

UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF WISCONSIN

UNITED STATES OF AMERICA and
STATE OF WISCONSIN,

Plaintiffs,

v.

Case No. 10-C-910

NCR CORP. and
APPLETON PAPERS INC. et al.,

Defendant.

DECISION AND ORDER ON THE PROPRIETY OF THE REMEDY

In this CERCLA enforcement action, the United States and State of Wisconsin have moved for summary judgment on the question of the propriety of the remedy they imposed in a Unilateral Administrative Order issued with respect to the Lower Fox River Superfund site. This Court has already ruled that the administrative record pertaining to the remedy is sufficient to allow the deferential review required by statute. Although other rulings have found that limited additional trial testimony could be relevant, I am persuaded that summary judgment in favor of the Plaintiffs is appropriate at this time. Accordingly, the Plaintiffs' motion for summary judgment will be granted. The Defendants have also filed motions for summary judgment; these will be denied.¹

¹ Several of the documents referred to herein have several page numbers and/or Bates stamp numbers on them. Where possible, citations in this opinion are to the ECF page number added by the Court's computer system.

I. Background

As recounted elsewhere, the Lower Fox River Site has been the subject of intense governmental scrutiny since it was revealed that significant quantities of sediment containing PCBs exist in the riverbed in both Little Lake Butte des Morts and in the Fox River itself. Because PCBs are now known to cause significant health problems for those who are exposed to the water or who eat fish caught in the river, the Site has been selected for remediation; a herculean and expensive cleanup effort has been underway for several years.

A companion case has focused on a struggle between the various potentially responsible parties (“PRPs”) over which of them should bear the brunt of the cost of cleaning up the River. By contrast, this case is not about money so much as it is about action: here, the United States and the State of Wisconsin have sought to enforce the selected remedy against the PRPs.

The remedy—a combination of dredging and capping the riverbed—was selected as the result of a partnership between the Environmental Protection Agency and the Wisconsin Department of Natural Resources (“WDNR”), which was designated as the lead agency in developing the remedial project. The WDNR began investigating the Site in 1998. During its Remedial Investigation, the WDNR noted (among many other things) that the risks to human health relating to PCB’s arising out of the consumption of fish were greater than the acceptable levels (despite the fact that eating fish has other health benefits). (ECF No. 507-2 at 5-6.) An extensive feasibility study considered all of the conceivable options. These included everything from “no action” and active monitoring to dredging and capping. (ECF No. 507-5 and 6.) Each alternative was assessed based on a number of criteria, which included key considerations such as effectiveness, feasibility, and cost. The agencies did not rely exclusively on paper analyses,

however: they also undertook two studies of the River and removed some 88,000 cubic yards of sediment to determine whether the sediment could be dredged safely.

In addition to the feasibility and health studies, the governments also created models of what they call “fate and transport” of PCBs within the river system. In brief, the PCBs were introduced into the river in a number of different locations, and the vicissitudes of the River’s current, dams, weather, and proximity to release sites all played (and continue to play) a role in where the PCBs ultimately ended up. The governments’ models were used in an effort to establish how the PCBs were transported throughout the river and Green Bay. The result was a 2,500-page report explaining the models, their use, and the conclusions drawn therefrom. (ECF No. 439-14 at 8.) A summary of the model’s use is also part of the administrative record. (ECF No. 439-15.)

The remedy ultimately selected is documented in a number of lengthy public documents, including two Records of Decisions (“RODs”), two ROD Amendments, and an Explanation of Significant Differences. These decisions followed health assessments and feasibility studies designed to link resource expenditures with measurable public impact results. For example, the ROD issued in June 2003 addressed the remedy for areas known as OU3 through OU5, or roughly the part of the Fox River between Little Rapids and Green Bay. (ECF No. 404-2.) The ROD, a 154-page document that is typical of the other public documents addressing the remedy, explains that the remedy selected was the culmination of several years of study, remedial investigations and feasibility studies, many of which were subjected to public comment and input from the PRPs themselves. The ROD concluded that the remedy for OU3-5 would involve dredging some 6.5 million cubic yards of contaminated sediment and taking it to a landfill for disposal. This is what the parties refer to as an “all-dredging” remedy.

The “remedial action level” (“RAL”) that would trigger the need for sediment removal was established at 1 part per million, meaning that sediment containing that amount or more would be targeted for removal. (*Id.* at 14.) Other action levels considered were 0.125 ppm, 0.25 ppm, 0.5 ppm, 5 ppm, and, of course, the “no action” alternative that would leave the PCBs untouched. Naturally, the action level would dictate how much sediment needed to be removed—a higher action level would require much less dredging than a more stringent threshold. The governments determined that 1 ppm was an appropriate benchmark. For example, at a concentration of 1 ppm, walleye would be safe for consumption within one year, whereas at the 5 ppm level they would not be safe to eat for 29 years. (ECF No. 439-12 at 98-100.) On the other side of the coin, the ROD observed that concentrations *lower* than 1 ppm would have only marginal reductions on PCBs in fish tissue, and thus concluded that “there is limited risk reduction achieved by selecting an RAL of less than 1 ppm.” (*Id.* at 99; ECF No. 404-2 at 155.)²

The 2003 ROD estimated that the cost of the dredging remedy would be approximately \$325 million, with an understanding that the estimate could be off by as much as minus-30 percent and plus-50 percent. (ECF No 404-2 at 151.) On a per-unit basis, this figure was actually lower than might otherwise be expected. In response to public comments, the agencies explained that the lower-than-expected costs would arise out of economies of scale; the theory was that a project as large as this one would produce efficiencies not present in smaller dredging projects, and of course almost *every* other project had been smaller than this one. (ECF No. 439-5 at 24.)

² The selection of the remedy was immensely complicated and data-intensive, and it varied in different portions of the Site. This background section is merely a thumbnail sketch of the process, which is explained in much more detail in the RODs and other record documents themselves.

Circumstances changed after NCR and Georgia-Pacific (two of the key PRPs) undertook extensive sampling work, the upshot of which was that the governments determined that a much larger volume of sediment would need to be removed in order to achieve the PCB reductions set out in the earlier RODs. The two companies proposed a new remedy that incorporated a hybrid approach to the problem, namely, a mixture of dredging, sand covering, and capping. Their proposal indicated that the new cost estimate would reach some \$432 million (in 2009 dollars). Following public comment, the agencies issued a ROD Amendment in 2007 that incorporated the proposed changes. (ECF No. 404-3.) A hybrid remedy for OU1 was also adopted in a later ROD. In response to comments questioning the viability of capping, the agencies observed that capping could effectively contain sediments and would improve water quality.

By 2009, however, it became clear that even the recently-increased cost estimates had been overly optimistic. New estimates, based on “real world” bids from contractors, showed that the remedy would now cost some \$701 million dollars, roughly 62 percent more than estimated in the 2007 ROD. Estimates prepared by defense expert Jeffrey Zelikson demonstrate how the cost estimates of capping-versus-dredging remedies changed over time. (ECF No. 501-1 at 21.) By 2009, it had become clear that capping, which was estimated to cost \$484 million, would have been much cheaper than the \$701 million hybrid remedy. (Had the agencies pressed for the full dredging remedy, that cost had now skyrocketed to \$957 million, or almost one billion dollars.)

Despite the 62 percent cost increase, the agencies decided not to issue an ROD amendment, as they had in 2007. An ROD amendment is a formal process requiring reevaluation of circumstances and opening up the process to public comment; it is required when a new approach fundamentally changes a remediation project. Instead of issuing an ROD, the agencies issued an

“Explanation of Significant Differences” (“ESD”), which is a more streamlined approach. *See* 40 C.F.R. § 300.435. The 2010 ESD noted the large increase in cost, but found that because the increase was close to the 50 percent overrun already built into the original estimate, the cost increase did not pose a “fundamental” change to the project and thus did not require an ROD amendment. (ECF No. 147-1 at 15.) The ESD, along with a Criteria Analysis Memorandum, explained several areas on which the original estimates proposed by Georgia-Pacific and NCR understated the actual costs. These included increased costs for site support costs, residual dredging, and shoreline caps. (*Id.* at 13-14.) The ESD also noted the complexities inherent in such a project, given the lengthy time span and the combination of capping, dredging and sand covering. (*Id.* at 14.) The remedy described in the 2010 ESD is the essence of the remedy the governments are now seeking to impose.

II. Analysis

At issue are four separate motions for summary judgment: one filed by the United States and the State of Wisconsin, and three filed by the Defendants. Because the burden is on the Defendants, I concentrate my focus on their arguments.

A. Arbitrary and Capricious Standard

Section 113(j) of CERCLA provides that judicial review of response actions is based on the administrative record and is limited to determining whether the response action is arbitrary and capricious. 42 U.S.C. § 9613(j). Specifically, it provides that “the court shall uphold the President’s decision in selecting the response action unless the objecting party can demonstrate, on the administrative record, that the decision was arbitrary and capricious or otherwise not in accordance with law.” *Id.* at (j)(2). This means that the government’s selected response action is

presumed valid unless the Defendants can meet their burden to demonstrate otherwise. *United States v. Burlington Northern R. Co.*, 200 F.3d 679, 692 (10th Cir. 1999).

As I concluded in a previous ruling, arbitrary and capricious are terms that describe the *manner* of remedy selection more than they do the result, although the two are often intertwined. “Arbitrary means the Government simply threw darts or flipped a coin, selecting the remedy without a basis in reason or science. Capricious means it rushed through the process or made a sudden, knee-jerk decision without hearing enough evidence.” (ECF No. 498 at 7.) Of course no one expects that government officials are actually flipping coins or throwing darts; the point is that courts give the government agency significant discretion to select a remedy and will only overturn that remedy if it appears to be outside the bounds of what is reasonable. Moreover, the statute requires the challenging party to show that the remedy is arbitrary *and* capricious. This is perhaps a technical point, as the two often go hand-in-hand, but it underscores Congress’ sensible policy of leaving decisions like remedy selection to agencies that have the technical expertise and experience to render them. As this particular administrative record reveals, no court in the land has the ability or expertise to even scratch the surface of the detail and study needed to craft a remedy in the first instance. Instead, judges are asked merely to provide a check on what would otherwise be the largely unrestrained power of the executive agency. I now turn to the motions filed by three separate groups of defendants.³

³ Although NCR filed a motion on its own, there is substantial overlap between those joining the briefs supporting the other two motions. The arguments are divided in part because some parties participated in the remedy selection process and thus have a somewhat compromised ability to effectively challenge it.

B. NCR

Defendant NCR focuses its remedy challenge on the process the agencies used to impose its most recent remedy changes. Specifically, it argues that the changes imposed in 2010 were “fundamental” changes that required the issuance of a formal ROD amendment rather than the Explanation of Significant Differences the agencies used.

As suggested above, the applicable regulations provide for two alternatives when a remedy requires significant changes:

(2) After the adoption of the ROD, if the remedial action or enforcement action taken, or the settlement or consent decree entered into, differs significantly from the remedy selected in the ROD with respect to scope, performance, or cost, the lead agency shall consult with the support agency, as appropriate, and shall either:

(i) Publish an explanation of significant differences when the differences in the remedial or enforcement action, settlement, or consent decree significantly change but do not fundamentally alter the remedy selected in the ROD with respect to scope, performance, or cost. To issue an explanation of significant differences, the lead agency shall:

(A) Make the explanation of significant differences and supporting information available to the public in the administrative record established under §300.815 and the information repository; and

(B) Publish a notice that briefly summarizes the explanation of significant differences, including the reasons for such differences, in a major local newspaper of general circulation; or

(ii) Propose an amendment to the ROD if the differences in the remedial or enforcement action, settlement, or consent decree fundamentally alter the basic features of the selected remedy with respect to scope, performance, or cost.

40 C.F.R. § 300.435.

Thus, under subsection (ii), an amendment to the ROD is required if the differences “fundamentally alter the basic features of the selected remedy.” *Id.* In a previous decision and order

addressing the governments' motion for a preliminary injunction, I agreed with the governments that the cost increases adopted in the ESD likely did not amount to a fundamental change in the basic features of the remedy and thus found that the Defendants had a low likelihood of success on that argument. Little has changed since then.

NCR argues that a 62 percent increase over prior estimates—more than a quarter of a billion dollars—is a fundamental enough change to require issuance of a ROD amendment. In fact, the cost of the *increase* is itself greater than the cost for almost every CERCLA cleanup ever undertaken, and, according to NCR's expert, the increase exceeds that of *all* cost increases combined on Superfund sites between 2004 and 2005. (ECF No. 501-1 at 10 n.25.) In Mr. Zelikson's opinion, based on more than 25 years at EPA, a cost increase of this magnitude would require an ROD amendment, public comment, and review of other remedial options. The EPA's own guidance suggests that an amendment would be required when there was "an appreciable change or changes, in the scope, performance, and/or cost."⁴ In fact, he suggests, the governments implicitly conceded as much when they issued an ROD amendment in 2007, which had the same 62 percent cost increase.

Although the experts Jeffrey Zelikson and Paul Fuglevand add more context to the issue, I remain satisfied that an ROD amendment was not required and that genuine issues of material fact do not exist. (ECF No. 501-1; 519-2.) First, the key language in the regulation uses not one but two stark and related terms: "fundamental" and "basic." For an amendment to "fundamentally alter the

⁴"A Guide to Preparing Superfund Proposed Plans, Records of Decision, and Other Remedy Selection Decision Documents"; EPA 540 R 98 031, July 1999, at 7.2, available at http://www.epa.gov/superfund/policy/remedy/rods/pdfs/guide_decision_documents_071999.pdf (last visited November 16, 2012).

basic features” of a remedy, the change must be so drastic that the *essence* of the remedy—its *basic* features—has been “fundamentally” changed. Such a change is not just significant or even crucial, but must go to the very core or definition of what the remedy is. When something is merely more expensive than predicted, it does not change the “basics” of the remedy unless the change is truly a drastic one.

Second, the EPA’s own guidance document, relied on by Zelikson, does not suggest that the recent changes were fundamental. In a non-exclusive set of examples, the document lists only as “significant” a situation involving a “large increase in cost.” *Id.* (see footnote 2) at Highlight 7-1. For example, if “[s]ampling during the remedial design phase indicates the need to significantly increase the volume of contaminated waste material to be incinerated . . . thereby increasing the estimated cost of the remedy,” that would constitute a “significant” but not “fundamental” change. By contrast, the guidance lists a number of examples of “fundamental” changes, but none of these are based solely on cost overruns. Instead, the examples of fundamental changes tend to involve changes to the *nature* of the remedy, for example, from a soil-washing or natural attenuation remedy to an excavation remedy. *Id.* Thus, when in 2007 the EPA decided to issue an amendment rather than an ESD, it likely did so because it had changed from a purely dredging remedy to a hybrid remedy employing capping as well. The fundamentals of the remedy *were* changed in 2007. Here, by contrast, there were no material changes to the nature of the remedy, the changes only went to estimates of what the remedy would cost. Thus, the very guidance NCR relies on does not support its argument that the cost increase was *per se* a fundamental change. Ultimately, it is doubtless true that the *cost* of the remedy is everything if you’re the one paying for it, and 62 percent is undeniably a very expensive change. But cost is hardly dispositive of the triggers set forth in the applicable

regulations, which consider many things other than cost, including the method of remediation, the public impact, feasibility, and the like. After all, these are the sorts of other factors that might be amenable to public comment, which is the very purpose of the ROD amendment procedures in the first place. Public comments on increased cost are likely to be limited to the predictable and well-known protests from the companies who have to shoulder the burden.

United States v. Burlington Northern is not to the contrary. There, the Tenth Circuit determined that a cost overrun of roughly 60% fundamentally altered the remedy and that the EPA should have issued an ROD amendment. 200 F.3d 679, 694 (10th Cir. 1999). But once again, the remedy change there was not a “mere” cost increase but a change in the nature of the remedy itself. For example, instead of remediating tar sludge, the sludge was incinerated at an increased cost of roughly one million dollars. Incineration had been part of the original ROD, but it was eliminated in an amendment after it proved too costly. Thus, the change to the incineration remedy that had already been rejected, was, in the district court’s words, a “significant deviation from the selected remedy.” *Id.* at 692. The Tenth Circuit agreed: “[t]he EPA acted arbitrarily and capriciously by failing . . . to propose an amendment regarding the significant cost increase associated with the additional boxes of liners and the tar heels and by failing to propose an amendment regarding the decision to incinerate rather than remediate a significant amount of the impoundment sludge.” *Id.* Thus, the change in *Burlington Northern* involved not just cost but a fundamental change in the nature of the remedy itself—just as in 2007, when the agencies in this action issued a ROD amendment.

Finally, as I found in a previous decision, the 62 percent cost increase does not stand in a vacuum. Recall that the original estimates had already built in a very large “fudge factor” that

would account for as much as a 50 percent cost overrun. The original 2007 estimate was \$432 million in 2009 dollars. (ECF No. 501-1 at 18, Table 1.) Adding 50 percent onto that figure results in a maximum estimate of \$648 million. In the 2010 Explanation of Significant Differences, the new estimate was \$701 million, “only” \$53 million more than the original estimate, or about eight percent.⁵ Thus, when we include the original fudge factor into the comparison, the 2010 cost increase was only eight percent higher than originally proposed. NCR has not cited any cases or guidance that would even come close to suggesting that an eight-percent overrun constituted a “fundamental” change in the project.

Perhaps recognizing that the math is against it, NCR argues that by 2007 the remediation process had become much more concrete and thus it was not reasonable to build such a large amount of wiggle room into the estimates. The estimate, in its view, should have only included a +15 percent figure, not +50 percent. But that is nothing more than Monday morning quarterbacking. The fact is that, by NCR’s own admission, this is a project of unique scale and complexity, and the +50 percent range *was* built into the 2007 estimates. The question in 2010 was not what the estimate range in 2007 *should* have been, it was whether the new estimates were fundamental changes to the estimate that *had* actually been provided in 2007. When we are reviewing changes to estimates to determine how large the change is, it does not make sense to go back and reexamine the original estimate to determine what it should have been. The only salient question is what that original estimate *was*. In sum, the language of the regulations and the EPA’s own guidance suggests

⁵ NCR is correct in some sense that a 62 percent increase is 24 percent higher than a 50 percent increase, but the salient comparison here is not between the two percentages of increase but between the increases *plus* the original amounts. Thus, we compare 162% (the actual estimate) to 150% (the original estimate) to find that the 2010 figure was only eight percent higher than the estimate (12 divided by 150).

that a cost increase, even a “significant” one, does not necessarily trigger the need to issue a ROD. And the fact that the applicable estimate included a very large amount of flexibility brings the changes proposed in 2010 much closer to that estimate. In sum, I conclude that the EPA did not err in issuing an ESD rather than an amendment to the ROD.

C. Glatfelter and Other Defendants

1. Delegation to the WDNR

Some Defendants, led by Glatfelter, argue that the EPA failed to properly delegate authority to the Wisconsin DNR to conduct the remedial investigation and feasibility study (“RI/FS”). CERCLA itself allows the EPA to designate a state to take the lead in a remediation project like this one, but in this case the EPA did not formally do so. “Absent an express delegation by the EPA, a state has no CERCLA authority.” *W.R. Grace & Co.-Conn. v. Zotos Intern., Inc.*, 2005 WL 1076117, *4 (W.D.N.Y. 2005). Section 104(d)(1) of CERCLA provides:

A State or political subdivision thereof or Indian tribe may apply to the President to carry out actions authorized in this section. If the President determines that the State or political subdivision or Indian tribe has the capability to carry out any or all of such actions in accordance with the criteria and priorities established pursuant to section 9605(a)(8) of this title and to carry out related enforcement actions, the President may enter into a contract or cooperative agreement with the State or political subdivision or Indian tribe to carry out such actions. The President shall make a determination regarding such an application within 90 days after the President receives the application.

42 U.S.C. § 9604(d)(1).

Because there is no formal contract or cooperative agreement in the administrative record, Glatfelter argues that the State of Wisconsin lacked the authority to conduct the remedial investigation and feasibility study. Without a formal delegation of authority, state officials answered to the Governor, not to the President, and it was thus arbitrary and capricious for EPA to

have relied on the state's RI/FS in selecting the remedy. Although CERCLA grants a great deal of authority and deference to the EPA in such matters, Glatfelter argues that it does *not* do so to state agencies that have no formal contractual relationship with EPA.

The agencies argue that there was, in fact, a cooperative agreement in place. In 1998, the WDNR submitted s "Superfund Fox River Cooperative Agreement Application" to the EPA, and it was quickly approved in February 1998. The agreement provided as follows:

The purpose of this Superfund Cooperative Agreement is to develop a scientifically sound and defensible risk assessment (RA), remedial investigation / feasibility study (RI/FS) and to afford the appropriate levels of public participation for this part of the federal Superfund process. . . . The goal is to compile the data necessary to select an approach for site remediation and then to use this information in a well-supported Record of Decision (ROD).

(ECF No. 620-1 at 21.) Among other things, the Cooperative Agreement noted that "CERCLA section 104(c) requires that CERCLA-funded actions provide a cost-effective response, balancing the need for protection of public health, welfare, and the environment against the availability of amounts from the fund to respond to other sites." (*Id.* at 11, ¶ 6.) It further provided that "[a]ll activities conducted under this Agreement shall not be inconsistent with the revised National Contingency Plan (NCP)." (*Id.* at 12, ¶ 13.) The agreement was signed by George Meyer, DNR Secretary, and William Muno, Director of the EPA Superfund Division, Region 5. (ECF No. 620-2.)

The Defendants argue that this "Cooperative Agreement" is not actually a cooperative agreement. A number of their arguments apparently resulted from some confusion in the record, however, which a corrective letter from the government has now explained. (*See* ECF No. 621.)

The Cooperative Agreement refers to CERCLA's requirements and was signed by appropriate government officials. All of the correspondence refers to the document as a cooperative agreement, and the cover letter from the DNR Secretary describes it as a "Superfund Fox River Cooperative Agreement." (ECF No. 620-1 at 1.) The agreement refers to the "goal" of producing a Record of Decision by conducting a feasibility study and risk assessment. (*Id.* at 21.) The fact that the DNR was motivated to become the point agency on the project by certain local political considerations does not change the fact that this was a cooperative agreement. Presumably in every case in which a state agency takes the lead, it does so because its governor has determined that his state's public is best served if the state is involved. That the governor might not have the specific nine CERCLA criteria in mind when directing his DNR to take the lead is hardly surprising.⁶

The Defendants also argue that even if the agreement is considered a proper cooperative agreement, its absence from the administrative record means that it cannot be considered at this stage of review. But a cooperative agreement between a state and the federal government is not part of the decision-making process that a court reviews. It is a legal precursor to that process, perhaps, but its substance will be reviewed (if at all) *de novo*, rather than with "deference" to the agency. If a proper agreement exists, it does not need to be part of the administrative record in order for a court to conclude that the lead agency actually had the authority to conduct the remedial project.

⁶ There has been some late wrangling about the Cooperative Agreement, due to its very recent inclusion in *this* record (ECF No. 620-1) by the United States. Some Defendants have protested the new document the government filed. (ECF No. 623.) Given the flurry of activity in advance of trial and the lateness of the submission, the Defendants may take any additional discovery on the document they reasonably need after the trial. If it appears that there is some basis to question the document's legitimacy, they may ask for reconsideration on this point as part of their post-trial submissions.

Any other result (for which there is no precedent) would needlessly elevate technical minutiae over substance.⁷

2. WDNR's Assumptions About Dredging and Reliance on WDNR's RI/FS

Glatfelter and some of the Defendants also argue that the WDNR made overly optimistic assumptions about the efficacy and cost of dredging. For example, the WDNR assumed that the cleanup would result in a SWAC (surface weighted average concentration) of 0.25 ppm, a level that had never been obtained in river dredging projects. When assumptions about the effectiveness of a given remedy are overly optimistic, it skews that remedy selection process by placing too much weight on that remedy, regardless of cost. These Defendants also argue that the cost estimates were optimistic as well. Thus, when the remedy is deemed more effective and less expensive than it actually is, the resulting selection is doubly skewed.

The government argues that the SWAC estimates were reasonable. Although the initial estimates of a 0.25 ppm have proved unattainable, that was one of the reasons the ROD was amended in 2007. The ROD Amendment explained:

Recent experience with dredging in OU1 and other projects has shown that dredging equipment cannot completely remove contaminated sediment from dredged areas. Thus, residual contaminant concentrations often remain after dredging is completed in an area. For that and related reasons, the dredging remedy selected by the 2003 ROD probably would not achieve the PCB Surface Weighted Average Concentration (SWAC) goals established by the 2003 ROD.

(ECF No. 404-3 at 8, ¶ 5.)

⁷ Even if such a document *were* required to be part of the administrative record, that would present a suitable opportunity to supplement the record to include it. Unlike the “supplements” proposed by the Defendants, which consisted of *new* information and opinions, this document was actually in existence and is a proper candidate for supplementation.

The ROD Amendment further explained that experience had shown that, even if the dredging had been done down to the 1.0 ppm level, the dredging process re-deposits some PCB-containing sediment in a this layer on top of the dredged area. That amount of residual PCBs would increase the SWAC calculation. In addition, experience had shown that there would remain a small amount of PCBs on the surface of *undredged* areas (areas with less than the 1.0 ppm RAL). This small amount of residual PCBs, which had not been expected, would also impact the final SWAC estimate. (ECF No. 404-3 at 16.) These factors influenced the governments' decision to adopt the amended remedy, which included a significant use of capping (3.3 million cubic yards) and no longer relied exclusively on dredging. (ECF No. 404-3.)

The Defendants also argue that in 2007 the governments should have gone back to the drawing board and reevaluated the remedy from a fresh perspective. Although they determined that the new hybrid remedy was more efficacious than the 2003 all-dredging remedy, they failed to consider a more extensive capping remedy once they learned, through experience, that their estimates about the virtues of dredging had proven overly rosy. This is especially true given that the Plaintiffs acknowledged in 2010 that capping, sand covering and dredging would all meet minimum requirements for long-term protectiveness and permanence.

Yet even if the governments took a more favorable view towards capping in 2010 than they did in 2003, it does not show that the dredging-plus-capping remedy was arbitrary and capricious. As the 2010 Criteria Analysis Memorandum explains, there were other considerations. Primary among these is the fact that dredging actually *removes* the toxic PCBs from the River for all time and places them in a secure off-site facility. (ECF No. 147-2 at 3.) Even if caps provide an adequate solution, they will require maintenance in the long-term, and these long-term costs are less

certain than dredging (although OU1 capping costs might have provided some guidance). Caps can also affect the navigability of the River in shallow areas or shipping channels, which adds further uncertainty especially if the water levels would decline. The CAM further explained that sand covering, like capping, reduces PCB concentrations but does not remove the PCBs from the River. Finally, as the original ROD noted, capping could be susceptible to catastrophic events like floods. (ECF No. 404-2 at 124.)

Ultimately the Defendants do a convincing job of showing that capping was not as unfavorable an option as it seemed in 2003. They also have explained that dredging was not as effective at lowering PCB levels as had been hoped. But that is a far cry from showing that the remedy actually imposed was arbitrary and capricious. The documents cited above reveal that the agencies conceded that their original SWAC estimates had not borne out, and they show that they adapted by choosing a remedy that included more capping in order to save costs. The agencies also conceded throughout this process that dredging was not a panacea: it could disrupt long-dormant PCBs and redistribute them, which would result in some resuspension of the PCBs. (*See, e.g.*, ECF No. 404-2 at 142.) Similarly, the agencies found that many of the risks of capping could be mitigated. (*Id.* at 124.) The Defendants have suggested throughout that the agencies had an irrational bias in favor of dredging, but the documents show that the agencies frankly and extensively considered the costs and benefits of *both* methods of remediation. It was not as though the agencies believed dredging was an “A+” solution and capping was an “F”—instead, it was clear that they adopted a mild preference for the benefits of dredging and viewed these as being worth their added expense. It is of course natural that those who have to bear the expense would disagree, but the agencies explained that the hybrid remedy selected was the most cost-effective because it

balanced the permanence of dredging with the cost savings of capping and sand covering in places that were more amenable to those remedies, such as areas with deposits of sediment covered by clean sediment. (ECF No. 147-2 at 4-5.) Their explanations are common-sense ones: removal of PCBs is inherently better than trying to contain them, even if the dredging solution is not perfect. This solution speaks to more than the mechanical cost-benefit ratio that the Defendants rely on. That is, although the Defendants can cite the virtues of capping versus dredging, these cannot overcome the inherent advantages of dredging, namely the “permanence” of the solution, which has not just a scientific but common-sense appeal as well. The “insurance” provided by actually removing the toxic PCBs from the River is not an insignificant consideration. The NCP says that the “purpose of the remedy selection process is to implement remedies that *eliminate*, reduce, or control risks to human health and the environment.” 40 C.F.R. § 300.430(a). That the agencies chose a remedy that eliminates much of the risk in some parts of the river and reduces it in others is not irrational.

3. Reliance on 1 ppm Remedial Action Level

Finally, Glatfelter argues that reliance on the 1 ppm RAL was arbitrary and capricious because it adopted a “one size fits all” approach to the River. PCBs are harmful only inasmuch as humans are exposed to them. Exposure risks differ depending on which part of the River we are talking about. For example, sediment that is buried deep in the riverbed is much less risky to humans than sediment near the surface because the buried sediment is less likely to be ingested by fish. As such, the Defendants argue that requiring a 1 ppm level for each type of PCBs is arbitrary because it treats differing risks in an identical manner.

This objection was raised and addressed ten years ago. In a White Paper, the DNR explained that the RAL is only one factor used in achieving an appropriate “healthy” level of PCBs in the water. (ECF No. 578-9.) It was not as though the government actually believed all PCBs were equally dangerous; instead, it used the 1 ppm level as a metric that would impact the other thresholds such as sediment quality and SWAC. In other words, removing sediments that had 1 ppm or greater was deemed crucial in achieving the sediment quality and SWAC numbers the government deemed important for public health. (*See, e.g.*, ECF No. 439-12 at 96.) “Studies conducted as part of the Lower Fox River and Green Bay RI/FS indicate that a 1 ppm RAL shows the greatest decrease in projected surface water concentrations relative to the other action levels.” (*Id.* at 97.) Nowhere does any agency suggest that it believed all PCBs, wherever buried, were equally dangerous. Accordingly, Glatfelter’s motion will be denied.

D. Menasha and Other Defendants

1. Assumptions about River Temperature

Menasha and some of the other Defendants argue the remedy was arbitrary and capricious because the agencies used an average water temperature of 20 degrees (Celsius) in their model, called the FRFood model. In warmer months, the River might be that warm or even warmer, but in the colder months temperatures are near-freezing and bring the average temperature down much lower than 20 degrees.

Menasha argues that this is not an academic point about water warmth but about the danger of the PCBs as a toxin. As noted above, PCBs are dangerous to humans primarily because fish consume the PCBs and then humans consume the fish. In warmer temperatures, fish consume more food than they do in colder months, which means they ingest more of the PCBs that are lingering

in the River sediments. According to Menasha, if the temperature is overstated in the model, the model will also overstate the amount of food fish eat and thus the amount of PCBs they ingest. In short, Menasha believes the assumption about a higher river temperature improperly boosted the level of fish toxicity and thus exaggerated the dangers of PCBs overall. And when the dangers are exaggerated, so is the response.

The agencies argue that their FRFood model was tested and provided accurate results of PCB accumulation, and they suggest that the Defendants' focus on a single data point misses the boat entirely given the deferential level of review to be applied here. The agencies note that the model was based on a model developed for Lake Ontario, which has been successfully applied to predicting PCB concentrations in fish elsewhere. The 2002 Final Model Documentation Report explains that, although the Lake Ontario model was developed for use in lake systems, "the mathematical relationships have been successfully applied to predicting fish tissue concentrations in some river systems." (ECF No. 578-13 at 4-5.) "Applications of this model in other systems include derivation of bioaccumulation factors, bioconcentration factors, and food chain multipliers in the development of the Great Lakes Water Quality Initiative criteria." (*Id.*) The Report further explained that although the model had overpredicted PCB concentrations in some fish, in other fish it had underpredicted. Ultimately, the model was deemed suitable based on its prediction of observed fish tissue concentrations in the Fox River as well as the Sheboygan and Hudson Rivers. (*Id.* at 4-6.)

Although the Defendants are undoubtedly correct that 20 degrees is not the actual average temperature of the Fox River, I am satisfied that the figure is not so far off that it materially impacted the choice of remedy. If the summer months are 20 degrees or warmer, that means the

model actually under-predicted PCB consumption for those months, which would partially balance out any error that occurred during the winter. More importantly, the agencies have explained adequately how the entire model has been used elsewhere in similar climates with success. It cannot be overstated that when a reviewing court is viewing these sorts of issues through arbitrary-and-capricious lenses, it is typically not enough to argue that a single data point or assumption was erroneous or that it could have been more accurate. And when the matter is as complex as predicting fish toxicity based on releases of PCBs into a dynamic river system decades earlier, it will require more to show that the governments' approach was so unreasonable as to render it arbitrary and capricious.

2. Octanol-Water Partitioning Coefficient

Relatedly, Menasha argues that the agencies used an improper value to measure the toxicity of the PCBs in OU1-OU4. In short, not all PCBs are equally harmful. In OU5, for example, the WDNR used an approach to remedy selection that was tailored to the PCBs that were actually in the Site. This produced what is known as a "log K_{ow} value" of roughly 5.6 to 5.7. By contrast, for OU1-OU4, the agencies adopted a log K_{ow} value of 6.6. These values are measured on a logarithmic scale, meaning that an increase in 1 is actually a 10-fold increase.

The log K_{ow} value, according to Menasha, is one of the most important factors affecting how PCBs move through the environment. (ECF No. 557, ¶ 89.) The figure measures a chemical's tendency to dissolve in water, which can be indicative of how the chemical accumulates in the fatty tissue of fish. The 6.6 figure appears to have come from one of the models used in the remediation of Lake Ontario (described above), and because the makeup of PCBs at that Site is different from that of the Fox River Site, the Defendants argue that the figure should not have been used to create

a remedy. Practically speaking, according to Menasha, the difference in the 5.6 versus 6.6 log K_{ow} values resulted in a dredging remedy for OU1-OU4 but a “monitored natural attenuation” remedy (no dredging) for OU5.

The agencies explain that the 6.6 log K_{ow} value they used in some of the model runs did not exaggerate PCB accumulation in fish tissue. Log K_{ow} values between 4.4 and 8.2 were found in the River, and thus 6.6 was well within the range actually observed. (Aroclor 1242 is listed at 6.3.) (ECF No. 578-15.) And the fact that a 5.6 figure was used in some applications while 6.6 was used in others is not dispositive of anything because the lower value was used to determine the transfer rate of PCBs between blood and water in fish gill tissue, and that value was specific to the species of fish.

I am satisfied once again that the Defendants have not adequately explained why a figure of 6.6 would have been improper, much less arbitrary and capricious. As the agencies note, there is little science behind their argument, and the suggestion that the 6.6 figure actually impacted the remedy selected is wholly speculative. Put another way, there is little scientific basis to conclude that a different figure would even have been more appropriate, and as such it is impossible to find that the use of 6.6 was arbitrary and capricious.

3. Model Calibration

Menasha also argues that the model was not calibrated properly (or at all) because it had failed a key test in the calibration process. According to the 1998 Technical Memorandum 1 (the “Tech Memo”), the model had to be within plus or minus 30 percent of the conditions actually observed in the Fox River. (ECF No. 557-60.) Moreover, the model had to be able to be “hindcast”

to compare its predictions to the conditions actually observed over time. According to the Defendants, the model failed these calibration tests.

The agencies note, however, that the calibration methods detailed in the Tech Memo were not an exhaustive series of pass-fail tests. That is, the methods and metrics described were to be viewed *in toto* in order to determine whether the model would be adequately predictive. (ECF No. 568-1 at 2-3.) The Tech Memo did not say, in other words, that “failing” a single metric would necessarily disqualify a model.

Even so, according to the Model Development Report, the model did meet the 30 percent threshold for data within the water column, even if it did not do so for data derived from sediment. (ECF No. 568-2 at 1.) The Report elaborates:

Relative differences for the sediment column were much larger [than plus or minus 30 percent]. Nonetheless, the wLFRM was able to capture the trend and magnitude of inferred PCB concentration changes over time in surface sediments. Given these considerations, the wLFRM calibration was judged to adequately meet the criteria identified in Technical Memorandum 1.

(*Id.*)

The Report further explained that quantification of PCB concentration trends in sediment was a “complex process.” (*Id.* at 63.) Addressing the failure to achieve much success with sediment, the Report notes that the sediment samples were not collected with an eye towards estimating PCB trends over time. Moreover, the Report identified a number of “caveats” with sediment data, including “[d]ifferences attributable to spatial heterogeneity, temporal variability, and analytical bias confound direct analysis and makes clear identification of possible trends challenging.” (*Id.*)

The report as a whole indicates that the agencies considered the problems of sediment data and concluded that the prospect of *ever* having adequate results with such data was dim, given the complexities and caveats the Report identified. In actuality, given the obvious complexity of the task, the process was the opposite of arbitrary and capricious. Instead of pretending the problem didn't exist or attempting to obscure it, the agencies explained the issue and further articulated why it wasn't fatal to their adoption of the model. The Report evidences not arbitrariness but care and concern that a record be made identifying the problem and the agencies' response to that problem. And of course the very metrics the Defendants now cite were never intended to be disqualifying in the fashion they suggest. Calibration means running the model through a series of tests and then determining whether the final result warrants approval; it does not mean that performance on a single test would throw the entire model out the window, particularly given the inherent difficulties the agencies identified at the time with that particular metric. The calibration described in the Report could be analogized to a job posting in which the employer identifies a number of criteria it is looking for in a candidate. In some cases a given criterion could be disqualifying, for instance if the applicant lacks a needed license or certification. But others are more flexible and, depending on the circumstances, a weak performance in one area could be overcome by stronger performances in others. The Defendants portray calibration as though it were a pre-launch NASA safety punch list, in which the slightest discrepancy will ground the shuttle. Instead, calibration, as the administrative record itself explains, is a more nuanced process designed to deal with a very complex issue. Focusing very narrowly on a single criterion—which the agencies themselves did not view as disqualifying—does not under these circumstances suffice to generate a genuine issue

of material fact. Viewing the model calibration as a whole, it is clear that the agencies had ample reasons for believing it to be adequately predictive.

In sum, viewing the process through the narrow lenses Menasha proposes, it would be hard to imagine a remedy *ever* being satisfactory. Finding answers to problems as complex as the ones at issue here will be never be easy or without controversy. But, as I have emphasized repeatedly above, it is not enough to point out issues here and there that might be arguable—the challenger must point to fundamental flaws in the process that are suggestive of arbitrariness and caprice. The ones identified above do not even come close. In reviewing the administrative record, I have found an almost breathtaking level of scientific detail and careful analysis supported by palpable evidence of the incredible effort brought to bear by countless agency employees and hired scientific advisors.

4. Cost Contingencies and Estimates

Finally, Menasha argues that the remedy selection was arbitrary and capricious because it failed to include important cost contingencies and failed to account for certain dredging costs. Menasha’s argument on cost contingencies is supported by little other than misquoted EPA guidance suggesting that cost contingencies may be appropriate in some circumstances. The “guidance” document it relies upon explains on the very first page that “it does not impose legally binding requirements on EPA, States, or the regulated community, and may not apply to a particular situation based upon the specific circumstances.” (ECF No. 536-6 at i.) Without citation, and despite this cautionary language (as well as the fact that the document is described merely as “guidance”), Menasha argues that the guidance document says that such contingencies are “required” (ECF No. 557 at ¶¶ 109-110) and “must be included.” (*Id.* at 114.) I cannot find any

basis in law to conclude that a failure to include cost contingencies could be deemed arbitrary and capricious.

Defendants also argue that EPA and WDNR erred by failing to include a cost estimate associated with overdredging in the 2003 ROD. “Over-dredge” is the material dredged several inches below the sediment believed to actually contain PCBs. Several inches of over-dredge adds up to lots of material when we are talking about a massive riverbed. By failing to account for all of the costs associated with dredging this extra material, the 2003 ROD was off by some \$176 million, according to the Defendants. In addition, Defendants argue that the agencies underestimated the per-unit costs of dredging in the 2003 ROD, which improperly tipped the scales in favor of a dredging remedy.

The agencies note, however, that the 2003 remedy is not the remedy that was actually adopted. Instead, a hybrid remedy was adopted after the 2007 ROD Amendment and 2010 ESD. When this replacement remedy was ultimately adopted, over-dredge costs were included. In fact, it was this information, along with other information learned about the nature of other PCB deposits, that led to the ROD Amendment in the first place. It is thus unclear how any errors in the original ROD, which was not imposed, could be deemed arbitrary and capricious. As discussed earlier, the point of ROD Amendments and ESDs is to modify earlier models and remedy selections, and as such an original ROD is simply an initial step in the process.

As for the cost estimates themselves, the Defendants argue that the agencies ignored the actual costs incurred for dredging at other sites, including the pilot projects undertaken on the Fox River itself. Other projects cost hundreds of dollars per cubic yard (“cy”), and the average cost per yard on the Fox River itself had been \$318 in the pilot projects. Nevertheless, the agencies adopted

a cost estimate of only \$44 per cubic yard. They explain that the vastness of this project would lead to large economies of scale not seen in other, smaller, projects.

Once again, however, it is unclear why any errors made in the earliest cost estimates would result in a finding that the ultimate remedy selected was arbitrary and capricious. Later estimates, which were adopted, accounted for the increased costs that experience had borne out. In fact, it was the increased dredging cost estimates (including large volume increases) that caused the agencies to adopt a hybrid remedy employing much *less* dredging than had originally been planned. (ECF No. 404-3 at 27.) Thus, to focus narrowly on an original estimate of cost on a per-cubic-yard basis does not make sense when the entire project was changing over time and when the ultimate remedy was not based on the offending estimate in the first place. For these reasons, Menasha's motion for summary judgment will be denied.

D. The Plaintiffs

Above I have addressed the reasons why the Defendants' motions for summary judgment will be denied. Although they argue that the governments' motion for summary judgment cannot be granted because genuine issues of material fact remain, they do not elaborate on what those facts might be. After all, the review at this stage is limited to the administrative record (i.e., paper), making the matter amenable to summary judgment (as their own motions on that score appear to concede).⁸

Having found that the Defendants have not met their burden to demonstrate that the remedy was arbitrary and capricious, it follows that the governments' motion for summary judgment will

⁸ As noted earlier, I have reviewed the reports of the two experts I allowed to testify on a limited basis regarding costs and conclude they do not raise a genuine issue of material fact requiring a trial. (ECF No. 501-1; 519-2.)

be granted and the remedy must be upheld. Even so, it is worth fleshing out my conclusion that the governments are entitled to summary judgment. The discussion above only scratches the surface of the complexity involved in crafting a remedy for such a difficult problem and in meeting the demands of the public and the PRPs themselves, many of whom participated in the remedy selection process. The comments received during this process were answered and the concerns were addressed. That the PRPs did not win the day on many of their proposals is not surprising.

Many of the Defendants appear to view their failure in the debate over capping and dredging not as a product of an honest disagreement among professionals and public servants but as the result of some sort of nefarious government plot perpetrated by individuals who put their thumb on the scales in favor of dredging at the very earliest stages and then buried their heads in the sand to avoid coming to grips with dredging's costs and limitations. If there were evidence of such a phenomenon, I would certainly consider granting the Defendants' motions or at least holding a trial on the matter. However, as discussed above, the record is simply devoid of any such evidence. The remedies were crafted by countless individuals—not just in the government but at private environmental contractors—and of course the process spanned more than a decade and involved both state and federal officials. On that score alone, it is simply implausible to believe that so many different individuals could come up with a result that was based solely on an irrational prejudice in favor of dredging.

Of course we do not have to speculate about the agencies' motives because we have an extensive administrative record. Were results fudged? Was data hidden? Were shortcomings glossed over and were successes trumped up? No. The Defendants have cited a few instances where data input (e.g. temperature) was not perfect, or where a model did not perfectly calibrate,

but in a fantastically complex process like this perfection is unattainable. The record reveals that rather than some kind of irrational bias against capping, the agencies were readily admitting that capping had certain advantages and that dredging was not a perfect solution. The agencies frankly conceded that capping was a “feasible” solution that “can be effective in reducing the risks posed by PCB-contaminated sediments at the Site.” (ECF No. 147-2 at 3.) The Defendants point to this clause as though it should end all discussion on the matter, but they ignore the fact that the agencies cited other reasons (on the very same page, in fact) why capping was *not* preferred and why dredging was superior. The record demonstrates that the governments gave an honest assessment of the pros and cons of the different types of remedy, and in fact they *agreed* with the remedy proposed by some of the Defendants when they adopted a remedy that included massive amounts of capping.

In short, the record demonstrates a colossal effort to “get it right” and to consider all options fairly and honestly—without prejudice, without arbitrariness and without caprice. And the Defendants have failed to acknowledge that their argument was always an uphill battle: no matter how one spins it, they were demanding that more poisonous chemicals be allowed to *stay* in the River. Although it is certainly conceivable that some of the Defendants’ arguments might have carried the day during the remedy creation process (and some of them *did*), at this stage the only question is whether the governments were operating within the bounds of the law and whether their decisions and processes were rational ones given the array of choices they had to make and the complexity and scope of this unprecedented undertaking. I conclude that they were. For that reason, the governments’ motion for summary judgment will be granted.

III. Conclusion

For the reasons given above, the Defendants' motions for summary judgment on the Fifth Claim for Relief (ECF Nos. 534 and 541) are **DENIED**. The Plaintiffs' motion for summary judgment as to propriety of the remedy (ECF No. 508) is **GRANTED**.

SO ORDERED this 21st day of November, 2012.

 s/ William C. Griesbach
William C. Griesbach, Chief Judge
United States District Court