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CATHERINE R. McCABE
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January 14, 2020

Diane Salkie
U.S. Environmental Protection Agency (USEPA)
Region II Headquarters
290 Broadway, 18th Floor East
New York, NY 10007

Re: Lower Passaic River Study Area (LPRSA) – 17-Mile RI/FS Project
Newark City, Essex
SRP PI# 332799
Activity Number Reference: RPC030001

Dear Ms. Salkie:

The New Jersey Department of Environmental Protection (NJDEP) has completed a review of Appendix H, the Interim Remedy Completion Evaluation Framework, of the Upper 9-Mile Source Control Interim Remedy Feasibility Study, dated October 2019, submitted pursuant to CERCLA. The Department's comments on this submittal are provided below.

Comments

Appendix H addresses a topic which has had considerable focus during the past year. Many of the comments provided below reflect prior NJDEP comments communicated with the working parties (USEPA and CPG) during the SWAC subcommittee working group meetings, through related conference calls, and through prior document reviews related to this topic. In addition, comments below reflect the NJDEP's November 2019 comments to the CSTAG and the NRRB on this topic.

1. Section 1.1 Overview:

   a. First paragraph – The RAO 1 SWAC goals should be presented as "...no greater than" the values presented for 2,3,7,8-TCDD and total PCBs.
   b. Second paragraph, last sentence – remove the phrase "...at or above two times the threshold established to achieve the surface layer 85 ng/kg SWAC goal." Replace with: "...within a range of one to two times the RAL for RAO 1, to be established during remedial design and not to exceed two times the RAO 1 RAL.
   c. A general concern is the discrepancy that lines of evidence (LOEs) 1-3 are not evaluated in the same rigor or attention that LOE 4 is given, while the evaluation and achievement of LOEs 1-3 will be used to determine overall SWAC achievement, as currently presented.
   d. In describing the 4th Line of Evidence for IR Completion, text states:

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"This LOE relies on the interpreting post-remedy sediment data, *which do not yield a precise estimate of SWAC.* The uncertainty inherent in the SWAC estimates is tolerable because the *SWAC goals are not absolute thresholds ....*" (emphasis added with italics)

NJDEP response:

a. Contrary to the first italicized phrase, and as indicated later in Section 2.4, statistically unbiased estimates of the post-IR SWACs will be obtained. Achieving this for the purpose of demonstrating RAO 1 attainment has been the focus of many discussions among the working group members during FS development. Although a "precise" estimate of the SWACs may not be obtained, statistically unbiased estimates (based on well-designed IR implementation and post remedy sampling design) are sought and will be generated. These are also needed for long-term monitoring purposes.

b. As described in prior comments, the Department disagrees with the second italicized statement. RAO 1 goals are absolute goals to be met and these goals shape LOE 1 – 4.

2. Section 2.1, LOE 1: Geostatistical interpolation is planned for evaluation of PDI sediment sampling (data obtained using fixed grid with 80-ft. distance on center). Please clarify the exact interpolation method planned (actual or Conditional Simulation Mapping, CSM?)

3. Section 2.1, LOE 1: For identifying vulnerable erosional areas, please clarify the "bathymetric differencing" evaluation process, i.e., how big of a difference will be necessary to designate an area as vulnerable?

4. Section 2.1, LOE 1, last paragraph: The details for evaluating uncertainty of the delineation remain unclear and are central to the overall evaluation of this LOE.

5. Section 2.2, LOE 2, Remedy Design:

   a. This LOE should also reference use of adaptive management and the identification and testing of critical hypotheses underpinning the project's conceptual site model to better ensure meeting project goals.
   b. In addition to suppressing sediment resuspension during IR implementation as described in this section, LOE 2 should also address the longer-term stability of design elements, i.e., design to prevent resuspension of problematic sediment (i.e., levels greater than RALs) under post-implementation conditions.
   c. For clarification, please describe the primary purpose of the value engineering step relative to other goals of the IR. Would this be subcontracted out by the Design Contractor?
   d. In addition, if recommendations from the value engineering step are adequately incorporated, how would an evaluation be used to effectively assess the overall LOE?

6. Section 2.3, LOE 3, Implementation: For clarification, it should be stated that within Superfund, project implementation performance standards are established by the USEPA with support by the State. These are typically developed site-specifically during remedial design and finalized with final design, prior to the construction phase.

7. Section 2.4, LOE 4, SWAC Attainment:

NJDEP Response:

a. The Department agrees that statistically unbiased estimates of post-IR SWACs and their respective 95% confidence intervals around SWAC means are sought. Please include information on the method(s) to be used for identifying the "sufficient number of samples" to be used for this purpose. A program of approximately 400 samples is currently proposed by the CPG. Although this may ultimately be considered an acceptable sample size, currently, the Department cannot endorse a post-remedy sampling program using this relatively small number of samples for this size project (~ 7 miles of tidal river), along with complexities of same. The sample size will likely need to be larger to ensure a reasonably low Y factor (if used in this project).

b. Paragraphs 2 and 3 of this section describe the CPG's approach/basis for IR LOE 4 implementation regarding whether or not the IR has been considered "complete". The CPG states "The magnitude of Y will embody tolerance for the possibility that SWACs exceeding the RAO 1 SWAC goals could result from post-IR sampling data even though the IR has successfully addressed sediment sources....". This statement reflects a fundamental tension between positions held by the CPG and the Department with regard to how sources are defined:

   The CPG's position is that the IR is not meant to attain specific SWAC goals (see comment 1 above and Section 1.1), but instead is meant to address areas of sediment bed considered sources to the rest of the river. The CPG considers depositing particle contaminant concentrations as the "source," as reflected in their original proposal from 2017-2018. Therefore, from the CPG's position, the IR may be considered "complete" across a range of acceptable post-remedial SWAC outcomes.

   The Department's position is that sources are identified as sediment bed areas (0-2 ft depths) exhibiting surface sediment contaminant concentrations for 2,3,7,8-TCDD and total PCBs which exceed the RALs needed to attain RAO 1 SWACs designated for each. In addition, from the Department's perspective, the designated RAO 1 SWAC goals are intended to be met by ROD 1 implementation with a high degree of confidence. Implementation of LOE 1 through 4 should be shaped for this purpose.

c. In addition, this section describes the outcome whereby the IR is considered complete using evaluation of the 95% UCLs relative to value of "Y times RAO 1 SWAC goals." However, the other outcomes, indeterminate and incomplete, also need to be described in this section.

d. Finally, the last paragraph of Section 2.4 describes how Y would be established. The following additional information should be included:

- Methods to reduce post-remedial sampling data variability, such as use of compositing, in-fill sampling, and other methods deemed appropriate based on PDI information (designating decision units, etc.).

- The risk and concerns surrounding *false positives* also need to be described, as this is the greater concern from the project's environmental/regulatory perspective relative to IR Remedial Action Objectives.

8. Section 2.5, LOE 5, Post IR Confirmation Data Assessment:

a. The indeterminate scenarios mentioned here (and the missing "incomplete" scenario) should be described in Section 2.4.

b. In addition, examples of situations that may fall under "actionable source areas" should be further described (or referenced to where they are described), along with what will happen if such areas are found (or include in/reference to Section 3). Currently, such areas are generally described as "contiguous area at concentrations significantly above the RAL". However, in addition, there could be other situations, such as, non-contiguous, geomorphologically-similar areas (i.e., slope transition areas or other) where routine release of elevated TCDD or PCB concentrations may occur and could threaten successful RAO 1 SWAC attainment and/or long-term river recovery.

9. Section 3, Implementation of the Framework:

Currently, step one of the framework solely relies on the metric of evaluating 95% UCLs on the SWAC means in comparison to the values of Y times SWAC goals. If this comparison fails, supplemental sampling is performed. However, if this comparison passes, no further evaluation of data set summary statistics is performed and the IR is considered complete.

NJDEP Response: But, the 95% LCL (not considered at this step under current framework) may be higher than the SWAC goal, which would indicate that there is a *low likelihood* that the true SWAC mean is at or below RAO 1 goals. For the Department, this would not constitute attaining RAO 1 SWAC goals with a high degree of confidence.

If newly generated 95% UCLs again fail this comparison, the current framework calls for the evaluation of the 95% LCLs on the SWAC means. If the 95% LCLs are within acceptable limits (below SWAC goals), the IR is considered indeterminate and other lines of evidence are evaluated to determine if the IR could be considered complete. If either of the 95% LCLs are greater than acceptable limits, the IR is considered "not conclusively complete". (i.e., another form of indeterminate).

Overall Section 3 NJDEP Response:

a. In the case described above, even after supplemental sampling and newly generated 95% UCLs and LCLs, if both metrics fail to meet established criteria, the IR is still not considered "incomplete". Instead, the situation is termed "not conclusively complete", which could be interpreted by many as "almost complete", which is not true. If both metrics are outside of acceptable limits, there is little statistical evidence, if any, that RAO 1 has been met. Therefore, this should represent "incomplete".

b. The terms "not conclusively complete" and "indeterminate" require distinction (latter not on Fig 2). Please clarify.

c. Organization: The 5th paragraph in this section (with bulleted factors) should be moved to immediately follow the 3rd paragraph (to follow discussion on "not conclusively complete").

d. It is noted that under the current framework, if "actionable source areas" are not identified, the IR would be considered "complete" based on an overall weight of evidence, even if there is a very small chance that true SWAC means are at or below RAO 1 goals. Instead, the IR should be considered to have <u>not</u> met RAO 1, even if actionable source areas are not identified. This distinction is important because it correctly establishes post-IR project conditions relative to IR RAO 1 goals and allows for consideration of other actions under adaptive management.

e. As indicated in previous comments for this topic, the Department believes there is significant value for integrating evaluation of other post-remedial sediment data summary statistics in the evaluation process, especially SWAC means. In addition, for all outcomes (complete, indeterminate, incomplete) the estimated SWAC means should be identified and utilized for the post-remedial activities and monitoring to occur within 5 – 10 years of post IR implementation and leading up to the final ROD, ROD 2.

10. <u>Attachment 1, Establishing Y Values</u>

<u>Section 1, Data Needs</u>:

Bullet 3 – The residual concentrations already identified for the purposes of the FS development should be identified here, along with the existing bullet noting these will be informed based on design information.

Bullet 6 – Identifying sample size is considered premature. At a minimum, either the sample size will likely need to be higher than 400 samples, or an acceptable form of sample compositing performed to ensure the Y factor is appropriate.

Section 2, Steps:

Bullet 4 – Although not mentioned, the 95% LCLs and other summary statistics should be generated for more in-depth evaluation of post-remedial conditions as reflected by the post-remedial sampling program.

Bullet 5 – Currently as described, Y values are established to ensure "95% of the 1,000 simulated UCLs are less than Y times the SWAC goals". This means that Y is primarily set through modeling methods with emphasis (bias) for determining the IR is complete.

A **new bullet** is needed to describe that the model-generated Y values would be considered preliminary. A separate evaluation should be performed by USEPA and NJDEP to ensure that modeled Y values are considered "reasonably" small for the purpose of demonstrating project completeness relative to RAO 1 SWACs. This is a regulatory/policy step considered necessary for this project.

2. Figure 2: The Department recommends revision of this figure to address comments provided above.

Please incorporate these comments into the letter that the USEPA will be sending to the Cooperating Parties Group.

Thank you for your cooperation in this matter. If you have any questions, call Jay Nickerson at (609)633-1448, or email at Jay.Nickerson@dep.nj.gov.

Sincerely,

Jay Nickerson
Bureau of Case Management
Site Remediation and Waste Management Program
New Jersey Department of Environmental Protection

cc. Michael Sivak, USEPA (e-copy)
Myla Ramirez, ETRA (e-copy)
Anne Hayton, BEERA, NJDEP (e-copy)
Lori Lester, Division of Science and Research, NJDEP (e-copy)