

Document	EPA Response to Comments from First Baptist Church on Engineering Performance Standards – Public Review Copy Hudson River PCBs Superfund Site
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Reviewer	#	Comment	Topic	Response
First Baptist Church	1	<p>My comments on the proposed Engineering Performance Standards (EPS) deal not so much with PCBs, but rather with other contaminants that will inadvertently be removed as a result of this project. These thoughts originate from comments and questions raised in public meetings I participated in last year, and statements made in EPA's Record of Decision itself.</p> <p>The Hudson River has had a significant historic industrial use. This is acknowledged broadly in the ROD; with greater emphasis on current uses of the river. In addition to the two General Electric plants in Fort Edward and Hudson Falls; there several paper mills, numerous factories (present and past), foundries and municipalities, which have discharged wastes to the river for over a century. Some of these are upstream of the remedial zone, while others are located along the proposed 40-mile remediation corridor. In addition to point sources of industrial/municipal discharges, runoff from storm sewers and agricultural areas may also, over a period of many years, have contributed an array of contaminants to the Hudson River. As with the contaminants GE discharged, these may have experienced any number of fates. Some may have been flushed out to the Atlantic Ocean, some may have become deposited in the riverbed and decomposed over time (e.g. organic contaminants) and some, like the</p>	Resuspension Residuals Other contaminants	<p>Upper Hudson River sediment core analysis indicates that elevated concentrations of some contaminants, such as cadmium, chromium, mercury, and lead are contained within the same sediments as elevated PCB concentrations (see Figure 253002-1 of the ROD Responsiveness Summary). Based on limited data, dioxin and furan concentrations also coincide with those of PCBs (see Tables 860-1 to 860-3 of the ROD Responsiveness Summary). Within the Hudson River, the targeted fine-grained sediments are generally underlain by older fine-grained sediment, permitting an overcut to be taken with the goal of leaving relatively clean sediments exposed (<i>i.e.</i>, for all contaminants). The data available for metals and dioxins/furans indicate that the implementation of the remedy will also remediate the bulk of contaminants other than PCBs at the same time that the targeted PCBs are being removed. Residual concentrations of both metals and dioxins/furans are expected to be near background levels and within acceptable levels after remediation, even prior to placement of clean backfill over dredged areas.</p>

	<p>PCBs, may still exist in the riverbed.</p> <p>One specific example of this would be the former Hercules/Ciba Geigy paint and pigment plant located in Queensbury. A large quantity of contaminated soil was just recently removed from this site, along with an extensive groundwater control, capture and treatment system being installed. Contaminant identified on this site included: mercury, lead, chromium and cyanide. Since these were discovered in site soils and groundwater, there is also the probability that these were also discharged, or ran off, or seeped into the Hudson River over the long history of this plant. There is therefore reason to be concerned about the presence of heavy metals (priority pollutant metals) in river bottom sediment downstream of this site.</p> <p>A second example supporting concerns related to the above observation involves the Rogers Island shoreline stabilization project completed several years ago (1999-2000). A section of the east shore of Rogers Island (located directly across the channel from the Fort Edward Village Baptist Church) was excavated for the purpose of removing PCB contaminated soils. It was reported in some of our dredging meetings that there were sufficiently high levels of lead in these soils that the area of excavation had to be enlarged in order to safely remove and cap suspect soils. It is significant that the contaminant ultimately governing the size of the final excavation was lead, rather than PCBs, since this area corresponds to the northern edge of the proposed dredging area.</p> <p>A third observation concerns the Risk Assessment discussed in the Record of Decision (ROD) itself. The</p>	<p>Remaining metals are not expected to mobilize through leaching during the dredging and sediment handling/processing based on the extraction procedure (EP) toxicity analyses (comparable to Toxicity Characteristic Leaching Procedure [TCLP]) performed on 1984 and 1986. These tests indicated that these sediments and their associated metals did not exceed any of the TCLP criteria (see Table 253002-9 of ROD Responsiveness Summary). All of the TCLP results were at least one order of magnitude below the criteria, and thus, the metals should not be redistributed as a result of leaching.</p> <p>In response to the first example of potential contamination from the Hercules/Ciba-Geigy paint factory, NYSDEC sampled selected metals (e.g., mercury, cadmium, chromium, mercury, nickel, lead, strontium, and vanadium) in fish above (RM 201.3) and adjacent to the paint factory (RMs 198.3 and 198.2) to determine concentrations of selected metals in fish (results provided in Table T253002-10 of the Responsiveness Summary for the Hudson River PCBs Site Record of Decision). In 1988, elevated concentrations of cadmium and chromium were detected in carp liver tissue samples collected near the paint factory. NYSDEC analyzed mercury and cadmium in selected 1997 and 1998 fish sampling at RMs 201 and 189 and did not detect any cadmium, indicating decreases in metal concentrations in fish, although liver samples were not analyzed. More detail on</p>
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	<p>ROD reports that fish tissue samples were tested for a number of contaminants, including numerous pesticides and several heavy metals. The conclusion reached in the ROD (pp.42-43) was that the PCB levels were sufficiently high to indicate environmental impairment. However, there is no comparable statement made about findings for the other contaminants. Is this intended to mean that none of these other contaminants were found in sufficient quantity (either by concentration or frequency of detection) to warrant concern? Or were some of them detected at elevated levels in some samples? No statement is made about them, so questions about them remain open. Perhaps the sheer volume of PCBs in the environment overshadows everything else (at least with respect to placing the site on the NPL); but if these other contaminants have been found in the biota samples, then one would also suspect them in the sediment.</p>	<p>metals contamination is provided in Master Comment 407876 and the White Paper - Metals Contamination (ID 253002) in the Responsiveness Summary (USEPA, 2002).</p> <p>Regarding the second example of high lead concentrations found at Rogers Island, the current sediment sampling and analysis plan (QEA, 2002) includes analyzing about 2 percent of bottom core sediments (selected randomly from core segments immediately below the deepest segment in which PCBs were measured at greater than 1 ppm)for RCRA metals (<i>i.e.</i>, arsenic, barium, cadmium, chromium, lead, mercury, silver, and selenium) and high resolution dioxins/furans. If results indicate that high concentrations of metals or dioxins/furans are present below elevated PCB concentrations, cut lines can be adjusted, as appropriate, during the remedial design.</p> <p>The third observation of the comment discusses elevated concentrations of contaminants other than PCBs in Hudson River fish. As stated on page 43 of the ROD “PCBs (total and dioxin-like) were identified as the chemicals of concern based on previous analytical results, the toxicity values for the chemicals, and the site definition (<i>i.e.</i>, the Site was placed on the Superfund NPL as a result of PCB contamination in the river).” This does not indicate that the other contaminants are not of concern, but rather that they do not represent as great a problem as PCBs (Sloan, 1999). Remediation of PCB-</p>
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				contaminated sediments will not only lower the concentrations of PCBs that fish are exposed to, but will also reduce levels of metals and dioxins, since these co-occurring contaminants will be removed with PCBs.
First Baptist Church	2	Other examples of industrial, municipal or agricultural discharges could be identified and discussed, and these may have produced plumes of different sizes and compositions. Any of the more durable or persistent contaminants may have accumulated in river bottom sediment as the PCBs did. Much has been said publicly about the unacceptable health risks posed by PCBs in the Hudson River. No one disputes that prolonged exposure to synthetic chemicals (or even naturally occurring toxins) can be hazardous to human health. However, PCBs are classified as Group B2 contaminants: Probable Human Carcinogens (ROD, p. 36). Some of the other contaminants tested for, and likely present in the river at some quantity, are more toxic than PCBs. Some of them are known carcinogens. Any of them could produce acute reactions or chronic health problems if sufficient exposure to them occurred. Thus these too need to be watched as part of the overall monitoring for protection of the community.	Resuspension Residuals Other contaminants	<p>Chlorinated dibenzodioxins and dibenzofurans (hereafter simply referred to as dioxins) are present in the sediments of the Upper Hudson River. To the extent that levels exceed regulatory criteria, dioxins may present additional concerns with respect to the handling and disposal of PCB-bearing sediments. Elevated levels of dioxins within the Upper Hudson River sediments appear to be generally coincident with elevated levels of PCBs and metals. Geochemically, dioxins behave similarly to PCBs. Within the sediments, metals and dioxin contamination are coincident with PCB contamination (<i>i.e.</i>, metal and dioxin-contaminated sediments also contain PCBs). Thus, it is anticipated that the removal of PCB-contaminated sediments also will remove the other coincident contaminants.</p> <p>The concentrations of dioxins in Lower Hudson River fish indicate the influence of independent contaminant sources in the lower river section. Sediment removal in the Upper Hudson is likely to reduce dioxin levels in Upper Hudson fish, given that dioxin sediment contamination is believed to be largely coincident with sediment PCB</p>

				contamination (see Response to First Baptist Church comment 1 or ROD Responsiveness Summary Tables 860-1 to 860-3) Dioxin levels in Lower Hudson fish may also decrease to a lesser degree in the Lower Hudson. The decrease in dioxin levels in Lower Hudson fish depends upon the importance of sediment loads from the Upper Hudson, to fish exposure to dioxin in the Lower Hudson. Since a better data set is necessary to assess the extent of dioxin contamination within these sediments, the sediment sampling includes analysis of some cores for dioxins/furans.
First Baptist Church	3	<p>The ROD clearly states that adequate measures will be taken to protect the community during remedial activity. This is found on page 83 in reference to the project Community Health and Safety Plan (CHASP):</p> <p>"The Community Health and Safety Plan will provide for community notification of ongoing health and safety issues, monitoring of contaminants and protection of the community from physical and other hazards."</p> <p>Though which contaminants are meant is not specified, I interpret this broadly to mean all contaminants reasonably known to exist in proposed dredging areas.</p>	Resuspension Residuals CHASP and other contaminants	USEPA will ensure that downstream users of Hudson River water are protected from all contaminants released as a result of the dredging. The Resuspension Standard deals specifically with PCBs, as required by the ROD. However, as noted in the Executive Summary of the Engineering Performance Standards (p. ES-2), New York State is developing substantive water quality certification requirements for the environmental dredging pursuant to the federal Clean Water Act and USEPA will review the requirements when they become available for any implications with respect to the Engineering Performance Standards. The water quality certification requirements will be a component of the dredging project that will need to be addressed during remedial design. Issues related to the protection of the

				community during remedial operations will be covered in the CHASP.
First Baptist Church	4	Has the sample data obtained to date shown elevated levels of other contaminants? Are any of these found either in high concentrations, or have they been discovered in significant aerial extent?	Resuspension Residuals Other contaminants	<p>This issue is extensively addressed in the Responsiveness Summary for the ROD. The 1977 grab samples analyzed by the NYSDOH (Table 253002-1) were collected at 20 stations within the Thompson Island Pool (TI Pool). The analytical results indicate that chromium, copper, lead, manganese, nickel, titanium, and zinc were detected above background levels.</p> <p>The 1984 sediment survey results indicate elevated levels of arsenic, cadmium, chromium, copper, lead, mercury, and nickel, relative to background. The chromium and lead levels are on the same order as the data from the 1977 samples.</p> <p>NYSDEC collected six cores at Hot Spots 3, 8, and 20 (two from each hot spot) in 1986 and again in 1987. A summary of the analytical results is provided in Table 253002-3. The results indicate elevated levels of antimony, arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, vanadium, and zinc, relative to background levels.</p> <p>The 1983 and 1991 cores collected by Dr. Bopp were located at RM 188.5 and RM 188.6, respectively. These cores were on the eastern side of the river within Hot Spot 20.</p>

				<p>The 1983 core was collected to a depth of 40 cm and the 1991 core to a depth of 44 cm. A summary of the analytical results is provided in Tables 253002-4 and 253002-5, as well as Figure 253002-1.</p> <p>Each of the two cores was dated using Cs-137 to trace chronological deposition of sediments and their respective contaminants. The analytical results indicate elevated levels of cadmium, chromium, copper, lead, nickel, and zinc, relative to background levels.</p> <p>The sediment cores collected by Dr. Bopp provide data on both PCBs and metal transport and deposition over the period from 1954 to 1991. These data show that the occurrence of elevated metal concentrations in the sediments is coincident with the highest PCB concentrations. Metal concentrations in the deepest core segments are close to those seen in the baseline samples at RM 203.3. Thus, the removal of PCB-contaminated sediments will also achieve near-baseline levels of metals within the residual sediments.</p> <p>Although the ROD does not direct development of performance standards for other contaminants, concentrations of other contaminants will be subject to substantive water quality certification requirements.</p>
First Baptist	5	Did the Risk Assessment discussed in the Record of Decision actually detect any quantity of the other	Resuspension Residuals	The Human Health and Ecological Risk Assessments discussed in the ROD identified

Church	contaminants (particularly heavy metals) identified on pages 32, 42-3 at levels high enough, or frequent enough to warrant concern?	Other contaminants	<p>only PCBs (total and dioxin-like) as the chemicals of concern based on previous analytical results, the toxicity values for the chemicals, and the site definition (i.e., the Site was placed on the Superfund National Priorities List as a result of PCB contamination in the river). All fish collected specifically for the risk assessments were analyzed for PCBs on a congener-specific basis.</p> <p>NYSDEC has also collected fish tissue data for other studies in the Hudson River. NYSDEC sampled selected metals (e.g., mercury, cadmium, chromium, mercury, nickel, lead, strontium, and vanadium) in fish above (RM 201.3) and adjacent to the Hercules/Ciba-Geigy paint factory (RMs 198.3 and 198.2) to determine concentrations of selected metals in fish (results provided in Table T253002-10 of the Responsiveness Summary for the 2002 Record of Decision for the Hudson River PCBs Site). In 1988, elevated concentrations of cadmium and chromium were detected in carp liver tissue samples collected near the paint factory. NYSDEC conducted analyzed mercury and cadmium in selected 1997 and 1998 fish sampling at River Miles 201 and 189 and did not detect any cadmium, although no liver samples were analyzed. More detail on metals contamination is provided in Master Comment 407876 and the White Paper – Metals Contamination (ID 253002) in the Responsiveness Summary (USEPA, 2002).</p>
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First Baptist Church	6	Is EPA planning to address monitoring for other contaminants in river bottom sediment at a later time as part of the CHASP?	Resuspension Residuals CHASP and other contaminants	<p>Approximately 2% of the total number of cores (selected randomly from core segments immediately below the deepest segment in which PCBs were measured at greater than 1 ppm) will be analyzed for RCRA metals (arsenic, barium, cadmium, chromium, lead, mercury, silver, and selenium) and high-resolution dioxins/furans. (GE Design Support Sediment Sampling and Analysis Program Field Sampling Plan, July 2002). The results from the design support sampling will be used to determine if monitoring of the</p>

				residuals for contaminants other than PCBs is needed.
First Baptist Church	7	<p>Will "performance standards" be specified for them as are now being proposed for PCBs?</p> <p>In addition to the 500 parts per trillion (ppt) PCB resuspension standard, monitoring should also be conducted for resuspension of heavy metals and semi-volatile organic compounds. The latter group may encompass dioxin/furans, organochloride pesticides/herbicides, polycyclic aromatic hydrocarbons (PAH), and whatever other priority pollutant organic compounds are present in the sediment. Dredging will potentially suspend whatever exists in river bottom sediment, not just PCBs. Downstream public water supplies and agricultural water users could be negatively affected by any of these "bystander" contaminants just as much as by PCBs. Even though these other potential pollutants are not the target of the remediation, there is a strong possibility they will be found in the same cohesive sediment deposits that contain the high PCB levels, so protective measures will need to be employed for them as well.</p>	<p>Resuspension Residuals Other contaminants</p>	<p>There will be no performance standards for other contaminants. Rather, New York State is developing water quality certification requirements pursuant to the federal Clean Water Act.</p> <p>It is expected that the occurrence of the elevated concentration of the other contaminants such as metals and dioxins/furans in the sediments is coincident with the highest PCB concentrations. Thus, the removal of PCB-contaminated sediments will also achieve near-baseline levels of metals within the residual sediments.</p>
First Baptist Church	8	<p>In addition to the possibility of resuspension, a similar line of thought applies to residual standards (as became the case for Rogers Island). Wherever removal of sediment is carried out, backfill will need to be placed to ensure adequate cover for all contaminants, especially if these overshadow PCB levels.</p>	<p>Residuals Backfill</p>	<p>The ROD requires that backfill be placed in the dredged areas to isolate residuals and expedite habitat recovery, where appropriate. It may not be appropriate to backfill the navigational channel, but this area should not constitute a large portion of the river targeted for dredging. In addition, some areas of the river that contain unique or especially sensitive habitat, may not be backfilled to</p>

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