



U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 2

October 18, 2019

BY ELECTRONIC MAIL

Robert Law, Ph.D.
de maximis, inc.
186 Center Street, Suite 290
Clinton, New Jersey 08809

Re: Re: Lower Passaic River Study Draft Feasibility Study (FS) – Administrative Settlement Agreement and Order on Consent for Remedial Investigation/Feasibility Study (Agreement) CERCLA Docket No. 02-2007-2009

Dear Dr. Law:

The U.S. Environmental Protection Agency (EPA) has reviewed *the Draft Upper 9-Mile Source Control Interim Remedy Feasibility Study (FS)* dated August 12, 2019, prepared by Integral Consulting Inc. on behalf of the Cooperating Parties Group (CPG) for the Lower Passaic River Study Area (LPRSA). Comments from partner agency, New Jersey Department of Environmental Protection and National Oceanic and Atmospheric Association were incorporated into the comments below. In accordance with Section X, Paragraph 44(d) of the Agreement, EPA has enclosed an evaluation of CPG's *Draft FS* with this letter.

Please proceed with revisions to the *Draft FS* within 30 calendar days consistent with the enclosed comment evaluations. If there are any questions or clarifications needed, please contact me to discuss.

Sincerely,

A handwritten signature in black ink, appearing to read "Diane Salkie".

Diane Salkie, Remedial Project Manager
Lower Passaic River Study Area RI/FS
Enclosure

Cc: Zizila, F. (EPA)
Sivak, M. (EPA)
Hyatt, B. (CPG)
Potter, W. (CPG)

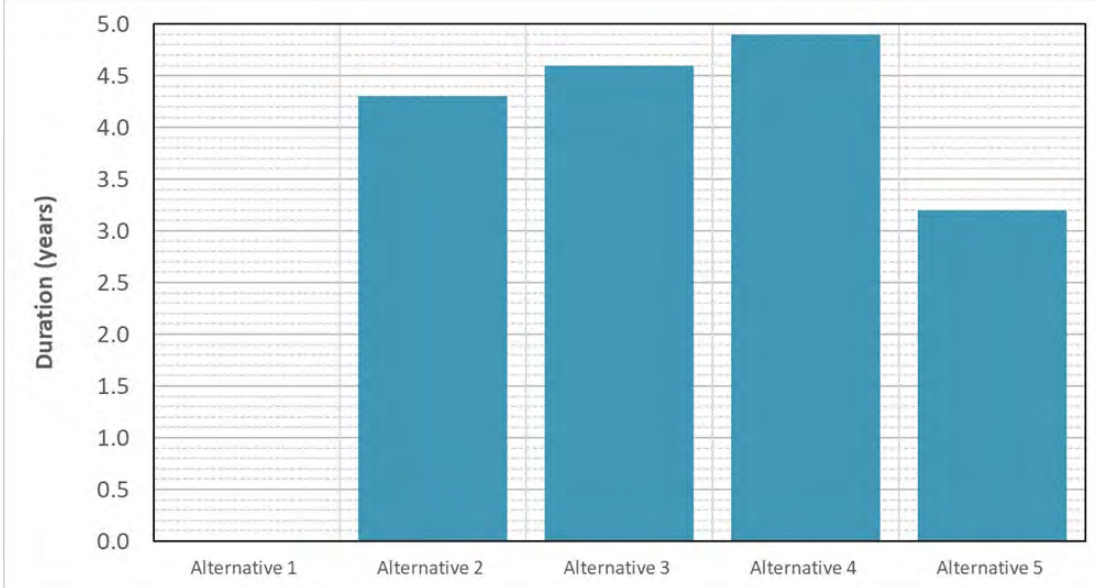
Draft Upper 9-Mile Source Control Interim Remedy Feasibility Study dated August 12, 2019

No.	Section	General or Specific	Page No.	Comment
1.	N/A	General	N/A	EPA has previously responded to the CPG that PRGs should not be developed as ranges but rather as single point estimates. Evaluating PRGs as ranges could result in a confounded evaluation of system recovery and an inability to identify diagnostic issues and respond adaptively to long-term monitoring data. Single point estimates for PRGs can reasonably be derived using an appropriate representation of uncertain input parameters informed by best current understanding of the system and CSM. PRGs will first be developed after the FWM has been finalized and peer reviewed. While the FWM would still be subject to refinement at that point, the existing model would support the derivation of point value PRGs. As EPA has previously expressed, if justified, point estimates of PRGs would be subject to adaptive refinement, which is intended to improve certainty in the PRGs, facilitate selection of final RGs, and support the assessment of system recovery to risk-protective conditions. Revise the IR FS, including Appendix D, accordingly.
2.	N/A	General	N/A	The draft IR FS source definition is not used consistently throughout the document and the document is unclear on what is and what is not classified as a sediment source under this interim remedy. This lack of a clear source definition makes it difficult to determine what the relative difference is between the alternatives evaluated and their ability to adequately control sources. EPA recommends that the definition of source for the IR should be more directly linked to the objective of the IR and the means by which that objective would be achieved. Include the following definition for source in Section 1.3.1 of the IR FS: Source sediments are qualitatively defined in this IR FS as those mobile or potentially mobile sediments with 2,3,7,8-TCDD and total PCBs concentrations that most significantly inhibit water column and surface sediment recovery in the system. Source sediments are quantitatively defined in this IR FS as those sediments with concentrations of 2,3,7,8-TCDD and/or total PCBs in excess of the RALs required to attain alternative-specific target SWACs. If an IR is implemented, IR source sediments would be determined based on the selected target SWACs, pre-design sediment sampling data, and associated RALs. This definition should also be incorporated into the Executive Summary so that the meaning of “source sediments” is explicitly presented in the beginning of the IR FS. Lastly, revise the IR FS globally with respect to this definition of source. Note that EPA does not object to the summary of 2,3,7,8-TCDD and total PCB concentrations on depositing particles and in recently deposited sediment as relevant context when discussing the CSM.
3.	N/A	General	N/A	Now that the HHRA and BERA are both approved documents, the discussion of risk in the FS should be more thorough and quantitative. The FS should list (or summarize in a table) all preliminary COCs and their associated risks, then highlight those that were considered primary risk drivers in the risk assessments. The FS should clearly state that, although primary risk drivers are the focus of the source removal IR, all COCs are being considered during PDI sampling and will be addressed by the final remedy.
4.	N/A	General	N/A	Principal threat waste (PTW) is not discussed in sufficient detail in the FS. Currently, PTW is only briefly mentioned in Section 1.3.3.6 <i>Engineering Assumptions</i> (“Engineering assumptions include... identification and handling of principal threat waste.”). Revise the FS to discuss PTW in more detail. Section 11 of the Record of Decision for the Lower 8.3 Miles of the Lower Passaic River can be used as a guide regarding the level of detail requested.
5.	N/A	General	N/A	Revise the Common Elements section of the FS (i.e., Section 7.1) to discuss in more detail a “dredge to clean” approach that would be based on contamination concentrations and depths. This request is consistent with EPA’s Oct 10, 2018 letter to the CPG. While EPA is not requesting that the dredge-to-clean options have FS costs developed for them, this approach should be generally described and discussed as a potential remedial approach to be considered during design.
6.	N/A	General	N/A	During FS work group meetings, EPA questioned the assumption of disposing of all dredged sediments in a Subtitle C landfill, as such an assumption could greatly impact FS costs (see May 9, 2019 meeting minutes). EPA also acknowledges the previous agreement with the CPG during these same FS working groups to retain disposal in a Subtitle C landfill as the representative process option based upon the CPG’s stated concerns. However, as no RCRA-hazardous sediments have been encountered during past removal actions (including the removals at the Lister Avenue facility and RM 10.9) and after reviewing the FS cost estimates, EPA is requesting cost sensitivity analyses be conducted to compare transportation and disposal costs under two scenarios. The first scenario would assume that all dredged sediments are disposed of in a Subtitle C landfill, as is currently presented in the FS. The second scenario would assume sediments are disposed of in either a Subtitle C or a Subtitle D landfill based upon their expected chemical concentrations and landfill waste acceptance criteria. Specific direction on this matter is provided in subsequent comments.

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7.	N/A	General	N/A	<p>Revise the comparative analysis to compare the alternatives in increased detail. The analysis, including the revisions made in response to the bullets below, should describe differences between alternatives where meaningful differences exist, but should also better support conclusions that suggest a lack of meaningful difference between alternatives. For example, several alternative measures have an overlapping range of predicted responses in the modeled system. The FS takes this as there being no material difference between alternatives. Such conclusions should be expanded to better describe the overlapping ranges, the meaning of this overlap, and how this overlap suggests differences that are not materially important.</p> <p>Revise the comparative analysis section to better correlate with the detailed alternative evaluations. This includes the use of headers in the comparative analysis section to allow the reader to cross reference information in the comparative analysis to corresponding information in the detailed evaluation. For instance, in the detailed evaluation of alternatives, the short-term effectiveness criterion presents the metrics of time to achieve RAOs, worker risks and community impacts, resuspension, and downstream and upstream transport. The short-term effectiveness criterion in the comparative analysis is not presented in this fashion. This also includes the presentation of information in the comparative analysis section that synthesizes all metrics and measures evaluated in the detailed evaluation as a means of comparing the alternatives. Examples that should be included in the revised IR FS include, but are not necessarily limited to:</p> <ul style="list-style-type: none"> • In the detailed evaluation of alternatives, for the protection of human health and the environment criterion, the “reduced risk to human health and the ecosystem commensurate with 2,3,7,8-TCDD and total PCB SWAC reductions” is pointed out for each alternative. For consistency with CSTAG recommendations and the overall intent of the IR, this reduction should be expressed in terms of exposure potential rather than risk. The relative reduction in exposure potential among the alternatives should be qualitatively compared in the comparative analysis. The discussion of exposure potential reduction should be described specifically as being in relation to sediment; while there may be some reduction in exposure potential for the water column, sediment exposure reduction can be directly correlated to SWAC reduction. • In the detailed evaluation of alternatives, for the source control metric under the long-term effectiveness and permanence criterion, expected post-IR SWACs, contaminant mass removed, and water column flux at RM 8.3 over the 10 years following the IR are quantified for each alternative. These quantitative measures should be compared between alternatives in the comparative analysis (predicted values and relative differences), both relative to baseline and among the alternatives. • In the detailed evaluation of alternatives, for the monitoring, maintenance, and ICs metric under the long-term effectiveness and permanence criterion, cap maintenance is described as being proportional to volume over a 10-year period. The relative degree of cap maintenance among the alternatives should be compared in the comparative analysis. • In the detailed evaluation of alternatives, for the worker risks and community impacts metric under the short-term effectiveness criterion, habitat and ecological disturbance is described as a risk of the IR. The relative degree of such risk should be compared among the alternatives in the comparative analysis. • In the detailed evaluation of alternatives, for the downstream and upstream transport metric under the short-term effectiveness criterion, the total water column flux at RM 8.3 during the IR construction is quantified for each alternative. This quantitative measure should be compared between alternatives in the comparative analysis (predicted values and relative differences), both relative to baseline and among the alternatives. <p>Also revise the comparative analyses to include the following:</p> <ul style="list-style-type: none"> • Implications for remediating sediments in the RM 10.9 area, where previous removal has occurred, and an armored cap is in place. • Total mass (2,3,7,8-TCDD and total PCBs) reduction in the system relative to prior estimates of total mass from the RI. • Explicit quantitative evaluation of the surface sediment concentrations (2,3,7,8-TCDD and total PCBs) in the lower 8.3 miles of the LPRSA. • Average contaminant concentrations in (2,3,7,8-TCDD and total PCBs) the IR footprint and in the incremental area/volume addressed by successively larger footprints. • The relationship of alternative cost to other measures, potentially including contaminant mass removed, SWACs achieved, and/or other pertinent factors. <p>Some of these additional measures/considerations may warrant discussion in the detailed evaluation of alternatives as well.</p>
8.	N/A	General	N/A	<p>While there may be hazard/risk to workers and the community during an IR (and differences in risk between alternatives), it would be expected that appropriate protection plans, and contingency plans would be in place to protect workers and the community. This should be made clear in the comparative analysis.</p>

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9.	N/A	General	N/A	<p>In the comparative analysis, include graphics (e.g., bar charts) that demonstrate the relative performance of the alternatives for various metrics. Such graphics that should be included in the IR FS include, but are not necessarily limited to, duration (example shown below), cost, area (with variance), volume (with variance), mass removed, SWAC, RAL (with variance), and SWAC reduction. Similarly, to support the discussion of the relationship of cost to other measures (e.g., mass removed or SWACs achieved), include cost curves visually demonstrating these relationships.</p>  <table border="1"> <caption>Duration (years) by Alternative</caption> <thead> <tr> <th>Alternative</th> <th>Duration (years)</th> </tr> </thead> <tbody> <tr> <td>Alternative 1</td> <td>0.0</td> </tr> <tr> <td>Alternative 2</td> <td>4.3</td> </tr> <tr> <td>Alternative 3</td> <td>4.6</td> </tr> <tr> <td>Alternative 4</td> <td>4.9</td> </tr> <tr> <td>Alternative 5</td> <td>3.2</td> </tr> </tbody> </table>	Alternative	Duration (years)	Alternative 1	0.0	Alternative 2	4.3	Alternative 3	4.6	Alternative 4	4.9	Alternative 5	3.2																																												
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10.	N/A	General	N/A	In the comparative analysis, it should not be presumed that Alternative 2 represents an option that is being compared to a collective group of other alternatives to demonstrate differences between Alternative 2 and the other alternatives. To the extent possible, the alternatives should be compared across a continuum of “best to worst” or “most to least” to objectively demonstrate their relative performance, even if there are conclusions that can ultimately be drawn about the highest performing alternative within a particular evaluation factor.																																																								
11.	N/A	General	N/A	Alternative 1 should be revised to truly represent a no action (NA) alternative. No institutional controls or other administration should be included in the description or the cost estimate. Likewise, any costs related to 5-year review for the other alternatives should be reduced to \$0.																																																								
12.	N/A	General	N/A	The SWACs and SWAC reductions presented in the FS should be based off a consistent approach. When considering the initial SWAC, final SWAC, and SWAC reductions they should either be based off the desktop mapping exercise, or off the model results, but not a combination of the two. For example Section 8.3.2 presents the initial 2,3,7,8-TCDD SWAC as 932 ppt (based on the model initial condition after averaging map 37 to the model grid and then taking the area weighted average of the model initial conditions), a final 2,3,7,8-TCDD SWAC of 80 ppt (based on the desktop analysis), and a percent reduction based on a combination of the two. Because of the alignment of the model grid verses the conditional simulation decision units, the desktop results and model initial conditions differ slightly. Therefore where desktop results are available for both the initial and final values, use the desktop results to describe the SWACs and SWAC reduction. In cases where model results are used to describe reduction in SWAC over time, use model-based SWAC values to discuss initial and final SWACs and SWAC reduction. In each case, clearly identify the source that is being used for the information that is being presented.																																																								
13.	N/A	General	N/A	<p>The remedy durations presented in the FS text and tables do not appear to match the model inputs. Please clarify how the durations were computed. Clarify if the durations are intended to represent the duration of dredging only or the duration of mobilization through demobilization. Based on the model inputs the durations for dredging in the alternatives are shorter than the remedy durations presented in the FS.</p> <table border="1"> <thead> <tr> <th>Alternative</th> <th>2,3,7,8-TCDD SWAC Target (ppt)</th> <th>Map</th> <th>Start Dredging</th> <th>End Dredging</th> <th>Duration CFT Input (years)</th> <th>Duration Table ES-1</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>MNR</td> <td>37</td> <td>10/1/2020</td> <td>10/1/2020</td> <td>0.00</td> <td>0.00</td> </tr> <tr> <td>2</td> <td>85</td> <td>37</td> <td>7/1/2024</td> <td>11/13/2027</td> <td>3.37</td> <td>4.30</td> </tr> <tr> <td>3</td> <td>75</td> <td>37</td> <td>7/1/2024</td> <td>1/6/2028</td> <td>3.52</td> <td>4.60</td> </tr> <tr> <td>3</td> <td>75</td> <td>57</td> <td>7/1/2024</td> <td>12/16/2027</td> <td>3.46</td> <td>4.60</td> </tr> <tr> <td>3</td> <td>75</td> <td>81</td> <td>7/1/2024</td> <td>7/29/2028</td> <td>4.08</td> <td>4.60</td> </tr> <tr> <td>4</td> <td>65</td> <td>37</td> <td>7/1/2024</td> <td>8/26/2028</td> <td>4.16</td> <td>4.90</td> </tr> <tr> <td>5</td> <td>125</td> <td>37</td> <td>7/1/2024</td> <td>10/2/2026</td> <td>2.25</td> <td>3.20</td> </tr> </tbody> </table>	Alternative	2,3,7,8-TCDD SWAC Target (ppt)	Map	Start Dredging	End Dredging	Duration CFT Input (years)	Duration Table ES-1	1	MNR	37	10/1/2020	10/1/2020	0.00	0.00	2	85	37	7/1/2024	11/13/2027	3.37	4.30	3	75	37	7/1/2024	1/6/2028	3.52	4.60	3	75	57	7/1/2024	12/16/2027	3.46	4.60	3	75	81	7/1/2024	7/29/2028	4.08	4.60	4	65	37	7/1/2024	8/26/2028	4.16	4.90	5	125	37	7/1/2024	10/2/2026	2.25	3.20
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14.	N/A	General	N/A	The figures should include the report type and the project title in the title block, like the format of the figures in the remedial investigation report.																																																								
15.	N/A	General	N/A	Some abbreviations, such as DDT and DDx, were not defined upon first use in the FS; others, such as OMB, were redundantly defined multiple times. An editorial review the FS should be performed to ensure abbreviations are defined at their first use and are only defined once. The Acronyms and Abbreviations list should be checked against the text during the editorial review.																																																								

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16.	N/A	General	N/A	Because of the differences between the USACE and EPA RI RM systems, the RM system(s) used in the IR FS needs to be clearly stated and explained. For example: In Figures ES-2 and 1-2, the note “River miles in USACE system” should be expanded to cite the RI system, which is the system used when the River Mile 10.9 Removal Area was addressed. The information of the expanded note would explain why River Mile 10.9 Removal Area is shown around RM 11.2. Section 1 should clearly explain the difference in the systems at first mention (as described in the related Section 1 comment). In Section 2, the location of the Lister Avenue facility is specified as RM 3.4 in Section 2.2, whereas this location is at RM 3.1 in the RI. RM 3.4 is presumably the USACE RM designation, but the document does not specify this. Other RM designations appear to be inconsistently mixed between the USACE and RI systems, without consistent notation as to which system is applied. It appears the intent is to use the USACE RM system throughout the IR FS; if that is the case, ensure consistency and clarity.
17.	N/A	General	N/A	In some instances, the text refers to the entire LPRSA and in others the entire OU4. Please use one or the other or both throughout for consistency (e.g., entire LPRSA (OU4)).
18.	N/A	General	N/A	The document should be reviewed for tense agreement with actions that have been performed versus actions that will or would occur or will or would be expected to occur in the future. For example, in the fifth bullet of the bulleted list of guiding principles on Page 6-2, the text indicates that relative uncertainty from the 75 ppt alternative “will be” applied to the other alternatives, which implies this is an action to be completed in the future and/or outside the IR FS. In fact, the relative uncertainty from the 75 ppt alternative has been applied to the other alternatives to support evaluation in the IR FS. Revise the language to correct this word tense issue.
19.	Executive Summary (ES), Rationale for a Source Control Interim Remedy, Paragraph 1, Sentence 3	Specific	xiv	Rationale, first paragraph, third sentence: Please add a footnote to the statement “The CSM led to the identification of areas of the riverbed with high contaminant concentrations” that states that the RI data is too sparse to identify the exact location and extent of the high contaminant concentration areas.
20.	ES, Rationale for a Source Control Interim Remedy, Paragraph 1, Last sentence	Specific	xiv	Change to “EPA-conditionally approved RI report”
21.	ES, Paragraph 2, Sentence 2	Specific	xiv	Revise the paragraph to reflect that adaptive management is an ongoing guiding principle for the LPRSA. Additionally, because adaptive management monitoring activities will be occurring after the IR and to document the overall goal of the Adaptive Management Plan, the sentence should read “A selected source control IR would be supported by an Adaptive Management Plan that describes how the upper 9 miles of the LPRSA would be managed to identify and reduce critical uncertainties and to systematically incorporate new information , starting during the remedial design and through the implementation of the IR and post-IR monitoring , and how the monitoring data would support a Final Record of Decision (ROD).” Bold indicates the requested change. Also, components of the Adaptive Management Plan in Appendix D that are specific to the LPRSA remedial action should be summarized in the final paragraph of the Rationale for a Source Control Interim Remedy section.
22.	ES, Rationale for a Source Control Interim Remedy, Paragraph 2	Specific	xiv	After the description of 90% reduction in average surface sediment concentration of 2,3,7,8-TCDD, include the following footnote to clarify that risk reductions do not necessarily reduce risk to acceptable levels: “Surface concentration reductions can be assessed against current conditions, but, because risk-based cleanup goals have not been determined, the benefit or significance of the surface concentration reduction relative to an acceptable risk concentration protective of human health and the environment cannot be assessed.”
23.	ES, Rationale for a Source Control Interim Remedy, Paragraph 2	Specific	xiv	The second paragraph in the Rationale for a Source Control Interim Remedy subsection alludes to “significant reduction of ecological risk”. Since the relative significance of the anticipated reduction in ecological risk has not been evaluated specifically, revise this to “an anticipated significant reduction of ecological risk”.
24.	ES, Paragraph 2, Sentence 1	Specific	xiv	Because the No Action and the 125 ppt 2,3,7,8 TCDD SWAC Alternatives do not meet the RAOs, remove “to achieve the IR remedial action objectives (RAOs)” from the sentence.
25.	ES, Rationale for a Source Control Interim Remedy, Paragraph 2, Sentence 3	Specific	xiv	Rationale, second paragraph, last sentence: Add text to reflect that the overlap between the two remedies is expected to shorten the duration of the overall construction impacts on the community and LPR system.
26.	ES, Rationale for a Source Control Interim Remedy, Paragraph 3, Sentence 1	General	xiv	Rationale, third paragraph, first sentence: Recommend replacing “changed” to “changing”. The intent of the IR is to introduce a large change in the short term followed by longer term ongoing change. Revise this instance and others.
27.	ES, Rationale for a Source Control Interim Remedy, Paragraph 3	Specific	xiv	In the third paragraph in the Rationale for a Source Control Interim Remedy subsection, adaptive management is described as being incorporated during the monitoring phase (singular). There are multiple monitoring elements (i.e., the PDI, construction monitoring, post-IR confirmation monitoring, and longer-term monitoring of system recovery) where adaptive management would be applied. Correct this to reflect that adaptive management would be applied during the multiple monitoring phases.

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28.	ES, Key Findings from the Remedial Investigation, Paragraph 1, Sentence 3	Specific	xv	Revise this sentence to read: “The LPRSA became the focus of investigations because 2,3,7,8-TCDD, a by-product of the manufacture of Agent Orange, DDT, and other chemicals were discharged from the former manufacturing facility at 80 and 120 Lister Avenue.”
29.	ES, Key Findings from the Remedial Investigation, Paragraph 2, Sentence 2	Specific	xv	The second paragraph in the Key Findings from the Remedial Investigation subsection indicates that the primary risk drivers for the LPRSA are 2,3,7,8-TCDD and total PCBs. This is explicitly true for human health, while the ecological risk drivers are dioxins/furans, PCBs, and DDx. Revise the last sentence in this paragraph to indicate that 2,3,7,8-TCDD and total PCBs are the primary human health risk drivers (and are among the ecological risk drivers) and the primary focus of the IR FS. At the end of this paragraph, add a sentence stating that all COCs will be considered during PDI and the final remedy, and list the COCs specifically.
30.	ES, Nature and Extent of Contamination in the Upper 9 Miles, Paragraph 2 & 3	General	xv	In addition to the information provided, it would be useful for readers to understand the maximum concentrations observed, when describing contaminant concentrations for 2,3,7,8-TCDD in the designated regions discussed. For example, current text describes 2,3,7,8-TCDD concentrations as “mostly less than 100 ng/kg” outside of silt regions above RM 12. However, the highly contaminated silt regions are the focus of this Interim Remedy, therefore, the general range (and maximum levels) of TCDD concentrations in these areas, versus the remaining regions of the river bed, are relevant and appropriate information for this project. In addition, from a conceptual point of view, it would be more appropriate to discuss these regions starting from most impacted to less contaminated, i.e., RM 8.3 and moving upstream. A similar description of concentration distributions should be provided for total PCBs as well. At a minimum, sufficiently expanded sediment contamination information is needed in corresponding Section 2.4.1 in support of this IR FS, with reference to the final, approved RI report (June 2019) for greater details.
31.	ES, Nature and Extent of Contamination in the Upper 9 Miles, Paragraph 1, Sentence 2	General	xv	Nature and extent, first paragraph, second sentence: Check document for consistent use of 2,3,7,8-TCDD versus TCDD. Either use 2,3,7,8-TCDD in all cases or don’t with a note that TCDD only refers to the 2,3,7,8-substituted congener of TCDD.
32.	ES, Nature and Extent of Contamination in the Upper 9 Miles, Paragraph 1, Sentence 3	Specific	xvi	Nature and extent, first full paragraph, third sentence: revise text to better distinguish concentration gradients above RM 14 due to bed composition from gradients due to the differences in concentrations above and below Dundee Dam (e.g., RI Figures 4.1-9a through 4.1-9f compared to FS Figure 2-6)
33.	ES, Nature and Extent of Contamination in the Upper 9 Miles, Paragraph 4, Sentence 3	Specific	xvi	First full paragraph, last sentence states, “Upstream of RM 14, none of these contaminants show the dramatically lower concentrations evident for 2,3,7,8-TCDD because of the greater influence of sources upstream...” Delete the word “greater”, as it implies that the primary source of “these contaminants” is from upstream of Dundee Dam, which is not supported by the RI.
34.	ES, Summary of Baseline Human Health and Ecological Risk Assessments	Specific	xvi	Consistent with the general comment on risk, provide a more thorough and quantitative summary of risk based on the conclusions of the HHRA and BERA. Include a table with all preliminary COCs posing unacceptable risks to human health and the environment and their associated risk values, then highlight the risk drivers.
35.	ES, Conceptual Model of Natural Recovery in the Upper 9 Miles, Paragraph 1	Specific	xvi	In the first paragraph in the Conceptual Model of Natural Recovery in the Upper 9 Miles subsection, revise the text to clearly indicate that deposition of water column particles influences natural recovery by the particles depositing on and burying and/or mixing with surface sediments (or by diluting surface sediment via cyclical erosion and deposition).
36.	ES, Remedial Action Objectives, Paragraph 1	Specific	xvii	The draft FS indicates that the overall goal of an IR is to control the most significant sediment sources of 2,3,7,8-TCDD and total PCBs above RM 8.3. Because it establishes a critical foundation of the IR and future action(s) for the upper 9 miles, revise the second sentence in this paragraph to also indicate that mitigating risks is not an explicit goal of the IR.
37.	ES, Remedial Action Objectives, Paragraph 2, Sentence 1	Specific	xvii	Consistent with the risk mitigation comment above, revise the first sentence to reflect that preliminary remediation goals have not been established because risk mitigation is not the explicit goal of the IR (e.g., “Given that the IR FS compares interim source control alternative actions, and risk mitigation is not explicitly the goal of the IR, risk-based preliminary remediation goals have not been established in the IR FS.”)
38.	ES, The Remedial Alternatives	Specific	xviii	Before or after the bulleted list of alternatives considered in the FS, describe briefly but clearly why alternatives 2 through 4 are framed around a SWAC target for 2,3,7,8-TCDD but a RAL for total PCBs and why alternative 5 has only the 2,3,7,8-TCDD SWAC target.
39.	ES, The Remedial Alternatives, Paragraph 2	Specific	xviii	Revise the text to clarify that the Phase 1 and RM10.9 removal actions and the planned Lower 8 remedy were also included in Alternative 1. Also, add this sentence to the end of the paragraph: “Site-specific information, site-specific data, and, as necessary, assumptions regarding pending action were used to incorporate the remedial actions into the alternatives.”
	ES, Reduction of Toxicity, Mobility, or Volume through Treatment, Paragraph 1	Specific	xix	Clarify that ex-situ solidification/stabilization during processing refers to processing of dredged sediment to support disposal.

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No.	Section	General or Specific	Page No.	Comment
41.	ES, Long-Term Effectiveness and Permanence, Paragraph 1	Specific	xix	Add a sentence noting the approximate inventory, mass removed, percentage of inventory removed for 2,3,7,8-TCDD and total PCBs.
42.	ES, Reduction of Toxicity, Mobility, or Volume through Treatment, Paragraph 1, Sentence 2	Specific	xix - xx	In the last sentence, "...with the larger-footprint alternatives ranking slightly higher than the ones with smaller footprints.", delete the word "slightly".
43.	ES, Long-Term Effectiveness and Permanence, Paragraph 1	Specific	xix	Consistent with the general comment on improved comparison metrics above, the magnitude of the remaining exposure potentials relative to each other should be stated here. In other words, the 65 ppt SWAC alternative would pose less exposure potential than the 85 ppt SWAC alternative and the 65 ppt SWAC would be expected to achieve health-based goals (set after the IR) more quickly than the 85 ppt SWAC alternative. The 75 ppt SWAC alternative would be between the 65 and 85 ppt SWAC alternatives. A measure of the differences between the 65, 75 and 85 ppt SWAC alternatives, can be stated here; the narrative may include the differences are within the range of the model sensitivity projections. The sentence "Alternatives 2, 3, and 4 achieve equivalent performance in long-term effectiveness and permanence" should be removed
44.	ES, Short-Term Effectiveness, Paragraph 1	Specific	xx	Include information regarding the evaluation of environmental sustainability for the alternatives.
45.	ES, Cost, Paragraph 1	Specific	xx	Revise the final sentence to avoid the appearance of a presumption that the final ROD would include only monitoring (e.g., "...a Final ROD would be issued that would include necessary further action(s), including further monitoring.")
46.	ES, Summary of the Comparative Analysis, Paragraph 1	Specific	xx	In the first paragraph of the Summary of the Comparative Analysis subsection, prior to referencing the summary of the comparative analysis as provided in Table ES-3, include a brief statement that describes what the comparative analysis does (i.e., assesses the alternatives compared to each other in the context of relative performance within each of the criteria).
	ES, Implementability Paragraph 1, Sentence 4	Specific	xx	Rather than grouping Alternatives 3 and 4 together, the sentence should be re-written recognizing Alternative 3 has a larger footprint than Alternative 2 and Alternative 4 has a larger footprint than Alternative 3.
48.	ES, Summary of the Comparative Analysis	Specific	xx - xxi	State the pre- and post-remedy SWAC estimates and the estimated concentration changes in addition to the percent reductions for both 2,3,7,8-TCDD and total PCBs and clearly state the basis for the SWAC estimates.
49.	ES, Summary of the Comparative Analysis, Paragraph 2 & 3	Specific	xxi	Clarify that the NFA alternative was retained as required by CERCLA, and Alternative 5 was retained based on agreement between EPA, NJDEP, and the CPG that this alternative provides an additional point of comparison.
50.	ES, Summary of the Comparative Analysis, Paragraph 5	Specific	xxi	The draft FS states that "...the larger-footprint alternatives result in minimal additional SWAC reduction and no projected increase in rates of recovery". Revise the language in this sentence to indicate that the result is "no projected discernible increase in rates of recovery."
51.	ES, Summary of the Comparative Analysis, Paragraph 6	Specific	xxi	The draft FS states that "...the alternatives with larger remedial footprints are not projected to result in greater or faster recovery following remedy completion". Revise the language in this sentence to indicate that "...the alternatives with larger remedial footprints are not projected to result in discernibly greater or faster recovery following interim remedy completion."
52.	ES, Summary of the Comparative Analysis, Paragraph 4, Sentence 1	Specific	xxi	Revise this sentence (and possibly paragraph) to be consistent with the definition of source sediments in the General Comment section.
53.	ES, Summary of the Comparative Analysis, Paragraph 4, Sentence 2	Specific	xxi	This sentence "These alternatives achieve equivalent performance in long-term effectiveness and permanence, addressing the sediment sources identified in the CSM that are inhibiting recovery" should be removed or revised. The magnitude of the remaining exposure potentials relative to each other should be summarized here as suggested in the comment for Evaluation of the Alternatives, Long-Term Effectiveness and Permanence on page xix.
54.	ES, Summary of the Comparative Analysis, Paragraph 5, Sentence 1	Specific	xxi	Delete "additional" from "additional remediation" at the beginning of the first sentence to avoid presenting Alternative 2 as the default.
55.	ES, Summary of the Comparative Analysis, Paragraph 5, Sentence 2	Specific	xxi	The sentence should be revised to "Furthermore, the larger-footprint alternatives result in minimal additional SWAC reduction and nearly the same projected increase in rates of recovery". (Bold indicates the change.) The phrase "nearly the same" is used in Section 8.

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56.	ES, Summary of the Comparative Analysis, Paragraph 5, Sentence 3	Specific	xxi	Round off in the SWACs and percent reductions result in some odd numbers presented here and elsewhere. The change in SWAC from Alternative 3 to Alternative 4 is nearly identical to the change in SWAC from Alternative 2 to alternative 3. Consider adding an additional significant Figure or provide a note for clarity. SWAC = 932 SWAC = 80 (91.4% reduction from Alt 1) SWAC = 70 (92.5% reduction from Alt 1 and 1.1% difference from Alt2 reduction) SWAC = 60 (93.6% reduction from Alt 1, 1.1% difference from Alt3 reduction, 2.2% difference from Alt 2 reduction)
57.	ES, Summary of the Comparative Analysis, Paragraph 6, Sentence 2	Specific	xxi	The sentence should be revised “All three alternatives achieve source control, and the alternatives with larger remedial footprints are projected to result in nearly the same recovery following remedy completion”. (Bold indicates the change.)
58.	ES, Summary of the Comparative Analysis, Paragraph 6, Sentence 3	Specific	xxi	Replace “faster recovery following” with “faster recovery rates following”.
59.	ES, Summary of the Comparative Analysis, Paragraph 7, Sentence 3	Specific	xxi	Delete “without additional removal” at the beginning of the first sentence to avoid presenting Alternative 2 as the default.
60.	ES, Summary of the Comparative Analysis, Paragraph 1	Specific	Table ES-3	Table ES-3 lists TCDD SWACs at 80, 70, 60, and 121 ng/kg for the alternatives. The earlier ES text and Tables ES-1 and ES-2 discuss 85, 75, 65, and 125 ng/kg. Add a footnote to Table ES-3 to clarify that the SWACs achieved are lower than the target SWACs because of the increase in sediment removal driven by RAO2.
61.	ES	Specific	Table ES-3	Table ES-3, second row, Overall Protection of Human Health and the Environment lists “yes” or “no” for the alternatives that achieve protection. Alternatives 2, 3, and 4 all say “yes”. A note should be added to the table that identifies the metrics used for this criterion. The note should identify: <ul style="list-style-type: none"> • Ability to progress towards overall protection • Ability to achieve RAOs
62.	ES	Specific	Table ES-3	Table ES-3, fourth row, Long-Term Effectiveness lists one-to-three check marks to rank the alternatives. Alternatives 2, 3, and 4 are all ranked identically and should not be. Alternative 2 will be less effective in the long-term than Alternative 3 (by remediating a smaller footprint), and Alternative 3 will be less effective in the long-term than Alternative 4. Alternative 4 will control the source better than Alternative 3 (by removing more of it), and Alternative 3 will control the source better than Alternative 2. Alternative 4 will have higher recovery potential than Alternative 3 (because the remedial footprint is larger), and Alternative 3 will have a higher recovery potential than Alternative 2. Revise to show that Alternatives 2, 3, and 4 are not the same.
63.	ES	Specific	Figure ES-1	The location map in the upper left corner of the figure should be in color.
64.	ES	Specific	Figure ES-2	On Figure ES-2, it would be more appropriate to define OU2 as “Lower 8.3 Miles” to be consistent with text provided in the FS report and to avoid any confusion between the current IR FS and the 2016 FFS. In addition, spell out Interim Remedy on the figure when defining the green box that represents the IR area.
65.	ES	Specific	Figure ES-2	The RM 0 label and symbol should be added to the figure. Also, the text refers to “a potential source control IR for the upper 9 miles”; however, the IR Area on the figure extends from RM 8.3 to RM 15 (6.7 miles). A note should be added to the figure explaining the extent of the IR Area and how it relates to the upper 9 miles. Essentially, the note should reconcile the apparent discrepancy between the text and the figure.
66.	1	General	N/A	Throughout Section 1, clearly identify the activities considered by the IR FS as being an IR (as opposed to simply “a remedy” or “the remedy”, other than where language might be referring to a remedy in a non-site-specific manner) and clearly identify that the current document is the IR FS (as opposed to simply “an FS” or “the FS”, other than where language might be referring to an FS in a non-site-specific manner) to avoid confusion with other elements of the ongoing OU4 program.
67.	1, Paragraph 2	Specific	1-1	Because the RM system used in the FS differs from that used in the RI, the first possible opportunity should be taken to describe the RM system and its difference compared to the system used in the RI. The first opportunity to do this is where RM 8.3 is identified as the lower demarcation of the upper 9 mile reach in the second paragraph of Section 1.
68.	1, Paragraph 2	Specific	1-1	The latter part of the second paragraph in Section 1 should be expanded to more clearly describe the expected progression of events associated with the upper 9 miles. The last sentence should be broken into three sentences that describe: that the FS develops and evaluates source control IR alternatives; that the selected alternative will be documented in a PP and an interim ROD, with the understanding that a final ROD will be developed later to memorialize a final remedial action decision to achieve final site cleanup; and that the FS includes an adaptive management plan that describes how the upper 9 miles will be managed with respect to uncertainty and responding to new information during, and subsequent to, the Source Control IR .
69.	1.1, Paragraph 1, Sentence 1	Specific	1-1	The incomplete phrase “and associated statement of” should be “and associated statement of work”. Alternatively, “and associated statement of” could be deleted because the next sentence clearly references the associated Statement of Work and its relevance.
70.	1.1, Paragraph 2, Sentence 2	Specific	1-2	Revise “Contaminated Sediments Technical Assistance Group (CSTAG)” to instead be “Contaminated Sediments Technical Advisory Group (CSTAG)”.
71.	1.1, Paragraph 1	Specific	1-2	Include the 2017 OLEM Directive in the list of references/documents that guide the conduct of the IR FS, and reorder the list in chronological order.

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72.	1.1, Paragraph 2, Bullet 5	Specific	1-2	Change the title of the document to “A Guide to Preparing ...”
73.	1.1.1, Paragraph 1, Sentence 3	Specific	1-3	Eliminate the second May 2007.
74.	1.1.2, Paragraph 1, Sentence 4	Specific	1-3	Add the following language to the end of the paragraph to clarify why the Tierra Phase 2 removal has not yet been completed: “The agreement for Phase 2 of the Tierra Removal, which EPA entered into with OCC and Tierra in 2008, contemplated the siting and use of a confined disposal facility (CDF) as a receptacle for the dredged materials. However, this has not occurred and may no longer be practicable. Since the approach for addressing the Phase 2 sediments has not been determined at this time, and the lower 8.3-mile remedial design is underway, EPA is integrating the Phase 2 area with the lower 8.3-mile remedy in a coordinated and consistent manner.”
75.	1.1.3, Paragraph 1, Sentence 1	Specific	1-3	Revise the text to read “In parallel with the ongoing work for OU4 being performed by the CPG under the 2007 Settlement Agreement...” to avoid the appearance the entire 17-mile RI/FS process has been performed (i.e., completed).
76.	1.1.3, Paragraph 1, Sentence 6	Specific	1-4	Delete “baseline monitoring”
77.	1.1.3, Paragraph 1, Sentence 3	Specific	1-4	Sentence continued from previous page: For consistency with the ROD, replace “Federal Navigation Channel in the lower <u>2.2</u> miles” with “Federal Navigation Channel in the lower <u>1.7</u> miles” and clearly reference the appropriate RM system.
78.	1.1.3, Paragraph 1	Specific	1-3 to 1-4	As it is valuable context, include the list of target COCs for which the remedy is being performed in the lower 8.3 miles of the LPR.
79.	1.1.3, Paragraph 1, Sentence 6	Specific	1-4	The final sentence describes that mobilization and construction for the OU2 RA is scheduled to begin in 2021. Provide more specificity regarding what is known about the Lower 8.3 RA schedule. Identify the period of mobilization, the estimated year dredging will start, and the duration of the remedy construction.
80.	1.2, Paragraph 2, Sentence 2	Specific	1-4	The second paragraph indicates that an accelerated implementation of an IR “could” result in better alignment of the timing of activities between the upper 9 and lower 8.3 miles. Revise this language to indicate that it is likely that an accelerated IR for the upper 9 miles would yield this better alignment.
81.	1.3.1, Paragraph 3, Sentence 1	Specific	1-5	The Preliminary remediation goals (PRGs)/remediation goals header under definitions should instead be only preliminary remediation goals (PRGs), as PRGs and RGs do not share an explicitly identical definition. It is, however, reasonable to describe RGs within the definition for PRGs, as RGs are a logical continuation of PRGs. For purposes of this definition in the IR FS, at the beginning of the second sentence in this definition, “A remediation goal” should be “A PRG”.
82.	1.3.1, Paragraph 3, Sentence 5	Specific	1-5	The final sentence in the definition for preliminary remediation goals (PRGs) implies that PRGs have not been developed simply because this is an IR FS. PRGs have not been developed because risk mitigation is not an explicit goal of the IR FS, and instead the IR would address source areas to attempt to accomplish source control. Revise this final sentence to convey this concept (e.g., “As the purpose of the IR is to address higher contaminant concentrations representative of source areas and not specific risks, and as the purpose of this IR FS is to develop and compare IR alternatives, PRGs are not developed in this IR FS. PRGs would be developed following an IR ROD, in parallel with the IR remedial design, and would be used to assess the future recovery of the system and inform a final ROD including final remedial goals.”
83.	1.3.1, Paragraph 4	Specific	1-5	At the end of the paragraph, add the following sentence: “RAOs have been developed for the IR FS and they are specific goals to be attained.”
84.	1.3.1, Paragraph 5	Specific	1-6	In the definition for remedial action levels (RALs), revise the language in the second sentence to reflect “...which define the ultimate risk-reduction or ARAR-based goals to be achieved through remedial action...” instead of “...which define the ultimate risk-reduction or ARAR-based goals to be achieved by the remedial action...” to avoid confusion regarding the application of ultimate risk-reduction or ARAR-based goals to the IR being considered. Also, at the end of the paragraph, add the following sentence: “RALs will be refined using data from the pre-design investigation (PDI) during remedial design.” Note that this would now be the first usage of “PDI,” so the acronym would be defined here.
85.	1.3.1, Paragraph 6, Sentence 3	Specific	1-6	In the last sentence of the definition for surface area-weighted average concentrations (SWACs), include that, in this IR FS, SWACs are the specific basis of one of the RAOs in addition to being used to establish remedial footprints.
86.	1.3.2.1, Paragraph 1, Sentence 1	Specific	1-6	Revise the language to describe “contaminated sediment source areas” instead of “source materials in the sediment” to avoid the suggestion that there are separate-phase or discrete non-sediment materials in the sediment that are the targeted sources.
87.	1.3.2.5, Paragraph 1, Sentence 4	Specific	1-7	This sentence should be revised to note each of the evaluated alternatives include the earlier removal action at RM 10.9 to represent existing conditions and the planned ROD remedy at the lower 8.3 miles.
88.	1.3.2.6, Paragraph 1, Sentence 3	Specific	1-7	The first paragraph of this section suggests that an evaluation of cap design “will be performed to support assumptions regarding cap type”. However, such an evaluation has been performed, and is included in the draft FS as Appendix F. Revise the text accordingly.
89.	1.4, Paragraph 1	Specific	1-8 to 1-9	This section should further describe that adaptive management is not only a structured approach to responding to new information, it is a formal and structured process for understanding what information is needed to reduce uncertainty and how to generate such information and planning for how to adapt to that information once generated. Incorporate these principles into the discussion.
90.	Figure 1-1	Specific	N/A	The location map in the upper left corner of the figure should be in color.

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91.	Figure 1-2	Specific	N/A	On Figure 1-2, it would be more appropriate to define OU2 as “Lower 8.3 Miles” to be consistent with text provided in the FS report and to avoid any confusion between the current IR FS and the 2016 FFS. In addition, spell out Interim Remedy on the figure when defining the green box that represents the IR area.
92.	Figure 1-2	Specific	N/A	The note “River miles in USACE system” should be expanded to cite the RI system which is the system used when the River Mile 10.9 Removal Area was addressed. The information of the expanded note would explain why River Mile 10.9 Removal Area is shown around RM 11.2. Also, the RM 0 label and symbol should be added to the figure. Last, the text refers to “a potential source control IR for the upper 9 miles”; however, the IR Area on the figure extends from RM 8.3 to RM 15 (6.7 miles). A note should be added to the figure explaining the extent of the IR Area and how it relates to the upper 9 miles. Essentially, the note should reconcile the apparent discrepancy between the text and the figure.
93.	2	General	N/A	Ensure that the RM system used in this section (and throughout the document, including figures) is correct and consistent. For instance, the location of the Lister Avenue facility is specified as RM 3.4 in Section 2.2, whereas this location is at RM 3.1 in the RI. RM 3.4 is presumably the USACE RM designation, but the document does not specify this. Other RM designations appear to be inconsistently mixed between the USACE and RI systems, without consistent notation as to which system is applied. It appears the intent is to use the USACE RM system throughout the IR FS; if that is the case, ensure consistency.
94.	2, Paragraph 1, Sentence 2	Specific	2-1	Consider using something other than “complete”. Part of the justification for the IR is that there are uncertainties associated with the present RI and supporting information.
95.	2.2, Paragraph 2, Sentence 5	Specific	2-2	“A by-product of the manufacturing was 2,3,7,8-TCDD, DDT, and other chemicals which were released into the river.” This suggests that 2,3,7,8-TCDD, DDT, and other chemicals were the by-product of Agent Orange manufacturing, when in fact 2,3,7,8-TCDD was the by-product and DDT and other chemicals were or may have been from other manufacturing processes. Revise this statement accordingly (see the similar but more accurate statement from the comment on Key Findings from the Remedial Investigation in the Executive Summary).
96.	2.2, Paragraph 3, Sentence 5	Specific	2-2	The text indicates that the 1994 investigation revealed that contaminated sediment moved upstream and downstream of the 6-mile stretch that was investigated, leading EPA to expand the investigation in 2002 to include the 17.4-mile stretch of the Passaic River and Newark Bay as additional OUs. The 1994 investigation revealed importantly that significant sediment contamination exists in the LPR, and this should be explicitly noted (in addition to the findings about sediment movement).
97.	2.3, Paragraph 2, Sentence 6	Specific	2-3	Regarding “Much of the engineered shoreline in the upper 9 miles (i.e., riprap or bulkhead) was observed to be in fair condition at the time of the survey; some areas of shoreline were observed to be in poor or failing condition (Figure 2-1).” Provide clarifying text to describe what is meant by “fair”, “poor”, and “failing”
98.	2.3, Paragraph 4	Specific	2-3	The text provides an overly generalized description of erosion and deposition. The RI contains a very detailed description of erosion and deposition, and because the IR FS is predicated in part on understanding erosion, this paragraph should be revised to capture some of that detail as provided in the RI, including the percentage of the sediment bed that is considered to be stable. Even the Executive Summary of the RI provides some level of detail related to erosion and deposition in the LPR that would be more suitable than the highly generalized information provided in this section of the IR FS. In addition, this section should be revised to provide information regarding erosion and deposition that is specific to the upper 9 miles. Additionally, the sentence “In some locations such as the mudflats at and upstream of RM 7, the deposition that formed these mudflats likely slowed or ceased as a quasi-equilibrium was reached, leaving 1960s’ sediment at or near the surface” should be revised to note that deposition does still occur within the system, as evidenced by sediment deposition above the RM 10.9 cap.
99.	2.4, Paragraph 1	Specific	2-4	The narrative should lead off with a summary of what the contaminants of interest are for the LPR, based on the RI, and which would then guide the discussion of specific contaminants in the remainder of this section.
100.	2.4.1, Paragraph 2, Sentence 2 and Figure 2-3	General	2-4	At various points in the FS, information related to or influenced by RM 10.9 is presented. Figure 2-3 presents the unremediated RM 10.9 data while the remediated concentrations or SWAC computed using the remediated concentrations are used elsewhere. When the remediation at RM 10.9 influences the information being presented or discussed, please provide a note identifying the version of RM 10.9 and the difference between the two versions.
101.	2.4.1, Paragraph 2, Sentence 3	Specific	2-5	Revise text to better distinguish concentration gradients above RM 14 due to bed composition from gradients due to the differences in concentrations above and below Dundee Dam.
102.	2.4.1, Paragraph 3, Sentence 3	Specific	2-5	As noted in the Executive Summary comment on page xvi, delete the word “greater” from “...greater influence of sources above...”
103.	2.4.1, Paragraph 3, Sentence 4	Specific	2-5	Revise the 4 th sentence for clarity, particularly regarding which contaminants and which location comparisons are being discussed.
104.	2.4.2, Paragraph 1	Specific	2-5	The first paragraph in this section describes that concentrations in fish tissue in the upper 9 miles tend to be lowest above Dundee Dam. The area above Dundee Dam is not part of the upper 9-mile reach. Separate the thoughts here into one that expresses that the highest concentrations tend to be in fish from below RM 10.1, and one that expresses, for context, that lower concentrations tend to be observed above the Dundee Dam.
105.	2.4.3, Paragraph 3, Sentence 2	Specific	2-6	Regarding “These changes (Figure 2-5) suggest that recovery occurred in areas that experienced 6 in. or more of net deposition and perhaps in shallow areas outside the extent of the bathymetry surveys.” Edit the text to present the rationale behind the following statement “...and perhaps in shallow areas outside the extent of the bathymetry surveys.” Provide empirical evidence or a scientific hypothesis for this rationale.
106.	2.4.3, Paragraph 3 & 4 and Figure 2-5	Specific	2-6	Add the post Irene data to Figure 2-5 as a separate series and discuss further in the fourth paragraph. This observation is an example of how sediment is a source and therefore controlling that source will help the system improve over time.

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107.	2.4.3, Paragraph 4, Sentence 1	Specific	2-6	Regarding “It appears that erosion during the 1-in-90-year high flow that resulted from Hurricane Irene caused an uptick in concentrations that impacted recovery.” Specify the timing of Hurricane Irene. Also, given the expected increase in frequency of high energy storm events (like Hurricane Irene) associated with climate change and the potential for increased erosion, provide rationale in the text for why deeper sediments are not being targeted for removal.
108.	2.4.3, Paragraph 3	Specific	2-6	Define 4,4’-DDx with respect to its difference compared to total DDx.
109.	2.4.3, Paragraph 1, Sentence 5	Specific	2-6	The text states “Water column measurements indicate that 2,3,7,8-TCDD concentrations are low at Dundee Dam”: Clarify whether the referenced data are from above or below the dam.
110.	2.4.4, Paragraph 3, Sentence 2	Specific	2-7	Regarding “The Louis Berger Group concluded that the estimated groundwater contribution to the LPR is less than 2 percent of the long-term average river flow over Dundee Dam (LBG 2014b).” Clarify whether the text is referring to volumetric water flows or contaminant contributions.
111.	2.4.4, Paragraph 1, Sentence 3	Specific	2-7	Revise the sentence to quantitatively describe the differences between contaminant concentrations in the LPR and those in the above Dundee Dam or in Newark Bay. The meaning of “upper Passaic River” should also be clarified.
112.	2.5, Paragraph 1, Sentence 4, 5, and 7	Specific	2-8	In general, Section 2.5 should be elaborated on to be more thorough and quantitative in discussing risk. Include a table with all preliminary COCs posing unacceptable risks to human health and the environment and their associated risk values, then highlight the risk drivers. In the first paragraph, PCBs should not be put on equal footing with pesticides and mercury regarding risk and background. HHRA risks estimated for PCBs above Dundee Dam were only about one third the risks for PCBs in the LPRSA. Revise the fourth and fifth sentences in the first paragraph to include PCBs as one of the primary risk drivers: “The primary human health risk drivers are 2,3,7,8-TCDD and PCBs. Other bioaccumulative compounds, including pesticides and mercury, also contribute to human health risk – but to a lesser extent and at levels comparable to background.” Last, the final two sentences of the first paragraph focus on a source of uncertainty in the HHRA but ignore a key conclusion. Add the following sentence: “However, consumption of LPRSA fish or crabs poses human health risks in excess of NCP risk levels, even those diets that exclude carp or focus on crab muscle alone.”
113.	2.5, Paragraph 1, Sentence 5	Specific	2-8	Clearly cite the sources of background used in the concentration comparisons.
114.	2.6	Specific	2-9	Revise the section to “Conceptual Model of Natural Recovery in the Surface Sediments of the Upper 9 Miles ” to more accurately reflect the context in the IR FS.
115.	2.6, Paragraph 1, Last Sentence	Specific	2-9	Regarding “These higher concentration sediments are considered source material.” Revise the text to read as follows: “These higher concentration sediments are considered source material in this FS. ”
116.	2.6, Paragraph 2, Sentence 4	Specific	2-9	Based on the revised source definition, revise the discussion to change “source sediments” to “sediments impeding natural recovery” and emphasize that the 300 ng/kg cutoff is approximate and not the definition of source.
117.	2.6, Paragraph 2	Specific	2-9	The text indicates that targeting sediments in the reach between RM 8.3 and RM 15 with 2,3,7,8-TCDD concentrations above about 300 ng/kg and total PCBs above about 1 mg/kg would reduce the 2,3,7,8-TCDD SWAC from about 1,000 ng/kg to about 85 ng/kg and the total PCB SWAC from about 1.4 mg/kg to less than the upstream background concentration of 0.46 mg/kg. However, the goal of the IR is to reduce the 2,3,7,8-TCDD SWAC to a level not to exceed 85 ng/kg, not to a level “about” 85 ng/kg. Revise this text to specify that the 2,3,7,8-TCDD SWAC would be reduced to achieve a level at or below 85 ng/kg.
118.	2.6, Paragraph 4	Specific	2-10	The second to last paragraph in this section describes 12 cores from above RM 8 and the apparent degree of erosion or deposition based on concentrations relative to the range of concentrations on depositing particles. However, while this text acknowledges that bathymetry data are available that could describe erosion and deposition, the text does not provide information regarding what the bathymetry data would reveal for the 12 cores. Revise this language to clearly provide conclusions related to erosion and deposition as revealed by the bathymetry data, in addition to discussing the apparent concentration gradients and what those concentration gradients might suggest relative to erosion and deposition.
119.	2.6, Paragraph 3, Last Sentence	Specific	2-10	The final sentence in the second to last paragraph of this section indicates that areas of erosion would be considered potential sources if relatively high subsurface concentrations are present, and further indicates that this is consistent with the second RAO. As the RAOs have not yet been defined (number of or specifically) to this point in the IR FS, provide a reference to Section 3 here.
120.	Figure 2-1	Specific	N/A	Titling this figure “In-Water Construction Constraints in the Upper 9 Miles” is misleading and presupposes that all features present specific and insurmountable challenges, when that has not been conclusively established and would not be until design. Retitle this figure to reflect that it provides a summary of the waterway’s conditions assessment.
121.	Figure 2-3	Specific	N/A	This figure contains a footnote referencing Appendix J, which is an appendix in the RI report. To avoid confusion, revise the footnote to indicate Appendix J is part of the RI.
122.	Figure 2-4	Specific	N/A	For the purposes of this upper 9 Mile IR, a new figure should be generated with data specific to RM 8.3 – 15 (without data from below RM 8.3. The new figure should, if possible, indicate the proportion/amount of sedimentation rate data available per river mile (or other appropriate demarcation) along with indicated rate, between RM 8.3 and RM 15. Appropriate caveats should be included in the legend.
123.	Figure 2-6	Specific	N/A	Clarify why the Newark Bay PAHs have ratios that are further from 1 than other contaminants, but they are the only ratios that are not statistically different? Is this the result of greater variances, fewer samples for PAHs, or some other issue with the PAH data?
124.	3.1.1, Footnote 7	Specific	3-1	Footnote 7 references the draft RI report. The RI report is now considered final; please update footnote 7 accordingly.
125.	3.1.1, Footnote 8	Specific	3-1	Revise the footnote so that it matches the wording of footnote 2 of the December 14, 2018 RAO memo, including the discussion of uncertainty.

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126.	3.1.1, Footnote 9	Specific	3-1	Footnote 9 is linked to both ng/kg and mg/kg in this section, but the footnote text only applies to mg/kg (and expresses that mg/kg is equivalent to parts per million). A footnote is provided in Section 1.3.2.5 where ng/kg is first used that indicates ng/kg is equivalent to parts per trillion. The same should be done in Section 2.4.3, where mg/kg is first used, to define mg/kg as equivalent to parts per million. Footnote 9 should then be deleted from Section 3.1.1.
127.	3.1.3, Paragraph 2	Specific	3-2	The second paragraph of this section only describes that the post-remedy SWAC for 2,3,7,8-TCDD is expected to be achieved, but does not describe the same for the total PCB SWAC. Revise the language to describe that both the RAO 1 SWAC of 85 ng/kg for 2,3,7,8-TCDD and the RAO 1 SWAC of 0.46 mg/kg for total PCBs would be achieved.
128.	3.1.3, Paragraph 4, Sentence 2	Specific	3-2	Revise the paragraph describing the high-resolution hydrodynamic model to include information regarding conditions that would require use of the model.
129.	4	General	N/A	This IR addresses sediment and is only part of the remedial activities under consideration for the Lower Passaic River. Consistent with the Lower 8.3 Mile ROD, surface water quality standards established under the Clean Water Act and New Jersey Water Pollution Control Act should not be identified for this IR as chemical-specific ARARs. Therefore, compliance with chemical-specific ARARs, or the need for ARAR waivers of surface water quality criteria, will be more appropriately evaluated after additional response actions have been implemented. Specific comments referencing surface water quality standards as ARARs and the need for ARAR waivers are presented below.
130.	4.1, Paragraph 1, Sentence 1	Specific	4-1	Remove second half of the first sentence starting with “; it also requires...” This language references removal action specific regulations in 40 CFR § 300.415(j), which is not applicable to this interim remedial action.
131.	4.1, Paragraph 2, Last Sentence	Specific	4-2	The sentence cites USEPA 1991c, but there is no associated reference provided in Section 10. Section 10 offers 1991a and 1991b. Correct the cited reference or include the missing reference.
132.	4.2, Paragraph 1, Bullet 3	Specific	4-3	CERCLA §121(d)(2) requires compliance with applicable or relevant and appropriate state requirements when they are more stringent than federal rules and have been “promulgated” at the state level. Revise the third bullet of Section 4.2 as follows: “a state regulation is identified as an ARAR if it has been promulgated and is more stringent than federal rules.”
133.	4.2.1, Paragraph 1, Sentence 3	Specific	4-3	Remove the text of this paragraph starting with “Although the implementation of sediment...”
134.	Table 4-1	Specific	1	Delete the Clean Water Act and New Jersey Water Pollution Control Act currently identified for this IR as chemical-specific ARARs.
135.	Table 4-2	Specific	2	Remove the following text in the applicability and anticipated requirements identified for Resource Conservation and Recovery Act: “and designated for upland disposal” in the first sentence referencing 40 CFR 234 and 40 CFR 256, “if disposed of in an upland facility” in the first sentence referencing 40 CFR 260-265 and 40 CFR 268, and “upland” in the second sentence referencing 40 CFR 260-265 and 40 CFR 268.
136.	Table 4-2	Specific	2	Remove the following text in the applicability and anticipated requirements identified for Solid Waste Management Act: “and disposed of in an upland facility” referencing N.J.A.C. 7:26-2.1, and “and disposed of in an upland facility” referencing N.J.A.C. 7:26-G-1 et seq..
137.	5	General	N/A	When referencing the 2014 FFS, specify it as the Lower 8.3 or the OU2 FFS to avoid any possible confusion with the current IR FS.
138.	5	General	N/A	Section 5 references applicability to “the cleanup” a number of times. To avoid any possible confusion with the consideration of GRAs/technologies/POs for the IR versus the broader long-term cleanup of the LPR, revise this section to more clearly describe that the evaluation of GRAs/technologies/POs supports the IR and not “the cleanup”.
139.	5, Paragraph 1, Sentence 1	Specific	5-1	Consider replacing “can be used” with “could potentially be used”
140.	5.1.2, Paragraph 1, Sentence 3	Specific	5-3	Prior to the bulleted list of possible ICs, the text states “the following categories”. The bulleted list constitutes the technologies within the GRA of ICs. Revise the text accordingly. In the final sentence of this section, the text states “The following sections discuss other applicable process options.” In actuality, the following sections (5.1.2.1, 5.1.2.2, and 5.1.2.3) further describe the technologies and POs within the technologies, not “other applicable POs”. Revise the text accordingly.
141.	5.1.2, Paragraph 1, Sentence 1	Specific	5-3	Regarding “Institutional controls are commonly applied at sediment cleanup sites and are effective and implementable in combination with active remedial elements and appropriate monitoring, and are, thus, retained for this IR FS.” Institutional controls are not always effective. Revise the statement to read as follows: “Institutional controls are commonly applied at sediment cleanup sites and can be effective and implementable in combination with active remedial elements and appropriate monitoring, and are, thus, retained for this IR FS.”
142.	5.1.2.2, Paragraph 1, Sentence 2	Specific	5-4	Regarding “On privately owned lands, restrictive covenants (a form of proprietary controls) can be effective in maintaining the long-term integrity of capping or other containment actions.” Revise the text to note that proprietary controls can also be used to help control exposure scenarios (e.g., residential versus recreational uses of land).
143.	5.1.2.3, Signage Subsection	Specific	5-4	For Signage, revise the text to note that signage could also include general signage warning of site risks/hazards and providing information about pertinent advisories.
144.	5.1.2.3	Specific	5-4	Revise the paragraph title to “Fish/Crab Advisories”, include a statement regarding the NJDEP prohibition/ban for crab collection that is in effect throughout the entire lower Passaic River, and include a footnote referring to https://www.nj.gov/dep/dsr/fishadvisories/Fish_Advisories_2019.pdf .
145.	5.1.3.1, Paragraph 1, Sentence 2	Specific	5-5	Regarding “MNR is an effective option for management of residual contamination outside of the active remedial zones.” Revise the text to read as follows: “MNR can be effective both for management of residual contamination outside of the active remedial zones and as a temporal phase in a remediation approach. ”

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146.	5.1.3.1, Paragraph 1, Sentence 4	Specific	5-5	Regarding “Natural recovery may not be effective in areas subject to periodic or continuous erosion.” Revise the text to read as follows: “Natural recovery may not be effective in areas subject to periodic or continuous erosion, or in non-depositional areas.”
147.	5.1.4, Paragraph 3, Sentence 2	Specific	5-6	Regarding “Example projects with demonstrated success using in situ application of activated carbon include LPRSA RM 10.9 Removal Action (CH2M Hill 2019), the Mirror Lake Remediation and Restoration, Delaware (USEPA 2015), Puget Sound Naval Shipyard, Washington (ESTCP 2017), Grasse River in Massena, New York (Ghosh 2010), Hunter’s Point Naval Shipyard in San Francisco, California (ECC Insight et al. 2017; Ghosh et al 2011; Luthy et al. 2009), Aberdeen Proving Ground in Maryland (Menzie 2011), and a U.S. Army Installation in Virginia (Menzie 2011).” When discussing treatment technologies and presenting other sites as applicable examples, include the primary contaminants being treated at these example sites. For example, “Example projects with demonstrated success using in situ application of activated carbon include treatment of PCBs at Site 1, PCBs and PAHs at Site 2, and dioxins at Site 3.” This comment is overarching for the document.
148.	5.1.5.2, Paragraph 3, Sentence 2	Specific	5-8	Regarding “Bench-scale testing of representative sediment would also need to be performed to determine the amount of stabilizing agent to be added to meet disposal requirements (e.g., strength requirements and the desired reduction in contaminant leachability).” Revise the text to read as follows: “Bench-scale testing of representative sediment would also need to be performed to determine the type and amount of stabilizing agent to be added to meet disposal requirements (e.g., strength requirements and the desired reduction in contaminant leachability).”
149.	5.1.5.2, Paragraph 4, Sentence 1	Specific	5-8	Regarding “Based on its demonstrated success on prior LPRSA projects, sediment stabilization is considered to be an effective and implementable process option and thus is retained for further evaluation during remedial design.” It is reasonable to expect that the sediments removed during this source control interim remedy would require similar stabilization before disposal. Revise the FS and associated cost estimates to include stabilization as a retained process option.
150.	5.1.5.3, Paragraph 3, Sentence 2	Specific	5-9	Regarding: “However, since a large proportion of the sediment in the upper 9 miles of the LPR is highly organic, fine-grained and contain heavy metals, thermal desorption is not likely to be effective, but has been retained for further evaluation during remedial design.” The conclusion that thermal desorption is likely not to be effective may appear to the general public to conflict with the statement in the preceding paragraph, which states: “Thermal desorption systems are generally effective for destroying a broad range of organic compounds.” Revise the text to resolve this inconsistency.
151.	5.1.5.3, Paragraph 9, Sentence 2	Specific	5-10,	Regarding “The nearest existing, permitted incineration facility is greater than 500 miles from the site.” Revise the text to note the location of the facility.
152.	5.1.5.3, Thermal Destruction Subsection	Specific	5-8 to 5-10	For the thermal treatment POs, include in the text that there are mobile treatment options (e.g., for on-site thermal incineration). Such a technique may be concluded to be unsuitable for the IR, but the potential availability and utility of such an approach should be considered and documented.
153.	5.1.6.4, Paragraph 1, Sentence 4	Specific	5-12	Regarding “Addition of reactive layers allows for a thinner cap as the amendments increase adsorptive capacity and extend the breakthrough time (time for contaminants to flow through the cap into the overlying water column).” Revise the text to read as follows: “Addition of reactive layers allows for a thinner cap as the amendments increase adsorptive capacity and extend the breakthrough time (time for contaminants to flow from the underlying sediment through the cap into the overlying water column).”
154.	5.1.6.4, Paragraph 2, Sentence 1	Specific	5-12	Regarding “Reactive capping with AquaBlok® was implemented for the RM 10.9 removal action.” Revise the text to clarify if AquaBlok specifically, or an AquaBlok product (i.e., AquaGate+PAC) was implemented.
155.	5.1.7, Paragraph 1, Sentence 2	Specific	5-12	Regarding “Mechanical dredging, mechanical excavator dredging, hydraulic dredging, and excavation using land-based equipment (dry excavation) are the four representative process options available for removing contaminated sediment.” Revise the text to read as follows: “Mechanical dredging, specialty dredging, hydraulic dredging, and excavation using land-based equipment (dry excavation) are the four representative process options available for removing contaminated sediment.”
156.	5.1.7.4, Paragraph 1	Specific	5-14	Revise this section to note that temporary barriers, such as sheet piles, and subsequent dewatering can be used to facilitate removal in the dry.
157.	5.1.8	Specific	5-15 to 5-16	Note that for Mechanical Transport, use of dump trucks or roll-off containers could be viable and should be acknowledged. In particular, trucks or roll-off containers could be used to support smaller-scale land-based removal operations, at least as a component of a larger transportation system. Under Hydraulic Transport (currently Section 5.1.8.2), the discussion is essentially focused entirely on the use of hydraulic transport to support mechanical dredging, and more information needs to be included regarding the use of hydraulic transport to support hydraulic dredging (which is the more common application of hydraulic transport).
158.	5.1.8.1	Specific	5-15	Revise the text to note that any decanted water from the barge will be treated (if necessary) prior to discharge.
159.	5.1.8.2, Paragraph 1, Sentence 4	Specific	5-15	Regarding “Screening would generate debris and coarse aggregate, requiring barge transport to a facility for processing and/or disposal.” Revise the text to read as follows: “Screening would generate debris and coarse aggregate, requiring barge transport of that debris and aggregate to a facility for processing and/or disposal.”
160.	5.1.9, Last Sentence of the Section	Specific	5-16	The last sentence of this section states: “Disposal in a RCRA Subtitle D facility has been retained for further evaluation during remedial design.” This section should be revised to say that such disposal is not only contingent on a non-hazardous determination, but also contingent on facility-specific acceptance criteria for material impacted by chlorinated dioxins and furans.

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161.	5.1.9	Specific	5-16 to 5-18	Under CADs (currently Section 5.1.9.1) the text should acknowledge ice scour as a potential force to be mitigated, and a reference is (or references are) needed to support the statement regarding the successful use of CADs at New Bedford Harbor and Sitcom Waterway. Under CDFs (currently Section 5.1.9.2) the text should note that such disposal structures are not necessarily constructed as an extension of existing land (i.e., they may be constructed as islands). For landfills (currently Section 5.1.9.3), explicitly describe the difference between Subtitle C and D facilities. In addition, the discussion of landfills describes the use of rail transportation, but rail transportation is not included in the discussion of Transport of Sediment and Capping Materials (Section 5.1.8).
162.	5.1.9.3, Paragraph 2, Sentence 5	Specific	5-18	Regarding “For this FS, it is conservatively assumed that all dredged sediment will be disposed at a RCRA Subtitle C landfill based on long-term liability considerations.” As noted in the general comment on this assumption, EPA requests that an FS sensitivity analysis be conducted to review the known or expected contaminant distributions in the sediments targeted for dredging and determine the appropriate quantity of sediments requiring disposal in a Subtitle C facility versus the quantity of sediments that could be disposed of in a Subtitle D facility. Associated disposal costs for this “Subtitle C and Subtitle D” scenario should then be developed and compared to the existing conservative assumption of all sediments being disposed of in a Subtitle C facility. Such a sensitivity analysis will aid the reader in understanding the impacts of the 100% Subtitle C conservative assumption and provide another means to examine potential cost differences between the alternatives. Furthermore, include discussion of long-term liability considerations in the applicable screening sections of the FS.
163.	5.1.10, Paragraph 2, Sentence 2	Specific	5-18	Regarding “Full-scale studies conducted under the program demonstrated effectiveness in reducing organic and inorganic contaminants in regional sediment, including sediment collected from the LPRSA.” If possible, provide citations for the referenced studies.
164.	5.1.10, Paragraph 3, Sentence 1	Specific	5-19	In the final paragraph of Section 5.1.10, make the following revisions (additions marked with bold, deletions marked with strikethrough, for reference): “...market for the treated product, and the need to address potential liability issues related to release and indemnification of performing parties against liability for any residual contamination...”
165.	5.1.10, Paragraph 1, Sentence 2	Specific	5-19	The sentence cites USACE 2008, but in Section 10 there are USACE 2008a and 2008b. Cite the correct reference.
166.	Table 5-1	Specific	N/A	Add lines to the table to separate the various GRAs.
167.	6.1, Paragraph 1, Sentence 3	Specific	6-1	Replace the word “their” with “model”.
168.	6.1, Paragraph 1, Sentence 5	Specific	6-1	Replace “and EPA approved their” with “and were approved by EPA for”.
169.	6.1, Paragraph 2, Sentence 1	Specific	6-1	Replace “PCBs” with “PCB”.
170.	6.2, Paragraph 2, Sentence 1	Specific	6-2	Replace “the of” with “of the”.
171.	6.2, Last Bullet, Last Sentence	Specific	6-2	Replace the word “was” with “is”.
172.	6.2, Bullet 5	Specific	6-2	The text indicates that relative uncertainty from the 75 ppt alternative “will be” applied to the other alternatives, which implies this is an action to be completed in the future and/or outside the IR FS. In fact, the relative uncertainty from the 75 ppt alternative has been applied to the other alternatives to support evaluation in the IR FS. Revise the language to correct this word tense issue.
173.	7	General	N/A	After the first sentence of the Common Engineering Assumption and Considerations introductory paragraph, include the following sentence: “The initial selection of process options was based on the screening presented in Section 5, lessons learned from RM 10.9 and the lower 8 miles, and professional judgement.”
174.	7	Specific	7-1	Before or after the bulleted list of alternatives, describe briefly but clearly why alternatives 2 through 4 are framed around a SWAC target for 2,3,7,8-TCDD but a RAL for total PCBs and why alternative 5 has only the 2,3,7,8-TCDD SWAC target.
175.	7, Paragraph 3	Specific	7-1	After the bulleted list of alternatives, reiterate the RAO 1 SWAC goals and why the 65 and 75 ppt alternatives are included in the IR FS.
176.	7.1.1, Paragraph 4	Specific	7-2	The fourth paragraph in this section describes that alternative measures (e.g., ENR or in-situ treatment) may be implemented if sediment removal cannot be completed due to structural interferences. During discussion with EPA and NJDEP, the CPG has indicated that all possible effort to remove contaminated sediment would be pursued, including the use of specialty removal techniques. Revise the text here to better reflect that all possible effort to remove sediment would be undertaken and alternative measures implemented only if absolutely necessary.
177.	7.1.3, Paragraph 1, Sentence 3	Specific	7-3	Undisturbed residuals will also include residuals intentionally left in place and subsequently capped. Please revise this sentence to recognize this additional type of undisturbed residuals.
178.	7.1.2	Specific	7-3	Revise the text in this section to clearly and consistently describe that the base assumption is that processing of sediment would take place at an off-site processing facility and not on-site. Also, provide information in this section that describes the precautions that would be taken during transport to prevent the release of contamination.
179.	7.1.2	Specific	7-3	Revise the text to state: “Nonhazardous dredged material may be accepted for direct disposal in a RCRA Subtitle D facility, contingent on the facility’s permit, available space, and facility-specific acceptance criteria for material impacted by chlorinated dioxins and furans. ” The text also states: “Waste characterization sampling conducted at the point of waste generation, during the dredged material management process.” Improve the description of when waste characterization testing would be performed (i.e., preliminary characterization occurring during PDI, with final testing taking place prior to disposal according to receiving facility requirements).

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180.	7.1.2, Paragraph 3	Specific	7-3	The last paragraph describes that no RCRA-hazardous sediments have been encountered during past removal actions, which includes removals at the most significantly impacted portions of the site (i.e., at the Lister Avenue facility and RM 10.9). However, sediment removed during an IR is assumed to require Subtitle C landfill disposal. Provide additional information that justifies or explains this assumption.
181.	7.1.3	Specific	7-3	This section should be revised to provide the rationale used to derive the proposed 10% of the dredge footprint area for determining the extent of the proposed residuals management cover. The revisions should include specifying the sand cover thickness, e.g., 6 inches, and whether the 10% areal extent is proposed to be placed equally in a buffer around the dredge polygon or whether the downstream/upstream areas would receive a wider cover placement. Supporting rationale should be included.
182.	7.1.3, Paragraph 3	Specific	7-4	First paragraph after bullets: Text should also state that RMC should be placed within a DU if capping will be delayed.
183.	7.1.3, Third to Last Bullet	Specific	7-4	The list of potential BMPs suggests that silt curtains are typically a contingency measure. In fact, silt curtains (or other suitable containment features) are typically deployed for dredging projects as a default BMP. Revise the text accordingly, or provide relevant reference that supports the stated position that silt curtains are typically a contingency, or otherwise state the site-specific factors that might support silt curtains being a contingency BMP during an IR.
184.	7.1.4, Paragraph 2, Sentence 1	Specific	7-5	Section 7 states “Consistent with the approach used for preliminary lower 8-mile cap design evaluations (Arcadis 2018)” section 3.1.1 states “The design criterion for the cap chemical isolation layer is to prevent breakthrough for at least 100 years for the four COCs listed in Table 2-2 with remediation goals established in the ROD (USEPA 2016a). This is the same design life used in several capping projects (e.g., RM 10.9, West Branch Grand Calumet River Reaches 6 and 7, and Former Wisconsin Steel Works site).” Who did CH2M cite in the RM 10.9 cap design? It would be more appropriate to cite RM 10.9 design for both the breakthrough timeframe and chemical isolation layer properties instead of citing Arcadis 2018 who in turn cites RM 10.9.
185.	7.1.4, Paragraph 2, Third to Last Sentence	Specific	7-5	If caps are not proposed for placement on slopes greater than 3:1, please clarify how contamination in these areas be addressed. What is the area within RM 8.3 to 15 with a slope greater than 3:1 based on the recent bathymetry? What fraction of that area intersects with the example remedial footprints?
186.	7.1.4, Paragraph 2, Second to Last Sentence	Specific	7-5	Clarify if the 2 to 3 ft refers to 3 ft (isolation, armor, and habitat) in shoals, and 2 ft (isolation, armor) in other areas, or otherwise provide the basis for the variance in cap thickness.
187.	7.1.6, Paragraph 1	Specific	7-6	Expand the bulleted list that describes monitoring elements to first provide some level of detail regarding the PDI sampling program and its expected scope (e.g., sampling on a spatially dense grid, approximately 2,000 sampling locations with cores collected to evaluate surface and subsurface conditions, a second round of infill sampling as needed), then to describe the types of construction monitoring that are anticipated, including performance metrics, then to describe the post-IR sediment sampling program (e.g., statistically unbiased sampling, not less than 400 sampling locations), then to describe the general post-IR decision making framework, O&M, and the long-term monitoring. Within the bullet that summarizes the post-IR decision making, ensure that the text describes the post-IR sediment sampling and evaluation of post-IR sediment sampling data as a critical evaluation to determine IR completion. Within the bullet that describes O&M, provide additional information that indicates the types of O&M monitoring that would be expected and the nature of the maintenance that might be triggered.
188.	0 7.1.6, Bullets 2 and 3	Specific	7-6	O&M monitoring and Long-term monitoring should both be evaluated (and costed) for the FS default of 30 years. A footnote or other description should state that, if a second, final ROD is issued, it will replace the monitoring and maintenance requirements of the IR
189.	7.1.6, Bullet 2 & 3	Specific	7-6	Revise “second ROD” to “final ROD.”
190.	7.1.7, Paragraph 1	Specific	7-6	For clarity and consistency, describe specifically that the RGs are yet to be determined and would be documented in a final ROD.
191.	7.1.8, Paragraph 1, Sentence 2	Specific	7-7	Clarify the certainty and precision around the depth of intertidal areas (2.3 feet below MLW).
192.	7.2.1, Figures 7-2, 7-3, 7-4	Specific	7-8	So that the footprint area differences are easily recognizable between the three alternatives meeting Threshold Criteria (Alternatives 2-4), add two figures in Section 7 that show the difference in footprint area between Alternatives 2 and 3 and between Alternatives 3 and 4. Add language to Section 7 referencing the figures.
193.	7.2.1, Paragraph 2, Last Sentence	Specific	7-8	The text describes that data were drawn from a “pool of core data”, which could be inferred to mean a pool of some critical subset of data. To avoid confusion, state instead a “pool of sediment core data”. Also, replace “was” with “were” at the beginning of this sentence (i.e., corresponding maps were generated).
194.	7.2.1	Specific	7-9	Include additional detail and support for the application of subsurface RALs set at twice the surface RALs in the third step of the footprint development process (or the paragraph below that step), and include a specific reference to Attachment 1 of Appendix B.
195.	7.2.1, Target Areas for RAO 2, Sentence 2	Specific	7-9	Clarify if the 15 cm or more over the 2007 to 2012 period could include erosion of sediment deposited in an earlier period.
196.	7.2.1, Target Areas for RAO 2, Last Sentence	Specific	7-9	Clarify how center-points were matched with erosional areas (e.g. what if the center-point isn’t in the erosional area?)
197.	7.2.1, Target Areas for RAO 2, Sentence 2	Specific	7-10	Revise the text so that the range of capping thicknesses presented here (2 to 2.5 ft) matches Section 7.1.4 (2 to 3 ft).
198.	7.3.2, Paragraph 1, Second to Last Sentence	Specific	7-11	The anticipated 2,3,7,8-TCDD SWAC following completion of Alternative 2 is specifically provided. Provide the anticipated SWAC for total PCBs in the text as well.

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199.	7.3.2.1, Paragraph 1, Last Sentence	Specific	7-11	Refer to the action being considered as an IR to avoid confusion with the overall remedy or final action, and clearly specify that after an IR, recovery towards yet-to-be-developed PRGs would be evaluated, and that RGs will ultimately be derived and documented in a final ROD.
200.	7.3.3, Paragraph 1, Second to Last Sentence	Specific	7-12	The anticipated 2,3,7,8-TCDD SWAC following completion of Alternative 3 is specifically provided. Provide the anticipated SWAC for total PCBs in the text as well.
201.	7.3.3.1, Paragraph 1, Last Sentence	Specific	7-12	Refer to the action being considered as an IR to avoid confusion with the overall remedy or final action, and clearly specify that after an IR, recovery towards yet-to-be-developed PRGs would be evaluated, and that RGs will ultimately be derived and documented in a final ROD.
202.	7.3.4, Paragraph 1, Second to Last Sentence	Specific	7-13	The anticipated 2,3,7,8-TCDD SWAC following completion of Alternative 4 is specifically provided. Provide the anticipated SWAC for total PCBs in the text as well.
203.	7.3.4.1, Paragraph 1, Last Sentence	Specific	7-13	Refer to the action being considered as an IR to avoid confusion with the overall remedy or final action, and clearly specify that after an IR, recovery towards yet-to-be-developed PRGs would be evaluated, and that RGs will ultimately be derived and documented in a final ROD.
204.	7.3.5, Paragraph 1	Specific	7-13	Include a sentence noting that no PCB RAL was applied.
205.	7.3.5, Paragraph 1, Second to Last Sentence	Specific	7-13	The anticipated 2,3,7,8-TCDD SWAC following completion of Alternative 5 is specifically provided. Provide the anticipated SWAC for total PCBs in the text as well (even though PCBs are not the specific focus of this particular alternative).
206.	7.3.5.1, Paragraph 1, Last Sentence	Specific	7-14	Refer to the action being considered as an IR to avoid confusion with the overall remedy or final action, and clearly specify that after an IR, recovery towards yet-to-be-developed PRGs would be evaluated, and that RGs will ultimately be derived and documented in a final ROD.
207.	8.3.X.2 ¹	General	N/A	Insert a summary table comparing in situ volume of material in cy being removed, and mass of 2,3,7,8-TCDD and total PCBs processed and removed for information found under each Alternative Section 8.3.X.2 subsection "Reduction of Toxicity, Mobility, or Volume through Treatment" pages 8-16, 8-21, 8-29, 8-37, 8-45, or reference the Key metrics summary in Table 8-7. Also include the approximate inventory presented in RI Figure 6-11 as a point of reference.
208.	8.3.X.2	General	N/A	Insert a summary table comparing projected total water column flux of 2,3,7,8-TCDD and total PCBs leaving the upper 9 miles (at RM 8.3). This information is found in last paragraph under each Alternative Section 8.3.X.2 subsection "Long-Term Effectiveness and Permanence" further subsection "Source Control". Pages 8-18, 8-26, 8-35, 8-42
209.	8.3.X.2	General	N/A	Revise these paragraphs to remove the parenthetical values for 2,3,7,8-TCDD and PCB source concentrations, as quantitative values are not consistent with the revised definition of source.
210.	8.3.X.2	General	N/A	Source control, first paragraph, last sentence: Consistently use "The removal of sediment with 2,3,7,8-TCDD concentrations above 205 ng/kg and total PCB concentrations "
211.	8.3.X.2	General	N/A	Source Control: Paragraphs starting "In the 10 years following completion": When discussing SWAC reductions, references to the upper 9 miles should keep the parenthetical (RM 8.3 to RM 15) or simply state RM 8.3 to RM 15, no results are presented for the upper 9 miles.
212.	8.3.X.2	General	N/A	Source Control: Paragraphs starting "In the 10 years following completion", second sentence: Consistently use "Following IR implementation at model year 8, "
213.	8.3.X.2	General	N/A	Source Control: Paragraphs starting "Over the 10 years following completion", third sentence: Consistently use "flux leaving the upper 9 miles (at RM 8.3)"
214.	8.3.X.2	General	N/A	Cap stability, first sentence: Consistently use "Alternative 3 includes capping throughout the remedial footprint, to a thickness equal to the depth of sediment removal ".
215.	8.3.X.2	General	N/A	Cap Stability, third paragraph, first sentence: Consistently use "ensure" instead of "assure".
216.	8.3.X.2	General	N/A	Reduction of Toxicity, Mobility, or Volume through Treatment, second paragraph, last sentence: Add the approximate inventory from RI Figure 6-11 for context when discussing the mass removed.
217.	8.3.X.2	General	N/A	Worker Risks and Community Impacts, first bullet: Please explain why the construction season doesn't extend to the start of the fish window.
218.	8.3.X.2	General	N/A	Resuspension, first sentence: Note that other co-located contaminants would also be increased in the short term due to resuspension.
219.	8.1.1, Paragraph 2	Specific	8-1	The final paragraph in this section implies that PRGs have not been developed simply because this is an IR FS. PRGs have not been developed because risk mitigation is not an explicit goal of the IR FS, and instead the IR would address source areas to accomplish source control. Revise this paragraph to convey this concept (e.g., "As the purpose of the IR is to address higher contaminant concentrations representative of source areas and not specific risks, and as the purpose of this IR FS is to develop and compare IR alternatives, PRGs are not developed in this IR FS. PRGs would be developed following an IR ROD in parallel with the IR remedial design and would be used to assess the future recovery of the system and to inform a final ROD including final remedial goals.")
220.	8.1.2, Bullet 5, Sentence 2	Specific	8-2	Correct the cited reference for cost estimating guide, which is USEPA 2000a.
221.	8.1.2, Bullet 5, Sentence 1	Specific	8-2	Revise sentence to read "The primary balancing criteria are used, in combination, to weigh effectiveness, Implementability, and cost tradeoffs among remedial alternatives that meet the threshold criteria. "

¹ 8.3.X.2 – notation referring to the five subsections: 8.3.1.2, 8.3.2.2, 8.3.3.2, 8.3.4.2 and 8.3.5.2

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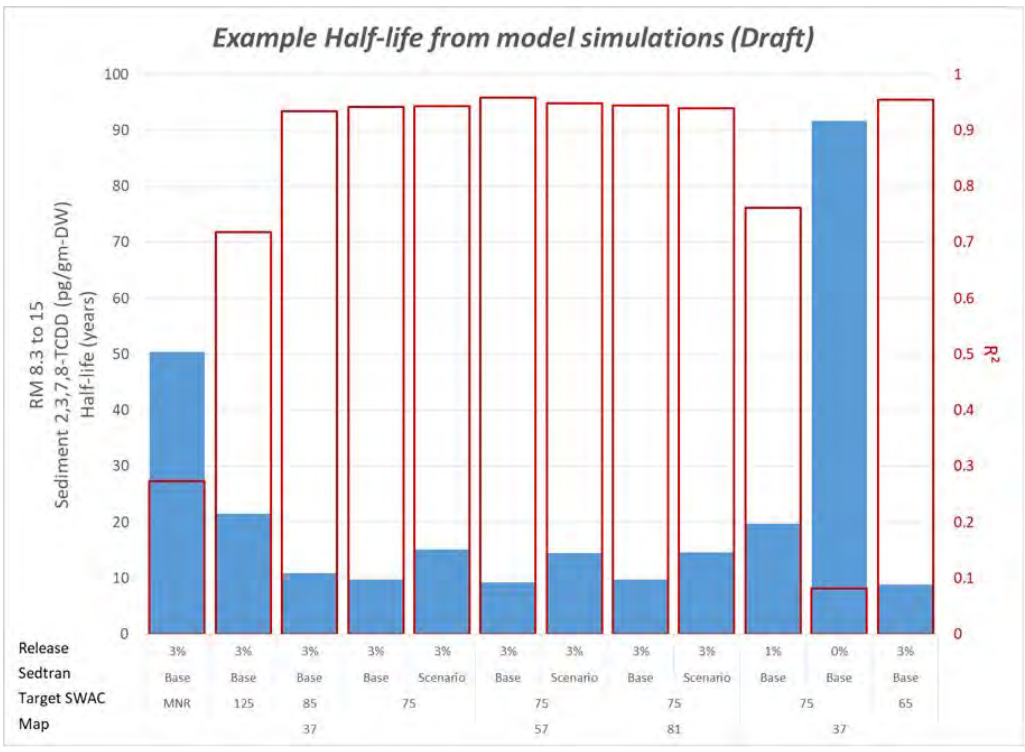
No.	Section	General or Specific	Page No.	Comment
222.	8.1.4.1	Specific	8-3 to 8-4	For Overall Protection of Human Health and the Environment, describe what determines that an alternative achieves the “ability to progress towards overall protection”. Since Protection of Human Health and the Environment is a threshold criterion, there is essentially no relative degree of compliance, rather only compliance or non-compliance. Provide additional information regarding “ability to progress towards overall protection” and what constitutes affirmation that this metric is attained.
223.	8.1.4.2	Specific	8-4	Provide expected time projections for Figures 8-1a-d and Fig 8-2a-d, as well as 8-3 and 8-4. Also, identify map CS#37 as base map used, if applicable. Finally, for Figures 8-1a-d, if feasible, identify the approximate area and sediment volume comprising the different contaminant categories depicted/estimated under pre-remedial conditions, and add this information to the legend (or reference the appropriate table for same in legend).
224.	8.1.4.2	Specific	8-5	Include a Figure with the hydrograph or mean and max flows to help the interpretation of the time series results, especially the water column concentrations and fluxes.
225.	8.1.4.2	Specific	8-5	Include a figure with water column sorbed concentrations (i.e. ng/Kg).
226.	8.1.4.2, In the Bullet Introducing Figure 8-5	Specific	8-5	In the bullet that introduces Figure 8-5 (this the first modeling figure, and starts at model year 9), provide language that explicitly describes that model year 9 is the first year of the post-construction period and that describes what the prior model years (i.e., through model year 8) correspond to. Also indicate that this description applies to other similar figures.
227.	8.1.4.2, In the Bullet Introducing Figure 8-6	Specific	8-5	In the bullet that introduces Figure 8-6 (the first modeling figure that starts at model year 10), provide language that explicitly describes why model year 9 is not included as it is for Figure 8-5 (i.e., because no rate of change can be derived for the first year in the post-construction period). Also indicate that this description applies to other similar figures.
228.	8.1.4.2, Recovery Potential Subsection, Bullet 2	Specific	8-6	Delete “and between RM 0 and RM 15”. This is not shown on Figure 8-6.
229.	8.1.4.2, In the Bullet Introducing Figure 8-13 and 8-14	Specific	8-6	Revise sentence to read “Figures 8-13 and 8-14 present the annual and cumulative”.
230.	8.1.4.2, Short-Term Effectiveness Subsection	Specific	8-7	Provide language that indicates that sustainability considerations are typically evaluated as part of this balancing criterion, but that for this IR FS, such considerations are evaluated separately. Provide a reference to the section that provides this evaluation of sustainability (i.e., Section 8.4.3).
231.	8.1.4.2, Time to Achieve RAOs Subsection	Specific	8-7	Provide additional detail regarding the assumptions that lead to a 3-year IR completion assessment process.
232.	8.1.4.2, Resuspension Subsection, Sentence 2	Specific	8-7	Replace “eliminate” with “minimize”. There is no process to eliminate resuspension impacts.
233.	8.1.4.2, Implementability Subsection, Sentence 1	Specific	8-8	The Implementability section should not lead off with BMPs and monitoring as the first challenge.
234.	8.1.4.2, Resuspension Subsection	Specific	8-8	Under Resuspension under Short-Term Effectiveness, provide language that describes the relevance of the model years shown on Figure 8-15 (the first modeling figure that starts at model year 1). Also indicate that this description applies to other similar figures.
235.	8.1.4.2, Transport Subsection	Specific	8-8	Under Transport under Short-Term Effectiveness, provide language that describes the relevance of the model years shown on Figure 8-17 (the first modeling figure that starts at model year 0). Also indicate that this description applies to other similar figures.
236.	8.1.4.2, Cost Subsection	Specific	8-9	Cost section, last paragraph, last sentence: Correct 8.4.5.2 to 8.4.2.5.
237.	8.2.1, Paragraph 3, Sentence 3	Specific	8-11	Figure 8-20 mentioned on second line of first paragraph - Add a vertical line at year 8 delineating post construction period.
238.	8.2.2, Paragraph 1, Sentence 2	Specific	8-11	Revise sentence to read “Residual contaminated sediment remaining after remediation can be categorized as undisturbed or generated residuals ”
239.	8.2.2, Paragraph 2	Specific	8-11	Previous modeling done on the Lower 8.3 miles of the LPR has shown little to no suspended sediment response to dredging, but potentially significant impacts to chemical concentration. The lack of turbidity exceedances in the examples cited does not necessarily mean that releases are not an issue (e.g., 10 mg/L of solids @ 300 ppt dioxin vs. 10 mg/L of solids at 2,400+ ppt dioxin; 2,400 ppt is the approximate surface sediment concentration of 2,3,7,8-TCDD within the CS37 85 ppt remedial footprint, subsurface concentrations are likely higher). The text should note that a lack of turbidity exceedances does not necessarily indicate a lack of significant contaminant releases.
240.	8.2.2, Paragraph 2, Sentence 2	Specific	8-11	Correct the cited reference to CH2M Hill 2019.
241.	8.2.2, Last Paragraph, Last Sentence 1	Specific	8-12	Indicate that this includes both surface and subsurface targeted areas – perhaps change end of this sentence to “assumed in all remedial action areas that address RAO 1 and RAO 2”
242.	8.2.2, Last Paragraph, Sentence 2	Specific	8-12	Add a few sentences that indicate the basis of or support for the 10 ng/kg post remedial value and 3 percent release. Current text says these were assumed.

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No.	Section	General or Specific	Page No.	Comment
243.	8.2.3, Footnote 18	Specific	8-12	Revise to "...EPA and NJDEP."
244.	8.2.4, Paragraph 2, Sentence 1	Specific	8-13	The first sentence of the second paragraph in this section suggests the numerical model cannot represent changes in bed grain size and erodibility because there is uncertainty in the footprints. Revise this language to indicate that the model can be used to represent such changes but cannot do so with certainty.
245.	8.3.1.1	Specific	8-15	Section 8.1.4.1 indicates that both ability to progress towards overall protection and ability to meet the RAOs are evaluation metrics for overall protection of human health and the environment for the detailed evaluation of alternatives. However, under Overall Protection of Human Health and the Environment in Section 8.3.1.1, there is no discussion of the ability to progress towards overall protection. Include language that addresses this evaluation metric.
246.	8.3.2.1	Specific	8-17	Note that Section 8.1.4.1 describes this as "ability to progress towards overall protection". Specify in Section 8.3.2.1 if there is a difference between "progress towards overall protection" and "ability to progress towards overall protection". This comment also applies to Sections 8.3.3.1 and 8.3.4.1.
247.	8.3.2.1, Compliance with ARARs Subsection, Paragraph 1, Sentence 1	Specific	8-18	Remove the following text of the first sentence: ", and with most chemical-specific ARARs".
248.	8.3.2.1, Compliance with ARARs Subsection	Specific	8-18	The text states that a final remedy for surface water will be established in the final ROD for OU4. While true, the final ROD will address all remaining site risks for sediment in the upper 9 miles and for surface water throughout the 17-mile stretch. Clarify this to avoid any confusion with the ultimate intent of the final ROD for the LPRSA. This comment also applies to Sections 8.3.3.1, 8.3.4.1, and 8.3.5.1.
249.	8.3.2.2, Source Control under Long-Term Effectiveness and Permanence Subsection, Paragraph 1	Specific	8-19	The anticipated 2,3,7,8-TCDD SWAC resulting from implementation of Alternative 2. Provide the anticipated total PCB SWAC as well. This comment also applies to Sections 8.3.3.2, 8.3.4.2, and 8.3.5.2. Also, change the reference from Table 7-1 to Table 7-2.
250.	8.3.2.2, Monitoring, Maintenance, and Institutional Controls Subsection, Paragraph 2	Specific	8-20	Revise "separate ROD" to "final ROD."
251.	8.3.2.2, Monitoring, Maintenance, and Institutional Controls under Long-Term Effectiveness and Permanence Subsection, Second to Last Paragraph, Last Sentence	Specific	8-21	The Alternative 2 capped area would require maintenance proportional to its volume over the 10-year period. Revise the maintenance period to 30 years. Also, provide additional details regarding what cap maintenance would entail and the assumptions for rate and frequency of such maintenance that better defines the proportionality. This comment also applies to Sections 8.3.3.2, 8.3.4.2, and 8.3.5.2.
252.	8.3.2.2, Monitoring, Maintenance, and Institutional Controls under Long-Term Effectiveness and Permanence Subsection, Last Paragraph	Specific	8-21	The final paragraph indicates that Alternative 2 would require additional controls in perpetuity to protect the integrity of the cap following completion of construction. Revise this language to indicate that this would be the case, unless and until some future remedy would address all site risks and allow for the removal of controls. This comment also applies to Sections 8.3.3.2, 8.3.4.2, and 8.3.5.2.
253.	8.3.2.2, Reduction of Toxicity, Mobility, or Volume through Treatment Subsection, Paragraph 3, Sentence 4	Specific	8-21	The text states "High concentrations of PCBs and 2,3,7,8-TCDD are expected to be effectively sequestered by this treatment action." Since the purpose of the IR is to address high concentrations, and to avoid confusion regarding describing the magnitude of contamination that would remain, revise this language to indicate simply that remaining contamination is expected to be effectively sequestered. This comment also applies to Sections 8.3.3.2, 8.3.4.2, and 8.3.5.2.
254.	8.3.2.2, Time to Achieve RAOs under Short-Term Effectiveness Subsection	Specific	8-22	Provide the assumptions that make up the 3-year period that is assumed for conducting the post-IR completion assessment process. This comment also applies to Sections 8.3.3.2 and 8.3.4.2.

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255.	8.3.2.2, Worker Risks and Community Impacts under Short-Term Effectiveness Subsection	Specific	8-22	The first bullet indicates an assumption of a 6-day work week for dredging. Also specify here if the assumption is for 24-hour-per-day operations. In the third bullet, specify that increased traffic could also increase the rate of traffic incidents/accidents, and that 24-hour operations (if this is the assumption) could exacerbate noise, exhaust, and odor issues and also add light pollution impacts. In the fourth bullet, indicate if any preliminary evaluation been performed to identify a potentially suitable upland support facility. This comment also applies to Sections 8.3.3.2, 8.3.4.2, and 8.3.5.2.
256.	8.3.2.2, Resuspension Subsection	Specific	8-23	The text notes that implementation of Alternative 2 would result in sediment resuspension that could result in short-term exposure to increased concentrations of 2,3,7,8-TCDD and total PCBs. Revise this text to also note that short-term exposure to other collocated contaminants that are resuspended is also possible. This comment also applies to Sections 8.3.3.2, 8.3.4.2, and 8.3.5.2.
257.	8.3.3.1, Compliance with ARARs Subsection	Specific	8-26	Remove the following text of the first sentence: “, and with most chemical-specific ARARs.”
258.	8.3.4.1, Compliance with ARARs Subsection	Specific	8-34	Remove the following text of the first sentence: “, and with most chemical-specific ARARs.”
259.	8.3.5, Paragraph 1	Specific	8-41	Provide an explanation in the text as to why this alternative focuses only on the 2,3,7,8-TCDD SWAC target and does not incorporate a total PCB RAL.
260.	8.3.5.1, Paragraph 1	Specific	8-42	The text states that Alternative 5 “would have the ability to meet” the metric of progress towards protectiveness, whereas Alternatives 2, 3, and 4 are described as “would meet”. Describe the difference here. This text also only addresses the ability of Alternative 5 to meet the RAO 1 2,3,7,8-TCDD SWAC goal, and needs to be updated to reflect the anticipated result of Alternative 5 relative to the RAO 1 total PCB SWAC goal.
261.	8.3.5.1, Paragraph 2, Sentence 2	Specific	8-42	Remove the following text of the first sentence: “, and with most chemical-specific ARARs.”
262.	8.3.5.2, Source Control Subsection	Specific	8-44	Add g to “approximately 8 g of 2,3,7,8-TCDD”.
263.	8.3.5.2, Source Control under Long-Term Effectiveness and Permanence Subsection	Specific	8-43	The text indicates that the removal of sediment with 2,3,7,8-TCDD concentrations of the specific RAL for Alternative 5 would provide some source control, but sediment with concentrations above the “target concentrations” would remain that could inhibit recovery. Provide a better explanation of what “target concentrations” means here. Also, revisions made in this narrative by the CPG in response to the revised definition of source sediments could address this comment.
264.	8.4 Table 8-7	Specific	8-49	The results in the overall summary, Alternative 2 (4 checks) to Alternative 4 (2 checks) are driven by a few nuanced differences. The checks may suggest that the Alternative 2 scores twice as high as alternative 4. Recommend using relative percentages for the metrics that are quantifiable. 1. <u>Reduction of Toxicity, Mobility, or Volume through Treatment (should be weighted more heavily, but the difference among alternatives is relatively small).</u> Alt 2 scores the lowest among 2 to 4. The checks may suggest half as effective as 4, but Alt 2 removes 95% of the mass of 2,3,7,8-TCDD and total PCBs removed in Alt 4. 2. <u>Short-Term Effectiveness, Worker Risk and Community Impact</u> This difference is entirely driven by volume and therefore schedule. Again, the checks suggest Alt 2 is three times better than Alt 4, but the difference is an additional 7 months of remediation (14% longer). The text for these is identical with the exception of the three numbers; area, time, and volume. 3. <u>Implementability</u> This difference is entirely driven by volume and therefore schedule. Again, the checks suggest that Alt 2 is three times better than Alt 4, but the difference is an additional 56,00 CY (15% more volume). In addition, the preliminary footprints suggest that the additional area in the Alt 4 footprint tends to be around the outside of the Alt 2 footprint, suggesting that there may be some economies of scale (e.g., a few additional dredge cycles before having to relocate the dredge). There are no differences in the text for Implementability other than the volume.
265.	8.4.1	Specific	8-49	The text indicates that the alternatives are compared with each other based on their relative performance and degree of achievement of the NCP threshold criteria and primary balancing criteria. Compliance with the threshold criteria has no degree of achievement, only achievement or non-achievement, whereas there are degrees of attainment for the balancing criteria. Revise the text accordingly.
266.	8.4.2.1, Source Control Subsection	Specific	8-50	This narrative should be revised to be compatible with the revised definition of source sediments. Also, the text provides the anticipated 2,3,7,8-TCDD SWAC following implementation of Alternative 5 but should also provide the anticipated total PCB SWAC.
267.	8.4.1.2, Compliance with ARARs Subsection	Specific	8-50	Remove the following text of the first sentence: “, and with most chemical-specific ARARs.”

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268.	8.4.2.1 Figure 8-6	Specific	8-51	<p>Present the rates of change as half-lives computed over the entire projection period following construction for years 10 to 18 (see example below). The Mass/Mass-DW/Time or Mass/Volume/Time results presented do not allow an appropriate comparison between alternatives. For example, a 10 ppt per year change in the MNR SWAC is not nearly as significant as a 10 ppt per year change in a post remedy SWAC near 80 ppt.</p>  <table border="1"> <caption>Example Half-life from model simulations (Draft)</caption> <thead> <tr> <th>Release</th> <th>Sedtran</th> <th>Target SWAC</th> <th>Map</th> <th>Half-life (years)</th> </tr> </thead> <tbody> <tr> <td>3%</td> <td>Base</td> <td>MNR</td> <td></td> <td>~50</td> </tr> <tr> <td>3%</td> <td>Base</td> <td>125</td> <td></td> <td>~72</td> </tr> <tr> <td>3%</td> <td>Base</td> <td>85</td> <td>37</td> <td>~95</td> </tr> <tr> <td>3%</td> <td>Base</td> <td>75</td> <td></td> <td>~95</td> </tr> <tr> <td>3%</td> <td>Scenario</td> <td>75</td> <td></td> <td>~95</td> </tr> <tr> <td>3%</td> <td>Base</td> <td>75</td> <td>57</td> <td>~95</td> </tr> <tr> <td>3%</td> <td>Scenario</td> <td>75</td> <td></td> <td>~95</td> </tr> <tr> <td>3%</td> <td>Base</td> <td>75</td> <td>81</td> <td>~95</td> </tr> <tr> <td>3%</td> <td>Scenario</td> <td>75</td> <td></td> <td>~95</td> </tr> <tr> <td>1%</td> <td>Base</td> <td>75</td> <td></td> <td>~78</td> </tr> <tr> <td>0%</td> <td>Base</td> <td>75</td> <td>37</td> <td>~92</td> </tr> <tr> <td>3%</td> <td>Base</td> <td>65</td> <td></td> <td>~95</td> </tr> </tbody> </table>	Release	Sedtran	Target SWAC	Map	Half-life (years)	3%	Base	MNR		~50	3%	Base	125		~72	3%	Base	85	37	~95	3%	Base	75		~95	3%	Scenario	75		~95	3%	Base	75	57	~95	3%	Scenario	75		~95	3%	Base	75	81	~95	3%	Scenario	75		~95	1%	Base	75		~78	0%	Base	75	37	~92	3%	Base	65		~95
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269.	8.4.2.1, Source Control Subsection, Paragraph 3	Specific	8-51	After the fourth sentence add a sentence that expresses the rates at which SWACs decline for Alts 2, 3 and 4.																																																																	
270.	8.4.2.1, Source Control Subsection, Paragraph 5	Specific	8-52	Add the rates of water column recovery for Alts 2, 3 and 4 to the last sentence.																																																																	
271.	8.4.2.1, Monitoring, Maintenance, and Institutional Controls Subsection	Specific	8-52 to 8-53	The text states that the post-IR confirmatory sampling program would be the same for any alternative. Revise the text to indicate this is an assumption and not a certainty, as it is conceivable the post-IR confirmatory sampling program could ultimately vary slightly between alternatives.																																																																	
272.	8.4.2.1, Recovery Potential Subsection, Paragraph 1, Sentence 4	Specific	8-53	Under “Recovery Potential” fourth sentence remove the word “the” before “approximately”.																																																																	
273.	8.4.2.1, Recovery Potential Subsection, Paragraph 1, Sentence 5	Specific	8-53	First paragraph under “Recovery Potential” after fifth sentence – add a sentence that expresses the sediment recovery values.																																																																	
274.	8.4.2.4, Paragraph 1	Specific	8-54	In addition to the navigation challenges presented by bridges, the discussion should also consider the potential navigation challenges associated with transiting tugs/barges through the Lower 8.3 Miles during active remediation in that stretch of the river.																																																																	
275.	8.4.3	Specific	8-55	Insert reference to the appendix that contains the information supporting the summary of the Green and Sustainable Remediation Considerations analysis in Table 8-8.																																																																	
276.	8.4.2.5, Cost Sensitivity Subsection	Specific	8-55	The text refers to a processing at a dewatering facility to be constructed within or near the mouth of the Passaic River that would be needed to support a hydraulic dredging approach. Clarify here whether any preliminary scoping has been done to determine a potentially suitable location.																																																																	
277.	8.4.3	Specific	8-55	Insert reference to the appendix that contains the information supporting the summary of the Green and Sustainable Remediation Considerations analysis in Table 8-8.																																																																	
278.	8.5, Paragraph 1, Sentence 3	Specific	8-56	As presented in Figure 8-10, none of the active alternatives improve the rate of recovery in the water column relative to No Further Action. Provide additional lines of evidence to support this conclusion and discuss specific reasons why the model results may not reflect the anticipated recovery.																																																																	
279.	8.4.3, Paragraph 3, Sentence 3	Specific	8-56	Where Table 8-8 is referenced, describe what the table actually shows, as there are no units on the table or other contextual information that reveals what the bars specifically relate to.																																																																	
280.	8.5, Paragraph 3, Second to Last Sentence	Specific	8-57	Delete the following passage from the paragraph“... ; however, no additional source control is achieved, as the additional areas that would be remediated under Alternatives 3 and 4 are not considered to be inhibiting recovery.”																																																																	

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No.	Section	General or Specific	Page No.	Comment
281.	8.5, Last Paragraph, Last Sentence	Specific	8-57	This discussion should be more balanced, and better describe how the incremental reductions in toxicity, mobility, or volume achieved by Alternatives 3 and 4 are not proportional to the increase in short term impacts to the community and cost. The differences in Implementability are overstated.
282.	Figure 8-1a-d Figure 8-2a-d	Specific	N/A	Add a note to the figures that the pre-remediation concentrations are based on Map 37 and a replacement value of 10 ppt is assumed for 2,3,7,8-TCDD and zero is assumed for PCB (footnote 16 on pg 8-4).
283.	Figure 8-3	Specific	N/A	The concentration bins should be adjusted and split into smaller segments instead of the current bins of 10 – 300 ppt and 300 ppt – 1,000 ppt. Given the higher interest in much lower levels, post -remediation, the following bins for comparison are recommended: 10 – 100 ppt, 100 – 300 ppt, 300-500 ppt, 500- 1,000 ppt. The remaining bins (lowest and highest) are fine.
284.	Figures 8-5 through 8-14	General	N/A	Extend the X-Axis on the time series Figures 8-5 through 8-14 to include year 0 through 8 or add additional plots that show the full simulation period.
285.	10	General	N/A	The reference section needs to be consistent in how it is presented. The title of the report is inconsistent in the capitalization of the first letter of each word. There are cases where the publication date (month and/or date) is not included and the publication years are presented twice at the beginning and the end of sentence. This also applies to the agency names where they are listed multiple times in each reference.
286.	10	Specific	10-1	Because the HHRA (AECOM 2017) is an appendix to the RI report and for ease of future review of the administrative record, including “Found in Remedial Investigation Report, Lower Passaic River Study Area Remedial Investigation/Feasibility Study, dated July 2019” to the reference is suggested.
287.	10	Specific	10-2	The report CH2M Hill 2013 was finalized in July 2013. Remove “draft” from the report title and add the publication month to the reference.
288.	10	Specific	10-2	Delete the CPG 2017 document reference since it was updated on February 9, 2018 and update the cited location to “CPG 2018a” on page 2-10 accordingly.
289.	10	Specific	10-3	Add Heyer to the list of acronyms.
290.	10	Specific	10-3	For ITRC 2011 reference, delete “84 pp.”
291.	10	Specific	10-4	Include all the authors for MPI et al. 2016. in the reference section instead of listing it as et al.
292.	10	Specific	10-5	Clarify if the year “2010-2011” is part of the Nishuane Group, LLC. 2011 reference title, i.e., delete the period between the title and the date range. If so, revise accordingly.
293.	10	Specific	10-5	There are two dates provided in NJDEP 2018 reference. Delete “December 4” since that is the date of the review comment letter.
294.	10	Specific	10-5	For NRC 2014 reference, delete “210 pp.”
295.	10	Specific	10-8	For USEPA 2016a reference, replace “eight” with “8.3” since that is the document title.
296.	10	Specific	10-9	The Windward 2019 reference should include the actual publication date (June 17) of the BERA report. Thus, replace “July 11” with “June 17”. Because the BERA is an appendix to the RI report and for ease of future review of the administrative record, including “Found in Remedial Investigation Report, Lower Passaic River Study Area Remedial Investigation/Feasibility Study, dated July 2019” to the reference is suggested.
297.	Appendix A, Section 2, Paragraph 1	Specific	2-1	Confirm that no shoals are present from RM 13.9 to 14.9.
298.	Appendix A, Section 3, Paragraph 1, Sentence 1	Specific	3-1	Regarding “The production rates were calculated using USACE (2008) standard methods.” Revise the text (or footnotes on the associated tables) to present the overarching dredge production rate equations being used.
299.	Appendix A, Section 4, Paragraph 1, Sentence 1	Specific	4-1	Regarding “The cap placement rates were calculated using USACE (2008) standard methods.” Revise the text (or footnotes on the associated tables) to present the overarching cap placement rate equations being used.
300.	Appendix A, Section 6, Paragraph 1, Second to Last Bullet	Specific	6-1	Regarding “Capping operations performed in parallel with dredging operations and beginning as soon as final bathymetric surveys of a completed dredge management area have been accepted by the regulatory agency.” Revise the text to note how a dredge management area is being defined/delineated. Also, revise the final sentence in this section to describe that the final IR duration will be determined in the design, and not the final remedy duration, to avoid any confusion with the IR versus a final site action.
301.	Appendix A, Table A-1 and Table A-5	Specific	N/A	EPA’s calculations of dredge volumes (and associated cap volumes) using the information presented in Table A-1 differ slightly from the CPG’s estimates, even given the associated table footnote of “Totals are rounded to the nearest 1,000 cy.” For example, EPA’s calculations for RM 8.3 to RM 13.9 Shoals under Alternative 2 show a dredge volume of 181,500 yd ³ , or 182,000 yd ³ once rounded. The CPG’s estimate for this same area is 180,000 yd ³ . While this small discrepancy is likely due to rounding of the various acreages, revise the footnote to read as follows: “Approximate totals are rounded to the nearest 1,000 cy.” Similar small discrepancies also seem to be present in Table A-5 (e.g., for the Treated Water estimates). If appropriate, also include an appropriate footnote in this table to acknowledge quantities as approximate.
302.	Appendix B, Section 1.1, Paragraph 1, Sentence 4	Specific	1	This section indicates that “only the 125 ng/kg alternative does not consider PCBs”. However, while the 125 ppt alternative does not explicitly consider PCBs in developing an IR footprint, the alternative would address PCBs to the extent that PCBs are collocated with 2,3,7,8-TCDD and the IR FS does provide information to reflect the anticipated post-IR total PCB SWAC. Revise this text to indicate that while the 125 ppt alternative does not explicitly consider PCBs in developing an interim remedy footprint, the alternative would address PCBs to the extent that PCBs are collocated with 2,3,7,8-TCDD.
303.	Appendix B, Section 2, Paragraph 1, Last Sentence	Specific	2	The text describes that data were drawn from a “pool of core data”, which could be inferred to mean a pool of some critical subset of data. To avoid confusion, state instead a “pool of sediment core data”.

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304.	Appendix B, Section 2.1, Paragraph 7, Sentence 2	Specific	4	The final paragraph indicates that “high concentrations may contribute to recovery by losing contaminant mass to the surface via mixing and periodic erosion/deposition and may inhibit recovery by transferring contaminant to other areas”. However, it seems that high concentrations being contributed to the surface sediment layer would actually inhibit recovery. Revise the text to more clearly reflect the mechanisms being described.
305.	Appendix C	General	N/A	Due to the references to the Lower 8.3 RI/FFS, the 17 Mile RI, and Upper 9 Mile IR FS, there can be some confusion about which model is being referenced. Please revise the text to be clear which model is being referenced, particularly in Section 3.1.
306.	Appendix C, Section 1, Line 9	Specific	1	Add year to USEPA reference on line 9.
307.	Appendix C, Tables	Specific	Before Table 1	Remove duplicate Table introduction page.
308.	Appendix C, Table 2	Specific	Table 2	HST in right most column of Table 2 is defined in ACRONYM table in main report but not in App C. Add HST to footnote and App C ACRONYM table. Or be consistent using HD/ST or HST.
309.	Appendix C, Figures	Specific	Before Figure 1	Remove duplicate Figure introduction page.
310.	Appendix C, Section 2.2, Paragraph 3, Last Sentence	Specific	3	The comparison to the infilling after the 1949 dredging is not particularly favorable. Please clarify in the text.
311.	Appendix C, Section 3.1, Paragraph 2	Specific	7	Add IR FS in locations indicated in the following 4 bullets to clarify reference to IR FS and not FFS model.
312.	Appendix C, Section 3.1, Paragraph 3, Bullet 1, Sentence 2	Specific	8	Revise to read: “Hydrodynamic BCs at the Kill van Kull and Arthur Kill open boundaries for all years were based on simulation results of the regional USEPA LPRSA model, which included post-harbor-deepening bathymetry in Newark Bay and the Kills, as provided by USEPA and consistent with the FFS model.” (Note, the CARP model and LPRSA regional hydrodynamic model used in the FFS have identical domains, but different grids. The LPRSA regional model has greater resolution both within and outside the LPRSA).
313.	Appendix C, Section 3.1, Paragraph 3, Bullet 3, Sentence 1	Specific	9	First sentence of last bullet of Section 3.1, above start of Section 3.2, break sentence into 2 sentences. “For the Kills boundary, solids concentrations were based (as in the calibration) on the predicted tidal velocities and water surface elevations at the boundaries paired with a solids loading relationship under the post deepening bathymetry (see Appendix M of the RI report [Anchor QEA et al. 2019]). The Kills boundary carbon and contaminant concentrations were based on the output from simulations of the regional CARP model, consistent with the FFS model.”
314.	Appendix C, Section 3.2, Paragraph 2	Specific	10	Replace “,” with “.”.
315.	Appendix C, Section 3.2, Paragraph 3	Specific	10	After second sentence of second to last paragraph: Add a sentence indicating that Section 3.3.2 will further discuss uncertainty due to IR remediation not being represented in the HD, ST, and OC models.
316.	Appendix C, Section 3.3.1, Paragraph 1	Specific	11	Remove extra spaces after the word rows.
317.	Appendix C, Section 4	Specific	14	Reference Anchor QEA, 2016 not referenced in text.
318.	Appendix C, Section 4	Specific	15	Reference USEPA 2017 not referenced in text.
319.	Appendix E	General	N/A	The appendix currently presents the “implications” of lessons learned in separate subsections. Revise the appendix to include a “proposed solutions” subsection to present potential approaches to address each set of implications. The proposed solutions can be successful approaches from other sediment remediation projects, activities successfully implemented during the RM 10.9 removal, planned activities for the Lower 8 removal, or similar. For example, Section 2.5 reads as follows: “In addition, river bottom features such as debris, moorings, and wrecks have been documented in the LPR (ASI 2006). Most commonly, these include the remains of wrecked vessels, cars, or other large debris, or pilings or dolphins used for mooring vessels. Large boulders/stones are evident in some areas and visible at low tide along the shoreline. “Dredge production rates will be impacted by shoreline structures and other waterway conditions, in addition to the navigational constraints and utility corridor issues discussed above. A proposed solution to address debris would be to conduct a debris survey and subsequent debris removal prior to major dredging activities to limit impacts on production rates.
320.	Appendix E	General	N/A	Add section discussing development of the RM 10.9 TCRA Long-Term Monitoring Plan, challenges encountered and resulting resolutions. Agreement on the metrics for post-remedial engineered cap operation/maintenance, and the metrics/methods for long term monitoring, need to be developed early in the project, preferably simultaneously with cap design to ensure compatibility between cap and preferred long-term monitoring methods.
321.	Appendix E, Section 2, Paragraph 1, Sentence 1	Specific	2-1	The text reads as follows: “The CPG performed the removal and disposal of 16,050 cubic yards (cy) of the top 2 ft of sediment taken from a mudflat at RM 10.9 of the LPR followed by the construction of an engineered multi-layer cap.” Table 2-1 of the construction completion report shows 15,742 cy of material being removed. Revise as appropriate.

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322.	Appendix E, Section 2, Paragraph 1, Last Sentence	Specific	2-1	The text reads as follows: “The RM 10.9 removal action, which was conducted under the authority of the Comprehensive Environmental Response, Compensation and Liability Act as a time-critical removal action, was initiated in July 2013; the removal of sediments was completed on October 3, 2013, followed by capping, which was completed on May 29, 2014.” The construction completion report states that the completion date was October 4, 2013. Revise as appropriate.
323.	Appendix E, Section 2.1, Paragraph 1, Sentence 1	Specific	2-1	The text reads as follows: “Fifteen bridges (13 movable and 2 fixed) are located on the LPR downstream of the RM 10.9 project area (Table 1, Figure 1).” Table 2-2 of CCR shows 9 bridges having to be opened, and this is an important distinction to recognize. Revise as appropriate.
324.	Appendix E, Section 2.1, Paragraph 2, Sentence 1	Specific	2-1	The text reads as follows: “Hundreds or thousands of individual bridge openings could be required to implement the proposed IR FS alternatives, depending on methods and equipment sizing assumptions.” “Hundreds or thousands” of openings potentially span multiple orders of magnitude. Refine this statement to reflect the expected number of openings for each alternative.
325.	Appendix E, Section 2.3, Paragraph 2, Sentence 2	Specific	2-3	The text reads as follows: “CPG’s cost and duration estimates for the IR FS are based on the assumption that only a single dredge would operate at a time upstream of RM 8.3, and that dredge and barge capacities would be limited.” Revise the text to note that this is a conservative assumption.
326.	Appendix F	General	N/A	As Feasibility Study contaminant breakthrough models can often become the foundation of actual cap designs, EPA is offering both comments on the FS modeling efforts presented in this document and overarching suggestions for future remedial design modeling efforts.
327.	Appendix F	General	N/A	The CPG conducted modeling by including a 1-foot bioturbation/armor layer in the proposed cap. EPA verified the CPG’s CapSim results and conducted parallel modeling by excluding the top bioturbation/armor layer, which provided similar, but slightly more conservative, estimates of cap breakthrough. By modeling the armor layer as 1-foot of sand, the design assumes that bioturbation occurs at top of the armor layer, which may not be representative of actual benthic conditions in heavily armored areas. This would be acceptable for a cap with bioturbation/habitat substrate that allows benthic organisms to fully reoccupy the top layer, but this would probably not be the case for a heavily armored layer in an erosional area. Since the details of armoring and habitat substrate have not been determined at this stage, EPA recommends future contaminant breakthrough cap modeling efforts be conducted by excluding this upper layer.
328.	Appendix F	General	N/A	During the design phase, the armor layer should be designed for impacts due to wind and vessel generated waves, propeller wash, and flood flows specific to the cap placement areas. Relying on the results from the Focused Feasibility Study may not be acceptable for design level armor layer and stone sizing.
329.	Appendix F, Section 2.1, Paragraph 1, Last Sentence	Specific	2-1	The text states that: “The time of breakthrough is dependent on the sediment and overlying water physical, chemical, and biological conditions outlined in Section 2.2.” This sentence is incomplete because breakthrough will also be dependent on isolation layer properties. Revise accordingly.
330.	Appendix F, Section 2.2, Paragraph 1, Last Sentence	Specific	2-1	Additional information is needed on the selection of PCB 52 and 2,3,7,8-TCDD on the “basis of their respective mobility and/or toxicity”. Provide clarification if these chemicals were selected based on their mobility and toxicity being the middle of the range compared to other congeners or the higher end of the range. Please note that all classes of COCs will have to be representatively modeled prior to a final ROD, and EPA encourages the CPG to consider this during remedial design of the interim remedy.
331.	Appendix F, Section 2.2.1 Paragraph 1	Specific	2-2	The text indicates that groundwater seepage velocity was based on the RM 10.9 design and the Darcy velocity used as an input is 307 cm/yr. The Darcy velocity used for the RM 10.9 cap appears to have been 314 cm/yr. Provide the rationale for using the lower value and not the same input as the RM 10.9 cap design.
332.	Appendix F, Section 2.3 Paragraph 1	Specific	2-3	EPA agrees with using 2.25 times D_{50} as the armor layer thickness. In this case that results in a 13.5-inch armor layer, but the CPG decided to downsize this layer thickness to 1 foot. This is acceptable for an FS-level evaluation. However, EPA notes that, during design, appropriately protective stone sizing and armor layer thickness should be selected for the armor layer. Additionally, a stability coefficient for angular rock should be selected during design only if angular rock is going to be used.
333.	Appendix F, Section 2.3 Paragraph 1, Under Local Water Depth Description	Specific	2-4	There is a typographical error in the description of the local water depth parameter. Correct the text to read as follows: “The local water depth was estimated to be approximately 10 ft in areas where high average velocity profiles were observed.”
334.	Appendix F, Table 2	Specific	1	Provide citations for the source of information used to compile the chemical properties shown in Table 2.
335.	Appendix F, Table 3	Specific	2	The f_{oc} column in Table 3 presents values using inappropriate significant figures. For example, the f_{oc} for sand in Cap Configuration Evaluation 1 is shown as 0 instead of 0.01. Revise as appropriate.
336.	Appendix F, Table 4	Specific	3	Provide citations for the source of information used to compile sorption isotherm parameters shown in Table 4.
337.	Appendix G	General	N/A	Include the title (e.g. Alternative 1 - No Further Action) of the alternatives on each table so the alternative being referenced is clear.

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338.	Appendix G , Unit costs presented in Tables G-#b, G- #c, G-#d, G-#h and G-#i (where # is the five alternatives)	General	N/A	The backup information supporting the development of the unit costs should be provided so that the unit costs can be checked. Backup for a unit cost should identify the specific reference(s), the specific cost(s) from the reference(s), and, where applicable, the escalation factor(s) (and the source of the escalation factor(s)). The unit cost should also identify specific reference or line item IDs if a cost database is identified as a source. For example: “Cap Material Purchase & Delivery” is using a per CY unit cost of \$40 (Table G-2a), which is based on a weighted average of estimated unit costs for each material type (sand, armor/stone, and shoal habitat reconstruction material) by their estimated proportional use. The unit cost of each of these material types is “Based on project experience and cost database”, as noted in Table G-2d. To better understand the reasonableness of unit costs presented in Table G-2d, please provide additional backup for how these unit costs were developed using <i>actual costs from LPR RM 10.9 removal action (CH2M Hill 2019)</i> as noted in Section 2 (Basis of Estimates) of Appendix G. The unit costs from the cost summary/data provided in the stated reference “CH2M Hill. 2019. River mile 10.9 removal action final construction report...” could not be cross-checked or recreated. If these unit costs are from a cost database, then please provide the source and the year of the database along with the corresponding cost line item reference number(s).
339.	Appendix G, Indirect Capital Costs	General	N/A	Development and breakdown of Indirect Capital Costs should be consistent with the Professional/Technical Services presented in Exhibit 5-8 of EPA’s guidance <i>A Guide to Developing and Documenting Cost Estimates during the Feasibility Study (USEPA 2000)</i> including Project Management, Remedial Design, Construction Management and Technical Support: Table G-2a/g, -3a/g, -4a/g, and -5a/g: The Lump Sum remedial design cost when calculated as % of TDCC varies from 3.12% to 5.15% against the stated approximation of 4% of TDCC. Edit or remove the text from the table because it is not the basis of remedial design cost. It is recommended to follow the above-mentioned EPA guidance to estimate the Remedial Design costs (6% of TDCC for remedies costing >\$10M) for each of the alternative as presented in. Table G-2a/g, -3a/g, -4a/g, and -5a/g: To be consistent with the above-mentioned EPA guidance, the percentage for Construction Management should be 6% for remedies costing >\$10M, instead of 7% used for the estimate. Table G-2a/h, -3a/h, -4a/h, and -5a/h: To be consistent with the above-mentioned EPA guidance, Technical Support should be calculated and presented as a percentage of total Annual Operation, Maintenance and Monitoring (OMM) Cost. For a project of this magnitude and complexity, it is recommended that the Technical Support should be in the mid-range, i.e. 15% of the total Annual OMM cost as recommended in the above-mentioned EPA guidance.
340.	Appendix G, Additional Construction Performance Monitoring	General	N/A	Verify that laboratory analysis is included in the cost for monitoring during remedy implementation (i.e. <i>Additional Construction Performance Monitoring</i>).
341.	Appendix G, Pre-Design Investigations	General	N/A	CPG’s response is noted in the Draft Basis of Cost Estimate comments dated May 16, 2019 regarding Pre-Design Investigations However, considering the magnitude of the lump sum cost, as part of the FS, additional backup and cost breakdown should be provided to determine whether this line item cost is reasonable and appropriate.
342.	Appendix G, Utility and Critical Structure Protection	General	N/A	CPG’s response is noted in the Draft Basis of Cost Estimate comments dated May 16, 2019 regarding Utility and Critical Structure Protection. It is EPA’s understanding that implementation of utility and critical structure protection should be evaluated during RD. However, as part of the FS additional backup for the development of \$1.2M lump sum cost should be provided to determine whether this line item cost is reasonable and appropriate.
343.	Appendix G, Annual Operation and Maintenance Costs	General	N/A	CPG’s response is noted in the Draft Basis of Cost Estimate comments dated May 16, 2019 regarding Annual Operation and Monitoring Costs. It is EPA’s understanding that annual operation, maintenance, and monitoring costs will be refined during RD. However, as part of the FS, please provide additional backup for the development of the long-term monitoring unit cost. Considering the alternatives being evaluated will have varying footprints in terms of areas of various caps and treatment, annual operation, maintenance, and monitoring costs will be different across alternatives and should be scaled by alternative. If CPG uses the same costs for each alternative justification for that decision should be included as part of the FS.
344.	Appendix G, Annual Operation and Maintenance Costs	General	N/A	O&M monitoring and Long-term monitoring should both be evaluated (and costed) for the FS default of 30 years, A footnote or other description should state that, if a second, final ROD is issued, it will replace the monitoring and maintenance requirements of the IR.
345.	Appendix G, Transportation and Disposal	General	N/A	As noted in the FS: <i>EPA concluded that it was possible that sediment washing, combined with solidification/stabilization technology, may enable the end product to be used as landfill cover at a municipal (RCRA Subtitle D) landfill; and Offsite disposal in a RCRA Subtitle C landfill is retained for assembly into remedial alternatives. Disposal in a RCRA Subtitle D facility has been retained for further evaluation during remedial design.</i> It is recommended that evaluation of cost sensitivity due to Transportation and Disposal costs for a combination of Subtitle C vs. Subtitle D landfills be performed as part of the FS cost estimate, consistent with the general comment and the comment on Section 5.1.9.3.
346.	Appendix G, Transportation and Disposal	General	N/A	As commented in Section 5.1.5.2 of the FS and as described in Section 5.1 of Appendix G, stabilization/solidification is anticipated for landfill disposal. Include a unit cost for stabilization/solidification in all dredging alternatives. Provide assumptions and cost basis for review.

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347.	Appendix G, Project Duration	General	N/A	Evaluation of cost sensitivity due to Project Duration should also be performed as part of the FS cost estimate. The time required for the remedial action, or component thereof, to achieve remedial action objectives can be a major factor affecting the overall cost for remedy implementation. The time required for the remedial action could be affected due to change in the anticipated dredge rate of 3,000 cy/day (<i>Section 5.1.4, Appendix G</i>).
348.	Appendix I	General	N/A	The meeting minutes appendix of the final FS report must include all minutes posted to the SharePoint site by EPA. Minutes from the June 6 and 17, 2019 meetings, which are on the SharePoint site, were not found in Appendix I.