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Acting Commissioner

February 13, 2018

Mr. John Prince, Acting Director
Emergency & Remedial Response Division
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290 Broadway, 20th Floor
New York, NY 10007

Dear Acting Director Prince:

As you know the Passaic River has been at the heart of America's industrial engine for more than a hundred years, and at the same time is a critical natural resource for the people of New Jersey. The Passaic River runs through one of the most densely populated areas of the United States. It remains largely unusable and presents an ongoing danger to human health and the environment. The Passaic River has been studied for more than 35 years, costing millions of dollars with the Lower Passaic River remaining extremely contaminated and arguably the most contaminated waterway in the country – which negatively affects human health and the environment, and prevents the communities near the River from experiencing full enjoyment of this natural resource and deprives them of the same economic growth and development achieved in surrounding areas.

The goals for the State for the remediation of the Passaic River have always been to protect the health of our citizens, to provide a permanent solution to the clean-up of this waterway, to restore the environment and economic health of the river and the surrounding communities, and to initiate the remediation as soon as possible.

The purpose of this correspondence is to provide comments for consideration by USEPA and CSTAG regarding the Cooperating Parties Group's (CPG) "Draft Upper 9-Mile Plan – A Proposal to Expedite Cleanup of the 17-Mile LPRSA", dated November 27, 2017. This plan is a concept proposal to conduct an interim remedy in the 17-Mile LPRSA, Operable Unit 4 (OU 4) of the Diamond Shamrock Superfund Site, OU 1. The Draft Upper 9-Mile Plan, hereafter referred to as the Interim Remedy (IR) proposal, would address the 9 miles of the lower Passaic River located between the Dundee Dam at RM 17.4, and the upstream boundary of the Lower 8-Mile Focused Feasibility Study, OU 2, at RM 8.3. Remedial Design for OU 2, as established through the April 2016 ROD, is currently in progress.

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In July 2017, the CPG approached the USEPA to request consideration of an interim remedial proposal for the 17-Mile RI/FS project, rather than continuing with the current schedule and steps involved for a traditional RI/FS study. The Department first learned of this proposal in early November 2017, during a meeting on the Diamond Alkali Superfund Site, OU 1. Subsequently, EPA gave approval to CPG to submit a draft interim remedial proposal for consideration. The key materials supplied for review included CPG documents dated November 27, 2017. In addition, the USEPA provided additional background materials shared between CPG and EPA in prior months. Review of documents associated with the CPG's IR proposal have been completed and our comments are provided below, preceded by important context (General Comments) for this project.

General Comments

1. **The State remains strongly committed to the Passaic River being made fully healthy and whole, as envisioned at the outset of the Superfund process initiated for this river in 2004.**

While there are numerous contaminants at unacceptably high concentrations, the State has focused its attention on dioxin, due to its highly toxic nature; one of the most toxic synthetic substances ever created. The River contributes more than 80% of the total dioxins to Newark Bay. The River sediments are highly contaminated with the most toxic form of dioxin – 2,3,7,8-TCDD.

Dioxin concentrations in fish and crabs of the Passaic River are among the highest reported in any known scientific literature and render the fish and crabs unsafe for human consumption. The State has been forced to impose fishing and crabbing bans for 35 years.

2. **Through cooperative efforts among stakeholders, much remedial progress has been made thus far**:
   - Completed: RM 3.4, 2012- Removal of 40,000 cubic yards, to a depth of 12 feet, of the most toxic and hazardous sediments (2,3,7,8-TCDD up to 9 mg/kg or 9,000,000 ng/kg (ppt)), adjacent to the former Diamond Alkali Site, OU 1, Newark, NJ.

   - Completed: RM 10.9, 2015 - As an interim remedy, removal of an estimated 20,000 cubic yards of highly contaminated surface sediment (maximum levels range between 20,000 – 50,000 ppt) on a 5- acre mudflat at RM 10.9, Lyndhurst, NJ. Remaining elevated contaminant levels are sealed in place with a 2-ft. engineered sediment cap. Long term monitoring and maintenance are ongoing.

   - OU 2 Remedial Design: RM 0 – 8.3 - An approximate 10-year intensive study of the lower 8 Miles of the river through the Focused Feasibility Study, culminating in the OU 2 April 2016 Lower 8-Mile Record of Decision. Tremendous time, energy and resources were invested in this final decision and the State remains fully committed to its successful implementation.

These 3 significant remedial decisions/actions were necessary and appropriate to effectuate source control and reduce the very high risks and hazards posed by the contamination in this river. The average dioxin concentration in surface sediment has generally remained at approximately 1,000 ppt, with a median level close to 300 ppt. These levels are at least 2 orders of magnitude above background and, due to the highly toxic and bioaccummulative characteristics of this contaminant, also orders of magnitude above what is considered protective of human health and ecological receptors. The 2016 ROD is expected to result in a major step towards risk reduction by cutting off the greatest ongoing source of 2,3,7,8-TCDD river-wide.

3. **The 17-Mile Study is nearing completion**. With the OU 2 8-Mile ROD in place, the scope of the OU 4 17-Mile RI/FS is now focused on the remaining 9 miles of river between OU 2 and Dundee Dam. The first draft RI/FS was submitted in 2015. The second draft RI is being submitted in early 2018 and certain sections are currently under review. The Human Health Risk Assessment has been approved. The third Draft Ecological Risk Assessment is under review. Surface sediment dioxin concentrations in the upper 9 miles of the LPR range from well below 1 ppt (background is 2 ppt) in the uppermost region, to over 30,000 ppt in some mudflat areas.

As envisioned by the USEPA and Partner Agencies at issuance of the OU 2 ROD, the RI/FS for the 17-Mile Study was anticipated to conclude by 2021, with a ROD issued shortly thereafter. The ROD from this effort is expected to address contaminants and conditions not fully assessed as part of the 8-Mile FFS/ROD. For example, other contaminants such as PAHs and other exposure scenarios, such as freshwater receptors.

4. Finally, based on gradually improving contaminant conditions for key risk-driver contaminants moving upstream, the Department anticipates opportunities for removal of contaminated sediment to a degree that, in some cases, ***need not rely*** on subsequent capping. Capping reliance should be minimized because it requires use of long-term institutional controls and associated resource-intensive, long-term monitoring and maintenance. A remedial proposal which integrates greater ***permanence*** is needed for the sediment bed areas above RM 8.3.

<u>The CPG's Interim Remedy Proposal</u>

The CPG's IR proposal calls for a phased approach for source (hot spot) removal using adaptive management in the 9 miles of the lower Passaic River between Dundee Dam and OU 2. In general, Phase 1 of the IR proposal includes additional investigation, hot spot removal, capping and monitoring/evaluation. Hot spot removal is anticipated to be limited to RM 8.3 to 14.7, comprising approximately 80 of 252 acres in this region of the river.

Key elements include:

- Remedial Action Objectives limited to reduction of contaminant levels and mobility
- Coordination with OU 2 to utilize infrastructure and processes established for OU 2
- Hot Spots defined by two Remedial Action Levels (RAL): 300 ppt for 2,3,7,8-TCDD and 1 ppm for Total PCBs

- RALs based on current estimated depositing particulate concentrations of 2,3,7,8-TCDD and total PCBs from water column; additional RALs may be considered during design
- Lack of risk-based remedial goals to guide project; instead, remedial footprint established based on a selected degree of risk reduction
- Remedial success to be determined using a Surface-Weighted Average Concentration (SWAC) approach.
- Risk-based remedial goals may be established after ROD 1 implemented and monitored for approximately 10 years.
- Schedule: Phase I ROD, 2020; construction 2024-2027; Monitoring 2028 – 2038; Possible ROD 2 thereafter.

NJDEP Comments: Technical Concerns on the CPG's IR Proposal

1. The proposed Remedial Action Objectives (RAOs) are limited in scope to only "reducing" contaminant levels in sediment and biota and "reducing" contaminant migration. These goals cannot be accepted at this time because, given the remedial history of this river (See General Comment 2), the RAOs for the next remedial action in this river must support prior actions and be directly linked to achieving acceptable risk levels for human health and ecological receptors under CERCLA.

2. The proposed RALs represent current CERCLA discharge conditions - RALs for sediment hot spot removal were selected by assuming that the current contaminant load in the water column represents "background", so that it would represent the best that could be achieved, rather than a CERCLA discharge from legacy contaminated sediments. The proposed RALs represent current conditions in a highly contaminated, un-remediated river system. As a result, the proposed RALs cannot be accepted as they are not linked to achieving CERCLA-compliant risk-based goals and, in its current form, does not assure the success of the entire river cleanup.

3. The IR proposal does not include the use of risk-based remedial goals -While risk-based remedial goals may not be required for an interim remedy, given the specific conditions and stage of this river's cleanup, (see General Comment 2), the sediment and biota tissue remedial goals (RGs) used in the 8-Mile ROD should be considered in the development of this IR proposal. These RGs could be used as default RGs for the entire river until improved RGs are developed, if considered warranted. EPA has identified a similar concern and possible path forward for development of site-specific remedial goals for an interim remedy.

4. Method for Determining Remedial Success – The Department has concerns regarding the CPG's proposed SWAC application as described in the IR proposal. First, the area described for SWAC evaluation (RM 0-17, or river-wide) is considered too large and must be reduced, at a minimum, to the specific operable unit for which the IR proposal is intended to address, the upper 9 miles of the river. In addition, through future design sampling, it may be determined that even smaller areas for SWAC application are most appropriate, to address differing exposure scenarios in shoal and mudflat areas versus the channel. Second, the IR proposal lacks appropriate metrics for determining remedial

success. Use of river-wide SWAC is described, but neither the derivation method nor benchmarks for comparison are provided. In addition, currently, success and codification of final clean-up goals appear to depend on matching model forecasts, and not on meeting risk-based goals.

5. Model Uncertainties - Conditions for modeling in the upper 9 miles are less understood, as compared to the lower 8 Miles of the river. However, rates of sediment burial, implying potential for recovery (with cleaner sediment), have been observed to be slower in the upper 9 miles of the river versus the lower 8 miles (Israelsson, Peter H., et.al., 2014). The CPG's use of site data and modeling for the IR proposal have not taken this into account. The data used by the CPG to support the IR proposal (CPG Upper 9-Mile Plan, Nov. 27, 2017, Figure 7) is not representative of the upper 9 miles of the river.

6. Potential Impacts to IR Proposal Schedule - Under the 17-Mile RI/FS project, there has been formal conflict resolution on issues central to the river's risk assessments and conceptual site model which has affected the site schedule. Although progress has been made, this situation should be taken into account since core elements of the IR proposal have not been identified (e.g., risk-based remedial goals, time to achieve same, and metrics for determining remedial success). A plan that lacks specificity could result in delay thus prolonging the advancement of this project.

7. Approval of CPG's IR proposal in current form could impact EPA's defense of 8-Mile ROD -The CPG have promoted a different view on aspects of the river's conceptual site model, which has been used to demonstrate opposition to the 8-Mile ROD. Through a letter in June 2014, the CPG expressed strong opposition to the 8-Mile ROD:

"The proposed remedy is scientifically flawed and does not consider the significant volume of information developed, with regulatory oversight, by the RI/FS. Because of failing to integrate all available information, the proposed remedy's conceptual model does not accurately reflect the complex processes at work in the Passaic River. … The scientific methods and analysis used to develop the Sustainable Remedy are more robust than those used to develop the bank-to-bank dredge."

The Department's expressed concern is that approval of the CPG's IR proposal in current form, and without a commitment by the CPG to drop opposition to the 8-Mile ROD, could serve to call into question the basis for selection of the current 8-Mile ROD and leave it vulnerable to a future challenge by CPG utilizing EPA's own technical and scientific analysis and approval.

NJDEP Comments: CPG's IR proposal relative to USEPA Contaminated Sediment Guidance

Due to the complex nature of many large contaminated sediment sites, the USEPA have produced a series of guidance documents to support the Regions and States in addressing these sites. These guidance documents, issued in 2002, 2005 and 2017, and listed on EPA's Contaminated Sediments website https://www.epa.gov/superfund/sediment-risk-management-principles, build upon and support the key principles considered central to successful remediation of complex contaminated sediment sites. The Department would like to highlight the following principles relative to the CPG's IR proposal as described in USEPA OLEM

Directive 9200.1-130, Jan. 17, 2017. Recommendations 5 through 8 are considered particularly relevant to the concerns regarding the CPG's Interim Remedy Approach:

Recommendation 5 states "Clearly describe risk reduction expectations by identifying the monitoring endpoints that will be used to evaluate achievement of all remedial action objectives." The guidance goes into detail on the necessary level of specificity needed to guide the scope and shape of remedial action decisions:

"A remedy's risk reduction expectations should answer several fundamental questions:

- What condition (e.g., contaminant concentration or level of toxicity) is expected to be achieved?
- In what media (e.g., sediment, fish tissue, surface water, porewater)?
- In what area?"

As described under Technical Comments above, the CPG's IR proposal is considered insufficient regarding goals and benchmarks for achieving risk-based remedial goals.

Recommendation 6 states "Develop risk reduction expectations that are achievable by the remedial action." Through this statement, USEPA recognizes that at sites with bioaccummulative contaminants, appropriate sediment cleanup levels may need to be set very low to achieve exposure levels protective of human health and ecological receptors. However, such goals also need to account for background influences. The CPG's IR proposal in its current form will not achieve sufficient risk reduction potentially available for this river because RALs were selected by assigning in-river contaminant load as "background", i.e., the best that could be achieved. Preferred approaches for RAL selection which are linked to risk-based goals exist, and should be developed for this project.

Recommendation 7 states "Consider the limitations of models in predicting future conditions for purposes of decision making." Models are wonderful tools but are imperfect; limitations of models must be acknowledged and accounted for in remedial decision-making. In addition to describing uncertainty of model predictions, provisions for compensating for model limitations need to be considered and incorporated in designing remedial actions - - this will most often mean "to err on the side of caution" and add safety factors to achieve goals. The CPG's IR proposal in its current form does not appear to account for model limitations or include provisions for addressing same.

Recommendation 8 states "Consider a structured adaptive management approach to response action implementation that includes using early actions, interim and contingency remedies."

Adaptive management is used to promote remedial actions moving forward despite some uncertainty at sites, and to address either higher risk or ongoing discharge conditions more immediately through early, interim or contingency actions. Within the Passaic river, three prior remedial actions exist: 2 completed and, the most comprehensive one, the 8-Mile ROD, in design. It is also important to note the emphasis on "structured" adaptive management, which is specified in USEPA's guidance to include the upfront establishment of measurable remedial

action objectives (i.e., what levels are expected to be achieved in what media over what area, and in what timeframe?) followed by identification of specific trigger criteria that will be used to identify a need to change course, and a monitoring framework needed to support these evaluations. CPG's IR proposal in its current form lacks the necessary level of detail and structure to implement a successful adaptive management approach.

Conclusion and Recommendation

In conclusion, the Department cannot support the current IR proposal. In its current form, the CPG's IR proposal cannot be considered sufficiently robust in either substance (RAOs, RALs) or framework to give the Department confidence that CERCLA compliant risks and hazard levels will ultimately be attained. Based on the amount of study and the scope of remedial actions performed (and underway) to date, we are at a stage where site-specific and risk-based remedial goals can and should be used to guide this next and hopefully, final, remedial action in the river. It is therefore considered premature to accept the IR proposal in current form, as it could call into question many years of work and millions of dollars expended in the effort to fully restore the Passaic River.

However, the Department is willing to continue to work with the USEPA and CPG to develop improvements in the IR proposal and adaptive management approaches to move this project forward. The IR proposal should only be approved once the technical concerns of the Department have been fully satisfied in future written submissions after review by the Partner Agencies.

The goals for the State for the remediation of the Passaic River have always been to protect the health of our citizens, to provide a permanent solution to the clean-up of this waterway, to restore the environment and economic health of the river and the surrounding communities, and to initiate the remediation as soon as possible.

Sincerely,

Mark J. Pedersen
Assistant Commissioner

Cc: Jennifer LaPoma, US EPA II

References:

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