UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 2
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MEMORANDUM

DATE: December 9, 2020

SUBJECT: EPA Region 2 Reponses to Contaminated Sediments Technical Advisory Group Recommendations – Operable Unit 3, Proposed Early Action, Newtown Creek Superfund Site, New York, New York

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TO: Karl Gustavson, Chair
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This document provides EPA Region 2's responses to the recommendations provided in the memorandum, "CSTAG Recommendations on Operable Unit 3, Proposed Early Action, Newtown Creek Superfund Site, New York, New York. Draft Focused Feasibility Study and Tentative Preferred Alternative" dated August 20, 2020. The August 20, 2020 memorandum provides the Contaminated Sediments Technical Advisory Group's (CSTAG) recommendations regarding a potential interim early action (EA) for the lower two mile portion of Newtown Creek from creek mile (CM) 0–2 (excluding the Dutch Kills and Whale Creek tributaries), as presented by Region 2 in a Site Information Package (SIP) submitted to CSTAG in April 2020. This potential interim EA has been identified as Operable Unit 3 (OU3) of the Newtown Creek Superfund Site.

The Newtown Creek site was listed on the National Priorities List in September 2010. The site was being addressed as one OU until recently, when two additional OUs were added. The current OU structure is as follows:

- OU1 includes the entire Study Area, as defined in a 2011 Administrative Settlement Agreement and Order on Consent (AOC) between EPA, the New York City Department of Environmental Protection (NYCDEP), and the five Newtown Creek Group (NCG) respondents (CERCLA Docket No. CERCLA 02-2011-2011). A full remedial investigation/feasibility study (RI/FS) for OU1 is ongoing under EPA oversight with the NCG respondents having assumed the lead;

- OU2 relates to current and reasonably anticipated future releases of CERCLA hazardous substances from combined sewer overflow discharges to the Study Area, as described in a 2018 AOC between EPA and NYCDEP (CERCLA Docket No. CERCLA-02-2018-2020); and
- OU3, the subject of this memorandum, refers to the evaluation of a potential interim EA for CM 0-2 of the Study Area, as described in a 2019 AOC between EPA and the NCG (CERCLA Docket No. CERCLA-02-2019-2011).

Region 2 greatly appreciates CSTAG's thorough review and thoughtful recommendations related to the proposed interim EA for OU3. Region 2's specific responses to CSTAG's August 20, 2020 recommendations are provided below. The Region will consider CSTAG's recommendations throughout the process of finalizing the OU3 focused feasibility study, selecting and implementing an EA if the decision is made to proceed with an EA, and, as appropriate, through the selection and implementation of remedies for other portions of the Site.

Each of the August 20, 2020 CSTAG recommendations is presented below, followed by Region 2's response.

Recommendations

1. Appropriateness of the early action area

If the Region proceeds with remediating the proposed early action area, CSTAG recommends that the Region provide a more complete rationale for selecting a downstream, less-contaminated reach for an early action, and document why Newtown Creek's NAPL sources and COPC hotspots recommended for early action by CSTAG in 2015 were not selected.

Response: Region 2 appreciates and acknowledges CSTAG's comment and recognizes that the early action approach being considered for Newtown Creek is unusual in that it does not target areas of highest contaminant concentrations or greatest risk for the entire Site and that the area is located downstream and adjacent to more highly contaminated source areas.

As is noted in CSTAG's memo, the SIP prepared by Region 2 focused on three potential benefits of conducting an EA on this portion of the Creek, specifically (1) risk reduction and contaminant mass removal, (2) an opportunity to gain direct experience working in the Creek, and (3) an opportunity to truth-test and refine the Conceptual Site Model (CSM) that is still under development as part of OU1 of the Site. The Region stands by its opinion that these are worthwhile benefits that would result from conducting an EA, but also understands that these reasons would hold true for other portions of the Site, including those that are more highly contaminated.

There are, however, location-specific reasons that support focusing on the lower 2 miles of the Creek for an EA. From a sediment transport perspective, the OU3 portion of the Site is the most closely connected to the East River, and, based on existing information, tidal flow from the East River is the dominant source of solids to this portion of the Site. The sedimentation impacts of this tidal flow trail off shortly after the 2-mile mark. As such, the lower 2-miles of the Site can be

looked at as a separate sediment transport unit. When considered from this perspective, the proposed EA would address the most contaminated sediment within this sediment transport unit and would significantly reduce contaminant concentrations that contribute to unacceptable risk.

To provide further rationale for why it may make sense to conduct an EA in the lower 2 -miles of the Creek rather than other portions of the Site with relatively higher contamination, as part of OU1 a complex set of inter-related models are being developed in addition to the empirical data that has been and will be collected as part of the OU1 RI/FS process. The first two major pieces (the hydrodynamic and sediment transport models, which include groundwater and point-source sub models) have been submitted by the PRPs to EPA and are being refined based on EPA comments. The remaining portions of the modeling framework (the contaminant fate and transport and the bioaccumulation models) are still being developed.

While the modeling framework for the full Site is not yet complete, the CSM for the lower 2-miles of the Site is relatively straightforward. Therefore, post remedy monitoring for this portion of the Site while the modeling is being completed would be more straightforward to implement and evaluate.

The Region will work with the PRPs to assure that the next version of the OU3 FFS clearly and comprehensively explains the rationale for conducting an EA on the lower 2-miles of Newtown Creek and that it also document why NAPL sources and COPC hotspots in other portions of the creek recommended for early action by CSTAG in 2015 were not identified for evaluation in the OU3 FFS for an early action. In addition, the Region will assure that the revised OU3 FFS clearly states and discusses the uncertainties associated with potentially undertaking the remedial alternatives evaluated for this EA.

2. Remedial action objectives

a. CSTAG recommends that the Region modify the OU3 remedial action objective (RAO) to specify that the interim action will support site wide risk reductions by reducing contaminants of potential concern (COPC) exposures in CM 0-2.

b. CSTAG recommends that the Region remove the selection of a remedial approach from the RAO.

Response: Region 2 agrees that the RAO for OU3 should be revised to specify that the interim action will support sitewide risk reduction by reducing COPC exposures in CM 0-2 and that the RAO should not make reference to the specific remedial approach. By relying directly on remediation of sediment exceeding remedial action levels (RALs), the current RAO focuses too much on the approach to achieving risk reduction rather than the goal of the action, which is contaminant mass removal in target areas that contribute to risk reduction in conjunction with a future OU1 remedy. The intent of this RAO was to keep it focused and smaller in scope, given that it applies to an interim early action, and this intent remains relevant. As such, the Region will develop a revised RAO consistent with this intention though broad enough to capture the long-term goals of the action.

3. Remedial action levels

a. CSTAG recommends that the Region develop or describe RALs based on site-related conditions and to present and evaluate them in the context of exposure reduction (a recommended RAO).

b. CSTAG recommends that the Region evaluate a wider range of RALs, so the Region and stakeholders can better assess where the proposed remedial actions (RA) fit into the broader scope of OU1's CSM and its pending remedial actions and remediation goals. At a minimum, a RAL expected to achieve a SWAC equivalent to East River contaminant levels and a RAL intended to represent an upper percentile of East River concentrations should be included considering the East River's dominance in this section of the creek.

Response: While Region 2 agrees that the consideration of a wider range of RALs for the site COPCs would be beneficial to include in the OU3 FFS, the RALs that were included were developed as part of the AOC governing the development of the FFS. As is stated in the AOC, one purpose of the OU3 FFS is to evaluate the appropriateness of conducting an EA for the lower 2 miles of the Creek under a specified set of conditions, including the range of RALs to be considered. If the FFS is unable to support the action as beneficial to the sitewide remedy (i.e., as consistent with the reasonably anticipated sitewide OU1 RAOs) using the specified set of conditions, then the efficacy of conducting an EA in this manner would be called into question. If that is the outcome, the Region may elect to address the lower 2 miles as part of the sitewide OU (OU1) rather than as a stand-alone interim remedy.

The Region will provide comments to the PRPs requesting additional analysis supporting the use of the current RALs and their ability to achieve the sitewide RAOs in a reasonable timeframe.

Regarding the evaluation of a wider range of RALs, the Region plans to request that the PRPs add sensitivity analyses to the FFS to show the effect on the long-term effectiveness of using lower RALs on the achievement of interim performance metrics over time. The remedial alternatives included in the FFS are structured such that by removing relatively elevated concentrations of COPCs (i.e., concentrations above RALs), the entire lower 2 miles of the Creek will approach, over time, the cleanup goals for the eventual sitewide remedy. These cleanup goals have not yet been determined, so the FFS cannot definitively state whether they will be achieved in the lower 2-miles through implementation of the EA remedy. However, if the current understanding of the CSM for OU3 is correct, then, as is noted by CSTAG, surface weighted average sediment concentrations over the lower 2 miles should eventually approach average East River concentrations. The word "approach" is used here to recognize that there are ongoing sources of contamination to the Creek that are not attributable to a CERCLA release, and that might be reduced but can never be eliminated. It may be determined that some of these ongoing sources need to be reduced through Superfund or other regulatory processes in order for the sitewide remedy to be protective in the long-term, and others may decrease over time through improved best management practices or for other reasons. However, there will always be some input from ongoing sources, such as overland flow and permitted storm water discharges, that may impact sediment concentrations in the Creek more significantly than they would the East River, given the relative size of the two water bodies. Note that some of the figures provided to CSTAG for review attempt to illustrate this point, but they are not the clearest depiction of the

analysis. The Region will work with the PRPs to develop both a broader consideration of the range of RALs included in the draft OU3 FFS and a clearer way of communicating the findings.

If the sensitivity analyses show that consideration of a different RAL for any of the COPCs would lead to significantly improved effectiveness of the remedy in the long term, then the Region will discuss potential next steps with the PRPs. These next steps could include the possible inclusion of that new RAL (or RALs) in a revised OU3 FFS or the possible decision to discontinue consideration of conducting an EA on the lower 2 miles of the Creek.

4. Remedial alternatives

4.a. CSTAG recommends that the Region apply the RALs to a sediment depth at which contaminated sediments may be exposed in the long-term, or the Region should provide a rationale for applying the RAL to the top 6 inches while needing to dredge to 2 feet to ensure long-term protectiveness and effectiveness.

Response: Region 2 appreciates CSTAG's recommendation and agrees that the approach included in the draft FFS requires clarification. Region 2's understanding of the approach is as follows: the top 6 inches of sediment represent the biological active zone for Newtown Creek, and thus represents the depth of sediment contributing to unacceptable risk to human health and the environment. Furthermore, it typically found that deeper sediments are more contaminated, such that dredging without capping would not be protective. Therefore, to reduce risks, the FFS first focused on determining the areas with RAL exceedances in the top 6-inches, defined as target areas. Once these target areas were defined, then the next step was to determine the depth to dredge the areas so that a dredging/capping remedy remains protective in the long term, even in cases where erosion and/or prop scour occur. Based on the current CSM, prop scour is generally expected to impact a depth of 12 inches, but there is uncertainty around this depth and localized erosion and scour impacts could be greater. As such, to be effective in the long-term, the dredge/cap depth for the remedial alternatives was assumed to need to be approximately 2 feet instead of just one foot. In addition, the remedial alternatives in the draft FFS included a 6-inch over-dredge assumption to address potential navigational considerations.

The draft FFS does acknowledge that the actual dredge depth may vary depending on location, and that the final depth will be determined during the design process. While the Region agrees this matter will require additional analysis during the design phase and likely as part of the pre-design investigation, comments will be provided to the PRPs asking them to include a more detailed analysis of this aspect of the potential remedial alternatives in the FFS based on existing information, across the entire OU3 area.

Specifically, our comments on the draft FFS will request that the PRPs evaluate episodic and longer-term erosion patterns and depths for inclusion in the FFS. Overall, any sediment that presents a potential exposure issue should be addressed as part of the remedial decision process of the Site.

4.b. CSTAG recommends that a dredge to the depth of RAL exceedance should be described and evaluated or screened so that stakeholders can understand the attributes of that option, as well as the tradeoffs of selecting partial dredge options in terms of subsurface COPCs left in place.

Response: Region 2 agrees with this recommendation and our comments on the draft FFS will tell the PRPs to include at least a semi-quantitative evaluation of dredging to the depth of RAL exceedance in the FFS; however, a described above, deeper sediments are frequently more contaminated at this site. While inclusion of a full dredge to clean alternative is beyond the scope envisioned for this EA, the FFS should present what this option would involve so that a more informed decision can be made regarding the efficacy of conducting the EA as described in the FFS, including the tradeoffs involved with not taking a larger action.

4.c. CSTAG recommends that the Region closely consider the nature of an area's underlying sediments (see NAPL discussion in recommendation 5), potential future uses (see recommendation 9), and recontamination risk to determine whether specific areas of OU3 warrant different removal depths, cover thicknesses, or technologies. Such evaluations should consider tidal, storm, and other erosive forces, as well as vessel activities, e.g. spudding, anchoring, grounding, and prop scour impacts using empirical data to the greatest extent possible.

Response: Region 2 agrees with this recommendation and our comments will tell the PRPs to consider, for the evaluation of the alternatives in the OU3 FFS Report, the nature of an area's underlying sediment, the episodic and longer term erosion patterns and depths, the tidal, storm, and other erosive forces, and the specified vessel activities, and/or explain why they are not appropriate for evaluation. Given the industrial nature of the waterway, Region 2 also expects that a consideration of armoring (erosion control) and navigation channel requirements will be incorporated into the final OU3 FFS Report's alternative development and evaluation section.

More generally, the Region's comments will tell the PRPs to include information regarding the full nature and extent of contamination in the lower 2-miles of the Creek, including depth profiles of the contamination in sediment. The FFS needs to reflect a more comprehensive evaluation of not just what contaminated sediment the alternatives would address but also what sediment contamination they would leave behind.

4.d. Information was not provided on whether additional sampling is envisioned to support remedial design. The proposed remedial footprints (RAL exceedance areas) were presented based on Thiessen polygons. Thiessen polygon sizes and boundaries are based on the locations and distances of adjacent sample points and may not be an accurate representation of the actual extent of contamination that requires remediation. CSTAG recommends that the Region evaluate whether additional sampling during the Remedial Design (RD) is needed to refine the extent of contamination in each target area prior to remediation.

Response: Region 2 agrees that the need for additional sampling during the RD to refine the contamination extent in each target area should be acknowledged and expects that the final OU3 FFS Report will be modified to clarify specifically how the target areas will be refined during remedial design (*e.g.*, through a pre-design investigation). Sampling and/or additional analyses may also be needed to determine the appropriate depth of dredging/capping required in each area to be remediated, as well as the appropriate cap construction to use in each area.

5. CSM and remedy assumptions

The 2005 sediment remediation guidance (p. 2-21) recommends:

> *"In most cases, before any sediment action is taken, project managers should consider the potential for recontamination and factor that potential into the remedy selection process. If a site includes a source that could result in significant recontamination, source control measures will be likely necessary as part of that response action" (p. 2-21).*

It is not clear to CSTAG that upstream, tributary, and bank sources are or will be sufficiently controlled to prevent recontamination of remediated areas. If an early action in this area proceeds, CSTAG recommends that the FFS and the Proposed Plan fully describe the COPC sources and transport pathways of the areas that are proposed for removal and demonstrate that the sources and processes that resulted in current contamination will not recur.

Response: Region 2 considers the potential for recontamination of the OU3 portion of the Site to be the most significant uncertainty associated with the potential early action and agrees that source control may be necessary, at least as part of the overall OU1 sitewide remedy, for the ultimate success of any alternative selected for OU3. The draft FFS did not identify any ongoing sources within the OU3 portion of the Site that need to be addressed in order for the remedy to be effective. However, Region 2 will provide comments to the PRPs asking them to re-evaluate this conclusion and ensure it is supported. For instance, the draft FFS focused primarily on widespread contamination that might impact all of OU3, and less on potential smaller localized effects. Regardless, and as indicated in the response to Recommendation 1, the revised OU3 FFS report will need to include a more detailed and comprehensive discussion of the uncertainties associated with implementing the EA for the Site. This includes those uncertainties related to source control, be it from in-creek, upland or other source areas. In addition, the Region will ensure that the OU3 FFS clearly indicates that, where necessary, bulkheads and other shoreline obstructions would be temporarily removed or relocated to address sediment contamination above RALs as part of any early action taken as part of OU3. Overall, Region 2 will reiterate to the PRPs that the performance monitoring plan needs to be sufficient to test the assumption that ongoing sources are not going to recontaminate the remediated area. If data do show localized or widespread recontamination, the source(s) will need to be determined and potentially addressed as part of an OU1 remedial action. As such, implementation of an OU3 EA could help inform the overall sitewide CSM.

6. Realistic timing

CSTAG recommends that the Region closely evaluate the timing to undertake the proposed early action to ensure that information from the early action will realistically be available to guide final remedy selection for the remainder of the site.

Response: The Region agrees with CSTAG's recommendation that the timing to undertake the proposed EA is important and acknowledges that the longer it takes to implement, the less value it will have to guide the remedy selection process for the rest of the site.

The current schedule for OU1 of the Site anticipates a final FS will be prepared in the latter half of 2023, after which a Proposed Plan for OU1 would be released. As such, the Record of Decision (ROD) for OU1 is not likely to be signed prior to 2024. Moving out further, once a ROD is signed, Region 2 will need to negotiate an agreement by which the potentially responsible parties will conduct the design and remedy for OU1, which typically takes a year, and then the remedial design will be completed, which would likely take 2 to 3 years. As such, design of the OU1 remedy is unlikely to be initiated prior to 2025 and implementation of the OU1 remedy would start no sooner than 2027.

While ideally information gained through the implementation of OU3 would help inform the remedy selection process for OU1, data that would continue to be collected as part of the performance monitoring plan would still provide valuable information to help inform the design of the OU1 remedy. At this time, it seems reasonable that the OU3 early action remedy could be implemented in time to gather at least some information to help inform the remedy selection process for OU1, particularly that related to short term effectiveness, implementability and cost.

If it moves forward, the Region will work with the PRPs to ensure that the OU3 early action is expedited to the extent reasonably possible.

7. Monitoring

a. CSTAG recommends that the Region's post-remedy monitoring plan include a systematic (including stratification based on site data) and unbiased sampling of the sediment surface throughout the OU3 (i.e., not solely within RAL exceedance areas) to compare sample results to RALs and evaluate whether the RAO was achieved. The sampling will then also serve as a basis for understanding contaminant distribution, estimating SWACs with a defined level of uncertainty, and permit the derivation of natural recovery rates when the area is resampled.

b. Interim Performance Metric discussions do not describe how the results from the post-remedy monitoring will be used to evaluate and maintain remedy effectiveness. CSTAG recommends that a decision-making framework and contingent actions be developed as part of OU3 to address sources and remediate sediments if recontamination or uncontrolled sources are identified. The decision framework should be positioned to ensure the durability and effectiveness of the remedy in reducing risk and accelerating natural recovery.

c. CSTAG recommends that, if the monitoring plan is intended to test CSM hypotheses, the monitoring plan be structured to explicitly state and test the hypotheses.

Response: Region 2 recognizes the need for a robust performance monitoring plan (PMP) and agrees with all three recommendations regarding the post-remedy monitoring plan. Region 2 will provide comments on the draft FFS requesting that the PMP in the revised FFS be structured to explicitly state and test the underlying assumptions for this early action (i.e., the four positions or hypotheses) and to identify a decision-making framework and additional actions to address sources and remediate sediment if recontamination or uncontrolled sources are identified. Region 2 also expects the PMP to include a systematic (including stratification) and unbiased sampling of the sediment surface throughout the OU3 footprint to compare sample results to RALs and evaluate whether the RAOs and interim performance metrics were achieved. In

addition, Region 2 expects the PMP to provide details such as sample spatial and temporal density for surface grabs, sediment cores, sediment traps, passive porewater samples through the backfill and into the underlying sediments, and particulate surface water samples; sampling methodology; media-specific thresholds for evaluating EA success; and an assessment/monitoring plan for seeps and erodible shorelines.

In addition, keep in mind that the OU3 interim remedy will ultimately need to be consistent with the OU1 remedy. It is anticipated that OU3, including the PMP, will be subsumed by that remedy at some point. As such, additional actions determined to be necessary through implementation of the PMP, such as additional source control, may be implemented as part of OU1 rather than OU3.

8. Biological monitoring to support OU1 decisions

Consistent with sediment management principle 11, CSTAG recommends that the Region incorporate synoptic biological monitoring into the PMP plan. If the early action's assertions are correct, then starting biological monitoring early will aid in understanding recovery in OU3, support CSM development throughout OU1, and provide data for tracking the long-term recovery of the entire site.

Response: Region 2 agrees with the need to start biological monitoring early and will request that the PRPs incorporate synoptic biological monitoring into the PMP plan. Given the anticipated timing and the lack of multiple temporally-spaced data sets, the data will have a more limited utility in refining the CSM and selecting the OU1 remedy, but it will help establish a stronger baseline for assessing long-term trends and in monitoring both OU3 and OU1 post-remedy performance.

9. Navigation channel considerations

a. CSTAG encourages the Region to continue to work with the USACE to determine appropriate current and anticipated future user needs and navigation depths before finalizing any response action to promote consistency with the final remedy

b. If the remedy includes placement of materials above the authorized navigation depth, the decision documents should describe how the actions are consistent with the Rivers and Harbors Act and should evaluate the need for contingency plans to implement a protective remedy that maintains authorized navigation depths, if necessary.

Response: Region 2 agrees with CSTAG's recommendations on this issue and has been having frequent and ongoing discussions with the USACE. The USACE is in the process of finalizing a draft Navigation Analysis Report for EPA review. As part of this report, a user survey was completed by USACE to determine the status of the various authorized depths and whether they should be maintained.

The Rivers and Harbors Act has been identified as a law that prohibits obstruction of the navigation channel in the Creek or any project that inhibits the usefulness of a federal project. Any OU3 remedy would need to comport with the Rivers and Harbors Act, and it is the USACE that determines whether any "project" in the Creek, such as this remedy would be, is acceptable. Thus, Region 2 acknowledges that any remedy for OU3 would need to address compliance with the Rivers and Harbors Act. EPA will continue to coordinate with the USACE, as well as the community, New York City, NYSDEC, the National Oceanic and Atmospheric Administration, and the Fish and Wildlife Service on this critical aspect of the site, which is relevant not just to OU3 but also to the eventual sitewide OU1 remedy.