



# United States Department of the Interior



## FISH AND WILDLIFE SERVICE

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In Reply Refer To:

**NOV 10 2014**

Ira-Perry Katz  
Remedial Project Manager  
U.S. Environmental Protection Agency Region 2  
290 Broadway, 19<sup>th</sup> Floor  
New York, New York 10007

Dear Mr. Katz,

The U.S. Fish and Wildlife Service (Service) has completed its review of the proposed Permit Modification and Statement of Basis for the DuPont Pompton Lakes Works Site (PLW) Acid Brook Delta (ABD) and Upland Soil Remediation, provided to us by the U.S. Environmental Protection Agency (EPA). The Service appreciates the opportunity to coordinate with EPA and EPA's efforts to ensure our concerns are addressed.

As you know, in February 2012, the Service provided written comments on an application to the New Jersey Department of Environmental Protection (NJDEP) for a New Jersey Freshwater Wetlands Protection Act Permit and Flood Hazard Area Control Act Permit (Permit Application: NJDEP File no. 16009-09-0006.1). The permit was for authorization to perform remediation and restoration activities in the area of the ABD of Pompton Lake, which has been impacted by releases of contaminants from the PLW Site. The Service also provided input, primarily in the form of verbal comments, during EPA's development of a modified permit that was released in December 2012 regarding ways to enhance the ecological protectiveness of planned remedial activities. That modified permit was appealed, and in April 2014 EPA announced it was withdrawing the modified permit and would be revising the permit again. It is the Service's understanding that the draft Permit Modification received from EPA on October 5, 2014 presents the currently proposed remedial action for the ABD, including the surrounding wetlands and uplands, as well as Pompton Lake downstream of the Lakeside Bridge to the Pompton Lake Dam. We offer the following comments on the currently proposed permit modification for EPA's consideration.

### **Acid Brook Delta**

The Service supports the increase of the removal area within the ABD to approximately 36 acres from the originally proposed 26. The Service also supports the removal of sediment from the approximately three acres with higher rates of mercury methylation outside the ABD. Given that elevated mercury concentrations will remain in sediment outside the removal areas, however, long-

term post-construction monitoring for potential ecological effects will be critical. While the proposed permit indicates that post-construction monitoring will be required and provides a general description of the types of sampling that will be included, more specificity is needed. The Service recommends that prior to the remedial action, a detailed work plan for post-construction monitoring be developed that incorporates performance measures and potential thresholds for corrective action. The Service also recommends incorporating spider sampling in the vicinity of the ABD into the monitoring plan. Spiders have been shown to accumulate mercury through the consumption of emergent insects and thereby provide a pathway by which mercury present in the aquatic environment can become incorporated into the terrestrial food chain. Additionally, since spiders were collected in the 2014 ecological investigation, there is a good basis for comparison to evaluate the effectiveness of the proposed removal action.

In our review of the initial permit application, the Service recommended that the sand cap (“eco-layer”) placed within the footprint of the ABD removal area be a minimum of 12 inches thick. The currently proposed permit states that a 6-inch cap will be placed in areas of the ABD where there is a well-established peat layer, with a 12-inch cap being placed in other areas. According to the Spring 2010 Characterization and Delineation Results (Appendix A of the 2011 Corrective Measures Implementation Work Plan; Arcadis *et al.* 2011), mercury concentrations in “the material immediately below the sediment layer (*i.e.*, peat or sand)” were primarily less than 50 milligrams per kilogram (mg/kg), with nine of 74 cores containing concentrations greater than 50 mg/kg. While we understand that the peat represents native material present prior to the onset of operations at the PLW, it is not clear from the information we have seen that mercury concentrations in peat are sufficiently low to justify a six-inch cap, since the potential exists for contaminants to move from under and through a sand cap’s interstitial water, particularly via gas phase loss/transport. In addition, perturbation, whether induced by biota, wind, or current, can result in disturbance to sand caps over time. Therefore, the Service continues to recommend that a minimum of a 12-inch cap be placed over the entire removal area in the ABD, regardless of the composition of the underlying material.

## **Upland Remediation**

The Service continues to have concerns regarding the application of a remedial action objective (RAO) of 20.5 mg/kg to upland, wetland, and wetland transition habitats. Our review of the original Permit application (USFWS 2012) outlined our reservations with the method by which the RAO was derived. We have also indicated our concerns to EPA regarding the application of the “upland” RAO to wetland and wetland transition habitats in subsequent communications with EPA during the 2012 Permit Modification revision process. In brief, the 20.5 mg/kg RAO, by itself, does not appear to be adequately protective of trust resources, particularly for wetland and wetland transition habitats. Wetlands can represent important areas of methylmercury production in mercury-contaminated systems (St. Louis *et al.* 1994; Waldron *et al.* 2000; Ackerman 2012), potentially providing a pathway for exposure of aquatic organisms to methylmercury via surface water exchange, and/ or increasing the rate of mercury bioaccumulation in wetland inhabiting organisms.

The Service does believe, however, that the expeditious removal of mercury-laden soil and sediment in the ABD and surrounding wetland, wetland transition, and upland habitats is of paramount importance to returning Pompton Lake to a functionally intact ecosystem. Therefore, to expedite the completion of a removal action, the Service suggests that the protectiveness of the removal be enhanced by blocking potential transport pathways to ecological receptors. To that end,

we recommend that a minimum of two feet of clean protective material (sand cap or “eco-layer”) be placed on top of the entire “upland” removal area. While the currently proposed permit modification does not clearly indicate what the thickness of the protective material will be in the wetland and wetland transition zones, the Technical Support document for the Upland Soil Area Corrective Action indicates that soil will be removed to a minimum of three feet below the final restoration elevation, or to one foot below the water table, whichever is less, and provides a discussion of the root depth of various wetland plant species as justification for that approach. However, while it is true that the majority of the root mass of wetland plants is found within the top foot of soil, a variety of species (*e.g.*, *Typha*, *Scirpus*, *Phragmites*) have roots depths that reach beyond one foot, to two feet or sometimes more (see, for example, Bart and Hartmann 2000; Hunter *et al.* 2000; Sorrell *et al.* 2000). Therefore, with the currently proposed one-foot cap, some root systems could reach into the contaminated zone, even if the water table is a foot below the ground surface. Placing two feet of clean material over the entire upland removal area will minimize the potential for plant roots to extend into the contaminated zone in both dry and wet soils and also provide a sufficiently protective barrier to impede movement of mercury and other contaminants through the cap’s interstitial water in areas with saturated soil conditions. While this approach may require the removal of additional material to ensure that flood control is not compromised, it will minimize the risk of contaminant uptake through plant roots, regardless of water table level.

### **Pompton Lake Remediation**

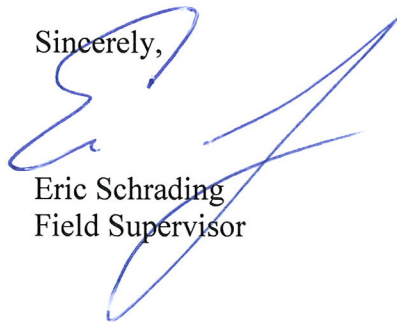
As the EPA is undoubtedly aware, a significant amount of mercury-contaminated sediment will be left behind at the completion of the currently proposed removal action. The Service appreciates and supports the goal of moving forward with a clean-up that removes the vast majority of contaminant load in the system. However, as mentioned previously, we believe that long term monitoring will be critical to documenting that any contamination left behind is not making its way into the food web or migrating downstream. The information presented in the proposed Permit Modification and Statement of Basis does not provide sufficient detail regarding what will be included in the long term monitoring program. However, it does not appear to include evaluating potential transport of mercury from Pompton Lake to areas downstream of the Pompton Dam. In addition to the incorporation of spiders into the post-construction sampling regime, the Service recommends that monitoring plans include measuring mercury in suspended solids in surface water at the Lakeside Avenue Bridge and downstream of the Pompton Lake Dam to assess what is coming in to the system from upstream and whether any mercury is being transported downstream. In addition, the Service would appreciate the opportunity to provide additional input into monitoring plans as they are developed, and in the evaluation of performance measures as monitoring data become available, to evaluate the effectiveness of the removal in reducing bioaccumulation of mercury and reducing downstream transport, as well as determining the potential need for further corrective action.

### **Contamination Downstream of Pompton Lake Dam**

It is the Service’s understanding that contamination downstream of the Pompton Lake Dam will be assessed following the completion of the ABD removal action. This is a critical component of evaluating the totality of ecological impacts stemming from releases at the PLW, particularly since bathymetric surveys of Pompton Lake have shown scouring of sediment in some areas. The Service would again appreciate the opportunity to provide input on downstream evaluations and the potential need for corrective action.

Thank you for your consideration of these comments and recommendations. The Service looks forward to continued coordination with EPA in addressing contamination originating from the PLW Site. Should you have questions on the above, please contact Melissa Foster at 609-383-3938 x21, or by email at [Melissa\\_foster@fws.gov](mailto:Melissa_foster@fws.gov).

Sincerely,

A handwritten signature in blue ink, appearing to read 'Eric Schrading', is written over the typed name and title.

Eric Schrading  
Field Supervisor

## Literature Cited

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