PETITION TO THE UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Petition for Evaluation and Expansion of Remedial Action Selected in the 2002 Record of Decision for the Hudson River PCBs Site	))))	*Submitted December 17, 2015, to Judith Enck, EPA Region 2 Administrator*

Pursuant to the Petition Clause contained in the First Amendment of the United States Constitution,[1] the Administrative Procedure Act,[2] and the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA" or the "Superfund Act"), Hudson River Sloop Clearwater, the Natural Resources Defense Council, Riverkeeper, Scenic Hudson, and the Sierra Club, Atlantic Chapter (collectively, "Petitioners") petition the U.S. Environmental Protection Agency ("EPA") to take immediate action to ensure protection of the Hudson River and the health and safety of millions of New Yorkers.

Beginning in 2009, pursuant to a 2006 consent decree with EPA implementing the agency's 2002 Record of Decision, the General Electric Company ("GE") carried out dredging operations in the Upper Hudson in an effort to remove sediments laden with the PCBs that it had dumped into the river for decades. In October of 2015, GE announced that it had completed the dredging program, which EPA declared a success, and on November 12, 2015, EPA approved the decommissioning of the dewatering facility and other critical infrastructure that had supported the dredging operations. This approval constituted a de facto determination by EPA that the dredging remedy selected in the Record of Decision had been satisfactorily completed and that this remedy is protective of human health and the environment.

This de facto determination was arbitrary and capricious. It was made in the face of compelling evidence that the PCBs remaining in the Hudson constituted a real and continuing danger and that the completed dredging had not resulted in conditions that were sufficiently protective of human health and the environment. This was the conclusion reached by the National Oceanic and Atmospheric Administration ("NOAA") in a recent technical analysis regarding the efficacy of EPA's cleanup plan for PCB-contaminated sediments in the Hudson River. This analysis directly contradicted EPA's previous assessments—specifically, in the 2012 Five Year Review—that the dredging remedy was fully and adequately protective. Ultimately, the NOAA analysis concluded that high levels of PCBs will remain in the river, and in Hudson River fish, generations longer than expected unless further dredging is conducted.

EPA ignored this analysis and NOAA's conclusions. Instead, it hued to the position it had taken for more than five years—namely, that the limited dredging GE was required to undertake would

[1] U.S. Const. amend. I (prohibiting laws "abridging freedom of speech, or of the press; or the right of the people peaceably to assemble, and to petition the Government for a redress of grievances"). The right to "petition for redress of grievances" has been described by the U.S. Supreme Court "among the most precious of the liberties safeguarded by the Bill of Rights." *United Mine Workers of America, Dist. 12 v. Illinois State Bar Ass'n*, 389 U.S. 217, 222 (1967).
[2] 5 U.S.C. § 555(e).

still be sufficient to timely achieve the remedial health and safety targets. With this position in mind, the agency blessed the termination of the dredging program, labeling it a "success."

In this and in other respects described below, EPA also violated its non-discretionary duty under CERCLA to ensure that selected remedies are protective of human health and the environment—which includes a responsibility to consider substantial new evidence bearing on the issue. As matters stand now, the agency's de facto approval of the termination of the GE dredging program and its refusal to order additional dredging cannot be sustained.

However, EPA has recently signaled that it may revisit its conclusions by undertaking an accelerated five-year review. Given the agency's history of unwillingness to analyze critical new information bearing on the sufficiency of the remedy, Petitioners have serious concerns as to whether any review at this point would be truly objective. Still, such a review would give EPA an opportunity to take corrective action by undertaking a comprehensive, in-depth evaluation of the dredging remedy that is capable of assessing whether it is truly protective. This evaluation, at a minimum, must include full consideration of the NOAA analysis, other concerns raised by the Trustees and the public, and the issues raised herein. Additionally, EPA must also give serious consideration to new scientific research demonstrating the potential human health harms posed by chronic exposure to airborne forms of PCBs—an exposure pathway specifically not addressed by EPA's current remedy—as well as recent evidence of the failure of longstanding fish consumption advisories to protect human health in the interim.

The review must be transparent, thorough, and inclusive, with ample provision for meaningful participation by interested agencies and the public. Moreover, to the extent that this evaluation demonstrates the selected remedy will not meet EPA-established targets for human health and safety within the requisite timeframes, EPA must take all appropriate action—including expansion of the dredging remedy—to protect human health and the environment.

IDENTITY AND INTEREST OF PETITIONERS

Petitioners are a group of five not-for-profit environmental organizations, all of which have a strong connection to New York's environment and the Hudson River. They include the Hudson River Sloop Clearwater, Natural Resources Defense Council, Riverkeeper, Scenic Hudson, and the Sierra Club, Atlantic Chapter. Each of these organizations has a long-standing interest in the health and ecological well-being of the Hudson River, including an interest in ridding the River of PCB contamination. Petitioners' respective statements of interest are included in Exhibit A to this Petition.

BACKGROUND

I. PCBs in the Hudson River Pose a Significant Threat to Human and Animal Health

Polychlorinated Biphenyls ("PCBs") are manmade, bioaccumulative persistent-organic-pollutants that are known to cause a wide variety of adverse health effects. As EPA states:

> PCBs have been shown to cause cancer in animals. PCBs have also been shown to cause a number of serious non-cancer health effects in animals, including effects on the immune system, reproductive system, nervous system, endocrine system and other health effects. Studies in humans provide supportive evidence for potential carcinogenic and non-carcinogenic effects of PCBs. [3]

Exposures to PCBs can occur through consuming contaminated food or water, direct skin contact, or breathing contaminated air.[4] Non-cancer risks from exposure to PCBs likely include, among others: dermal and ocular lesions; liver and kidney disorders; reduced birth weight, conception rates, and live birth rates; persistent and significant deficits in neurological development, including visual recognition, short-term memory and learning; and developmental problems due to interference with thyroid hormone levels.[5]

Because PCBs do not readily break down in the environment and accumulate in animal fat and other tissue when ingested, PCB contamination of river sediments can spread throughout the food chain from low level river bottom fauna to fish, birds, and land animals (including, of course, humans).[6]

As recent anglers surveys have shown, consumption of fish from the Hudson River remains a major health concern for New Yorkers, despite the existence of longstanding New York Department of Health ("NYSDOH") fish consumption advisories. In 2012, for example, the Cornell Cooperative Extension performed a survey of over 300 anglers, finding that approximately 11% of those surveyed ate Hudson River fish.[7] In 2013, NYSDOH presented preliminary results of its own angler survey showing even higher consumption percentages (near 50%), also noting that awareness of fish consumption advisories in the more populated and linguistically diverse Lower Hudson was about half of what it was in the Mid and Upper Hudson regions.[8]

Further, within the last decade, a growing body of research has highlighted the severity of the potential risks from "volatilized" or airborne PCBs, which have been associated with certain chronic illnesses—such as cancer, cardiovascular disease, hypertension, and diabetes—even at relatively low levels. [9]

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[3] EPA, Health Effects of PCBs (accessed Dec. 16, 2015) [hereinafter "Health Effects of PCBs"] http://www.epa.gov/epawaste/hazard/tsd/pcbs/pubs/effects.htm.

[4] EPA, *Polychlorinated Biphenyls (PCBs)*, CAS Number 1336-36-3, *available at* http://www3.epa.gov/epawaste/hazard/wastemin/minimize/factshts/pcb-fs.pdf.

[5] *See* Health Effects of PCBs.

[6] *See* EPA, Polychlorinated Biphenyls (accessed Dec. 16, 2015) *available at* http://www3.epa.gov/epawaste/hazard/tsd/pcbs/about.htm.

[7] *See* NYSDOH, *Hudson River Fish Advisory Outreach Project Update*, 5 (Sep. 19, 2013), *available at* http://www.hudsoncag.ene.com/files/Hudson%20Fish%20Health%20Advice%20Outreach%20091913.pdf.

[8] *See Id.* at 6, 20; Hudson River PCBs Community Advisory Group, *Hudson CAG Meeting Summary*, 5-6 (Sep. 19, 2013), *available at* http://www.hudsoncag.ene.com/files/Final%20Meeting%20Summary_Sept192013.pdf.

[9] *See* M. Kouznetsova et al., *Increased Rate of Hospitalization for Diabetes and Residential Proximity of Hazardous Waste Sites*, 115(1) Envtl. Health Perspectives 75 (Jan. 2007); Alexander Sergeev & David Carpenter, *Hospitalization Rates for Coronary Heart Disease in Relation to Residence Near Areas Contaminated with Persistent Organic Pollutants and Other Pollutants*, 113(6) Envtl. Health Perspectives 756 (Jun. 2005).

II. EPA Determines that the Removal of PCB-Contaminated Sediments in the Hudson River Is Necessary to Protect Human Health and the Environment

Between 1946 and 1976, GE dumped millions of pounds of PCBs into the Hudson River from two manufacturing plants located in Fort Edward and Hudson Falls, New York. Because of the resulting pollution, EPA declared a nearly 200-mile stretch of the river—from roughly 40 miles north of Albany to the Battery in New York City—a federal Superfund site in 1984. The site was, and remains, one of the largest in the country.

Given its sheer size, EPA divided the Hudson River Superfund Site into separate parts or "operable units" for the purpose of developing a remedial plan for each distinct unit. The focus of this Petition is the remedial plan for Operable Unit 2, which targets contaminated sediments located within the river.[10]

In 2002, EPA issued its Record of Decision ("ROD") for Operable Unit 2 regarding the need and feasibility of action to address contaminated river sediments.[11] In it, EPA concluded that active remediation was "necessary to protect the public health or welfare and the environment" due to the "health hazards associated with human ingestion of [Hudson River] fish, as well as the ecological risks associated with ingestion of fish by birds, fish and mammals."[12]

To address these hazards, the ROD established site-specific remedial action objectives for remediation of in-river sediments ("RAOs"), also setting defined numeric performance targets known as preliminary remediation goals ("Remediation Goals") for acceptable levels of PCBs in fish.[13] The ultimate numeric goal was 0.05 mg/kg of PCBs in fish fillet—a level at which it was expected that an adult could eat a half-pound meal a week safely.[14] The ROD additionally set interim Remediation Goals of 0.2 mg/kg (one meal every month) and 0.4 mg/kg (one meal every two months).[15] For the protection of Hudson River wildlife that also consume fish, such as mink and otter, similar Remediation Goals were established.[16]

In addition to fish-related targets, the RAOs also called for: (1) the reduction of PCB levels in sediment in order to meet the applicable or relevant and appropriate requirements ("Applicable

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[10] Other operable units include: Operable Unit 1 (1984 ROD remedy for Remnant Deposits 2-5); Operable Unit 3 (1999 EPA removal of 4,400 tons of contaminated sediments from Rodger's Island); and Operable Unit 4 (yet to be determined remedy for remediation of floodplains). EPA, *First Five-Year Review Report for Hudson River PCBs Superfund Site*, 1 (Jun. 1, 2012) [hereinafter "FYR"] *available at* http://www3.epa.gov/hudson/pdf/Hudson-River-FYR-6-2012.pdf.

[11] EPA, *Hudson River PCBs Site, New York: Record of Decision* (Feb. 2002) [hereinafter "ROD"] *available at* http://www.epa.gov/hudson/RecordofDecision-text.pdf.

[12] *Id.* at 49.

[13] *Id.* at 50.

[14] *Id.*

[15] *Id.*

[16] *Id.* For river otter, "the piscivorous mammal calculated to be at greatest risk from PCBs at the Site," the risk-based PRG was set at 0.3 to 0.03 mg/kg of PCBs in largemouth bass. For mink, another species known to be sensitive to PCBs, the target range was from 0.7 to 0.07 mg/kg of PCBs in spottail shiner. Other species were considered, but no target ranges were specified as it was determined that they were "at less risk than the river otter." *Id.* The ROD also set a goal of "[r]educ[ing] the inventory (mass) of PCBs in sediments that are or may be bioavailable." *Id.* at 51.

Requirements") for surface water; [17] and (2) the minimization of the long-term flow of PCBs that daily run over the Federal Dam in Troy, NY and down through the Lower Hudson River. The RAOs did not, however, include any targets for air quality because of EPA's finding at the time that "[a]ir exposure was not expected to present a significant risk to human health."[18]

In order to accomplish the RAOs, the ROD evaluated five remedial alternatives—two non-active remedies and three active remedies. The non-active remedies considered were a "no action" alternative and a "monitored natural attenuation" ("Natural Attenuation") alternative, the latter of which assumed some future control of the PCBs then still entering the Hudson ecosystem from the contaminated plant sites. The active remedies proposed capping and/or dredging of contaminated sediments, followed by natural attenuation,[19] but only as applied to the northernmost forty miles of the Superfund site—from the plant sites to the Federal Dam in Troy (the "Upper Hudson River"). The roughly 150 miles of the Hudson Superfund Site below Troy, designated as the "Lower Hudson River," was "not . . . identified for active remediation" on the assumption that active remediation in the Upper Hudson would sufficiently "reduce[] risks to humans and ecological receptors living in and near the Lower Hudson River."[20]

All three active remedial alternatives outlined in the ROD (two calling for dredging and one for capping) divided the Upper Hudson into three distinct sections of unequal length—River Sections 1 and 2 (approximately 10 miles in length combined) and River Section 3 (approximately 30 miles in length)—with varying cleanup standards for each triggered by the amount of "Tri+"[21] PCBs found in surface sediment.[22] The major animating principle behind all three active alternatives was simple: remove or sequester enough PCBs in surface sediments, so the PCBs would no longer get into the water column or the food chain where they would harm people and wildlife.

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[17] For the Hudson River site the federal Applicable Requirements are: 0.5 µg/L total PCBs for drinking water (maximum contaminant level under the Safe Drinking Water Act); 1 ng/L for the Ambient Water Quality Criterion; and 0.014 µg/L for the criteria continuous concentration Federal Water Quality Criterion in freshwater and 0.03 µg/L in saltwater. The New York State Applicable Requirements are: 0.09 µg/L total PCBs for protection of human health and drinking water sources; and 0.12 ng/L for protection of wildlife; 0.001 ng/L for the protection of the health of human consumers of fish. ROD at 50-51.

[18] *Id.* at 26. As explained above, new scientific studies on the potential harms from chronic exposure to lower-chlorinated forms of PCBs undermine this conclusion.

[19] *Id.* at 56-62.

[20] *Id.* at 2.

[21] The remedial alternatives discussed in the ROD target "Tri+" PCBs, defined as PCB molecules with 3 to 10 chlorine atoms, based upon the finding that "that the Tri+ PCB concentration ranged from 98 to 100 percent of the total PCB concentration in fish collected." *Id.* at 24, n. 1. Total PCB levels in the Upper Hudson, however, were roughly 2-4 times higher than the Tri+ levels. *See* Jay Field et al., *Hudson River Remedy: Unremediated PCBs and the Implications for Restoration* (2011) [hereinafter "Unremediated PCBs Trustee Poster"], *available at* http://www.fws.gov/contaminants/restorationplans/HudsonRiver/docs/Battelle1_Field.final1.pdf.

[22] For example, the "REM 3/10/Select" alternative—which EPA ultimately selected—called for the dredging and removal of contaminated sediments: in areas in River Section 1 with a surface concentration of greater than 3 g/m^2 of "Tri+" PCBs; in areas in River Section 2 with a surface concentration more than 10 g/m^2 of Tri+ PCBs; and in select "hot spots" in River Section 3. Similarly, the "CAP 3/10/Select" remedy called for capping of those same sediments respectively, and the "REM 0/0/3" remedy called for removal of contaminated sediments in River Sections 1, 2, and 3 in areas with surface concentrations of Tri+ PCBs of greater than 0 g/m^2, 0 g/m^2, and 3 g/m^2, respectively. *See* ROD at 56-62.

Since consumption of fish was the major exposure pathway of concern, the ROD acknowledged that "[t]he time to reach target PCB concentrations in fish was a *primary factor* in comparing remedial alternatives."[23] Although EPA recognized the limited interim protection provided by longstanding NYSDOH fish consumption advisories,[24] it also found that these "controls do not protect ecological receptors."[25] Further, it found that "human health risk reduction relies on *knowledge of and voluntary compliance with* the consumption advisories and fishing restrictions," having earlier recognized that "fish consumption advisories are not fully protective of human health due to gaps in compliance."[26] Accordingly, expeditious reduction of PCBs in fish was critical to selection of the remedy and in ensuring the protection of human health and the environment.

Indeed, timing was a key factor in EPA's rejection of the non-active alternatives as not sufficiently protective. Relying on computer models designed to predict the short-and-long-term concentrations of PCBs in Hudson River sediment, water, and fish,[27] the agency concluded that the No Action and Natural Attenuation remedial alternatives were "not sufficiently protective of human health and the environment" because: (1) the Natural Attenuation alternative would "*take at least twenty years longer than the selected remedy* to reach target levels in fish tissue in River Sections 1 and 2;" and (2) both non-active alternatives would not sufficiently remedy the "unacceptably elevated" levels of PCBs in the Upper Hudson as well as "the continued degradation of the sediments and surface water quality . . . *for at least several decades longer* than any of the active remedial alternatives."[28]

In contrast, EPA found that all of the active remedial alternatives were "substantially more protective," primarily because of "the shorter time required to reach fish PCB target levels under those alternatives."[29] While the agency found all three active remedies to be sufficiently

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[23] *Id.* at 66 (emphasis added).

[24] The Department of Health advisories caution that all children under 15 and women under 50 should never eat any fish from any section of the river, and that no one should ever eat fish from the Upper Hudson. Men over 15 and women over 50 are advised that they may safely eat some select species of fish in the Mid and Lower Hudson on a occasional basis. NYSDOH, *Hudson River: Health Advice on Eating Fish You Catch*, 6-12 (undated), *available at* https://www.health.ny.gov/publications/2794.pdf.

[25] ROD at 104.

[26] *Id.*; EPA, *Hudson River PCBs Reassessment RI/FS Phase 3 Report: Feasibility Study* (Dec. 2000) (emphasis added), *available at* http://www3.epa.gov/hudson/fs000001.pdf.

[27] ROD at 26. EPA predictions for PCB fish tissue reduction timeframes were the product of a series of interconnected modeling efforts. The "backbone" of these efforts was the Upper Hudson River Toxic Chemical Model ("HUDTOX"), which "forecasted PCB concentrations in water and sediment" in the Upper Hudson River. EPA, *Revised Baseline Modeling Report*, ES-2 (Jan. 2000) *available at* http://www3.epa.gov/hudson/rbmr-bk1&2-chpt1-5.pdf. Outputs from HUDTOX were used as inputs in a number of bioaccumulation models, including the FISHRAND model, which ultimately predicted long-term trends in PCB fish tissue concentrations under the various remedial alternatives. *Id.* at ES-2 to ES-3.

[28] ROD at 102, 108 (emphasis added). It is not explicit in the ROD what years EPA predicted each of the remedies would commence and end. EPA does note, however, that both the CAP 3/10/Select and REM 3/10/Select remedies would take 6 years to complete, and that 2011 would be "the year following the completion of dredging" for the CAP 3/10/Select remedy. ROD at 75, 82. Confusingly, however, the ROD states that all three active remedial alternatives would achieve the 0.4 mg/kg target "within 5 years of completion of dredging (before or by 2013)," ROD at 103, and the FYR notes that "2012 [is] the year after completion of the remedy as simulated by the model." FYR at 28. For the purposes of this petition, it is assumed that EPA predicted 2010 as the year that dredging under the REM 3/10/Select remedy would be completed.

[29] ROD at 104.

protective, it ultimately selected the REM 3/10/Select alternative, which contemplated removal of sediments with PCB surface concentrations of greater than 3 g/m^2 and10 g/m^2 in River Sections 1 and 2, respectively, and select hotspots in River Section 3. EPA anticipated that the REM 3/10/Select Remedy would meet the 0.4 mg/kg target within 2 years of completion of the remedy and the 0.2 target within 14 years.[30] Although EPA predicted that the selected remedy would not meet the final 0.05 mg/kg target within the model timeframe for all three river sections, it did find that sediments in River Section 3 would achieve this goal within 41 years.[31] Importantly, EPA assumed that meeting the 0.05 mg/kg Remedial Goal in River Section 3 would indicate that this goal would likewise "be attained in the majority of the Lower Hudson River, due to [its] lower initial concentration of Site-related PCBs."[32]

III. Post-ROD Sampling Demonstrates that PCB Contamination in the Upper Hudson Is Significantly Greater and More Persistent than Thought

Shortly after issuance of the ROD, EPA conducted the most comprehensive sampling done in the Upper Hudson up until that point as part of the remedial design process, with over 9,000 sediment core samples taken from 2002 to 2005 (the "RD Sampling/Analysis Program"). The results of this sampling program demonstrated that EPA had vastly underestimated the size and persistence of PCB contamination in the Upper Hudson. [33]

Significantly, EPA later determined that PCB surface concentrations in the Upper Hudson were not only "3 times higher than predicted by the [EPA] model," but that the rate of natural attenuation was also much slower.[34] Indeed, while it had earlier "conjectured that the contaminated sediments were 'being buried,'" it later admitted, "the reality is much different."[35] While EPA interpreted these discoveries as "further impetus for the [implementation of the] remedy,"[36] it did not publically consider at the time whether this information would prevent the selected remedy from achieving the RAOs and Remediation Goals identified in the ROD.

In October of 2005, EPA and GE agreed to enter into a consent decree, which was approved by the U.S. District Court for the Northern District of New York in November of 2006, for implementation of the 3/10/Select Remedy ("2006 Consent Decree").[37] The 2006 Consent Decree did not substantially alter the scope of the selected remedy, but it did split it into two phases: Phase I, a small scale dredging pilot followed by a peer-reviewed evaluation ("Phase 1 Evaluation"); and Phase II, full implementation of the remedy.

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[30] *Id.* at 73.
[31] *Id.* at 71.
[32] *Id.* at 103.
[33] *See* Jay Field et al., *Evaluation of Natural Recovery Models for Sediment in the Upper Hudson River* (Feb. 2009), *available at* https://casedocuments.darrp.noaa.gov/northeast/hudson/pdf/Battelle09_Field_NatRecovery_508.pdf.
[34] EPA, *Hudson River PCBs Site EPA Phase 1 Evaluation Report*, ES-18 (Mar. 2010) [hereinafter "Phase 1 Evaluation"] *available at* http://www3.epa.gov/hudson/pdf/2010-03-15_Phase_1_Evaluation_Report_Text.pdf.
[35] *Id.* at I-53.
[36] *Id.* at I-4.
[37] *See U.S. v. Gen. Elec. Co.*, 460 F. Supp. 2d 395, 404 (N.D.N.Y. 2006) [hereinafter "2006 Consent Decree"], *available at* http://www3.epa.gov/hudson/consent_decree/consent_decree.pdf.

Phase I dredging began in 2009, and, consistent with the findings during the RD Sampling/Analysis Program, greater than expected volumes of PCBs were encountered. As part of the Phase 1 Evaluation, conducted in 2010, EPA explained that, because of a greater than expected depth of contamination, the amount dredged in each designated dredging area or "certification unit" was "nearly double the originally planned volume."[38]

While EPA optimistically observed that, as a result, Phase 1 dredging "removed more PCB mass and sediment volume than called for in the ROD,"[39] other observers expressed concern that, likewise, greater-than-expected loads of PCBs would also remain *outside* of the identified dredging areas.[40]

Importantly, the three "natural resources trustees" for the Superfund site—the National Oceanic and Atmospheric Administration ("NOAA"), the U.S. Fish and Wildlife Service ("USFWS"), and the New York Department of Environmental Conservation ("DEC") [41]—commented during the Phase 1 Evaluation that:

> PCB contamination in surface sediment is higher, more widespread, and closer to the surface than anticipated in the ROD. PCBs in the sediments are not being buried and are not declining at the rates predicted. In fact, River Section 2 is as contaminated as River Section 1. However, the cleanup triggers for the surface in River Sections 2 and 3 are approximately 75-90 ppm total PCBs, i.e., three times higher than for River Section 1. The Trustees analysis indicates that average PCB concentration in the top 2 inches of the sediment in River Section 2 and River Section 3 after dredging *will be approximately five times higher than the models predicted*.[42]

Similarly, the final report of the Phase 1 Evaluation peer review panel also heavily criticized EPA's pre-ROD modeling, finding that:

- "[the pre-ROD] models are outdated and inadequate to accurately project [Natural Attenuation] and post-dredge fish recovery rates.

- Neither EPA nor GE has sufficient data or a credible tool to project recovery."[43]

Accordingly, the peer review panel emphasized the importance of conducting new modeling "designed to predict surface sediment concentrations, fish PCB uptake, and long-term recovery

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[38] Phase 1 Evaluation at ES-4.
[39] *Id.* at II-3.
[40] Indeed even EPA noted that in areas capped during Phase 1 that "sediments were left behind that contained more PCBs than permitted by the ROD or the Residuals Standard in CU's 1, 2, 4, 5, 6, 7, and 8." *Id.* at II-58.
[41] NOAA, USFWS, and DEC are acting on behalf of the Department of Commerce, the Department of Interior, and the State of New York respectively. The trustees are responsible for calculating GE's outstanding natural resources damages for the site—a distinct basis of liability under CERCLA.
[42] NOAA, USFWS, & DEC, *Trustee Comments on Phase 1 Evaluation Reports for the Hudson River* (Apr. 26, 2010) (emphasis added) [hereinafter "Trustee Phase 1 Comments"], *available at* https://casedocuments.darrp.noaa.gov/northeast/hudson/pdf/Hudson_trustee_letter_re._Phase%201_Evaluation.pdf.
[43] Todd Bridges et al., *Hudson River PCBs Site: Peer Review of Phase 1 Dredging - Final Report*, 13 (Sep. 10, 2010), *available at* http://www3.epa.gov/hudson/pdf/hudsonriverphase1dredgingreport_final.pdf.

for the entire river," also recommending that the results of this modeling be made available for peer review.[44] This call for updated and more accurate modeling was also echoed by NOAA[45] and some of the Petitioners.[46]

In response, EPA "agree[d] that a new model with strong predictive capabilities," would be helpful for "adaptively managing the project to a successful conclusion."[47] But it did not agree to conduct additional modeling by itself. Instead, it noted that GE had developed its own computer model that "may be a useful foundation for this effort," promising "to complete a detailed, thorough evaluation of the model," but without allowing time for peer review.[48] Although this work was supposed to take "6-9 months,"[49] EPA has never publicly released the results of this effort, to the extent that it was actually undertaken.

Several months later, Dr. Robert Haddad, Chief of the NOAA Assessment and Restoration Division, wrote to EPA, warning that "the impacts of maintaining the current course of action is clear and troubling to NOAA."[50] Pointedly, Dr. Haddad stated that the implementation of the remedy, as planned, would leave the equivalent to "[a] series of Superfund-caliber sites" in the Upper Hudson, thereby frustrating restoration and recovery efforts and "result[ing] in the high likelihood of remediated areas becoming recontaminated."[51] In order to "achieve the original risk-based goals of the ROD," the letter urged EPA to "apply[] River Section 1 surface criteria to River Sections 2 and 3."[52]

Despite these concerns, EPA refused to alter the basic scope of the dredging required under the selected remedy, and Phase 2 dredging began in 2011.

IV. The Initial Five Year Review Was Inadequate

In 2012, EPA performed a statutorily mandated five-year review to "ensure that implemented remedies [at the Hudson River Superfund Site] protect public health and the environment and . . . function as intended by the Site decision documents" (the "Five-Year Review").[53] The review process provided EPA with a clear opportunity to address longstanding concerns regarding the

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[44] *Id.* at 37.
[45] *See* Jay Field, *Comments to the Hudson River Engineering Performance Standards Peer Review Panel* (May 5, 2010), *available at* https://casedocuments.darrp.noaa.gov/northeast/hudson/pdf/HRPeerRev_Comments_JField_20100505.pdf.
[46] *See* Letter from Hudson River Sloop Clearwater, Natural Resources Defense Council, Riverkeeper, Scenic Hudson, to Judith Enck, EPA (May 4, 2012) *available at* http://www3.epa.gov/hudson/pdf/CorrespondenceReceived_FiveYearReview_HudsonRiverPCBs.pdf.
[47] Letter from Walter Mugdan, EPA, to Dr. Stephen Garon, SRA International, entitled "EPA Response to Draft Hudson River EPS Peer Review Report" (Aug. 27, 2010), *available at* http://www3.epa.gov/hudson/pdf/EPA_Comments8-27-2010.pdf.
[48] *Id.*
[49] *Id.*
[50] Letter from Dr. Robert Haddad, NOAA, to Robert Sussman, EPA, entitled "Phase 2 Remediation, Hudson River PCB Superfund Site" (Dec. 2, 2010) [hereinafter "Haddad Letter"], *available at* http://www3.epa.gov/hudson/pdf/CorrespondenceReceived_FiveYearReview_HudsonRiverPCBs.pdf.
[51] *Id.*
[52] *Id.*; *see also* Unremediated PCBs Trustee Poster. This would result in the removal of approximately 136 additional acres of highly contaminated sediment from the Hudson River. *Id.*
[53] FYR at 1; *see also* 42 U.S.C. § 9621(c).

impact of greater-than-expected PCB volumes on remedial effectiveness by performing its own detailed analysis.

The review, however, was cursory at best—completed within a mere 60 days of the announcement it would be conducted, a timeframe which also included the public comment period.[54] Significantly, the Five-Year Review did not include updated computer modeling analyzing the impact of the large volumes of PCBs discovered post-ROD. Instead, it attempted to roughly estimate the future effects of the planned dredging on fish tissue using the RD Sampling/Analysis Program data, under the apparent assumption that the removal of "concentrations of [PCBs] in the surface sediments" would have a proportional effect on the "[PCB] reduction in fish body burden."[55]

Using the expected *percentage* reduction of PCBs—rather than analyzing the *total* amount of PCBs that would be left in surface sediments as compared to the ROD predictions—EPA estimated that while in River Section 2 it would take about 10 years longer to reach fish tissue targets, in River Sections 1 and 3, the remedy would actually perform "better than previously anticipated (or at least comparabl[y])."[56] Based upon these findings, among others, EPA concluded that the 3/10/Select Remedy would still "be protective of human health and the environment" upon completion.[57]

V. New Computer Modeling Analysis by NOAA Concludes that the EPA Sediment Remedy Will Fail to Achieve the Health and Safety Targets Established in the ROD

Although it is Petitioners' understanding that EPA has not performed any new computer modeling since issuing the ROD, new modeling analysis was performed by NOAA and released earlier this year. This model assesses the impact of the greater-than-expected volumes of PCBs discovered post-ROD on remedial effectiveness, and its findings critically undercut EPA's conclusion that the selected remedy, as designed, will meet the health and safety targets outlined in the ROD.[58] It is Petitioners' understanding that this analysis is currently undergoing peer review.

In essence, the new analysis uses a computer model that emulates EPA's pre-ROD modeling, but unlike that earlier effort, the new "model emulation" includes updated data from the RD Sampling Analysis/Program. Based on that data, NOAA calculated that EPA had likely overestimated the rate of natural recovery by a factor of 6—with the EPA pre-ROD modeling

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[54] *See* EPA, Notice of "U.S. Environmental Protection Agency Conducting First Five-Year Review of Implemented Actions at the Hudson River PCBs Superfund Site" (2012) *available at* http://www3.epa.gov/hudson/pdf/adhudsonriver_fyrnotice2012.pdf.

[55] FYR at 27-28.

[56] FYR at 33.

[57] FYR at iii.

[58] Jay Field et al., *Revisiting Model Projections of Lower Hudson River Fish PCBs Using Model Emulation and Recent Data*, 9 (Aug. 20, 2015) [hereinafter "NOAA Analysis"] *available at* https://casedocuments.darrp.noaa.gov/northeast/hudson/pdf/CSF2015_AUG20_LHR_Fish_final_dist.pdf. A presentation explaining the new NOAA Analysis is available here.

estimate at 8%, and the post-ROD actual observed rate at 1.3%.[59] Using a conservative 3% decay rate and the updated sediment sampling information, the model emulation predicts that:

- post-remedial PCB concentrations in the Upper Hudson River sediments will exceed previous EPA model predictions *by a factor of 3-to-5 times*; and

- achieving the Remediation Goals for PCB fish tissue concentrations in the Lower Hudson River would take *several decades longer* than expected.[60]

For example, while EPA predicted white perch just below the Troy Dam would achieve the 0.4 mg/kg PCB target almost immediately after completion of the remedy, the NOAA analysis predicts that this target will likely not be met for *another 44 years*.[61] Similarly, the time to achieve the 0.2 mg/kg PCB target would take *another 67 years*.[62]

Ultimately, the NOAA analysis concludes that, because EPA was unaware of the true extent of contamination when conducting its pre-ROD computer modeling, "[a]ttainment of EPA's Remedial RAOs for fish in the [Lower Hudson] will take longer than predicted" and that "[a]dditional removal of PCB-contaminated sediment in the [Upper Hudson] [is] needed to achieve reductions in [Lower Hudson] fish PCBs anticipated in the ROD."[63]

VI. EPA Allows Closure of GE's Remedial Activities Despite New Evidence that the Remedy Will Not Be Protective of Human Health and the Environment

In advance of the completion of the final season of dredging under the REM 3/10/Select Remedy, GE presented EPA with a plan for decommissioning of the dewatering facility used for processing of contaminated sediments during dredging.[64] EPA released the plan for public comment, initially giving the public a mere two weeks to comment, during which Petitioners commented that EPA's consideration of a plan to dismantle cleanup infrastructure was premature given the unanswered concerns regarding the adequacy of the remedy—specifically, those raised by the RD Sampling/Analysis Program data, new NOAA analysis, and new information about the harmfulness of volatilized PCBs that was not previously considered by EPA.[65]

Likewise, the federal trustees also submitted comments, recommending that, because of their "overarching concern about the protectiveness of the remedy, the extended time it will take our trust resources [in the Hudson] to recover, as well as the impacts demobilization might have on

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[59] *Id.* at 10.
[60] *See id.* at 9, 31, 36.
[61] *Id.* at 31.
[62] *Id.*
[63] *Id.* at 36.
[64] *See* GE, *Phase 2 Sediment Processing Facility Demobilization and Restoration Plan: Hudson PCBs Superfund Site* (Sep. 2015), *available at* http://www3.epa.gov/hudson/pdf/ph2_hr_spf_demob_and_restorationplan_text_tables_figures091115.pdf.
[65] *See* Hudson River Sloop Clearwater et al., *Public Comments on GE's Draft Phase 2 Sediment Processing Facility Demobilization and Restoration Plan* (Sep. 28, 2015), *available at* https://d3n8a8pro7vhmx.cloudfront.net/campaignforacleanerhudson/pages/26/attachments/original/1443621485/Coalition_Comments_on_Phase_II_Demobilization_and_Restoration_Plan_9.28.15.pdf?1443621485.

restoration opportunities," EPA "postpone action on the demobilization plan until a new Five-Year Review is conducted to ensure that the remedy is protective of human health and the environment."[66]

On October 1, 2015, EPA held what it explained was its final Community Advisory Group meeting addressing the dredging component of the REM 3/10/Select Remedy. At that meeting, several of Petitioners raised concerns about the adequacy of the selected remedy earlier-raised in comments and elsewhere, including concerns that the longstanding state fish consumption advisories are not adequately functioning to protect human health. In particular, Petitioners highlighted the new NOAA analysis, also asking EPA whether it had a current estimate of whether and when the Remedial Goals would be met.[67] EPA responded that no such estimate was possible unless and until it: (1) conducted additional computer modeling incorporating post-ROD data; or (2) reviewed 5-7 years of fish data after closure of the remedy to ascertain, after the fact, whether or not dredging had been a success. EPA also stated that additional computer modeling before certification of completion of the remedy would likely be infeasible, strongly indicating that it would take no significant new actions to assess the efficacy of the remedy before certifying the remedy as complete.

However, without regard to its apparent inability to predict remedial efficacy, and despite the serious concerns raised by multiple parties, EPA issued a written statement on the same day stating "[t]he Hudson River PCB Superfund dredging project has been a success."[68] The statement also criticized the NOAA analysis for relying on "old" data—namely, the RD Sampling/Analysis Program results earlier used by EPA to support its conclusions in the Five-

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[66] NOAA and USFWS, *Comments on the Phase 2 Sediment Processing Facility Demobilization and Restoration Plan Hudson River PCBs Superfund Site, Revised September 2015*, 1, 2 (Sep. 28 ,2015), *available at* http://www.fws.gov/contaminants/restorationplans/hudsonriver/docs/Hudson%20River%20Fed%20Trustee%20Comments%2009282015_Final%20signed.pdf.

[67] Additionally, Petitioners raised concerns regarding GE's departure from the required sampling protocol that it used in fish tissue sampling for roughly a 10-year period (from 2004 to 2014) and its possible effects on EPA's conclusions during the Five-Year Review. The Federal Trustees also raised these concerns in their comments on the dewatering facility demobilization plan, stating that:

> "[t]he change in protocol requires a thorough analysis and report out of conclusions from that study . . . Comparison studies between rib-in and rib-out fillet method in brown bullhead, yellow perch, white perch and striped bass are also necessary to understand the impacts the change in the processing protocol had on wet weight and lipid normalized PCBs for these four species, which are analyzed as part of the baseline monitoring and remedial action monitoring program to determine remedy effectiveness.
>
> This information is critical for updating Tables 3 and 4 (wet and lipid normalized fish PCBs) of the [Five-Year Review] and for EPA to reassess remedial protectiveness. On the basis of new information about the higher pre-remedial concentrations, decreased rate of natural recovery in Hudson River sediments, measured concentrations of PCBs in white perch supporting the lower decay rate, decades of delay in achieving RAO fish objectives, and the issues surrounding changes in fish filleting protocol, the Federal Trustees believe such a review is justified, and that until it is completed, any action on the [demobilization] [p]lan must be put on hold."

Id. at 4.

[68] EPA, *Statement From EPA on Hudson River Cleanup* (Oct. 1, 2015), *available at* http://www3.epa.gov/hudson/pdf/statement_hudson_october_1_final.pdf.

Year Review. On October 5, 2015, GE announced that it had completed dredging in the Hudson River pursuant to the REM 3/10/Select Remedy, also describing the project as a success.[69]

On November 12, 2015, without addressing the concerns of Petitioners or the federal trustees, EPA approved GE's plans to dismantle the dewatering facility. This action effectively constituted approval of the completion of GE's dredging operations and confirmed the agency's conclusion in its October 1, 2015, statement that the dredging project has been a success.[70]

ARGUMENT

I. EPA Has Failed to Ensure that the Selected Sediment Remedy Is Protective of Human Health and the Environment

A. EPA Has a Duty to Ensure that the Remedy Is, and Remains, Protective of Human Health and the Environment

CERCLA requires EPA to respond to the threat of toxic pollution where it may endanger human health and the environment. Where EPA determines that a hazardous substance at a Superfund site "may present an imminent and substantial danger to the public health and welfare," it must "select appropriate remedial actions" that it "deems necessary to protect the public health or welfare or the environment."[71]

In order to identify and implement "remedies that are protective of human health and the environment," CERCLA requires that EPA establish site-specific remedial action objectives, including concrete and quantifiable remediation goals.[72] All remedial actions selected by the agency must "attain a degree of cleanup . . . which assures protection of human health and the environment,"[73] and the success or failure of a remedy under this standard is measured by its ability to actually achieve the action objectives and the remediation goals.[74]

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[69] *See* GE, *GE Completes Hudson River Dredging* (Oct. 5, 2015), http://www.hudsondredging.com/2015/10/05/ge-completes-hudson-river-dredging/.

[70] *See* EPA, *EPA Statement on Approval of PCB Processing Facility Demobilization and Restoration Plan for Hudson River Cleanup* (Nov.12, 2015), *available at* http://www3.epa.gov/hudson/pdf/DemobPlan_ApprovalStatement_Final.pdf.

[71] 42 U.S.C. §§ 9604(a)(1), (c)(4), 9621(a), (b)(1). EPA may also select a removal action or take other response measures that it deems appropriate. 42 U.S.C. § 9604(a)(1), (2). As EPA found remedial action to be necessary here, however, this petition will focus on EPA's remedial obligations.

[72] *See* 40 C.F.R. § 300.430(a)(1)(i), (e)(2)(i); 42 U.S.C. § 9621(b)(1).

[73] 42 U.S.C. § 9621(d)(1).

[74] *See* 42 U.S.C. § 9621(c), (d)(1); EPA, *Interim Guidance for Evaluation of Federal Agency Demonstrations that Remedial Actions are Operating Properly and Successfully Under CERCLA Section 120(h)(3)*, (Aug. 1996), http://www2.epa.gov/fedfac/guidance-evaluation-federal-agency-demonstrations-remedial-actions-are-operating-properly-and#intro ("completion of a remedial action is defined by the attainment of specific cleanup levels or performance goals that are specified in a decision document, such as a Record of Decision"); *see also, e.g.*, U.S. Dep't of Energy, *Guide to Ground Water Remediation at CERCLA Response Action and RCRA Corrective Action Sites*, 7-10 (Oct. 1995), *available at* http://homer.ornl.gov/sesa/environment/guidance/gw/grndh2o.pdf ("The suitability and performance of any completed or ongoing ground water remedial action should be evaluated with respect to the objectives of those actions (e.g., . . . attainment of cleanup levels)").

These objectives and goals, however, do not become permanently fixed upon issuance of a ROD. Indeed, even after a ROD is finalized, EPA has a duty to consider significant new information and analysis that substantially supports the need to alter a response action,[75] and to take appropriate additional action where necessary to ensure its protectiveness.[76] In cases where EPA "selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site"—as is the case with the Hudson River PCB Superfund Site—CERCLA requires EPA to conduct review of the remedial action every five years (or sooner) in order to evaluate the protectiveness of the remedy as implemented.[77] Because it is EPA's responsibility to ensure that the remedy is protective,[78] where the evaluation shows that the action objectives and/or remedial goals may not be met, EPA must determine what additional review or action is needed.[79] Where the "review shows that a remedy is no longer protective of human health and the environment," EPA must ensure that "additional action [is]evaluated *and taken* to mitigate the threat."[80]

In the present case, the threat posed by GE's PCBs in the Hudson River to the health of New Yorkers and the state's environment is unambiguous. As EPA concluded in the ROD, the significant health and ecological risks associated with the ingestion of PCB-laden fish made active remediation "necessary to protect the public health or welfare and the environment."[81]

To eliminate this threat, EPA developed specific RAOs and Remediation Goals to be achieved by the selected alternative—the REM 3/10/Select Remedy. The selection of the REM 3/10/Select Remedy was premised on its ability to achieve these criteria within a reasonably prompt timeframe.[82] It was the ability to meet these targets within that timeframe that defined the adequacy of the REM 3/10/Select Remedy, and it was and is EPA's duty to ensure that they are met in order to ensure protection of human health and the environment.

B. EPA Has Failed to Ensure the Protectiveness of the REM 3/10/Select Remedy

EPA has chosen to move forward with the closure of the REM 3/10/Select Remedy despite the clear implications of its own post-ROD sediment sampling data and years of repeated warnings by other state and federal agencies that the remedy, as designed, will fail. Under these circumstances, the agency has—time and again—acted arbitrarily and capriciously, and acted contrary to law, by failing to ensure the protectiveness of the remedy as demanded by CERCLA.

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[75] *See* 40 C.F.R. § 300.825(c).
[76] *See* Proposed Rule for National Oil and Hazardous Substances Pollution Contingency Plan, 53 FR 51394, 51430; EPA, *Comprehensive Five-Year Review Guidance*, OSWER Directive 9355.7-03B-P, 4-11 (Jun. 2001) [hereinafter "FYR Guidance"] *available at* http://semspub.epa.gov/work/11/128607.pdf.
[77] 42 U.S.C. § 9621(c).
[78] *See* EPA, *Recommended Evaluation of Institutional Controls: Supplement to the 'Comprehensive Five Year Review Guidance'*, http://www.progressivereform.org/articles/Institutional_Controls_Guidance_091311.pdf ("EPA . . . is legally responsible for making the protectiveness determination during the [Five Year Review]").
[79] FYR Guidance at 4-9, 4-12.
[80] 53 FR 51394, 51430 (emphasis added); *See also id*. at 4-11 ("Follow-up actions should be completed to ensure long-term protectiveness of the remedy, or to bring about protectiveness of a remedy that is currently not protective.").
[81] ROD at 49.
[82] *See* ROD at 102-05.

Almost immediately after issuance of the ROD, sediment sampling conducted during the Sampling Analysis/Program demonstrated the equivalent of a bombshell—namely, that the extent of PCB contamination in the Upper Hudson was *2-3 times* larger and significantly more persistent in surface sediments than ever anticipated. Indeed, by EPA's own admission during the Phase 1 Evaluation, despite earlier agency assumptions regarding natural sequestration of contaminated sediments, "the reality [wa]s much different."[83]

While the implications of this new "reality" on the adequacy of the remedial plan should have been duly evaluated at the earliest possible juncture, they were not. Moreover, EPA persisted in burying its head in the sand despite years of collecting commentary and analysis spelling out the concerns and consequences raised by these post-ROD-discovered PCBs. These observations came not only from the public and interested environmental organizations, such as Petitioners, but from EPA's own Phase 1 Evaluation peer review panel and the three state and federal agencies that have been studying the effects of PCBs on the Hudson River's ecosystem for the past 15 years in their role as the site's "trustees." Further, concerns have been raised at every major step in the remedial process—from the Phase 1 Evaluation to the Five-Year Review to comments on the recent plan for decommissioning of critical cleanup infrastructure.

The thrust of these concerns has been most plainly and emphatically outlined by the two federal trustees—NOAA and USFWS. Both during and after the Phase 1 Evaluation, they sounded alarms about the bulk of PCBs slated to be left in the river, characterizing them as "equivalent to a series of Superfund-caliber sites."[84] Of paramount concern was the trustees' estimate that remedial surface concentrations of PCBs would be "approximately five times higher than [pre-ROD] models predicted" [85] because it is primarily through surface sediments that PCBs migrate into water and wildlife, thereby heightening the exposure risk to people. These concerns were so pointed that, in an unusual move, the Chief of NOAA's Assessment & Restoration Division wrote to EPA warning that EPA's "current course of action is clear and troubling" and urging additional dredging in order "to achieve the original risk-based goals of the ROD."[86]

EPA has never indicated an intention to expand the scope of dredging in response to these significant concerns, and further, as far as the public is aware, it has never seriously attempted to perform its own thorough analysis to either verify or refute them. In 2010, EPA promised to investigate the implications of the post-ROD-discovered contamination by examining computer modeling then being conducted by GE, but this effort was apparently later abandoned without explanation. In 2012, EPA missed another opportunity for earnest assessment, eschewing additional modeling or other detailed analysis, and instead relying on an apparent back-of-the-envelope calculation to support its conclusion that nothing was seriously wrong with its remedy.

That thinly supported conclusion is now directly and convincingly challenged by the detailed modeling analysis of its sister agency, NOAA. To Petitioner's understanding, the NOAA analysis represents the only truly thoroughgoing attempt since the ROD to assess the impact of the vast amounts of PCBs discovered after its issuance on remedial effectiveness, and,

[83] Phase 1 Review at I-53.
[84] *See* Unremediated PCBs Trustee Poster; Haddad Letter.
[85] Trustee Phase 1 Comments.
[86] Haddad Letter.

unsurprisingly, it concludes the obvious. Specifically, it finds that the 3/10/Select Remedy will not achieve the RAOs or Remediation Goals for the Lower Hudson—confirming that post-remedial surface concentrations of PCBs will be *3-5 times higher* and demonstrating that fish tissue targets will take *several generations longer* than EPA anticipated in the ROD. Ultimately, the NOAA analysis concluded that "[a]ttainment of EPA's Remedial RAOs for fish in the [Lower Hudson] will take longer than predicted" and that "*[a]dditional removal of PCB-contaminated sediment in the [Upper Hudson] [is] needed to achieve reductions in [Lower Hudson] fish PCBs anticipated in the ROD*."[87]

This conclusion originates from a leading federal scientific agency and is endorsed by USFWS. Not only are these the two federal agencies that have the greatest general expertise in fisheries matters, they also have been conducting detailed study of the effects of PCBs specifically on the Hudson River ecosystem for well over a decade. As such, the conclusions of the NOAA analysis could well have been taken as definitive on the issue of the adequacy—or rather, inadequacy—of the 3/10/Select Remedy. At the very least, they should have led EPA to revisit, in detail and in depth, its operating assumption that all was well with the Hudson and no further dredging is needed. Instead, EPA criticizes the data used by NOAA as "old" in a brief press statement, without any apparent intention to publicly clarify or support its thinking, and seemingly ignoring the fact that this "old" data is the same that undergirds its conclusions in the 2012 Five-Year Review.

Accordingly, in light of the conclusions of the NOAA analysis—and the years of concerns raised by other state and federal agencies and its own Phase 1 peer review panel—EPA's de facto determination regarding the sufficiency of the REM 3/10/Select without further adequate review is arbitrary and capricious and in violation of its obligation to ensure the protectiveness of selected remedial actions.

II. EPA Must Immediately Undertake a Thorough and Adequate Review of the Protectiveness of the REM 3/10/Select Remedy

EPA must immediately undertake an in-depth evaluation of the protectiveness of the REM 3/10/Select Remedy, including an objective evaluation of the NOAA analysis and the opportunity for full participation by interested agencies, public comment, and peer review. Further, if that review confirms, as the Trustees have asserted, that the REM 3/10 Select Remedy will not meet the RAOs or Remedial Goals within the relevant timeframes, EPA *must* take appropriate action by expanding the scope of the remedial action to require further PCB removal.[88]

These actions must be done immediately and not deferred until the next scheduled five-year review on April 23, 2017.[89] As EPA's own guidance provides "[f]ive-year reviews may be conducted earlier or more frequently than every five years, if needed, to ensure the protection of

[87] NOAA Analysis at 36 (emphasis added).
[88] *See* 42 U.S.C. § 9621(d)(1) (EPA must ensure degree of cleanup that, at minimum, "assures protection of human health and the environment").
[89] FYR at 40.

human health and the environment."[90] That is certainly the case here, and as EPA has signaled, it is now considering undertaking such a review. This review may now provide EPA with the opportunity to discharge its responsibility to ensure remedial protectiveness.

Performance of a five-year review as a pro-forma exercise, however, is not sufficient. In order to adequately discharge its duty to ensure that the REM 3/10/Select Remedy is protective of human health and the environment, EPA must do what it has not done for the past 13 years—namely, adequately and thoroughly analyze the mounting evidence that its remedy, as designed, fails.

More specifically, any review now must do what EPA's own five-year review guidance provides: it must analyze all information that has "come to light that could call into question the protectiveness of the [REM 3/10/Select] [R]emedy" and ascertain whether "the remedy is functioning as intended."[91] Given the circumstances and history of this case, however, an effective review must also include close collaboration with EPA's sister agencies (including NOAA and USFWS), be exceptionally transparent, and also include ample opportunity for participation from members of the public (such as Petitioners) and peer review.

Further, EPA must consider *all* relevant new information including, but not limited to, the NOAA model emulation and conclusions, the potential harms presented by continued exposure to low levels of lower-chlorinated forms of volatilized or airborne PCBs, and the failures of longstanding fish consumption advisories to protect human health.

Importantly, satisfactory review must be coupled with swift and appropriate action, including expansion of the REM 3/10/Select Remedy if it is determined that the remedy will not timely meet ROD goals.[92] Indeed, Petitioners underscore that action now—before certification of remedial completion—is critical given the terms of the 2006 Consent Decree. It is Petitioners' understanding that under that document, the agency's covenants not to sue GE for additional administrative or injunctive-like relief in the Upper Hudson in areas *outside* of the remedial areas designated for dredging is not triggered *until certification*.[93] Thus, EPA may have much greater latitude to act *now* in discharging its duty to protect human health and the environment than if it waits to address the issue after certification. In short, EPA must fully discharge its obligations under CERCLA before it binds its own hands.

In the meantime, EPA should direct GE to halt any further demobilization or restoration activities with respect to the dewatering and related facilities until it has the opportunity to conduct a full and adequate review.

CONCLUSION

For the reasons set forth above, EPA's de facto determination regarding the sufficiency of the REM 3/10/Select Remedy is arbitrary and capricious and in violation of the agency's duty to ensure the protectiveness of selected remedies. EPA must take immediate corrective action by adequately evaluating the sufficiency of its REM 3/10/Select Remedy in a thorough,

[90] FYR Guidance at 1-4.
[91] *Id.* at 4-1.
[92] *See id.* at 4-12.
[93] *See* 2006 Consent Decree at ¶¶ 98(f), 99(b).

transparent, and inclusive review that includes all relevant new information, and, upon such evaluation, require continued dredging by GE to remove additional PCB-contaminated sediments as necessary to adequately protect human health and the environment. Further, EPA must not certify completion of the remedy until this evaluation has been conducted and the agency assures the protectiveness of the REM 3/10/Select Remedy.

Petitioners further respectfully request that EPA respond to this Petition within 90 days of its receipt by the agency. If no response is received within 90 days, the Petitioners will take that as a denial of the Petition, and reserve all rights to take any available and appropriate action in response.

Dated: December 17, 2015

Respectfully submitted,

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Roger Downs
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cc:
Gina McCarthy, EPA Administrator
Mathy Stanislaus, Assistant Administrator for EPA's Office of Solid Waste and Emergency Response

EXHIBIT A

Petitioner **Hudson River Sloop Clearwater, Inc.** ("Clearwater") is a 501[c][3] not-for-profit corporation with its offices located at 724 Wolcott Ave Beacon, NY 12508. Clearwater is a member-supported environmental education organization with approximately 5,000 active members, many of whom reside in the Hudson Valley. Clearwater operates the Hudson River Sloop known as "Clearwater," through which it provides environmental education and experience for tens of thousands of New Yorkers. The organization is dedicated to, among other things, protecting and cleaning up the Hudson River and educating the public, including young people, about the unique environmental resources of the River and the Hudson River Valley. Clearwater was instrumental in supporting the passage of the Clean Water Act, and over the years, along with the other petitioners, has led the public effort to clear the Hudson of PCB contamination and restore the environmental and economic health of the River. Clearwater's members regularly enjoy the Hudson River.

Petitioner **Natural Resources Defense Council, Inc.** ("NRDC") is an international, non-profit membership organization headquartered in New York, and committed to the preservation, protection, and defense of the environment, public health, and natural resources. With over 30,000 members in New York State, NRDC has been active since its founding in 1970 on environmental and land use issues affecting New York's local communities—including watershed protection, brownfields redevelopment, and smart growth and zoning. NRDC has also been a key advocate for the cleanup of PCBs from the Hudson River for more than four decades. Thousands of NRDC members live near the Hudson River and thousands more regularly visit, work, and play along it.

Petitioner **Riverkeeper, Inc.** ("Riverkeeper") is a 501(c)(3) not-for-profit corporation with its offices located at 20 Secor Road, Ossining, New York 10562. Riverkeeper is a member-supported watchdog environmental organization with approximately 4,000 active members, many of whom reside in the Hudson Valley. Riverkeeper is dedicated to, among other things, defending the Hudson River and its tributaries, protecting and restoring the unique environmental resources of the Hudson River and the Hudson River Valley, and fostering proper management of such environmental and natural resources. Over the years, Riverkeeper, along with the other Petitioners, has led the public effort to clear the Hudson of PCB contamination and restore the environmental and economic health of the River. Riverkeeper's members regularly enjoy the Hudson River for various recreational, educational, and other such purposes and can be expected to continue to use the river for such purposes in the future.

Petitioner **Scenic Hudson, Inc.** is a regional, non-profit membership organization headquartered in Poughkeepsie, New York, and committed to the preservation, protection, and defense of the environment, public health, and economic sustainability of the Hudson River Valley. Scenic Hudson works to protect and restore the Hudson River as an irreplaceable national treasure and a vital resource for residents and visitors. A crusader for the Valley since 1963, today it is the largest environmental group focused on the Hudson River Valley. Scenic Hudson combines land acquisition, support for agriculture, citizen-based advocacy and sophisticated planning tools to create environmentally healthy communities, champion smart economic growth, open up riverfronts to the public and preserve the valley's inspiring beauty and natural resources. To date Scenic Hudson has created or enhanced more than 65 parks, preserves and historic sites up and down the Hudson River and conserved over 35,000 acres. Scenic Hudson has over 25,000 supporting members, most of whom reside in the counties

located along the Hudson River. Scenic Hudson supporting members are regular users of the Hudson River for boating and other recreational activities.

Petitioner **Sierra Club Atlantic Chapter** is a 501[c][3] not-for-profit corporation with its offices located at 353 Hamilton Street Albany, NY 12210. The Atlantic Chapter is a volunteer led environmental organization of 40,000 members statewide dedicated to protecting New York's air, water and remaining wild places. Sierra Club members have been active for decades in advocating for the cleanup and restoration of the Hudson River—including the organizing of "fishing for Justice" programs that have educated communities of color and subsistence fishermen about the river's ecology and the risks that come from eating PCB contaminated fish.