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Deposition of James Hahnenberg - August 28, 2012

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IN THE UNITED STATES DISTRICT COURT  
FOR THE EASTERN DISTRICT OF WISCONSIN  
GREEN BAY DIVISION

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UNITED STATES OF AMERICA, et al.,

Plaintiffs,

vs.

Case No. 1:10-CV-00910-WCG

NCR CORPORATION, et al.,

Defendants.  
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Deposition of JAMES HAHNENBERG

Tuesday, August 28, 2012

9:03 a.m.

at

Gramann Reporting, Ltd.  
710 North Plankinton Avenue  
Milwaukee, Wisconsin

Reported by Dawn M. Lahti, RPR/CRR

Deposition of JAMES HAHNENBERG, 8/28/12 Page 2

1 Deposition of JAMES HAHNENBERG, a witness  
2 in the above-entitled action, taken at the instance  
3 of the Defendants, pursuant to the Federal Rules of  
4 Civil Procedure, before Dawn M. Lahti, RPR,  
5 Certified Realtime Reporter, and Notary Public,  
6 State of Wisconsin, at 710 North Plankinton Avenue,  
7 Milwaukee, Wisconsin, on the 28th day of August,  
8 2012, commencing at 9:03 a.m. and concluding at  
9 5:45 p.m.

10 A P P E A R A N C E S:

11 U.S. DEPARTMENT OF JUSTICE, by  
12 Mr. Randall M. Stone  
13 P.O. Box 7611  
14 Washington, D.C. 20044-7611  
15 Appeared on behalf of the Plaintiffs.

16 GREENBERG TRAUIG LLP, by  
17 Mr. David G. Mandelbaum  
18 2700 Two Commerce Square  
19 2001 Market Street  
20 Philadelphia, Pennsylvania 19103  
21 Appeared on behalf of P.H.  
22 Glatfelter Company.

23 HUNSUCKER GOODSTEIN & NELSON, PC, by  
24 Mr. David A. Rabbino  
25 3717 Mt. Diablo Boulevard, Suite 200  
Lafayette, California 94549  
Appeared on behalf of Menasha Corporation.

STAFFORD ROSENBAUM, LLP, by  
Ms. Marney I. Hoefer  
222 West Washington Avenue, Suite 900  
P.O. Box 1784  
Madison, Wisconsin 53701-1784  
Appeared by phone on behalf of City of  
Appleton.

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1 APPEARANCES CONTINUED:

2 DAVIS & KUELTHAU, S.C., by  
3 Mr. Mark F. Yokom  
4 111 East Kilbourn Avenue, Suite 1400  
5 Milwaukee, Wisconsin 53202  
6 Appeared by phone on behalf of  
7 Neenah-Menasha Sewerage Commission.

8 CRAVATH, SWAINE & MOORE LLP, by  
9 Mr. Omid H. Nasab  
10 Mr. Benjamin F. Heidlage  
11 Worldwide Plaza  
12 825 Eighth Avenue  
13 New York, New York 10019  
14 Appeared on behalf of NCR Corporation.

15 QUARLES & BRADY LLP, by  
16 Mr. Nancy K. Peterson  
17 411 East Wisconsin Avenue, Suite 2040  
18 Milwaukee, Wisconsin 53202  
19 Appeared on behalf of WTM I Company.

20 HERMES LAW, LTD., by  
21 Ms. Heidi D. Melzer  
22 2360A Dousman Street, Suite 2  
23 Green Bay, Wisconsin 54303  
24 Appeared on behalf of Appleton Papers,  
25 Inc.

von BRIESEN & ROPER, s.c., by  
Mr. Michael P. Carlton  
411 East Wisconsin Avenue, Suite 700  
Milwaukee, Wisconsin 53202  
Appeared on behalf of CBC Coating, Inc.

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2

3 BY MR. MANDELBAUM 5  
4 BY MR. RABBINO 181  
5 BY MR. NASAB 287  
6 BY MR. MANDELBAUM 333  
7 BY MR. STONE 334

8

9

10 E X H I B I T S

11 EXHIBIT NO. PAGE MARKED

12 Exhibit 4219A Answers and Objections 7  
13 Exhibit 4219B E-mail of 10/5/00 14  
14 Exhibit 4219C NRRB Briefing Package 19  
15 Exhibit 4219D PRAP, October 2001 33  
16 Exhibit 4219E Letter of 7/16/99 51  
17 Exhibit 4219F E-mail of 9/22/99 119  
18 Exhibit 4219G Article, 10/25/97 145  
19 Exhibit 4219H E-mail of 6/4/98 152  
20 Exhibit 4219I E-mails of 2/19/99 153  
21 Exhibit 4219J Article, 12/10/97 156  
22 Exhibit 4219K Record of Decision, OU3, OU4, OU5 167  
23 Exhibit 4219L E-mail of 7/6/00 209  
24 Exhibit 4219M Excerpts from LFR, 12/'02 216  
25 Exhibit 4219N Excerpts from EPA Cost Estimates 232

(Original exhibits attached to original transcript.  
Copies of exhibits attached to copies of transcript.)

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1 TRANSCRIPT OF PROCEEDINGS

2 JAMES HAHNENBERG, called as a witness

3 herein, having been first duly sworn on oath, was

4 examined and testified as follows:

5 EXAMINATION

6 BY MR. MANDELBAUM:

7 Q. Good morning, Mr. Hahnenberg. We've known each

8 other a long time.

9 A. Um-hum.

10 Q. I'm David Mandelbaum. I'm still representing the

11 P.H. Glatfelter Company. And I want to go over a

12 few ground rules for this deposition before we get

13 started so I'm sure we're on the same page.

14 A. Okay.

15 Q. Have you been deposed before?

16 A. No.

17 Q. Okay. First time for everything, and I'm sorry for

18 this -- more fun things coming. Can we take a

19 two-second break?

20 (Discussion off the record.)

21 BY MR. MANDELBAUM:

22 Q. So I will be asking you some questions. When I'm

23 through, other people will be asking you some

24 questions. When you respond to questions, I'm

25 going to ask that you respond verbally. You've

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 6</p> <p>1 been nodding your head. You're nodding your head 2 right now. 3 A. Yes, okay. 4 Q. The court reporter can't take that down. 5 A. Right. 6 Q. When I speak, I'm going to try to avoid speaking 7 over you. If you would try to avoid speaking over 8 me, that's much easier for the court reporter to 9 take a clean transcript of. 10 A. Okay. 11 Q. Now, I'm going to state questions. And if you do 12 not hear the question or you do not understand the 13 question, please just ask me to restate it. If I 14 ask you a question and you answer it, then we're 15 all going to assume that you heard it and that you 16 understood it. Is that acceptable? 17 A. Yes. 18 Q. Now, if you want a break at any time, please just 19 ask for the break. There's no reason to be 20 uncomfortable here. 21 A. Okay. 22 Q. But all that we ask is that you -- that we take the 23 break after you've answered the pending question. 24 So question, then answer, then break. 25 A. Right.</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 8</p> <p>1 A. Yes. 2 Q. And those are, I believe 1B, 1C, 4 in part, 5 in 3 part and 9. 4 A. Okay. 5 Q. Okay. 6 A. Yep. 7 Q. All right. And you've reviewed those before coming 8 here today, right? 9 A. Yes. 10 Q. Now, what did you do to prepare yourself to testify 11 as to the knowledge of the United States in those 12 areas? 13 A. I reviewed documents, and I talked to a couple 14 people. 15 Q. Okay. Let's start with who you spoke with. 16 A. I talked with Russ Kreiss. He's with EPA Large 17 Lakes Research Station. He worked on the Green Bay 18 mass balancing and the sampling related to that, 19 and that was for factual information. 20 I also talked with Ed Lynch with DNR 21 again for factual information to kind of confirm my 22 memory on a couple points. And of course I talked 23 to my counsel, Randy Stone, and I talked a little 24 bit with Rich Murawski at the office of regional 25 counsel.</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 7</p> <p>1 Q. Not question, break, then answer. Okay? 2 A. Yep. 3 Q. Is there any reason why today is not a day when you 4 can give accurate and complete testimony? Are you 5 ill, any drugs you're on, anything like that? 6 A. No. 7 Q. Okay. Now, yours is a particular kind of 8 deposition called a deposition under Rule 30(b)(6) 9 of the Federal Rules of Civil Procedure. 10 (Exhibit 4219A was marked for 11 identification.) 12 BY MR. MANDELBAUM: 13 Q. So I'm putting before you a document which the 14 court reporter has marked as Exhibit 4219A. Have 15 you seen this document before? 16 A. Let me look. Yes, I have. 17 Q. Okay. This is the answers and objections of the 18 United States and the State of Wisconsin to the 19 notice served by Menasha Corporation for a 20 deposition of the United States, okay, not just of 21 James Hahnenberg. 22 A. Right, okay. 23 Q. And you've been designated, as you see, to respond 24 to certain of -- to questions in certain of the 25 areas in this notice. Do you see that?</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 9</p> <p>1 Q. Okay. Are those the people you spoke with? 2 A. Yes. 3 Q. Did any of those people give you documents to 4 review? 5 A. Randy gave me this document, and there are a couple 6 other similar documents that I got by e-mail from 7 another DOJ attorney. Her name is Kristin Furrie. 8 They were a similar kind of documents with 9 questions like this. 10 Q. Were you given any files to review? 11 A. No. 12 Q. Were you given any documents from the 13 administrative record to review? 14 A. No. 15 Q. Were you given any other documents to review such 16 as e-mails or anything like that? 17 A. No, not that I remember. There may have been a 18 couple others, like I say, documents similar to 19 this, but that would have been all. 20 Q. And you say you reviewed documents? 21 A. Correct. 22 Q. What documents did you review? 23 A. I reviewed the Remedial Investigation/Feasibility 24 Study which the first records of decision were 25 based upon. I reviewed both those records of</p>

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1 decisions and the response to comments. I reviewed  
2 the detailed evaluation of alternatives which was  
3 composed after completion of the first records of  
4 decision.  
5 I reviewed the OUI completion  
6 report. I reviewed the summary report for Deposit  
7 N. I reviewed the final report for SMU 56/57. I  
8 reviewed portions of the Basis of Design Report.  
9 I reviewed the explanation of  
10 significant differences and the criteria analysis  
11 memorandum associated with that. I reviewed  
12 portions of the preamble to the NCP. I reviewed  
13 portions of the EPA's guidance document for writing  
14 records of decisions, record of decision amendments  
15 and explanation of significant differences.  
16 I reviewed a peer-reviewed paper by  
17 the United States Geological Survey on the SMU  
18 56/57 project. I believe that's all.  
19 Q. To your knowledge, other than the preamble to the  
20 NCP and the guidance document, are all of these  
21 documents you just described in the administrative  
22 record?  
23 A. Yes.  
24 Q. And you did not review anything else in the  
25 administrative record?

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1 A. I believe that's all.  
2 Q. And you did not compile any of your own personal  
3 records, notes, e-mails, files on your computer?  
4 A. Well, I did compile some of those documents in an  
5 electronic format for my review, and some of them I  
6 made copies. I also did make copies of individual  
7 pages of some of those documents.  
8 Q. When you say some of those documents, the documents  
9 that I just described or the documents that you  
10 just described?  
11 A. The ones I just described.  
12 Q. Okay. Did you have or do you have either on a  
13 server or on your personal computer -- your work  
14 computer a compilation of e-mails related to the  
15 Fox River matter?  
16 A. Yes.  
17 Q. Where is it located?  
18 A. In Chicago, Illinois, at my desk.  
19 Q. It's your personal computer?  
20 A. On my computer at work, yes.  
21 Q. Have you collected those at all and provided them  
22 to your counsel?  
23 A. Yes.  
24 Q. And --  
25 A. I believe he has access to them. I'm nearly

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1 certain he does.  
2 Q. And you didn't review any of those before you came  
3 here today?  
4 A. No.  
5 Q. Do you have any other files on your computer  
6 related to this matter, drafts of documents, drafts  
7 of letters?  
8 A. Yeah, I have many documents related to the Fox  
9 River that I have accumulated over the years.  
10 Q. And they're on your computer?  
11 A. Yes.  
12 Q. Or in your office?  
13 A. Correct.  
14 Q. And have you made those available to your counsel?  
15 A. Yes, except the most recent things which we haven't  
16 had a chance to update in the last maybe month or  
17 so.  
18 Q. Okay.  
19 A. Everything else had been provided to him, Richard  
20 Murawski, including my electronic files and  
21 including all my paper files, all my records  
22 relating to the Fox River.  
23 Q. And do you know whether Mr. Murawski has provided  
24 those documents to the Department of Justice?  
25 A. I believe he has.

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1 Q. Do you know whether other people working on this  
2 matter at EPA have similar compilations of  
3 materials?  
4 A. No one would have as comprehensive a set of  
5 documents as I have. Some people may have a few of  
6 the documents or e-mails, but mostly I would be the  
7 one who would have these materials. And if they  
8 had them, I almost certainly would have them also.  
9 Let me back up. There are other  
10 programs like the Great Lakes National Program  
11 Office who would have some historical information  
12 and perhaps Large Lakes Research Station, Russ  
13 Kreiss and others, may have documents related to  
14 the earlier modeling that was done related to the  
15 Fox River. Beyond that, I would be probably the  
16 main person who would have the documents.  
17 Q. Have you attended every meeting with respect to the  
18 Fox River that's been had since you first became  
19 involved to your knowledge?  
20 A. Most meetings.  
21 Q. And do you have notes of those meetings?  
22 A. Some of them.  
23 Q. Have those been provided to Mr. Murawski?  
24 A. Yes.  
25 Q. And has Mr. Murawski provided those to the

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 14</p> <p>1 Department of Justice? 2 A. I believe he has. 3 Q. Are those notes in the administrative record? 4 A. I don't know. 5 Q. Are your e-mails in the administrative record? 6 A. I'm not sure. 7 Q. I have to pull clean copies of a document out of 8 this box. So if you don't mind, I'd like to take a 9 two-minute break. 10 MR. STONE: Okay. 11 (Discussion off the record.) 12 (Exhibit 4219B was marked for 13 identification.) 14 BY MR. MANDELBAUM: 15 Q. I'm showing you a document that the reporter has 16 marked 4219B. 17 A. Um-hum. 18 Q. This is a printout of an e-mail. Do you see the 19 number in the lower right-hand corner? 20 A. Yes. 21 Q. EWDNR? 22 A. Yes. 23 Q. That indicates, I understand from Mr. Stone, that 24 this came from a collection of e-mails and other 25 materials that Mr. Lynch had.</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 16</p> <p>1 Mark Velleux. 2 A. Okay. 3 Q. And Mark Velleux was the modeler for DNR, correct? 4 A. Correct. 5 Q. I'm curious about this document. If you look at -- 6 on the second sheet in the next-to-the-last 7 paragraph, you see in the last sentence of that 8 paragraph reads I believe, I understand the 9 concerns with releasing the material and can 10 provide you with NOAA's assurance that the 11 electronic file would be treated as FOIA exempt, 12 litigation sensitive -- 13 A. Where is that? 14 Q. This is the next-to-the-last paragraph in this 15 document. 16 A. Okay. I see the second sentence, okay. 17 Q. -- would be treated as FOIA exempt, litigation 18 sensitive and under no circumstances released or 19 printed out. 20 And then the last sentence is, I 21 could provide further assurance that after viewing 22 the presentation and potentially discussing with 23 Mark, we would erase/delete the file such that no 24 permanent record would remain. Right? 25 A. Right.</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 15</p> <p>1 A. Okay. 2 Q. Now, if you look at this e-mail, it's an e-mail 3 trail, correct? 4 A. Yes. 5 Q. I'd like you to look at the -- at the original 6 e-mail, the bottom e-mail. 7 A. Okay. 8 Q. It appears to be from a person named Todd -- does 9 he pronounce his name Goeks? 10 A. Yes. 11 Q. Who is Mr. Goeks or Dr. Goeks? 12 A. He works for NOAA, and I think he was a liaison to 13 the EPA to provide support on this project on 14 behalf of NOAA. 15 Q. So he works for the United States? 16 A. Yes. 17 Q. Now he's looking to get a PowerPoint presentation 18 that Mark prepared. Is that Mark Velleux? 19 A. I don't know, probably. But that's the only Mark I 20 know of who's been involved in the project early 21 on. 22 Q. If you look at the latest e-mail, the one from 23 Mr. Lynch to among other people you. 24 A. Right. 25 Q. I think it refers to a PowerPoint presentation by</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 17</p> <p>1 Q. Do you recall seeing this -- 2 A. No, I don't. 3 Q. -- set of e-mails? 4 A. No, I don't. 5 Q. Is the term litigation sensitive a term that was 6 used either regularly or from time to time within 7 the United States government? 8 A. I would guess it is but not a term that I use much. 9 Q. What do you understand Dr. Goeks to mean by that 10 term? 11 A. Well, the way I would interpret it is litigation 12 sensitive means it would be something that would 13 probably be kept confidential. 14 Q. Does it mean that he thought there might be 15 litigation involving this material? 16 A. Reading the e-mail, it would appear so, yes. 17 Q. And this e-mail is dated September of 2000. Do you 18 see that? 19 A. Yes. 20 Q. And at about that time, were you involved in the 21 Fox River matter? 22 A. Oh, well, it was actually dated October 2000. 23 Q. That's the -- that's the latest e-mail in this 24 trail. The original one from Dr. Goeks, which I 25 think you're also copied on --</p>

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1 A. Oh, yes, I see.  
2 Q. -- dated September --  
3 A. Um-hum.  
4 Q. -- you were involved in the Fox River matter at the  
5 time?  
6 A. Yes.  
7 Q. And did you believe that litigation was reasonably  
8 likely at that time?  
9 A. I didn't know.  
10 Q. You didn't know?  
11 A. No.  
12 Q. So if -- do you recall submitting a package to the  
13 National Remedy Review Board?  
14 A. Yes.  
15 Q. Did you prepare it?  
16 A. Yes.  
17 Q. And that was in July of 1999, correct?  
18 A. It sounds right.  
19 Q. And that package is marked Enforcement  
20 Confidential. Do you recall that?  
21 A. I don't remember.  
22 Q. We can look at it if you want.  
23 A. Sure.  
24 (Exhibit 4219C was marked for  
25 identification.)

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1 BY MR. MANDELBAUM:  
2 Q. I'm giving you a document which the reporter has  
3 marked 4219C.  
4 A. Okay.  
5 Q. Do you recognize it?  
6 A. Let me look at it. I don't remember it in detail,  
7 but it looks like something I would have prepared,  
8 and it has my handwritten notes on it.  
9 Q. So these are your handwritten notes on it?  
10 A. It appears like my writing, yes.  
11 Q. And there was a volume two, right?  
12 A. Yes.  
13 Q. And your name is on the front of this?  
14 A. Yes.  
15 Q. Does that indicate that you prepared it?  
16 A. Yes.  
17 Q. Now, if you look at the top of the cover page and  
18 then on every page in the text it says enforcement  
19 confidential?  
20 A. Right.  
21 Q. What does that mean?  
22 A. Well, it would mean that it would be kept with the  
23 EPA only.  
24 Q. And why is it enforcement confidential?  
25 A. I don't know.

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1 Q. Does it mean that litigation was anticipated at  
2 that point?  
3 A. It means it may have been possible.  
4 Q. Okay.  
5 A. Sure.  
6 Q. At any time has anyone provided any direction to  
7 you or to other employees at EPA working on the Fox  
8 River matter concerning how documents are to be  
9 managed because the matter might end up in  
10 litigation?  
11 A. Yes.  
12 Q. What was the direction?  
13 A. I don't remember exactly.  
14 Q. Can you recall when you received that direction?  
15 A. Not exactly. Over the years most likely, but I  
16 don't really remember it specifically.  
17 Q. So if you look back at Exhibit 4219B -- let me back  
18 up. Is this -- this direction that you received,  
19 was it direction from counsel?  
20 A. In which case?  
21 Q. For any lawyer --  
22 A. I don't remember.  
23 Q. You don't remember who told you about documents,  
24 and you don't remember what they said?  
25 A. I remember the documents. I don't remember people

Deposition of JAMES HAHNENBERG, 8/28/12 Page 21

1 telling me about their enforcement confidential  
2 aspect to them.  
3 Q. Do you remember anyone telling you either keep  
4 documents or don't keep documents --  
5 A. No.  
6 Q. -- because litigation --  
7 A. I was never told that.  
8 Q. You were never told that?  
9 A. No.  
10 Q. Even up to today?  
11 A. Correct. I was told to always keep all documents.  
12 Q. Okay. So I'm looking at --  
13 A. To an extreme in fact because I have a million  
14 e-mails.  
15 Q. So I'm looking then at Dr. Goeks' e-mail, and he's  
16 offering to delete a document when he's done with  
17 it, right?  
18 A. He may have, yes. That's what it says in the  
19 e-mail, correct.  
20 Q. And he's offering to delete it specifically because  
21 it could end up in litigation, right?  
22 A. That seems to be what he's saying.  
23 Q. Is that something that was a common practice within  
24 the United States?  
25 A. Not at all. Not that I know of.

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 22</p> <p>1 Q. Do you know whether anyone else has either kept 2 everything or deleted some things? 3 A. The general direction is to keep everything, like I 4 say, to an extreme because now I have like 60,000 5 e-mails or something like that that we've been 6 compiling in the database. 7 I mean I've had training in the past 8 regarding administrative records and that kind of 9 stuff. And my understanding from that training was 10 you keep everything no matter how trivial -- you 11 don't make the judgment. You just keep it. It's a 12 government record. That's my understanding. 13 Q. And you've looked at the administrative record, 14 right? 15 A. Um-hum, yes. 16 Q. Are those e-mails in the administrative record? 17 A. These? I don't know. 18 Q. No, the e-mails that you've collected, 60,000 19 e-mails. 20 A. Oh, I don't know how those have been handled. I 21 put them on this database which we have in our 22 Lotus notes, and the counsel has handled it from 23 there. 24 Q. And when you've examined the administrative record, 25 you can't tell me one way or the other whether</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 24</p> <p>1 Q. You expected Dr. Goeks to follow it? 2 A. I had no understanding one way or the other of how 3 he would react. I didn't talk to Todd about this. 4 I don't remember this e-mail, and I don't remember 5 this as an issue. 6 I can tell you my practice is to 7 keep everything, and I would expect others to do 8 the same. Obviously this is saying something 9 different, but that's not my practice. 10 Q. Why would DNR to your knowledge have wanted this 11 document destroyed? 12 A. I don't know. It would only be my speculation as 13 to why. And that really would be pure speculation 14 as to why they would. 15 Q. Let's shift gears a little bit. You say you've 16 been involved with the Fox River matter? 17 A. Um-hum, yes. 18 Q. In what capacity? 19 A. Project manager for U.S. EPA. 20 Q. And you're employed by U.S. EPA? 21 A. Correct. 22 Q. What's your job title? 23 A. Remedial project manager. 24 Q. And that's at EPA Region 5 in Chicago? 25 A. Correct.</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 23</p> <p>1 they're in there? 2 A. I don't know. 3 Q. Now, if you look at the October 5 e-mail from 4 Mr. Lynch to Dr. Goeks which copies you, if you 5 look to the -- in the next-to-the-last paragraph, 6 the next to the -- the third-to-the-last sentence. 7 It says, Please note that we expect 8 you to follow this assurance, meaning the assurance 9 that there would be a deletion -- 10 A. Right. 11 Q. -- and will not forward this to anyone else, 12 emphasis, without the expected -- expressed 13 permission of either Greg Hill or myself. 14 Do you see that sentence? 15 A. Yes, I do. 16 Q. Now you also say -- he also says that the -- at the 17 bottom, By copy of this e-mail, I'm also sending a 18 copy of this presentation to Jim Hahnenberg of EPA. 19 A. Right. Yes. 20 Q. Did you have any reaction that you can recall to 21 this e-mail? 22 A. I don't remember, but I can tell you that kind of 23 direction, I would not follow. 24 Q. You would not follow? 25 A. I would not follow.</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 25</p> <p>1 Q. When did you first become involved in that capacity 2 with the Fox River matter? 3 A. 1996 was the first meeting that we had relative to 4 the Fox River that I was involved in. 5 Q. And when did you join EPA Region 5? 6 A. 1989 -- June 1989. 7 Q. And before that, where were you employed? 8 A. I was in the oil exploration business in Texas. 9 Q. Who were you employed by? 10 A. Marathon Oil Company. 11 Q. And when did you join Marathon? 12 A. I believe it was 1980. 13 Q. What was your job at Marathon? 14 A. I was an exploration geologist. 15 Q. And before Marathon, what did you do? 16 A. I was a student. I had other various small summer 17 jobs. 18 Q. Describe your education for me after high school. 19 A. I went to Central Michigan, got my bachelor's of 20 science, graduated in 1975. I went to Michigan 21 State University for about a year. 22 Then I took some time off, and then 23 I ended up going back to -- well, going to grad 24 school at Western Michigan University, and I think 25 that was probably about -- I went to geology field</p>

Deposition of JAMES HAHNENBERG, 8/28/12 Page 26

1 camp in the summer of 1976.  
2 Then from '76 to '77 I think I went  
3 to Michigan State. Then I believe it was 1978  
4 roughly I started at Western Michigan in their  
5 Master of Science program in geology.  
6 Q. Did you complete that program?  
7 A. Yes.  
8 Q. When did you get a Master of Science?  
9 A. I think it was 1980 when I officially got my  
10 degree.  
11 Q. So you have a Master of Science in geology, and  
12 what was your undergraduate degree in?  
13 A. Geology.  
14 Q. All right. So you consider yourself a geologist?  
15 A. Correct.  
16 Q. Do you have any experience at EPA working on  
17 contaminated sediment sites other than the Fox  
18 River?  
19 A. Yes.  
20 Q. Which sites?  
21 A. Manistique River Harbor, area of concern; Kalamazoo  
22 River, Pine River and Siawassee River.  
23 Q. Can you describe for me your role with respect to  
24 the Manistique?  
25 A. I was both the remedial project manager, and I

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1 operated in some capacity as an on-scene  
2 coordinator. I was really officially designated as  
3 the remedial project manager.  
4 Q. And when did that occur -- withdrawn. When did you  
5 have that role?  
6 A. I'm not certain, but I'm going to say it was  
7 probably 1993 to 1994. It was quite a few years  
8 ago, so I'm not exactly sure on the dates.  
9 Q. But it's before your involvement with the Fox?  
10 A. Correct.  
11 Q. And what was going on at Manistique during the time  
12 that you were working on it?  
13 A. We were proposing that some dredging should be done  
14 there, and I can go on about that, but that's our  
15 initial involvement.  
16 Q. That's what EPA proposed?  
17 A. Correct.  
18 Q. Was dredging actually performed?  
19 A. Yes.  
20 Q. Was that dredging performed during your time on the  
21 project?  
22 A. Yes.  
23 Q. Did you supervise the dredging?  
24 A. Some of the time I did.  
25 Q. Were you there when dredging was completed?

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1 A. No.  
2 Q. Has dredging been completed?  
3 A. Yes.  
4 Q. When was dredging completed?  
5 A. Well, it was after I left the project, so I'm not  
6 sure exactly, late '90s. '97 to '98, something  
7 like that, but I don't know exactly.  
8 Q. Are you familiar with the outcome of that project?  
9 A. I'm not entirely informed. I know there was lots  
10 of monitoring done by EPA. The details of it, I  
11 just know a few bits and pieces, so I don't know  
12 the specifics of the outcome.  
13 Q. Are you familiar with the costs experienced there?  
14 A. Vaguely.  
15 Q. Who did the work at Manistique?  
16 A. EPA did. I mean, EPA contractors did.  
17 Q. Now you say you were involved with Kalamazoo?  
18 A. Yes.  
19 Q. What was your role at Kalamazoo?  
20 A. I was remedial project manager there. It was a  
21 state-lead site, so my role was really secondary.  
22 Q. And when were you involved with Kalamazoo?  
23 A. I don't remember the years. It was quite a few  
24 years ago.  
25 Q. Are you still involved with Kalamazoo?

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1 A. No, no.  
2 Q. Were you involved with Kalamazoo during a time when  
3 there was any response action being taken?  
4 A. You know, I'm not sure. We did do a small removal  
5 there. It was a dry excavation-type project, and  
6 I'm not sure if I was on the project then or not to  
7 be honest with you. I might have been. It was a  
8 dry excavation, but it was in a small tributary to  
9 the Kalamazoo.  
10 Q. You also were involved with the Pine River I think  
11 you said?  
12 A. Correct.  
13 Q. What was your role with the Pine River?  
14 A. For a short time I was remedial project manager  
15 while the other project manager was ill at the  
16 time, so I took over for a few months.  
17 Q. And when was that?  
18 A. I don't remember the dates. It's quite a few years  
19 ago.  
20 Q. Decade?  
21 A. Yeah, probably 10, 12 years ago.  
22 Q. So it was concurrent with your involvement with the  
23 Fox River?  
24 A. I believe so.  
25 Q. Was any response action underway at the time?

1 A. No.  
2 Q. And the last river you mentioned, I believe, was --  
3 A. Siawassee River.  
4 Q. Yes, which I can never say. Could you spell that  
5 for the court reporter?  
6 A. S-I-A-W-A-S-S-E-E. *SHIAWASSEE*  
7 Q. And what was your role with respect to --  
8 A. Remedial project manager -- still my assignment.  
9 Q. And you're still working on that matter you say?  
10 A. Correct.  
11 Q. Is there a response action underway there?  
12 A. Yes, it's monitoring natural recovery.  
13 Q. What's the contaminant at the Siawassee?  
14 A. PCBs.  
15 Q. Were you the remedial project manager at the time  
16 of the selection of the remedy for the Siawassee?  
17 A. No, I was not.  
18 Q. Now, who had the lead for the Fox River?  
19 A. At that time?  
20 Q. At any time.  
21 A. Oh, the State, the Wisconsin DNR. They always  
22 have, and they still do.  
23 Q. Is there a memorandum of agreement with the State  
24 where there's a formal designation of the State as  
25 the lead agency?

1 BY MR. MANDELBAUM:  
2 Q. That's okay. Finish your answer.  
3 A. That was it.  
4 Q. Now, you were the remedial project manager for the  
5 Fox River at the time that the remedy was selected,  
6 correct?  
7 A. Correct.  
8 Q. Now, let's get the timeline in mind. Am I correct  
9 that the Remedial Investigation and Feasibility  
10 Study for this site was completed in 2001?  
11 A. Officially it was completed in 2002 because that's  
12 when we finished the first record of decision.  
13 That's when you officially complete an RI/FS.  
14 Q. But you issued a Proposed Remedial Action Plan or  
15 PRAP in 2001, correct?  
16 A. I think it was before -- well, I'm not sure of the  
17 year, but we did issue what we call a proposed  
18 plan. PRAP is kind of an outmoded term. We don't  
19 really use that. It's a proposed plan. I'm not  
20 sure of the exact date it was issued, but that was  
21 issued by EPA and Wisconsin DNR.  
22 Q. Let me just make sure we're on the same page. Let  
23 me find the document. Here we go.  
24 (Exhibit 4219D was marked for  
25 identification.)

1 A. Well, there's a memorandum of understanding between  
2 the State and the EPA and the trustees, basically  
3 an agreement to work together on the project.  
4 Q. That's an intergovernmental partners agreement?  
5 A. Right, correct.  
6 Q. But there's no -- in a --  
7 A. There's no -- like we call them SMOAs or something  
8 like that. As far as I know, there's not a formal  
9 agreement between the EPA and the State  
10 specifically for just the Fox River other than this  
11 memorandum of understanding.  
12 Q. And is that a permissible way to proceed because  
13 the site is not included on the national priorities  
14 list?  
15 A. I'm assuming it is. I would say it is, yes.  
16 Q. What is -- that it's permissible?  
17 A. Sure, yes.  
18 Q. Because it's a Superfund alternative site?  
19 A. Right, yes. Well, I don't know if that's what we  
20 call it, but it's certainly acceptable and  
21 permissible and allowed.  
22 MR. STONE: Be sure to let him finish his  
23 question before you answer.  
24 THE WITNESS: Sorry.  
25

1 BY MR. MANDELBAUM:  
2 Q. I'm showing you a document which is marked Exhibit  
3 4219D, and I realize I have not been good about  
4 identifying these documents for people on the  
5 phone. This is the Proposed Remedial Action Plan  
6 for the lower Fox River in Green Bay dated  
7 October 2001.  
8 Do you recognize that document?  
9 A. Yes, I do.  
10 Q. And this is the proposal that's put out for public  
11 comment of how EPA proposed to address this site,  
12 correct?  
13 A. Correct. Well, EPA and DNR really jointly,  
14 although it has -- we jointly issued it, but EPA is  
15 administratively the lead.  
16 Q. Administratively the lead. Explain that for me.  
17 A. Well, I take that back. It was a state --  
18 considered a state lead. We call it technical lead  
19 because enforcement matters are mostly left to the  
20 federal government. We don't for the most part  
21 rely on state authority in that regard.  
22 Q. So in 2001 the PRAP was issued -- is PRAP a term  
23 that --  
24 A. It's not a term we use, but it would -- proposed  
25 plan.

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1 Q. Proposed plan?  
2 A. I know what you mean.  
3 Q. In 2001 the proposed plan was issued?  
4 A. Correct.  
5 Q. Now, in 2003, there was a record of decision for  
6 OU3 through 5, is that correct?  
7 A. Yes.  
8 Q. And then in 2007 there was an amendment to the  
9 record of decision for operable units 2 through 5?  
10 A. Correct.  
11 Q. And then in 2010 there was an explanation of  
12 significant differences?  
13 A. Correct, for OU2 through 5.  
14 Q. So that's the timeline. I have the timeline right?  
15 A. Yes.  
16 Q. Now, in these decision documents, is it fair to say  
17 that EPA primarily measured the protectiveness of  
18 the remedy by asking the question how long will it  
19 take fish tissue PCB concentrations to return to  
20 acceptable levels?  
21 A. That was a major consideration.  
22 Q. Was there any expectation that by implementing the  
23 remedy, fish tissue concentrations would return to  
24 acceptable levels immediately?  
25 A. No.

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1 Q. So the question at each stage is, is the remaining  
2 time short enough?  
3 A. Correct.  
4 Q. What tool did you use to decide how long the  
5 remaining time would be?  
6 A. Models.  
7 Q. By models, do you mean the whole Lower Fox River  
8 model or --  
9 A. There were -- I'm sorry.  
10 Q. Go ahead, please.  
11 A. There were a number of models that were used.  
12 There was the -- two fate and transport models were  
13 used. One was a whole Lower Fox River model, and  
14 then there's the enhanced Green Bay toxic model.  
15 Those are the two fate and transport models.  
16 They -- well, let me back up.  
17 The bed load -- excuse me, the bed  
18 maps, which mapped out the PCBs in the sediment,  
19 was the input into those models. The output of the  
20 whole Lower Fox River model was also an input into  
21 the Green Bay model.  
22 Then those models provided input  
23 into two other models which were the FR Food model  
24 and the GB Food model. Those two models were the  
25 bioaccumulation models which told us what would

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1 happen to the fish.  
2 And then from that -- out of all the  
3 modeling, then estimates were made to forecast  
4 future concentrations in the fish ultimately. And  
5 with that -- well, fish and other biota too  
6 actually because we also did projections for other  
7 receptors as part of the ecological risk  
8 assessment.  
9 The fish pertained to the human  
10 health risk assessment, but there are other  
11 receptors that were considered in the ecological  
12 risk assessment, and we also calculated time for  
13 recovery for those other receptors as well.  
14 Q. And the other receptors -- the pathway for the  
15 other receptors is also fish, is it not?  
16 A. I'm not sure. I had thought that there were other  
17 inputs like directly from sediment, but I'm not  
18 sure about that.  
19 Q. The other receptors are predatory birds and mammals  
20 like minks?  
21 A. There's a long list of other ecological receptors  
22 including different kinds of fish, different kinds  
23 of birds and other mammals as well. And I don't  
24 think organisms were included, but they're of  
25 course included as part of the food web which would

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1 be part of the whole evaluation that needed to be  
2 considered.  
3 Q. So you used the models as a tool to figure out  
4 whether a particular remedial action would shorten  
5 the time for -- until the fish tissue PCB  
6 concentrations were reduced to an acceptable level,  
7 right?  
8 A. Correct.  
9 Q. Now, just by way of background, did you do any  
10 consideration of what would happen to fish tissue  
11 concentrations during the time that the remedy was  
12 being constructed?  
13 A. No.  
14 Q. Is it fair to say that during the time the remedy  
15 is being constructed while dredging or some other  
16 construction is going on, that fish tissue  
17 concentrations do not decline as fast as they might  
18 otherwise decline? Is that fair?  
19 A. That's often the case for other projects.  
20 Q. So the model -- I've heard the term model runs.  
21 A. Correct.  
22 Q. Can you describe for me what a model run is?  
23 A. It's when -- I'm not a modeler, first of all, but  
24 I'll try to answer your question.  
25 Q. You've been designated.

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 38</p> <p>1 A. The way I understand these models work when you do 2 a model run is you input a certain concentration 3 based on an action you may have taken that would 4 result in a certain concentration, probably a lower 5 concentration if you've done a certain action. 6 Then you crank that through the 7 model, and you get an output that tells you how 8 long it will be to recover for that particular 9 organism. 10 Q. So let me see if I understand what you just said. 11 There's a model run that assumes that the sediment 12 bed PCB map is what it was before any cleanup? 13 A. No, we don't go -- no, that would assume a perfect 14 result if that's what you're talking about. 15 Q. I think you misunderstood me. There's kind of a 16 baseline condition which is we don't clean up. 17 A. Sure, yes. No action. 18 Q. Right. So you run that? 19 A. Correct. 20 Q. And that predicts how long the fish tissue PCB 21 concentrations will remain too high? 22 A. If you take no action, it will tell you -- it will 23 stay high -- probably too high for X number of 24 years. 25 Q. Then you do another run which assumes that you</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 40</p> <p>1 understanding of the basics of the models. The 2 details, like I said, we relied on Wisconsin DNR to 3 actually do the model runs as you put it. 4 Q. Okay. 5 A. You can't see quotes I put in the air. 6 Q. You can't see the editorial air quotes. Don't use 7 them. 8 A. Sorry. 9 Q. Now we're going to have a trial in December. 10 You're aware of that, right? 11 A. Yes. 12 Q. And as of December, the sediment bed PCB 13 distribution will be whatever it is following all 14 the work that's been done through the 2012 15 construction season, right? 16 A. I don't know what we'll be evaluating for that. 17 You could look at current conditions now, sure, you 18 could. 19 Q. But the true facts are that the sediment bed map 20 will be whatever it is at the end of the 2012 21 construction -- 22 A. At that time the sediment bed map would reflect 23 what the current condition is, correct. 24 Q. And the current condition includes some cleanup 25 that's already occurred, right?</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 39</p> <p>1 implemented a remedial action? 2 A. Correct. 3 Q. And the way the remedial action is put into the 4 model is to put in a different sediment bed map? 5 A. Correct. 6 Q. So that you assume that the concentrations in the 7 sediment bed are post-cleanup concentrations? 8 A. Correct. 9 Q. Now, there were runs done for no action, correct? 10 A. Correct. 11 Q. And there were runs done for the entire -- there 12 were runs done for different remedial action 13 limits, correct? 14 A. Correct. Different scopes of work. 15 Q. Now -- 16 A. By the way, when I say I'm not a modeler, the 17 people we did rely on for modeling were Wisconsin 18 DNR people. 19 Q. Okay. I'm trying to get at how you used the models 20 in the decision-making. 21 A. Right. 22 Q. And by you in that instance because of the -- 23 A. Oh, yes, right. Absolutely, right, yeah. We, EPA, 24 certainly used the results from those models, and 25 we relied on them. So I would say I had an</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 41</p> <p>1 A. Correct. 2 Q. So OU1 -- the OU1 cleanup is completed, correct? 3 A. Correct. 4 Q. And the OU2 is pretty much completed, correct? 5 A. The physical work is mostly done, but not 6 officially approved and completed. 7 Q. There's still monitoring to do? 8 A. Plus -- well, I'm talking about Deposit DD as part 9 of the OU2 through 5 work. It's mostly OU3 and 4, 10 but there's a little bit of OU2 and a little bit of 11 OU5. 12 The OU2 work is Deposit DD, so that 13 is not officially completed. Although practically 14 speaking, it would appear that the work has been 15 completed on Deposit DD. 16 Deposit N had been done a number of 17 years ago as a demonstration project by Wisconsin. 18 The EPA had not been involved in that. 19 Q. And the same statement about as a practical matter 20 it's done, it's been dredged and covered, you 21 can -- 22 A. The work appears to have been completed. 23 Q. In OU2? 24 A. In OU2. 25 Q. And you can make the same statement about OU3,</p>

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1 can't you?  
2 A. It would appear that the work is completed, but we  
3 have not officially approved that being done  
4 because it's being done under administrative order,  
5 and that work is not considered officially  
6 completed until all the work is done. It's not  
7 done yet. So officially it's not completed yet.  
8 Q. And the work in the OU4A hotspot, the Phase I  
9 hotspot, that's been completed, correct?  
10 A. It's not -- that also is not completed officially.  
11 A lot of the work has been completed but not all of  
12 it necessarily is totally completed.  
13 Q. But the -- it's been dredged and to some extent  
14 covered?  
15 A. There's been, yeah, some dredging and covering,  
16 yes.  
17 Q. And the same is true for most of the area in the  
18 upper part of -- the part of OU4 above the, what  
19 I'll call, the Georgia-Pacific line. Do you know  
20 what that means?  
21 A. I know what you mean, but I'm not sure that's the  
22 case. I think it's still ongoing.  
23 Q. Won't that be largely true by the end of this  
24 construction season?  
25 A. Maybe.

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1 Q. And then there's some work but not a lot that's  
2 been done downstream of the GP line, right?  
3 A. Yes, correct, some work but not a lot.  
4 Q. So the conditions now are substantially different  
5 than the conditions were when the model runs that  
6 supported the 2003 ROD were done?  
7 A. That's correct.  
8 Q. Starting from today, would you expect -- if nothing  
9 else happened, would you expect the time for fish  
10 to recover to be the same or different from what it  
11 was in 2003?  
12 A. I would expect it to be faster for OU1, expect it  
13 to be faster to some extent for OU2 because it's  
14 mostly monitoring natural recovery which allows a  
15 greater extent of time. OU3 I would expect to see  
16 improvement there. We are expecting to have some  
17 initial monitoring there this year.  
18 Q. And how about OU4?  
19 A. OU4 is incomplete, so I really wouldn't expect much  
20 of an effect yet.  
21 Q. So there's no effect until you're completely done?  
22 A. I didn't say no effect. I said we wouldn't be --  
23 it wouldn't be -- it may not be measurable. You  
24 may gradually see an improvement as the  
25 concentrations that would be -- organisms would be

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1 exposed to go down.  
2 But between now and then, I would  
3 say it's highly speculative as to what the effects  
4 would be during implementation and after partial  
5 implementation.  
6 I would expect to see improvements,  
7 like I said, in OU1 and OU3 at least. In OU1 we've  
8 already seen some improvements. OU3, we haven't  
9 measured it yet.  
10 Q. So you said the OU4 current conditions are  
11 speculative. You don't know what they are?  
12 A. Well, we haven't really analyzed exactly -- we have  
13 some knowledge, sure, but we do -- we've done  
14 pre-design sampling, so some areas have not been  
15 touched yet, so we have that information.  
16 We also have some confirmation  
17 sampling from some areas that have been partially  
18 completed. So there is information out there. It  
19 hasn't really been analyzed.  
20 Q. I'm focused on this sort of prediction of how long  
21 it will take the fish to recover.  
22 A. Right.  
23 Q. You don't -- is there a model run which starts from  
24 the conditions as they will be at the end of the  
25 2012 construction season?

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1 A. Well, those are the types of runs that had been run  
2 during the RI/FS.  
3 Q. Is that -- is there that run available to review?  
4 A. It would be part of the modeling documentation.  
5 Whatever information is provided on the original  
6 modeling is a run.  
7 Q. So if there is no -- partway through OU4 completion  
8 run, then there is no model run in the  
9 administrative record, right?  
10 A. I didn't say that. There was the original modeling  
11 work done to support the first records of decisions  
12 as part of the RI/FS, and that's in the model  
13 documentation report. It tells you how we're doing  
14 the modeling, all the kind of supporting  
15 information relating to that modeling.  
16 The things like the Tech Memo 2G,  
17 which evaluates the conditions at the time and how  
18 conditions may have been changing, and also there  
19 are lots of other tech memos talking about  
20 calibration, talking about other inputs into the  
21 system. There are many other technical memos and  
22 other technical work that went into that modeling  
23 that exists.  
24 Q. I'm concerned that we're talking past each other.  
25 So Mr. Stone, as far as I know, is trained as a

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1 lawyer and not as anything else, and I'm barely  
2 trained as anything, but to the extent I'm trained,  
3 it's trained as a lawyer.  
4 So if Mr. Stone and I are called  
5 upon to say fish in the river will recover over  
6 this many years starting from 2012 -- starting from  
7 the end of 2012, is there a model run or other  
8 document in the administrative record that we can  
9 go to to figure out what that time is?  
10 A. You could make that estimate. Again, it's an  
11 estimate. Models are not absolute by any means.  
12 In fact, if you talk to modelers and you look at  
13 the model documentation reports, it will state in  
14 there that the modeling and -- actually, White  
15 Paper 16 also talks about this attached to the  
16 first record of decision.  
17 But if you look at those documents,  
18 it will tell you that the models are not considered  
19 to be greatly reliable in terms of an exact time  
20 for recovery. They are good for relative  
21 comparisons of different alternatives, different  
22 scopes, for instance, one part per million, .5 part  
23 per million for an action level. Those there are  
24 no actions. So it's good -- it's reliable for a  
25 relative comparison between different scopes of

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1 action.  
2 The modeling is less reliable if you  
3 want to really know an exact year. They give you  
4 an idea -- a relative comparison between different  
5 alternatives. But in terms of an actual like 20  
6 years exactly from today, if it says 20 years, it  
7 could be 20 years plus or minus a certain number of  
8 years.  
9 Q. Okay. I want to come back to that point in a  
10 minute, Mr. Hahnenberg. I'm asking again a little  
11 bit different question. Let me make it more  
12 complete.  
13 A. Okay.  
14 Q. Is there -- you said that the model -- the model is  
15 useful for comparing to remedial alternatives,  
16 right?  
17 A. Correct.  
18 Q. So no further action from December 3, 2012 will be  
19 a partial completion in OU4 and pretty much a  
20 completion up river, right?  
21 A. Correct.  
22 Q. And completing the remedy will be completing the  
23 river?  
24 A. Correct, for the whole river.  
25 Q. Now, is it -- are there a pair of model runs that

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1 one can use in the administrative record to compare  
2 those two remedial alternatives, or does comparing  
3 those two alternatives require some further  
4 analysis?  
5 A. No, there's information in the record.  
6 Q. So you can figure that out from the record?  
7 A. Right. Assuming you're done at a certain date, the  
8 model makes an estimate as to how long for recovery  
9 for different fish, for different receptors and  
10 for -- actually for the fish also it will tell you  
11 when you get to different fish consumption levels  
12 how many years.  
13 Q. Is there a working copy of the model that you're  
14 aware of today?  
15 A. I don't know. Like I said, that's something that  
16 we relied on DNR to do the actual modeling.  
17 Q. So I understand that if the model -- if I had the  
18 model on this computer in front of me, I could, if  
19 I knew what I was doing, run the model under two  
20 scenarios, the no further action and the  
21 completion, right?  
22 A. Correct.  
23 Q. What I'm asking is, in the administrative record  
24 sitting here today, do those two runs exist? Do we  
25 know what the difference is between those two?

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1 A. There's a relative -- yes, there is a comparison in  
2 the original model runs which tells you -- it's by  
3 reach -- by operable unit. So it will have a model  
4 run for OU1, one for OU2 -- a series of runs for  
5 OU1, OU2, OU3 and OU4, and the outputs are  
6 different for each of those operable units.  
7 Q. Is there a run for OU4 which assumes completion of  
8 the remedy in OU1, 2 and 3?  
9 A. I believe so. I don't really -- as I recall, the  
10 modeling outputs, I think, assumed everything was  
11 done at the same time. It didn't have different  
12 runs for different completion dates for  
13 different -- it didn't mix and match those kinds of  
14 results.  
15 Q. So somebody who was trained in fate and transport  
16 or in modeling or geology or something could look  
17 at what's in the administrative record and perhaps  
18 other information and form an opinion as to whether  
19 the fish would recover a little bit faster or a lot  
20 faster if the remedy were completed in OU4?  
21 A. Correct, yes.  
22 Q. But a lawyer can't do that, right?  
23 A. Most lawyers would not be able to do models.  
24 Q. And it's -- and you wouldn't expect Judge Griesbach  
25 to be able to do that?

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1 A. No.  
2 Q. So that it would require somebody else to make that  
3 comparison?  
4 A. It would likely take a modeler to run the models.  
5 Q. And is there anything in the administrative record  
6 other than the modeling that would allow you to  
7 make that comparison?  
8 A. The results of the models.  
9 Q. But the results of the models don't include a  
10 result which has OU1 complete, OU2 complete, OU3  
11 complete and OU4 --  
12 A. I'm not sure about that.  
13 Q. But whatever's in the modeling -- whatever the  
14 modeling results are are what the modeling results  
15 are?  
16 A. Correct.  
17 Q. And it's possible that one could get new modeling  
18 results, but the administrative record just has in  
19 it what it has in it?  
20 A. Correct.  
21 Q. And your recollection based on your review of  
22 documents to come here today is that the model runs  
23 assume that the remedy was complete all at once up  
24 and down the river?  
25 A. I believe so.

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1 Q. Now, sitting here today, have you as a remedial  
2 project manager formed an opinion as to or formed a  
3 view as to how fast fish tissue will recover from  
4 where we are today if nothing else were completed?  
5 A. It might be different than the original model runs  
6 because of the work that has been done. It's  
7 partially done on the whole -- as the river as a  
8 whole, and that was not considered in the original  
9 modeling development.  
10 So because they're partially done,  
11 we have OU1 done, we have -- OU3 appears to be  
12 done, and we're not done with OU4 because of the  
13 partial in the bigger picture sense -- because of  
14 the partial completion of the work on the river,  
15 no, I wouldn't have an estimate for that because  
16 it's partial. That was not done as part of the  
17 RI/FS in modeling work originally done.  
18 Q. Now I want to ask you about a document, so bear  
19 with me one second.  
20 (Exhibit 4219E was marked for  
21 identification.)  
22 BY MR. MANDELBAUM:  
23 Q. I'm showing you, Mr. Hahnenberg, a document that  
24 the reporter has marked 4219E, which for those at  
25 home is a July 16, 1999 letter from the Fish &

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1 Wildlife Service. The first Bates number is  
2 EPAAR162770, and the document continues through  
3 776. Have you seen this document before?  
4 A. I probably have. I don't remember it exactly.  
5 It's 13 years ago. It's addressed to me. I know  
6 the person who wrote it -- who signed it anyway.  
7 So it probably was a letter sent to me, but I can't  
8 tell you I remember it specifically.  
9 Q. Now, what occasioned this letter? Why was it  
10 written?  
11 A. I don't remember.  
12 Q. Are these comments to you on a draft of the  
13 National Remedy Review Board remedy selection  
14 briefing package which you've got in front of you  
15 as 4219C?  
16 A. It would appear to be that, yes.  
17 Q. Now, if you look at page 2, the next-to-last  
18 paragraph on page 2 says, In addition, if OU1 and  
19 OU2 are continuing to contaminate the surface layer  
20 of OU4 at a greater rate than the deep layers of  
21 OU4 are, then greater efficacy could be achieved by  
22 concentrating a larger percentage of the total  
23 dredging effort in OU1 and OU2. Current PCB fate  
24 and transport modeling which was not incorporated  
25 into the current draft of the RI/FS should be

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1 studied closely before making a final remedy  
2 selection.  
3 Do you see that?  
4 A. Yes.  
5 Q. Did I read it correctly?  
6 A. Yes.  
7 Q. Now, do you understand that to be a recommendation  
8 that the model be run to ask questions like what if  
9 you clean up upstream and don't clean up downstream  
10 as much?  
11 A. Yes, that's what it sounds like.  
12 Q. And was that analysis done?  
13 A. No.  
14 Q. Do you know why it was not done?  
15 A. I don't really recall.  
16 Q. Is there any analysis that tells you whether you  
17 have to clean up OU4 in order to achieve  
18 protectiveness?  
19 A. Well, the modeling run for OU4 would suggest it is  
20 and is necessary, yes.  
21 Q. The modeling run for OU4 assumes that either OU4 --  
22 either nothing upstream of OU4 is cleaned up or  
23 everything is cleaned up upstream of OU4 at the  
24 same time as OU4, correct?  
25 A. I'm not sure.

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 54</p> <p>1 Q. I think that's what you testified to. 2 A. That's what I think to be the case as I recall from 3 the modeling work. 4 Q. So you don't have -- you're not aware of anything 5 in the record that tells you whether cleaning up 6 OU4 from the point we're at now is necessary to 7 achieve protectiveness? 8 A. I'm not sure. 9 MR. RABBINO: Could you read back the 10 question? 11 (Record read.) 12 BY MR. MANDELBAUM: 13 Q. The answer was no, correct? 14 A. I don't really agree with the presumption or the 15 underlying concept from the question in that you're 16 assuming that that would have to occur in order to 17 make a judgment as to whether there would be a 18 benefit in OU4 from cleaning it up at this point. 19 And I would say based on -- if you 20 want a judgment, based on the concentrations in the 21 OU4, based on the modeling work that was completed, 22 my opinion is that it would be necessary to do that 23 work in OU4 because the OU4 has the highest 24 concentrations of any other reach, has the greatest 25 amount of PCBs, mass of PCBs, if you want to call</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 56</p> <p>1 Q. And there was an effort made to figure out how fast 2 they were declining, right? 3 A. Correct. 4 Q. And the objective was to increase that rate? 5 A. Correct. 6 Q. Now, do you have Exhibit 4219D in front of you? 7 A. Yes. 8 Q. That's a propose -- the proposed plan, right? 9 A. Correct. 10 Q. Would you turn to page 12 of 35? 11 A. Okay. 12 Q. Do you see the figure there? 13 A. Yes. 14 Q. Was that intended to represent for the public so 15 that they could comment EPA's and DNR's assessment 16 of a typical time trend historically for fish 17 tissue concentrations? 18 A. Well, it's for Little Lake Butte des Morts. 19 Q. It's carp in Little Lake Butte des Morts? 20 A. Right. 21 Q. Whole body? 22 A. Right. 23 Q. But that's the only figure in this proposed plan, 24 right? 25 A. Well, I think there are other figures.</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 55</p> <p>1 it that and because the modeling run's indicated to 2 be the longest for recovery. So certainly there 3 would be some benefit to having the upstream areas 4 cleaned up. Would it be enough? In my opinion, I 5 would doubt it. 6 Q. Now that's an opinion you're forming now? 7 A. Correct. 8 Q. Not an opinion that's reflected in the 9 administrative record? 10 A. No, correct. No, it's not in the administrative 11 record. 12 Q. You may be right, but someone has to form an 13 opinion now? 14 A. It's not in the administrative record. That 15 particular analysis is not in there in terms of 16 completing the work upstream and then not having 17 completed it downstream, how all that would play 18 out in the modeling results, no, that's not in the 19 record. 20 Q. Are you comfortable, or do you want a break? 21 A. I'm okay. 22 Q. Now, it's true, is it not, that in the fullness of 23 time, fish tissue concentrations would decline if 24 we waited until the end of the world? 25 A. Eventually they would, yes.</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 57</p> <p>1 Q. It's the only figure that shows a time trend for 2 fish concentrations, correct? 3 A. That may be. 4 Q. Now, I want you to look at that figure with me. 5 This is not a projection, right? This is a 6 statement of what historical experience has been, 7 correct? 8 A. It's based on the data in the figure, yes. 9 Q. And you see that there are dots on the figure? 10 A. Yes. 11 Q. And those represent individual samples? 12 A. Correct. 13 Q. And then you see a line? 14 A. Correct. 15 Q. Now before we get to the line, the horizontal scale 16 is time? 17 A. Yep. 18 Q. And the vertical scale is the river? 19 A. Correct. 20 Q. So a straight line is a uniform percentage -- a 21 linear curve is a uniform percentage decline each 22 year, correct? 23 A. Correct. 24 Q. So there's a line drawn here, and the line has a 25 kink in it?</p>

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1 A. Correct.  
2 Q. And that suggests that once upon a time there was a  
3 steeper uniform percentage decline in fish tissue  
4 concentrations, and that at some point in the  
5 1980s, the rate of decline changed?  
6 A. Correct.  
7 Q. How was the line drawn?  
8 A. I didn't draw it. Looking at it, it looks to me  
9 like it's a line of best fit. I'm not a  
10 statistician, but again, this was something that we  
11 relied upon DNR to do this work. So I'm not  
12 necessarily the expert or the person who did this  
13 work.  
14 Q. If the -- you're not a statistician you say?  
15 A. Correct.  
16 Q. Have you ever taken a statistics course?  
17 A. I have had statistics courses, yes.  
18 Q. So you know, I'm a lawyer, but I've taken  
19 statistics. We're in the same place.  
20 A. Right.  
21 Q. So let's look at this line. The question that's  
22 being asked of this line is, was the early period a  
23 very steep decline and the late period sort of a  
24 slow decline? That's the conclusion that's drawn?  
25 A. Yeah. Correct, yes.

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1 Q. Now, if you look at the part of the line to the  
2 left of the kink --  
3 A. Right.  
4 Q. -- notice how all the observations in the early  
5 period are below the line and in the later period  
6 are above the line. Is that accurate?  
7 A. No, it's not because there are five dots below the  
8 line in the earlier period -- the steeper part of  
9 the curve, and there are four dots above the line.  
10 Q. No. I'm asking in the -- just looking at the  
11 segment to the left of the kink --  
12 A. Right.  
13 Q. -- there are nine dots?  
14 A. Correct.  
15 Q. The early dots are below the line --  
16 A. Oh, the earliest dots, correct, yes.  
17 Q. All five of the early dots are below the line?  
18 A. That's true.  
19 Q. And all four of the late dots are above the line?  
20 A. In that part of the line, correct.  
21 Q. In that part of the line?  
22 A. Yes, correct.  
23 Q. And if you were only looking at those data, you  
24 would conclude, would you not, that the line showed  
25 too steep a negative slope, that that's not a best

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1 fit?  
2 A. I'm not -- again, I'm not a statistician. DNR did  
3 this work. But to me if you look at those nine  
4 points in total, the line would be probably a line  
5 of best fit.  
6 Sure, if you took -- if you  
7 cherry-picked and you took the best of the first  
8 five points, only took those, and then you -- then  
9 with the other four points, you took those, you'd  
10 have different rates, absolutely.  
11 Q. And you've got a kink, so you can pick two  
12 different rates, right?  
13 A. Oh, yes, sure.  
14 Q. So now let's look at the part of the line to the  
15 right of the kink.  
16 A. Okay.  
17 Q. And while it's not as uniformly true, it is true  
18 that the early dots are disproportionately above  
19 the line, and the late dots are disproportionately  
20 below the line?  
21 A. It depends on what you call are early dots.  
22 Q. Well, in the last two sampling events, only one  
23 observation is above the line, and that's almost on  
24 the line?  
25 A. That's correct.

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1 Q. In the three earlier sampling events, the -- more  
2 than half of the observations are above the line?  
3 A. Yeah, that sounds -- that looks right.  
4 Q. So if your question is, what's the time trend, you  
5 would tend to say that to the right of the kink,  
6 this line understates the negative slope, in fact  
7 it may show a positive slope?  
8 A. Again, if you tried to break it out into two  
9 additional trends there, yeah, you would have a  
10 different slope through different portions of it.  
11 Q. And doesn't the kink -- isn't the whole point of  
12 the kink to show two different slopes?  
13 A. Yes.  
14 Q. That's the whole thing you're trying to show with  
15 this picture?  
16 A. But there's a reason for the kink and where it's  
17 located.  
18 Q. I believe you. But what you're trying to show is  
19 that in the period after the mid-'80s, fish are  
20 declining very slowly, and that's what you would  
21 expect to happen into the future even though they  
22 may have declined in the '70s and the early '80s?  
23 A. Correct.  
24 Q. But you've overstated the rate of decline based on  
25 these observations in the earlier part of that

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1 period and understated it in the later part of that  
2 period, right?  
3 A. Only if you decide to have more breaks in the line.  
4 It depends on how you love the data. If you break  
5 it out in greater detail, you would have different  
6 slopes in different parts of the line. However,  
7 that's not how -- the person who drew this graph  
8 decided not to do it, and there's a reason they  
9 chose to do it the way they did it.  
10 Q. What's the reason?  
11 A. The reason is it -- the concept is in the '80s.  
12 There were more rapid declines than, say, in  
13 the '80s and '90s because those trends still  
14 reflected the great inputs that were observed until  
15 the early '70s from the original sources from the  
16 paper mills which over time those -- those results  
17 had a fairly rapid decline because of the stopping  
18 of -- rapid stopping of input from those  
19 facilities.  
20 It suddenly stopped, therefore, you  
21 had a fairly rapid decrease. Once the trends had  
22 leveled out from that, then you didn't have much of  
23 an improvement because you no longer had the  
24 benefit of stopping those releases.  
25 Q. Okay.

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1 A. That's a concept. And there's a -- it's Appendix  
2 2, I think -- time trends analysis attached to the  
3 FS, which talks about all this stuff. And in there  
4 they talk about there's great uncertainty in terms  
5 of making any of these projections to try and say  
6 that the system is recovering at a certain rate.  
7 It's uncertain because of the  
8 changes in these trends that are observed. If you  
9 look at the data and not just this set of data but  
10 lots of other datasets, you'll see some go up, some  
11 go down.  
12 And the conclusion from that  
13 evaluation is that you have a lot of these changes  
14 over time, and therefore, to make these projections  
15 in the future from just this kind of data is  
16 uncertain either way.  
17 Q. It's important, however -- what importance does  
18 this have in the decision-making that EPA  
19 undertook?  
20 A. Well, what this and other data tells us is that you  
21 can't have any certainty at all if things decline  
22 at a given rate. In other words, you cannot rely  
23 on natural recovery if you want to call it that for  
24 the recovery of the fish based on no action.  
25 That's unreliable and uncertain, and

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1 some go up, some go down. Depending on the time  
2 frame you're looking at, depending on the fish  
3 you're looking at, you really look at the data in  
4 detail, it becomes very complicated and very  
5 ambiguous as to what is happening; therefore, it's  
6 not really something that can be relied upon by  
7 itself to tell you that you are going to have  
8 recovery naturally over time.  
9 Q. Now, there are additional data now, aren't there?  
10 A. In OUI there is.  
11 Q. But there are no additional data downstream?  
12 A. I don't know.  
13 Q. What is the purpose of the proposed plan?  
14 A. It's to present to the public some ideas that the  
15 agencies are considering for possible remediation.  
16 Q. So if you are -- the proposal in this proposed plan  
17 was a large exclusively dredging remedy, correct?  
18 A. Plus a capping contingency involved in that, but  
19 primarily a dredging remedy with a capping  
20 contingency.  
21 Q. I'm not sure that the capping contingency is in the  
22 proposed plan, is it?  
23 A. Oh, perhaps not. It was in the records of  
24 decision, but yeah, perhaps not in the proposed  
25 plan. You're right. I stand corrected.

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1 Q. The point of this document is to communicate with  
2 the public, right?  
3 A. Right.  
4 Q. And if you are trying to justify to a lay audience  
5 an aggressive remedy, you would want to show the  
6 lay audience that fish are not just going to get  
7 better by themselves, right?  
8 A. That's part of the document, yes.  
9 Q. That's why this figure is in the document, isn't  
10 it?  
11 A. Again, I didn't write this particular part of it  
12 and I -- you can draw that conclusion, but again, I  
13 did not put this in. I did not draft this part of  
14 the document.  
15 Q. Just as a matter of -- just as a general matter of  
16 writing a technical document, if you want to  
17 communicate with a lay audience about something  
18 like data, you show them a picture, right?  
19 A. Correct.  
20 Q. You may even show a technical audience a picture,  
21 right?  
22 A. Correct.  
23 Q. So the -- and that's because people understand  
24 pictures better than they understand abstract  
25 words, right? It's just the way people are made?

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1 A. Perhaps.  
2 Q. Is that your experience generally?  
3 A. Yeah -- yes, that's true.  
4 Q. So this picture is a picture rather than a  
5 description because the -- the agency wanted to  
6 have this idea have particular importance and  
7 power, right?  
8 A. I can't tell you the motivation for a person who  
9 drafted this part of the document, so I don't know.  
10 Q. Well, this isn't a document that's issued by a  
11 person. It's a document that's issued by the  
12 agency, isn't it?  
13 A. Correct, both agencies.  
14 Q. So the agency --  
15 A. Is a joint document.  
16 Q. Yes. EPA decided there ought to be a picture here,  
17 not just one guy?  
18 A. It was approved by EPA.  
19 Q. So EPA and DNR then decided there ought to be a  
20 picture here, right?  
21 A. Correct.  
22 Q. And this picture ought to be here because this was  
23 an important point to communicate to a lay  
24 audience?  
25 A. Correct.

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1 Q. And when you're doing that, don't you need to be  
2 confident that you're not misrepresenting?  
3 A. Yes.  
4 Q. Doesn't this misrepresent those data?  
5 A. Not necessarily. You could argue that, but I mean  
6 the data -- well, the data does tell you it's  
7 ambiguous, so this overstates the opposite point.  
8 I would admit to that.  
9 Q. What's the opposite point?  
10 A. Well, the opposite point is that they're not going  
11 down. It's hard to say they are going down. It's  
12 hard to say they're not going down.  
13 Q. And you say it's drafted so that it overstates the  
14 not going down point?  
15 A. It would appear to be that way, yes.  
16 MR. MANDELBAUM: I would like a break at  
17 this point, so let's take one.  
18 THE WITNESS: Okay.  
19 (Discussion off the record.)  
20 BY MR. MANDELBAUM:  
21 Q. So Mr. Hahnenberg, before we broke, I think you  
22 said two things were uncertain in your analysis at  
23 least. One was that the model does not generate a  
24 certain outcome about the time it will take fish  
25 tissue concentrations to recover, is that right?

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1 A. Correct.  
2 Q. There's a lot of uncertainty around that?  
3 A. Correct.  
4 Q. And I think you also said that there's a lot of  
5 uncertainty around the statistical analysis of fish  
6 tissue concentrations so that you cannot use  
7 historical data confidently to predict forward?  
8 A. It's difficult.  
9 Q. So you've got -- so you've got an assumption that  
10 fish are not declining very fast, but that's a very  
11 uncertain -- or you've got a conclusion that the  
12 fish are not declining very fast, but that's  
13 uncertain?  
14 MR. STONE: Objection, I don't think that  
15 was his testimony that they weren't declining. I  
16 think he said in some cases they declined, some  
17 cases they increased, and some cases they stayed  
18 the same.  
19 MR. MANDELBAUM: You can answer the  
20 question.  
21 THE WITNESS: Correct. What Randy said  
22 is correct.  
23 BY MR. MANDELBAUM:  
24 Q. So you're going to adopt the speaking objection, is  
25 that what you're going to do?

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1 A. Correct. Like I said, sometimes they go up,  
2 sometimes they go down, sometimes they stay flat.  
3 It just depends on the fish. It depends on time  
4 frame. It depends on the operable unit. It's a  
5 complex mix of declines and increases for any  
6 single fish to try and predict with any great  
7 confidence, it is difficult.  
8 Q. So that for for walleye, for example, in OU4,  
9 you -- you don't have a lot of confidence that  
10 they're increasing, declining or staying the same  
11 absent remediation?  
12 A. I would say it's uncertain.  
13 Q. So given those two uncertainties, that is  
14 looking -- the fish is basically looking backwards,  
15 right?  
16 A. The historical data, of course.  
17 Q. So you look backwards, and you use those to project  
18 forwards, right?  
19 A. If you're doing a simple statistical projection,  
20 yes.  
21 Q. And that effort is full of uncertainty or was full  
22 of uncertainty in 2003, right?  
23 A. That was the conclusion by the statistician, yes.  
24 Q. And it remains full of uncertainty based on the  
25 administrative record now, right?

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1 A. Yes.  
2 Q. And the mathematical -- the set of mathematical  
3 models that you describe takes conditions and  
4 projects forward from those conditions using  
5 modeling tools?  
6 A. Correct.  
7 Q. And I think you said that the conclusions from that  
8 were uncertain?  
9 A. The absolute years is uncertain, yes.  
10 Q. And you can tell whether one remedy is better than  
11 another remedy, but you don't know by how much?  
12 A. The amount as to how much is uncertain. I wouldn't  
13 say they don't know. You have a general idea to  
14 say -- to say you don't know is an overstatement.  
15 Q. So you know that one remedy might cause fish to  
16 recover in 20 years, and one in 30. According to  
17 the model, you don't know whether that's really not  
18 10 and 15?  
19 A. Correct.  
20 Q. Now, in the example I've just given you, if 20 is  
21 an acceptable time to recover, that's the remedy  
22 you select, why isn't 15?  
23 A. 15 would be acceptable as well. Sure.  
24 Q. So it's possible that the less aggressive remedy,  
25 the one that ends up with 30 on the models, but

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1 maybe it's 15, it's possible that that remedy would  
2 have been adequate?  
3 A. It depends what you call adequate.  
4 Q. It's possible that it would cause fish tissue PCB  
5 concentrations to decline to acceptable levels in  
6 an acceptable time?  
7 A. It depends what you call an acceptable time.  
8 Q. Well, if you --  
9 A. You don't really -- as I said, it's uncertain, so  
10 you don't know. Anything's possible. I mean --  
11 but the modeling indicates that it's not likely.  
12 Sure, there's a lot of uncertainty, but it's less  
13 likely doing no action versus, let's say, an action  
14 of giving you half the time.  
15 Q. Based on the analysis that's done, there's no  
16 evidence in the administrative record right now --  
17 excuse me.  
18 There's no analysis in the  
19 administrative record right now that says that  
20 completing the remedy is something that has to  
21 happen in order for fish to decline in an  
22 acceptable time, right?  
23 A. It depends what you call an acceptable time. The  
24 time is uncertain.  
25 Q. What time is acceptable?

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1 A. Well, I mentioned to you I did review the preamble  
2 to the NCP which has some places -- that's actually  
3 well written, believe it or not, has some  
4 interesting discussions --  
5 Q. That person's already left the agency. There's the  
6 private sector.  
7 A. But there's some discussion in there, what's a  
8 reasonable time frame. They're talking about  
9 groundwater. They said, well, the order of years  
10 at the short end versus tens of years in the long  
11 term. So tens of years according to that  
12 discussion is possibly a reasonable time frame at  
13 the high end of things.  
14 Q. And you anticipated that fish concentrations would  
15 recover to acceptable levels in tens of years if  
16 the Fox River remedy were completed?  
17 A. It depends on the operable unit. It depends on the  
18 fish.  
19 Q. In OU4?  
20 A. OU4 for walleye, it was 20 years. I don't remember  
21 the scenario, but I remember the 20-year number  
22 coming around. So yeah, it was decades. For the  
23 downstream it look longer there because of the  
24 higher concentrations and the large amounts of PCBs  
25 in that part of the river. So that part of the

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1 river takes the longest no matter what you do.  
2 Q. Now, just to pause on that higher concentrations  
3 piece. At least some of the high concentration  
4 areas in OU4 have been removed already, isn't that  
5 correct?  
6 A. Some have been.  
7 Q. Sediment management unit 56/57 has been removed?  
8 A. Correct. Well, mostly, yes.  
9 Q. And the Phase I hotspot has been removed?  
10 A. Mostly.  
11 Q. And that was the highest concentration found in the  
12 river?  
13 A. Correct.  
14 Q. Is the statement still true that OU4 today contains  
15 PCB concentrations higher than were ever found in  
16 the river or in any other operable unit in the  
17 river?  
18 A. Likely, because the concentrations that remain, I  
19 believe, are still in the hundred parts per  
20 million. I really have not done a detailed  
21 comparison to the other areas, but the areas that  
22 did have higher concentrations upstream are now  
23 gone. So I would have to say the current  
24 conditions are that the highest concentrations  
25 remain in OU4.

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1 Q. Well, that has to be true because we've just been  
2 through the fact that the cleanup has proceeded  
3 downstream to OU4?  
4 A. True. Except there's some areas upstream that were  
5 capped in which case we have left some PCBs under  
6 the cap. But those are likely less lower  
7 concentrations than in OU4 that would currently  
8 still be there. I think that's probably true.  
9 Q. But this is a small point, so let's get off it.  
10 The implications of selection of the remedy in 2003  
11 or an implication of selection of the remedy in  
12 2003 must be that recovery of walleye in 20 years  
13 is acceptable, it's protective?  
14 MR. STONE: Is that a question?  
15 BY MR. MANDELBAUM:  
16 Q. Isn't that correct?  
17 A. You're putting words in my mouth.  
18 Q. Well, that is what was decided, wasn't it?  
19 A. Well, for a particular -- yeah, for a particular  
20 exposure scenario for walleye, yes. But in general  
21 there are lots of other fish, other scenarios that  
22 were looked at, so that particular number may apply  
23 to that one fish for that one scenario, correct.  
24 Q. Isn't walleye kind of the indicator species for  
25 protectiveness of the remedy in OU4?

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1 A. Not necessarily. It is -- we'll call it a  
2 preferred species because it's a popular sports  
3 fish, but we did look at carp, and we looked at  
4 other fish as well at least in the ecological --  
5 now for long-term monitoring we have focused our  
6 monitoring efforts. That doesn't mean these other  
7 fish are not a concern.  
8 That's why the State in fact has  
9 fish consumption advisories for a wide -- much  
10 wider range of fish. But we're using walleye as a  
11 kind of indicator species to tell us about not just  
12 walleye but about a wide range of fish. I wouldn't  
13 say it's just walleye.  
14 Q. I understand. But you projected a recovery of  
15 walleye in 20 years and at the same time decided  
16 that the remedy was protective, right?  
17 A. Again, for that particular assumption and that  
18 particular species, yes.  
19 Q. And so the necessary implication of that, is it  
20 not, is that a projected 20-year recovery of  
21 walleye is protective?  
22 A. For that species, for that size classification, for  
23 that assumption, yes. There are lots of  
24 assumptions built into that using that walleye  
25 example. Because lots of other things were looked

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1 at, other species, other size classifications,  
2 other consumption assumptions, other assumptions  
3 built into that and plus the ecological receptor.  
4 It's not just walleye, not just --  
5 that's just one example. It's an example we used  
6 but trying to simplify it for the public to  
7 understand it in a more digestible fashion. There  
8 were lots of other considerations that were  
9 factored into it.  
10 Q. Taking all the considerations that were factored  
11 into it, the remedy that was selected was  
12 protective, right?  
13 A. Of course, yes.  
14 Q. But you said that there's a lot of uncertainty  
15 about the projection, right?  
16 A. Correct.  
17 Q. So it is possible that other remedies would also be  
18 protective?  
19 A. They would be less protective. Some would be more  
20 protective, some would be less protective. Whether  
21 they're -- I can't use my air quotes. Whether they  
22 are protective under how EPA defines it, I think,  
23 is uncertain and speculative at this point to say  
24 that. I don't --  
25 Q. Well, the remedy as ultimately selected is

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1 different from the remedy selected in 2003, right?  
2 A. Correct.  
3 Q. And it was determined that that different remedy,  
4 the one in the ROD amendment was protective, right?  
5 A. Correct, yes.  
6 Q. And therefore, it follows that that can't be the  
7 only protective remedy, isn't that right?  
8 A. True. Sure, there are other -- well, the original  
9 record of decision or the original proposed plan  
10 and the original records of decision looked at a  
11 wider array of other alternatives.  
12 Q. And there are many -- there are many possible  
13 remedies that could be protective, right?  
14 A. There are other ones, yes, other ones that were  
15 looked at probably more in the original remedy. We  
16 looked at a greater array of different  
17 alternatives.  
18 Sure, there are other -- other  
19 dredging remedies. There's a capping remedy. And  
20 the capping remedy -- by the way, the original  
21 remedy was not found to be not protective  
22 necessarily. It was found to be less  
23 cost-effective in that particular instance. I mean  
24 capping --  
25 Q. We're going to get to that in a minute, but you

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 78</p> <p>1 could -- you can't say sitting here today based on . 2 the administrative record that the only remedy 3 that's protective is the one that is underway right 4 now, right? 5 A. No, I wouldn't say that, correct. I mean, yes, 6 you're right. 7 Q. And there's uncertainty about whether that remedy 8 is the least costly protective remedy? 9 A. Well, that's just one factor in the nine criteria 10 analyzation. 11 Q. I'm just asking about that factor. 12 A. That factor alone, right. There could be other 13 factors that could come into play, and you could 14 end up having a less costly or more costly remedy 15 that would still be protective. That's why we do 16 the nine criteria analysis. 17 Q. And there might be a remedy that from the point -- 18 from the end of the 2012 construction season might 19 be faster to implement than the current remedy and 20 still be protective? 21 A. I don't know. 22 Q. It's possible, isn't it? 23 A. Anything's possible. 24 Q. And there's nothing in the administrative record 25 that let's you know one way or the other whether</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 80</p> <p>1 OU4? 2 A. Oh, there are other possible remedies, sure. 3 Q. So there might be a different thing we could do 4 going forward to abate -- 5 A. Could be, yes. 6 Q. So this remedy is not -- you don't know -- 7 A. It's not the only thing -- only remedy that might 8 suffice. 9 Q. And so in order to figure out whether it's the 10 appropriate action going forward, you would need to 11 do an analysis today? 12 MR. STONE: Objection, calls for a legal 13 conclusion. 14 MR. MANDELBAUM: You can answer. 15 MR. STONE: You can answer. 16 THE WITNESS: Could you repeat the 17 question, please? 18 BY MR. MANDELBAUM: 19 Q. In order to decide whether -- why don't you read 20 the question back because I'm not going to repeat 21 it exactly. 22 (Record read.) 23 THE WITNESS: Not necessarily. 24 BY MR. MANDELBAUM: 25 Q. What would you use as your analysis if you didn't</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 79</p> <p>1 that's true, right? 2 A. That was evaluated thoroughly in the original 3 decisions. 4 Q. But it wasn't evaluated from the starting point of 5 completion upstream of OU4 and partial completion 6 in OU4, right? 7 A. Well, of course not because it wasn't done then. 8 Q. So you can't say based on the administrative record 9 that you have to do the current remedy in order to 10 be protective? 11 A. Correct. Sure, there are other possible remedies 12 if you wanted to revisit it that could come to 13 light. You could have perhaps an all-dredging 14 remedy. 15 There are lots of other combinations 16 of things that could be looked at, but we've 17 already done that in the original RI/FS, and the 18 amendment is simply changing it from what we had 19 been doing to something we think is still 20 protective and not necessarily looking at 21 revisiting the wider array of alternatives. That's 22 what we do in our amendment typically. 23 Q. What I'm asking is, can I tell from the current 24 administrative record whether completing this 25 remedy is necessary to abate the danger posed by</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 81</p> <p>1 use the analysis today? 2 A. Well, the bottom line that we have to look at to 3 see if it's adequate is the question, which we've 4 answered, is it protective? The answer is, yes, it 5 is protective. 6 And is it cost-effective in meeting 7 the other criteria relative to the previous remedy? 8 Yes. It's still the better remedy compared to what 9 we had proposed or had planned to do before. 10 Q. Right. 11 A. So an amendment, you simply make a change, you 12 compare it to the previous approach to see if it's 13 still protective and if it meets the other 14 criteria, then you make the decision that the 15 amendment is appropriate. 16 Q. I'm asking you whether there's anything in the 17 administrative record that tells us whether it is 18 necessary to complete the current remedy in order 19 to abate the danger posed by OU4 today? 20 A. Sure, there are other ways you could do it. 21 Q. So it's not necessary based on the administrative 22 record? 23 A. It is necessary because you have to have some 24 protective result. 25 Q. But the particular remedy is not the only remedy?</p>

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1 A. Correct.  
2 Q. And in order to determine whether it was, for  
3 example, the cheapest or the fastest to implement  
4 from today, you would have to do an analysis today?  
5 A. Well, I can tell you that it is better than the  
6 previous remedy.  
7 Q. Okay.  
8 A. And the previous remedy had been determined that  
9 that was the best of the wide array at that time.  
10 The -- when you do a ROD amendment, you don't  
11 necessarily do a review to the degree that was done  
12 earlier.  
13 Q. I understand that, and we're going to get to the  
14 ROD amendment and what was considered in a minute.  
15 A. Okay.  
16 Q. What I'm asking you is, you have the remedy that  
17 was selected in the ROD amendment, correct?  
18 A. Yes.  
19 Q. And it's further redescribed in the ESD, correct?  
20 A. Correct.  
21 Q. And it's partially implemented?  
22 A. Correct.  
23 Q. I'm asking you whether finishing that remedy --  
24 whether one can tell whether finishing that remedy  
25 is necessary to abate the danger posed by what's

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1 left in OU4 based on --  
2 A. It is necessary to complete that remedy or  
3 something equally protective --  
4 Q. Okay. And in order to figure out what the -- what  
5 would be --  
6 A. -- or more protective. Sorry.  
7 Q. In order to figure out what would be equally  
8 protective, one would have to do an analysis today.  
9 There's nothing in the administrative record to  
10 tell you that, right?  
11 A. Well, I'm not sure what you're referring to.  
12 Q. We'd have to get -- we'd have to give a lot of  
13 documents and data to somebody like James  
14 Hahnenberg and have him figure out what the right  
15 thing to do is because he's an expert in figuring  
16 it out.  
17 A. But we have a remedy that is protective, and it is  
18 cost-effective compared to the other remedies that  
19 were looked at -- the other remedy that was being  
20 implemented, so that's our basis for moving  
21 forward.  
22 Q. I understand that. I'm asking you a different  
23 question. You can't say without further analysis  
24 whether it's necessary, right?  
25 A. It is necessary to do that or something equal or

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1 better in order to be protective.  
2 Q. And you don't know sitting here today without  
3 further analysis whether nothing is equal -- is  
4 sufficiently protective to be protective?  
5 A. I would say it's unlikely.  
6 Q. It's possible?  
7 A. Anything's possible.  
8 Q. And you'd have to do the analysis, right?  
9 A. We don't have to do further analysis and know we  
10 have a protective remedy going forward.  
11 Q. I understand that. But you don't have -- you don't  
12 have an analysis that tells you one way or another  
13 whether or not what you've done already has  
14 achieved protection?  
15 A. It probably hasn't because it's not done yet.  
16 Q. But you don't have an analysis that says that it  
17 has?  
18 A. No.  
19 Q. And you don't have an analysis that says it has  
20 not?  
21 A. Correct. We haven't completed it, so of course we  
22 don't have an analysis. We don't do an analysis  
23 halfway through a project typically to determine if  
24 doing half the project is adequate. We scope out a  
25 project.

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1 We say, okay, this is what we're  
2 going to do. We go out, and we do it. We don't  
3 say, well, you know, halfway through, geez, maybe  
4 we're done now. We don't do it that way.  
5 We simply develop a plan, and we  
6 implement a plan, and we know when we're done with  
7 that, it will be protective rather than a half  
8 measure.  
9 Q. I understand.  
10 A. We don't look at half measures.  
11 Q. I understand. But if one were to ask the question  
12 this year, you would have to do further analysis,  
13 right?  
14 A. But we're not asking the question.  
15 Q. You're not asking the question.  
16 A. Right.  
17 Q. If one were, you would have to do further analysis.  
18 There's nothing you can go to the administrative  
19 record and pull out and say, this tells me the  
20 answer to that question?  
21 A. We don't know halfway through a project if it's  
22 protective at that point, true.  
23 Q. Even though the trustees asked you to do that  
24 analysis, you didn't do it?  
25 A. I'm sorry, I didn't -- haven't really read their

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1 letter through. What are they asking, you say?  
2 Q. They're asking, wouldn't it be -- shouldn't you  
3 analyze whether cleaning up OU1, OU2 and OU3  
4 aggressively would suffice as compared to  
5 aggressive cleanup in OU4?  
6 A. That's their opinion.  
7 Q. I understand. But you didn't do the analysis?  
8 A. No.  
9 Q. They asked you for the analysis, and you didn't do  
10 it?  
11 A. Correct, because we're the response agency.  
12 Q. I see. Okay. Got you. Now, how important to the  
13 decision-making are estimates of historical  
14 loadings of PCBs to the river?  
15 MR. STONE: Objection, vague.  
16 BY MR. MANDELBAUM:  
17 Q. I'll rephrase it. Do you need to know how much --  
18 what mass of PCBs, at what concentration, at what  
19 time came out of which pipe in order to be able to  
20 do the analysis of protectiveness that we've been  
21 describing?  
22 A. Not directly. Indirectly it pertains to what's in  
23 the sediments and related to the modeling, so that  
24 was part of that original analysis. There's a tech  
25 memo called Historical Hindcasting which was done

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1 as part of the modeling development. So it was  
2 part of all that modeling work that was a factor in  
3 the modeling.  
4 Q. And if those estimates were incorrect, if they were  
5 rough, would that affect your confidence in your  
6 conclusions?  
7 A. Well, what really drives the remedy is what's  
8 there.  
9 Q. So the fact that those estimates are rough is  
10 irrelevant to the selection of the remedy?  
11 A. I wouldn't say that. I would say, again, it was  
12 part of the modeling development. As far as the  
13 modeling development, it was pertinent. I wouldn't  
14 say it has no relevance. Is it critical, or is it  
15 the most important consideration? Probably not.  
16 Probably what is the most important  
17 consideration is the current condition. So I would  
18 say it's not necessarily the most important factor,  
19 but it was part of the modeling work. So as far as  
20 it was -- supported the modeling effort, yes, it  
21 was important, but beyond that, it wasn't.  
22 Q. If those estimates were rough, does that mean that  
23 the model predictions are rough?  
24 A. DNR did the modeling, so I don't know.  
25 Q. If it says -- you relied on the modeling though?

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1 A. Correct.  
2 Q. But you don't know -- you don't know how good that  
3 modeling is that you relied on?  
4 A. I think it is actually quite excellent. It's  
5 gotten -- it's been peer reviewed. It's generally  
6 accepted in the modeling world as a legitimate  
7 model. People who are modelers will tell you it's  
8 a good model. So all the experts, as far as I  
9 know, would not say the model has no validity.  
10 So I mean it's not just Jim  
11 Hahnenberg who says this model is good or not.  
12 It's a lot of people that I also do rely on, other  
13 modeling experts, the peer review process. All  
14 that stuff is all part of what we are relying on to  
15 be able to say the model is something reliable --  
16 Q. When --  
17 A. -- as reliable as they can be. I told you about  
18 the uncertainties of any modeling. And this model  
19 has those as well, but that comes with the  
20 territory as far as models are concerned.  
21 Generally these kinds of models have those  
22 uncertainties.  
23 Q. When you peer review a model, do you review the  
24 specific empirical inputs to the model, or do you  
25 review the model structure and how it processes --

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1 A. I'm not a modeler. I don't know. Sorry to cut you  
2 off. I'm not a modeler, so I don't know. I just  
3 know that it has gone through peer review and has  
4 been considered to be acceptable.  
5 Q. If the inputs to the model describing the  
6 conditions now as you said were incorrect, would  
7 that have any effect on the reliability of the  
8 outputs?  
9 A. Again, I'm not a modeler. DNR were the modelers,  
10 and they could answer that better than I could. I  
11 wouldn't presume to make a judgment.  
12 Q. What is EPA's understanding of that question?  
13 A. Well, the most important understanding by EPA as a  
14 model is something we can rely on. In terms of the  
15 details of that modeling effort -- as I said, I  
16 rely on other modelers and peer review and those  
17 kinds of evaluations to tell me if I should be able  
18 to review on the model or not, and those tell me  
19 that I can rely on this model as much as any model.  
20 It's state of the art. I mean in the world of  
21 modeling, Fox River is well known as a state of the  
22 art model.  
23 Q. You've been designated as someone to testify on  
24 behalf of the United States --  
25 A. Um-hum.

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1 Q. -- with respect to the use of the models and  
2 decision-making?  
3 A. Yes.  
4 Q. Does the United States have an understanding of  
5 whether the accuracy of inputs to the model affects  
6 the reliability of the outputs?  
7 A. It would be a factor, sure, of course. All the  
8 assumptions that go into a model including the  
9 inputs, that would be among other assumptions.  
10 They all affect the output of the model.  
11 Q. The model's just a way of manipulating data,  
12 correct?  
13 A. Correct.  
14 Q. So if the data are no good, then the model output's  
15 no good, right?  
16 A. You've probably heard the cliché, garbage in,  
17 garbage out, sure. So you have to have a good  
18 basis for the modeling. As I said, the inputs are  
19 among a number of assumptions that go into every  
20 model, and all those have been looked at.  
21 And the thing is -- what's important  
22 with the model is as part of that process, it's not  
23 just the inputs. Also they do calibrations. They  
24 do many other things that test the model in terms  
25 of its reliability for a model.

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1 Every model has a limitation in  
2 terms of its certainty. But there are -- all the  
3 tech memos go through a lot of the -- the metrics,  
4 all this stuff in the world of modeling that helps  
5 you evaluate whether that model is good or not.  
6 All those tech memos are -- give us  
7 a sound basis to explain the model, explain the  
8 reliability of the model, and all that groundwork  
9 has been done, and that's a large part of the  
10 reasons why this model has in fact passed the peer  
11 review process and has been judged by its peers to  
12 be a good model.  
13 Q. You'll agree with me, won't you, that the estimates  
14 of historical PCB loadings to the Fox River are  
15 rough?  
16 A. They're estimates.  
17 Q. Are they rough?  
18 A. I'm not sure what you mean by the word "rough."  
19 Q. It's your word. It's in your interrogatory  
20 responses. Are they rough?  
21 A. If I said it, yeah.  
22 Q. What does rough mean?  
23 A. It's a vague term.  
24 Q. So you don't know what it means?  
25 A. Well, what it means is, sure, there's uncertainty

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1 in terms of how much there is. It was based on a  
2 number of assumptions in terms of the industrial  
3 processes and other considerations in terms of what  
4 the output might be from a particular facility.  
5 In fact, the tech memo that I  
6 mentioned before is a Hindcast tech memo. In there  
7 the authors of that say that this should not be  
8 relied upon in a legal setting.  
9 Q. Okay. So you can't rely on the technical  
10 memorandum -- it's Technical Memorandum 2D that  
11 you're talking about?  
12 A. I don't remember the number.  
13 Q. You can't rely on the technical memorandum that  
14 provides estimates of historical loadings in a  
15 legal setting?  
16 A. To make allocations, yes, that's correct.  
17 Q. Can you rely on it for purposes of the proceeding  
18 we're in today which has to do with --  
19 A. You can rely on it as far as the model is  
20 concerned.  
21 Q. Okay. So I want to know what rough means. Is it  
22 plus or minus 20 percent, 50 percent,  
23 1,000 percent?  
24 A. It's a qualitative word.  
25 Q. If the estimate for any given discharge was off by

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1 a factor of two, would that be rough or just --  
2 A. Again, that's a qualitative estimate.  
3 Q. You don't have --  
4 A. No, I can't really -- it's a vague term.  
5 Q. It has no meaning as far as you're concerned? It  
6 means you don't know?  
7 A. I wouldn't say that. I'd say it's a qualitative  
8 term. In other words, it's a rough -- I don't  
9 know. It's a term that people use and what that  
10 means is it may not be real accurate --  
11 Q. Right.  
12 A. -- in a numerical sense. Sure, there's  
13 considerable uncertainty which we know to be the  
14 case. That's all it means. It means there's  
15 considerable numerical uncertainty if you want to  
16 have a definition.  
17 Q. I'm trying to get your understanding as the United  
18 States as to what numerical -- what the sort of  
19 bounds of numerical uncertainty are. Sometimes  
20 numerical uncertainty plus or minus 50 percent is  
21 numerical uncertainty, and sometimes it's a plus or  
22 minus factor of five. Which is it?  
23 A. It doesn't really make a difference at this point.  
24 Like I said, the most important consideration in  
25 terms of using modeling to support decision-making,

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 94</p> <p>1 is, generally, is the model reliable. Is it a good 2 model? 3 And the judgment has been -- you can 4 look at all those different little details of the 5 model and quibble about every one of them like 6 they've done in the past. 7 In fact, the model was a result of a 8 work group between the Fox River Group and a lot of 9 the companies involved now, and they worked 10 together on the model to develop the model in kind 11 of a consensus manner to come up with a model that 12 everybody could agree to. That was all part of 13 that process. 14 Out of all that, a model has been 15 produced that we consider to be reliable. All 16 those details are secondary. 17 Q. Okay. So let's talk about some of those details. 18 A. As I said, they're secondary though. The bottom 19 line is the most important consideration which is 20 how the other models -- other peer reviewers judge 21 that model to be in terms of its reliability, and 22 is it something we can rely on? All those details, 23 let the modelers argue about that. 24 Q. By details, you mean the input data, right? 25 A. Well, there are lots of inputs into any model.</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 96</p> <p>1 Q. One is that the model assumes that the sediment bed 2 before any cleanup had a PCB concentration 3 uniformly of 100 parts per million everywhere to a 4 depth of six feet. And the second assumption is 5 that the sediment bed had a uniform concentration 6 of 100 parts per billion, with a B, everywhere to a 7 depth of six feet. 8 Would the model generate two 9 different projections of how fast fish tissue would 10 recover? 11 A. Based on that assumption alone, it probably would 12 be different, of course. 13 Q. So it's important to have those initial assumptions 14 or those assumptions about initial conditions 15 correct, right? 16 A. Well, by initial conditions it's what the 17 current -- the most important initial condition is 18 what the current conditions are, in other words, 19 where the sediment bed concentrations are that go 20 into the model. 21 Q. Are estimates of historical loadings in that 22 category? 23 A. I'm not sure. 24 Q. You don't know the answer to that question? 25 A. I don't know.</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 95</p> <p>1 Q. Data that reflect the real world, those data -- 2 A. That's the idea, of course. The inputs are 3 supposed to reflect as accurately as they can the 4 real world. 5 Q. But they're detailed in the sense that if they're 6 wrong, the model is still something on which you 7 can rely? 8 A. You have to look at it in total. You can't look at 9 just one assumption to make that judgment. You 10 have to look at all the assumptions. 11 Q. If the sediment bed were -- the input to the model 12 was that the sediment bed had a uniform 13 concentration of 100 parts per million PCBs to a 14 depth of six feet everywhere, would that change the 15 output of the model in terms of how fast fish 16 tissue would recover under -- 17 A. Well -- 18 Q. -- the no-action scenario? 19 MR. STONE: Let him finish his question. 20 Be conscious of letting him finish his question. 21 THE WITNESS: Sorry. Sorry. Could you 22 repeat it? I'm sorry. 23 BY MR. MANDELBAUM: 24 Q. I'll give you two states of the world. 25 A. Okay.</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 97</p> <p>1 Q. Did the United States devote any effort to 2 understanding how the model worked and what data 3 were important to it? 4 A. The United States actually was the one who 5 originally developed the model many years ago. The 6 Large Lakes Research Station, they're the ones who 7 developed the model originally. 8 The way it developed was Mark 9 Velleux was a contractor to EPA, and he was 10 involved as a contractor involved for EPA -- 11 contractor for EPA. He was involved in the 12 original development of the model by our -- I think 13 our research guys at the Large Lakes Research 14 Station as part of the Great Lakes evaluations that 15 they were doing many years ago. 16 So he was originally -- he and 17 others were originally involved in that, and then 18 he subsequently worked for the State where he 19 continued development -- further development of the 20 model. 21 So the original model was developed 22 by EPA and the Large Lakes Research Station, those 23 people, that organization, they would have the 24 original model development information, and they 25 have provided I know to the legal folks a lot of</p>

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1 their documentation in terms of QAQC, probably the  
2 data, all kinds of stuff.  
3 They had like 21 boxes or 21 linear  
4 feet, I think Russ Kreiss told me, something like  
5 that, a huge file of data related to that modeling  
6 that they originally developed and was then  
7 developed further by Wisconsin DNR.  
8 Q. Okay. The version --  
9 A. So that's EPA's knowledge for the most part.  
10 Sorry.  
11 Q. The version of the model that was ultimately used  
12 by EPA to reach a remedy selection in this case was  
13 the version of the model that existed in or about  
14 2002 or 2003, correct?  
15 A. Correct.  
16 Q. Had EPA devoted any effort to understanding which  
17 data inputs to that model were critical to the  
18 projections and which were, in your words, details?  
19 A. No.  
20 Q. So EPA did not conduct any evaluation to determine  
21 whether in your words garbage was going in and  
22 garbage was coming out?  
23 A. Not at that time.  
24 Q. Has EPA done that at any later time?  
25 A. For this model, not that I know of.

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1 Q. EPA's decision-making was based on EPA's  
2 understanding that the model had been peer reviewed  
3 and was a state-of-the-art model at the time?  
4 A. Well, yes, that's true. However, the model was not  
5 the only consideration in terms of the remedy.  
6 Q. Understood. We'll get to other considerations  
7 later.  
8 A. All right.  
9 Q. I'm asking about the model because you're here to  
10 tell us about the use of the model.  
11 A. Okay.  
12 Q. Was the model run after selection of the remedy in  
13 2003?  
14 A. No.  
15 Q. So there are no refinements of the analysis after  
16 the initial remedy selection?  
17 A. Correct.  
18 Q. There is no model run that supports the decision  
19 that the amended remedy is equivalent to or  
20 superior to the original remedy?  
21 A. Correct.  
22 Q. Is it important in the model to have a  
23 representation of conditions after the remedy has  
24 been implemented?  
25 A. No, because what we look at after the remedy has

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1 been implemented is actually monitoring data. We  
2 monitor sediments, surface and biota. That's the  
3 big one. That's the most important one that we  
4 look at.  
5 So what we rely on after the remedy  
6 is completed is what we call long-term monitoring  
7 where we look at all those different empirical  
8 observations.  
9 Q. But the remedy -- at the time the remedy was  
10 selected, the remedy had not yet been implemented,  
11 correct?  
12 A. Of course not.  
13 Q. And so in order to select the remedy, you compared  
14 a projected fish tissue PCB concentration recovery  
15 time under no action and under a variety of  
16 considered remedial alternatives, correct?  
17 A. Correct.  
18 Q. Is it important for that analysis that the model  
19 receive inputs that represent the conditions  
20 following implementation of those remedial  
21 alternatives?  
22 A. Could you state the question again?  
23 Q. Do you have to put something into the model that  
24 says, here's what the sediment bed will look like  
25 after you dredge it?

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1 A. No, not into the model.  
2 Q. You don't put that in the model?  
3 A. No.  
4 Q. You don't put -- how do you compare -- how do you  
5 compare remedial alternatives if you don't put that  
6 in the model?  
7 A. You said after the remedy is completed. I'm  
8 reading into your question that you're saying what  
9 do you need to do to evaluate whether the remedy --  
10 Q. You're misunderstanding.  
11 A. I did misunderstand the question.  
12 Q. At the time that the remedy was selected in 2002 or  
13 2003 --  
14 A. Correct.  
15 Q. -- there were model runs, correct?  
16 A. Yes.  
17 Q. And they compared alternative scenarios, correct?  
18 A. Correct.  
19 Q. One scenario was no action?  
20 A. Correct.  
21 Q. Another scenario was implementation of the selected  
22 remedy, right?  
23 A. Correct.  
24 Q. Do you have to have a numerical representation of  
25 conditions if the selected remedy is implemented to

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 102</p> <p>1 put into the model to compare the remedy and the -- 2 and no action? 3 A. Yes. There are assumptions built into the 4 evaluation that assumes what the bed conditions 5 would be after you do the remedy. That's the input 6 into that model at that point. 7 Q. And that has to be done for every alternative 8 that's considered, correct? 9 A. Correct. 10 Q. Now, at the time that the remedy was amended in 11 2007, was there an acknowledgment that dredging 12 alone could not achieve the residual concentration 13 assumed in 2003? 14 A. Yes. 15 Q. Was the model rerun to determine whether dredging 16 remained an appropriate remedy based on the updated 17 data about what residual concentration would be 18 left after dredging? 19 A. No. Because in total our determination was in 20 combination with other actions that we would 21 achieve, the SWAC, the Surface Weighted Average 22 Concentration, that would be necessary to achieve a 23 protective result. 24 Q. So you did not do the analysis you did the first 25 time?</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 104</p> <p>1 A. No. 2 Q. And you didn't consider any of the other 3 alternatives that were originally considered in 4 2002 and 2003? 5 A. Correct. 6 Q. And you did not consider -- and you did no model 7 analysis to analyze how long it would take fish 8 tissue to recover based on updated assessments of 9 what would happen after implementation of that 10 remedy? 11 A. Correct. 12 Q. How important to your assessment of the remedy was 13 a projection of how much PCB mass would be removed 14 from the bed of the river? 15 A. It didn't come into play. What we looked at -- as 16 EPA, what we looked at, were concentrations. 17 Q. I'd like you -- well, in all of the documents you 18 reviewed before coming here today and in all of the 19 documents with which you're familiar as a result of 20 your involvement in the process, would you agree 21 with me -- thinking on those documents, would you 22 agree with me that in almost every public statement 23 of EPA concerning this project, there is a mention 24 of the PCB mass to be removed? 25 A. No.</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 103</p> <p>1 A. Correct, because it's a different remedy. 2 Q. And the assessment of what conditions would 3 actually exist after dredging was incorrect when 4 the model runs were done in 2002 and 2003, correct? 5 A. Correct. 6 Q. Do you know whether that -- whether had that input 7 been correct in 2002 or 2003, the model would have 8 projected the dredging was protective? 9 MR. STONE: Objection, calls for 10 speculation. 11 MR. MANDELBAUM: I asked do you know. 12 That's not speculation. 13 THE WITNESS: No. 14 BY MR. MANDELBAUM: 15 Q. And EPA did not re-inquire? They didn't reanalyze? 16 A. No. 17 Q. And at the time of the ROD amendment, there was no 18 analysis of whether the mostly dredging remedy 19 should be abandoned in favor of, for example, a 20 limited dredging remedy and mostly capping? 21 A. Well, what we considered was what we agreed would 22 be acceptable. 23 Q. That's the only alternative you considered? 24 A. Besides what we were doing, that's correct. 25 Q. You didn't consider no action?</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 105</p> <p>1 Q. That's not true? 2 A. No. 3 Q. Is it mentioned in the proposed plan? 4 A. Probably. 5 Q. Is it mentioned in the record of decision for OU2 6 through 5? 7 A. It's probably mentioned. 8 Q. Is it calculated there? Is there a table? 9 A. I think it is. 10 Q. And how about in the amended ROD? 11 A. Yes. 12 Q. How about in the press releases? 13 A. I don't remember. 14 Q. How about in the ESD? 15 A. I don't remember. I can tell you it was not our 16 focus. Sure, it may have been mentioned, but it 17 was not the risk driver. 18 Q. Why was it mentioned? 19 A. Well, it's important to DNR. In the past they've 20 been a big proponent of mass removal. EPA never 21 has been. And EPA has always taken the position 22 that risk is concentration-based. 23 Q. And DNR disagrees with that? 24 A. I think DNR agrees with that now. 25 Q. But at the time the remedy was selected, DNR did</p>

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1 not agree with that?  
2 A. They agreed the concentration was also important,  
3 but they had a greater consideration of mass, but  
4 still I think they also did recognize that was not  
5 the most important consideration. It was something  
6 that was important to them.  
7 Was it the most important  
8 consideration? No -- you'd have to ask them. I  
9 can't tell you what they were thinking.  
10 Q. That's fair.  
11 A. But as far as EPA was thinking, we've never  
12 considered mass to be the most important driver.  
13 Sure, it's something we look at because mass can  
14 become important. If there's a large mass and it  
15 becomes reexposed, then it can become  
16 concentration.  
17 But in terms of fundamentally how  
18 you look at risk, it has to be concentration-based  
19 because that's how we do our risk assessments.  
20 It's related to concentration.  
21 So I mean mass ultimately is  
22 translated into concentration, but really what you  
23 have to look at is concentration.  
24 Q. Do you have -- thinking back to your first  
25 involvement in this project in the mid-1990s --

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1 A. I don't know.  
2 Q. And you don't know whether it was because of a  
3 concern about compliance with applicable or  
4 relevant and appropriate regulatory standards?  
5 A. Again, I don't know. You'd have to ask them.  
6 Q. And was it relevant to them for any of the  
7 balancing criteria?  
8 A. I don't know.  
9 Q. So you don't know that that focus on mass was  
10 driven by any consideration appropriate to consider  
11 under the NCP?  
12 A. Correct.  
13 Q. And by "you," you mean the United States?  
14 A. Correct. I do believe they have changed their  
15 views since then, however. Over time they have  
16 come -- the EPA's concept is that the most  
17 important consideration is concentration.  
18 Q. Did that change occur before or after this remedy  
19 was selected in 2002 and '3?  
20 A. I would say before in my opinion.  
21 Q. So their remedy selection was not influenced by  
22 their interest in mass?  
23 A. No, I don't believe so.  
24 Q. Then why is mass removal calculated in every public  
25 statement?

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1 A. It wasn't that long ago.  
2 Q. 1996 I thought you said.  
3 A. Yeah, okay, '96, yes. We just -- first just  
4 started talking about things.  
5 Q. All right. In the late 1990s --  
6 A. Okay. Sorry to be argumentative.  
7 Q. -- was DNR focused on mass removal?  
8 A. You have to ask them.  
9 Q. I'm asking your recollection of what they were  
10 saying.  
11 A. I think, as I remember, they considered mass  
12 important.  
13 Q. And was -- do you remember why they said mass was  
14 important?  
15 A. No.  
16 Q. Was mass important to them in your understanding  
17 because of risk or because of, for example, the  
18 Wisconsin Public Trust Doctrine?  
19 A. I don't know.  
20 Q. Was mass important to them for any one of the --  
21 for either of the NCP threshold criteria to your  
22 knowledge?  
23 A. I don't know.  
24 Q. So you don't know whether it was important to them  
25 because of a concern about protectiveness?

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1 A. Well, I think it was important to them. Was it the  
2 most important thing? I don't think so.  
3 Q. But it was important to them?  
4 A. Again, you'd have to ask them.  
5 Q. It was relevant to their position on the  
6 appropriate remedy to select?  
7 A. You'd have to ask them.  
8 Q. What is your understanding of what was important to  
9 them?  
10 A. That was a consideration. Again, I don't think it  
11 was the most important consideration. I think they  
12 fundamentally did not disagree with EPA -- sorry to  
13 put the double-negative -- but they agreed with EPA  
14 that concentration was the necessary way to  
15 determine if there was a risk or not.  
16 Q. And there might be some other reason why mass was  
17 important?  
18 A. I don't know.  
19 Q. But mass was important?  
20 A. How important was it to them, you'd have to ask  
21 them. I can't tell you how important it was to  
22 them. It's very --  
23 Q. I'm not asking how much. I'm asking, was it your  
24 understanding at the time the remedy was selected  
25 that mass was important to them?

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1 A. I'm not sure.  
2 Q. If it wasn't important to them, who was it  
3 important to? Because it's in every public  
4 document.  
5 A. It was a consideration.  
6 Q. Mr. Stone, when he stands up in court, mentions  
7 mass removal every single time he talks.  
8 MR. STONE: Objection. Not true.  
9 MR. MANDELBAUM: Well, often he mentions  
10 it.  
11 MR. STONE: What objection is that? Not  
12 true.  
13 BY MR. MANDELBAUM:  
14 Q. Mr. Stone often mentions mass removal. Who is it  
15 important to? Is it just eyewash?  
16 A. Well, like I said, concentration is -- does become  
17 relevant at times in that if you assume mass has no  
18 importance at all, you're assuming it's never going  
19 to be exposed. That mass of PCBs is never going to  
20 be exposed.  
21 If you are willing to accept even a  
22 remote possibility that those -- that mass of PCBs  
23 can be exposed, then that mass ultimately  
24 translates into some concentration.  
25 Q. But the mass itself doesn't pose a risk. What

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1 poses a risk is a later concentration?  
2 A. It's just a different way of expressing  
3 concentration.  
4 Q. But if it was diluted in the course of exposure, it  
5 would not pose risk, correct?  
6 A. That's correct.  
7 Q. So I mean we're dancing and fencing here. What I  
8 want to get to is, you're making public statements.  
9 You made a lot of public statements in the course  
10 of this matter, correct?  
11 A. Yes.  
12 Q. And in many of those public statements, the amount  
13 of PCB mass to be removed was calculated, correct?  
14 A. Probably.  
15 Q. That must have been something important to  
16 somebody, right?  
17 A. It's an easy way to express the extent of, say,  
18 removal.  
19 Q. You can express the extent of removal by expressing  
20 the number of cubic yards of sediment moved, that's  
21 important?  
22 A. Correct.  
23 Q. That's a driver of cost and implementability,  
24 right?  
25 A. Correct.

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1 Q. What does -- what does the PCB mass go to?  
2 A. Like I said, if it gets reexposed and depending on  
3 lots of assumptions in terms of what happens at  
4 that point, but a large mass of PCBs has some  
5 potential to become high concentration someplace,  
6 so that's why it's relevant.  
7 Q. I understand that answer. What I'm asking you is,  
8 who was it important to?  
9 A. It was important -- I can't make that judgment. I  
10 can't judge what the world thinks is important or  
11 not.  
12 Q. Will you agree --  
13 MR. STONE: You should let him answer  
14 before you start asking the next question.  
15 BY MR. MANDELBAUM:  
16 Q. Would you agree with me that it was important to at  
17 least somebody who had a hand in the documents that  
18 were issued by EPA and others?  
19 A. I don't know. I can't tell you what's in their  
20 mind.  
21 Q. Well, if it wasn't important to EPA and you signed  
22 the document, it must have been important to  
23 somebody else, right?  
24 A. Like I said, it's a way to express the potential  
25 for risk. And so for a lot of people, that can be

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1 a consideration. Is it the most important  
2 consideration? No.  
3 The risk based on concentration is  
4 the most important consideration, and that's what  
5 EPA bases our -- EPA's decision on is concentration  
6 which we then calculate the risk from that  
7 concentration.  
8 It's basically a formula that we use  
9 to determine what the risk is. So that formula  
10 requires concentration. Mass doesn't directly tell  
11 you that. So is it a consideration? Yes. Is it  
12 the most important consideration? No. Is it the  
13 way we calculate risk? No.  
14 Q. Thank you. If mass were a consideration, would it  
15 tend to favor dredging over capping or capping over  
16 dredging?  
17 A. It wouldn't necessarily favor either one.  
18 Q. Why?  
19 A. Because it depends on the assumptions you consider  
20 in terms of those different alternatives. The same  
21 considerations that we already look at, in other  
22 words, the mobility of materials during dredging,  
23 the mobility of materials after capping and the  
24 potential for exposure. So that's the most  
25 important consideration.

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1 I mean, sure, if there's no mass  
2 there, then there's no chance for any -- there's no  
3 PCBs there, there's zero concentrations, and of  
4 course the risk is nonexistent.  
5 So it is a factor, but is it the  
6 most important factor? No. And the way -- it's  
7 just a matter of expressing what PCBs are there.  
8 You can express it in concentration. You can  
9 express it in mass. It's just a different way of  
10 expressing -- different ways of expressing the same  
11 thing.  
12 MR. STONE: Dave, let me just make one  
13 mention for the record, and that is Mr. Hahnenberg  
14 was noticed for the deposition in both his  
15 individual capacity, and he was also designated as  
16 a 30(b)(6) witness.  
17 On this topic of the importance of  
18 mass, et cetera, our position is this is outside  
19 the scope of any of the 30(b)(6) designations. So  
20 I'm not saying you can't ask him about it. I'm  
21 just saying in many instances you've said on this  
22 topic what's the answer for United States, et  
23 cetera, et cetera.  
24 Our position, and you don't have to  
25 agree to it, is that this is outside the scope of

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1 the 30(b)(6) topics.  
2 MR. MANDELBAUM: I understand -- I  
3 understand your position, and I will call your  
4 attention to -- I'll call your attention to the --  
5 I think IC has to do with movement, which is what  
6 he's been telling us about, and IC3 talks about the  
7 use of the models, which is what he's been talking  
8 about.  
9 MR. STONE: Okay. I understand your  
10 position. I don't agree with you, but proceed.  
11 MR. MANDELBAUM: That's fine.  
12 BY MR. MANDELBAUM:  
13 Q. If someone was in the room who in his or her heart  
14 of hearts wanted mass removed for whatever reason,  
15 would that person -- would that desire to remove  
16 mass tend to influence the decision towards removal  
17 by dredging or towards dilution or encapsulation by  
18 capping recovery?  
19 A. I'd say it's very hypothetical and speculative as  
20 to what that hypothetical person might think. I  
21 mean, I don't know. It depends on the person.  
22 Q. Is this even a controversial question? If you want  
23 to remove mass, don't you want to remove mass?  
24 A. If you already know the answer, then why are you  
25 asking the question?

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1 Q. So you don't want to agree with me?  
2 A. Yeah.  
3 Q. Okay. Because I'm wondering when there were other  
4 people in the room talking about mass removal,  
5 Mr. Hahnenberg, were they talking about things  
6 which fit neatly in your vocabulary, or were they  
7 advocating for dredging in a way that didn't neatly  
8 fit into the NCP consideration?  
9 A. Again, you'd have to ask them.  
10 Q. I'm asking you if they were there --  
11 A. I can't tell you what was in their mind.  
12 Q. I'm asking you what was in your mind.  
13 A. I wasn't there. What was in my mind when we did  
14 these decisions I can tell you was concentration  
15 was the factor that I considered and looked at and  
16 proposed to our management in terms of remedy. It  
17 was concentration-based.  
18 Q. Did you or anyone in your hearing ever say in words  
19 or substance, the State of Wisconsin would like a  
20 remedy that removes more mass?  
21 A. I don't know.  
22 Q. You don't know whether anyone said that in your  
23 hearing?  
24 A. No, I don't remember. It's a long time ago. I  
25 doubt I did.

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1 Q. What was the relationship between the United  
2 States -- between EPA, DNR and the trustees in  
3 terms of developing the remedy?  
4 A. It was good.  
5 Q. I don't mean in that way. Did one agency make all  
6 the decisions, or was it a collective decision?  
7 A. I would say it was a collective -- joint decision,  
8 I would put it, between DNR and EPA. Fish &  
9 Wildlife, which is the main trustee I'm thinking  
10 of, had little to do with selection of the remedy.  
11 We did coordinate with the trustees.  
12 In some cases we could share data. That was mostly  
13 what it was for. That coordination was data  
14 sharing. And as you read in the one letter, they  
15 may have had opinions, and they could express those  
16 opinions.  
17 In some cases as you pointed out  
18 yourself, they expressed an opinion, and we didn't  
19 do what they asked. So I mean if we felt it was  
20 inappropriate or the opinion was not something that  
21 we wanted to go with, we didn't. We had no  
22 obligation to go with those kinds of  
23 recommendations.  
24 Q. Turn to page 3 of Exhibit 4219E.  
25 A. Okay.

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 118</p> <p>1 MR. STONE: Have you had a chance to 2 review this letter? 3 THE WITNESS: No, I have not. 4 MR. STONE: I guess one suggestion, 5 David, is if you want to drill deeper into this 6 particular document, maybe we should either break 7 for lunch or come back to it after lunch after he's 8 had a chance to review it in its entirety. 9 MR. MANDELBAUM: Okay. I just want to 10 ask about one paragraph. 11 MR. STONE: I guess there's a fair amount 12 of questioning you've already done about isolated 13 sentences, and you haven't given him a chance to 14 review the entire letter so -- 15 MR. MANDELBAUM: Okay. Do you want to 16 review the entire letter, Mr. Hahnenberg? 17 THE WITNESS: Yes. 18 MR. MANDELBAUM: Let's come back to that 19 after lunch. 20 THE WITNESS: Okay. 21 MR. MANDELBAUM: I'd like to ask you 22 about a document that we used in a prior 23 deposition. I simply don't know the -- this one. 24 You want to remark it? 25 MR. RABBINO: No. What's the date?</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 120</p> <p>1 suggestion? 2 A. No. 3 Q. Well, who was David Allen? 4 A. He was the staff person for Fish &amp; Wildlife 5 Service. I'm not sure his title. Project 6 coordinator maybe. I'm not sure. 7 Q. And he was involved in the Fox River matter, right? 8 A. Correct. He was kind of the main contact for Fish 9 &amp; Wildlife Service on the natural resource damage 10 aspect of the case. 11 Q. Now, if you look at the address list to the top 12 e-mail, the September 22nd, '99 e-mail of which 13 he's the author, who are those people in the "To" 14 and the "CC" list? Not individually but as a 15 group. 16 A. Let's see here. Let me look. There are people who 17 are involved in technical support I guess you'd 18 say. 19 Q. And some lawyers? I see Mr. Grimes. 20 A. Mr. Grimes is, yeah. 21 Q. I assume Mr. Muno who was the Superfund director? 22 A. Right. 23 Q. Is it fair to say that this is a collection of 24 people who were working on this matter on behalf of 25 the intergovernmental partners?</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 119</p> <p>1 MR. MANDELBAUM: The top one is 9/22/99. 2 Let's just remark it. I apologize. 3 (Exhibit 4219F was marked for 4 identification.) 5 BY MR. MANDELBAUM: 6 Q. Mr. Hahnenberg, I'm showing you a -- an e-mail 7 trail, the most recent of which is September 22, 8 1999. 9 A. Okay. 10 Q. And the first sheet is NCR-FOX-0260001, and we've 11 marked it 4219F. 12 A. Okay. 13 Q. Now, you're copied on this, right? 14 A. Well, yeah. It's kind of confusing. The 15 letterhead here says to me and also to Brenda 16 Jones, so I don't quite know. I got a copy 17 apparently. 18 Q. Do you remember that? 19 A. No. It was 1999, so it was 13 years ago. 20 Q. Maybe I can help you with the incident. Do you 21 remember learning of a meeting that was held among 22 David Ludwig, me, Brenda Jones, Roger Grimes, 23 perhaps others? 24 A. No, I don't remember. 25 Q. Do you remember the soft sediment four feet</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 121</p> <p>1 A. Yes. 2 Q. Now, Mr. Allen writes a three-page memo in response 3 to Mr. Lynch who is upset. 4 A. Right. 5 Q. Actually this one may be in response to something 6 you wrote. Look at the second paragraph of 7 Mr. Allen's e-mail. 8 A. You mean the first page? 9 Q. On the first page, second paragraph, Every agency 10 in the intergovernmental partnership must come to 11 terms with two realities regarding the cleanup and 12 restoration of the Fox River in Green Bay. 13 And then he goes on. Read that to 14 yourself. 15 A. Okay. 16 Q. If you look at the second of his two numbered 17 things -- second of his two numbered realities it 18 says, All six agencies in the Departments of 19 Justice have enough leverage to prevent PRP 20 resolution at the site but lack the leverage and 21 authority to resolve the matter independently for 22 the PRPs. 23 A. Okay. 24 Q. Do you understand what that means? 25 A. I think so. I think what he says is we have to do</p>

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1 it as a group.  
2 Q. And did you agree with that statement?  
3 A. I don't remember.  
4 Q. Do you agree with that statement now?  
5 A. Well, I agree of course you're in a stronger  
6 position if you're all together but not  
7 necessarily. I mean, I think EPA has the  
8 enforcement authority if we need it to move things  
9 forward.  
10 Q. He's suggesting --  
11 A. Excuse me, that's a legal kind of question, so I  
12 don't know if I should even be even answering that.  
13 Q. He's suggesting, is he not, to a bunch of program  
14 people that the group act as if each individual  
15 member of the intergovernmental partnership gets a  
16 veto over resolution of the matter, is that right?  
17 A. I don't know if that's what he's saying.  
18 Q. Well --  
19 A. I haven't had a chance to think about that. Read  
20 this, and think about it.  
21 Q. Why don't you think about it a minute.  
22 MR. STONE: David, are you just going to  
23 focus on this e-mail on this page?  
24 MR. MANDELBAUM: For now, yeah.  
25 MR. STONE: Okay, so go ahead and read

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1 that.  
2 THE WITNESS: Okay. What's your  
3 question?  
4 BY MR. MANDELBAUM:  
5 Q. My first question is, do you agree with him that  
6 each of the members of the intergovernmental  
7 partnership has a veto or had a veto at that time  
8 about resolution of this matter?  
9 A. I wouldn't say that's true.  
10 Q. You didn't agree with it?  
11 A. I don't remember what I thought then, but right now  
12 I'm telling you I don't agree with it.  
13 Q. He thought it then, right?  
14 A. Apparently he put it in an e-mail.  
15 Q. Now, go down to the next paragraph.  
16 A. Okay.  
17 Q. And if you look at the sentence that begins, Focus  
18 instead. Do you see that second sentence?  
19 A. You're talking about the last paragraph?  
20 Q. Yes. It says, Focus instead on unifying the  
21 intergovernmental partners around a set of  
22 positions which will involve compromise by each of  
23 the partners and which must be scientifically and  
24 legally defensible acceptable to the partnership  
25 and acceptable to the public.

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1 A. Okay. What's your question?  
2 Q. You read that, right?  
3 A. Yes.  
4 Q. Is it your understanding that there is any  
5 criterion other than scientific and legal  
6 defensibility that drove EPA's decisions?  
7 A. Not that I can think of, but I mean I -- that was a  
8 long time ago. I don't know. Right now, not that  
9 I can think of. It would be science and legal.  
10 Q. And he wanted you to do something different than  
11 that, right? He wanted you to think about other  
12 things?  
13 A. I'm not sure he's saying that.  
14 Q. He wants you to compromise, does he not?  
15 A. Well, he doesn't say it there.  
16 Q. Isn't that -- he says, A set of positions which  
17 will involve compromise.  
18 A. Can I tell you what I think he's saying generally  
19 here?  
20 Q. Um-hum.  
21 A. He's saying we should get along. That's what he's  
22 saying.  
23 Q. Right.  
24 A. And we should stop fighting amongst ourselves and  
25 try and pull us together as a group. That's what

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1 he's saying.  
2 Q. Did that pulling together as a group involve  
3 compromising EPA's position?  
4 MR. STONE: Objection, vague. Position  
5 on what?  
6 MR. MANDELBAUM: I don't know. He says  
7 he wants you to compromise positions.  
8 THE WITNESS: Not that I know of -- not  
9 that I can think of.  
10 BY MR. MANDELBAUM:  
11 Q. You didn't compromise a single thing?  
12 A. I'm not saying that. I don't remember -- of  
13 course -- I'm sure on some points we did. What are  
14 those? I can't tell you.  
15 Q. Okay.  
16 A. And just thinking about -- of course. When you're  
17 working with another organization, of course  
18 there's going to be some give and take on a lot of  
19 things. It's always going to be the case.  
20 Otherwise you can't just have one  
21 party saying -- like EPA saying, this is the way it  
22 is, and that's the way it's going to be. A lot of  
23 times there are gray areas in lots of these -- lots  
24 of the things we were working on, and in some cases  
25 we might come to an accommodation.

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1 It will still be well within, say,  
2 the NCP or legal parameters or whatever. But  
3 generally I think what David is saying here is that  
4 we should try and get along better. That's what  
5 he's saying.  
6 Q. The restoration decision-making by the trustees was  
7 not -- was not driven by the same selection  
8 criteria as the remedy selection by EPA, right?  
9 A. Correct.  
10 MR. MANDELBAUM: Now is a good time for a  
11 break.  
12 (Discussion off the record.)  
13 BY MR. MANDELBAUM:  
14 Q. Mr. Hahnenberg, I'm actually looking at a document,  
15 but I'm not going to give it to you because it's  
16 privileged. Who's David Ullrich?  
17 A. He is retired. Years ago when EPA was first  
18 involved in the Fox River project, he was acting  
19 regional administrator.  
20 Q. And was that true in November 1999?  
21 A. I believe so.  
22 Q. So if he said something about the Fox River remedy  
23 selection, what influence would that have on the  
24 people working on that project?  
25 A. It probably would have some influence, but he was

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1 not the decision maker.  
2 Q. Who was the decision maker?  
3 A. Bill Muno. It was delegated to him.  
4 Q. Would Mr. Muno tend to listen to what Mr. Ullrich  
5 wanted?  
6 A. I imagine. Being acting regional administrator, of  
7 course.  
8 Q. So do you recall a meeting in Chicago on or about  
9 November 18, 1999 attended by Mr. Ullrich,  
10 Mr. Ullrich's executive assistant, Roger Grimes,  
11 you, Cheri Eggleston, Peggy Schneider, Paul Karch,  
12 Andy Schlickman, me, and David Ludwig?  
13 A. No.  
14 Q. Do you recall attending a meeting to discuss  
15 focusing sediment remediation on areas where the  
16 pathway to fish might be concentrated?  
17 A. No.  
18 Q. Do you recall any conversation at any time, or did  
19 you review anything in the administrative record  
20 about the pathway from sediments to foraging carp  
21 who would stir up soft sediment which would then be  
22 taken into the gullets of the digestive systems of  
23 gizzard shad?  
24 A. No.  
25 Q. You don't recall that at all?

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1 A. Nope.  
2 MR. STONE: David, you said it's  
3 privileged. Privileged for you or privileged for  
4 me?  
5 MR. MANDELBAUM: Privileged for me.  
6 MR. STONE: Okay. Thank you.  
7 BY MR. MANDELBAUM:  
8 Q. Do you recall Mr. Ullrich saying at any time in  
9 your presence in words or substance in the hearing  
10 of other people that from his point of view, there  
11 were only two issues, first, how much to dredge,  
12 and second, where to put the dredged spoils?  
13 A. I don't remember that.  
14 Q. If he had said that, that would have had an  
15 influence on the remedy selection, would it not?  
16 A. I don't know. I can't put myself in Bill Muno's  
17 head.  
18 Q. You have no recollection, you say, of this gizzard  
19 shad question?  
20 A. No, I don't.  
21 Q. Would you look at Exhibit 4219F?  
22 A. Yeah. It was in 1999?  
23 Q. Yep.  
24 A. Well --  
25 MR. STONE: No question pending. Wait

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1 for a question.  
2 THE WITNESS: Sorry. Sorry, David.  
3 MR. MANDELBAUM: No problem. I seem to  
4 only have one copy of this one.  
5 BY MR. MANDELBAUM:  
6 Q. Was any consideration given by EPA at any time  
7 about or trying to identify the pathway by which  
8 fish took up PCBs and breaking that pathway?  
9 A. Well, probably because we'd be part of --  
10 potentially part of some remedial actions.  
11 Q. Was there any effort made to narrow the remedial  
12 action to focus specifically on a pathway or  
13 pathways?  
14 A. I don't recall us ever narrowing it like that.  
15 Q. Why?  
16 A. Because we usually look at a broader array of  
17 considerations. I mean that's why it would seem  
18 unlikely that we would ever take that approach.  
19 That would be very much against a lot of guidance  
20 and other things that we have in terms of how we  
21 approach things, that we would not focus it to that  
22 degree.  
23 MR. STONE: I'll mention for the record  
24 again that our view is that this topic area is  
25 outside the scope of the 30(b)(6) designation, but

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1 you can continue asking Mr. Hahnenberg in his  
2 individual capacity about this.  
3 MR. MANDELBAUM: No. It's actually  
4 within the scope because you got to wait for the  
5 next question.  
6 BY MR. MANDELBAUM:  
7 Q. Was the model set up to allow you to do that had  
8 you wanted to?  
9 A. You could, yeah.  
10 Q. So you could -- you could ask the model -- the  
11 model -- back up. Withdrawn question.  
12 If it were true, and I'm just asking  
13 you to assume that it were true, that a large  
14 pathway from sediment to fish originated with this  
15 carp and gizzard shad mechanism which is -- which  
16 is -- almost exclusively originates in soft  
17 sediment with submerged aquatic vegetation in less  
18 than four -- four feet of water, if that were true,  
19 did the model allow you to predict reductions in  
20 fish tissue concentration focused only on that  
21 sediment?  
22 A. I don't know for sure. Again, DNR are the  
23 modelers. I'm not a modeler, and I'd have to  
24 really give that a lot of thought to figure out if  
25 that were possible to monitor or not.

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1 Q. So if that proposal was made to EPA, EPA did not  
2 have the tools or did not know whether it had the  
3 tools in 1999 to think about them?  
4 MR. STONE: Objection, vague. What  
5 proposal was made to EPA?  
6 MR. MANDELBAUM: The proposal to focus  
7 the remedy in OU4 on soft sediment deposits  
8 overlain by less than four feet of water.  
9 MR. STONE: In operable unit 4?  
10 MR. MANDELBAUM: Um-hum.  
11 MR. STONE: If that proposal were made to  
12 EPA then -- I'm sorry. Could you read back the  
13 question, or could you rephrase your question?  
14 BY MR. MANDELBAUM:  
15 Q. If that proposal had been made, because you don't  
16 remember that proposal being made, because you  
17 didn't read your e-mails to prepare for today --  
18 A. Right. There are a lot of e-mails.  
19 Q. I understand. But if that proposal had been made,  
20 you don't know sitting here today whether EPA had  
21 the modeling resources in hand to decide whether or  
22 not that sort of focused remedy would reduce fish  
23 tissue concentrations to make it protective?  
24 A. I can answer the question? I don't believe we  
25 would have had the modeling resource to do that

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1 kind of evaluation. As I said, we were relying --  
2 at that point on the Fox River project we were  
3 relying on Wisconsin DNR for modeling concerns.  
4 Q. And the alternative remedies that EPA considered  
5 using the model were alternative remedial action  
6 limits, right?  
7 A. Correct.  
8 Q. And the remedial action limit was used for purposes  
9 of the modeling exercise by taking the limit, which  
10 was expressed in parts per million of PCBs in  
11 sediment and assuming that all of that material  
12 would be removed by dredging, right?  
13 A. I believe the modeling would have applied to  
14 capping as well plus monitoring natural recovery  
15 because there was a no-action alternative I know  
16 that was considered. The capping alternative was  
17 also considered.  
18 I think -- well, I don't remember  
19 exactly how the capping was considered in terms of  
20 what concentrations would have gone into the model  
21 from the capping alternative, but all the  
22 alternatives were put through the modeling process.  
23 Q. Okay. But you didn't consider -- the dredging  
24 alternatives considered were different remedial  
25 action limits which treated all sediment within the

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1 river that exceeded that remedial action limit the  
2 same?  
3 A. Correct.  
4 Q. And there was no focus on treating sediments  
5 differently horizontally across the river, right?  
6 Sediments closer to the bank are different than  
7 sediments in the river?  
8 A. That's correct.  
9 Q. And there was no difference -- there was no focus  
10 on treating sediments differently up and down each  
11 reach along the thread of the river?  
12 A. Each reach was considered independently in the  
13 modeling.  
14 Q. But there was no effort to treat PCBs, for example,  
15 in the upstream part of OU4A close to the De Pere  
16 dam differently from sediments near the mouth?  
17 A. Correct. Each reach was considered as a unit.  
18 Q. And there was no effort to treat sediments  
19 differently within the sediment bed so --  
20 A. Well, the modeling does have different grids, and  
21 each of those grids are treated independently I  
22 guess. I mean, again, I'm not a modeler. I,  
23 again, rely on DNR.  
24 But in terms of the details of how  
25 that works, I imagine these different grids that I

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1 forget the resolution -- it depends on the  
 2 resolution of the model, but these different grids  
 3 are all input into the model because each grid  
 4 might have a different concentration, so that's  
 5 going to the model for that particular little  
 6 segment in terms of what the concentrations are for  
 7 that small little subunit.  
 8 Q. I asked my question inartfully, and I apologize.  
 9 What I'm asking you is, you didn't ask the model  
 10 the question, what if we only deal with -- what if  
 11 we have a different remedial action limit for  
 12 shallow sediments rather than deep sediments?  
 13 A. No, we didn't.  
 14 Q. Is that because of a limitation on the model or  
 15 because of a limitation on the range of  
 16 alternatives that EPA was considering?  
 17 A. More a limitation of the model. The model is a  
 18 simplification, of course, of reality. So you  
 19 can -- you have to simplify it. You have to treat  
 20 each OU as an independent unit.  
 21 You could do that probably by having  
 22 more model runs, but the model runs I know took a  
 23 significant amount of time for each run and a  
 24 significant amount of computer power which at the  
 25 time was a lot less than it is now.

*0.125*

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1 sediment removal for any given risk reduction, you  
 2 would allow the remedial action limit to vary  
 3 across the sediment bed, wouldn't you?  
 4 A. I'm not sure. I have to think about that. I think  
 5 so, but I'm not positive.  
 6 Q. Different places within the river horizontally,  
 7 upstream and downstream and vertically within the  
 8 sediment bed pose different risk to fish, right --  
 9 to fish tissue concentrations?  
 10 A. It's a different concentration, of course.  
 11 Q. But the same concentration in different locations  
 12 poses a different risk, does it not?  
 13 A. I'm not sure how the model evaluates those kind of  
 14 different -- you're talking habitat considerations,  
 15 I'm guessing, right?  
 16 Q. No. What I mean is if you've got 10 parts per  
 17 million of PCB and sediment buried under five  
 18 feet --  
 19 A. Oh, in terms of the data.  
 20 Q. -- that poses less risk than 10 parts per million  
 21 of sediment at the surface of the sediment bed,  
 22 right?  
 23 A. Correct.  
 24 Q. And if you've got -- in principal if you've got  
 25 PCBs in a place where they enter the food web

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1 So it took a long time to actually  
 2 do the model runs even for the runs that we did.  
 3 So we did a lot of runs as it was because we did it  
 4 for, let's see, .25, .25, .5, 1 and 5. So we had  
 5 five model runs for different concentrations for  
 6 five different OUs. So that's 25 runs right there,  
 7 and those took a long time to -- took a lot of  
 8 computer power.  
 9 So to break that out further, it  
 10 would have really stressed the computer resources  
 11 that were being used at the time. So from that  
 12 standpoint it might become if not impracticable, at  
 13 least impractical in terms of being able to do it.  
 14 I mean it may have been possible but -- sorry. Go  
 15 ahead.  
 16 Q. Who made the -- who made the decision to consider  
 17 alternatives based on remedial action limits rather  
 18 than locations?  
 19 A. That was a joint decision by EPA and DNR in terms  
 20 of a good approach. I'd say DNR on that point  
 21 would have been the lead, but we would certainly  
 22 have concurred with that as a reasonable approach.  
 23 Q. DNR had the lead on that topic?  
 24 A. Yeah, on the modeling portion they had the lead.  
 25 Q. Now, if you wanted to minimize the amount of

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1 easily, they pose a greater risk than an area where  
 2 they do not, right?  
 3 MR. STONE: And again, our view is these  
 4 are not modeling questions at this point. You're  
 5 asking about why a particular remedial option was  
 6 selected or not selected. So our position is this  
 7 is outside the scope of the 30(b)(6) topics, but  
 8 you can answer his question.  
 9 THE WITNESS: And the question was again?  
 10 I'm sorry.  
 11 BY MR. MANDELBAUM:  
 12 Q. The different places -- that the model -- even  
 13 within the model, the model would predict -- by  
 14 model I mean all the nested models that we  
 15 discussed --  
 16 A. Right.  
 17 Q. -- would treat -- would predict different risk to  
 18 fish tissue concentrations based on a different  
 19 initial location within the sediment bed  
 20 horizontally, up and down river and vertically?  
 21 A. I believe so.  
 22 Q. And if you wanted to minimize the amount of -- the  
 23 amount of sediment that one would have to dredge  
 24 for a given level of risk reduction, one would  
 25 allow the remedial action limit to vary with

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1 location, correct?  
2 A. Not necessarily because you're assuming the  
3 location is never going to change. In other words,  
4 that has an underlying premise that your --  
5 presuming your higher concentrations are buried  
6 more deeply and for that moment may pose less of a  
7 risk, that assumption assumes that those deeply  
8 buried sediments or PCBs will stay buried deep and  
9 will not be exposed.  
10 Q. The model will -- the model -- does the model not  
11 allow you to predict the risk that those PCBs that  
12 are buried will become available to fish and cause  
13 fish tissue concentrations of PCBs to increase?  
14 A. The model assumes what is. The model doesn't do  
15 anything in terms of assuming how things might  
16 change over time.  
17 Q. The model does not allow you to predict how things  
18 change over time?  
19 A. Not in terms of exposure of deeper sediments to a  
20 shallower position, no.  
21 Q. Really?  
22 A. I don't think so.  
23 Q. That's the understanding of the United States?  
24 MR. RABBINO: Can you read that back,  
25 please?

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1 THE WITNESS: The model as I understand  
2 it --  
3 MR. MANDELBAUM: Excuse me. Would you  
4 like that question read back?  
5 MR. RABBINO: I would.  
6 MR. MANDELBAUM: Would you read it back?  
7 (Record read.)  
8 BY MR. MANDELBAUM:  
9 Q. Is that still your answer?  
10 A. Yes.  
11 Q. So your understanding of what you were doing when  
12 the United States used the model for remedial  
13 decision-making or remedy selection was that the  
14 model had nothing to do with predicting whether  
15 buried sediments would become available to fish  
16 later?  
17 A. I don't believe it did. It's a different question  
18 in terms of what the current risks are.  
19 Q. What answered that question?  
20 A. Huh?  
21 Q. What answered the question of whether buried  
22 sediment would become available to fish later?  
23 A. What answered it?  
24 Q. What did you use to answer the question whether  
25 that was --

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1 A. Oh, my understanding of how the model operates  
2 which is based -- the model operates based on  
3 current conditions, not what may be happening in  
4 the future may happen in the future.  
5 Q. How did you predict what would happen in the  
6 future?  
7 A. The model did that. I mean, honestly the model is  
8 kind of a black box if you think about it. You  
9 know it goes in. You know it does a bunch of  
10 mathematics, and you get an output.  
11 And the assumptions are a bunch of  
12 assumptions. The most important one is bed load --  
13 or bed maps concentrations of the sediment. That's  
14 the most important one. There are other  
15 assumptions too. Those are other operating aspects  
16 of the model which a modeler would know better.  
17 Q. So there's a black box, right?  
18 A. Um-hum, yes.  
19 Q. And the State of Wisconsin controls the black box?  
20 A. In this case, yes.  
21 Q. And I'm asking you the question whether whatever  
22 goes on in that black box, would it not be true  
23 from your basic understanding of this problem that  
24 if you wanted to minimize the amount of sediment to  
25 be removed, you would ask the black box to allow

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1 the remedial action limit to vary across the  
2 sediment bed?  
3 A. That was my only consideration, yes. However, the  
4 goal we had was not to minimize removal of  
5 sediment. Of course we have cost-effectiveness  
6 that we have to look at, but our primary goal is to  
7 reduce risk, and to reduce risk we have to consider  
8 other factors besides what just the model output  
9 says such as stability of sediment, which the model  
10 does not fully consider in all cases.  
11 Sure, sediment stability is  
12 important in the modeling, but there are other  
13 factors that come into it that the model may not  
14 capture in terms of some of those other  
15 questions -- other risk aspects.  
16 Q. I'm not asking you whether minimizing the amount of  
17 sediment removed is a criterion or a decision rule.  
18 I'm just saying, if you choose not to allow the  
19 remedial action limit to vary across the sediment  
20 bed, you are assuring that you -- that you are  
21 going to select the remedy that removes more  
22 sediment than the minimum, are you not?  
23 A. True.  
24 Q. And it would be more sediment than the minimum  
25 would be removed for any given level of risk

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1 reduction, correct?  
2 MR. STONE: Objection, vague. What do  
3 you mean by minimum?  
4 BY MR. MANDELBAUM:  
5 Q. There's a minimum amount of sediment removal that  
6 will achieve any given risk reduction, correct?  
7 A. There may be, but it's very hypothetical as to what  
8 that is and how you get there.  
9 Q. I'm saying in principal there's a minimum amount.  
10 The smallest amount you would remove to get a given  
11 risk reduction, right?  
12 A. Hypothetically.  
13 Q. And if you don't allow the remedial action limit to  
14 vary across the sediment bed when you ask the  
15 modeler the question, you're assuring that you're  
16 going to pick a remedy which does not remove the  
17 minimum amount of sediment, are you not?  
18 A. No, not necessarily because you said remove. There  
19 are other ways to address risks, as you know, which  
20 is capping, covering other options. So in terms of  
21 remediation of an area, that's true.  
22 Q. If you're selecting how much to remove in a  
23 dredging remedy --  
24 A. Right, yes.  
25 Q. -- I'm correct, am I not?

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1 A. If it's only a dredging remedy you're looking at,  
2 of course. If you have less than the minimum, you  
3 need to have risk reduction. Of course you're  
4 going to be -- if you're doing more than the  
5 minimum, you do more than the minimum. I don't  
6 really understand the question.  
7 Q. All right. Let me try it again because it's a  
8 preliminary question. It shouldn't be  
9 controversial.  
10 A. Okay.  
11 Q. If you don't allow the remedial action limit to  
12 vary and you want to pick the remedial action limit  
13 to scope a dredging remedy, that in order to  
14 achieve a protective remedy, you will remove more  
15 sediment than the minimum because you did not allow  
16 the remedial action limit to vary across the  
17 sediment bed, isn't that true?  
18 A. That's true.  
19 Q. And the person who controlled the black box that  
20 you asked that question to was the State of  
21 Wisconsin, right?  
22 A. Yes. However, you have to recognize there are  
23 limits in terms of what they're able to do with the  
24 model.  
25 Q. And the person who decided how many computers were

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1 available and how much time was available for them  
2 and how many people were available to run the model  
3 was the State of Wisconsin, right?  
4 A. In terms of allocating resources for modeling, yes.  
5 Q. And the person who when you got into this project  
6 wanted to remove more mass was the State of  
7 Wisconsin, right?  
8 A. True. One thing I want to clarify though related  
9 to that is that point does not consider the fact  
10 that DNR in fact was listening to some of these  
11 other points that I've talked about -- they were  
12 listening, and they were willing to consider the  
13 fact that mass is not the only way to get at risk.  
14 So while, yes, they could make a  
15 decision in terms of the details of the modeling,  
16 they were in fact giving complete consideration to  
17 EPA's views which were a little different than  
18 theirs.  
19 So just because they had control of  
20 the knobs on the box -- in the box doesn't mean  
21 that they would just do only what they maybe  
22 earlier would have thought would be the best  
23 approach. They were influenced by EPA's  
24 considerations in my opinion.  
25 MR. MANDELBAUM: Okay, thank you. Is it

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1 lunchtime?  
2 THE WITNESS: Almost, not quite.  
3 MR. RABBINO: It's about 28 after or so.  
4 (Exhibit 4219G was marked for  
5 identification.)  
6 BY MR. MANDELBAUM:  
7 Q. Mr. Hahnenberg, I'm showing you a document which we  
8 marked 4219G which is a one-page copy of a press  
9 clipping apparently from the Green Bay Press  
10 Gazette on October 25, 1997. It has Bates No.  
11 NCR-FOX-0177070.  
12 A. Okay.  
13 Q. Do you recall ever looking at this document?  
14 A. I don't remember this particular press.  
15 Q. Take whatever time you want to review it, but I'll  
16 point out for you that you are quoted beginning at  
17 the bottom of the next-to-the-last paragraph.  
18 MR. STONE: Go ahead and read it all.  
19 THE WITNESS: Okay. And what's your  
20 question?  
21 BY MR. MANDELBAUM:  
22 Q. My question is, you're quoted -- there's a  
23 statement attributed to you at the bottom of the  
24 next-to-the-last paragraph -- next-to-the-last  
25 column.

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1 A. Oh, okay.  
2 Q. And there's a quotation at the top of the last  
3 column. Do you see those?  
4 A. Yes.  
5 Q. Did you say those things?  
6 A. Well, tell me what quote you're looking at if you  
7 wouldn't mind.  
8 Q. The first statement is not a quotation, but it is a  
9 statement attributed to you which is, The  
10 effectiveness of dredging has been studied  
11 extensively and doesn't need further proof.  
12 Did you say that on or about --  
13 slightly before --  
14 A. I don't remember specifically, but I very well  
15 could have.  
16 Q. Do you have any reason to believe you didn't?  
17 A. No.  
18 Q. Did you regularly give press interviews?  
19 A. From time to time.  
20 Q. Did you give press interviews to Susan Campbell of  
21 the Press Gazette?  
22 A. Yes.  
23 Q. Did she generally quote you accurately?  
24 A. Usually.  
25 Q. And the next statement is a quotation, and it's

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1 attributed to you.  
2 A. Right.  
3 Q. And it is, The river's been studied for years, how  
4 much information do you need?  
5 A. Correct.  
6 Q. Do you have any reason to believe you did not say  
7 that?  
8 A. No.  
9 Q. Do you believe that you did?  
10 A. I probably did.  
11 Q. And that was in October of 1997 you said?  
12 A. Correct.  
13 Q. Now, the issue that's addressed by this article is  
14 the -- is the good faith offer made by the Fox  
15 River Group to implement the RI/FS?  
16 A. Correct.  
17 Q. Do you recall that issue?  
18 A. Yes.  
19 Q. And the disagreement that is described here is over  
20 schedule, correct?  
21 A. Correct.  
22 Q. And the disagreement was that the Fox River Group  
23 wanted to delay completion of the RI/FS until early  
24 2000 so that results of post-dredging conditions  
25 and analysis of cost experience at the 56/57

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1 project could be incorporated in the --  
2 A. That's correct. Sorry. That's correct.  
3 Q. And your position in 1997 was that information from  
4 the SMU 56/57 project was not necessary because  
5 dredging has been studied extensively and doesn't  
6 need further proof, is that right?  
7 A. Correct.  
8 Q. And indeed, The river's been studied for years, how  
9 much information do you need?  
10 A. Correct.  
11 MR. MANDELBAUM: Okay.  
12 THE WITNESS: Can I add to that?  
13 MR. MANDELBAUM: If you'd like.  
14 THE WITNESS: That's only part of the  
15 thought process that we, myself and others were  
16 going through at the time related to having the  
17 companies do that evaluation.  
18 The other factors that came in to  
19 that decision, to not have them do it at this time  
20 was they were -- the companies at that time were  
21 promoting aggressively some alternatives that we  
22 thought were highly unlikely to be acceptable.  
23 BY MR. MANDELBAUM:  
24 Q. Such as?  
25 A. Monitoring natural recovery.

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1 Q. Okay.  
2 A. Based on what we knew then, which was limited, it  
3 seemed like that was unlikely in our view to be the  
4 ultimate -- ultimately to be a protective  
5 alternative. It hadn't been decided yet, but at  
6 that point we felt it was unlikely.  
7 The Fox River Group, who we were  
8 discussing this with I guess it was or the  
9 companies on the Fox River anyway, were arguing  
10 this point very aggressively that they felt  
11 monitoring natural recovery would be the  
12 alternative to go with.  
13 We were certainly willing to  
14 consider that, but in terms of doing an RI/FS, our  
15 view was that it would take us -- take more  
16 resources to have them do it because of those kinds  
17 of disagreements than if we just went ahead and did  
18 it ourselves.  
19 The resources both in cost and time  
20 would take more by having them do it because of  
21 those disagreements as well as some points on  
22 information that was necessarily available --  
23 needed to be available at the time.  
24 And in terms of SMU 56/57, what we  
25 also said at the time or shortly thereafter was

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1 that while we don't necessarily agree that we need  
2 to have it, we would certainly try to incorporate  
3 it as we proceeded with the investigations, which  
4 we did.  
5 So as time went on while we went  
6 ahead and completed the investigation, then we in  
7 fact did incorporate some of that information with  
8 the Fox River Group, if that's the right name for  
9 the group of companies at the time, that's what  
10 they considered important to do and others  
11 considered important to do.  
12 So ultimately we did it even though  
13 we felt it's more than we really need to do, but  
14 we're willing to do it in order to accommodate  
15 these other companies' interests and desires and  
16 opinions.  
17 So in fact we ended up kind of -- we  
18 ended up accepting that concept even though we felt  
19 it really wasn't necessary.  
20 MR. STONE: Should we take our lunch  
21 break?  
22 MR. MANDELBAUM: Sure.  
23 (Lunch Recess.)  
24 BY MR. MANDELBAUM:  
25 Q. Mr. Hahnenberg, we were talking before lunch about

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1 your statements in 1997 about dredging being  
2 extensively studied and whether the results of the  
3 SMU 56/57 project were necessary to include in the  
4 RI/FS. You're with me on this, right?  
5 A. Yes, I understand.  
6 Q. There are two features of dredging on which I want  
7 to focus. One is what the residual conditions are  
8 after dredging, and the other is how much does it  
9 cost? Okay. Are you with me on that?  
10 A. Yes.  
11 Q. Was it your view in 1997 that dredging had been  
12 studied sufficiently that one could predict with  
13 confidence what conditions would be left after a  
14 dredging project?  
15 A. Yes.  
16 Q. And was it your view in 1997 that one would  
17 confidently predict price or cost? Excuse me.  
18 A. Yes, based on the other dredging projects.  
19 Q. And the other dredging projects that you had in  
20 1997 included Manistique Harbor?  
21 A. As one among quite a number.  
22 Q. And the demonstration project at Deposit N?  
23 A. Correct.  
24 Q. But that had not been completed in 1997, correct?  
25 A. Oh, no. Actually '97, no, it wouldn't have

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1 included Deposit N because it hadn't been started  
2 yet.  
3 Q. And it didn't include SMU 56/57 because that hadn't  
4 been started yet either?  
5 A. Correct. Correct.  
6 (Exhibit 4219H was marked for  
7 identification.)  
8 BY MR. MANDELBAUM:  
9 Q. I'm showing you a document marked 4219H which has  
10 Bates No. NOAA002308, and I believe though it's not  
11 shown on this -- oh, it's on the back.  
12 You'll see the transmission e-mail  
13 is on the back and at Bates No. NOAA002311, and it  
14 shows that the date is June 4, 1998. Do you see  
15 that?  
16 A. Yes. I think so. This -- you're talking about the  
17 e-mail at the end after the letter?  
18 Q. Yes, the e-mail tells -- says -- this is a printout  
19 of an e-mail, and the e-mail is from you that says,  
20 I faxed this letter today.  
21 A. Okay.  
22 Q. Are you with me?  
23 A. Yes.  
24 Q. Did you in fact fax that letter on or about  
25 June 4th?

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1 A. Probably. I mean I don't remember specifically  
2 from that long ago, but it looks like something  
3 that I probably would have written.  
4 Q. What occasioned you to write that letter?  
5 A. Let me read the letter. I don't remember  
6 specifically, however, the last paragraph tells me,  
7 I think, why I would have written the letter which  
8 is this is in response to some conclusions from a  
9 report they probably submitted to me having to do  
10 with sediment sampling at the Manistique Harbor.  
11 Q. And your conclusion here was that as of the middle  
12 of 1998, analysis of results from Manistique Harbor  
13 was premature, correct?  
14 A. Correct.  
15 Q. And so Manistique Harbor's experience was not  
16 relevant to your consideration in 1997 of the  
17 sufficiency of the study of dredging, right?  
18 A. Correct.  
19 (Exhibit 4219I was marked for  
20 identification.)  
21 BY MR. MANDELBAUM:  
22 Q. I'm showing you a document which is marked Exhibit  
23 4219I which has Bates No. NCR-FOX-0253660 which is  
24 a printout of an e-mail trail where the e-mails are  
25 dated February 19 and February 23, 1999. Have you

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1 seen this document before?  
2 A. I don't remember it.  
3 Q. You're copied on it. Do you see that?  
4 A. Yeah. I mean it's 1999, so I don't remember it.  
5 Q. And you didn't look at this in preparing for today?  
6 A. No.  
7 Q. The top e-mail is from Mr. Allen again. Do you see  
8 that?  
9 A. Yes.  
10 Q. We have a lot of Mr. Allen's e-mails because he put  
11 them in the -- in the Fox River database -- excuse  
12 me, in Green Bay?  
13 A. Okay.  
14 Q. If you look at that long paragraph, the third one.  
15 A. Yes.  
16 Q. And he's commenting on a story about Deposit N. Is  
17 that an article in the Fox River Current?  
18 A. I don't remember.  
19 Q. Okay. And he criticizes the story for being a  
20 predetermined finding by DNR that the Deposit N  
21 project is a complete success. I keep wondering  
22 how much would have had to go wrong before WDNR  
23 became even neutral in its descriptions of the  
24 project. Do you see that?  
25 A. I don't see that specific statement.

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1 Q. It's the beginning of the paragraph that begins,  
2 Second.  
3 A. Okay.  
4 Q. Although the story on deposit --  
5 A. Oh, yes, I see it.  
6 Q. Okay. Had DNR predetermined that the Deposit N  
7 project was a success?  
8 A. Predetermined, I wouldn't say so, no.  
9 Q. Was Deposit N more expensive on a per unit basis  
10 than you anticipated that the cleanup of the Fox  
11 River would be when you implemented a full scale  
12 remedy?  
13 A. Yes.  
14 Q. Was the Manistique Harbor project more expensive --  
15 A. Yes --  
16 Q. -- than --  
17 A. Yes.  
18 Q. Did the Deposit N dredging as of -- or the Deposit  
19 N project as of the beginning of 1999, had it left  
20 behind residual concentrations higher than -- than  
21 one PPM?  
22 A. Yes.  
23 Q. Some areas had it left the high residual  
24 concentrations higher than the original  
25 pre-dredging surface sediment concentration?

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1 A. Comparable, similar.  
2 Q. And was the same true in Manistique in some places?  
3 A. In some places, yes.  
4 Q. And your observation was that in your letter, which  
5 is 4219H, that in those areas the project was not  
6 complete?  
7 A. The project was not complete, correct, in general.  
8 Q. Was the project subsequently completed?  
9 A. Yes.  
10 Q. Did it -- were the unit costs at completion  
11 comparable -- the same as the costs assumed in the  
12 Fox River RI/FS?  
13 A. I don't know the exact cost, but I'm sure they were  
14 not.  
15 Q. You think they were higher or lower?  
16 A. Higher.  
17 Q. Were the residual sediment concentrations at  
18 Manistique after dredging higher or lower than one  
19 PPM?  
20 A. Higher.  
21 Q. Were they higher or lower than the original surface  
22 sediment concentrations?  
23 A. I'm not sure. I wasn't involved in the project  
24 when it was completed.  
25 (Exhibit 4219J was marked for

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1 identification.)  
2 BY MR. MANDELBAUM:  
3 Q. I'm going to show you a document that I believe has  
4 been marked Exhibit 4219J which is one sheet of  
5 paper with Bates No. NCR-FOX-448866.  
6 A. Okay.  
7 Q. This appears to be a copy of a Green Bay  
8 News-Chronicle article dated December 10, 1997  
9 which is titled Dredging May Be Answer to River  
10 Cleanup. Do you see that?  
11 A. Yes.  
12 Q. Do you see that you are -- there's a statement --  
13 several statements attributed to you in the last  
14 two paragraphs of the article?  
15 A. Okay.  
16 Q. Do you see that?  
17 A. Yes, I do.  
18 Q. You said -- you're reported to have said that while  
19 dredging is just one of several options, although  
20 it is probably the leading one right now for the  
21 Fox River. Do you recall saying words to that  
22 effect?  
23 A. Yes.  
24 Q. So in December of 1997 you believed that dredging  
25 was the leading remedial option for the Fox River?

as

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1 A. Correct.  
2 Q. And you said -- you're also reported to have said  
3 that dredging is probably the cheapest alternative?  
4 A. Correct.  
5 Q. Did you believe that to be true at the time?  
6 A. Yes.  
7 Q. Do you have a recollection of what you believed the  
8 cost of dredging would be on a unit basis?  
9 A. I don't remember exactly, but I can tell you why  
10 these other projects would have been expected to be  
11 higher in cost and the demonstration -- the Deposit  
12 N project was a demonstration project, not a  
13 remediation project, and the demonstration project  
14 you incur costs related to the demonstration,  
15 additional monitoring.  
16 Also the Deposit N project was a  
17 much smaller project, so you lose economy of scale  
18 to a large extent. Also because it was a  
19 demonstration project, they did some things that we  
20 have found on other projects and subsequently to be  
21 overkill. For instance, they had a double-wall  
22 pipe for conveying the dredged soil material. You  
23 don't need that. A single-wall pipe is just fine.  
24 Also they used silt curtains. You  
25 don't need that. With the right kind of dredge and

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1 good operator, you don't really need to use silt  
2 curtains -- plus, being a smaller project, the  
3 demobilization and mobilization costs become a much  
4 bigger factor in terms of the overall cost,  
5 therefore, the unit costs go way up. That's the  
6 economy of scale you lose in that kind of a  
7 project.  
8 Same way in terms of economy of  
9 scale. The other equipment to use, you pay a  
10 higher unit cost just to use it and rent it or  
11 whatever than you would on a bigger project. You  
12 get a much better cost rate for these things. All  
13 those add up to costing quite a bit more.  
14 Now, Manistique was a time critical  
15 removal. Generally time critical -- actually  
16 non-time critical removal, but removal actions tend  
17 to be more expensive because they're a short, quick  
18 action, and therefore, you spend more money doing  
19 it.  
20 And similarly there you also lost  
21 economy of scale. Also the Manistique project was  
22 one of the very early dredging projects, so people  
23 were still trying to figure things out back in like  
24 '94.  
25 So the efficiency of the processing

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1 and the processes used and the kind of equipment  
2 used was not what could later be realized.  
3 In terms of dredging being the  
4 cheapest alternative on the Fox, the feasibility  
5 study cost-out capping is costing more than  
6 dredging, so we had that as well.  
7 Q. You had not conducted the feasibility study at the  
8 time of this article, had you?  
9 A. True, but it was underway. I mean, we were  
10 beginning to do it and -- but you're right, it  
11 hadn't been done yet.  
12 Still, dredging was cost-effective.  
13 And also I did look at other projects -- which may  
14 not be in the administrative record, I don't  
15 know -- but these other projects did indicate you  
16 could get better results in terms of residuals, and  
17 you could do it at a lower cost. I'm not sure how  
18 it compares with the costs that we use. I can't  
19 tell you that. At this point, I just don't  
20 remember all those details from that long ago.  
21 But also I should make a point about  
22 Deposit N that they did in fact achieve their  
23 goals. They were very clear at the outset that  
24 their goals were not necessarily remediation.  
25 And you talked about DNR was a big

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1 proponent of mass removal. That's what they were  
2 thinking about at Deposit N, and they had it --  
3 actually also they had in mind it did not  
4 necessarily have a risk reduction there because  
5 they wanted -- it was a demonstration project, so  
6 they wanted to test things.  
7 They wanted to test processes. They  
8 wanted to test equipment. They wanted to find out  
9 if they could do dredging and not disturb the  
10 neighbors, that they could do dredging and not have  
11 problems with their nearby water intake.  
12 Also they wanted to kind of -- I  
13 think the State had it in mind for them to learn  
14 how to do this kind of a project both in terms of  
15 getting permits, in terms of managing the project  
16 and in terms of testing the equipment.  
17 So for all those reasons, it  
18 wouldn't necessarily be considered -- I wouldn't  
19 expect it to be a low cost kind of a project on a  
20 per cubic yard basis. That wasn't the purpose of  
21 the project.  
22 Q. A low cost or a high cost -- you expect it to be a  
23 low cost or a high cost?  
24 A. We did not expect -- I'm thinking DNR did not  
25 necessarily expect it to be a low cost project, and

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1 therefore, the higher costs were considered  
2 acceptable because they had different objectives in  
3 mind. They wanted this test equipment, test  
4 processes, and then they overdesigned things  
5 because they were still learning.  
6 But compared to other projects, even  
7 then it probably cost more simply because they felt  
8 it was necessary to do a demonstration project. So  
9 that was the purposes of that.  
10 Q. Okay. So I want to just make sure I heard you  
11 correctly. Did you say that there were projects  
12 you considered for their cost and effectiveness or  
13 residual effectiveness experience other than  
14 projects that are described in the administrative  
15 record?  
16 A. I don't know for sure, but I'm guessing that I did  
17 various PowerPoints about those, and some of those  
18 PowerPoints are probably in the administrative  
19 record. I don't know for sure. We'd have to  
20 check.  
21 But in any case, my experience told  
22 me that dredging could be done effectively and  
23 could be done in a cost-effective manner based on  
24 results from other projects. Not -- these projects  
25 were not examples that would support those

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1 conclusions, but other projects would.  
2 Q. When you developed the proposed plan, at that time  
3 the unit cost for dredging that you and DNR assumed  
4 would apply to this project was in fact lower than  
5 almost all of the other environmental dredging  
6 projects on which you had cost information, isn't  
7 that right?  
8 A. Probably true.  
9 Q. And the residual sediment PCB concentration was  
10 assumed to be lower than almost all of your other  
11 experience?  
12 A. That may be -- "almost all" is the key point there.  
13 Q. You had one project in Sweden which you pointed to?  
14 A. Correct.  
15 Q. Other than that, all dredging -- environmental  
16 dredging projects in the United States had left  
17 residual PCB concentrations higher than what was  
18 assumed in the proposed plan, right?  
19 A. That may be. However, what you have to look at are  
20 the conditions on that particular site. And the  
21 thing is what the Fox River has going for it in  
22 terms of those kinds of considerations is it  
23 doesn't have a lot of debris because it's not a  
24 very industrial river, so you don't have a lot of  
25 debris.

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like Manistique, for instance, had a  
2 lot of rock debris which was from blasting out the  
3 channel for navigational purposes by the Corps many  
4 years ago. And because of that, they had a lot of  
5 rock debris. Also because of the particular site  
6 they had a lot of slab wood debris left over from  
7 the logging era. So they had some unique and  
8 negative characteristics to the site that made it  
9 more difficult and more expensive.  
10 Conversely, the Fox River didn't  
11 have those kinds of conditions. Therefore, I think  
12 you could reasonably anticipate better results in  
13 terms of residuals and lower costs.  
14 Q. So you -- in looking at the range of outcomes for  
15 dredging, you applied your judgment to the  
16 collective experience of environmental dredging in  
17 the United States and elsewhere and --  
18 A. Well --  
19 Q. Let me finish my question.  
20 A. Sorry.  
21 Q. -- and you concluded that the results of dredging  
22 on the Fox River at full scale would be outside the  
23 range of all prior experience on unit cost and  
24 would be pretty much outside the range on residual  
25 concentration, right?

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1 A. True.  
2 Q. That is -- withdrawn. Did you apply similar  
3 favorable assumptions or conclusions to your  
4 evaluation of alternative technologies like capping  
5 or covering?  
6 A. That was not my evaluation. It was a contractor by  
7 DNR.  
8 Q. So DNR did it?  
9 A. Correct.  
10 Q. Did you review it?  
11 A. Yes.  
12 Q. Did EPA review those estimates for cost?  
13 A. Yes.  
14 Q. Is it fair to say that the cost estimates at the  
15 time of the proposed plan were not conservative,  
16 meaning they were lower than -- it was likely -- it  
17 was more likely that they would be exceeded than  
18 not at the time -- withdrawn.  
19 Is it fair to say that the cost  
20 estimates were more likely than not to be -- for  
21 dredging were more likely than not to be exceeded  
22 when the proposed plan was issued?  
23 A. Possibly.  
24 Q. Had EPA formed a conclusion one way or the other?  
25 A. No.

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1 Q. Was the likelihood that the cost estimate for  
2 dredging would be exceeded higher or lower than the  
3 likelihood that the cost estimate for capping would  
4 be exceeded?  
5 A. I'd say they were comparable given the knowledge at  
6 the time.  
7 Q. So your view is that the cost estimation for  
8 capping was similarly unconservative?  
9 A. Yes.  
10 Q. Was the estimation of or the prediction of the  
11 effectiveness of capping similarly conservative to  
12 the estimation of the residual concentrations -- or  
13 unconcerned with, excuse me, to the estimation of  
14 the residual concentrations from dredging?  
15 A. Could you rephrase the question, please?  
16 Q. You predicted that dredging would leave residual  
17 concentrations by and large lower than all prior  
18 experience, right --  
19 A. Not all prior experience, no.  
20 Q. -- other than Lake Jamson in Sweden --  
21 A. But it was comparable to some other projects in  
22 this country as well.  
23 Q. It was at the most successful end of the range?  
24 A. Correct.  
25 Q. Did you conclude that capping would be at the most

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1 successful end of the range?  
2 A. In terms of residual concentrations, yes.  
3 Q. In terms of ability of the cap to isolate material?  
4 A. Probably not simply because capping did not have  
5 the kind of experience that had been done on other  
6 alternatives.  
7 Q. Now, ultimately a remedy was selected for the site.  
8 The remedy for OU3 through 5 had a cost; yes?  
9 A. Um-hum, yes.  
10 Q. The unit cost estimate in that selection was higher  
11 than the unit cost estimate in the proposed plan,  
12 correct?  
13 A. I don't remember.  
14 Q. It almost doesn't matter whether it's higher or  
15 lower. It just matters what it was.  
16 (Exhibit 4219K was marked for  
17 identification.)  
18 BY MR. MANDELBAUM:  
19 Q. Mr. Hahnenberg, I'm giving you a document which  
20 we've marked Exhibit 4219K --  
21 A. Okay.  
22 Q. -- which is a long document with double-sided  
23 printing with a Bates number of EPAAR001053.  
24 A. Okay.  
25 Q. It appears to be the record of decision for

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1 operable units 3, 4 and 5. Do you see that?  
2 A. Yes.  
3 Q. And is the -- now it's going to take me a few  
4 minutes to find this.  
5 MR. MANDELBAUM: Do you know where the  
6 cost number is, David?  
7 MR. RABBINO: In the ROD?  
8 MR. MANDELBAUM: Yeah. I apologize.  
9 Just give me a minute.  
10 MR. RABBINO: In the responsiveness  
11 summary you are beginning at --  
12 MR. MANDELBAUM: No, wait. Here's what I  
13 want.  
14 BY MR. MANDELBAUM:  
15 Q. Would you turn to page 152 to 154?  
16 A. Okay.  
17 Q. That's not what I wanted.  
18 MR. RABBINO: Try 130-something.  
19 MR. MANDELBAUM: 151, right?  
20 MR. RABBINO: You're looking at unit  
21 cost. He can break that down.  
22 (Discussion off the record.)  
23 BY MR. MANDELBAUM:  
24 Q. If you would turn to page 151 of 154, you'll see  
25 that the total net present value of the remedy was

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1 estimated to be 323 -- 323.6 million, is that  
2 correct?  
3 A. Yes.  
4 Q. Now, in fact the unit costs that made that up were  
5 still below the range for all other projects in the  
6 United States?  
7 A. I don't know for sure, but I can tell you why it  
8 would have been lower cost.  
9 Q. Same reason you gave before?  
10 A. No.  
11 Q. Okay. Why?  
12 A. The reason is because the dewatering method that  
13 was planned for that alternative was a large -- I  
14 don't recall what you call it -- a big basin --  
15 Q. Yes.  
16 A. -- a big dewatering lagoon, and that would be much  
17 lower cost than more conventional equipment like  
18 freight and ~~crane~~ presses, that kind of thing,  
19 which would be much lower costs involve a pipeline  
20 to that facility, and the passive dewatering  
21 concept would simply let the solid settle out over  
22 time.  
23 Q. And that was a change that was made between the  
24 proposed plan and the record of decision to  
25 substitute --

*same*

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1 A. Could be. I'm not sure. It is what is considered  
2 in the feasibility study I can tell you. I think  
3 it is the same one.  
4 Q. It is the same one?  
5 A. Yeah.  
6 Q. So it was 323 million at the time of the ROD?  
7 A. Right.  
8 Q. And the unit costs for dredging were low relative  
9 to all prior experience at that time?  
10 A. Correct. Because like I said, the dewatering  
11 method was lower cost.  
12 Q. Okay. And as it turns out, that was not the  
13 experience during implementation of the project,  
14 isn't that correct?  
15 A. That was never implemented. That passive  
16 dewatering lagoon was not implemented.  
17 Q. But the other costs, the costs of dredging turned  
18 out to be much higher on a unit basis than was used  
19 to estimate the cost in the 2003 ROD, isn't that  
20 correct?  
21 A. Yes.  
22 Q. And so there was a record of decision amendment in  
23 2007 which I see has already been marked as 4212I.  
24 A. Okay.  
25 Q. And the estimated costs here for the original

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1 remedy were substantially higher.  
2 A. Page 26 might be what you're looking for.  
3 MR. STONE: 45.  
4 THE WITNESS: He's looking for this.  
5 Page 45 also.  
6 BY MR. MANDELBAUM:  
7 Q. Well, yes, but -- which is hard to read. But I  
8 think if you look at page 26, as you pointed out  
9 originally, the cost estimate for the 2003 ROD  
10 remedy had increased to 579,304,000, right?  
11 A. Correct.  
12 Q. There was a change in the nature of the remedy so  
13 that the cost was reduced to 390.3 million, right?  
14 A. Correct.  
15 Q. Correct?  
16 A. Yep.  
17 Q. And that's because site conditions were not as  
18 favorable as expected, correct?  
19 A. Why the costs for the 2003 remedy were more?  
20 Q. Was higher?  
21 A. Well, there are a variety of reasons. First of  
22 all, this was done in 2007. The original ROD was  
23 done in 2003, and in the world of sediments at that  
24 time, a lot had been -- a lot of knowledge had been  
25 gained in terms of results from dredging projects,

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1 the cost of dredging projects, and also this was a  
2 much more detailed analysis, so it probably gave  
3 you a better handle on what it would actually cost.  
4 Q. So it turned out though that the favorable  
5 assumptions that were used in 2003 didn't  
6 materialize, right?  
7 A. Some of the favorable assumptions appear not to be  
8 true. You can't say that for a fact because it  
9 actually hadn't been implemented.  
10 Q. Since that time it has been implemented; yes?  
11 A. Correct.  
12 Q. And since that time the \$579 million or the  
13 \$390 million estimate for the amended ROD turns out  
14 to be -- to have been too low, correct?  
15 A. Correct.  
16 Q. And that's why there was an ESD in 2010, right?  
17 A. Correct.  
18 Q. So there were a series of assumptions made in 2003  
19 about what dredging would cost which were on the  
20 optimistic end or beyond the end of the range of  
21 experience of all dredging projects in the United  
22 States previously, right?  
23 A. I don't -- I'm not sure.  
24 Q. But there were optimistic estimates of dredging,  
25 right?

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1 A. Yes.  
2 Q. And they didn't pan out, right?  
3 A. Correct.  
4 Q. And there were -- there was a new estimate in 2007,  
5 right?  
6 A. Correct.  
7 Q. And it didn't pan out?  
8 A. Correct.  
9 Q. Now, if you're comparing alternatives, does a lower  
10 estimate of cost make that alternative appear more  
11 favorable or less favorable?  
12 A. If everything else is equal, of course the lower  
13 cost would be more favorable.  
14 Q. Was the optimism and cost estimation in 2003 for  
15 dredging carried over to the same extent to capping  
16 or covering?  
17 A. I would say they were given equal and fair  
18 consideration.  
19 Q. And they were -- had capping occurred, you would  
20 have anticipated -- you sitting here today would  
21 anticipate a similar cost escalation for a capping  
22 remedy?  
23 A. Well, knowing what I know today, I would probably  
24 view it different because our knowledge today is  
25 much more than we knew in 2003.

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1 Q. Let's look at some of the components of the cost.  
 2 When you dredge, is there a thing called  
 3 over-dredging?  
 4 A. Yes.  
 5 Q. What is that?  
 6 A. It's the consideration that you have to go in -- if  
 7 you have what we call a neatline, which is that  
 8 line -- if you draw an imaginary line in the  
 9 sediment, it's one part per million. In  
 10 vertical -- the vertical profile is that line.  
 11 The over-dredge is some additional  
 12 sediment below that. You have to go out and dredge  
 13 a little deeper than, strictly speaking, you'd need  
 14 to do in order to move down to the one PPM line,  
 15 which is an E line, the action level.  
 16 You go a little bit beyond that to  
 17 make sure you get everything above your action  
 18 level which is at the neatline and above.  
 19 Typically you have to go four inches or maybe six  
 20 inches below that, so you end up having to dredge  
 21 additional material that if you didn't have to do  
 22 over-dredging, you wouldn't have to because it's  
 23 not really above the action level, but you do that  
 24 in order to make sure you do everything above the  
 25 action level.

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1 Q. And is there a different cost for dredging that six  
 2 inches or whatever it is below -- are you saying  
 3 neatline?  
 4 A. Neatline, yes.  
 5 Q. Is that -- does that sediment cost anything  
 6 different to dredge and dispose anything else?  
 7 A. No, it's the same.  
 8 Q. It's the same.  
 9 A. The same as other non-TSCA sediments.  
 10 Q. Does the estimate of cost included in the -- that  
 11 supported the 2003 ROD, does that include any  
 12 estimate of the costs of over-dredging?  
 13 A. No.  
 14 Q. Is it conventional in doing a construction project  
 15 to include a contingency -- a cost contingency?  
 16 A. Yes.  
 17 Q. And was there a cost contingency included in the  
 18 estimate of dredging for the 2000 -- that supported  
 19 the 2003 ROD?  
 20 A. No, there was not.  
 21 Q. At whose request was the cost contingency removed?  
 22 A. That was WDNR's decision. I'll be honest with you,  
 23 I argued against it. I argued they should include  
 24 it, however, the reason ultimately we, EPA,  
 25 concluded that it was acceptable not to include it

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1 is because it was not included for any of the  
 2 alternatives, therefore, you still had a fair  
 3 comparison between the alternatives, and that's  
 4 most important in terms of your cost estimates is  
 5 we didn't include it for capping, we didn't include  
 6 it for dredging, we didn't include it for  
 7 monitoring natural recovery. They were all -- if  
 8 they were skewed lower, they were all skewed  
 9 equally, so the relative comparison didn't change.  
 10 Q. The cost for monitoring natural recovery was much  
 11 lower than any other alternatives?  
 12 A. Yes. As is typical, yes.  
 13 Q. And therefore, if you used a percentage  
 14 contingency, the absolute amount of the contingency  
 15 would be much lower from that --  
 16 A. That's correct.  
 17 Q. -- for monitoring natural recovery?  
 18 A. Yes. Sorry.  
 19 Q. There is no comparable omission from the capping  
 20 estimate to not estimating the cost of  
 21 over-dredging, correct?  
 22 A. Correct. Well, I take that back. One of the  
 23 reasons there was a cost increase from the ROD  
 24 amendment to the ESD which you'd -- had an increase  
 25 and had an increase for capping because the capping

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1 didn't consider -- in the ESD for that part of the  
 2 project -- did not consider what we call  
 3 over-placement which in order to make sure we get a  
 4 certain thickness of cap down, we place additional  
 5 thickness down.  
 6 So if, for instance, you want six  
 7 inches, you might place nine inches to make sure  
 8 you get your six inches because the capping  
 9 placement isn't perfect either.  
 10 You don't -- it's not that easy to  
 11 place exactly six inches of sand or nine inches of  
 12 sand. So in order to make sure you do get the six  
 13 inches or whatever the amount is, you have to put a  
 14 little additional over-placement.  
 15 So there is kind of a comparable  
 16 consideration, and that was lacking in the ROD  
 17 amendment. And therefore, in the ESD, that was one  
 18 of the reasons for the cost increase going from the  
 19 ROD amendment to the ESD.  
 20 Q. But it was not -- that omission was not part of the  
 21 consideration on the 2003 ROD, was it?  
 22 A. No.  
 23 Q. And you previously testified -- I just want to make  
 24 sure that we get this -- that at the time that you  
 25 reconsidered the substantially greater costs

9  
Newt ✓

✓

TSCA

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1 observed in the ROD amendment and in the ESD, EPA  
2 did no reconsideration of alternatives other than  
3 the -- what's called the optimal remedy, correct?  
4 A. We compared that to the remedy that was ongoing,  
5 the dredging remedy.  
6 Q. And you did not compare -- you did no comparison to  
7 no action or monitoring natural recovery?  
8 A. No. Can I explain why we didn't?  
9 Q. If you'd like.  
10 A. Because in the earlier analysis, they did not meet  
11 the threshold criteria. Now there's protectiveness  
12 and achieving RODs. Because they did not meet  
13 those standards, they were dismissed earlier on in  
14 the process monitoring natural recovery and no  
15 action at least because they did not meet the  
16 protective -- did not meet the threshold criteria.  
17 So in that situation in terms of how  
18 the NCP says you're supposed to do our analysis or  
19 evaluation is you don't consider those further, and  
20 then you consider the alternatives that do meet the  
21 threshold criteria, and then you look at the  
22 balancing criteria, things like long-term  
23 effectiveness, short-term effectiveness,  
24 implementability, preferential treatment and then  
25 community acceptance and state acceptance.

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1 You look at those other balancing  
2 criteria after they first meet the threshold  
3 criteria, but no action. Monitoring natural  
4 recovery did not meet the threshold criteria, so  
5 that's why they were dismissed.  
6 Q. Now, in preparing the feasibility study -- in  
7 preparing the cost estimates in support of the 2003  
8 ROD, you say that those were prepared by the State  
9 of Wisconsin?  
10 A. Yes. Well, they're a contractor.  
11 Q. Thermo Retec?  
12 A. Correct.  
13 Q. And Thermo Retec did not agree with the cost  
14 estimates, did they?  
15 A. I thought they did because they came up with them.  
16 Q. They didn't agree with omitting the contingency,  
17 did they?  
18 A. Well, that was a discussion that we had with the  
19 State, and I don't remember what Thermo Retec's  
20 view on it was. They probably agreed with me, of  
21 course I was right, but we normally do include that  
22 contingency in there.  
23 But like I said before, it didn't  
24 really influence the relative comparison of the  
25 different alternatives because you'd add the

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1 contingency if you added it to all of them equally  
2 in terms of the percent, and it would affect all of  
3 them relatively equally.  
4 Q. The remedy's ongoing, correct?  
5 A. Yes.  
6 Q. You continue to have a role in that, do you not?  
7 A. Yes.  
8 Q. Is -- do you have an estimate of what it costs to  
9 implement each year's work?  
10 A. I don't necessarily track it that way these days.  
11 I have a rough idea maybe, but I don't really -- I  
12 can't tell you for sure what that amount is.  
13 Q. Is there any consideration in developing the remedy  
14 as to whether the resources are available to  
15 implement it?  
16 A. It's not one of the criteria.  
17 Q. So it does not matter whether it's affordable?  
18 A. Well, there is consideration given to  
19 cost-effectiveness, one remedy to the other. Also  
20 EPA does have policies on the legal side in terms  
21 of ability to pay, so that can be given  
22 consideration in a different -- not technically but  
23 in a more of a legal context, so there is that  
24 policy where we can make allowances. If a company  
25 simply can't afford to do a particular project,

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1 then we can make allowances for that, but that's a  
2 different process.  
3 Q. Was it politically necessary for any of the  
4 agencies in the intergovernmental partnership to  
5 have the remedy appear to be either particularly  
6 costly or particularly not costly?  
7 MR. STONE: Objection, calls for  
8 speculation about what political necessities there  
9 may have been.  
10 MR. MANDELBAUM: I didn't ask about  
11 necessity. I said --  
12 MR. STONE: Could you read the question  
13 back?  
14 MR. MANDELBAUM: I'll rephrase the  
15 question. Did you understand the question?  
16 THE WITNESS: I wasn't exactly sure.  
17 BY MR. MANDELBAUM:  
18 Q. Did anyone at any IGP meeting or in any  
19 conversation you had about developing the cost  
20 estimates for the remedy describe a desire to have  
21 the cost of the remedy appear to be either  
22 particularly high or particularly low?  
23 A. If they did, I don't recall it.  
24 Q. Okay.  
25 MR. MANDELBAUM: I think that's what I

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 182</p> <p>1 have for now. I'll pass the witness. 2 EXAMINATION 3 BY MR. RABBINO: 4 Q. We've only been going about 45 minutes. Do you 5 want to take a break or -- 6 A. No, that's fine. 7 Q. Mr. Hahnenberg, my name is David Rabinno. I'm with 8 the firm of Hunsucker &amp; Goodstein. We represent 9 the Menasha Corporation. 10 The first question I have is, have 11 you ever dealt with anybody from the Menasha 12 Corporation relating to the Fox River? 13 A. No. 14 Q. Were you ever at any meetings with anyone at the 15 Menasha Corporation -- 16 A. I don't -- 17 Q. -- relating to the Fox River? 18 A. I don't think so. 19 Q. Let me try and finish my questions before you jump 20 in. 21 A. Oh, I'm sorry. 22 Q. That's okay. 23 A. I'm trying to do better. 24 Q. It's mainly to make it easy on the reporter. So if 25 only one person is talking, it's easier --</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 184</p> <p>1 A. Yes. 2 Q. And was that data -- that had been data that had 3 been specifically collected in the Fox River in 4 Green Bay? 5 A. The part that was used was. There was a bigger 6 project, but it also looked to other tributaries, 7 but the part we used was for Green Bay and the Fox 8 River. 9 Q. Did you look at any other documents? So far you've 10 listed two, a portion of the RI dealing with 11 sampling as well as a report from the Great Lakes 12 modeling research. Did you look at anything else? 13 A. For sampling, that's all I looked at. 14 Q. Did you talk to anybody about sampling? 15 A. I talked to Russ Kreiss, but that was more about 16 the modeling than the sampling. I did talk to him 17 about the QAQC methods that were used, and he 18 indicated this had been my impression of his 19 dataset before, that it was high quality data, that 20 it went through very rigorous QAQC procedures to 21 make sure it was very high quality data. 22 Q. Now, which dataset are we talking about? 23 A. Talking about -- I think in the RI it's identified 24 as 1989 and 1990 data for the Great Lakes mass 25 balance modeling effort.</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 183</p> <p>1 MR. MANDELBAUM: I so wish we were 2 videotaping. 3 THE WITNESS: Sorry. 4 BY MR. RABBINO: 5 Q. You've been designated on, as we discussed earlier, 6 several topics under the Rule 30(b)(6) notice. I'm 7 going to talk to you about some that Mr. Mandelbaum 8 has already been talking about, but I want to go 9 through a couple of others. 10 Number one, you supposedly -- you've 11 been designated to testify on behalf of the United 12 States with regard to the efforts that were done 13 for sampling for PCBs in the Fox River in Green 14 Bay. 15 What did you do to prepare to 16 testify on that topic? 17 A. I reviewed the RI portion of, I think, section two 18 which talks about sampling that was done. I also 19 reviewed a report as part of early modeling work 20 which had to do with Lake Michigan tributaries 21 sampling done by the Large Lakes research people, 22 and that was used in the RI. That was a big 23 portion of the RI data that was utilized. 24 Q. Was the resource data from the Great Lakes Resource 25 Station?</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 185</p> <p>1 Q. Between the time that the ROD was issued in 2003 2 and the ROD amendment in 2007, had there been any 3 other sampling work that was done in the Fox River 4 in Green Bay? 5 A. Yes. In OUI there's pre-design sampling. There 6 was also some sampling at SMU 56/57, and I don't 7 believe there was any additional sampling in 8 Deposit N, but there could have been. I don't 9 know. None that I know of. 10 Q. Do you know whether there was any other sampling 11 that was done between -- again, you've mentioned 12 pre-design sampling in OU1, sampling in 56/57, 13 maybe some at Deposit N. 14 Was there any other sampling that 15 you're aware of that was done between the issuance 16 of the ROD in June of 2003 and the issuance of the 17 ROD amendment in June of 2007? 18 A. That's all I'm aware of. I'm sorry, can I back up 19 a little? Did you say between then and the ROD 20 amendment? 21 Q. Yes. 22 A. Let me add to that. There were some pre-design 23 sampling, quite a lot in OU3 and 4, so there was 24 pre-design sampling there as well, the time frame I 25 was thinking about when that went on.</p>

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1 Q. To be honest, I was going to give you a chance to  
2 correct that because I, frankly, would have been  
3 stunned if you hadn't. Okay.  
4 Did you talk to anybody about the  
5 sampling -- that sampling, the pre-design sampling  
6 that was done before the issuance of the ROD  
7 amendment in 2007?  
8 A. No.  
9 Q. Did you review any documents relating to that  
10 sampling?  
11 A. No.  
12 Q. You indicated you spoke to Russ Kreiss about the  
13 QAQC that had been done on the data that was used  
14 for the 2003 ROD.  
15 Did you do any similar type of  
16 analysis or research into the QAQC of the data that  
17 was done prior to the issuance of the 2007 ROD  
18 amendment?  
19 A. No. Can I explain why I didn't? And that's  
20 because I did have the more usual approach or more  
21 usual situation where a QAQC had been developed as  
22 part of that sampling effort.  
23 The Great Lakes mass balance  
24 modeling effort didn't go through the usual  
25 Superfund process in terms of the QAQC, Q-A-Q-C,

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1 procedures that would typically be done under what  
2 we'll call a QAQC process.  
3 We have a group of people that  
4 reviews these QAQCs, or DNR does, or approves them  
5 that hadn't been done for that dataset. So I  
6 wanted to get an understanding in terms of the  
7 quality of the data. That's why I checked on that  
8 specifically and not the other ones.  
9 Q. And your feeling was since the QAQC -- and it's  
10 Quality Assurance --  
11 A. Project Plan.  
12 Q. -- Project Plan?  
13 A. Sorry for the acronyms.  
14 Q. That's okay. Your feeling was since a QAQC had  
15 been prepared prior to the '07 ROD amendment, that  
16 there wasn't a need to do that?  
17 A. Correct.  
18 Q. You assumed you were going to rely on the data  
19 collected under that?  
20 A. Correct.  
21 Q. And was there any sampling that was conducted after  
22 the issuance of the 2007 ROD amendment prior to the  
23 issuance of the February 2010 explanation of  
24 significant differences or ESD?  
25 A. There was some additional data being gathered in

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1 OU3 and OU4. I don't remember the exact timing of  
2 things, but I do know that in addition to the  
3 original pre-design sampling for that portion of  
4 the river, there has been an ongoing effort which  
5 is still going on for doing what they call infill  
6 sampling which for dredge areas -- actually the  
7 oversight team for DNR came up with the idea that  
8 it could be cheaper to actually -- well, lower cost  
9 is a better word.  
10 It could be lower cost to go out and  
11 sample those areas in greater detail to try and  
12 reduce the footprint a little bit because that way  
13 you don't have to dredge areas that you might not  
14 need to, and you can sample them away basically.  
15 Around the edges of it you find out, okay, these  
16 areas are a little -- a little area here is below  
17 one part per million, so you don't need to do  
18 anything there.  
19 So it can end up being more  
20 cost-effective to do that infill sampling than just  
21 going out and dredging it based on pre-design  
22 sampling. And they did a statistical analysis, and  
23 they found out how much sampling they could do and  
24 still save money of not dredging it versus the  
25 sampling analysis costing. So there was some of

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1 that work going on, I believe, in that time frame.  
2 Q. This is between 2007 and 2010?  
3 A. Yes.  
4 Q. And do you know where in the Lower Fox River/Green  
5 Bay that sampling took place?  
6 A. All I know is it was in OU3 and OU4, and it would  
7 be only for areas that were targeted for dredging  
8 because the capping is lower cost, and it's by an  
9 area. In other words, it's the area that you cap  
10 rather than the volume that you dredge.  
11 The volume you dredge is  
12 important -- translates to costs, the volume you're  
13 dredging, whereas, the amount you're capping is by  
14 area, and it's less cost sensitive. Therefore,  
15 they focus their infill sampling on the dredge  
16 areas. That's where they save money doing it that  
17 way.  
18 Q. Who did this sampling? Who physically did it?  
19 A. I believe it was a contractor for Tetra Tech. I'm  
20 not sure exactly -- the contractor, who it was.  
21 Q. And did EPA have any role or involvement in the  
22 selection of the contractor who performed the  
23 sampling?  
24 A. No.  
25 Q. Did you have any role or responsibility in the

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1 review and approval of the QAQC?  
2 A. No.  
3 Q. That was all done by WDNR?  
4 A. Correct.  
5 Q. Earlier today we spoke about remedial action levels  
6 as being the basis on which model runs were  
7 performed.  
8 A. Correct.  
9 Q. Do you -- as you sit here, do you recall what the  
10 model runs were -- what remedial levels were  
11 selected?  
12 A. I -- yes. I remember the action levels that were  
13 evaluated, and the level that was selected was one  
14 part per million for PCBs.  
15 Q. What was the remedial action levels that were  
16 selected for evaluation?  
17 A. In parts per million, 0.125, 0.25, 0.5, 1 and 5.  
18 And those ultimately were -- the 0.25 ultimately  
19 became the targeted SWAC, which is discussed in the  
20 various decision documents.  
21 Q. And were -- those remedial action levels, were they  
22 initially selected for evaluation by WDNR and EPA?  
23 A. You mean the levels that we evaluated?  
24 Q. Yes.  
25 A. Yes. They were suggested -- that came out of the

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1 remedy review board process where the remedy review  
2 board suggested to the -- to DNR and EPA, Region 5,  
3 that they should look at multiple action levels to  
4 kind of give further consideration to other levels  
5 rather than just picking one.  
6 We needed to kind of look at a  
7 selection of those, a bunch of those, so that we  
8 could figure out -- well, we could do the  
9 determination as to which one of those would be  
10 cost-effective -- or most cost-effective relative  
11 to the other action levels and still protective  
12 enough.  
13 Q. So as initially submitted to the remedy review  
14 board, however, you didn't have multiple RALs that  
15 were being evaluated?  
16 A. No.  
17 Q. Why don't we quickly take a look at what was  
18 previously marked as Exhibit 4208G.  
19 A. Okay. It doesn't get a sticker?  
20 MR. MANDELBAUM: It's already marked.  
21 MR. RABBINO: It's already marked.  
22 THE WITNESS: Oh, okay.  
23 MR. RABBINO: I'm trying to keep it  
24 easier to not mark more exhibits.  
25

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1 BY MR. RABBINO: .  
2 Q. This is the recommendation from the remedy review  
3 board dated September 17, 1999. Do you recall  
4 seeing this document?  
5 A. Yes.  
6 Q. And I believe if you turn to the second page, it  
7 indicates a list of attendees in the meeting, and  
8 you're listed. Do you recall attending this  
9 meeting?  
10 A. Yes, I do.  
11 Q. It was back on July 29th of 1999?  
12 A. Sounds right, yes.  
13 Q. And a presentation was made --  
14 A. Correct.  
15 Q. -- concerning the remedy?  
16 A. Yep.  
17 Q. And were you one of the presenters?  
18 A. Yes.  
19 Q. And who else was one of the ones that presented  
20 with you?  
21 A. I might have been the only presenter. It might  
22 have included Bill Clark. I don't really remember.  
23 Q. If you look down on the second page in the bullets,  
24 it notes that, The proposed 250 PPB cleanup level  
25 for PCBs differs from levels the boards have seen

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1 at other PCB sediment sites. Do you see that?  
2 MR. STONE: Which bullet?  
3 MR. RABBINO: First one, second sentence.  
4 THE WITNESS: Well, I read something --  
5 oh. Oh, yes.  
6 BY MR. RABBINO:  
7 Q. It begins, However.  
8 A. Yes.  
9 Q. Do you know whether or not the 250 PPB was -- and  
10 that translates to .25 PPM, am I correct?  
11 A. Right, correct.  
12 Q. Do you know whether or not the number that had been  
13 proposed was higher or lower than what had  
14 previously been proposed at other PCB sediment  
15 sites?  
16 A. I don't remember specifically. My strong hunch is  
17 it would be less.  
18 Q. It would be less?  
19 A. Right.  
20 Q. And by presenting a lower remedial action level,  
21 would that also correspondingly mean you're talking  
22 about having to remediate in one shape or another  
23 more sediment that had been remediated --  
24 A. Yes.  
25 Q. -- at other sites?

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1 A. Yes.  
 2 Q. Let me finish the question.  
 3 A. I'm sorry.  
 4 Q. That's okay. Again, it's easiest on the reporter,  
 5 and then Randy won't have to keep putting his hand  
 6 over your mouth.  
 7 A. Sorry.  
 8 Q. If you read a little further down it notes that,  
 9 The board recommends that the region explain in the  
 10 proposed plan and ROD for the site, one, the risk  
 11 bases and management considerations supporting the  
 12 250 PPB cleanup level, and then, two, how the level  
 13 is -- this level is consistent with the broader  
 14 environmental cleanup objectives for Green Bay. Do  
 15 you see that?  
 16 A. Yes.  
 17 Q. What, if any, risk bases had otherwise been  
 18 proposed to the National Remedy Review Board?  
 19 A. Well, 250 PPB was the cleanup level that was  
 20 proposed.  
 21 Q. I understand that. My question's a little bit  
 22 different. They understood you were proposing a  
 23 250 PPB cleanup level. What they seem to be  
 24 implying is that the risk bases supporting that  
 25 number had not been presented to them.

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1 So my question to you is, what risk  
 2 bases, if any, had been presented by EPA and WDNR  
 3 before the National Remedy Review Board in 1999?  
 4 A. I don't really remember. But we probably -- I  
 5 think we did -- I don't know for positive, but I'm  
 6 pretty sure we would have covered the risk bases  
 7 for that.  
 8 Q. Okay. But as you sit here today, you don't recall  
 9 what the risk bases were?  
 10 A. Well, it would have been based on ecological risk  
 11 assessment and human health risk assessment. That  
 12 would have been -- and it was a draft at that  
 13 point, so it wasn't the final, but it was a draft.  
 14 I do remember that, that it was not the final. It  
 15 was a draft.  
 16 That's part of the reason why we had  
 17 the timing we had was because we hadn't finalized  
 18 it yet, the RI/FS that is, but we still had it  
 19 mostly completed so we had something tangible we  
 20 could present to them.  
 21 Q. I appreciate that it wasn't final. But again, as  
 22 you sit here, you don't recall what the risk bases  
 23 were?  
 24 A. Not exactly, but I'm nearly certain we would  
 25 have -- the more I think about it, we did talk

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1 about the risks -- risk bases for the action level.  
 2 Q. Let's go down to the third bullet point. And this  
 3 is the one that reads, The state/region relies  
 4 extensively on complex models both to characterize  
 5 the health and environmental threats at this site  
 6 and to evaluate the feasibility and effectiveness  
 7 of the remediation options. Do you see that?  
 8 A. Yes.  
 9 Q. So the board had two recommendations. One is to  
 10 get an explanation of how it -- I'm assuming the  
 11 state region shows the models and the key  
 12 assumptions that were made.  
 13 In 1999, did the package that was  
 14 presented to the NRRB not include how the models  
 15 were chosen or the assumptions that were used in  
 16 the model?  
 17 A. As I recall, we did not give them all the details  
 18 about the models, but it did exist. We simply -- I  
 19 mean it was already a thick enough package  
 20 basically, so we didn't give them everything, but  
 21 it did exist.  
 22 Q. Going down to the next bullet. If you read several  
 23 lines down -- probably about five, six lines down  
 24 it says, For the latter OUs -- OUs 3 and 4, I  
 25 believe -- the board recommends that the

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1 state/region also evaluate alternatives that use  
 2 less stringent target sediment levels, example 500  
 3 PPB or 1 PPM to guide dredging activity. Do you  
 4 see that?  
 5 A. Yes.  
 6 Q. And I believe you discussed that was something that  
 7 ultimately did get done?  
 8 A. Correct.  
 9 Q. I notice, however, that the recommendation is for 5  
 10 PPB or .5 and for 1, and I also -- then you  
 11 testified, I believe, earlier that .25 is what was  
 12 presented, .5 and 1 were ultimately also looked at  
 13 and then 5?  
 14 A. Correct.  
 15 Q. Is there a reason why there was a jump from 1 PPM  
 16 to 5 PPM as opposed to intermediate levels being  
 17 also evaluated?  
 18 A. Yes.  
 19 Q. Why was that?  
 20 A. We just wanted to have more of a range above and  
 21 beyond those numbers so we had a more complete  
 22 evaluation. That way we would be certain we've  
 23 covered the range we needed to cover.  
 24 We also gave some limited  
 25 consideration to 10 PPM but only for certain --

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1 limited consideration of that, but mostly it was  
2 0.25, .5, 1 and 5.  
3 Q. I notice as you go up the chain though, they sort  
4 of double, 1.25 to .25 to .5 to 1, and then  
5 suddenly it goes up five fold?  
6 A. Right.  
7 Q. Wouldn't you have done 2, 4 and ended up at 5?  
8 A. We had to limit how many we did because as I  
9 mentioned before with the models, it was a very  
10 resource-intensive process to run the models. For  
11 every action level we ran the model on was a big  
12 effort and a big cost in terms of computer time and  
13 just getting it done.  
14 So we had to put some limitations on  
15 how many we did just by the practical limitations  
16 of what it took to do the modeling.  
17 Q. Now, it's my understanding that the United States,  
18 I believe you testified, didn't do the modeling,  
19 WDNR did?  
20 A. Correct.  
21 Q. I believe Mr. Mandelbaum asked you some questions  
22 about the resource intensiveness or the resources  
23 that would be required, and you just again stated  
24 that it was very resource-intensive to run these  
25 model scenarios.

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1 A. Correct.  
2 Q. Do you have any idea how long it would take to run  
3 the model scenarios?  
4 A. I don't really remember exactly. I would say it  
5 was days or weeks. It might have been weeks.  
6 Q. So potentially it would have been weeks to run a  
7 model run?  
8 A. As I remember, but it's a long time ago, so I'm not  
9 sure I'm exactly correct in that, but that's my  
10 recollection.  
11 Q. And do you have any idea about how much it would  
12 cost?  
13 A. No, I don't.  
14 Q. Are we talking \$2,000, \$5,000?  
15 A. I don't know.  
16 Q. Who would know that?  
17 A. Someone at DNR probably would.  
18 Q. Would somebody -- would Mark Velleux know?  
19 A. He might. I don't know.  
20 Q. Do you know if Mark Velleux ran any of those model  
21 runs?  
22 A. Yes, he did.  
23 Q. There's a good likelihood he would know that?  
24 A. He might.  
25 Q. So just so I'm clear, it might have taken weeks to

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1 do a model run. Now, is that for all the different  
2 remedial action levels or just -- so you have one  
3 remedial action level -- for instance, if you're  
4 doing a remedial action level of 2, you need to run  
5 that for -- is it one run, or is it a couple of  
6 runs because you were doing it by operable units?  
7 A. It would be a total of 25 runs for all the operable  
8 units for all the action levels because there are  
9 five operable units, and then there were five  
10 action levels that would have been looked at.  
11 So 25 runs, you can imagine if it  
12 takes a week or two weeks for a run, it ends up  
13 being a lot of time and probably money, but I don't  
14 really know the money situation.  
15 Q. We were also talking about a remedy that the  
16 proposed implementation was going to be many, many  
17 years to implement, right?  
18 A. True.  
19 Q. And would you agree it's important to get it right?  
20 A. Yes.  
21 Q. And would you agree that it's important to fully  
22 evaluate remedies, especially remedies that are  
23 potentially going to be very expensive to make sure  
24 you get them right?  
25 A. Yes. Well, one thing I should mention too is

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1 besides doing, let's say, runs between 1 and 5, we  
2 could extrapolate in between them in terms of what  
3 some of those outputs might be because you could,  
4 from the results from a variety of these action  
5 levels, begin to get a picture in terms of what the  
6 intermediate levels might be based on the modeling  
7 results.  
8 Q. Do you know whether any of that extrapolation had  
9 been done?  
10 A. I don't know.  
11 Q. But it could have been done?  
12 A. Perhaps. The results seemed to us to be a clear  
13 indication that one part per million made sense  
14 though. In our view we had enough information to  
15 make that determination.  
16 Q. I can appreciate your saying that since that's  
17 where you ended. My question is whether you should  
18 have gone further, and that's the question.  
19 You've indicated that it could have  
20 been done. It just might have taken time, or it  
21 could have been potentially extrapolated based on  
22 information you already had, and I don't know how  
23 long that would have taken, but probably less time.  
24 A. Correct.  
25 Q. And you just told me that no extrapolation was done

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1 either?  
2 A. Correct. And the accuracy of that extrapolation,  
3 someone like Mark Velleux could answer that better  
4 than myself.  
5 Q. And Mark Velleux would be a better person to talk  
6 about that?  
7 A. Yes.  
8 Q. Okay. I'm handing you what's previously been  
9 marked as Exhibit 4208H. Have you -- does this  
10 document look familiar to you, sir? It's an e-mail  
11 of which you are purported to be the author, and it  
12 attaches a letter that --  
13 A. It looks like my kind of a letter, but I don't  
14 really remember it specifically from 12 years ago.  
15 Q. Let me ask this. Any reason to believe that it's  
16 not your letter?  
17 A. No.  
18 Q. So this was a letter to Mr. Lynch, and if you turn  
19 to the second page, which is the body of the letter  
20 itself. I'm not interested in the e-mail cover  
21 page.  
22 In the third full paragraph, this  
23 paragraph discusses the need to include additional  
24 analysis which comes off of the meeting and the  
25 recommendations of the National Remedy Review

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1 Board.  
2 The next paragraph begins, Of  
3 course, the Lower Fox River and Green Bay models  
4 need to be accessible for use by USACE for their  
5 conducting these additional evaluations.  
6 Which models are they discussing in  
7 this letter or are you discussing?  
8 A. Well, I must be discussing the fate and transport  
9 models and the bioaccumulation models.  
10 Q. So that would be the whole Lower Fox River model?  
11 A. That and the GB -- enhanced Green Bay Toxics model  
12 and the GB Food model and the FR Food model. Four  
13 different models.  
14 Q. To your knowledge at this time when you sent the  
15 e-mail on January 28th of 2000, had those models  
16 been completed?  
17 A. I don't remember for sure.  
18 Q. Do you know if the models had been fully  
19 calibrated?  
20 A. I don't remember in terms of the timing.  
21 Ultimately they were. Exactly when that happened,  
22 I don't remember.  
23 Q. You've been designated as the person to testify on  
24 behalf of the United States with regard to the  
25 development of the whole Lower Fox River model as

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1 well as the other models you just mentioned as well  
2 as the decision to use them in the remedy selection  
3 process. So I'm just trying to be clear.  
4 What did you review to familiarize  
5 yourself with the development of these models  
6 before coming here today?  
7 A. I looked at the model documentation report, the  
8 main report. I looked at Tech Memo 2G, and I  
9 talked with Russ Kreiss who had been involved, as I  
10 mentioned earlier, on the earlier development of  
11 the model. So that's what I did for my  
12 preparation.  
13 Q. Mr. Kreiss, you say he was involved in the earlier  
14 preparation of the model. When did his involvement  
15 in that stop?  
16 A. I don't know exactly.  
17 Q. And do you know whether or not Mr. Kreiss actually  
18 had any sort of salient or relevant information  
19 based on the work that had been done earlier as  
20 compared to the ultimate version of the model that  
21 was used at the Fox River?  
22 A. He indicated he had like 20 file feet of  
23 documentation which he had given to EPA and DOJ.  
24 Q. And when had he given those files to EPA and DOJ?  
25 A. I don't know exactly. I wasn't involved with that.

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1 Q. And did you review the entire final model  
2 documentation report or portions?  
3 A. I read through it.  
4 Q. So do you -- do you have an understanding of how  
5 these various models work together?  
6 A. Generally.  
7 Q. You have a general understanding?  
8 A. Yes.  
9 Q. So is it generally correct, for instance, that  
10 outputs from the whole Lower Fox River model are  
11 used as inputs to the FR Food model?  
12 A. Correct, yes.  
13 Q. And that outputs from the enhanced GBTOX model are  
14 used as inputs to the GB Food model, is that  
15 correct?  
16 A. Correct. Also I should mention the GB Food model  
17 has a bit of an overlap with the FR Food model.  
18 Q. I was just about to get to that.  
19 A. The FR Food model covers OU1 to OU5 -- excuse me,  
20 OU4 up to the mouth of Green Bay. The GB Food  
21 model covers OU4 in Green Bay. So for OU4 there's  
22 an overlap.  
23 Q. Correct. You anticipated my question, so I don't  
24 have to ask you that.  
25 This letter discusses that you

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1 wanted to have the U.S. Army Corps of Engineers  
2 conduct an analysis on behalf of EPA relating to  
3 these supplemental RALs that were being  
4 investigated. Did that ever take place?  
5 A. I don't remember.  
6 Q. And that would have been -- had they done that,  
7 that would have been part and parcel of the  
8 development of the remedial action, correct?  
9 A. Correct.  
10 Q. And that would have had an impact on the cost  
11 estimate for the remedy that was selected at the  
12 site?  
13 A. Possibly.  
14 Q. Well, am I right that the results of the model  
15 which ultimately were used to determine what the  
16 remedial action level is have an impact on what the  
17 remedy's going to cost?  
18 A. Well, it's one factor in our selection of the RAL.  
19 So if it influenced or changed the RAL, then yes,  
20 it would.  
21 Q. Right. So if you being picked an RAL of 5, that's  
22 going to be less expensive to do than an RAL of 1?  
23 A. Correct.  
24 Q. The rest of this letter at the end or at least the  
25 last paragraph on this indicates you had written

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1 him a letter on January 14th. And then you say, We  
2 would -- as indicated in that letter, We -- I'm  
3 assuming you mean EPA -- would still prefer for  
4 WDNR to conduct this analysis which we believe  
5 would result in a more, quote, seamless, close  
6 quote, and efficient approach. Do you see that?  
7 A. Yes, I do.  
8 Q. Does that refresh your recollection in any way in  
9 terms of whether or not or what entity performed  
10 that analysis?  
11 A. It makes sense, but it -- I don't really remember  
12 it.  
13 Q. And then if you turn to the last page, the last  
14 sentence -- the last two sentences of the letter  
15 read, While the final decision rests with the  
16 region -- I assume you mean Region 5?  
17 A. Correct.  
18 Q. -- we do seriously consider the board's comments  
19 and believe that their recommendation on this  
20 matter is reasonable.  
21 So you're agreeing that there was a  
22 need to do additional analysis. And I think you  
23 said that earlier.  
24 A. Correct.  
25 Q. If we fail to address the board's recommendation,

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1 we believe this would leave a very serious gap in  
2 the administrative record for the final remedy  
3 decision. Right?  
4 A. Right. Correct. I would have to add though we did  
5 address the recommendation.  
6 Q. Yeah. My question is, you addressed it by adding a  
7 couple of remedial action levels for evaluation.  
8 Would it be a more complete record had you done  
9 more evaluation?  
10 A. Possibly. However, the board recommended even less  
11 than we did, so we actually went beyond what the  
12 board recommended.  
13 Q. Are you taking it that the board putting in  
14 parentheses two additional was meant to be  
15 exclusive --  
16 A. No.  
17 Q. -- or because it was prefaced with an EG so --  
18 A. No.  
19 Q. -- sort of an example?  
20 A. That's correct, but we did go beyond their example.  
21 Q. Okay. But the board also didn't limit you. You  
22 could have --  
23 A. Correct.  
24 Q. -- reevaluated five new RALs?  
25 A. Sure.

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1 Q. You could have done 10?  
2 A. Correct.  
3 Q. Whatever was ultimately the most scientifically  
4 comprehensive study --  
5 A. Correct.  
6 Q. -- would have been okay?  
7 A. Right.  
8 MR. STONE: Can we take a short comfort  
9 break?  
10 MR. RABBINO: Sure can.  
11 (Discussion off the record.)  
12 (Exhibit 4219L was marked for  
13 identification.)  
14 BY MR. RABBINO:  
15 Q. Mr. Hahnenberg, you've been handed what's been  
16 marked as Exhibit 4219L. It's an e-mail from Ed  
17 Lynch to you dated July 6th of 2000. It bears  
18 Bates stamp No. E-WDNR-810171 to 172. Have you  
19 seen this before?  
20 A. I don't remember it. I probably must have gotten  
21 it. It looks like an e-mail to me.  
22 Q. And any reason to doubt you received it?  
23 A. No.  
24 Q. So it starts off, Jim, here's a summary that I put  
25 together for Bruce. Do you know who Bruce is?

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1 A. Yes.

2 Q. Bruce Baker?

3 A. Correct.

4 Q. And it goes, There's lots of work going on over the

5 next several months. More is we get -- we can get

6 the model going. His typing could be better, but

7 he wrote it, I didn't.

8 In any event, this seems to indicate

9 there was an awful lot of stuff going on back in

10 July of 2000. Does that ring a bell with you?

11 A. Yeah, I think that's right.

12 Q. If you go down past about the middle of the page,

13 you see it's one big paragraph that begins,

14 Post-Remed?

15 A. Yes.

16 Q. And just below that you see where it says note?

17 A. Yes.

18 Q. It says, We have been waiting for the DNR river

19 fate and transport model to be calibrated for quite

20 some time. Do you see that?

21 A. Yes.

22 Q. It would appear at this point in time, July of

23 2000, that the whole Lower Fox River model had not

24 been calibrated and not completed, does that --

25 A. That sounds right.

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1 Q. -- sound about right?

2 A. Yeah.

3 Q. So at this juncture the fate and transport model

4 that was otherwise to be used in the remedy process

5 was not done and not calibrated, is that right?

6 A. Possibly. I mean, I accept what he says here. It

7 sounds right. I don't remember it in that detail.

8 Q. And nonetheless, would I be correct that the

9 agencies were proceeding with developing remedial

10 alternatives at the site including the dredging

11 alternative even though the model they needed

12 wasn't done?

13 A. Where do you read that?

14 Q. I'm surmising that from the document. I'm asking

15 you if that is a fair assessment of -- in your

16 recollection of what was going on --

17 A. We were doing things in parallel. So we were

18 probably looking at all the alternatives in

19 addition to the modeling. Because the modeling --

20 I mean, you could look at the alternatives on their

21 own merits without results of the modeling because

22 I mean the different scopes could apply to the

23 different alternatives, so you could assume the

24 same scope for different alternatives and do --

25 start to do a comparison.

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1 You wouldn't complete it, of course,

2 until you had the modeling done, but you could at

3 least do a lot of the legwork on it. So that's

4 probably what was going on, but it's somewhat

5 conjecture.

6 Q. Let's turn to the second page. Let's see if we

7 can't move it beyond conjecture. I'm not trying to

8 be tricky or anything with this.

9 A. That's okay. It's been a long time.

10 Q. I understand that, believe me. I know it's 12

11 years ago.

12 In the second full -- the first full

13 paragraph which is FS reminder. Do you see that?

14 A. Remainder, yeah.

15 Q. Oh, remainder, right. And the proposed plan. It

16 reads, According to our existing plan to complete

17 the RI/FS, we can't complete the rest of the FS or

18 the proposed plan without the model forecast from

19 WDNR. Do you see that?

20 A. Yes.

21 Q. Does that refresh your recollection that actually

22 the models were needed before you could complete

23 the FS and --

24 A. It sounds right. Sorry if I jumped in too quick.

25 Q. I'm so used to it now. I just hope she's catching

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1 it.

2 How involved was -- who at EPA was

3 the lead person involved with working with DNR on

4 developing the whole Lower Fox River model?

5 A. It would have been me.

6 Q. It would have been you?

7 A. Yes. I was an army of one.

8 MR. MANDELBAUM: Be all you can be.

9 BY MR. RABBINO:

10 Q. And were you aware of potential problems with the

11 model in terms of how it matched up to site data as

12 it was being developed?

13 A. No.

14 Q. You've been handed what's been marked as Exhibit

15 4212R. I will admit it doesn't have the official

16 stamp on it, but I will represent that this is a

17 true and correct copy of what was marked that day

18 at the deposition.

19 A. Okay. It's got the official Randy stamp now.

20 Q. Okay.

21 MR. STONE: I've written 4212R on it.

22 THE WITNESS: That's what I mean by the

23 official Randy stamp.

24 BY MR. RABBINO:

25 Q. Hopefully your handwriting is more legible than

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1 mine because I did the same. This is an e-mail  
2 from Ed Lynch to Greg Hill -- it's really an e-mail  
3 chain.  
4 Do you -- have you ever seen this  
5 document? Has it ever made its way to you even  
6 though I acknowledge you do not appear to be on any  
7 of the --  
8 A. I don't remember it.  
9 Q. Okay.  
10 MR. STONE: Do you want him to focus on  
11 page 1, David, or go through the whole thing?  
12 MR. RABBINO: No. We're going to focus  
13 primarily on page 2 and page 3.  
14 BY MR. RABBINO: J.M  
15 Q. If you turn to page 2 at the bottom it reads, ~~TR~~,  
16 we take particular exception to your statement in  
17 your e-mail of May 1 implying that TR alone has  
18 been responsible for raising concerns with fate  
19 model results. Do you see that?  
20 A. Yes.  
21 Q. Many -- it also reads later on, Many issues in the  
22 fate models were found by us in the course of our  
23 QAQC efforts, not by Thermo Retec or TR. Do you  
24 see that?  
25 A. Yes.

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1 Q. So now turn to the next page. And there are  
2 several bullets that --  
3 MR. STONE: Hang on. We're just  
4 orienting ourselves to who the recipients and who  
5 the senders are.  
6 BY MR. RABBINO:  
7 Q. So the first bullet that's noted reads, The  
8 increase in surface sediment PCB concentrations  
9 observed in the WFRM during the calibration period.  
10 This appears to be contrary to the data. Do you  
11 recall that issue being raised to you?  
12 A. No, I don't.  
13 Q. The next bullet reads in part, The increase in  
14 surface sediment PCB concentrations in Zone 2  
15 during the first several years of the no action  
16 projection. We have concerns about the realism of  
17 this aspect of the project. Do you see that?  
18 A. Yes.  
19 Q. Do you recall that ever being raised to you?  
20 A. No, I don't.  
21 Q. The next bullet is, The rapid decrease in surface  
22 sediment PCB concentrations in Zone 3 during  
23 projection. This decline is considerably more  
24 rapid than declines observed in any other zone and  
25 results in sediment concentrations several-fold

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1 lower than other zones at the end of the 100-year  
2 simulation. Do you see that?  
3 A. Yes.  
4 Q. Do you recall that ever being raised?  
5 A. No.  
6 Q. So it appears that there were some significant  
7 issues with regard to the accuracy and validity of  
8 the results of the whole Lower Fox River model  
9 during the calibration study.  
10 But as you sit here today, you don't  
11 recall these being raised to EPA?  
12 A. No.  
13 (Exhibit 4219M was marked for  
14 identification.)  
15 BY MR. RABBINO:  
16 Q. Sir, you've been handed what's been marked as  
17 Exhibit 4219M. These are excerpts from the final  
18 model documentation report for the Lower Fox  
19 River/Green Bay Wisconsin, December of 2002.  
20 As I said, these are excerpts. But  
21 if you look at the cover page and the table of  
22 contents in the initial few pages, does this  
23 document look like the final model documentation  
24 report that you reviewed?  
25 A. The one I reviewed was actually from an earlier

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1 draft of the FS. However, I'd have to look at the  
2 content to know if it's the same. The figure looks  
3 right. It's a nice figure, Figure 1, in terms of  
4 explaining the different models I was talking  
5 about.  
6 Q. We're going to get there.  
7 A. Okay.  
8 Q. First of all, if you'd turn to page 11. It's  
9 several pages in. I apologize. This is not a  
10 Bates stamped document, though if it's been  
11 included in -- let me ask you this.  
12 Do you know if this has been -- the  
13 final model documentation report's been included in  
14 the administrative record?  
15 A. I don't know for sure.  
16 Q. Did you in preparation for your testimony today  
17 look through the index of the administrative record  
18 that's been filed by the government?  
19 A. Yes.  
20 Q. And did you look to see whether or not this  
21 document had been listed?  
22 A. I don't remember it specifically. It's a long  
23 list.  
24 Q. Okay. But to the extent that you reviewed  
25 documents, did you try and review copies of those

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1 that have been put into the administrative record  
2 as opposed to earlier drafts?  
3 A. Yes.  
4 Q. I believe you just said though with regard to the  
5 final model documentation report, there may have  
6 been an earlier draft than this one?  
7 A. The one I actually looked at.  
8 Q. Yes. Okay. If you turn to the introduction which  
9 is page 11, it notes at the bottom that, The  
10 modeling effort conducted for the RIRA, which I  
11 assume is a risk assessment, is that correct?  
12 A. I'm sorry, what are you referring to?  
13 Q. If you look down towards the bottom of the page, it  
14 says, The modeling effort?  
15 A. Oh, okay. I was looking at the very bottom.  
16 Q. No. So this lists five interrelated models, and I  
17 believe you spoke about them. I just want to  
18 confirm that.  
19 A. Yes.  
20 Q. One appears to be the sediment bed maps?  
21 A. Yeah. Apparently they're calling that a model.  
22 Q. Okay. We'll get there. And then there's the whole  
23 Lower Fox, the FR Food, the GBTOX and the GB Food,  
24 right?  
25 A. Right. Looking at Figure 1, they do call that a

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1 model.  
2 Q. If you look at page 1.2 in the second-to-last  
3 paragraph on the page that begins with, Together.  
4 If you look at the fifth line down it reads,  
5 Alternatives were based on removal of PCB  
6 contaminated sediment above the production levels.  
7 Do you see that?  
8 A. Yes.  
9 Q. I'm just confirming it would have been possible to  
10 run these models at different remedial action  
11 levels than the ones that were selected. So you  
12 could have done an RAL of 2. You could have done  
13 an RAL of 3. You could have done an RAL of 4?  
14 A. Hypothetically, sure.  
15 Q. I'm just confirming, the model documentation  
16 supports that could have been done?  
17 A. Yeah.  
18 Q. If you turn to page 1.4, you see where it says  
19 Appendix F?  
20 A. Yes.  
21 Q. Are you familiar -- Appendix F is supposed to be  
22 copies of the model, right?  
23 A. Right.  
24 Q. It reads -- so it's the read me file that lists all  
25 the files on the disks. There's a set of CD-ROMs,

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1 a copy -- a working copy of the model, and is that  
2 the whole Lower Fox River model?  
3 A. I assume so, but I don't really know for a fact.  
4 Q. Okay. It goes on to say, A complete copy of the  
5 program code and electronic version of the user's  
6 manual and a complete set of the input and output  
7 files for all model runs conducted to support the  
8 RI/FS and WDNR's proposed plan. Do you see that?  
9 A. Yes.  
10 Q. Do you have any idea how many CD-ROM disks were  
11 supposed to be included in that set?  
12 A. No.  
13 Q. Do you know if you yourself ever received a copy of  
14 those disks?  
15 A. I'm not sure. I might. I have a whole bunch of  
16 CD's. I don't remember this specifically, but I  
17 might have it. I don't know.  
18 Q. During the course of this litigation, have you ever  
19 been asked to search for a full and complete copy  
20 of the final model documentation report?  
21 A. No, but I turned over all my documentation that I  
22 had.  
23 Q. I appreciate that. But the answer to the question  
24 is no?  
25 A. Specifically, no.

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1 Q. Did you ever -- were you ever asked to search for  
2 everything that would have otherwise been part of  
3 Appendix F? In other words, all of the -- all the  
4 CD-ROMs, did you ever search for that?  
5 A. No.  
6 Q. Were you ever asked to search for that?  
7 A. No.  
8 Q. And not even in terms of your preparation for your  
9 testimony today?  
10 A. Correct. Honestly, I wouldn't know what to do with  
11 them anyway, these models.  
12 Q. I'll be honest with you. Knowing what to do with  
13 them is not as important as why you have them, but  
14 the answer is you don't?  
15 A. I don't have them. I may have them, but I'm not  
16 sure. I have this album of CDs, and I have a whole  
17 bunch of CDs in there, and it might be in there,  
18 but I don't know for sure.  
19 Q. Were those provided to counsel?  
20 A. Yes.  
21 Q. And to Mr. Murawski or Mr. Stone?  
22 A. Mr. Murawski.  
23 Q. Do you know what Mr. Murawski did with them after  
24 he received them?  
25 A. Well, I think he sent them to DOJ.

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 222</p> <p>1 Q. Okay. Let's turn a couple more pages. On page 2 2.2 -- I'll go through this pretty quickly. 3 Technical Memorandum 2A, did you see that? 4 A. Yes. 5 Q. This talks about something called the Soil and 6 Water Assessment Tool or SWAT? 7 A. Okay. 8 Q. Are you familiar with the SWAT model? 9 A. No. 10 Q. Do you know what the SWAT model is for? 11 A. Only what it tells me here. 12 Q. But otherwise you have no independent knowledge of 13 that yourself? 14 A. No. 15 Q. Does anybody else at EPA have any independent 16 knowledge of what that would be used for? 17 A. Russ Kreiss may. 18 Q. Over at the Great Lakes program? 19 A. Yeah, he might, but I don't know for sure. 20 Q. Okay. Would someone over at WDNR know? 21 A. Presently I don't know. 22 Q. What about people who -- even formally with WDNR 23 like Mr. Velleux? 24 A. Probably Mr. Velleux. 25 Q. He would probably know what the SWAT models are?</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 224</p> <p>1 application. That's all caps. Are you familiar 2 with that model? 3 A. No. 4 Q. Do you know what it was used for? 5 A. No. 6 Q. Did you -- do you know anybody at EPA that would 7 know? 8 A. No. 9 Q. Did you ask anybody at EPA in your preparation for 10 today's testimony what this model would have been 11 about? 12 A. No. 13 Q. Same question. By the way, I neglected to ask you 14 with the ECOM-siz-SEDZL. Did you talk to anybody 15 or try to seek out anybody at EPA that might know? 16 A. No. 17 Q. And again, would somebody potentially over at WDNR 18 or formerly with WDNR like Mr. Velleux potentially 19 know what that model was for? 20 A. Yes. 21 Q. If we turn to page 4-1, this talks about -- you see 22 the Section 4.1, Lower Fox River Water Quality 23 Model? 24 A. Yes. 25 Q. If you go a couple of paragraphs down, last full</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 223</p> <p>1 A. Very likely. 2 Q. Let's turn to page 2-5, tech memo -- Technical 3 Memorandum 5B. Do you see that? 4 A. Yes. 5 Q. This lists the ECOM-siz-SEDZL -- let me spell it. 6 Capital ECOM, dash, lower case S-I-Z, dash, capital 7 S-E-D-Z-L, all those are in caps. So the 8 ECOM-siz-SEDZL model. Are you familiar with that, 9 sir? 10 A. No. 11 Q. Did you have any understanding of it during the 12 time that the remedy was being put together? 13 A. No. 14 Q. Did anybody else at EPA have any idea what the 15 ECOM-siz-SEDZL model was about? 16 A. Not that I'm aware of. 17 Q. Would people over at the Department of Natural 18 Resources have an idea? 19 A. Again, it would be most likely Mark Velleux. Other 20 people, I don't know. There may have been others, 21 but I'm not sure. 22 Q. You think Mr. Velleux would know? 23 A. I think so. 24 Q. Let's turn to the next page. Tech Memo 5D talks 25 about the ECOMSED, E-C-O-M-S-E-D, model</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 225</p> <p>1 paragraph before the bottom, the one that starts 2 with, The wLFRM was developed. 3 A. Yes. 4 Q. So it notes it was developed from the results of 5 the MEW, the Model Evaluation Work Group, is that 6 correct? 7 A. Yes. 8 Q. I'm going to need you to speak up just a little 9 bit. 10 A. Yes. 11 Q. I can barely hear you. 12 A. Sorry. 13 Q. It indicates in the last couple of sentences, The 14 FRG also initiated a peer review of model 15 performance that was managed by AGI. Do you see 16 that? 17 A. Yes. 18 Q. And do you recall what that peer review process 19 was? 20 A. Yes. The FRG hired a group, I think it was the -- 21 some geological group to do a review of their model 22 and the WDNR model. 23 Q. DNR was doing a review of the entire whole Lower 24 Fox River model or just a portion of it? 25 A. I believe it was the whole thing.</p>

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1 Q. You do?  
2 A. I think, but I'm not positive. I don't really  
3 remember.  
4 Q. Okay.  
5 A. Exactly what their -- scope of their task -- their  
6 assignment was.  
7 Q. All right. And it then goes on to read, To the  
8 greatest extent practical, peer review -- peer  
9 review panel recommendations were integrated into  
10 wLFRM development efforts and are discussed in  
11 Section 5.  
12 And we'll turn to that briefly. But  
13 my question is, as you sit here today, do you  
14 understand what that phrase means to the greatest  
15 extent practicable? Do you have any idea what was  
16 done?  
17 A. No.  
18 Q. What recommendations were incorporated into the --  
19 A. I don't recall.  
20 Q. So why don't we turn to page 5-1. We're almost  
21 done with this document. This is a section  
22 entitled American Geologic Institute Peer Review  
23 sponsored by the Fox River Group. Do you see that?  
24 A. Yes.  
25 Q. If you go down to the second full paragraph right

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1 near -- the last sentence reads, Furthermore, the  
2 AIG review was limited to the model for last seven  
3 river miles and could only assess models as they  
4 existed and to the level that they were documented  
5 at the time the review was conducted. Do you see  
6 that?  
7 A. Yes.  
8 Q. First of all, so the -- if you read a little bit  
9 above it -- I guess I should have started, the  
10 review began in January of 1997, correct? The  
11 sentence above it reads, The AIG review is limited  
12 to the WDNR models as they existed in January 1997.  
13 Do you see that?  
14 A. No. I --  
15 MR. RABBINO: Randy, do you want to help  
16 him?  
17 THE WITNESS: The one that starts,  
18 However?  
19 BY MR. RABBINO:  
20 Q. Yeah.  
21 A. Okay. Yeah, I see that sentence.  
22 Q. So the review that was done by AIG was on the whole  
23 Lower Fox River model as it existed in 1997,  
24 correct?  
25 A. That's what it sounds like.

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1 Q. And then the next sentence indicates that it was  
2 only -- the review was only conducted for the last  
3 seven river models. It wasn't for the whole river.  
4 Does this help refresh your recollection in terms  
5 of the response to the prior question?  
6 A. I didn't really remember that. I assume it's  
7 correct.  
8 Q. And we've already discussed earlier based on prior  
9 exhibits that this model wasn't even complete in  
10 the year 2000 because they were still doing  
11 calibration runs on this model.  
12 When you testified earlier about  
13 this model being peer reviewed, were you discussing  
14 this peer review process? Is that what you were  
15 referring to?  
16 A. Yes, I believe so. I do remember it was -- the  
17 American Geological Institute was the peer group --  
18 Q. Okay.  
19 A. -- peer review group.  
20 Q. Are you aware of any peer review that was conducted  
21 of the whole Lower Fox River model that you were  
22 referring to in terms of having greater confidence  
23 in the validity of the results?  
24 A. Well, no, other than the publications that had been  
25 done by WDNR. There are two publications --

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1 different aspects of the model. I mean, I don't  
2 remember the specifics of what those aspects were,  
3 but there were two publications that were both peer  
4 reviewed as part of that publication.  
5 Q. So you think that the model was peer reviewed in  
6 order to go in those publications as opposed to  
7 those publications themselves just being peer  
8 review journals?  
9 A. Correct.  
10 Q. And what do you base that on?  
11 A. Just my memory of -- I saw the journal articles  
12 many years ago. And because I wanted to know if  
13 these models had gone through a peer review  
14 process, which they had, and they had passed, and  
15 they were, therefore, given greater credence  
16 because they hadn't gone through the peer review  
17 process.  
18 Q. Had you actually seen the peer review report of the  
19 model, or did you just see the journal articles?  
20 A. I just saw the journal articles.  
21 Q. Okay. And the AIG peer review that you were  
22 discussing -- AGI, sorry, that was the 1997, and  
23 that was based on the model as it existed, and  
24 we've already established that even as of 2000,  
25 2001, the model wasn't done, so whatever they peer

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1 reviewed they certainly didn't involve the  
2 iteration of the model that was ultimately used, is  
3 that fair?  
4 A. True, correct. It probably was an earlier  
5 iteration of the model from the appearances. It  
6 doesn't mean that the -- basically the essentials  
7 of the model had not been peer reviewed.  
8 I'm just speculating a bit in that  
9 the fundamental aspects of the model probably was  
10 peer reviewed by this group. They were putting on  
11 the finishing touches and particular evaluations we  
12 were doing, but that doesn't mean the model itself  
13 had not been peer reviewed.  
14 Q. Let me ask you this. I believe you testified a  
15 couple times earlier this morning that you yourself  
16 are not a modeler.  
17 A. Correct.  
18 Q. I'm not either, so that's fine.  
19 A. That's right. I'm at a bit of a disadvantage for  
20 this modeling stuff.  
21 Q. That's fine.  
22 A. I did rely on DNR, and they had the greater  
23 expertise. Still, I knew what they had done and  
24 that it had been peer reviewed and accepted and  
25 that the results appeared to be reliable for us to

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1 use in their process.  
2 Q. Okay. But what I'm asking is, the representation  
3 of the peer review had been made to you by WDNR.  
4 Did you do any independent evaluation or seek out  
5 from anybody an independent assessment of whether  
6 or not these models had in fact been properly peer  
7 reviewed?  
8 A. I had heard directly from the company that they  
9 were doing this.  
10 Q. Which company is that?  
11 A. I don't -- Fox River Group. I mean. *four*  
12 Q. We've already --  
13 A. I don't remember who hired them, but some of the  
14 companies hired two peer reviews. *four*  
15 There were two peer reviews on the models, their  
16 model and our model. They also did a peer review  
17 of the risk assessments actually ~~before~~ because  
18 our -- both our risk assessments, EPA's and DNR's,  
19 which was for human health and ecological, and then  
20 they -- a different group than AGI also did a peer  
21 review of their model -- excuse me, their risk  
22 assessments. There were a total of six peer  
23 reviews.  
24 Q. And I appreciate that, but my -- I'm just --  
25 A. Too much information.

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1 Q. -- I want to know the models. There were other  
2 peer reviews. The risk assessment is a different  
3 issue. I'm just asking about the peer review of  
4 the model, and I'm just trying to make sure I  
5 understand when you say something was peer  
6 reviewed, that's based on your review of the 1997  
7 AGI, your understanding that that took place as  
8 well as representations from the Wisconsin  
9 Department of Natural Resources that the model had  
10 been peer reviewed.  
11 Did you or anyone else at EPA  
12 independently conduct any investigation to assess  
13 whether those models had in fact been fully and  
14 properly peer reviewed?  
15 A. No.  
16 Q. Okay.  
17 A. I will say I did see the journal articles, and they  
18 were in peer reviewed journals, so they got  
19 published, I know that.  
20 Q. I want to turn to some of the cost stuff we were  
21 talking about earlier.  
22 (Exhibit 4219N was marked for  
23 identification.)  
24 BY MR. RABBINO:  
25 Q. You've been handed what has been marked as Exhibit

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1 4219N. This is excerpts from the EPA, A Guide to  
2 Developing and Documenting Cost Estimates During  
3 the Feasibility Study, so it's not full. It is  
4 excerpts. I'm going to direct you to certain  
5 select pages within. But have you seen this  
6 document before?  
7 A. No.  
8 Q. You have never seen the EPA cost estimation  
9 guidance for feasibility studies?  
10 A. No.  
11 Q. Okay.  
12 A. I would note that the publication date is during  
13 our completion of the FS. In fact, it's after -- a  
14 year after roughly when the draft FS was first  
15 issued to the public which is February of 1999.  
16 That's when they first issued it. This came out  
17 after that.  
18 Q. Nonetheless, it was issued before the FS was  
19 finalized --  
20 A. Yes.  
21 Q. -- and approved which was approximately two years  
22 later, correct?  
23 A. Correct.  
24 Q. As a remedial project manager, are you familiar  
25 with EPA cost estimation procedures?

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1 A. Generally, yes.  
2 Q. And would that include cost estimation during  
3 feasibility studies?  
4 A. Yes.  
5 Q. But just so I'm clear, you're saying you never seen  
6 this specific document?  
7 A. Correct.  
8 Q. All right. If you haven't seen it, you haven't  
9 seen it. Do you know whether or not anybody at EPA  
10 associated with the Fox River project has seen this  
11 document?  
12 A. Not that I'm aware of.  
13 Q. You've been designated as the person to discuss the  
14 development of the cost estimates for the '03 ROD,  
15 the '07 ROD and the 2010 ESD?  
16 A. Okay.  
17 Q. And did this document, as far as you know, play any  
18 role for you in the development of those cost  
19 estimates?  
20 A. No. I'll tell you what I did look at. I did look  
21 at the guidance document for developing RODs, ROD  
22 amendments and the ESDs. They do talk about costs  
23 in there. Of course it's more general than this.  
24 This is, of course, much more detailed, but it does  
25 generally talk about costing and how that should be

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1 approached in that guidance document.  
2 Q. So this is -- the document you were just looking at  
3 is a more detailed defined document than the  
4 document you otherwise looked at?  
5 A. Correct.  
6 Q. Do you have any understanding about for whom this  
7 document was prepared?  
8 A. No.  
9 Q. Was this prepared out of EPA headquarters?  
10 A. I don't know. Based on the numbering system, I  
11 would say probably.  
12 Q. Okay.  
13 A. OSWERS, which is in the EPA identification  
14 information, is a group out of our headquarters.  
15 Actually, if you look at the title page, it does  
16 talk about the address of the U.S. EPA is  
17 Washington D.C.  
18 Q. Okay. I appreciate that, but again, you're -- I  
19 mean I have no further questions for you because  
20 you've never seen the document, and you didn't use  
21 it.  
22 A. Right.  
23 Q. Okay. You've been handed what was previously  
24 marked as Exhibit 4212B. This document is a -- is  
25 excerpts from the summary report for Fox River

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1 Deposit N prepared for the Wisconsin Department of  
2 Natural Resources by Foth & Van Dyke. Have you  
3 ever seen this before?  
4 A. Yes.  
5 Q. If we turn to the first page --  
6 A. Are you talking about the executive summary?  
7 Q. Yeah, right. So this is -- this just discusses the  
8 purpose of the project and it says, The primary  
9 objective of the demonstration was a demonstration  
10 that environmental dredging of PCB contaminated  
11 sediments can be performed in an environmentally  
12 safe manner. Do you see that?  
13 A. Yes.  
14 Q. So the point of this project was really, let's just  
15 see if we can get sediments out of the water,  
16 right?  
17 A. Well, this is a summary. In the original  
18 document -- and it would be I think in the  
19 introduction -- they talk in more detail what the  
20 project objectives are, and that section's not  
21 included here, but I can tell you what they said  
22 there.  
23 Q. I'm actually -- you discussed this earlier today --  
24 A. I did.  
25 Q. -- and others, so I'm really more interested in the

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1 cost side of this.  
2 A. Okay.  
3 Q. Because that's -- you have been designated on the  
4 costs associated with the '03 and '07 and the ESD,  
5 the two RODs in the ESD. It notes that the total  
6 costs for the project were 4.3 million for an  
7 overall average cost of 525 cubic yards -- per  
8 cubic yard of sediment removal.  
9 And I believe you indicated earlier  
10 that the cost of this was higher than it might  
11 otherwise be because it was a demonstration  
12 project, kind of little bit of bells and whistles  
13 were done, a little bit of design overkill,  
14 whatever, a variety of factors led it to be a  
15 little more expensive.  
16 If you read -- there apparently was  
17 some type of analysis done, and it reads, This  
18 analysis indicates that a more representative cost  
19 for work for a Deposit N type project may be on the  
20 order of \$250 per cubic yard. Do you see that?  
21 A. Yes.  
22 Q. So they're acknowledging that 525 might be high,  
23 but 250 is a more reasonable range for where it  
24 would come in, and that's for a project like  
25 Deposit N?

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1 A. Correct.  
2 Q. And this was performed in the Fox River, correct?  
3 A. Correct.  
4 Q. So when we talk about projects like Deposit N, is  
5 it fair to assume that they're talking about PCB  
6 contaminated sediment projects similarly situated?  
7 A. Yes.  
8 Q. So along the lines of what was contemplated for the  
9 remedy in the Fox River itself?  
10 A. Correct.  
11 Q. Did you see this document before it went out?  
12 A. Before it went out?  
13 Q. Before it was issued by DNR?  
14 A. No.  
15 Q. So DNR did not submit this to you and ask for EPA's  
16 review and blessing?  
17 A. No, they did not. I'd like to make another point  
18 too about the costs listed here in the project in  
19 general. Besides the factors I mentioned earlier,  
20 if you -- well, this was done in 2000. It was  
21 completed in 2000.  
22 Obviously that's 12 years ago, and a  
23 lot has been learned since then, and the technology  
24 has developed since then which would reduce the  
25 cost significantly in addition to the other factors

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1 I mentioned.  
2 So I mean in 2000 that may have been  
3 true. But since that time, costs wouldn't be this  
4 much for a larger project especially. In fact  
5 they're not that much in the recent work that's  
6 been --  
7 Q. You know, I appreciate that, but I'm actually  
8 asking just for what I was saying about a project  
9 like this in April of 2000.  
10 A. Okay, yes.  
11 Q. So in April of 2000 even on a good day, even if it  
12 was done right, they're just estimating that you  
13 get the dollars down to about 250 bucks a cubic  
14 yard, is that right?  
15 A. Well, the next sentence talks about future  
16 large-scale projects, for example, 100,000 cubic  
17 yards could be implemented for less than \$200 per  
18 cubic yard.  
19 Q. So they dropped it down about 200 or maybe a little  
20 under that?  
21 A. True. However, they also make the point that  
22 they're talking 100,000 cubic yards, which is still  
23 a lot less than the projects that we've been  
24 involved in --  
25 Q. Okay.

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1 A. -- so you have increased economy of scale.  
2 Q. We're going to get to that.  
3 A. Okay.  
4 Q. I'm handing you what was previously marked as  
5 Exhibit 4212D. These, again, are just -- is just  
6 excerpts from a document, and it's a final report  
7 of 2000 Sediment Management Unit Six 56/57 project,  
8 Lower Fox River/Green Bay, Wisconsin, prepared for  
9 the U.S. EPA and WDNR by Foth & Van Dyke and Hart  
10 Crowser. It's dated January 2001. Have you seen  
11 this before?  
12 A. Yes.  
13 Q. And again, as I said, it's simply -- this is  
14 excerpts. If we turn to three, four pages in.  
15 It's the first page that has full writing. You'll  
16 see it's titled Project Cost.  
17 A. Yes.  
18 Q. So this breaks down -- this notes that the costs --  
19 the total project costs or direct costs were  
20 \$8.1 million, a little more, and it was based upon  
21 50,316 in-situ cubic yards removed from the Fox  
22 River and dewatered and transported to the  
23 landfill. Do you see that?  
24 A. Yes.  
25 Q. Now to arrive at a unit cost, do you take the total

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1 project costs and divide them by the total sediment  
2 that was removed?  
3 A. If you want to calculate a per cubic yard.  
4 Q. Right. So that's the way to do it?  
5 A. Yeah.  
6 Q. I don't have a calculator on me, but I will  
7 represent to you that taking these numbers and  
8 doing it just that way, you come out with a figure  
9 that's approximately 366-yards per -- dollars per  
10 cubic yard?  
11 A. Okay.  
12 Q. Do you remember that as being roughly what the  
13 expense was to perform the project at 56/57?  
14 A. Yes.  
15 Q. Was 56/57 bigger or smaller than Deposit N?  
16 A. Bigger.  
17 Q. And it involved taking out more sediment?  
18 A. Correct.  
19 Q. So it had a slightly better economy of scale, but  
20 it's still not down at the 250 or 200 which had  
21 previously been discussed, correct?  
22 A. Deposit N was about 10,000 cubic yards. This was  
23 about -- for this year it was about 50,000 cubic  
24 yards, previous years about another 30.  
25 Q. All right. So it's a bigger project, and you're

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1 seeing some economy in scale, but we're still not  
2 even reaching what had otherwise been thought could  
3 be attainable in the Deposit N report?  
4 A. Correct. Can I comment as to other considerations  
5 that would have driven the cost up in this project?  
6 Q. Sure.  
7 A. First of all, they use silt curtains again which we  
8 have subsequently found to be overkill. If you  
9 have the right dredge and a good operator, you  
10 don't really need silt curtains.  
11 Also the company doing the work,  
12 Fort James Company, voluntarily decided to put --  
13 there's not a line item on there, but they did put  
14 down a layer of sand over the entire project  
15 because we had a requirement that if the  
16 concentrations were above a certain level -- I  
17 think it was 10 part per million, then they had to  
18 put a sand layer down. So they thought, well,  
19 there were a couple units that were more than that,  
20 so you put sand down over the whole thing.  
21 Just -- because they did that for --  
22 besides being more protective, also they wanted to  
23 have a layer so that if there's -- sediment came in  
24 later on top of it, it was quite clear in terms of  
25 the kind of sand layer as to where their project

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1 was done in the other materials -- new material, so  
2 they did that for a couple reasons. So those  
3 things added costs also.  
4 Q. Okay. This report was prepared for both EPA and  
5 WDNR. Did you see this report before it was  
6 published?  
7 A. Not before it was published, but I was not the  
8 on-scene coordinator. He may have. His name was  
9 Sam Borries, and I was the project manager. I was  
10 not that involved with the mechanics doing the work  
11 here because it was a time critical removal.  
12 Q. So the 56/57 project was run out of the removal  
13 office --  
14 A. Correct.  
15 Q. -- in Region 5 --  
16 A. Correct.  
17 Q. -- not the remediation project office?  
18 A. Correct. I was, of course, aware a lot of what was  
19 going on, but I was not as involved, and I would  
20 not have gotten the report. Probably the on-scene  
21 coordinator would have if anyone would have.  
22 Q. Okay. You said this was done as a time critical or  
23 a non-time critical?  
24 A. Time critical.  
25 Q. Was there an action memo that was prepared by the

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1 region for this?  
2 A. I believe so.  
3 Q. Was there a memo that was prepared that would  
4 have -- this was handled as a time critical  
5 removal, but the funding was by whom?  
6 A. By Fort James.  
7 Q. Okay. So this was not a federally -- this wasn't  
8 federal dollars?  
9 A. Correct. Deposit N was funded by the State, and  
10 EPA put in some money mostly with the State, but  
11 Fort James paid for the work here. I think we had  
12 a consent order with them.  
13 Q. Deposit N you said was done with EPA funding?  
14 A. Mostly DNR funding, but the EPA are GLNPO, Great  
15 Lakes National Program Office, contributed about a  
16 half million dollars.  
17 Q. Okay. Was that also done as a removal option?  
18 A. No. It was just a demonstration project by the  
19 State.  
20 Q. Are you familiar with the evaluation that was done  
21 for dewatering and the costs that are associated  
22 with dewatering at the site?  
23 A. For this project?  
24 Q. For this project.  
25 A. No.

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1 MR. STONE: I'm sorry, "for this project"  
2 you mean for 56/57?  
3 MR. RABBINO: No, I mean more globally.  
4 I apologize. I was unclear.  
5 BY MR. RABBINO:  
6 Q. I mean the costs associated with dewatering for the  
7 remedy that was selected at the site.  
8 A. We did a cost analysis of what that would be as  
9 part of the feasibility study and more recently  
10 based on actual operating information on the OU2  
11 through 5 project, Phase II. Actually Phase I also  
12 we would have actual cost information there for  
13 Phase I and Phase II.  
14 Q. And who performed the analysis of the dewatering  
15 costs?  
16 A. Well, let me back up. There was another analysis  
17 that would have been done which was -- would have  
18 been done under the design process, and that would  
19 initially have been done under the Basis of Design  
20 Report. That was by Shaw, the contractor, and that  
21 was under an agreement with NCR and  
22 Georgia-Pacific.  
23 Q. So there would be an analysis on the Basis of  
24 Design. We'll speak about that in a little bit.  
25 A. Yes.

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 246</p> <p>1 Q. And did you -- were you the individual at EPA that 2 was involved in evaluating that analysis and the 3 completeness of it -- 4 A. Yes. 5 Q. -- and either approving or disapproving the -- 6 A. Yes. 7 Q. -- ultimate number that came out of it? 8 A. Yes. 9 (Discussion off the record.) 10 BY MR. RABBINO: 11 Q. I'm handing you what was previously marked as 12 Exhibit 4212C, and this is the Final Summary Report 13 Sediment Management Unit 56/57 Demonstration 14 Project Fox River/Green Bay Wisconsin dated 15 September 2001 prepared for Fox River Group of 16 companies and Wisconsin Department of Natural 17 Resources by Montgomery Watson. Have you ever seen 18 this before? 19 A. No, I have not. 20 Q. If you haven't seen it, you haven't seen it. This 21 was another one of those that was prepared for DNR 22 that they went out to publish before or without 23 consulting or running it by EPA? 24 A. Correct. Yeah, the first portion of the SMU 56/57 25 project was entirely a state project. EPA had no</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 248</p> <p>1 of the project where EPA was involved, they removed 2 another 50,000 yards, and that was the second year 3 of SMU 56/57. 4 So I'm thinking this was a report on 5 that first year. It looks like it. Oh, yeah. The 6 second paragraph under the executive summary, it 7 says it was performed between August 30th and 8 December 15, 1999. 9 Q. Okay. 10 A. The EPA part of the project at the time critical 11 portion was done in 2000. It was done from 12 September to, I think, end of October. 13 Q. Okay. And the OSC or the on-scene coordinator was 14 who? 15 A. For EPA was Sam Borries, B-O-R-R-I-E-S. 16 Q. Sir, you've been handed what's been marked as 17 Exhibit 4212F. It is admittedly just excerpts from 18 the final feasibility study report prepared by 19 Retec dated December of 2002. Have you ever seen 20 this before? 21 A. Yes. 22 Q. And did you see this before it was approved or 23 finalized? 24 A. Yes. 25 Q. And so this is one where EPA was involved in</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 247</p> <p>1 involvement, and it was done under an agreement the 2 State had with the companies to do this work. So 3 we -- EPA had really no involvement in that portion 4 of the project. I think I'm assuming that's what 5 this is for. 6 Q. Let's break that up. So the 56/57 project was -- 7 A. Had two years. 8 Q. Okay. 9 A. The first year, which was 2000, was done under a 10 state agreement with the Fox River Group, and the 11 EPA had no involvement in that at all. The way the 12 project went and the way it led into the following 13 year was they started late in the season, the work, 14 and in November or December -- I don't know which 15 now -- but they ran out of time, and they ran out 16 of money, and they only partially completed the 17 project. 18 Therefore, they left deeper, higher 19 concentration sediments exposed. So EPA became 20 more involved at that point in that portion of the 21 project and was completed under time critical 22 removal action because the exposures had occurred. 23 They removed around 30,000 cubic 24 yards. They originally targeted 80,000 cubic 25 yards. So under the time critical removal portion</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 249</p> <p>1 reviewing and approving the final language? 2 A. Correct. 3 Q. If you turn to page 7-2, you see the sentence that 4 ends Appendix H? 5 A. What -- oh, the first paragraph? 6 Q. Yeah. 7 A. Yes. 8 Q. The next sentence reads, The detailed cost tables 9 were developed in accordance with the EPA guidance 10 document for developing and documenting cost 11 estimates during feasibility study EPA, 2000B. 12 A. Okay. 13 Q. So if we go back a couple of exhibits, I believe 14 that's a document that's been marked as Exhibit 15 4219N. 16 A. Okay. 17 Q. So I understand you say you've never seen the 18 guidance document, and that's fine, but it appears 19 from this report that the guidance document was at 20 least used in the preparation of this report? 21 A. Correct. 22 MR. STONE: Did you attach the references 23 so we know what EPA, 2000B is? 24 BY MR. RABBINO: 25 Q. No, I haven't. That's why I was wondering whether</p>

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1 or not it was marked as 4219N -- 4219N is in fact  
2 that document.  
3 A. It sounds like it, but I am -- but Randy is right,  
4 we really need to see the reference list to be  
5 sure.  
6 Q. Okay. But in any event, there was some guidance  
7 document relating to cost estimates to develop  
8 during feasibility studies issued in 2000 by EPA  
9 that was used?  
10 A. It sounds like it.  
11 Q. If you turn to 7-6, you see Section 7.1.5, Basis  
12 For Costs?  
13 A. Yes.  
14 Q. And it notes cost summaries, and at the bottom of  
15 the first paragraph it reads, The WDNR's request, a  
16 total cost presented herein and carried forward in  
17 the FS do not include the 20 percent contingencies.  
18 Correct?  
19 A. Correct.  
20 Q. Now, Mr. Mandelbaum spoke with you about that  
21 earlier, and I believe your -- it wasn't done, and  
22 it's your understanding that that wasn't done for  
23 all of the alternatives carried forward?  
24 A. Correct.  
25 Q. So on a relative basis it's your position that it

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1 didn't make any impact. My question is, if you  
2 have a remedy that's estimated to cost almost  
3 \$400 million, a 20 percent contingency would make  
4 it how much?  
5 A. Well, another about \$40 million. Well, another --  
6 Q. Another 80 million?  
7 A. Yes.  
8 Q. So you're starting to push up about a half a  
9 billion dollars. As part of the cost estimation  
10 process and the public comment period, would you  
11 agree that transparency and the expected cost is  
12 important for the EPA and WDNR to present to the  
13 public?  
14 A. Yes.  
15 Q. So by not including costs, what you're doing is --  
16 by not including contingency, for example, you're  
17 keeping 20 percent out, and it was likely that  
18 20 percent was going to be required from all of it.  
19 So it might have been \$80 million  
20 for this, but it would have been a different number  
21 to the capping, but you're still not telling the  
22 public, yes, this is probably going to cost about  
23 20 percent more than a number we're talking about  
24 today?  
25 A. Correct.

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1 Q. Now, in addition, are you familiar with EPA  
2 guidance that discusses sort of plus/minus cost  
3 ranges?  
4 A. Yes, I am.  
5 Q. And in the early stages of a project, am I correct  
6 that that plus/minus is a plus/minus 30 to  
7 50 percent?  
8 A. It's minus 30 plus 50.  
9 Q. So it's minus 30 plus 50?  
10 A. Correct.  
11 Q. It could cost 30 percent less or be 50 percent  
12 more --  
13 A. Correct.  
14 Q. -- than anticipated?  
15 A. Correct.  
16 Q. And that applies to a contingency estimate as well,  
17 doesn't it?  
18 A. I would think so.  
19 Q. Okay. So if you leave that out, if you leave a  
20 contingency out, for instance, \$80 million, if it's  
21 50 percent more, then what you're really leaving  
22 out is \$120 million out of potential remedy?  
23 A. Well, true. However, all -- you also have to  
24 figure plus 50 percent, if you apply it to the base  
25 cost, would encompass the 20 percent contingency,

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1 so those are the different ways you can view it.  
2 Q. Well, but if -- my question is in the ordinary  
3 course, doesn't EPA include contingencies for a  
4 variety of reasons?  
5 A. Yes.  
6 Q. So there's a big contingency, correct, and that has  
7 one factor in terms of just uncertainties  
8 associated with the project bid --  
9 A. Well --  
10 Q. Let me finish the question. Again, it's much  
11 easier if we do that.  
12 A. Okay, got you.  
13 Q. So have you heard of bid contingency?  
14 A. (Nods.)  
15 Q. Have you heard of scope contingency?  
16 A. I'm sorry, no.  
17 Q. And have you heard of scope contingency?  
18 A. No.  
19 Q. Let's back up then. If a 20 percent project  
20 contingency, for example, is supposed to be  
21 applied, do you not also apply the minus 30 plus 50  
22 to the contingency dollars as well when you're  
23 estimating the total expense of a potential  
24 project?  
25 A. Yes.

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 254</p> <p>1 Q. And so by not doing that, you're making something 2 seem artificially less expensive than it may 3 otherwise have been, right? 4 A. Possibly. 5 Q. Mr. Mandelbaum spoke to you earlier about 6 over-dredging. Do you remember that? 7 A. Yes. 8 Q. Why don't we hand this to him. And I'm trying to 9 recall. Over-dredging, do you -- was over-dredging 10 included in the volume estimate for the ROD in 11 2003? 12 A. No. 13 Q. So it's your position that -- it's your 14 recollection that over-dredging was not included in 15 the total volume to be remediated -- that was going 16 to be part of the dredging project? 17 A. Correct. 18 Q. Let's turn to -- again, you've been handed what was 19 previously marked as Exhibit 4212G. It's just an 20 excerpt from the final feasibility study for the 21 Lower Fox River/Green Bay dated December 2002. Do 22 you remember seeing this document? 23 A. It looks familiar. 24 Q. Okay. If you turn to -- this is a two-page 25 document. So the page with writing, if you turn to</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 256</p> <p>1 over-placement. 2 Q. On a dollar-for-dollar basis is it more -- do you 3 have a greater change in price by not including 4 cubic yards of sediment to be dredged versus the 5 comparable unit for sediment -- for capping 6 placement? 7 A. It's the same volume, yes. 8 Q. Same dollar amount? 9 A. For the same volume, yes. 10 Q. So you're saying that it costs just as much to 11 place a cubic yard of sand as it does to dredge a 12 cubic yard of sediment? 13 A. No. I'm saying it's less per cubic yard of a sand 14 cap, however, you also have to consider if the 15 over-placement volume is the same as the 16 over-dredged volume. 17 In other words, for over-placement, 18 maybe it's six inches. I don't know. For 19 over-dredging instead of eight inches, they're now 20 able to do it at about four inches. So in that 21 case then you'd have a bigger volume, and I don't 22 know how the cost would compare at that point. 23 If the volume is more for capping or 24 replacement, I don't know that it is. But if 25 you're assuming an apples-to-apples volume, then</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 255</p> <p>1 it. Do you see over-dredging? 2 A. Yes. 3 Q. And it reads, All dredging is assumed to occur 4 within a defined footprint to a fixed cut depth. 5 When possible, approximately eight inches of 6 over-dredge of material beyond the estimated 7 maximum depth of impacted sediment will likely be 8 implemented to ensure complete removal of the 9 targeted contaminant mass. Do you see that? 10 A. Yes. 11 Q. So it would seem to me that the over-dredged volume 12 was to be included in the total volume of sediments 13 that were otherwise going to be subject to dredging 14 in the remediation. 15 But then the next sentence reads, 16 However, for the purposes of the FS, over-dredge 17 was not included -- actually it wasn't, I take that 18 back -- in volume or cost estimates to allow 19 comparability and consistency between different 20 action levels and reaches. 21 So I take back my prior comment. It 22 was not included. Isn't it also potentially 23 leaving out a significant cost item from the cost 24 estimate? 25 A. Yes. However, for capping we also did not include</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 257</p> <p>1 yes, the over-dredging would cost more on a cubic 2 yard basis versus capping replacement on an 3 apples-to-apples comparison. 4 Q. So again, I appreciate that, and that's helpful. 5 So while admittedly I believe you said you didn't 6 include the old replacement on the capping, it 7 would seem on a per cubic yard basis, you're 8 understating the cost of the dredging remedy 9 potentially more than you're understating the cost 10 of the capping remedy but not including either 11 over-dredging or over-placement with the two 12 alternatives? 13 A. Possibly. 14 Q. Do you recall, was there supposed to be more 15 dredging done under the 2003 ROD than there was 16 capping? 17 A. Well, yes. I think the capping had one alternative 18 which is capping to the maximum extent practicable. 19 I don't remember the exact mix of dredging versus 20 capping. 21 The capping contingency also allowed 22 some capping under the dredging remedy. In that 23 case I think the capping that would be allowed was 24 less, but I'm not sure at this point -- I don't 25 remember exactly how the capping to the maximum</p>

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1 extent practicable compared to the dredging volume  
2 under the alternative. I just don't remember.  
3 Q. But on a total volume -- I'm not trying to beat a  
4 dead horse. I'm trying to understand this. If  
5 there was supposed to be more dredging, and  
6 therefore, there would be more over-dredging than  
7 there was supposed to be capping on a  
8 volume-by-volume basis, by not including either the  
9 over-dredge or the over-placement, you're  
10 understating the cost of the dredging option  
11 significantly more because more dredging was  
12 supposed to take place, is that fair?  
13 A. If more dredging was taking place, of course.  
14 Q. And under the 2003 ROD, more dredging was taking  
15 place than capping?  
16 A. That's because that was the selected remedy.  
17 Q. I understand. I'm just -- I just want to make sure  
18 we're in agreement on that.  
19 A. Yes.  
20 Q. And do you have any idea what the total cost  
21 associated with over-dredging eight inches for all  
22 the areas where dredging was supposed to take  
23 place, do you know what that number was?  
24 A. No, I don't.  
25 Q. Is it possible it could have also run into tens of

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1 millions of dollars?  
2 A. Possibly. You'd have to look at -- you could  
3 calculate that if you looked at how much relative  
4 dredging would be done, and then you could make a  
5 rough estimate by just calculating the unit cost  
6 for that, but we never did that calculation, so I  
7 don't know.  
8 Q. You say you didn't estimate what the volume of the  
9 eight-inch over-dredge was supposed to be?  
10 A. I never did.  
11 Q. You're being handed what's been marked as Exhibit  
12 4212E. This is excerpts from the record of  
13 decision responsiveness summary for the record of  
14 decision for operable units 3, 4 and 5 dated June  
15 of 2003. Do you recall seeing this document?  
16 A. It looks familiar.  
17 Q. Did EPA -- this document was issued by both WDNR  
18 and EPA, is that correct?  
19 A. Correct.  
20 Q. And was this document reviewed by EPA before it was  
21 issued by the -- before it was issued?  
22 A. Yes.  
23 Q. And would you have been the person at EPA that  
24 would have reviewed this, or did someone else?  
25 A. It would have been me.

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1 Q. So let's turn to the executive summary which begins  
2 on page A-1. And if you look at the bottom  
3 sentence, and it carries over to the next page. It  
4 starts talking about the amount of sediment was to  
5 be removed from OU4.  
6 And then if you turn to the next  
7 page it reads, The ROD provides for the removal of  
8 about 56 percent of all contaminated sediment from  
9 OUs 3 and 4 removing 6.5 million cubic yards out of  
10 approximately 11.6 million cubic yards of  
11 contaminated sediment.  
12 And do you know whether or not the  
13 volume of eight-inch dredge is included in that  
14 total number?  
15 A. I don't know for sure, but I would say probably  
16 not.  
17 Q. Probably not, okay. Sir, you've been handed what  
18 was previously marked as Exhibit 4212H. It is  
19 excerpts from Volume I of the Final Basis of Design  
20 Report for the Lower Fox River and Green Bay sites.  
21 It's dated June 16, 2006, and it was  
22 prepared by the Fort James Company and the NCR  
23 Corporation and was submitted to both WDNR and U.S.  
24 EPA. Do you recall seeing this document?  
25 A. Yes.

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1 Q. And would this have been a document that you would  
2 have reviewed at EPA or would somebody else?  
3 A. I would have reviewed it.  
4 Q. And would anybody else at EPA also been involved in  
5 the review of this?  
6 A. It would be mostly me.  
7 Q. Mostly you, okay. Starting at the first page in  
8 the executive summary. The last sentence of the  
9 last full paragraph reads, Data gaps identified  
10 from this review were addressed through extensive  
11 sampling in 2004 and '5.  
12 MR. STONE: What page are you on?  
13 MR. RABBINO: The very next page.  
14 MR. STONE: 2?  
15 MR. RABBINO: No, the Basis of Design,  
16 the very front.  
17 MR. STONE: Page 1 of the executive  
18 summary.  
19 THE WITNESS: Okay.  
20 BY MR. RABBINO:  
21 Q. The RD investigation included collecting sediment  
22 cores at more than 1,300 locations and analyzing  
23 PCBs and physical parameters in more than 10,000  
24 sediment samples. Do you see that?  
25 A. Yes.

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1 Q. And is that the sediment sampling investigation  
2 that was conducted between the 2003 ROD and the  
3 2007 ROD amendment that we discussed earlier?  
4 A. That's part of it.  
5 Q. Part of it, okay.  
6 A. It's the pre-design sampling.  
7 Q. All right.  
8 A. It would not include the infill sampling we talked  
9 about.  
10 Q. And where was that infill sampling conducted?  
11 A. In OU3 and 4.  
12 Q. Let's turn to page 3. It's the one that says 3 at  
13 the bottom. Do you see the second paragraph  
14 begins, Geostatistical analyses?  
15 A. Yes.  
16 Q. Go down two more sentences. In addition to the  
17 dredge prism, the RD incorporates an allowable  
18 overdepth for dredging. The allowable overdepth is  
19 a constant thickness of sediment below the required  
20 dredge prism to account for dredging equipment  
21 accuracy and tolerances. Do you see that?  
22 A. Yes.  
23 Q. That's in line with what you were talking about  
24 before and the way you described over-dredging?  
25 A. Correct.

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1 Q. Then it -- the last sentence of this paragraph  
2 reads, Based on the RD data and analyses, the ROD  
3 remedy dredge prism volume is approximately  
4 7.6 million cubic yards. This sediment volume is  
5 more than one million cubic yards greater than the  
6 volume contemplated by the ROD.  
7 Is that one million cubic yards,  
8 extra cubic yards, is that associated with the  
9 over-dredge volume?  
10 A. Partially.  
11 Q. Partially?  
12 A. (Nods.)  
13 Q. What else would be included within that?  
14 A. The pre-design sampling determined that there was  
15 additional volume based just on the sampling, so  
16 that's part of it.  
17 Q. All right. Do you have any understanding of how  
18 much out of that one million cubic yards was  
19 associated with over-dredging versus that which  
20 needed to be taken out by sampling?  
21 A. From the numbers I've seen, it would only be a  
22 small percentage from what I remember in terms of  
23 the additional volume determined from the  
24 pre-design sampling. I don't remember the exact  
25 numbers though.

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1 Q. Which would be a small amount, the over-dredge or  
2 the additional volume --  
3 A. The over-dredge would be a smaller amount.  
4 Q. And so pick a number. Is it five percent,  
5 10 percent?  
6 A. From what I recall, it would be about 10 percent.  
7 Q. So it would be an extra -- so 10 percent out of the  
8 million or 10 percent out of the 7.6?  
9 A. 10 percent out of the million from what I remember.  
10 One thing you have to consider in terms of how much  
11 the over-dredge would add to the volume is you have  
12 to look at the thickness that's being dredged  
13 because the over-dredge is usually like four inches  
14 or six inches, something like that.  
15 And obviously if you think about it,  
16 if it's six inches versus one foot of dredging  
17 versus six inches of four feet of dredging, the  
18 percentage of the four feet is a lot less.  
19 So you have to really look at that  
20 if you want to figure out how much relatively  
21 speaking the over-dredge would be compared to the  
22 overall dredging.  
23 Q. Now, the Basis of Design Report I believe led to  
24 the 2007 ROD amendment, is that right?  
25 A. Yes.

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1 Q. And in comparative dollars at the time this was  
2 done, the original ROD remedy had been estimated to  
3 be \$580 million, correct?  
4 A. Correct.  
5 Q. And the new remedy dropped it down to 3 --  
6 approximately 390?  
7 A. Correct.  
8 Q. And that was taking into account all the new data?  
9 A. Correct, yes.  
10 Q. Is it your understanding it included the  
11 over-dredged costs?  
12 A. I think it did.  
13 Q. And do you have any understanding about whether it  
14 included a contingency cost?  
15 A. I don't believe it did.  
16 Q. That was still being left out?  
17 A. I think so. And let me explain why in this case it  
18 might be appropriate to leave out the contingency  
19 because in this case it's a design. What that  
20 means is you have much more detailed and complete  
21 information and in this case more current  
22 information in terms of what the costs would  
23 actually be.  
24 So therefore, you would expect you  
25 have an expectation that your cost estimate would

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1 be more accurate than during the RI/FS where you  
2 have less information at that stage of the  
3 evaluation.  
4 Q. Is it your understanding that as the design process  
5 moves forward, that in fact cost estimates are  
6 supposed to get more accurate and tighter?  
7 A. Yes.  
8 Q. And do you have any understanding about how they're  
9 supposed to sort of tighten down?  
10 A. The percentage you mean?  
11 Q. Yeah. In other words, we talked about a minus 30  
12 plus 50 at the RI/FS stage. What would it be later  
13 on?  
14 A. It might be 10 or 15 percent.  
15 Q. I believe you just testified that because this was  
16 a design report and there was much more information  
17 and you were further in the design process, that  
18 the need to account for a contingency was less at  
19 the BODR than it had been earlier, and that that  
20 might have been a reason why it wasn't included at  
21 this stage?  
22 A. Possibly. But there are other factors in costs,  
23 how they can ensue. Sometimes we'll find there are  
24 other factors that in fact were not considered. As  
25 we get additional experience on a project, those

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1 costs get better and better. As you go further  
2 into the project, there will be less and less  
3 uncertainty.  
4 Q. And that would include the project like the Fox  
5 River. So the further you get in, the less the  
6 uncertainty, the better your estimate should be as  
7 you move forward?  
8 A. Yes. One thing I should mention on the Basis of  
9 Design Report too is this is not a report that EPA  
10 approves because the design documents are things  
11 that are evolving, and therefore, we recognize the  
12 basis of the design report is just leading to the  
13 next draft essentially like maybe the 30 percent or  
14 60 percent design. Therefore, we don't actually  
15 approve the intermediate design deliverables.  
16 Q. Okay. But that Basis of Design, I believe you  
17 testified, then became one of the reasons that the  
18 next document I'm showing you, the amendment to the  
19 record of decision, was issued?  
20 A. Yes.  
21 Q. And that was issued by EPA and WDNR, correct?  
22 A. Yes.  
23 Q. So let's look at this for a couple of seconds. Why  
24 don't we turn to page 13. And you'll see a section  
25 that says, 2, The Increased Sediment Volume

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1 Estimate?  
2 A. Correct.  
3 Q. So the pre-design sampling results were also used  
4 to develop a more accurate estimate of the volume  
5 of PCB contaminated sediments above one PPM. And  
6 if you read down a couple more, it talks about  
7 over-dredge allowance was required to move  
8 uncontaminated sediments.  
9 And then this over-dredge allowance  
10 represents an additional volume of 950,000 to one  
11 million cubic yards of sediment that would need to  
12 be dredged to ensure removal of the targeted  
13 material. Do you see that?  
14 A. Yes, I do.  
15 Q. So --  
16 A. That one million was the over-dredge.  
17 Q. Okay. So the one million -- that's what I wanted  
18 to get to.  
19 A. Yeah.  
20 Q. And I believe you indicated that the cost to dredge  
21 a cubic yard of the over-dredge is the same as the  
22 cost to dredge a cubic yard of any other non-TOSCA  
23 material?  
24 A. Correct.  
25 Q. And do you know whether or not those costs were

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1 included in the costs associated with the ROD  
2 amendment?  
3 A. Yeah, I believe -- yeah, because the costs in the  
4 ROD amendment were based on this.  
5 MR. STONE: The Basis of Design Report.  
6 THE WITNESS: On the Basis of Design --  
7 I'm sorry. On the Basis of Design Report, that was  
8 the basis for the costs included in the ROD  
9 amendment, and we can check that.  
10 BY MR. RABBINO:  
11 Q. So it's your understanding that the costs  
12 associated with the over-dredge volume was included  
13 in the costs for the record -- the amendment to the  
14 ROD?  
15 A. Let me just the record of decision -- the amendment  
16 I mean. I believe so, but let me double-check.  
17 The answer is yes. It's in Table 4 in the ROD  
18 amendment.  
19 Q. And where on Table 4 in the ROD amendment, just so  
20 I can track it?  
21 A. Oh, it would be the last column on the right at the  
22 very bottom gives a total project cost.  
23 Q. Of 390. And where in this -- where in the table do  
24 you see the over-dredge volume being accounted for?  
25 A. In Table 4?

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1 Q. Yeah.  
2 A. The very bottom row of the third column,  
3 \$390,303,000. And if you look in Table ES1 in the  
4 Basis of Design Report, you can see that same  
5 number in the Table ES1, and again, it's the last  
6 column on the right, very bottom row, 390 million.  
7 It was rounded in the BODR, Basis of Design Report,  
8 and they put the exact number in the ROD amendment.  
9 Q. ES1?  
10 A. Yeah, Table ES1, page 7.  
11 Q. Do you know whether or not EPA guidance suggests  
12 that you include contingencies even when you're at  
13 the 100 percent design stage?  
14 A. I don't know.  
15 MR. STONE: Are you close to done, David,  
16 or should we take a restroom break?  
17 MR. RABBINO: Why don't we take a  
18 restroom break. This is the last exhibit I have  
19 for the witness.  
20 (Discussion off the record.)  
21 BY MR. RABBINO:  
22 Q. Mr. Hahnenberg, you've been given what was  
23 previously marked as Exhibit 4212J. And this is  
24 the explanation of significant differences that was  
25 issued in February of 2010. Now, this was issued

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1 by the U.S. EPA, correct?  
2 A. Correct.  
3 Q. Now, I note that it was issued in February of 2010,  
4 but how far in advance of this date did EPA begin  
5 working on this document?  
6 A. I don't really remember exactly.  
7 Q. Was there some type of internal approval chain that  
8 was required for the ESD to be issued?  
9 A. There were internal discussions. There's no formal  
10 process.  
11 Q. Does it go up through the chain of command through  
12 your supervisors? In other words, does it have to  
13 be signed off? Ultimately it was signed by --  
14 A. Oh, when this goes final, it goes through a  
15 sign-off process where before Rick Carl, the  
16 director for Superfund signs it, all the people in  
17 the chain would have signed off that this was  
18 acceptable.  
19 Q. Okay. Were you involved in preparing this ESD?  
20 A. Yes.  
21 Q. And did you have conversations with people at WDNR  
22 about preparing this ESD?  
23 A. Yes.  
24 Q. And when did those begin?  
25 A. I don't remember.

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1 Q. Would it have been a month before it was issued,  
2 two months before it was issued?  
3 A. I'm sure it would have been at least several months  
4 before then, maybe even longer, but at least  
5 several months.  
6 Q. So between the time that the ROD amendment was  
7 issued in June of 2007 and February of 2010,  
8 discussions were initiated or had between DNR and  
9 EPA about the need to revise the cost estimate for  
10 the remaining remedy, is that right?  
11 A. Yes, yes.  
12 Q. Who initiated those conversations?  
13 A. It would have been the oversight team working for  
14 DNR because they're most involved with tracking  
15 those kinds of things.  
16 Q. And who is on the oversight team for WDNR?  
17 A. Well, the person most responsible would have been  
18 George Berkin.  
19 Q. George Berkin?  
20 A. Yes.  
21 Q. And who does he work for?  
22 A. Boldt.  
23 Q. So he's a contractor?  
24 A. Correct.  
25 Q. And is he under contract with the WDNR, or is he

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1 under contract with private companies?  
2 A. WDNR.  
3 Q. Did the ESD involve a change in the amount of  
4 dredging that was going to be required at the site?  
5 A. The costs mostly were related to other operational  
6 considerations. I don't really remember if  
7 dredging volume came into it or not. There are  
8 other factors in the costing that came into play,  
9 and they're talked about in the ESD in Section 5-A  
10 starting on page 12.  
11 Q. We'll get there.  
12 A. Okay. I don't remember that being a major factor.  
13 Q. What being a major factor?  
14 A. Additional dredging compared to before.  
15 Q. All right. Let me ask you this. Between the ROD  
16 amendment in 2007 and the ESD in 2010, what was the  
17 status of the design of the project? What percent  
18 were you at, 60, 90, 100?  
19 A. I'm not sure.  
20 Q. The 100 percent design report, I thought, was  
21 prepared in 2009.  
22 A. It may have started then. The final draft was  
23 submitted to WDNR in November -- I think November  
24 or so of 2011. It took a long time.  
25 Q. Okay. So let's put it this way. So back in

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1 February of 2010 though, would it be fair the  
2 project had been at least, say, 90 percent  
3 designed?  
4 A. I'm not sure.  
5 Q. The total cost increased through this ESD was  
6 \$270 million against the prior cost estimate of  
7 390, correct?  
8 A. Correct.  
9 Q. That's an increase of 62 percent?  
10 A. Correct.  
11 Q. It's a pretty big number?  
12 A. Yes.  
13 Q. Now, the 2007 ROD had been based on a lot of  
14 additional information and had dropped the cost  
15 estimate from 580 to 390, about a 30-odd percent  
16 decrease, correct? If my math isn't --  
17 A. 390 was what the estimate was, correct.  
18 Q. So it went from 580 in same-year dollars down to  
19 390. And now a couple years later in the same-year  
20 dollars even if you move it up to 432 for 2009,  
21 you're increasing the remedy again 270 million,  
22 correct?  
23 MR. STONE: Which remedy are you asking  
24 about?  
25 MR. RABBINO: The OUs 3 and 5.

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1 MR. STONE: The original ROD remedy or  
2 the amended ROD remedy?  
3 MR. RABBINO: The original ROD remedy in  
4 2007 was valued in the same-year dollars at  
5 \$580 million as put on the ROD amendment.  
6 MR. STONE: Okay.  
7 MR. RABBINO: That then was lowered to  
8 390 million, a \$190 million decrease. Now in the  
9 same-year dollars, we're increasing the remedy  
10 270 million. Am I tracking it right?  
11 THE WITNESS: Yes.  
12 BY MR. RABBINO:  
13 Q. I'd like to talk to you about some of the numbers  
14 that are discussed. You have -- there was an  
15 increase of \$71 million for the design and  
16 infrastructure, and the rationale put forward as  
17 the original design of the dewatering facility did  
18 not provide for a building complex of the current  
19 size.  
20 When was the building design -- when  
21 did that change between the ROD amendment in 2007  
22 and the ESD in 2010?  
23 A. I'm not sure.  
24 Q. Did you talk to anyone before you came here today  
25 to discuss why that -- the building complex of the

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1 current size had not been contemplated?  
2 A. That was a decision by the company's contractor to  
3 build the building and build it bigger. It was  
4 their decision.  
5 Q. It was the company's decision to build a bigger  
6 building than had initially been contemplated?  
7 A. To build a building -- I can't tell you what was  
8 initially contemplated for a building. I don't  
9 think a building necessarily was envisioned at all.  
10 Q. Was a dewatering facility envisioned?  
11 A. Yes.  
12 Q. And what was the dewatering facility supposed to  
13 be --  
14 A. I don't know.  
15 Q. -- as originally contemplated?  
16 A. I don't know. I'd have to look at the Basis of  
17 Design Report if that's what you're referring to.  
18 Q. Part of that led to a \$71 million increase in the  
19 cost of the remedy. I'm trying to get an  
20 understanding of why that hadn't previously been  
21 contemplated. That's all.  
22 A. It was after the ROD amendment obviously.  
23 Q. So sometime after the ROD amendment there was a  
24 decision to increase the size of the dewatering  
25 facility?

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1 A. Well, to build a building to put it inside --  
2 Q. So --  
3 A. -- and the size too.  
4 Q. So two questions then. Let me back up. Was there  
5 a contemplation to build a building of some kind  
6 with the original thought process behind the  
7 dewatering facility?  
8 A. I'd have to look back at the Basis of Design  
9 Report. I don't know right now.  
10 Q. So when you say that -- the decision to build a  
11 building, when you were including that in this, you  
12 actually don't know whether or not a building  
13 previously had been contemplated or not. It's just  
14 you're reading this and --  
15 A. Yeah, I think it was after 2007.  
16 Q. So the decision to build a building was after 2007?  
17 A. I believe so.  
18 Q. And were you involved in that decision?  
19 A. We had discussions.  
20 Q. "We" being whom?  
21 A. The oversight team and DNR and myself and the  
22 companies as well.  
23 Q. All right. Then there's -- we looked on Item C.  
24 It says mobilization and demobilization, and it  
25 simply notes, These costs were generally

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 278</p> <p>1 underestimated. That's \$29 million. 2 What is meant by that, generally 3 underestimated? What had not previously been 4 considered? 5 A. I don't remember. 6 Q. Earlier you testified about -- 7 A. Well, let me back up. I will say part of that 8 which may not have been included was development of 9 the property to put the building on. That was part 10 of it. 11 Q. The mobilization and demobilization costs were 12 associated with that? 13 A. Yes. They had to develop the property to put the 14 building on. 15 Q. And that had not been part of the original remedy 16 contemplated by the 2000 -- either 2003 or as 17 amended in 2007? 18 A. I'm not sure. It may have been. 19 Q. But as you sit here today, you otherwise -- in 20 terms of why these were generally underestimated, 21 you can't give me any specifics about what mob and 22 demob costs generally were estimated? 23 A. In detail, no I can't. 24 Q. Are mobilization and demobilization costs, for 25 instance, costs that are associated with bringing</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 280</p> <p>1 for the record. In the topic area of specific cost 2 estimations for this document, George Berkin was 3 actually the United States 30(b)(6) designee, 4 although there was some overlap with Mr. Hahnenberg 5 on it, but I think we made clear in our response to 6 NCR's 30(b)(6) notice that Mr. Berkin was more 7 prepared to be the designee for the United States 8 on specific cost components considered here. 9 MR. RABBINO: But Mr. Hahnenberg was 10 designated to some extent to testify as to cost 11 estimates in the ESD? 12 MR. STONE: Yes. 13 MR. RABBINO: Again, just the last -- can 14 you read back the last question and answer, please? 15 (Record read.) 16 BY MR. RABBINO: 17 Q. Would there have been any reason why the mob and 18 demob costs that were put in the Basis of Design 19 Report in 2006 wouldn't have been included in the 20 ROD amendment costs in 2007? 21 A. This was not that detailed, this presentation. To 22 get those details, you have to go to the other 23 documents. 24 Q. All right. 25 A. ESDs are not intended to have a great level of</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 279</p> <p>1 the dredged equipment in and taking it out at the 2 wintertime? 3 A. That would be part of it. 4 Q. And is it also obtaining whatever permits and 5 insurance you need in order to do that? 6 A. That would be part of it. 7 Q. And does it have to do with the amount of hour -- 8 personal hours that have to be dedicated to doing 9 that type of work? 10 A. That's another category. 11 Q. I'm going to get to it. That's a different -- 12 A. I don't think so. Well, the people doing the 13 physical work, yes. 14 Q. So the mobilization and demobilization, were you -- 15 was there a decision to employ more dredges than 16 had previously been estimated, or was it the same 17 number? 18 A. I don't -- in the Basis of Design Report, I don't 19 remember how many dredges they said. I can tell 20 you we have three dredges now. 21 Q. You're saying if someone goes and looks at the 22 Basis of Design Report, the information can be 23 gleaned from that? 24 A. Yes. 25 MR. STONE: Just let me make one notation</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 281</p> <p>1 detail in these kind of things. That's typically 2 the case. We say generally what the reasons are, 3 and then we typically have a table that compares 4 the original remedy, the modifications. And in 5 this case, for instance, in Table 4, OU2, we have 6 an explanation. 7 The explanation here is Section 5A, 8 and we have some explanation, and that's about the 9 level of detail that we typically would put in in 10 the ESD. 11 Q. All right. But if someone wanted to find out the 12 underlying details that supported the cost 13 increases, you've been directing me to the Basis of 14 Design Report which was issued in 2006, and I just 15 want to be clear on the record. Is that where a 16 person needs to go to get the information? 17 A. That would be the information that tells you the 18 cost estimating the ROD amendment. 19 Q. So where can I go to find out the differences -- 20 A. The details -- oh, we have very detailed costs 21 listed and very detailed spreadsheets -- tables 22 attached to the associated document to this which 23 is the criteria analysis memorandum. 24 Q. Okay. So you're saying the detail would be in the 25 criteria analysis memo?</p>

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1 A. Yes. There's very detailed tables in there which  
2 George Berkin was the guy responsible for putting  
3 those together. My understanding is you had  
4 discussions with him on that.  
5 Q. Item E, shoreline caps, and it just notes that  
6 labor and material costs were generally  
7 underestimated and that contributed \$5 million.  
8 Do you have any specifics about what  
9 labor changes there were?  
10 A. No, but shoreline caps is something that has not  
11 been done much, if any, on these kind of rivers.  
12 So for that particular item, it's a newer  
13 technology for these kind of caps and these kind of  
14 environments. That's likely the reason for the  
15 cost increase because there's not much experience  
16 in that particular aspect by anybody.  
17 Q. After the residual dredging and the idea of  
18 residuals has been around for a bit, these costs  
19 were not considered in earlier cost estimates.  
20 They added \$24 million to the cost estimate. Do  
21 you know why they hadn't been included in prior  
22 cost estimates?  
23 A. No.  
24 Q. Category H is a site support, and it notes costs  
25 relating to site construction operation support

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1 were generally underestimated in large part due to  
2 the need for a larger dewatering facility, and that  
3 added \$43 million to the cost.  
4 Again, this gets back to, do you  
5 have any -- do you have any knowledge about why the  
6 size and scope of the building had not previously  
7 been included or incorporated in the cost estimates  
8 for the remedy at the site?  
9 A. No. I will tell you the site support category  
10 though, you have to figure that is being calculated  
11 over many years for the project which should be  
12 complete, we estimate -- if everything continues is  
13 estimated to be 2017. So we started work here I  
14 think in 2009. So I'm at, what, eight years.  
15 That's over eight years. So on an annual basis,  
16 it's a lot less of course annually if you look at  
17 it on an annual basis.  
18 Q. I agree if you amortize costs out over a number of  
19 years, they certainly look smaller than what they  
20 are. When you do a cost estimate, you include them  
21 all upfront?  
22 A. Sure, yes.  
23 Q. So site support costs for the remedy in total were  
24 supposed to have been estimated and included in the  
25 prior cost estimates, right?

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1 A. Yes.  
2 Q. And again, a lot of it seems to be related to the  
3 construction of the dewatering facility, is that  
4 correct?  
5 A. Well, that's a big category as we see in Item A.  
6 And this relates to Item A.  
7 Q. I understand that. My question again just gets  
8 back to why wasn't that contemplated or taken into  
9 account in the record of decision amendment in 2007  
10 since the ESD did not really change the work that  
11 was to be done under the remedy?  
12 A. You have to look at the Basis of Design Report.  
13 Q. So then I'm going back to the Basis of Design  
14 Report for that information?  
15 A. To find out why it was not considered in the record  
16 of decision amendment, that was the basis for the  
17 record of decision amendment and those costs, and  
18 that's where you have to find that out.  
19 Q. Okay. Let's turn to page 15, please. Page 15 in  
20 the first full paragraph makes reference to an EPA  
21 guidance, and it is a guide to developing and  
22 documenting cost estimating during the feasibility  
23 study, and it now comes with an entire EPA number,  
24 EPA 504-R-00-002. OSWER No. 9355.0-75, July of  
25 2000. Do you see that?

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1 A. Yes.  
2 Q. If you look back to Exhibit 4219N, I believe you'll  
3 see that that is the same guidance document that's  
4 being referred to here.  
5 A. Correct.  
6 Q. And that guidance document is what EPA used to  
7 support the use of a minus 30 to plus 50 cost  
8 estimation rate at this time?  
9 A. I would have to look at the guidance document.  
10 Q. I'm asking you to look at the statement here --  
11 A. Yes, right.  
12 Q. -- says the expected accuracy.  
13 A. Yes.  
14 Q. And I'm saying the EPA used the guidance for  
15 support of the use of that cost range, correct?  
16 A. Yes. Well, that -- excuse me. That's also the  
17 range put in the guidance documents for drafting  
18 ROD amendments and ESDs and RODs, the cost range.  
19 As I told you, I am not familiar  
20 with this particular guidance document, and it may  
21 be in there. It makes sense it would be.  
22 Q. This cost estimate is 62 percent higher than prior,  
23 so it's actually outside that range. Do you  
24 consider that to be a pretty significant deviation  
25 from the cost estimation range?

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 286</p> <p>1 A. Significant. 2 Q. I'm talking about the range. So the extra 3 12 percent is significant? 4 A. Oh, it's significant relative to the original ROD 5 amendment. 6 Q. But it's your position that being 12 percent above 7 that range is not otherwise significant? 8 A. I don't know how you term 12 percent, that's 9 significant, quote/unquote, or not. It's purely an 10 opinion. 11 Q. Did you talk to anybody today with regard to the 12 ESD or the criteria analysis memo before you came 13 to testify? 14 A. No, I didn't. 15 Q. Did you review the criteria analysis memo before 16 you came here today? 17 A. Yes. 18 Q. And I believe you indicated you had also reviewed 19 the ESD? 20 A. Yes. 21 Q. Did you review any of the other supporting 22 documentation? 23 A. For the ESD? 24 Q. Yes. 25 A. I did look at portions of the Basis of Design</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 288</p> <p>1 EXAMINATION 2 BY MR. NASAB: 3 Q. Mr. Hahnenberg, we met earlier. My name is Omid 4 Nasab. I represent NCR Corporation. 5 A. Okay. 6 Q. I think I'm going to just have a rather brief set 7 of questions for you. You talked with Mr. Rabinno 8 about expected ranges for cost estimates during the 9 remedial process, correct? 10 A. Correct. 11 Q. And I believe you testified that early on in the 12 process when you were still investigating that you 13 would expect ranges between negative 30 and 14 positive 50 percent? 15 A. Correct. 16 Q. Where would you say the United States' cost 17 expectations in terms of range were at the time of 18 the 2003 ROD? 19 A. Minus 30 plus 50. 20 Q. Why is that? 21 A. Because that's what the guidance says, and that's 22 generally our experience on projects. 23 Q. And when you say that's what the guidance says, 24 what does -- the guidance says that about what 25 stage?</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 287</p> <p>1 Report. I did look at the ROD amendment, and 2 that's what I reviewed relative to the ESD. 3 Q. Do you happen to have the date or the EPA document 4 number associated with the cost estimate for the 5 ROD amendment in the ESD that you're discussing? 6 Do you know what that is? 7 A. I'm not sure what that is. 8 Q. Do you know what year that guidance was issued? 9 A. What guidance? 10 Q. You indicated that I believe, I could be wrong, but 11 I thought you said that there was another guidance 12 document for cost estimates associated with RODs, 13 ROD amendments and ESDs? 14 A. Yes, there was. It's an older one. I don't 15 remember the exact year, but it's 2000 or earlier 16 that I remember that. My copy is a little bit 17 yellow. 18 Q. But it's prior to 2000 is your memory? 19 A. I think so, yes. 20 Q. We'll do our best to try and locate it. 21 MR. RABBINO: I think with that, I will 22 pass the witness. 23 MR. NASAB: We'll take a break. 24 MR. STONE: Yeah. 25 (Discussion off the record.)</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 289</p> <p>1 A. RI/FS stage. 2 Q. And at the 2003 -- 3 A. Excuse me. Because that's what that guidance is 4 about. 5 Q. Okay. Can you just for the record explain instead 6 of using initials the stages? 7 A. I'm sorry. Remedial Investigation/Feasibility 8 Study. 9 Q. And so by the time that you get to the ROD, are you 10 out of the investigation and feasibility study 11 period? 12 A. That has been completed, yes. 13 Q. And do you have in your mind a range for the 14 expected cost accuracy of the 2003 ROD? 15 A. I -- well, minus 30 plus 50. 16 Q. Okay. Now, between the 2003 ROD and the 2007 17 amended ROD, certain developments in the 18 remediation happened, correct? 19 A. Correct. 20 Q. For one thing the actual remediation started? 21 A. Correct. 22 Q. And there was more sampling done between 2003 and 23 2007? 24 A. Yes. Also we had a lot of operational experience 25 up in OU1, so we had a lot of real world kind of</p>

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1 experience in terms of what things really cost on  
2 the project.  
3 Q. And the BODR report was issued?  
4 A. The Basis of Design Report was issued in 2006.  
5 Q. And between 2003 and 2007, the cost changed because  
6 you moved further down the remediation process,  
7 correct?  
8 A. Partially, also because of our experience in OUI.  
9 Q. And so by the time you got to the 2007 amended ROD,  
10 what would you say were the expected cost ranges  
11 for the 2007 amended ROD?  
12 A. Well, actually looking at the guidance document, it  
13 would still be minus 30 plus 50, I believe. I  
14 think that applies to ROD amendments as well as  
15 RODs.  
16 Q. I guess I'm trying to ask whether in your mind your  
17 confidence in the cost estimates increased after  
18 four years and after the remediation started and  
19 after you gained real world experience in OUI and  
20 after further sampling was done whether there was  
21 any shift in the expectation that the costs would  
22 be more accurate between 2003 and 2007?  
23 MR. STONE: Objection. He answered that  
24 question.  
25 MR. NASAB: You can answer.

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1 THE WITNESS: Well, like I said, minus 30  
2 plus 50 based on the EPA guidance document which is  
3 based on a lot of experience, remediation projects.  
4 That number is not specific to sediment projects  
5 which are known to have greater cost overruns  
6 because of the greater complexity of the project.  
7 So I mean that's a rule of thumb  
8 kind of number, a general expectation, but sediment  
9 projects are difficult and tend to be costly as I'm  
10 sure you're well aware.  
11 BY MR. NASAB:  
12 Q. And is it your understanding that it's supposed to  
13 be applied -- that whenever you're at a ROD --  
14 whenever you issue a ROD no matter what else is  
15 happening in the remediation, that that is the  
16 number that is applied, negative 30 to positive 50?  
17 A. It's a general number in the guidance. I mean, I  
18 wouldn't generalize every situation that that would  
19 apply, be it -- it could be maybe a little less,  
20 maybe it could be a little more.  
21 I mean you can't really generalize.  
22 It depends on the particular complexity and a  
23 variety of other things that may go into the  
24 process.  
25 Q. And my question is in terms of the process between

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1 the 2003 ROD and the 2007 amended ROD, whether the  
2 further progress in the remediation would lead you  
3 to say that there would be a greater expectation in  
4 the accuracy of the cost estimates?  
5 A. Compared to the original estimate, yes. Compared  
6 to the minus 30 plus 50 number, it might be  
7 something a little different, like I said, because  
8 the complexity of sediment projects makes that more  
9 problematic to make an estimate.  
10 Q. And so for the 2007 amended ROD phase, what would  
11 you say was the expected range that the cost  
12 estimates would be expected to vary with it?  
13 MR. STONE: Objection, asked and  
14 answered. Go ahead and answer him.  
15 THE WITNESS: Minus 30 plus 50.  
16 BY MR. NASAB:  
17 Q. And what would it be during the 2003 ROD stage?  
18 A. Minus 30 plus 50.  
19 Q. So the position of the United States is that the  
20 potential expected range of the accuracy of the  
21 cost estimate didn't change between 2003 and 2007,  
22 is that fair?  
23 A. Well, it didn't change to be any less than the plus  
24 50. In other words, because -- if you really look  
25 at the original ROD, the 2002 ROD, whatever --

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1 2003, like I said, because sediment projects are  
2 more complex and more difficult and have other  
3 confounding factors, maybe the plus 50 is low, but  
4 that's what we generally assume, so that's what we  
5 assume. I mean that's what the guidance says based  
6 on more general experience.  
7 Q. Okay.  
8 A. I'm telling you because sediment projects are more  
9 difficult.  
10 Q. I understand. I'm just trying to understand. What  
11 you told me, I believe, is that the 2003 ROD, the  
12 United States government was at plus 50 minus 30?  
13 A. Right.  
14 Q. And during the time of the 2007 amended ROD, the  
15 government was at plus 50 minus 30?  
16 A. Right. Did I get those mixed up? Basically minus  
17 30 plus 50 in both cases.  
18 Q. And so I guess the next question is a simple  
19 confirmation, but that the expected range of the  
20 accuracy of the cost estimate didn't change between  
21 2003 and 2007 in the government's view?  
22 A. Well, the guidance document would apply to both,  
23 and that's the number in the guidance document.  
24 Q. Okay. Fair enough, but that wasn't -- but that  
25 wasn't my question. My question was, between 2003

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 294</p> <p>1 and 2007, did the cost variance expectation of the 2 government change? 3 MR. STONE: Objection, vague. Go ahead 4 and answer him if you can. 5 THE WITNESS: I'm not sure. 6 BY MR. NASAB: 7 Q. Who within the government would you say was the 8 primary decision maker about whether -- how to 9 memorialize and give notice of the change in the 10 cost estimate for the remediation? 11 A. Rick Karl. He's the decision maker. It's been 12 delegated to him by the regional administrator in 13 Region 5 to the Superfund division director which 14 is Rick Karl. Well, in earlier documents it was 15 Bill Munro who has since retired. More recently 16 it's Rick Karl. 17 Q. Who did the drafting of this document? 18 A. It was -- 19 Q. By this document -- 20 A. It was a combination of people, DNR and EPA, and I 21 was the person for EPA who did the drafting. Other 22 people were involved with reviewing and commenting 23 on it. Quite a variety of people. So I don't 24 know. 25 I really couldn't recall all the</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 296</p> <p>1 are things like changes to components of remedies. 2 It could be some cost increases as opposed to a 3 fundamental change which you actually change which 4 is the ROD amendment. In that case you actually 5 change what you're doing, the actual remedy. 6 So in other words, if we went from, 7 say, an all-dredging remedy to an all-capping 8 remedy, that would be a fundamental change. And 9 going from the earlier ROD to the ROD amendment 10 that we did do prior to this, we went from a 11 dredging remedy with some capping contingency to a 12 combination remedy of dredging, capping and sand 13 covers. So that was a fundamental change. 14 This was not a significant change -- 15 excuse me, it was a significant change I meant to 16 say. It was not a fundamental change. 17 Q. So is it your view that a change in the cost 18 estimate from each project can't constitute a 19 fundamental change? 20 A. Not at this level. 21 Q. Fair enough, but that's, I think, a different 22 question. My question is, can a difference in cost 23 estimate in your opinion constitute a fundamental 24 change? 25 A. I'm not sure that would be a policy question which</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 295</p> <p>1 individuals who -- I mean, like I mentioned before, 2 the way this works at the end of the process is the 3 final draft, which I would have done a large 4 portion of it and others would have commented on 5 and made some revisions, it goes through a sign-off 6 chain where it goes up through our management to my 7 boss, to her boss and then to Rick Karl, and the 8 office of region of counsel I think signs off on 9 it. A lot of people sign off on it in the final 10 sign-off process. 11 Q. And as part of your preparation for today, do you 12 feel prepared to speak on behalf of the government 13 while -- with respect to this document and the 14 process behind it? 15 A. Yes. 16 Q. Are there any reasons why the government decided -- 17 withdrawn. 18 A. Let me back up too. Your question about who 19 reviewed this. Also my counsel has reviewed it 20 mainly for the legal kind of -- to make sure legal 21 is addressed properly in this. 22 Q. Thank you. And why was the ESD issued? What's the 23 role of an ESD generally? 24 A. Generally it's to document what we call significant 25 differences, and those would be differences that</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 297</p> <p>1 is beyond my role. That's like a policy question. 2 In other words, would a particular specific action 3 basically require a ROD amendment? Like say 4 200 percent, would that require a ROD amendment to 5 make that kind of decision? It would really be a 6 policy determination which is not something I would 7 be involved in. 8 Q. How about for the Fox River remediation project? 9 Would a 100 percent increase in the cost estimate 10 have constituted a fundamental change? 11 A. I'm not sure. 12 Q. Is there -- 13 A. There's no bright line that tells you, 72 percent, 14 now you're in ROD amendment territory. There's 15 nothing that exists that tells you hard and fast a 16 certain number. 17 I can say in this case, yes, we are 18 62 percent more than the original cost, and 19 obviously we don't think that that is great enough 20 to fall within what we call a fundamental change 21 because the actual remedy is not changing, and 22 there are other things in this too which are other 23 significant differences which we haven't talked 24 about, but they're also lesser changes. 25 Q. And as the government 30(b)(6) representative, you</p>

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1 can't tell us what number would have triggered a  
2 fundamental change in the government's view?  
3 A. Like I said, that's a policy question, and that's  
4 something that I don't do.  
5 Q. Okay. So you don't have an answer as a 30(b)(6)  
6 representative about what level in the cost  
7 estimate would constitute in fact the fundamental  
8 change in the remedy?  
9 A. No. I can answer questions on this project --  
10 about this project specifically.  
11 Q. And to be clear, this is a question about this  
12 project and --  
13 A. It's a greater policy question. It could apply to  
14 this project potentially. Anything like that could  
15 apply to any project.  
16 Q. Let me try it this way. On this project are you  
17 prepared as a 30(b)(6) representative to give an  
18 answer as to what cost increase in 2010 would have  
19 triggered in the government's view a fundamental  
20 change?  
21 A. No.  
22 Q. Now, is there -- with respect to the decision to  
23 issue an ESD as opposed to a new ROD, what's stated  
24 here is that the change in the cost was nearly  
25 within the EPA's expected accuracy range for the

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1 cost of a remedial action. Do you see that on page  
2 15?  
3 A. Let me look. Well, we say here it's nearly within  
4 EPA -- it's -- strictly speaking, it's not within  
5 the range, but that is based on a guidance  
6 document. Guidance isn't necessarily a strict  
7 rule. It's guidance.  
8 Q. Correct. So my question was, that's the reason  
9 given in this document in Exhibit 4212J as to why  
10 an ESD was issued but not the -- but not a ROD  
11 amendment for a fundamental change?  
12 A. That's not the only reason. The other reason is  
13 we're not changing the remedy.  
14 Q. Okay.  
15 A. I think those are -- that's a very important point.  
16 That's the most important consideration in when we  
17 do a ROD amendment, are you changing the  
18 fundamental nature of the remedy. And a cost  
19 increase of this magnitude, we don't view this as a  
20 fundamental change.  
21 Q. So in terms of reasons, it was nearly within the  
22 EPA's expected accuracy range for the cost remedial  
23 action?  
24 A. Right.  
25 Q. And it did not constitute a change to the remedy,

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1 correct?  
2 A. Correct.  
3 Q. Was there any other reasons --  
4 A. As to why this is in ESD?  
5 Q. Yes, and not a ROD amendment.  
6 A. Yes. If you look at the other portions of the ESD,  
7 there are other changes that are discussed in here,  
8 and they also don't raise to the ROD amendment  
9 level.  
10 For instance, there's some  
11 significant differences of really decreases in  
12 monitoring required for OU2. Also there are  
13 changes here in one of the components of the remedy  
14 which is the capping where we allow some changes to  
15 the specific design requirements for the caps.  
16 We actually make them thinner -- a  
17 bit thinner to allow for a little less necessity  
18 for as thick as we had originally thought of, so  
19 that reduces costs too.  
20 Q. Let me ask a more precise question. With respect  
21 to the cost increase and the estimated cost of the  
22 project, other than the fact that a cost increase  
23 is not a change to the remedy and the increase in  
24 the cost estimate was 62 percent, which was in the  
25 EPA's view nearly within the expected accuracy

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1 range for the cost of remedial action, was there  
2 any other reason why an ESD was issued and not a  
3 ROD amendment?  
4 A. Well, I'm not really sure what your question is  
5 trying to get to. Those are the main reasons.  
6 Q. That's it.  
7 A. Those are the major reasons.  
8 Q. Is there some other reason we should know about --  
9 A. No. Sorry.  
10 Q. I was just asking if there was any other reasons so  
11 I can know about them and that I can ask you  
12 questions about them. That's the only reason I'm  
13 asking.  
14 A. No.  
15 Q. What impact did -- let me step back for a second.  
16 In terms of the overall cost of this remediation  
17 project, how would you say it ranks within EPA  
18 cleanup projects across the country?  
19 A. It's big.  
20 Q. Is it one of the most expensive in the country?  
21 A. One of. There are other -- we call them megasites.  
22 There are other very large cost sites in the west,  
23 mostly mining sites that they can get to a similar  
24 magnitude.  
25 Q. What's the threshold for what you would deem a

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1 megasite? Is it 50 million? That's a number I've  
2 heard.  
3 A. I'm not sure.  
4 Q. What would you say, ballpark, roughly?  
5 A. I'm not sure. That's not my -- I don't make that  
6 determination. I just know this is one.  
7 Q. How many megasites do you think there are in the  
8 country?  
9 A. There are at least several I know of. Hudson River  
10 is one. Housatonic may be another sediment site.  
11 When you're talking hundreds of millions of  
12 dollars, you're probably at least getting close, if  
13 not there, but I never heard the specific number.  
14 That's the first time I've heard  
15 50 million that would define a megasite, but I  
16 don't know. I really don't know where you draw the  
17 line. It's just kind of a term anyway. I don't  
18 really know what it means in terms of it's just a  
19 way we describe a site as far as I know.  
20 Q. Is it fair to say that with respect to determining  
21 whether or not a ROD amendment was issued as  
22 opposed to an ESD, the government considered  
23 where -- how many -- the percentage increase, but  
24 as far as the ESD talks about, it didn't take into  
25 account the absolute increase in the cost of the

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1 remedy?  
2 A. Correct.  
3 Q. And you would agree that a \$270 million increase is  
4 a dramatic increase in the cost of the remedy on an  
5 absolute level?  
6 A. I don't know. I mean, one could use that term. I  
7 don't know if I would necessarily. Sure, it's a  
8 lot of money.  
9 Q. It would be fair to say that it's a dramatic  
10 increase in the cost of the remedy, \$270 million?  
11 A. You could say that. I don't know if I would  
12 necessarily, but it's a lot of money.  
13 Q. I guess let me ask you -- stepping outside the  
14 30(b)(6) for a second. Let me ask you a question  
15 about Mr. Hahnenberg's mind as of 2007.  
16 What percentage chance would you put  
17 in 2007 on a \$270 million increase in the cost of  
18 the remedy?  
19 A. I don't know. I really don't.  
20 Q. How does the government decide -- let me try to ask  
21 a more narrow question. I withdraw that question.  
22 Determining whether to dredge or to  
23 cap is a balancing act, is that a fair statement?  
24 A. Yes.  
25 Q. And there are various factors that get mixed into

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1 that equation to come up with whether one dredges  
2 or one caps?  
3 A. Yes.  
4 Q. Some of those things that go into there would be  
5 where the sediment is buried, how stable the river  
6 is, a lot of other things that I can't pronounce  
7 well, so I'm not going to try.  
8 It's fair there's many factors that  
9 go into that, correct?  
10 A. Correct.  
11 Q. And would you agree with me one of the primary  
12 considerations between dredging and capping is  
13 cost?  
14 A. Well, the way we look at it in Superfund, of  
15 course, we have nine criteria -- and I'm sure  
16 you're tired of hearing about that, but we always  
17 look at the nine criteria.  
18 And the factors you mentioned, the  
19 stability and the risk and that kind of stuff fall  
20 under one of those categories which are long-term  
21 effectiveness and protectiveness.  
22 So we kind of -- generally we don't  
23 kind of -- generally in Superfund we try and think  
24 of those different considerations as part of one of  
25 these nine criteria, so it gives us a framework to

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1 balance all those together.  
2 You probably know the process which  
3 is, first, we have to figure out if they meet the  
4 two threshold criteria, in particular alternative  
5 we may decide -- to decide on and those are in  
6 compliance with ARARs.  
7 MR. STONE: All caps, A-R-A-R, small S.  
8 THE WITNESS: I thought you wanted to  
9 know what it meant -- applicable relevant and  
10 appropriate -- I don't know.  
11 BY MR. NASAB:  
12 Q. I'd prefer not to know.  
13 A. It's a bunch of words. Anyway, basically it  
14 complies with laws and regulations in the laymen's  
15 mind. Then once you find out if an alternative can  
16 meet those two standards, then you go to the next  
17 seven, the balancing criteria I mentioned before,  
18 which are things like long-term effectiveness,  
19 short-term effectiveness, implementability,  
20 preferential treatment and then community  
21 acceptance and state acceptance.  
22 We weigh all those against each  
23 other and factor all those together and make a  
24 determination as to which of those -- which  
25 remedies then are the best ones -- best one to

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1 choose.  
2 Cost is one of those,  
3 cost-effectiveness which means it's not cost --  
4 what's the word? When you -- cost-effectiveness,  
5 it's kind of comparing one to the other.  
6 If all other things are equal and  
7 one alternative is lower cost, then you go with the  
8 lower cost one. There might be other  
9 considerations in the other criteria that might  
10 overcome that. Sorry, you already know that.  
11 Q. So while not a determinative factor, you would  
12 agree that cost is an important factor --  
13 A. Yes.  
14 Q. -- in the decision between whether to dredge or to  
15 cap?  
16 A. Yes.  
17 Q. And for example, the changes that happened in the  
18 2007 amended ROD going from an all-dredging remedy  
19 to the optimum remedy that included a mix of  
20 dredging and capping in a closer -- much closer to  
21 half and half than obviously 100 percent, that was  
22 in part driven by the fact that the cost of the  
23 dredging remedy had escalated?  
24 A. Partially, but there was other information too.  
25 Q. But it's fair to say that was a big driver, the

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1 cost increases associated with dredging?  
2 A. It was a driver among others. I mean costs, of  
3 course, is always factored in in the criteria  
4 analysis. Sure, cost-effectiveness, absolutely.  
5 But still, like I said before, it has to be  
6 protective, has to be ARARs.  
7 You have to factor in those other  
8 considerations of long-term effectiveness which  
9 dredging is considered to be -- to have a more  
10 certain long-term effectiveness because you're  
11 taking it out of the river and putting it in a  
12 controlled landfill.  
13 Q. But for example, under the optimum remedy, the  
14 government wouldn't have embraced the capping that  
15 it did unless it believed that there could be  
16 protectiveness achieved through capping as well?  
17 A. Correct.  
18 Q. Obviously.  
19 A. Right. Let me qualify that a little bit. We are  
20 looking at specifically where areas are being  
21 capped and dredged. We do consider some areas to  
22 not be appropriate for capping.  
23 For example, you may know about the  
24 recent discussions we've had relating to an area  
25 just downstream of the De Pere dam which the

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1 government had decided sometime back that this area  
2 was not an area appropriate for capping because of  
3 high turbulence and frazil ice, F-R-A-Z-I-L. It's  
4 ice that forms on the water bottom because of  
5 turbulent water and tends to have erosive effects.  
6 Also because of the turbulence, it  
7 makes caps to be less stable potentially. That's  
8 our view. That was a point of discussion. We have  
9 since come to a resolution on that. But in any  
10 event there are areas that we have looked at that  
11 we believe are not appropriate for capping. Other  
12 areas are fine. You can't generalize in terms of  
13 what works in a particular river.  
14 You have to look at the specific  
15 site conditions and do a careful evaluation of what  
16 we think at least for us as to whether capping  
17 would be appropriate and whether we have sufficient  
18 stability over the long term.  
19 Q. And what type of effort is required to determine  
20 that? Can you give me a sense of what that would  
21 take to determine whether --  
22 A. How long a time to evaluate all that?  
23 Q. To re-evaluate whether -- given a change that has  
24 happened whether dredging or capping might be  
25 appropriate throughout the river.

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1 A. It depends on how comprehensive your evaluation is  
2 and how many alternatives you're considering and  
3 also if you have to revisit the modeling issue, and  
4 that takes time, so it could take a lengthy period  
5 of time to revisit all those issues if you decide  
6 you have to do that.  
7 Q. Can you give me a bookend ranges of --  
8 A. Well, I can tell you how long it took us on the  
9 original RODs. We started -- the first draft of  
10 the first RI/FS was February 1999. It took us  
11 about a year to get to that point.  
12 So say we started in February of  
13 1998. Then the first ROD was I think 2002, I  
14 think, so that's four years and five years for the  
15 second ROD I think was 2003 if I have my dates  
16 right. So for that analysis, it took four or five  
17 years.  
18 Q. And what are the benefits of doing an amended ROD?  
19 Why do that for some changes? Withdrawn.  
20 If there is a fundamental change,  
21 why is it beneficial to do a ROD?  
22 A. Oh, because it's a more comprehensive analysis and  
23 because it does -- also one difference with an  
24 amended ROD is -- versus an ESD explanation of  
25 significant differences is it does allow a public

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1 comment period. That's one difference.  
2 Q. Would you say those are the two primary benefits to  
3 doing a ROD versus an ESD?  
4 A. Those are two that come to mind.  
5 Q. Do any others come to mind?  
6 A. Not off the top of my head.  
7 Q. When the government issued the 2010 ESD, it didn't  
8 endeavor to go back and determine whether in light  
9 of the cost increase that was discovered, whether  
10 it made sense to reallocate the balance between  
11 dredging and capping, is that true?  
12 A. That's true.  
13 Q. In terms of -- withdrawn. There's no reasonable  
14 doubt, is there, that a \$270 million cost increase  
15 if factored into the mix would change the  
16 allocation between dredging and capping? Maybe  
17 that was way too complicated.  
18 A. I don't follow the question.  
19 Q. I'm trying to ask a more direct question. You  
20 don't disagree that if you rebalance capping and  
21 dredging with a \$270 million change in the cost of  
22 the remedy, that that would reallocate the balance  
23 between capping and dredging, do you?  
24 MR. STONE: Objection, vague, calls for  
25 speculation. Go ahead and answer if you can.

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1 THE WITNESS: I can tell you the  
2 explanation of significant differences tells you  
3 our view, which is that we're changing the costs,  
4 and we in fact are changing the cap so that it's --  
5 can result in a bit lower costs than the capping  
6 costs, but it's not quite as thick, and that's --  
7 that's the decision, and that's where we're at. I  
8 mean, the cost didn't drive us to go beyond that.  
9 BY MR. NASAB:  
10 Q. Understood. I think we talked about whether to  
11 figure out the precise changes that would happen  
12 between capping and dredging in light of new cost  
13 information. You'd have to go back and do a sort  
14 of polygon-by-polygon approach?  
15 A. Yeah. That's a whole different analysis.  
16 Q. But having been an experienced person in  
17 remediation projects my question for you is, there  
18 isn't any doubt, is there, that with that increase  
19 of cost, that that would alter the allocation  
20 between capping and dredging if one were to go and  
21 do that polygon-by-polygon analysis?  
22 A. There is a doubt. I don't know if that would be  
23 true.  
24 Q. What's --  
25 A. There are other considerations. The balance of

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1 capping and dredging really relate to other  
2 criteria which would be long term -- like you  
3 mentioned before, long-term effectiveness,  
4 short-term effectiveness, implementability,  
5 preferential treatment -- I'm missing one --  
6 community acceptance and state acceptance.  
7 So you have to look at those. Those  
8 are the things that might drive you in a different  
9 direction, and those conditions haven't changed.  
10 Long-term effectiveness hasn't changed.  
11 Q. So let me ask a different question. Based on the  
12 EPA's experience with designing remedies, you would  
13 agree that it's more likely than not that a  
14 \$270 million cost increase would change the  
15 allocation between capping and dredging in the Fox  
16 River remediation?  
17 A. No, not necessarily.  
18 Q. So it's the government's view that a \$270 million  
19 cost increase may or may not have changed the  
20 allocation between capping and dredging in the Fox  
21 River?  
22 A. Correct.  
23 Q. In terms of -- I assume that that was one of the  
24 reasons the government decided to issue an ESD  
25 rather than an amended ROD, is that fair?

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1 A. We're not changing the remedy if that's your  
2 question. If -- because we're not changing the  
3 remedy, fundamentally changing the remedy, that's  
4 why we haven't done a ROD amendment, correct.  
5 Q. Not --  
6 A. I'm not sure that's the question.  
7 Q. It was a little different. I'll try to be more  
8 clear. I understood your testimony was that  
9 despite having a \$270 million cost increase in the  
10 estimated cost of the remedy, it wasn't clear to  
11 the oversight team managing the remediation whether  
12 that would -- if one were to go and analyze the  
13 question, cause a reallocation between capping and  
14 dredging?  
15 A. Correct.  
16 Q. And I assume that because that wasn't clear to the  
17 oversight team, that was one of the reasons they  
18 chose to issue an ESD rather than a ROD?  
19 A. The EPA issued the ESD.  
20 Q. Was that one of the reasons, the fact that they --  
21 it wasn't clear that that would cause a change in  
22 the allocation between capping and dredging?  
23 A. Well, it's a different question as to whether that  
24 would be a fundamental change or not. In other  
25 words, if you said from a roughly 50/50 mix you

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1 went to a 90/10 mix, would that be a fundamental  
2 change? That's a different question. I don't have  
3 an answer to that right now.  
4 I mean that -- we'd have to give  
5 that a lot more thought. Then as part of that then  
6 you have to ask the question, well, where are you  
7 planning to cap now and that you were going to  
8 dredge before.  
9 So it's a very involved and detailed  
10 sort of question if you were to go there. But we  
11 have no information that indicates that we should  
12 make that change because all the other information  
13 has not changed. In other words, there's nothing  
14 that would cause us to rethink the mix of remedies.  
15 Q. So even a very large cost increase is not something  
16 that would cause you to rethink the allocation  
17 between --  
18 A. Well, you have to also ask your question -- change  
19 the mix. Would that reduce costs or not? That's  
20 another question. You're assuming it would, but I  
21 mean I take it that's behind your -- the premise of  
22 your question. That we don't know. It may.  
23 Generally capping costs seem to be  
24 lower, but still you'd have to look at the  
25 particulars of what they would be.

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1 Q. So I guess the question is, what would be the  
2 increase in the estimated cost of the current  
3 remedy that would trigger the impetus to look at  
4 the cost alternatives?  
5 MR. STONE: Objection. I think he's  
6 answered this question. You've asked him -- what  
7 he's described is a very difficult, complicated  
8 hypothetical, and he said he can't answer that in a  
9 hypothetical sense, so I think it's been asked and  
10 answered.  
11 THE WITNESS: You're really asking the  
12 same question in a different sort of way than you  
13 asked before in terms of what costs would cause it  
14 to have a fundamental change, what percentage would  
15 it be.  
16 And I already said I really can't  
17 answer that because that's a bigger policy-type  
18 question that as a project manager for EPA on this  
19 site, that's not the kind of decision I would make  
20 to make that kind of a policy question -- change  
21 the policy if that's a policy. It probably would  
22 be. And that's the other question. Would it be a  
23 policy change? I'm not sure. It might.  
24 BY MR. NASAB:  
25 Q. Can you give me the current -- as the

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1 representative, can you give me the current policy  
2 of the EPA as to when the cost increase --  
3 A. I can say the -- sorry. I can tell you the  
4 guidances.  
5 Q. Please.  
6 A. Plus 50 minus 30.  
7 Q. And that's the guidance that if you exceed plus 50,  
8 that is when that would trigger a fundamental  
9 change?  
10 A. No.  
11 Q. So please explain to me what the policy is about --  
12 the current policy, the one that exists today, and  
13 in fact in 2010 about when a cost increase would  
14 trigger a new look at the remedial alternatives?  
15 A. That's the same question asking me what is the  
16 cut-off point. As I said, I'm not going to answer  
17 that because it's a policy question, and I'm not  
18 going to set policy here today.  
19 Q. But you also can't tell me what today's policy is  
20 that the EPA uses?  
21 A. It's not a hard line at this point as far as I  
22 know. 62 percent must not be it though.  
23 Q. To your knowledge as somebody who's a decision  
24 maker on this project, before you decided not to  
25 issue a new ROD and to issue an ESD, did you look

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1 at the agency's own practice in prior sites?  
2 A. Well, first of all, I'm not a decision maker.  
3 Q. As someone who's speaking today for the decision  
4 makers as a representative of the United States?  
5 A. I'm not aware of other sites with a similar cost  
6 increase, so the answer is no.  
7 Q. I appreciate that. But did the United States,  
8 before deciding in 2010 decide to issue an ESD and  
9 not a ROD, did it go back and look at precedent for  
10 the agency's own decision in the past to see  
11 whether an ESD was appropriate or an amended ROD?  
12 A. I did not. I can tell you I did have consultations  
13 with our management people who are very  
14 knowledgeable of policy and those kinds of  
15 questions, and they are the ones who said, yes,  
16 this is clearly an explanation of significant  
17 difference. It's not a ROD amendment.  
18 So it wasn't just me at my level but  
19 levels above me also made that determination.  
20 Obviously the decision maker made that decision as  
21 well.  
22 Q. Can you identify for me any prior precedents,  
23 sites, decisions that the United States looked to  
24 as guidance for its decision in 2010 about whether  
25 to issue an ESD or an amended ROD?

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1 A. I did not.  
2 Q. I'm asking if you can identify whether -- any  
3 precedents the agency looked to.  
4 A. Not that I know of.  
5 Q. Are you aware of any prior example -- withdrawn.  
6 Was the government aware of any  
7 prior precedent indicating that a 62 percent  
8 increase in the cost of the project would  
9 constitute a fundamental change?  
10 A. What's the question?  
11 Q. Was the United States in 2010 aware of any prior  
12 precedent that would suggest or indicate that a  
13 62 percent cost increase was in fact the  
14 fundamental change to the remedy?  
15 A. No.  
16 Q. In terms of --  
17 A. I'm starting to lose my voice.  
18 Q. I apologize. Was the United States aware of any  
19 prior site that had experienced a \$270 million  
20 increase in a remediation cost where a ROD was not  
21 issued?  
22 A. No.  
23 Q. Since the issuance of the 2010 ROD, have you become  
24 aware of any examples where a \$270 million cost  
25 increase did not trigger a ROD?

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1 A. No.  
2 Q. Are you aware of any instances -- withdrawn.  
3 Is the United States aware of any  
4 instances where a 62 percent increase in the cost  
5 of remedy was found -- or more -- withdrawn.  
6 Are you aware of any instances where  
7 a 62 percent increase in the cost of remedy -- I'll  
8 withdraw that. Let me think of the right way to  
9 ask this.  
10 What I'm trying to figure out is,  
11 are you aware of any examples where -- any other  
12 examples other than what we have before us where a  
13 cost increase of the magnitude of 62 percent or  
14 more was found not to be a fundamental change?  
15 A. That's a double-negative.  
16 Q. I apologize. Let me try to make it simpler. Are  
17 there any other examples where the government has  
18 dealt with a 62 percent or greater cost increase by  
19 simply issuing an ESD and not an amended ROD?  
20 A. No, not that I know of.  
21 MR. MANDELBAUM: Can I assist? Ask him  
22 whether he's aware of any other 62 percent cost  
23 increases.  
24 BY MR. NASAB:  
25 Q. Are you aware of any other 62 percent cost

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1 increases --  
2 A. No.  
3 Q. -- at a remediation site?  
4 A. No.  
5 Q. At least a 62 percent cost increase was greater  
6 than what you had experienced in your career at a  
7 remediation site?  
8 A. Yes.  
9 Q. And I just want to be -- I think we covered this,  
10 but I want to be clear.  
11 At the time of the 2010 ESD, there  
12 was no effort made to reevaluate the remedy in  
13 light of the \$270 million cost increase in the  
14 existing remedy?  
15 A. Only insofar as the criteria analysis memorandum  
16 did.  
17 Q. And what the criteria analysis memorandum did was  
18 what?  
19 A. I'm trying to remember.  
20 MR. STONE: It's been a long day.  
21 BY MR. NASAB:  
22 Q. Do you have that in front of you?  
23 A. No, I don't. I'm kind of burning out.  
24 Q. Is it fair to say to shortcut it that there was an  
25 examination in light of the cost increase doing all

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1 dredging or all capping, but there was no systemic  
2 effort to reevaluate whether there would be a  
3 re-optimization between capping and dredging in  
4 light --  
5 A. The latter I can say for sure. The criteria  
6 analysis memorandum might have had an evaluation of  
7 all capping versus all dredging. At this point I  
8 don't remember. My voice is going.  
9 Q. Let me try to save your voice and ask about the  
10 part you know about because that's the part I'm  
11 interested in.  
12 In light of the \$270 million cost  
13 increase associated with the 2010 ESD, there was no  
14 effort by the agency to reevaluate the optimal mix  
15 between capping and dredging for the river?  
16 A. Correct, there was not.  
17 Q. What's the benefit of having public comments for  
18 RODs?  
19 A. Well, it can inform the agencies about other  
20 information they may not have known about. That's  
21 one aspect.  
22 Q. One of the things that Mr. Berkin testified to  
23 yesterday was a sense within the agency that --  
24 that the EPA had committed to or represented to the  
25 public that at the time of the 2007 amended ROD

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1 that there would be a dredging or removal remedy  
2 for the Fox River?  
3 A. That was part of the amended remedy, yes.  
4 Q. And in Mr. Berkin's view, there is a sentiment  
5 within the agency that the final remediation of the  
6 river has to include about 3.7 million -- the  
7 removal of about 3.7 million cubic yards of  
8 sediment in order to -- in order to satisfy what  
9 had been told to the public that this would be a  
10 dredging remedy?  
11 A. That's not the reason. The reason is the mix that  
12 we selected -- we selected it because that's what  
13 we considered to be a protective remedy. That  
14 always has to be the overriding concern when we  
15 select a remedy is the protectiveness.  
16 And sure -- I mean, as I mentioned,  
17 the way the process works is we first determine if  
18 a remedy is protective or not. Then we determine  
19 for those remedies if they're both -- say if they  
20 have two or three remedies, if they're all  
21 protective, then we look at the other criteria  
22 analysis, things again like long-term effectiveness  
23 which -- one idea is that dredging is better for  
24 long-term effectiveness.  
25 Q. So to -- so I think we agree that that's what was

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1 looked at in terms of at the time of the 2000  
2 amended ROD and the optimum remedy was selected,  
3 those are the things that went into the mix, right?  
4 A. Right.  
5 Q. My question is more about whether you agree with  
6 Mr. Berkin that there is a sentiment that having  
7 made the statements that were made at the time of  
8 the 2007 amended ROD that this would still be a  
9 dredging remedy, that there is hesitancy to adopt  
10 remedies or remediation that would involve less  
11 than 3.7 million cubic yards of dredging?  
12 A. Well, I can't speak on behalf of DNR.  
13 Q. I'm speaking on behalf of the agency.  
14 A. Of the agency, again, we look at protectiveness,  
15 and granted, sure, the public sentiment of  
16 comments -- though the comments -- some people  
17 misunderstand the comment process, and some people  
18 think it's a vote.  
19 It's not a vote. It's to get  
20 additional information or new information from the  
21 public that may pertain to the other technical  
22 information. That's really what it's for. It's  
23 not to just have people tell us they like it or  
24 don't like it, and a lot of the public sentiment  
25 boils down to that.

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1 Q. So my question is about whether or not a sentiment  
2 exists within the EPA, and particularly the  
3 oversight team of which Mr. Berkin is a member from  
4 the EPA and the other agencies, that in light of  
5 the statements made to the public in 2007 that any  
6 remediation that involves less than  
7 3.7 million cubic yards of dredging is not  
8 acceptable?  
9 A. No. And again, I can't talk for DNR or the  
10 oversight team who's their -- a DNR contractor, so  
11 I can't speak for DNR. I can tell you at the EPA,  
12 sure, there's some people who like capping better,  
13 some people who like dredging better. Is 3.7  
14 million a magic number? No, it's not.  
15 Q. Have you ever heard, for example -- do you attend  
16 AOT meetings?  
17 A. At times.  
18 Q. Have you ever heard the sentiment expressed in AOT  
19 meetings that designs that involve less than 3.7  
20 million cubic yards of dredging will not be  
21 accepted?  
22 A. And the answer is, I have not heard them ever say  
23 that.  
24 Q. Have you heard that sentiment ever expressed?  
25 A. No, I haven't.

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1 Q. Never?  
2 A. Nope, never have. I have heard DNR state on  
3 previous occasions that as the amended remedy says  
4 that this is a -- primarily a dredging remedy, and  
5 capping is all the things that can be done that are  
6 acceptable, but it's primarily a dredging remedy.  
7 The ROD amendment says that, I will say that.  
8 Q. So have you picked up from the DNR that they are  
9 resistant to remedial designs that involve less  
10 than 3.7 million cubic yards of dredging?  
11 A. No.  
12 Q. You've never heard anybody express that sentiment  
13 from DNR?  
14 A. No.  
15 Q. Have you been involved in the implementation of  
16 Scenario 130?  
17 A. Explain to me what that is, please.  
18 Q. Do you know what Scenario 130 is?  
19 A. I have a vague idea. I mean, I know what the 610  
20 rule was. It was a rule that the companies  
21 identified as a rule, quotes/unquotes. It never  
22 was a rule.  
23 It was just a concept that the  
24 oversight team had to put certain criteria on where  
25 we cap and where we dredge. It was never a hard

<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 326</p> <p>1 and fast rule. 2 The 130 scenario is a new thing 3 which I -- to be honest, I'm not sure exactly what 4 this is. So it's kind of -- I don't know if it's a 5 rule, but it's a new concept, if you will. 6 Q. Do you know if in terms of commenting on remedial 7 designs that are submitted to the agency, one of 8 the -- one of the goals of the tweaking that the 9 agency does is to maintain a 3.7 million cubic yard 10 target? 11 A. It's not a hard and fast number. However, I think 12 the ROD amendment does say, again, the remedy is 13 considered to be primarily a dredging remedy. That 14 doesn't necessarily mean it has to be 3.7000, but 15 it has to have a fair amount of dredging. That's a 16 concept. 17 Q. And so not a hard and fast rule, but it's one of 18 the -- a target of the -- 19 A. It would be something that we would compare to. 20 You wouldn't want to divert from it a great deal, 21 or it would become a fundamental change. 22 Q. Have you at all been involved in computing or 23 coming up with the cost savings that would be 24 associated with Scenario 130? 25 A. No. That's a new concept, as I understand it,</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 328</p> <p>1 A. I don't know. They haven't told me. 2 Q. So as the project manager in terms of the PRPs, who 3 would you say has been -- had the heaviest burden, 4 has had to sort of lead the remediation effort so 5 far? 6 A. In this part of the project, it would be NCR and 7 API. How they divide things up, I don't know. 8 It's not clear to me. As I said, GP did have some 9 involvement earlier. It's been lesser lately. It 10 may increase in the future. I don't know. 11 And then there are other companies 12 who have -- then there's -- U.S. Paper was involved 13 in Phase I along with NCR. And then upstream, of 14 course, there's Glatfelter and WTM I, Wisconsin 15 Tissue formally and Menasha. So those are the 16 companies that have been doing the work. Those are 17 kind of the facts that we know. But like I said -- 18 I'm sorry. 19 Q. Does the EPA currently have any estimates or 20 analyses of how many people are -- defined the 21 applicable fish consumption advisories in the OU4 22 area? 23 A. Oh, define it? Not observing it? 24 Q. Yes. 25 A. We really don't know. Back in the RI/FS days, we</p>
<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 327</p> <p>1 developed between the oversight team and the 2 companies, and I haven't been in those discussions 3 lately. 4 Q. I apologize if we covered this. Can you give me a 5 10-second explanation into your background before 6 you joined EPA? 7 A. Yes. I was an exploration geologist -- oil and gas 8 exploration. I worked for Marathon Oil for nine 9 years. The areas I worked, I worked the Gulf of 10 Mexico for a while, west Texas for a while, 11 Michigan basin for a while and then came to EPA in 12 1989. 13 Q. And is your role in EPA partly an engineering sort 14 of technical role? 15 A. Partly. My background is a geologist in project 16 manager positions in Superfund. Different people 17 bring different sorts of expertises to their jobs. 18 Q. Since the UAO was issued in 2007, which party would 19 you say has borne the brunt of the remediation 20 burden? 21 A. You mean of the parties that we issued it to? 22 Q. Yes. 23 A. Obviously NCR and API have done a lot of work, and 24 GP did some. 25 Q. Who would you say has done the most?</p>	<p>Deposition of JAMES HAHNENBERG, 8/28/12 Page 329</p> <p>1 did do an analysis of what we call subsistent 2 fishers, and those people who are subsistent 3 fishers who basically need to fish to live on for 4 food, most of those people do not observe the fish 5 advisories, and the numbers back then were tens of 6 thousands of people. 7 Q. And when was that? What period? 8 A. Gosh, that was like 1990, something like that, a 9 long time ago. We haven't updated that. 10 Q. So in the last 22 years I guess would you -- would 11 it be fair to say that the fish consumption 12 advisory would become better known in the 13 community? 14 A. I take it back. It was 2000, sorry. What was your 15 question? 16 Q. In the last 12 years, the fish consumption 17 advisories have become better known? 18 A. I don't know. 19 Q. Is there any -- in terms of current within the last 20 five, six years, are there any current analyses or 21 estimations by the agency of people who are 22 disobeying the fish consumption advisories? 23 A. No. DNR may know about that. I don't. 24 Q. Does -- are you aware of any studies since the 2000 25 study on that issue?</p>

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1 A. No.  
2 Q. Have there been any studies in the last five or six  
3 years -- withdrawn.  
4 Is there an estimate within the EPA  
5 about the amount of PCBs that are flushed in  
6 current years from OU4 to Green Bay?  
7 A. The last estimate that I know of for sure was based  
8 on the mass balance modeling work, and that was  
9 back in -- I think the data was from the mid-'80s,  
10 and that was like 400 to 600 pounds per year.  
11 In talking to Russ Kreiss a few days  
12 ago, that's been going down. The exact numbers, I  
13 don't know.  
14 Q. So in terms of current amounts of PCBs that would  
15 get flushed from OU4 -- which is the part that  
16 hasn't been remediated yet -- to Green Bay, there's  
17 no current estimate that you're aware of?  
18 A. Not that I know of.  
19 Q. Has there been any analyses or estimations of how  
20 any PCBs flushed from OU4 to Green Bay would be  
21 impacting the environment in Green Bay?  
22 A. There's no recent analyses, however, back in the  
23 RI/FS, we did look at the Green Bay mass balance  
24 modeling -- Green Bay mass balancing effort  
25 actually where they considered those kind of

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1 questions, where the PCBs were and where they were  
2 going.  
3 And as I recall, there are like 200  
4 to 300 pounds or something like that of PCBs going  
5 from Green Bay into Lake Michigan.  
6 Even before that, Fish & Wildlife  
7 Service had done some analyses in terms of the  
8 types of PCBs that were located generally in the  
9 river, in the bay and Lake Michigan -- upper Lake  
10 Michigan, and those analyses strongly suggested  
11 that the PCBs they were observing were coming from  
12 the river in the northern portion of Lake Michigan  
13 somewhere out there too.  
14 Q. But in terms of current efforts to study -- within  
15 the past five, six years to study and understand  
16 the impact on the ecology of the bay from PCBs  
17 coming -- being sort of flushed from OU4 to the  
18 bay, has there been any effort and analysis done by  
19 the EPA on that question?  
20 A. No.  
21 Q. Do you have any view or estimate as to the  
22 percentage of PCBs in OU4 that were discharged by  
23 the Appleton Coated plant and the Combined Locks  
24 Mill plant?  
25 A. No.

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1 Q. Have you -- we've talked about in terms of 2010 ESD  
2 the fact that -- withdrawn.  
3 You've talked about the role that --  
4 the EPA's sort of policies and guidance on cost  
5 estimates impacted the decision about whether --  
6 about issuing an ESD rather than a ROD, correct?  
7 A. Consistent with our guidance.  
8 Q. Yes. What does the EPA's guidance about cost  
9 estimates say about how those cost estimates should  
10 be used in determining whether or not a change in  
11 the remedy is fundamental?  
12 A. The guidance document talks mainly about a ROD  
13 amendment being a fundamental change to the remedy.  
14 Costs are not changing the actual remedy. We're  
15 doing the same thing. That's not changing.  
16 Q. My question's a little different. The EPA has  
17 guidance on cost estimates, correct?  
18 A. Yes. Yeah, and you guys gave me a copy of the  
19 latest detailed version.  
20 Q. In fact, one of the two reasons given for issuing  
21 an ESD rather than a ROD was that 62 percent was  
22 nearly within the top range of the cost estimate  
23 for a ROD, correct?  
24 A. Coming out of a ROD.  
25 Q. But it's fair to say that there's nowhere in EPA

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1 guidance -- anything in writing from the EPA that I  
2 can look at and find that says whether or not a  
3 change in the cost of remedy falls inside or  
4 outside or close to a cost range is indicative of  
5 whether or not that cost change is fundamental?  
6 A. Correct.  
7 Q. In terms of -- I want you to assume something for  
8 me. If NCR had been -- I want you to assume that  
9 NCR discharge is responsible for six to nine  
10 percent of the PCBs in OU4. That's a highly  
11 disputed fact, but I want you to assume that.  
12 A. Okay.  
13 Q. If there was only nine to six percent of the  
14 current PCBs in OU4, how would you estimate that  
15 would impact the remedy in OU4?  
16 A. It's impossible to say.  
17 MR. NASAB: Fair enough. That's all my  
18 questions.  
19 MR. MANDELBAUM: Heidi?  
20 MS. MELZER: I don't have any questions.  
21 MR. MANDELBAUM: On the phone?  
22 MS. HOEFER: I do not have any questions.  
23 MR. YOKOM: I do not either.  
24 MR. MANDELBAUM: One question.  
25 EXAMINATION

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1 BY MR. MANDELBAUM:  
 2 Q. Do you know when the last -- was the 2012 amendment  
 3 to the 100 percent design submitted?  
 4 A. Oh, by the companies --  
 5 Q. Yes.  
 6 A. -- the latest draft 100 percent design you mean?  
 7 Q. Yes.  
 8 A. I don't know exactly.  
 9 Q. You don't know?  
 10 A. No.  
 11 MR. MANDELBAUM: Okay. Thank you.  
 12 MR. STONE: I have one question.  
 13 EXAMINATION  
 14 BY MR. STONE:  
 15 Q. I forget at this point which of the attorneys it  
 16 was that was asking you this set of questions, but  
 17 I'm afraid the record got confused on the question  
 18 whether the computer models that would use this  
 19 site analyzed or predicted things like sediment  
 20 movement and re-suspension. Do you remember that  
 21 line of questioning?  
 22 A. Yes.  
 23 Q. So what's your understanding on that question?  
 24 A. I may not have been clear in terms of what the  
 25 different models do. The whole Lower Fox River

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1 model and the enhanced Green Bay Toxics models are  
 2 fate and transport models.  
 3 What they analyze is how the PCB  
 4 sediments move within the system. The other two  
 5 models I talked about -- well, they're three models  
 6 also. There's the sediment bed. They consider  
 7 that a model in the documentation.  
 8 The other two models are the food  
 9 models, and those evaluate bioaccumulation based on  
 10 input from the fate and transport models.  
 11 MR. STONE: I have one final notation for  
 12 the record. Any -- we're done with questioning, is  
 13 that right?  
 14 (No response.)  
 15 MR. STONE: Okay. My observation for the  
 16 record is during the course of this deposition and  
 17 many of the others we've had recently, the  
 18 plaintiffs have allowed questioning into details  
 19 about the remedy selection process that we don't  
 20 believe is appropriate territory for discovery in  
 21 this case, but we've allowed it to go forward  
 22 because there's a pending motion on the scope of  
 23 the record and whether record supplementation is  
 24 required. And because we have not gotten the  
 25 judge's ruling on that, we have allowed this to go

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1 forward.  
 2 We, nonetheless, preserve objections  
 3 that it will not be appropriate to consider that  
 4 discovery and that information at the appropriate  
 5 time. So I understand there are different views on  
 6 that, but we're just making that observation for  
 7 the record. And with that, I think we're done.  
 8 (Deposition concluded at 5:45 p.m.)  
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1 STATE OF WISCONSIN )  
 2 MILWAUKEE COUNTY ) SS:  
 3  
 4 I, Dawn M. Lahti, RPR, Certified  
 5 Realtime Reporter, and Notary Public in and for the  
 6 State of Wisconsin, do hereby certify that the  
 7 preceding deposition was recorded by me and reduced  
 8 to writing under my personal direction.  
 9 I further certify that said  
 10 deposition was taken at 710 North Plankinton  
 11 Avenue, Milwaukee, Wisconsin, on the 28th day of  
 12 August, 2012, commencing at 9:03 a.m.  
 13 I further certify that I am not a  
 14 relative or employee or attorney or counsel of any  
 15 of the parties, or a relative or employee of such  
 16 attorney or counsel, or financially interested,  
 17 directly or indirectly, in this action.  
 18 In witness whereof, I have hereunto  
 19 set my hand and affixed my seal of office on this  
 20 6th day of September, 2012.  
 21  
 22  
 23 DAWN M. LAHTI, RPR  
 24 Certified Realtime Reporter  
 25 Notary Public  
 My commission expires April 17, 2016.

<b>\$</b>	18,23,24;197:20; 219:6;227:9,11; 242:16;268:5;286:6; 317:19	52:21;84:14;307:16	4;300:16;330:25	<b>affects (1)</b> 90:5
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UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF WISCONSIN

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UNITED STATES OF AMERICA and  
STATE OF WISCONSIN,

Plaintiffs,

v.

Case No. 10-C-910

NCR CORP. et al.,

Defendants.

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**DECISION AND ORDER**

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In 2010, the United States and the State of Wisconsin (the Governments) sued NCR Corporation and several other potentially responsible parties to enforce compliance with a Unilateral Administrative Order issued by the EPA in 2007. Although much has happened already in this lawsuit on that score, until now the remedy ordered by the Governments—a remedy that favors dredging and removal of contaminated material rather than capping or other, less aggressive, measures—has not been subject to judicial review. Certain of the Defendants have now filed a motion seeking summary judgment against the Governments on the ground that the administrative record is fatally incomplete due to the destruction of certain computer model data and programs that were instrumental in developing the remedy imposed. In the alternative, these Defendants ask that they be allowed to provide additional evidence to supplement the administrative record. For the reasons given below, the motion will be denied.

## **I. Background**

“The purpose of the remedy selection process is to implement remedies that eliminate, reduce, or control risks to human health and the environment.” 40 CFR § 300.430(a). The Governments’ basic theory is that after fish are exposed to PCB-laden Fox River sediment, the PCBs flow to humans, posing an unacceptable risk to humans’ health. This is not especially controversial as a basic premise; however, the *extent* of the risk based on given concentrations and locations of PCBs within river sediment is very controversial. The Defendants believe (in shorthand) that many areas of the River did not need to be dredged because capping, a less-expensive undertaking, would control the release of PCBs into the River and would not stir them up in the way that dredging might.

As suggested earlier, however, the actual merits of the remedy selected by the Governments are not presently before me. Instead, the question is whether that remedy may be reviewed meaningfully when certain parts of the computer model that guided selection of that remedy are absent from the record. Thus, although the particulars of the remedy imposed are not before me, the *process* of selecting that remedy is, and understanding that process requires an assessment of what kinds of data and assumptions were used in crafting the remedy.

Because the flow of PCBs from a riverbed into humans is such a complex process, the data and assumptions were incorporated into various computer models that could predict long-term PCB concentrations over a hundred years. The fundamental model at issue here is called the wLFRM (Whole Lower Fox River Model, or, to economize on abbreviations, just “the Model”). The Governments used this model to simulate the movement of PCBs within the river, or what people in the aquatic modeling business call “fate and transport.” The results of this model were then

plugged into three other models, including two “food chain” models that simulated the accumulation of PCBs in the aquatic food chain in the river and in Green Bay. With these models, the Governments could then test different remedial alternatives (including *no* remedy at all) to see which ones were the most efficacious and cost-effective in mitigating the environmental danger. (Zhang Decl., ¶ 9-10.)

The models were developed over several years, based on field studies and calibration based on known data. For instance, the DNR could compare the model’s predictions to actual data in the River, which allowed its scientists to calibrate the model to achieve more accurate results. (Zhang Decl., ¶ 17-18.) It is essentially undisputed that the wLFRM formed the basis of many of the predictions the Governments used to select the remedy.

A computer model, of course, is not a physical “thing” in the traditional sense—it is more akin to a process. The Model in this case includes a computer program known as IPX, input files for that program, and the data ultimately generated from that program based on those inputs. (Zhang Decl. ¶ 26.) The inputs, in turn, were created with other computer programs called “pre-processors.” These programs calculated such things as river flow and rates of particle suspension. These pre-processors then generated the data files that became the inputs into the Model.

Once the IPX program ran the inputs, it produced data files predicting the concentration of PCBs in the River at various times. These data files were then processed by “post-processor” programs, which in turn produced files that were used as inputs in the additional models described above. As one of the Defendants’ experts succinctly summarized things, “The wLFRM is a series of preprocessors, models and postprocessors designed to work in concert with one another in order to model the PCB fate and transport in the river and to pass these results to the FRFood Model.”

(Dkt. # 449 ¶ 11.) In short, all of these components could reasonably be called part of “the” Model: “Similar to an automobile, the IPX model is the engine, an important component, but it will not run if does not have a fuel pump or spark plugs (preprocessors) and the wheels will not turn and make the automobile move forward without the transmission and axles (postprocessors).” (*Id.*)

As noted at the outset, some of the files just described are *not* part of the administrative record. In particular, the input files for the pre-processor programs are absent, as are the output files from the IPX program. Similarly, one of the two post-processor programs, called Exposure.f, is also absent. The Wisconsin DNR’s Dr. Zhang states that because the *input* files do exist, however, anyone with the IPX program could re-create the results by simply running the existing input files through it. (Zhang Decl., ¶ 40.) And, because the heretofore missing post-processor program “Exposure.f” has recently been provided to the Defendants, the input files for the additional models may also be generated.

Thus [Dr. Zhang argues], because the Defendants have a copy of the input files for the final model runs, a copy of the IPX computer program code, and a copy of both post-processors, it is possible for them to run the model using the inputs from the model runs that formed the basis of EPA’s and WDNR’s selection of PCB cleanup levels for the Site, assuming they use a computer capable of running the IPX 2.7.4 program. Based on those model runs, they can also use the post-processors to reproduce the table files and subsequently the \*.rr files from the model runs that were used as input files for the other models.

(Zhang Decl. ¶ 43.)

There are two central problems with Zhang’s statement, the Defendants believe. First, even if the record contains the files input into the IPX program, and even if all the preprocessors have been provided, the record remains devoid of information about the input files that went into the preprocessor programs. A second problem is that the Exposure.f program that was recently

provided to the Defendants (which is not in the record) does not appear to be the same as the one used to generate the final Model. At least, according to the Defendants' expert Dr. Annear, there are discrepancies in the input files used for Exposure.f that prevent the Defendants from processing the Model and recreating the Governments' results.

## **II. Analysis**

The Defendants argue that they are entitled to summary judgment because the incompleteness of the administrative record means that this Court will not be able to meaningfully review the remedy the Governments selected. In the alternative, they ask that they be allowed to supplement the record by taking further discovery and providing expert testimony.

### **A. Summary Judgment**

The Defendants argue that the absence of a complete Model in the record precludes the Governments from demonstrating that the Model is scientifically viable, which means this Court cannot determine whether the remedy selected is reliable, risk-based or cost-effective, as required by CERCLA. The Court must be able to "satisfy [itself] that the agency 'examined the relevant data and articulated a satisfactory explanation for its action including a rational connection between the facts found and the choice made.'" *Bagdonas v. Dept. of Treasury*, 93 F.3d 422, 426 (7th Cir. 1996) (citations omitted).

If this Court were an independent laboratory charged with reproducing the Governments' model results, the Defendants would be on firmer footing. But of course that is not the charge that Congress has given to the courts in CERCLA cases. For a variety of sensible reasons, courts are asked merely to determine whether the remedy selected was arbitrary and capricious, that is,

whether the remedy was the product of bad faith or other improper motives, or whether there are glaring errors and omissions in the record. “Ours should not be the task of engaging in a *de novo* review of the scientific evidence pro and con on each proposed remedy in the hazardous substance arena. The federal courts have neither the time nor the expertise to do so, and CERCLA has properly left the scientific decisions regarding toxic substance cleanup to the President's delegatee, the EPA administrator and his staff.” *United States v. Akzo Coatings of Am., Inc.*, 949 F.2d 1409, 1424 (6th Cir.1991). As the Supreme Court has held, “[i]t is not our task to determine what decision we, as Commissioners, would have reached. Our only task is to determine whether the Commission has considered the relevant factors and articulated a rational connection between the facts found and the choice made.” *Baltimore Gas and Elec. Co. v. Natural Resources Defense Council, Inc.*, 462 U.S. 87, 105 (1983). “When examining this kind of scientific determination, as opposed to simple findings of fact, a reviewing court must generally be at its most deferential.” *Id.* at 103.

That the administrative record does not allow complete replication of the results of one of the Governments’ models does not, *per se*, mean a court is unable to determine from the *rest* of the record whether the Governments’ action was arbitrary or capricious. As Dr. Zhang describes in great detail, the Model was developed over more than ten years of field studies and calibrated to known PCB concentrations in the River. The Model was not a secret program run in a mysterious back room in some nameless government building, but was instead the product of years of work and interaction with several interested parties, including some of the Defendants.

The Defendants take issue with a number of Dr. Zhang’s explanations, but ultimately their objections go to the *correctness* of the remedy far more than the process. Here, for example, the

Defendants note that the Governments tested 0.125 ppm, 0.25 ppm, 0.5 ppm, 1 ppm and 5 ppm, but did not test remedies at levels between 1 and 5 ppm. “Without a working copy of the model [they argue] it is impossible to verify that a remedial action level of 1 ppm is appropriate.” (Def. Br. at 20.) But “appropriate” is not the question here, because “appropriate” suggests a focus on whether the result is the best possible result (assuming that is even knowable). The question, instead, is whether the Government was reasonable in its method of choosing that remedy and whether the remedy has a rational (rather than arbitrary or capricious) basis. That is, did it consider relevant evidence and viewpoints, or did it rush through the process? To show that the remedy was arbitrary and capricious, the Defendants will need to show not just that the remedy was not the best one, or the “appropriate” one, but that the remedy was so erroneous as to be an arbitrary one.

Arbitrary and capricious are terms that describe the *manner* of remedy selection more than anything else. 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. The existence of a perfectly reproducible model is not necessary to determine whether the Government’s actions were arbitrary or capricious.

For example, it is well-known that many scientific questions do not have perfect, settled answers, despite countless studies and millions of dollars in research: the age of the universe, the origin of language, the causes and / or existence of climate change, or even the widespread use of statins to control cholesterol—these questions are the subject of countless scientific studies and ongoing, sometimes heated debates. These studies often lead to diametrically opposite conclusions, despite being undertaken by eminent scientists using well-accepted and rigorous methods. A panel

of experts asked to review a given study might well want to look at every model used to achieve the result; they might even want to replicate the study in all material respects before declaring the result sound. By contrast, if the question is limited to whether the result achieved by the study was arbitrary and capricious, a reviewing body may look at the methods used and other testimonial evidence to determine whether the process was undertaken using appropriate scientific methods *without* needing to subject the actual models to re-testing. It could review a lengthy record detailing the deliberative process and hear from those involved in the study to reach a conclusion that the process was duly serious and based on sound scientific principles. The fact that certain aspects of the process may be open to debate would rarely undermine the validity of the process itself.

For these reasons, I conclude that a reviewing court may undertake a meaningful arbitrary-and-capricious review of the remedy process even if significant parts of a key model are absent from the administrative record. Accordingly, the Defendants are not entitled to summary judgment.

#### **B. Supplementation of the Record**

In the alternative, the Defendants ask that they be allowed to supplement the administrative record by taking discovery and offering expert testimony. This, they argue, would allow them to explain and fill in any gaps that exist in the administrative record due to the absence of a full Model. Although ostensibly an attractive solution, supplementation of the record would be an unusual remedy under these circumstances. To review, the complaint is that the Government destroyed certain files that were used in running its fate and transport model. In the typical case, the party asking for supplementation seeks to add missing documents into the administrative record. *See, e.g., Kent County, Delaware Levy Court v. U.S. E.P.A.*, 963 F.2d 391 (D.C. Cir. 1992) (internal EPA documents added to the administrative record). But here, the missing files apparently no

longer exist. They *cannot* supplement the record. The Defendants propose to conduct discovery and provide expert testimony, but none of that will bring back the files they say they need. Accordingly, the remedy sought does not solve the problem the Defendants have identified.

The Defendants also suggest that supplementation is required because expert testimony is necessary to explain the problems with the models the Governments used. If the Model no longer exists (at least in its most complete form), the Governments are simply asking the Court to take their word for the fact that their “black box” produced viable results. But once again, testimony from additional experts will not bring back the missing files. Moreover, any problems in the Model would have existed *regardless* of whether the missing files were destroyed or not. If the files still existed, expert testimony would *not* be available to question the Model along the lines the Defendants now propose. It is thus unclear why additional inquiry should be allowed simply because certain files might be missing. In other words, the expert testimony proposed by the Defendants does not address anything pertaining to the loss of the files, nor does it propose to fill in any of the missing gaps or explain anything that might now be unclear because the files have been lost. (Def. Br. at 23, Dkt. # 388.) As noted earlier, the proposed remedy of supplementation is not correlated to the problem the Defendants have identified because expert testimony and further discovery would not remedy any gaps in the record that might exist.

A final problem with the Defendants’ proposal is that it overlooks an important aspect of judicial review, which was highlighted in Part A above. Although it is clear that the administrative record does not have every single data file in it, that does not mean the record is hopelessly incomplete for purposes of review in federal court. If the goal in this Court were to analyze every

conclusion and assumption to test their scientific merit, the Defendants might have a point, because it seems clear that reproducing the Model in exactly the same fashion as it was originally run will now be difficult or impossible. But of course that is not the goal of review at this stage. The question is not whether the Governments arrived at the perfect, scientifically demonstrable, solution to the PCB problem—it is whether they arrived at a solution that was neither arbitrary nor capricious. Arbitrary and capricious review applies whether the record is supplemented or not. *Kent County, Delaware Levy Court*, 963 F.2d at 398 (applying arbitrary and capricious standard after supplementing record).<sup>1</sup>

In short, determining whether the remedy was arbitrary or capricious does not require reproducing a Model that has already been run, at least under these circumstances. The Model was not prepared in a dark room by an unnamed graduate student but was developed over several years with public input. A 124-page summary report on the Model was prepared by the DNR in 2001, replete with data and graphs. (Dkt. # 439, Ex. 15.) The Governments provided a 300-plus page report of *twenty* case studies from other dredging sites. (*Id.* at Ex. 1-3.) The record also contains other ample evidence explaining the Governments' methods and assumptions in developing the Model and, more generally, the remedy. I am satisfied that the record is ample enough to allow a reviewing court to determine if the remedy selected fails the arbitrary and capricious standard.

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<sup>1</sup>Although in some cases supplementation of the record would mean *de novo* review of the materials added to the record (because they had not been considered by the agency), that does not mean that the entire remedy is subjected to *de novo* review merely by virtue of the supplementation of additional information. The purpose of supplementing the record is to explain gaps or provide technical guidance—not to undo the entire administrative scheme and eliminate the deference that the EPA is owed in selecting the remedy.

Accordingly, the Defendants' motions for summary judgment [Dkt. # 386, 402] are **DENIED**.<sup>2</sup> The motion for leave to file a sur-reply [458] is **GRANTED**.

**SO ORDERED** this 30th day of August, 2012.

s/ William C. Griesbach  
\_\_\_\_\_  
William C. Griesbach  
United States District Judge

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<sup>2</sup>NCR asks that it be allowed to supplement the record on the so-called "6/10 Rule," but I am satisfied that such a rule has not been adopted thus far. As such, it would be premature to incorporate a review of a rule whose existence is not even certain.

# Episodic Flexiplace Work Description

Complete this form prior to working at an episodic flexiplace AWL.

Name: James Hahnenberg

AWL Phone Number: (312) 353-4213

AWL Planned Work Date(s) and Schedule:

Date		Start Time	End Time	Total Work Hours	A/L Hours	S/L Hours
From	To					
09/25/12	09/25/12	7:00 am	4:30 pm	9.00		

## Work Description:

- Reviewing Fox River transcript of Deposition I conducted on August 28, 2012.
- Revision of Spartan Chemical 5 Year Review.
- Reviewing emails.
- Drafting letter for approving Fox River Monitoring Plan.
- Review of letter in response to request to extend schedule for Remedial Design at the Fox River.

Forwarding work phone.

Employee's Signature: CN=JAMES HAHNENBERG/OU=R5/O=USEPA/C=US Date: 09/24/2012

Immediate Supervisor's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

*A Self-Certification Time and Attendance Report and an Accomplishment Report must be submitted to the immediate supervisor at the end of the pay period during which work was performed at an AWL.*

# Audit Trail for Episodic Flexiplace

**PDF Name:**epiformv2.pdf

**Form Number:**EPA-100

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