U.S. ENVIRONMENTAL PROTECTION AGENCY, REGION 2

December 14, 2018

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 Area Draft Remedial Investigation Report – 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 *revised Section 11: Summary and Findings* of the Remedial Investigation (RI) Report, prepared by Anchor QEA on behalf of the Cooperating Parties Group (CPG) for the Lower Passaic River Study Area (LPRSA). *Section 11* was received from the CPG on October 1, 2018. Comments from partner agency, New Jersey Department of Environmental Protection (NJDEP), were received on November 2, 2018 and 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 revised RI Report with this letter.

Please proceed with revisions to the draft RI Report within 30 calendar days consistent with the enclosed comment evaluations. If there are any questions or clarifications needed on EPA's enclosed comment evaluations, please contact me to discuss.

Sincerely,

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

616160

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

LPRSA RI/FS, Remedial Investigation Report, Revised Section 11 Summary and Findings dated October 2018

No.	Section	General or Specific	Page No.	EPA Comment
1	Section 11	General		Remove any reference to the interim remedy from the entire Remedial Investigation Report.
2	Section 11, second paragraph	Specific	1	It should be noted that the numerous studies performed (and the resulting CSM generated) not only describe the physical characteristics of this river system, but also the *biological characteristics* because of what has been learned about the chemicals detected in sediment and surface water, and their nature, extent, fate and transport up through the biological food web in this system. Revise Section 11 to include a summary of the biological characteristics of the LPR. The source control aspect of the LPRSA remedy (i.e., the interim remedy for the upper nine miles of the LPR) is being performed in parallel with the RI, but this does not change the fundamental objective of the RI to document impacts to and facilitate final, risk-based remediation of the entire 17.4-mile LPR. Reword the final sentence to read "The conceptual understanding of the LPR serves as the foundation for the development of effective remediation strategies aimed at mitigating contaminant impacts and ultimately achieving CERCLA-compliant risk-based remedial goals protective of human health and ecological receptors in sediment, biota, and surface water." See Executive Summary Comment #6.
3	Section 11.1, first paragraph, third sentence	Specific	1	Include natural tidal exchange and inputs from upriver and tributaries as influences on river processes.
4	Section 11.1, second paragraph, first sentence	Specific	1 to 2	Clarify the distinction between tides and water surface elevation fluctuations in Newark Bay.
5	Section 11.1, third paragraph, last sentence	Specific	2	Revise the text to read: "Analyses of bathymetric data presented in Section 4 show that portions of the river have remained ***net*** depositional through 2012, while other portions are subject to alternating erosion and deposition or net erosion, which make these sediments potential contaminant sources to the system." ***(emphasis added to identify requested change)***
6	Section 11.1, last paragraph	Specific	2	Section 11.1 as currently written focuses primarily on physical system characteristics. Habitat degradation is mentioned in this last paragraph, but there should be some summary of biological system characteristics, including the presence of fish populations.
7	Section 11.1, last paragraph	Specific	2	The last paragraph of this section needs to be expanded to note the presence of mudflat areas which serve as important habitat to benthic organisms and the upper trophic level organisms (fish, birds and mammals) and the importance of the aquatic habitat provided by the river, bank to bank (channel and shoals) for fish and birds who utilize and/or rely on nutrients, prey, habitat provided by surface water of the river.
8	Section 11.2	General	2 to 4	Section 11.2 as currently written contains information only related to sediments. This section should also discuss the nature and extent of contamination in surface water and biota.
9	Section 11.2, first paragraph, final sentence	Specific	3	Revise the text to read: "~~***Integrated***~~ Over the long term, the LPR is predicted to act as a contaminant source to Newark Bay for several ~~***modeled***~~ chemicals, including 2,3,7,8-TCDD and tetra-CB." ***(emphasis added to identify requested change)***
10	Section 11.2, third paragraph, first sentence	Specific	3	There is not a strong correlation for contaminant co-occurrence for all contaminants across the site. Reword this sentence to read "Contaminants tend to co-occur in the sediments, and concentrations ***for certain chemicals*** correlate across the site." ***(emphasis added to identify requested change)***
11	Section 11.2, third paragraph, third sentence	Specific	3	It is unclear if this sentence is specifically implying an alternate source for "some PAHs" and/or is providing soot, fly ash, and "other such particles" as only examples. Reword this sentence to read "These relationships are likely a function of release history and possibly differing transport mechanisms. For instance, PAHs are associated with petrogenic sources such as urban runoff of petroleum products and pyrogenic sources such as soot, fly ash, and other pyrogenic particles produced naturally or anthropogenically."
12	Section 11.2, fourth paragraph, first through third sentences	Specific	3	Reword these sentences to read "Based on observed erosional patterns and sediment contaminant measurements, contaminant concentrations in LPR surface sediments show a pattern of decline in areas subject to net deposition. Areas with higher long-term average sedimentation rates tend to exhibit greater recovery and have lower surface sediment concentrations than at-depth concentrations. Recovery is inhibited by higher surface sediment concentrations, and particularly in areas subject to erosion or lower rates of sedimentation."
13	Section 11.2, final paragraph	Specific	4	As this is a summary of the nature and extent of contamination for the LPRSA, it is not appropriate to discuss the potential limitations of future remediation relative to external sources. Delete the first sentence. This paragraph also overstates the potential influence of outside/background contaminant sources for recontamination relative to the key risk-driver contaminants of concern for which remedial action is warranted. Some degree of re-contamination is expected/unavoidable due to the natural hydrodynamics of the system and its connection to surrounding tributaries. However, except for PAHs, these background sources are generally considered less significant relative to the existing in-river sediment bed source and the degree to which background sources would have the capacity to re-contaminate surface sediment beyond site-specific, risk-based remedial goals (which take background conditions into account per CERCLA). Reword the second sentence to objectively compare surface sediment concentrations in the LPR to upstream/downstream areas.
14	Section 11.3	General	4	The risk assessment summary includes nothing about fish populations, crabs, or any other wildlife receptor. This summary should initially include at least a brief overview of the human health and ecological risk assessment methodology, including the COPCs/COPECs, receptors, and exposure pathways evaluated, and the justification for these components of the assessments. Revise the section to include a more detailed summary of conclusions.
15	Section 11.3, first paragraph	Specific	4	It is inaccurate to state that PCBs are present at levels comparable to background. Background PCB risks/hazards are approximately one third of corresponding LPR risks/hazards for the consumption of the mixed fish diet (see Executive Summary Comment #28). Revise the third and fourth sentences of this paragraph to read: "The primary human health risk drivers are 2,3,7,8-TCDD and PCBs. Other bioaccumulative compounds, including pesticides and mercury, also contribute to elevated human health risk, but to a lesser extent." Remove the fifth sentence of this paragraph.

No.	Section	General or Specific	Page No.	EPA Comment
16	Section 11.3, third paragraph, first sentence	Specific	4	Risks to ecological receptors is not "limited to" the risk drivers listed in this sentence. Revise the first sentence as follows: "Unacceptable risk to ecological receptors based on exceedances of a range of effect-level thresholds for various ecological receptor groups and lines of evidence (LOEs) is ***driven primarily by*** exposure to PCDDs/PCDFs, PCBs, and DDx." ***(emphasis added to identify requested change)***
17	Section 11.3, third paragraph, second sentence	Specific	4	The final two sentences in this paragraph related to benthic community impairment are unclear as to what information is being summarized, what the information demonstrates (and how), and what the context is in the evaluation of ecological risk. Revise to state, "Some LOEs are stronger than others and should be weighted more heavily when used for management decisions. While there are statistically significant relationships between observed benthic community impairment and sediment chemistry/habitat conditions, the statistical relationships for individual contaminants are not strong."
18	Section 11.4	General	4 to 5	Uncouple the terms "uncertainty" and "error"; the word "error" seems unnecessary in this section because specific errors of significance have not been identified. Remove the word "error" throughout Section 11.4. The studies comprising the RI were performed using state-of-the-science methods and tools at each phase of study and were all designed to minimize uncertainty, to the maximum extent possible and given the high complexity of project conditions, thus avoiding errors which would misguide a remedial project. This project has benefited from a high degree of technical expertise and resources provided by the CPG, EPA, and Partner Agencies to understand the river's chemical discharge CSM and the human health and ecological risks. The greatest amount of uncertainty is considered related to the ability of project models to simulate and predict future conditions given sediment contamination data gaps, primarily in the upper 9 miles of the river. On balance, the studies generated understanding and conclusions which are sufficient to guide remedial action planning, despite some gaps in understanding, i.e., noted areas of uncertainty.
19	Section 11.4, first paragraph, first sentence	Specific	4	Data gaps are avoidable, in a general sense, but not uncommon when investigating a complex, large site. Reword this sentence to read "The analyses and conclusions presented in this report rely on assumptions and simplifications needed to develop holistic understanding from sample sets with gaps typical of investigating a large, complex site."
20	Section 11.4, second paragraph, final sentence	Specific	5	The text states: "That task is an element of adaptive management in which further knowledge is used to enhance the remedy." The meaning of this sentence is unclear. The adaptive management framework for the LPRSA is a construct of the source control aspect of the LPRSA remedy (i.e., the interim remedy for the upper nine miles of the LPR) and is outside the scope of the RI Report. The source control interim remedy is being performed in parallel with the RI, but this does not change the fundamental objective of the RI to document impacts to and facilitate final, risk-based remediation of the entire 17.4-mile LPR. Delete this final sentence.
21	Section 11.4, third paragraph	Specific	5	The uncertainty associated with modeling concentrations in biota to understand the effectiveness of remediation also should be acknowledged in this paragraph.
22	Section 11.4, third paragraph, final sentence	Specific	5	The text states: "Despite these limitations, the models capture the major characteristics of contaminant transport and are suitable tools to address specific questions pertaining to the development of the interim remedy for the upper 9 miles and associated FS." As noted above, the source control aspect of the LPRSA remedy (i.e., the interim remedy for the upper nine miles of the LPR) is being performed in parallel with the RI, but this does not change the fundamental objective of the RI to document impacts to and facilitate final, risk-based remediation of the entire 17.4-mile LPR. Reword this sentence to read "Despite these limitations, the models capture the major characteristics of contaminant transport and are suitable tools to address specific questions pertaining to the development of remediation strategies for the LPRSA."
23	Section 11.4, final paragraph	General	5	The final paragraph of Section 11.4 points out uncertainty in the risk assessments, but the paragraph does not include conclusions about that uncertainty. In addition, uncertainty within the risk assessments is not "unique", as stated in the first sentence, but consistent with guidance for evaluating baseline risks. Due to the application of standard practice methods embodied in EPA risk assessment guidance to guide the CERCLA risk assessment process nationally, the identified uncertainties for this project are considered comparable to uncertainties associated with other similar complex, large, waterway projects. Substantial knowledge, to a degree considered sufficient for a CERCLA project of this scale, has been gained on current and future expected site conditions related to chemical exposure levels, chemical toxicity, and receptor impacts/risks. Revise the paragraph as follows: "Uncertainty is inherent in the risk assessment process and is a component of risk characterization consistent with EPA risk assessment policy and guidance. The LPRSA risk assessments have uncertainties associated with making assumptions about variables and processes that are not fully known. Recognized uncertainties include current and future site conditions, exposure levels, chemical toxicity, and organism effects. While this could potentially lead to underestimates of potential risk, the use of conservative assumptions, as was done in the HHRA, more likely overestimates potential risks. The resulting estimates of potential exposure and risk/hazard are conservative and protective of health. The ERA utilized a range of assumptions to bound the risk range, using less conservative assumptions for the upper end of the risk range, and more conservative assumptions for the lower end of the risk range. The actual risks posed by site-related contaminants are reasonably assumed to be within the range of risk estimates."

* Page numbering is consistent with the redline version of the document with the review display set to "No Markup".