The Responsiveness Summary (Section 3 of the ROD) discusses potential impacts from certain remedial operations should they be performed on a 24-hour basis (<i>See, e.g.</i> White Paper – River Traffic (p. 5) and White Paper – Socioeconomics (p. 4). The Feasibility Study discussed dredging on a 24-hour, 6 days per week dredging schedule.</p>

Town of Fort Edward	12	<p>It is evident that a high production rate will necessarily require many dredges and perhaps even around the clock dredging. On the other hand, controlling resuspension will require smaller and slower operations. This presents a dilemma, but it is an area that must be addressed now.</p>	<p><b>Productivity</b> Standard conflicts</p>	<p>The modeling in the Resuspension Standard indicated that there is no conflict in technical feasibility between the Productivity and Resuspension Standards. Remedial operations will be expected to satisfy both of these standards.</p> <p>The rate of resuspension does not necessarily increase with dredge production, as long as the dredge remains within its normal operating range. For hydraulic dredges, resuspension rates may be relatively constant regardless of production (within normal operating range). Resuspension rates for mechanical dredges, however, are generally proportional to production rate.</p> <p>Regarding the use of smaller dredges, available data suggest that the resuspension rate likely increases as dredge size decreases. Thus, a larger dredge operating normally is expected to have a lower resuspension rate than a smaller dredge.</p> <p>Increasing production will likely increase the total amount of resuspension released to the water column during a finite dredging period (even though the rate may be less per dredge). Thus, a decision to increase productivity will need to consider whether, and how, to control increased resuspension. If necessary, the dredging area can be fully contained, as was</p>

				done in the St. Lawrence River at the General Motors site and the Alcoa (Reynolds Metals) site, or partially contained using a combination of available technologies.
Town of Fort Edward	13	Ripping out habitat will greatly impact the fish population. Many will be killed as a result of the dredging action and many will leave the area because of habitat loss and the placement of the cap. What is not included in the Performance Standards document is any indication of the percentage of fish that will be lost as a result of dredging activity. The Town of Fort Edward requests an estimation of fish loss based upon experience at other dredge sites.	<b>General Natural habitat</b>	<p>In reaching its cleanup decision, USEPA evaluated the potential for adverse environmental impacts during construction as part of the short-term effectiveness criterion (see ROD pp. 85-86). The ROD states, "EPA has consulted with the natural resource trustees (NOAA, DOI and NYSDEC), and they support an environmental dredging remedy since the long-term benefits outweigh the short-term impacts. Short-term impacts are for a limited time scale, will be greatest in the area of active remediation and will dissipate in a downstream direction." USEPA further stated that while remedial activities may result in short-term temporary impacts to aquatic habitat in the Upper Hudson, habitat replacement/backfilling measures will be implemented to mitigate these impacts and the remediation itself could result in collateral benefits, including the removal of nuisance species and the reintroduction of native species.</p> <p>Few juvenile or adult fish are expected to be directly killed or impacted by dredging activities, as they are mobile and seek to avoid contact with humans and boats. Thus, the majority of fish are likely to swim away from areas of dredging. However, some fish,</p>

			<p>particularly fish larvae, may be entrained by dredging, but there are limited data that address this issue.</p> <p>The USEPA is aware of fewer than ten studies have studied fish entrainment by dredges in detail (Ault et al., 1998)<sup>1</sup> When quantitative estimates of dredge entrainment of fishes are available, rates are typically &lt;0.01 individuals/yd<sup>3</sup>. Burton et al. (1982)<sup>2</sup> applied ichthyoplankton survey data in an empirical transport model and estimated that less than 1 percent of striped bass larvae suffered mortality from dredge entrainment within the Delaware River estuary. There have been few other quantitative efforts to link local-scale dredge entrainment information to population-scale effects (Ault et al., 1998).</p> <p>The Remedial Design will address unavoidable, temporary, localized loss of fish habitat that fish use for spawning, nurseries, and feeding due to dredging activities. One of the functions to be evaluated by General Electric Company in Remedial Design as part of the submerged aquatic vegetation survey will be fish habitat, as detailed in the Habitat Delineation and Assessment Work Plan (GE, 2003). Habitat surveys will be performed</p>
--	--	--	--

<sup>1</sup> Ault, J. S., K.C. Lindeman, and D.G. Clarke. 1998. "FISHFATE: Population dynamics models to assess risks of hydraulic entrainment by dredges," *DOER Technical Notes Collection* (TN DOER-E4), U.S. Army Engineer Research and Development Center, Vicksburg, MS. [www.wes.army.mil/el/dots/doer](http://www.wes.army.mil/el/dots/doer)

<sup>2</sup> Burton, W. H., S.B. Weisberg, and P. Jacobson. 1982. "Entrainment effects of maintenance hydraulic dredging in the Delaware River estuary on striped bass ichthyoplankton," Report to Delaware Basin Fish and Wildlife Management Cooperative, West Trenton, NJ.

				prior to dredging, so that recovery can be monitored and mitigation measures implemented, if necessary.
Town of Fort Edward	14	There is no discussion concerning the affect of the pipelines. How much impact will there be to property owners who want to access to the shores or to river traffic? In addition, the design must include the restoration of all lands that have been affected by pipelines.	<b>General Dredged material transport</b>	<p>The impact of any pipeline required for the dredging operations will be fully developed (if a pipeline is necessary) as part of the Remedial Design. Safety issues will be covered as part of the Community Health and Safety Plan (CHASP) for Remedial Action, which is required by the ROD (p. 83). General Electric Company is required to submit a draft CHASP to USEPA under the terms of the Administrative Order on Consent for Remedial Design.</p> <p>Pipelines, if used, would be expected to restrict access to the river in limited circumstances and for limited times. It is expected that most pipeline would run below water or run in the water adjacent to the shore.</p>
Town of Fort Edward	15	There is no analysis of the impact to the riverbanks even though they are an important part of the river system in the areas of recreation, flooding, erosion and habitat. Restoring or repairing the riverbanks after dredging should be a part of the remedial design.	<b>General Riverbank restoration</b>	<p>River bank stabilization is part of the remedial design that General Electric Company will perform pursuant to the terms of the Administrative Order on Consent for Remedial Design. USEPA will review the design documents prepared by GE.</p> <p>Riverbank activities have been accounted for in the Productivity Performance Standard. Specifically, the time required to stabilize,</p>

				restore and repair the riverbanks was considered in the conceptual schedule developed to support the Productivity Standard.
--	--	--	--	---