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1 ILLINOIS POLLUTION CONTROL BOARD  
2 IN THE MATTER OF: )  
 )  
3 WATER QUALITY STANDARDS AND ) R08-09  
EFFLUENT LIMITATIONS FOR THE ) (Rulemaking-  
4 CHICAGO AREA WATERWAY SYSTEM ) Water)  
AND THE LOWER DES PLAINES )  
5 RIVER: PROPOSED AMENDMENTS )  
TO 35 Ill. Adm. Code Parts )  
6 301, 302, 303 and 304 )

7 REPORT OF PROCEEDINGS held in the  
8 above-entitled cause before Hearing Officer Marie  
9 Tipsord, called by the Illinois Pollution Control  
10 Board, taken before Laura Mukahirn, CSR, a notary  
11 public within and for the County of Cook and State  
12 of Illinois, at the Thompson Building, 100 West  
13 Randolph, Chicago, Illinois, on the 3rd day of  
14 December, 2008, commencing at the hour of 9:00 a.m.  
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1 A P P E A R A N C E S  
2 MS. MARIE TIPSORD, Hearing Officer  
MR. THOMAS JOHNSON, Acting Chairman  
3 MS. ALISA LIU, Member  
MS. ANDREA MOORE, Member  
4 DR. SHUNDAR LIN, Member  
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5 Pollution Control Board  
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Water Reclamation District

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1 HEARING OFFICER TIPSORD: Good  
2 morning, everyone. This is Day 2 of eight  
3 sets, which means it's Day 23. I'm not going  
4 to repeat everything I said yesterday, but  
5 good morning. This is RO 8-9, Water Quality  
6 Standards and Effluent Limitations for the  
7 Chicago Area Waterway System and Lower Des  
8 Plaines Proposed amendments to 35 Ill. Admin.  
9 Code 301, 302, 303 and 304. As I indicated  
10 yesterday, Dr. Girard has a family emergency  
11 and can't be with us, but here for him today  
12 is on my left board member Thomas Johnson.  
13 We also have present with us to my far right  
14 board member Dr. Shundar Lin, to the next  
15 seat over is board member Andrea Moore, and  
16 from our technical unit today to my immediate  
17 right is Alisa Liu. We are with Miss Wasik,  
18 Jennifer Wasik from the District. Miss Wasik  
19 was sworn in yesterday and we were proceeding  
20 with questions from the IEPA. We are on  
21 Question 20. The schedule today will be  
22 good. I know that I think everybody except  
23 maybe one or two of us has a distance to  
24 drive at the end of the day, and with the

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1 winter weather advisory, and since I've  
2 already heard two different forecasts this  
3 morning as to when it's going to hit and how  
4 much snow we're going to get, we'll see what  
5 we can do and we'll revisit everything later  
6 in the morning.

7 So with that, if we could  
8 continue with Miss Wasik and the Agency.

9 MS. WILLIAMS: Good morning,  
10 Miss Wasik.

11 MS. WASIK: Good morning.

12 MS. WILLIAMS: Question 20: You  
13 testify on Page 5 that, quote, Hester-Dendy  
14 samples yielded a total of 22 species while  
15 ponar samples only had five species as would  
16 be expected given the high quality lake water  
17 in this reach and poor sediment habitat  
18 quality. Subpart A: Of these 22 species,  
19 how many are considered tolerant and  
20 intolerant?

21 MS. WASIK: I have to clarify first.  
22 What system would you want me to use to

23 distinguish tolerant from intolerant?

24 MS. WILLIAMS: Well --

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1 MS. WASIK: I don't think there's  
2 necessarily a precise cutoff unless you  
3 relate the rating use for the draft IBI, the  
4 Tetratech.

5 MS. WILLIAMS: You don't feel you can  
6 answer without a specific methodology?

7 MS. WASIK: Well, I believe Tetratech  
8 has, I think it's a draft, and IBI for  
9 Illinois. And I did -- I do have a copy of  
10 that from Mark Joseph, so I could use that as  
11 a cut-off. I believe they say three is the  
12 cutoff for intolerant species. And if I use  
13 that, then in the Chicago River there were  
14 three intolerant species, 16 tolerant and  
15 three were not rated.

16 MR. ANDES: And we can provide copies  
17 of that documentation.

18 MS. WILLIAMS: I'm sorry, Fred. What  
19 did you say?

20 MR. ANDES: The draft MIBI documents  
21 that Miss Wasik is referring to, we can  
22 provide copies of.

23 MS. WILLIAMS: No. I don't think  
24 that's the question. I guess the question is

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1 that document identifies intolerant species.  
2 Does it identify which species are tolerant  
3 also?

4 MS. WASIK: There's a rating of 1-10,  
5 10 being the most tolerant solution. And  
6 then I believe there's in the --

7 MR. ANDES: I think we'd like to get  
8 this into the record.

9 HEARING OFFICER TIPSORD: Yes. I  
10 think we need to put it into the record, too,  
11 since her answer is based on this  
12 methodology. Am I stating that correctly?

13 MS. WASIK: Yes. I believe it says  
14 that they consider three or less an  
15 intolerant species. If you'd like me to  
16 answer it a different way --

17 MS. WILLIAMS: Are you saying that  
18 four or greater is what you're using toward  
19 tolerant then or greater than three?

20 MS. WASIK: Actually, it would be --  
21 Let's see. Yes, three or less is intolerant.

22 MR. ANDES: We have two documents to  
23 add to the record.

24 MS. WASIK: I mean -- sorry.

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1 HEARING OFFICER TIPSORD: Let's put  
2 these in the record, first. Because we may  
3 want to take a look.

4 MR. ANDES: The first one is a

5 November 2004 document prepared for Illinois  
6 EPA by Tetrattech entitled Illinois Benthic  
7 Macroinvertebrate Collection Method  
8 Comparison and Stream Condition Index  
9 Revision. And the second document is an  
10 attachment to that with the title Computing  
11 the Macroinvertebrate IBI, MIBI.

12 HEARING OFFICER TIPSORD: I'm going to  
13 enter both of those contrary to the building  
14 of the exhibit numbers, since one is an  
15 attachment to the other, we'll just do one  
16 exhibit number. We'll mark this report and  
17 the attachments Exhibit 190, if there is no  
18 objection.

19 Seeing none, it's Exhibit 190.

20 MS. WILLIAMS: Subpart B, is it true  
21 that the Hester-Dendy substrate and petite  
22 ponar samples at Wells each consisted of more  
23 than 90 percent aquatic forms?

24 MS. WASIK: Yes.

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1 MS. WILLIAMS: Subpart C: Did  
2 gammarus fasciatus, an intolerant amphipod  
3 make up 56 percent of the population in a  
4 Hester-Dendy sample at Lake Shore Drive but  
5 only 4 percent at Wells Street?

6 MS. WASIK: Yes. Total density was  
7 over twice as high at Wells Street compared  
8 to Lake Shore Drive. And I think this is due  
9 generally to oligochaete density.

10 MS. WILLIAMS: Is that your answer to  
11 the second subpart? The second subpart of  
12 this question says given the above statement  
13 about high quality lake water and poor  
14 sediment quality in this reach, how do you  
15 explain this to decline?

16 MS. WASIK: Perhaps because Lake Shore  
17 Drive is right at the lake, whereas Wells is  
18 a little over a mile downstream inland and  
19 the Chicago River near the confluence with  
20 the north and south branch.

21 MS. WILLIAMS: Question 21: On Page 6  
22 of your testimony in reference to the south  
23 fork of the south branch Chicago River, you  
24 state that, quote, "Tolerant benthic

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1 invertebrate taxa comprise over 99 percent.  
2 Is this true for both Hester-Dendy and petite  
3 ponar samples?

4 MS. WASIK: Yes.

5 MS. WILLIAMS: Question 22: On Page 6  
6 of your testimony in reference to the south  
7 fork of the south branch Chicago River, you  
8 state that, quote, "Sediment toxicity  
9 bioassays also confirm toxicity to chironomus  
10 tentans." Is it true that samples from 2006  
11 had 66 percent and 75 percent survival and

12 were not significantly different compared to  
13 the control?

14 MS. WASIK: 2006 samples from Bubbly  
15 Creek showed significantly different ash-free  
16 dried weight meaning that there was impaired  
17 growth. But decreased survival was only  
18 indicated in the two 2002 samples where  
19 survival was 14 and 59 percent.

20 MS. WILLIAMS: Okay. The question is  
21 referring to the 2006 samples.

22 MS. WASIK: Right.

23 MS. WILLIAMS: So the answer is yes  
24 for 2006?

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1 MS. WASIK: Yes.

2 MS. WILLIAMS: I'm going to skip ahead  
3 to 29, because I think that's more similar  
4 questions and then come back to 23.

5 Question 29: With regard to  
6 your macroinvertebrate sampling methods, how  
7 deep were petite ponar samples in each of the  
8 waterways side and center?

9 MS. WASIK: So when you ask how deep,  
10 you're talking about water depth or sediment  
11 depth?

12 MS. WILLIAMS: I think water depth.  
13 Yes. Water depth.

14 MS. WASIK: Water depths can vary  
15 depending on the waterway. Hester-Dendy  
16 samplers are deployed at various depths  
17 depending on the waterway. Usually we set  
18 the sampler in an area where it will not dry  
19 out during low flow. The plates are attached  
20 to an anchor that sits on the river bottom.  
21 So the plate would be a few inches off the  
22 bottom. And the U.S. EPA 2006 guidance that  
23 I mentioned yesterday states, quote,  
24 deployment depth is chosen so that receiving

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1 or rising waters during the exposure period  
2 will not leave samplers dry or too deep to  
3 retrieve.

4 MS. WILLIAMS: So when you say a few  
5 inches off the bottom, what do you mean?

6 MS. WASIK: So there's a river anchor,  
7 and we have the Hester-Dendy plates attached  
8 to that. So the anchor sits on the bottom  
9 and the plates are coming off of an eye hook  
10 on the top. So maybe three inches from the  
11 bottom of the anchor.

12 MS. WILLIAMS: How deep were the  
13 Hester-Dendy substrates deployed?

14 MR. ANDES: I think that was the --

15 MS. WILLIAMS: I'm sorry. No. So --

16 MR. ANDES: Yes.

17 MS. WASIK: I'm sorry. Did I answer

18 the --

19 MS. WILLIAMS: Did you answer the  
20 wrong question? You answered them both  
21 together, and I missed it.

22 MS. WASIK: I guess I answered them  
23 both because the first one for the ponar, it  
24 does depend on the waterway.

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1 MS. WILLIAMS: Okay. What were the  
2 ranges then?

3 MS. WASIK: Generally it's probably  
4 about -- It can range quite a bit. Because  
5 in the Ship Canal at the side you might have  
6 depth of maybe seven feet in some areas  
7 and -- seven feet in some areas or it could  
8 even be deeper. I think they could be in  
9 water as shallow as three feet.

10 MS. WILLIAMS: Question 30: Is it  
11 true that oligochaeta were the predominant  
12 organism in the petite ponar grab samples  
13 making up 86 percent to 100 percent from all  
14 the CAWS sites except for Chicago Sanitary  
15 and Ship Canal at Lockport and South Branch  
16 Chicago River?

17 MS. WASIK: No. Oligochaete worms  
18 were not the predominant organism collected  
19 in all ponar samples for the CAWS monitoring  
20 stations, and there are other exceptions  
21 besides the South Branch Chicago River.

22 MS. WILLIAMS: So --

23 MR. ANDES: Why don't you go on to  
24 talk about what those exceptions were.

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1 MS. WASIK: Percent oligochaeta in  
2 ponar samples was less than 86 percent in  
3 some stations in the Calumet River in 2002  
4 and 2005.

5 MS. WILLIAMS: How much less?

6 MS. WASIK: I would have to check.

7 MS. WILLIAMS: Okay.

8 MS. WASIK: The Chicago Sanitary and  
9 Ship Canal at Steven Street is -- in 2002 was  
10 13 percent oligochaeta. And, let's see, the  
11 Chicago Sanitary and Ship Canal at Harlem  
12 during 2004 at one station and the Cal-Sag  
13 Channel during 2004 and at one station in the  
14 North Shore Channel during 2004. And then in  
15 addition, the one station that you mentioned  
16 in the South Branch Chicago River in 2002.

17 HEARING OFFICER TIPSORD: Miss Wasik,  
18 this information is -- You've provided like  
19 tables in the attachments?

20 MS. WASIK: Right.

21 HEARING OFFICER TIPSORD: Could you  
22 specify which attachments we would look at to  
23 find that information?

24 MS. WASIK: Sure. That would be --

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1 Let's see. That would be testimony  
2 Attachments 22, 23, and 24.

3 HEARING OFFICER TIPSORD: Thank you.

4 MR. ANDES: And then -- I'm sorry. Go  
5 ahead.

6 MS. WASIK: And oligochaeta was the  
7 dominant organism in the ponar samples from  
8 Lockport during all the years.

9 MS. WILLIAMS: Would you agree -- This  
10 is the second part of 30: Would you agree  
11 that sediment contamination did not seem to  
12 make a difference in the relative abundance  
13 of oligochaeta?

14 MS. WASIK: I guess I don't know  
15 specifically whether sediment contamination  
16 did or did not make a difference in the  
17 relative abundance of oligochaete worms,  
18 because I haven't actually done any  
19 multivariant statistics to try to isolate  
20 that factor with the relative abundance. The  
21 fine sediments with organic contamination, I  
22 wouldn't expect a correlation because this is  
23 a really tolerant group.

24 MS. WILLIAMS: I'm going to strike 31

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1 and move on to 32. You have indicated that  
2 Hester-Dendy substrate samples had more EPT  
3 taxa than petite ponar grab samples. How  
4 many taxa of terichoptera and plecoptera, I'm  
5 sure I'm saying it wrong,  
6 p-l-e-c-o-p-t-e-r-a, would you expect to be  
7 found in fine sediment such as silt and sand?

8 MS. WASIK: It's sort of a broad  
9 question. I don't know exactly how many  
10 would be found. I know they generally live  
11 in cobble and gravel interstices, maybe in  
12 leaf litter and plant debris. However, the  
13 fact that you find limited EPT taxa in the  
14 Hester-Dendy and not the ponar sample, I  
15 think, as I said earlier, it just means that  
16 if there were appropriate habitat for those  
17 species, then they could possibly live in  
18 sediment.

19 MS. WILLIAMS: But you agree that it  
20 would be normal even in a natural river  
21 dominated by silt and sand to find these same  
22 results of greater EPT taxa in the  
23 Hester-Dendy than on the petite ponar sample,  
24 correct?

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1 MS. WASIK: Possibly.

2 MS. WILLIAMS: Subpart B asks: Is it  
3 true that only about nine EPT taxa were found  
4 on Hester-Dendy samples throughout the CAWS  
5 through 2001 to 2004?

6 MS. WASIK: Yes. It's true that nine  
7 taxa were found. That's different than

8 number of individuals, but nine taxa were  
9 found.

10 MS. WILLIAMS: Right. And that each  
11 of these taxa make up less than 1 percent of  
12 the population at all sites except one?

13 MS. WASIK: Yes. That's true.

14 MS. WILLIAMS: Can you explain how  
15 this information about the oligochaete and  
16 EPT taxa in the Hester-Dendy samples  
17 indicates good water quality?

18 MS. WASIK: Is good water quality a  
19 quote? Because I -- if you could show me  
20 where I said good water quality.

21 MS. WILLIAMS: It is in quotes, so let  
22 me see if I can find it.

23 So would you disagree then  
24 you're not saying that there's good water

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1 quality in the water column? I guess maybe I  
2 should ask it that way.

3 MS. WASIK: I guess what I would say  
4 is looking through my testimony, I couldn't  
5 find where I've used the word good. But I  
6 did say on Page 9-10 finally higher taxa  
7 richness in Hester-Dendy samples than ponar  
8 samples indicate that water quality is  
9 adequate for more sensitive species, but the  
10 habitat is limiting their colonization. And  
11 then on Page 6 and 7, I said from 2001 to  
12 2005, Hester-Dendy samples yielded many more  
13 total and EPT taxa than ponar samples. This  
14 is characteristic of aquatic environments in  
15 which water quality exceeds habitat quality  
16 or availability. These data are probably  
17 reflective of the soft homogenous silt  
18 sediments present in this system.

19 MS. WILLIAMS: Can you give us the  
20 basis for that second statement that you  
21 read?

22 MS. WASIK: I guess I'd go back to the  
23 2006 U.S. EPA document under the advantages  
24 of artificial substrate samplers on Page 6-6.

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1 They say an advantage is that they can,  
2 quote, "Be especially effective in reflecting  
3 water quality as a result of the standardized  
4 habitat they provide."

5 HEARING OFFICER TIPSORD: I'd like to  
6 note for the record here, since this is  
7 different day, that you agreed yesterday to  
8 provide that for us.

9 MS. WILLIAMS: That's right. We don't  
10 have that. But they're not saying what  
11 you're saying here, right? Does that  
12 document in anywhere say what you are saying  
13 here, that having -- having differences  
14 between the Hester-Dendy and petite ponar

15 samples indicates that there's insufficient  
16 habitat for higher quality organisms?

17 MS. WASIK: I'd have to look through  
18 to see if it says that exactly, but I think  
19 from these advantages and disadvantages  
20 that's what would be inferred.

21 MS. WILLIAMS: Can you find any other  
22 source for that, that inference?

23 MS. WASIK: Yes. There are several  
24 other sources. I don't think I necessarily

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1 have them with me right now, but in the  
2 literature that is a common element.

3 MR. ANDES: We can provide other  
4 sources in the literature. I would also ask  
5 whether that's your professional opinion as a  
6 biologist?

7 MS. WILLIAMS: I think that's a great  
8 answer. Is it your professional opinion as a  
9 biologist that these results show that?

10 MS. WASIK: Yes.

11 MS. WILLIAMS: Okay. Thank you.

12 MS. WASIK: It does say as a  
13 disadvantage of the artificial substrate  
14 sampler they can effectively indicate water  
15 quality but not sediment or other habitat  
16 quality.

17 MS. WILLIAMS: Right. They cannot  
18 indicate sediment or other habitat quality.  
19 Not that they indicate poor sediment or  
20 habitat quality, correct?

21 MS. WASIK: Right. Not alone without  
22 a comparison with the ponar sample.

23 MR. ANDES: So, again, your point in  
24 terms of your professional opinion is if you

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1 get organisms on the Hester-Dendy samples on  
2 the artificial substrate but you're not  
3 getting in the ponar samples, it stands to  
4 reason that the limiting factor is the  
5 habitat?

6 MS. WASIK: Right. And I've conferred  
7 with the LimnoTech biologists that are  
8 working on our habitat study, and they've  
9 also reached a similar conclusion.

10 MS. WILLIAMS: So it's not your  
11 professional opinion that the limiting factor  
12 is contaminated sediment, though?

13 MS. WASIK: Not necessarily. Just the  
14 physical properties of the sediment alone may  
15 be the issue.

16 MS. WILLIAMS: So the same results  
17 could occur in a natural, healthy system that  
18 was dominated by silt?

19 MS. WASIK: Perhaps not to the same  
20 degree, but yes.

21 MS. WILLIAMS: Thank you.

22 MR. ANDES: So to clarify on that, I  
23 mean I think you stated it yesterday that the  
24 sediment quality in terms of the sediment

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1 composition, the silt, et cetera, is one  
2 possible stressor, and the sediment  
3 contamination is another, and either one of  
4 them could -- or both could cause the  
5 problems we're talking about?

6 MS. WASIK: Yes, definitely. There is  
7 a lack of heterogeneous sediments, and that  
8 is one stressor. And another stressor could  
9 be contamination or toxicity.

10 MS. WILLIAMS: And when Fred's  
11 question asked the problems we're talking  
12 about, what do you understand that to mean?

13 MS. WASIK: The problems?

14 MR. ANDES: I think I was referring to  
15 the habitat being the limiting factor, lack  
16 of adequate habitat.

17 MS. WILLIAMS: No. But I assume you  
18 meant that it was resulting in something,  
19 right? Lack of habitat was resulting in the  
20 problems we're seeing? I don't --

21 MS. WASIK: Limited benthic  
22 communities.

23 MS. WILLIAMS: Okay. Thank you.

24 Let's go back to 23. I think

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1 I'm going to strike 23 and move on to 24.

2 On Page 7 of your testimony  
3 regarding the Calumet-Sag Channel you state,  
4 quote, "The results from physical  
5 characterizations in the Calumet-Sag Channel  
6 clearly show that the sediments lack  
7 substrate heterogeneity," unquote.

8 Is this statement based on a  
9 physical habitat assessment such as the QHEI  
10 or on the ponar graph samples?

11 MS. WASIK: It's based on both.

12 MR. ANDES: Could you explain a little  
13 bit about how that assessment is done?

14 MS. WASIK: We, as part of our habitat  
15 assessment, do take a ponar grab sample in  
16 which we, a biologist, would characterize the  
17 composition of the sample or estimate the  
18 composition. And, in addition, we run a  
19 grain size particle distribution or a  
20 contractor runs that for us on our samples  
21 using the hydrometer method.

22 HEARING OFFICER TIPSORD: Miss Wasik,  
23 if you're through with that answer,  
24 Dr. Mackey yesterday talked a lot about the

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1 QHEI and also made the point often that he  
2 was not a biologist, which we appreciate.  
3 But he talked about the QHEI that really

4 wasn't used in like manmade systems and he  
5 saw some real limitations when using QHEI in  
6 the CAWS. Do you share some of his concerns  
7 or do you feel comfortable using the two  
8 together that you're getting adequate --

9 MS. WASIK: This is actually just  
10 qualitative data that we've collected. It  
11 doesn't have anything to do with the QHEI we  
12 calculated. It's a parameter, one of the  
13 parameters that we've measured out in the  
14 field. So it's not -- I mean it's not --

15 HEARING OFFICER TIPSORD: But your  
16 answer to this question is, I guess the  
17 question is do you use the QHEI or the ponar  
18 or both to develop your habitat assessment?

19 MS. WASIK: Right. She said in  
20 parentheses such as QHEI. It's based on a  
21 physical habitat assessment that we did. But  
22 in answer to your question, I do feel like  
23 the QHEI is limited in the CAWS as  
24 Dr. Mackey mentioned. There are several

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1 parameters that are constant at all of the  
2 stations, so I think it has limited  
3 applicability.

4 HEARING OFFICER TIPSORD: Thank you.

5 MR. ANDES: So if I can clarify, so  
6 when you talk about habitat assessment here,  
7 you're talking about a qualitative habitat  
8 assessment of the habitat in terms of  
9 assessing the ponar samples. You're not  
10 talking about a use of an index?

11 MS. WASIK: Right. Like in  
12 Attachments 1 and 2 of my testimony, there's  
13 a field data sheet of all of the parameters  
14 we fill out. And on that sheet, on the  
15 second page, there's information about  
16 sediment composition.

17 HEARING OFFICER TIPSORD: Thank you.

18 MS. WILLIAMS: Maybe on that line, I  
19 think Dr. -- I had made a note that  
20 Dr. Mackey had mentioned yesterday that field  
21 biologists had informed him, told him that  
22 the IBI scores in the CAWS were, quote,  
23 inflated. Do you recall him making that  
24 statement?

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1 MS. WASIK: Yes. And that --

2 MS. WILLIAMS: Did you -- Were you one  
3 of the ones that told him that or do you  
4 agree with that statement?

5 MS. WASIK: Yes. That was based on, I  
6 think at the beginning of my testimony  
7 yesterday, I mentioned the scoring mistakes  
8 that were made by the UAA contractor. We  
9 went through and recalculated several  
10 stations and -- using the correct procedure,

11 and we always -- we, in every case, ended up  
12 with a number that was actually lower than --  
13 and that makes sense. Because the mistakes  
14 that they made awarded more points than  
15 should have been awarded, and there were less  
16 than 200 fish. And we almost always, I  
17 think, get less than 200 fish or often do.

18 MS. WILLIAMS: And so that was just  
19 referring to mistakes. That wasn't referring  
20 somehow to inappropriateness of applying that  
21 index to the CAWS or problems with the index  
22 itself?

23 MS. WASIK: No. It was purely  
24 mathematical.

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1 MS. WILLIAMS: I think he implied  
2 there was a need for a more robust index. I  
3 mean that wasn't what you were trying to say  
4 yesterday? It was just that there were  
5 mistakes?

6 MS. WASIK: That wasn't what I was  
7 trying to say yesterday, no.

8 MS. WILLIAMS: Has the District used  
9 QHEI in -- that index in evaluating the CAWS?

10 MS. WASIK: We have attempted to  
11 calculate QHEIs using the information that we  
12 had. We did not fill out a QHEI field data  
13 sheet, so basically at some point when we  
14 were working on our biological reports QHEIs  
15 were being calculated by other agencies. And  
16 it seems like something that might be of  
17 interest, so we did attempt to calculate them  
18 using the Rankin documents as guidance and  
19 our existing field data sheets.

20 MS. WILLIAMS: Thank you. I think  
21 Question 25. On Page 7 of your testimony  
22 regarding the Calumet-Sag Channel you  
23 testified, quote, "Aquatic vegetation was  
24 absent during the surveys except for attached

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1 green algae," unquote.

2 This is the first mention of  
3 aquatic vegetation in your testimony. Was  
4 aquatic vegetation present in the other  
5 waterways previously discussed?

6 MS. WASIK: Yes.

7 MS. WILLIAMS: Can you explain why it  
8 wasn't discussed in your testimony? Or what  
9 the significance is of discussing it with  
10 regard to the Calumet-Sag Channel?

11 MR. ANDES: First can you talk about  
12 where it was found elsewhere?

13 MS. WASIK: Okay. It was -- Some  
14 aquatic vegetation was detected in reaches of  
15 the North Shore Channel, North Branch Chicago  
16 River, Chicago Sanitary and Ship Canal, the  
17 Little Calumet River, the Calumet River, and

18 the Grand Calumet River.

19 MR. ANDES: So was your point that as  
20 opposed to all of those areas, there wasn't  
21 any aquatic vegetation in the Cal-Sag  
22 Channel?

23 MS. WASIK: Yes.

24 MS. WILLIAMS: Thank you. We've

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1 already talked about 26, I think. Let me  
2 make sure we got all the subparts. Okay.

3 Twenty-seven: Are you familiar  
4 with tiered sediment screening methodologies  
5 that take into consideration specific  
6 chemical, aquatic life, and bioassay lines  
7 and weight of evidence approaches to  
8 determine the effects of sediments on aquatic  
9 life?

10 MS. WASIK: Yes. I'm familiar with  
11 the sediment triad approach.

12 MS. WILLIAMS: Has the District used  
13 that approach at all?

14 MS. WASIK: As I've said, the District  
15 has collected information about sediment  
16 chemistry, toxicity, and biological  
17 information in the benthic invertebrates.  
18 However, no, the District has not  
19 specifically analyzed the CAWS sediment using  
20 a weight of evidence approach, though I'm not  
21 sure that that's been done before the UAA at  
22 all.

23 MR. ANDES: Just to follow up: Are  
24 you aware of the Illinois EPA using the

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1 sediment triad approach?

2 MS. WASIK: That's what I mean. I  
3 don't think it's been used for the UAA, by  
4 IEPA either.

5 MS. WILLIAMS: Can you explain a  
6 little bit about what's the goal of that type  
7 of approach, a sediment triad approach? What  
8 it's designed to show?

9 MS. WASIK: I believe it would be  
10 designed to show what, looking at the  
11 sediment chemistry and the properties of the  
12 sediment, maybe what kind of benthic  
13 invertebrates would be expected versus what  
14 is seen.

15 MR. ANDES: Explain a little bit more  
16 about what it means that it's a sediment  
17 triad approach? What are the ways -- what's  
18 the weight of evidence approached there in  
19 terms of what are the different factors and  
20 how are they weighed together?

21 MS. WASIK: Well, you would integrate  
22 sediment chemistry, toxicity, and what kind  
23 of biological community is found and  
24 basically try to integrate all of the

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1 information you have. And as the name  
2 suggests, you're weighing all of the evidence  
3 to try to make the best, I guess, decisions.

4 MR. ANDES: And are there sources in  
5 the literature including, I believe, a Pelson  
6 workshop report that discusses exactly how to  
7 do that?

8 MS. WASIK: Yes. There's, in terms of  
9 weight of evidence approach, there's very  
10 specific ways to mathematically look at all  
11 of those factors and try to come up with a  
12 structured sort of conclusion.

13 MR. ANDES: And there's no evidence  
14 that IEPA has done that, right?

15 MS. WASIK: From the statement of  
16 reasons and being here at the hearings, I  
17 don't think that I've seen that, no.

18 MS. WILLIAMS: Question 28: In your  
19 opinion are toxics in the sediments  
20 biologically available throughout the CAWS to  
21 the extent you can conclude sediment toxicity  
22 would prevent attainment of aquatic life  
23 uses?

24 MS. WASIK: Yes. It is my opinion

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1 that the toxic sediments throughout the CAWS  
2 prevent attainment of the aquatic life uses  
3 proposed by IEPA.

4 MS. WILLIAMS: I mean my question  
5 specifically is about the biological  
6 availability. What can we look at to  
7 determine whether the toxics in the sediments  
8 are biologically available?

9 MS. WASIK: Well, you can look at  
10 AVS-SEM ratios.

11 MR. ANDES: Explain.

12 MS. WASIK: Well, there's  
13 simultaneously extracted metals and acid  
14 volatile sulfites, and the ratio between the  
15 two can help to explain how much the metals  
16 are available in the sediment. But the  
17 District has collected that information and I  
18 haven't had much success necessarily  
19 determining and trying to correlate the  
20 sediment toxicity data with those AVS-SEM  
21 results, so.

22 MS. WILLIAMS: Can you explain what  
23 you mean you haven't had success correlating  
24 them?

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1 MS. WASIK: Well, just trying to look  
2 at and compare various factors, you know, in  
3 determining where you would expect the  
4 sediments to have bioavailable contaminants  
5 based on the AVS-SEM data, and you don't  
6 necessarily see higher toxicity values or

7 higher toxicity in those areas. So in terms  
8 of interpretation of that data, I haven't  
9 been able to really use that, but that is one  
10 way that you could try to determine  
11 bioavailability.

12 MS. WILLIAMS: And the point I'm  
13 trying to get at, and you can agree or  
14 disagree, but my understanding, what I guess  
15 I'm trying to see if you agree with, is that  
16 it's very complicated.

17 MS. WASIK: Yes.

18 MS. WILLIAMS: You can have -- You can  
19 measure what's in the sediment, but knowing  
20 how that will impact aquatic life is quite a  
21 complicated analysis. Do you agree?

22 MS. WASIK: Yes. But, you know, since  
23 we've seen decreased survival and growth from  
24 our sediment toxicity tests of the chironomus

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1 tentans, which is a quite tolerant organism  
2 itself, you know, looking at those toxicity  
3 results, I feel in my professional opinion  
4 that the toxicity of the sediments does  
5 actually prevent the attainment of the  
6 proposed uses.

7 MS. WILLIAMS: For all of them,  
8 including the Use B designation?

9 MS. WASIK: Yes. I think so, to some  
10 degree. Because the -- A lot of the toxic  
11 sediments are present in Aquatic Life Use B.

12 MR. ANDES: So are you saying that the  
13 best indicator of whether there's impact from  
14 the toxic sediment is the state of the  
15 benthic community and in terms of what you're  
16 seeing as far as reduced survival, reduced  
17 reproduction, head capsule deformities, those  
18 are all indicative of --

19 MS. WASIK: Right. Those are  
20 indicators of toxicity.

21 MS. WILLIAMS: Aren't the benthic  
22 communities affected by all sorts of other  
23 stressors as well? Wouldn't they be by water  
24 quality, by --

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1 MS. WASIK: Well, head capsule  
2 deformities are not an indicator -- I don't  
3 believe they're an indicator of poor water  
4 quality. I believe it would be sediment  
5 contamination.

6 MS. WILLIAMS: So specifically head  
7 capsule deformities you're saying is an  
8 indicator of sediment contamination impacts  
9 on the benthic community?

10 MS. WASIK: Yes.

11 MS. WILLIAMS: Is that true of  
12 other -- explain -- I guess I want to  
13 understand how you can conclude that the

14 predominance of tolerant organisms is what  
15 the stressor is resulting in that?

16 MS. WASIK: I don't believe I said  
17 that. Just the predominance of oligochaetes  
18 wouldn't in itself necessarily indicate  
19 toxicity.

20 MS. WILLIAMS: So you've given one --  
21 you have given -- Let me go down a little  
22 bit. Were any head capsule deformities found  
23 on the Hester-Dendy samples?

24 MS. WASIK: I believe there were some,  
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1 yes. Although I think they're more  
2 wide-spread in ponar samples.

3 MR. ANDES: So if I can try to clarify  
4 this a little bit: I think what you said  
5 earlier, correct me if I'm wrong, was that  
6 the nature of the substrates in the waterways  
7 is a stressor in terms of the concrete and  
8 the fine silt, et cetera. And that the  
9 sediment toxicity is also a stressor.

10 MS. WASIK: Yes.

11 MR. ANDES: Have you done any kind of  
12 detailed analysis to figure out how much each  
13 one of them contributes to the problem?

14 MS. WASIK: No.

15 MS. WILLIAMS: And is it possible  
16 there's other stressors that are contributing  
17 to the problem?

18 MS. WASIK: Yes.

19 MR. ANDES: Would you say that given  
20 the two problems with the sediment, both  
21 nature of the sediment and the chemical  
22 contamination, and I think this is consistent  
23 with Dr. Mackey's testimony, so I want to see  
24 if you agree. He indicated that the habitat

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1 problems were the major limiting factor more  
2 so than water quality.

3 MS. WASIK: Yes.

4 HEARING OFFICER TIPSORD: So bottom  
5 line, Miss Wasik, if the water quality  
6 suddenly became pristine, you still believe  
7 there would be problems for the species  
8 because of the soil --

9 MS. WASIK: Oh, definitely.

10 MS. WILLIAMS: But the problem --  
11 would you be able to distinguish between  
12 whether the problem was contaminated sediment  
13 or just the presence of silt and sand  
14 habitat?

15 MS. WASIK: You may be able to  
16 distinguish it, but we haven't done the  
17 studies or statistics to do so.

18 MS. WILLIAMS: I think that's -- I'm  
19 not trying to be difficult. I just wanted to  
20 get to that point that as you sit here today,

21 you don't know either to what degree  
22 contaminated sediments could impact benthic  
23 organisms versus just having a lot of --  
24 MS. WASIK: Right. I'm not sure that

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1 it matters, because they're both present in  
2 the CAWS to some degree, I think.

3 MS. WILLIAMS: And you think they're  
4 both irreversible conditions in the CAWS?

5 MS. WASIK: Well, I think there's  
6 other people better to testify about whether  
7 it's reversible or not, but I think it would  
8 be irreversible, yes.

9 MS. WILLIAMS: You think it would be  
10 irreversible? I just want to be sure I  
11 heard.

12 MS. WASIK: Yes.

13 MS. WILLIAMS: Who would be better to  
14 talk about whether these conditions were  
15 reversible or irreversible, do you think?

16 MS. WASIK: I think to some degree --  
17 I don't know if Dr. Mackey really got into  
18 that, but --

19 MR. ANDES: I think Dr. Mackey talked  
20 about some of the fundamental aspects of the  
21 walls of the system, et cetera, which were  
22 obviously irreversible. So I think he talked  
23 about them.

24 MS. WASIK: I mean I can say because

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1 of the hydraulic capacity that's necessary in  
2 the CAWS, sediment capping, I don't think, is  
3 a good option for the entire system because  
4 of the ubiquitous nature of the fines, I  
5 don't really see wide spread dredging as an  
6 option. So in that sense is why I'm calling  
7 it irreversible.

8 MS. WILLIAMS: Miss Wasik, are you  
9 aware of any existing projects at the  
10 district for sediment capping?

11 MS. WASIK: Yes. We're participating  
12 in a project with the City of Chicago and the  
13 U.S. Army Corps of Engineers for a  
14 demonstration project where they're using  
15 four different kinds of sediment caps. And  
16 I'm on the panel that's been involved in  
17 that.

18 MR. ANDES: Is that specifically for  
19 Bubbly Creek?

20 MS. WASIK: It's for the south branch  
21 turning basin or the mouth of Bubbly Creek.  
22 It's a four acre area and just for those four  
23 acres it's running over about a million  
24 dollars.

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1 MS. WILLIAMS: I don't know if we've  
2 talked about what sediment capping is at

3 these hearings or how it would work. Can you  
4 explain a little bit more about the goal and  
5 how it works.

6 MS. WASIK: It can serve to either  
7 isolate contaminated sediments by -- you  
8 know, put a layer over the fine sediments,  
9 and it can basically isolate them or it could  
10 be a method that's used to actually try and  
11 remediate them while the cap is on the  
12 sediments. So they have different goals, but  
13 ultimately it's to isolate the aquatic life  
14 in the water from the contaminated sediment.

15 MR. ANDES: I think we can probably  
16 have at least Dr. Grenado talk about the  
17 impacts that capping, wide spread capping  
18 would have in terms of problems it would  
19 cause in navigation and for flood control.

20 MS. WILLIAMS: I just think I would  
21 want to ask Miss Wasik about existing plans  
22 the District had to not -- I'm not asking  
23 about wide spread sediment capping throughout  
24 the CAWS. I'm just asking about plans that

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1 are on the books today to do some sediment  
2 capping in some parts of the CAWS.

3 MS. WASIK: It's true. We're involved  
4 in it. It wasn't our plan, per se, but we  
5 are involved in the committee and have been  
6 working on this project for about four years  
7 now they've been trying to plan it, so. And  
8 that will give them a better idea of how the  
9 various caps work, although I can say from  
10 being involved that they looked at trying to  
11 put the cap in to other areas of Bubbly Creek  
12 besides the mouth, and many engineering firms  
13 and engineers from the city concluded that it  
14 would probably not be possible with RAPS or  
15 the Racine Avenue Pumping Station.

16 MS. WILLIAMS: Are you familiar with  
17 any other sediment capping projects that the  
18 District is undertaking or involved in?

19 MS. WASIK: I don't know that I'd call  
20 them sediment capping projects. Maybe  
21 there's other wetland projects.

22 MS. WILLIAMS: Can you explain what  
23 you mean by wetland projects?

24 MS. WASIK: I think in the collateral

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1 channel off the Chicago Sanitary and Ship  
2 Canal they planned on, I guess, capping to  
3 some degree just in terms of the isolation  
4 and trying to create a wetland in that area.

5 MR. ANDES: Can you explain what the  
6 collateral channel is?

7 MS. WASIK: It's -- I don't know its  
8 historical significance, really, but it's  
9 basically a slip off the Chicago Sanitary and

10 Ship Canal.  
11 MS. WILLIAMS: Is it at 31st Street  
12 and Albany Avenue?  
13 MS. WASIK: Yes.  
14 MS. WILLIAMS: I'm sorry. Go ahead.  
15 MS. WASIK: I don't remember exactly  
16 how long it is. Less than a mile.  
17 MS. WILLIAMS: And what would be --  
18 MS. WASIK: That's off channel. It's  
19 not affected -- it doesn't affect the  
20 hydraulics of the system because it is  
21 off-channel. It's already pretty filled in  
22 with silt, actually.  
23 MS. WILLIAMS: So you don't think it  
24 would improve --

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1 MS. WASIK: I'm just saying that the  
2 fact that they're putting any kind of capping  
3 or limiting the capacity of water that that  
4 area could hold doesn't really make a  
5 difference because it's not limiting the  
6 hydraulic capacity of the system.  
7 MR. ANDES: So it wouldn't affect --  
8 So doing something there wouldn't affect the  
9 flood control function of the CAWS, whereas  
10 if you did that in the middle of the Sanitary  
11 and Ship Canal, it would affect the flood  
12 control function.  
13 MS. WASIK: Exactly.  
14 MS. WILLIAMS: Right. But in theory  
15 it should improve sediment quality?  
16 MS. WASIK: The point of it, I think,  
17 was to demonstrate possibly nutrient removal.  
18 I don't know that the point was to isolate  
19 sediment.  
20 MS. WILLIAMS: Are you aware of any  
21 other projects?  
22 MS. WASIK: No.  
23 MS. WILLIAMS: And I guess just to  
24 follow-up on your explanation of the wetland

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1 project, part of creating the wetland will  
2 involve capping the sediment in the  
3 collateral channel?  
4 MS. WASIK: I believe so. I'm not  
5 really a participant on the project. It's  
6 our engineering department.  
7 MS. WILLIAMS: And are there any  
8 projects that you're aware of in the north  
9 branch or the north branch canal?  
10 MR. ANDES: I think she already said  
11 no.  
12 MS. WILLIAMS: I think so, too, but I  
13 just want to be more specific.  
14 MS. WASIK: No.  
15 MS. WILLIAMS: Okay. Thank you.  
16 I have one area that I want to

17 follow up, and I think that's the end of my  
18 prefiled questions from yesterday. And I  
19 think it would help Miss Wasik if she  
20 referred to the statement of reasons, Page 60  
21 on dissolved oxygen that we were talking  
22 about yesterday in order to work on this.

23 MS. WASIK: Okay.

24 MS. WILLIAMS: Now I want you to bear  
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1 with me, because I think that there's some  
2 confusion on this issue of what the Agency's  
3 proposed and why. And I'm hoping we can just  
4 walk through it and clarify a little bit for  
5 everybody's benefit.

6 Yesterday I believe you read  
7 from some language on Page 59, and I think  
8 maybe some of it was taken out of context.  
9 And I'd like to turn your attention to the  
10 beginning -- unfortunately, Page 59 is one  
11 long paragraph. And you read from the end of  
12 that paragraph. And I'd like to sort of turn  
13 your attention to the beginning of that  
14 paragraph, the third sentence -- Can you just  
15 read the third and fourth sentence for us and  
16 maybe get our minds focussed.

17 MS. WASIK: Starting with one  
18 manifestation?

19 MS. WILLIAMS: Thank you.

20 MS. WASIK: One manifestation of the  
21 limited biological potential of the Chicago  
22 Area Waterway System Aquatic Life Use A  
23 waters is suboptimal growth conditions for  
24 fish. For sufficient protection under such  
0045

1 limited growth situations, U.S. EPA's 1986  
2 dissolved oxygen national criteria document  
3 provides a chronic criterion of 5.0  
4 milligrams per liter as a daily mean averaged  
5 over seven days for early life stages.

6 MS. WILLIAMS: Okay. So that says 5.0  
7 milligrams per liter as a daily mean averaged  
8 over seven days, correct?

9 MS. WASIK: Yes.

10 MS. WILLIAMS: Let's turn to the table  
11 on Page 60. And the question that I'd like  
12 to ask you here is are you aware that the  
13 general use standard includes a seven-day  
14 value of 6.0 milligrams per liter to protect  
15 early life stages for the nonenhanced general  
16 use waters?

17 MS. WASIK: 6.0 milligrams per liter  
18 is a seven day mean of means.

19 MS. WILLIAMS: Okay. And do you agree  
20 that the sentence you just read from Page 59  
21 indicates that for the Use A Waters the  
22 criteria document would allow a 5.0 milligram  
23 per liter seven-day mean of daily means?

24  
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MS. WASIK: No. I'm sorry. You're

1 talking about in the U.S. EPA table or in the  
2 Illinois IPA proposal? Because they're at  
3 the bottom of Page 59. I think what I was  
4 pointing out yesterday is there actually is  
5 not a seven-day mean.

6 MS. WILLIAMS: And the reason for that  
7 is?

8 MS. WASIK: Well, it appears the  
9 reason was that it was redundant because it  
10 would be mathematically impossible.

11 MS. WILLIAMS: Right. Because it  
12 would have been set at what number?

13 MR. ANDES: It meaning?

14 MS. WILLIAMS: The seven-day mean and  
15 daily means. Had the Agency set a seven-day  
16 mean of daily means in this paragraph, what  
17 would that have been?

18 MS. WASIK: 5.0.

19 MS. WILLIAMS: And 5.0 is not the same  
20 number as provided for general use, correct?

21 MS. WASIK: As 6.0, no. But  
22 Dr. Mackey's testimony was that it was  
23 essentially the same; not that it was exactly  
24 the same.

0047

1 MS. WILLIAMS: I just want to clarify.  
2 I think yesterday we had some confusion about  
3 your testimony. I don't -- I mean I don't  
4 want to clarify Dr. Mackey's. I don't expect  
5 you to do that. But I just want to make it  
6 clear that that number would have been lower  
7 had it been set for these waters than what  
8 was set for general use, correct?

9 MS. WASIK: I guess that's how I would  
10 interpret the statement of reasons.

11 MS. WILLIAMS: And is it correct that  
12 the general use standard for dissolved oxygen  
13 includes a 30-day value of 5.5 milligrams per  
14 liter to protect for other life stages?

15 MS. WASIK: I'm not sure if it's to  
16 protect for other life stages, but it --

17 MS. WILLIAMS: Nonearly life stages.

18 MS. WASIK: I think it's a chronic  
19 criterion, the 30-day.

20 MS. WILLIAMS: During August through  
21 February?

22 MS. WASIK: Yes.

23 MS. WILLIAMS: Okay. And when that --  
24 The absence of the 30-day value is explained

0048

1 on Page 59 for the Use A waters. Are you  
2 aware that the 30-day value that would have  
3 been appropriate for the Use A waters would  
4 be 4.0 milligrams per liter?

5 MS. WASIK: According to the U.S. EPA

6 guidance or?  
7 MS. WILLIAMS: According to the  
8 Agency's explanation of the U.S. EPA guidance  
9 on Page 59. I think I had you read the  
10 second and third sentences. I think if you  
11 turn to the next -- yeah, the next sentence  
12 after where you stopped.

13 MS. WASIK: It seems like most of the  
14 discussion on Page 59 is about the seven-day.  
15 Does it say 30-day somewhere?

16 MS. WILLIAMS: Just for the fourth  
17 sentence, does it say for other life stages  
18 U.S. EPA provides an analogous criterion of  
19 4.0 milligrams per liter.

20 MS. WASIK: Yes. It's sort of unclear  
21 to me whether that's referring to the 30-day  
22 daily mean.

23 MR. ANDES: Is there anything further  
24 on that page about the 30-day?

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1 MS. WASIK: Not that I can find. It  
2 seems like it's discussing the seven-day  
3 standard.

4 MR. ANDES: So if I can try to clarify  
5 for myself and I think this was your point as  
6 well as Dr. Mackey's, but let me make sure I  
7 understand. As I understand what you said  
8 and Dr. Mackey said that the key requirements  
9 here are the 5.0 minimum during March through  
10 July, the 3.5 minimum during August through  
11 February, and the 4.0 mean of mins. And  
12 those are identical between the general use  
13 and the Class A waters?

14 MS. WASIK: Yes.

15 MR. ANDES: The other provisions that  
16 are in general use is 6.0 mean of means and  
17 the 5.530-day number. Your understanding is  
18 those were not adopted here because the  
19 Agency felt they were unnecessary.

20 MS. WASIK: Right.

21 MR. ANDES: Thank you.

22 MS. WILLIAMS: But you're not  
23 testifying, however, that the -- I think the  
24 question then that I asked yesterday that

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1 caused the confusion is, do you agree that  
2 the numbers in the general use standard are  
3 more -- make that standard more stringent,  
4 the 6.0 seven-day mean of daily means and the  
5 5.5 30-day mean of daily means. Do you agree  
6 that those numbers do make that standard more  
7 stringent than the one proposed for the U.S.  
8 Use A waters?

9 MS. WASIK: It does seem that because  
10 statistically you could get -- because the  
11 numbers that apparently IEPA was going to  
12 propose for those standards would have been

13 redundant, but you actually could, I think,  
14 violate one of the chronic standards but not  
15 the other acute standards. It does seem that  
16 it's -- could be slightly more stringent.

17 MS. WILLIAMS: And I apologize,  
18 because I do agree this is -- this section is  
19 somewhat confusing in how it was drafted, but  
20 I just wanted to clear that up.

21 MS. WASIK: But in terms of the acute  
22 values they're identical.

23 MS. WILLIAMS: Correct. Thank you.  
24 That's all I have for this witness. And I

0051

1 would lay out for Miss Wasik and Mr. Andes,  
2 we do only have three questions, I'm sure it  
3 would take less than five minutes to ask the  
4 cyanide questions that she has filed so she  
5 won't have to come back, but it's really up  
6 to you.

7 HEARING OFFICER TIPSORD: I think that  
8 we need to stay in order, and partially  
9 because Miss Dexter has some questions and it  
10 may only take a few minutes to ask those  
11 questions, but we were supposed to get to  
12 Dr. Dennison today. So let's -- if that's  
13 okay?

14 MS. WASIK: I'm always here anyway.

15 HEARING OFFICER TIPSORD: I've noticed  
16 you're here all the time anyway, so  
17 Miss Dexter, you have some questions.

18 MS. DEXTER: Yes. I have a few  
19 follow-up questions. Can you explain to me  
20 why the district studies sediment? What's  
21 the purpose of you studying sediments?

22 MEMBER JOHNSON: I missed that.

23 HEARING OFFICER TIPSORD: You have  
24 to --

0052

1 MS. DEXTER: I'm sorry. Why does the  
2 District study sediment?

3 THE WITNESS: We study pretty much  
4 everything you can study in the waterways to  
5 determine impacts and improvements over the  
6 years. We've had a monitoring program in  
7 place since the '70s, so we monitor water  
8 sediment, habitat, every kind of parameter  
9 you can really measure.

10 MS. DEXTER: Okay. Can you explain to  
11 me where the bugs come from for the  
12 Hester-Dendy samplers? If they're not  
13 present on the -- in the ponar samples, how  
14 do they get into the Hester-Dendy samples?

15 MS. WASIK: They're considered to be  
16 organisms that would be in the drift or in  
17 the water column.

18 MS. DEXTER: So they are in the river?

19 MS. WASIK: Yeah. They're drifting in

20 the water. In terms of the sources, they  
21 could come from tributaries or the lake.  
22 MS. DEXTER: Or they could come from  
23 the river?

24 MS. WASIK: They can live in the river

0053

1 on an artificial substrate if one is provided  
2 for them.

3 MR. ANDES: In other words, they can't  
4 survive or they can't prosper in the sediment  
5 itself, but if they see a nice habitat --

6 MS. WASIK: Right. It wouldn't appear  
7 to be so from our ponar grab samples because  
8 they -- a lot of species don't appear to be  
9 living in the sediment.

10 MS. DEXTER: What organisms are most  
11 likely to be impacted directly by  
12 contaminated sediment? What types of --

13 MS. WASIK: You mean generally? Just  
14 benthic invertebrates and fish.

15 MS. DEXTER: What kinds of fish?

16 MS. WASIK: Possibly the  
17 bottom-dwelling fish would be more affected.  
18 But with food chain effects, I think possibly  
19 all of the fish communities could be affected  
20 by sediment contamination.

21 MS. DEXTER: And by bottom-dwelling  
22 fish, do you mean catfish? What types of  
23 fish are bottom-dwellers?

24 MS. WASIK: Carp or bulkheads, for

0054

1 instance.

2 MS. DEXTER: Did you examine strata in  
3 sediments that you sampled?

4 MS. WASIK: No. We didn't do core  
5 samples. We only took a grab of what's on  
6 the top of the sediment. So our ponar is  
7 about, I think, six inches by six inches. So  
8 that's as far as it would go down into the  
9 sediment.

10 MS. DEXTER: So when you take a ponar,  
11 does it mix together? Is that --

12 MS. WASIK: We mix it together in a  
13 tray after we pull it out of the water.

14 MS. DEXTER: Okay. Is there an  
15 objective scientific rule of thumb as to what  
16 is good sediment and what might be poor  
17 sediment like we've seen? Like are there --  
18 is there any metric where -- like we've seen  
19 that with the QHEI where generally we assume  
20 that under this number it's -- Is there any  
21 objective measurement?

22 MS. WASIK: I don't know of a  
23 quantitative measurement. I just know that  
24 heterogeneous substrates would be ideal for

0055

1 healthy benthic community.

2 MS. DEXTER: Okay.  
3 MS. WASIK: Meaning a mix of cobble,  
4 gravel. I think Dr. Mackey talked about how  
5 natural river forms in terms of the  
6 geomorphology and the constraints of having  
7 an artificial system in terms of what  
8 materials can get into that system.  
9 MS. DEXTER: So if somebody were to  
10 say that there is poor sediment quality  
11 somewhere, that doesn't necessarily -- that  
12 doesn't refer -- that doesn't sort of -- a  
13 scientific term of art that means that's  
14 being evaluated by?  
15 MS. WASIK: No. I can't think of the  
16 specific index, not that we use, anyway.  
17 MS. DEXTER: All right. I'd like to  
18 look at the McDonald study that we entered  
19 yesterday as Exhibit No. 188 for a minute.  
20 Can you explain what it means that the  
21 threshold effects concentrations or TECs and  
22 the probable effects concentrations or PECs  
23 are consensus based?  
24 MS. WASIK: Well, they've mined --  
0056  
1 MR. ANDES: They meaning?  
2 MS. WASIK: The authors have mined a  
3 lot of different data and empirical data, and  
4 basically I think have come to the conclusion  
5 based on a lot of different studies that are  
6 consistent with each other. They've come up  
7 with these guidelines.  
8 MS. DEXTER: And do we know anything  
9 about what those underlying studies -- do you  
10 personally know anything about the underlying  
11 studies to support that?  
12 MS. WASIK: I have not reviewed all of  
13 the underlying studies.  
14 MS. DEXTER: So do we know whether any  
15 of them study fish?  
16 MS. WASIK: I don't know.  
17 MS. DEXTER: Okay. And do we know  
18 that any -- whether any of them simulate  
19 natural conditions in the river?  
20 MS. WASIK: I can find here they do  
21 say that they verify data with the natural  
22 field samples or field --  
23 MS. DEXTER: But my understanding is  
24 they have taken the -- all of the studies and  
0057  
1 derived a geometric mean of those studies to  
2 get at the sort of proposed TECs and PECs and  
3 then they field verified it with the actual  
4 sediment samples. Is that what you're --  
5 MS. WASIK: Right. There is a field  
6 verification, so that would, in my opinion,  
7 constitute relating it to natural systems.  
8 MS. DEXTER: Okay.

9 MR. ANDES: If I can clarify just one  
10 thing. I think if you go to Page 9816, the  
11 summary.

12 HEARING OFFICER TIPSORD: Of  
13 Exhibit 188?

14 MR. ANDES: Yes.

15 MS. DEXTER: Otherwise known at 29 at  
16 the top.

17 MR. ANDES: Page 29 at the top. I  
18 wonder if you could read in the summary  
19 paragraph starting with the results.

20 MS. WASIK: Sure. The results of the  
21 evaluations of predicted ability demonstrate  
22 that the TECs and PECs for most of these  
23 chemicals as well as the PEC quotient provide  
24 the reliable basis for classifying sediments

0058

1 as not toxic and toxic.

2 MR. ANDES: Keep going.

3 MS. WASIK: In addition, positive  
4 correlations between sediment chemistry and  
5 sediment toxicity indicate that many of these  
6 sediment-associated contaminants are  
7 associated with the effects that were  
8 observed in field collected sediments.

9 MR. ANDES: Keep going. Oh, that's  
10 enough.

11 MS. DEXTER: Are you still reading?

12 MS. WASIK: No.

13 MR. ANDES: Would you now go there.

14 MS. WASIK: As such, this is further  
15 down on the page, as such, the SQGs can be  
16 used to identify hot spots with respect to  
17 sediment contamination, determine the  
18 potential for spatial extent of injury to  
19 sediment dwelling organisms, evaluate the  
20 need for sediment remediation and support the  
21 development of monitoring programs to further  
22 assess the extent of contamination and the  
23 effects of contaminated sediments on sediment  
24 dwelling organisms.

0059

1 MS. DEXTER: Okay. Can we jump down  
2 to the second to the last sentence on the  
3 page that starts, in these applications. Can  
4 you read that?

5 MS. WASIK: Sure. In these  
6 applications, the TECs should be used to  
7 identify sediments that are unlikely to be  
8 adversely affected by sediment-associated  
9 contaminants.

10 MS. DEXTER: So does that sentence  
11 mean that TECs should be used to decide  
12 whether or not sediments below the TEC are  
13 nontoxic?

14 MS. WASIK: Yes. Basically the TECs,  
15 if they're below the TECs, then the

16 probability is that they're nontoxic. If  
17 they're above the TECs, they are possibly  
18 toxic.

19 MS. DEXTER: Right. But that  
20 sentence -- okay. So the next sentence says,  
21 "In contrast, the PECs should be used to  
22 identify sediments that are likely to be  
23 toxic to sediment dwelling organisms."

24 So I read that to say that TECs --

0060

1 You use the TEC to decide whether sediments  
2 are nontoxic below the TEC and you decide --  
3 you used PEC to decide whether above the PEC  
4 is toxic.

5 MS. WASIK: Yes.

6 MS. DEXTER: TEC does not necessarily  
7 mean that the sediment is toxic. It means  
8 that below that you can be assured that it's  
9 not toxic.

10 MS. WASIK: It's a threshold. So  
11 below the TEC, as you said, is likely  
12 nontoxic. Again, these are probabilities, so  
13 it's still possible to have toxic effects.  
14 However, between the TEC and the PEC or  
15 greater than the TEC is possibly toxic.

16 MR. ANDES: Is that the term used by  
17 the UAA contractor?

18 MS. WASIK: Yes.

19 MS. DEXTER: Could you turn to Page 22  
20 in this study. And on the -- At the bottom  
21 of the page on the right-hand column, the  
22 sentence in the middle that starts samples.  
23 Can you read that sentence?

24 MS. WASIK: Samples with contaminants

0061

1 concentrations between the TEC and PEC were  
2 neither predicted to be toxic nor nontoxic;  
3 i.e., the individual SQGs are not intended to  
4 provide guidance within this range of  
5 concentrations.

6 MS. DEXTER: All right.

7 MS. WASIK: So that basically is just  
8 saying that I think it's not frequent that  
9 you would -- It doesn't use the language that  
10 you frequently exceed toxicity between the  
11 TEC, PEC; but as the UAA contractor said, it  
12 is possibly toxic or more likely toxic than  
13 if it's below the TEC.

14 MS. DEXTER: I think that the site  
15 authors are saying --

16 HEARING OFFICER TIPSORD: Miss Dexter,  
17 are you testifying?

18 MS. DEXTER: I don't think anything,  
19 but.

20 HEARING OFFICER TIPSORD: If you want  
21 to ask her a question, that's fine.

22 MS. DEXTER: I will rephrase that. I

23 was -- Do you disagree that the study authors  
24 are saying that these are not -- you are not

0062

1 supposed to interpret this data between --  
2 interpret points between the TEC and PEC as  
3 significant in this study?

4 MS. WASIK: I believe what they're --  
5 I believe what they've said, and having read  
6 the whole paper, what my overall feeling is,  
7 is that the levels above the PEC in terms of  
8 probabilities are what they consider likely  
9 toxic; between the two is more uncertain, so  
10 I think that's why the UAA contractor used  
11 the word possibly. And below the TEC is  
12 essentially what they consider to probably be  
13 nontoxic.

14 MS. DEXTER: But this does say that  
15 they're not intended to provide guidance.

16 MS. WASIK: Well, it says what it  
17 says.

18 MR. ANDES: Are the other parties  
19 trying to make the case that the sediments  
20 aren't toxic in the CAWS? I'm just curious.

21 HEARING OFFICER TIPSORD: That's a  
22 question of someone who's not sworn in.

23 MR. ANDES: I know.

24 MS. WASIK: But I would say this paper

0063

1 is pretty widely -- it's pretty widely used,  
2 and it does appear that the IEPA contractors  
3 have interpreted it to mean the possibly  
4 toxic between the PEC and TEC, so.

5 MS. DEXTER: Were --

6 MS. WASIK: That's why I used that  
7 language.

8 MS. DEXTER: Was this study developed  
9 in order to justify lowering water quality  
10 standards?

11 MS. WASIK: I don't know why --

12 MR. ANDES: I'm sorry. Which study?

13 MS. DEXTER: The McDonald study that  
14 we've been talking about. Is this a tool for  
15 lowering water quality standards?

16 MS. WASIK: I would guess that it is  
17 not.

18 MS. DEXTER: Thank you.

19 MS. WASIK: I don't think that's what  
20 these proceedings are about either, so.

21 MS. DEXTER: I'd like to go back to  
22 the methodology of the studies. We've sort  
23 of gotten sidetracked for a second. Do you  
24 know when they did the field -- the samples,

0064

1 the field verifications? I don't know if  
2 that's the right term to use, but when they  
3 verified the values that they created, did  
4 they isolate particular contaminants when

5 they put the organisms into the -- I don't  
6 understand what --  
7 HEARING OFFICER TIPSORD: Miss Dexter,  
8 just for point of clarification, you're  
9 asking her about a study that she did not  
10 personally perform. So you're asking her  
11 this information in this or if she has  
12 information beyond what's Exhibit 188?  
13 Because she didn't personally perform this,  
14 so what you're asking her --

15 MS. DEXTER: I'm asking her --

16 HEARING OFFICER TIPSORD: Let me  
17 finish. When you're asking her the  
18 methodology of how this study was conducted,  
19 she can only tell you either what's in here  
20 or what she's learned comparatively.

21 MS. DEXTER: Right.

22 HEARING OFFICER TIPSORD: I want to be  
23 clear for the record that this is not a study  
24 that Miss Wasik performed. Okay. And I

0065

1 apologize for interrupting, but you're asking  
2 her a lot of specifics about methodology and  
3 what the authors mean here.

4 MS. DEXTER: I'm assuming that if she  
5 used this study to justify her testimony that  
6 she understands this study.

7 HEARING OFFICER TIPSORD: Okay.

8 I'm --

9 MR. ANDES: Are you testing her? I'm  
10 sorry.

11 MS. DEXTER: I'm not testing her.

12 HEARING OFFICER TIPSORD: I want to be  
13 clear. She can ask the question. Because I  
14 also -- it's also my understanding that part  
15 of reason, and maybe I'm wrong.

16 Miss Dexter -- Miss Wasik, you  
17 used this study, you've spoken many times  
18 about the contractors for the UAA. They used  
19 this study as well, correct?

20 MS. WASIK: Right.

21 HEARING OFFICER TIPSORD: And so you  
22 used this study in your testimony.

23 MS. WASIK: To be comparable to their  
24 original report.

0066

1 HEARING OFFICER TIPSORD: To their --  
2 to the UAA, okay. Thank you. All right.  
3 I'm sorry. Go ahead.

4 MS. DEXTER: And I'm not trying to  
5 contest the validity of the study. I just  
6 want to know what it is telling us. Because  
7 we're getting information that's saying  
8 basically that the sediment is bad, and I  
9 want to know what this information actually  
10 means. So do you know anything about the  
11 methodology of how these samples were taken?

12 MS. WASIK: How the samples were  
13 taken?  
14 MS. DEXTER: Not how the samples were  
15 taken. How the tests were conducted.  
16 MS. WASIK: I have limited knowledge  
17 of how the tests were conducted.  
18 MS. DEXTER: Okay. So I think this --  
19 We may not know whether or not --  
20 MR. ANDES: Are you testifying again?  
21 HEARING OFFICER TIPSORD: Let her  
22 finish.  
23 MS. DEXTER: I'm starting my sentence.  
24 When the authors of this study took samples  
0067  
1 that they field verified, those were samples  
2 from rivers all over the country; is that  
3 correct?  
4 MS. WASIK: I believe so. At least --  
5 I wouldn't say they were really wide-spread  
6 across the country, but they were in several  
7 different states.  
8 MS. DEXTER: They were not localized  
9 in one place?  
10 MS. WASIK: Mm-hmm.  
11 MS. DEXTER: Was there any way of them  
12 isolating particular contaminants within that  
13 subpart?  
14 MS. WASIK: No. I don't believe so.  
15 I was just trying to look for a quote where  
16 they discussed that, but I haven't found it  
17 yet.  
18 MS. DEXTER: I think it might be at  
19 the bottom of Page 21 they list a lot of  
20 places.  
21 MS. WASIK: But I mean in terms of the  
22 way they dealt with synergistic effects of  
23 contaminants, I was just looking for a quote  
24 on that. But if I've answered your question  
0068  
1 I'll stop.  
2 MS. DEXTER: I think you've answered  
3 my question. What types of organisms were  
4 studied in these tests? You don't have to  
5 state specifically, but.  
6 HEARING OFFICER TIPSORD: You can  
7 refer to the page number that they're listed  
8 on as well.  
9 MS. WASIK: I see hyalella azteca.  
10 MS. DEXTER: It might be more helpful  
11 for to you just classify it.  
12 MS. WASIK: As benthic invertebrates.  
13 MS. DEXTER: Thank you.  
14 HEARING OFFICER TIPSORD: I was  
15 worried about all those scientific names for  
16 the court reporter, that's why I said the  
17 page numbers.  
18 MS. DEXTER: And in this study does

19 toxicity necessarily mean that the organisms  
20 die?

21 MS. WASIK: If you talk about  
22 survival, that means the organism has died.  
23 If you talk about growth impairments, that is  
24 not death. It's just -- It means that

0069  
1 there'd be less biomass in your sample than  
2 in your control.

3 MS. DEXTER: In this study was the  
4 predictive ability the same for all of the  
5 contaminants?

6 MS. WASIK: I don't know.

7 MS. DEXTER: If you look at Page 25 in  
8 the right-hand column, that middle paragraph  
9 I believe is referencing the predictive  
10 ability of different types of contaminants.

11 MR. ANDES: Page 25?

12 MS. DEXTER: Yes. I think that's  
13 where I've seen it.

14 MS. WASIK: It appears to say the  
15 predictive ability for the TECs for PAHs or  
16 polyaromatic hydrocarbons was similar to that  
17 for the trace metals ranging from 71 to 83  
18 percent. It does list the predictive  
19 abilities here if you want me to read the  
20 percentages.

21 MS. DEXTER: But does that help you  
22 answer the general question that I asked  
23 that --

24 MS. WASIK: They appear to be slightly

0070  
1 different between 71 to 85 percent for  
2 predictive ability.

3 MS. DEXTER: And do you understand the  
4 probable effects concentration to mean that  
5 it is more likely than not that there is --  
6 there will be a toxic event?

7 MS. WASIK: If it's above that  
8 threshold, yes.

9 MS. DEXTER: Okay. So more likely  
10 than not could be 51 percent.

11 MS. WASIK: It could or could not be,  
12 yes.

13 MS. DEXTER: Right. It might be 100,  
14 but it could be 51?

15 MS. WASIK: There is a range.

16 MS. DEXTER: I think that's all I  
17 have.

18 MS. WILLIAMS: Can I just ask one  
19 quick follow-up based on that? I think in  
20 response to Miss Dexter's questions, I  
21 believe you said something to the effect that  
22 preferred habitat for benthic organisms would  
23 be heterogeneous habitats.

24 MS. WASIK: I should qualify that and

0071

1 say for a well-balanced community of benthic  
2 invertebrates, there's certainly taxa benthic  
3 invertebrates that love the silt like the  
4 oligochaetes.

5 MS. WILLIAMS: Can you explain how the  
6 testing done by the District measures the  
7 distribution of types of substrate? I mean I  
8 believe it's your testimony that it's mostly  
9 silt and sand; is that correct?

10 MS. WASIK: Yes. We have two methods  
11 by which we do that during our sampling. We  
12 take, you know, habitat measurements in the  
13 field where we probe the bottom or take a  
14 ponar if it's a silty bottom and then look at  
15 the composition of the sediment. And the  
16 biologist would then try to estimate the  
17 percentage of silt, sand, plant debris,  
18 gravel, cobble, rocks, boulders.

19 MS. WILLIAMS: How does your  
20 methodology measure that there's cobble or  
21 gravel or boulders?

22 MS. WASIK: So if we're looking in an  
23 area where there's -- we're able to see the  
24 bottom, then we can characterize it visually.

0072

1 If you can't see the bottom, then we would  
2 drop a ponar down and take a sample. If you  
3 drop the ponar down and it's all scoured out  
4 because it's just limestone, then we would  
5 characterize that as a limestone bottom.

6 MS. WILLIAMS: But the ponar method  
7 can't be used to sample for cobble or wood  
8 debris?

9 MS. WASIK: To some degree. I mean if  
10 you put a ponar down and you bring it up and  
11 you have one little rock like this in the jaw  
12 and you're using that combined with a  
13 telescoping rod to sort of spoke around in  
14 the sediment, you can sort of get an idea of  
15 what's down there. And generally it's pretty  
16 easy to tell because it's -- when you take  
17 the ponar, it's either a really hard flat  
18 surface or it's a deposit of really fine  
19 sediments.

20 MS. WILLIAMS: Do you feel that the  
21 other types of substrates are adequately  
22 sampled using ponar grab?

23 MS. WASIK: I think so. It does  
24 sample gravel and sand and silt. And if

0073

1 there's -- if there is cobble, which is very  
2 rare in the system, then we would be able to  
3 determine it either visually or by using the  
4 telescoping rod.

5 MS. WILLIAMS: Okay. And how many  
6 sediment probes would you do to reach?

7 MS. WASIK: In the area you basically

8 go walk around the entire boat and see what's  
9 there. I mean I wouldn't say that I have an  
10 exact number of times that you poke the  
11 sediment bottom. And that's at each of the  
12 four locations at each of our sampling  
13 stations.

14 MS. WILLIAMS: So you do it just at  
15 the sites where you're sampling? You don't  
16 go up and --

17 MS. WASIK: Yes. And I would add a  
18 ponar does sample some plant debris and leaf  
19 litter and sticks. If it's there, you do get  
20 that in a ponar.

21 MS. WILLIAMS: I think that's all I  
22 have.

23 HEARING OFFICER TIPSORD: Anything  
24 else?

0074

1 MR. ANDES: I have one follow-up. I  
2 want to go back to the sediment issue for a  
3 moment. In terms of the TEC and PEC values  
4 that, as I understand it the UAA contract  
5 referred to above the PEC values is presumed  
6 toxic. Am I right?

7 MS. WASIK: Yes.

8 MR. ANDES: Okay. I'd like you to  
9 then read a short part from your testimony,  
10 particularly with regard to the Cal-Sag  
11 Channel, starting there and going down to  
12 here.

13 MS. WASIK: This is Page 7 of my  
14 prefiled testimony, second paragraph.  
15 Several sediment samples displayed slight to  
16 heavy oil sheens and reported to have strong  
17 petroleum odors. Aquatic vegetation was  
18 absent during the surveys except for attached  
19 green algae. By comparing measured  
20 concentrations to the TEC and PEC values, all  
21 of the sediment samples collected by the  
22 district from the Cal-Sag Channel in 2003  
23 would be presumed toxic. For PCBs total pH  
24 levels in all of the sediment samples from

0075

1 the Cal-Sag Channel exceeded the TEC and two  
2 exceeded the PEC. All of the sediment  
3 samples had presumed toxic led concentrations  
4 and five of the six samples had presumed  
5 toxic zinc concentrations. One sediment  
6 sample showed chromium and cadmium  
7 concentrations greater than the PEC. In  
8 2007, a sediment with a strong petroleum odor  
9 collected from two of the locations on the  
10 Cal-Sag Channel was discarded due to concerns  
11 over possible flammability during metals  
12 analysis. Of the remaining four sediment  
13 samples, three were presumed toxic due to  
14 led, two due to chromium, nickel, and zinc,

15 and one due to cadmium.  
16 MR. ANDES: Thank you.  
17 HEARING OFFICER TIPSORD: Did you have  
18 a question about that or you just wanted her  
19 to read it?  
20 MR. ANDES: No. So all of those were  
21 above the PEC which is the presumed toxic  
22 level?  
23 MS. WASIK: Several of them were, yes.  
24 MR. ANDES: Yes.

0076

1 HEARING OFFICER TIPSORD: Anything  
2 else for Miss Wasik? All right. Let's take  
3 a short break and come back with  
4 Dr. Dennison.  
5 (Short break taken.)  
6 HEARING OFFICER TIPSORD: Okay.  
7 Dr. Dennison, you have been previously sworn.  
8 Does anyone have any objection to us saying  
9 that and going forward? Okay. You've been  
10 previously sworn, so if we could have your  
11 testimony on Cal-Sag, I believe is the first,  
12 and welcome back. I've been handed  
13 Dr. Dennison's prefiled testimony with  
14 attachments on the Calumet-Sag Channel. If  
15 there's no objection, we will mark this as  
16 Exhibit 191. Seeing none, it's Exhibit 191.  
17 And with that we'll go to the Agency.

18 MS. DIERS: Good morning. My name is  
19 Stephanie Diers, and I will be asking you  
20 questions on behalf of Illinois EPA today.  
21 And I'm going to begin with Question 1 of our  
22 prefiled questions, and I believe it should  
23 be on Page 12 of what we filed.

24 Can you please explain why you

0077

1 disagree with the Cal-Sag being classified as  
2 a CAWS Aquatic Life Use A water.

3 MR. DENNISON: Well, I feel that  
4 aquatic life use designations should be based  
5 on reasonable potential of the waterway to  
6 support a certain level of aquatic life.  
7 Since habitat is poor in the Cal-Sag, it  
8 should be classified as a CAWS aquatic life  
9 Use B water.

10 MS. DIERS: So you think it is the  
11 criteria for Use B waters as proposed by  
12 Illinois EPA?

13 MR. DENNISON: Yes.

14 MS. DIERS: I'm going to strike  
15 Question 2 and go to Question 3. In your  
16 opinion, is the Cal-Sag similar to the  
17 Chicago Sanitary and Ship Canal; and, if yes,  
18 please explain the similarities.

19 MR. DENNISON: Yes. In my opinion the  
20 Chicago Sanitary and Ship Canal and the  
21 Cal-Sag Channel are similar. As I mentioned

22 in my testimony, both waterways share similar  
23 physical characteristics. For example, both  
24 are entirely manmade, each has limited

0078

1 shallow areas along its banks, and both have  
2 a high volume of commercial navigation. A  
3 lack of heterogeneity in the substrate, lack  
4 of pools and riffles, and the necessity to  
5 maintain navigational depth are applicable  
6 physical conditions to both the Cal-Sag  
7 Channel and the Chicago Sanitary and Ship  
8 Canal. The sediment in the Cal-Sag Channel  
9 has been shown to be toxic to benthic  
10 invertebrates. Furthermore, frequent  
11 commercial navigation in the waterways will  
12 continue to cause a resuspension of these  
13 sediments and shore line scouring and  
14 erosion.

15 MS. DIERS: I'm going to skip  
16 Question 4 and 5 and come back to those. I'm  
17 going to strike 6 and 7 and go to 8. And  
18 it's kind of a long quote, so bear with me.  
19 On Page 2 of your prefiled testimony, you  
20 state, "Calumet-Sag Channel and the Chicago  
21 Sanitary and Ship Canal share similar  
22 physical characteristics. For example, each  
23 has limited shallow area along its banks. Ed  
24 Rankin in his report, Attachment R, indicated

0079

1 that the Cal-Sag Channel had QHEI scores in  
2 the fair range largely because of the  
3 limestone rubble and coarse materials in the  
4 littoral areas. Those littoral habitat is  
5 not isolated but occurs along much of the  
6 shore line. This waterway had four positive  
7 attributes with most important being the  
8 substrate and shore line structure. Habitat  
9 in the Chicago Sanitary Ship Canal ranged  
10 from poor to very poor besides at Lockport,  
11 Romeoville, and Willow Springs Road were  
12 canal-like in nature with steep sides and  
13 little functional cover or substrate. The  
14 side at Lockport was wider and has some  
15 littoral habitat; however, this was very  
16 limited in scope and was extremely imbedded  
17 with silty muk and sand that were of poor  
18 quality." The question is, can you explain  
19 this difference in opinions of these two  
20 waterways between what you stated in your  
21 prefiled testimony and what Mr. Rankin stated  
22 in Attachment R?

23 MR. DENNISON: Well, this question has  
24 been asked and answered before. I agree with

0080

1 the testimony given by Dr. S. Mackey and  
2 Melching.

3 MS. DIERS: Can you explain what you

4 agree with with Mackey and Melching's  
5 testimony? Because I don't think it's been  
6 answered -- asked and answered before. So  
7 can you just elaborate on that, please.  
8 MR. DENNISON: Well, the District did  
9 not consider the habitat to be of the higher  
10 quality that Mr. Rankin did. For example,  
11 Dr. Mackey stated on Page 12 of his  
12 testimony, quote, "The small amount of rubble  
13 from the crumbling walls does very little to  
14 improve the overall physical habitat for fish  
15 and invertebrates in the Cal-Sag Channel."  
16 This was mentioned by Dr. Melching  
17 who found the difference between the Chicago  
18 Sanitary Ship Canal and the Cal-Sag Channel  
19 not to be -- to be not substantial.  
20 Dr. Melching also stated that the ongoing  
21 study to determine the biological potential  
22 for the CAWS being done by LimnoTech for the  
23 District and the MWRDGC could shed further  
24 light on the differences between the Chicago

0081

1 Sanitary Ship Canal and the Cal-Sag Channel.  
2 MS. DIERS: Now, Melching and Mackey  
3 are not biologists, correct?  
4 MR. DENNISON: I believe they've  
5 stated as such in their testimony.  
6 MS. DIERS: So are you relying on what  
7 they're saying?  
8 MR. DENNISON: Well, as they've  
9 mentioned in their testimony, they're not  
10 biologists, but they have strong opinions  
11 from their experience. And I found their  
12 experience to be pretty knowledgeable.  
13 MS. DIERS: Question 9: On Page 2 of  
14 your prefiled testimony you state, "All of  
15 the QHEI scores calculated by the District's  
16 aquatic ecology and water quality section for  
17 the Calumet-Sag Channel in the Chicago  
18 Sanitary and Ship Canal have been in the poor  
19 range." Do all personnel involved go through  
20 QHEI training prior to the survey?  
21 MR. DENNISON: There was no training  
22 prior to the survey, no.  
23 MR. ANDES: Can you explain a little  
24 bit about what, and this may be Miss Wasik, I

0082

1 think, may be more knowledgeable about this;  
2 and, if so, just tell us that. But I wonder  
3 about if one of you could explain what  
4 exactly was done in terms of calculating  
5 these numbers and how the field data sheets  
6 were used.  
7 MR. DENNISON: Since Miss Wasik was  
8 the one who calculated them, she would  
9 probably be more knowledgeable. I could give  
10 my opinion.

11 MR. ANDES: We can get Miss Wasik down  
12 here. I think she can explain it.

13 HEARING OFFICER TIPSORD: You can do  
14 it from there if you speak loudly enough.

15 MS. WASIK: Can you just repeat the  
16 question?

17 MS. DIERS: We were asking about  
18 training for the QHEI, and Mr. Dennison  
19 testified that there wasn't any training. So  
20 I think Fred wants you to explain what was  
21 involved with the QHEI; is that correct?

22 MR. ANDES: Right.

23 MS. WASIK: Yes. We didn't go to a  
24 specific training, although I used the

0083

1 original Rankin documents. I don't have the  
2 years with me, but regarding the QHEI. It  
3 had all of the different metrics and  
4 specifically how to score them. And I used  
5 the field data sheets we had which, for the  
6 most part, while they weren't exactly like a  
7 QHEI field data sheet, they had many of the  
8 same parameters. So I basically put our data  
9 and was able to calculate each metric for the  
10 QHEI.

11 MS. DIERS: Do you recall what  
12 parameters are on the sheets that you -- or  
13 MWRDGC uses?

14 MS. WASIK: There's, you know, maybe  
15 30 parameters. But they would be on -- if  
16 you were to look at Attachment 1 or 2 in the  
17 methodology section, there's a copy of our  
18 field data sheets.

19 MS. DIERS: That's attached to your  
20 testimony --

21 MS. WASIK: To my testimony, yes.

22 MS. DIERS: Thank you.

23 Continuing on with Question 9:  
24 The reference MWRDGC reports for the

0084

1 statement only provide QHEI stores and  
2 appears individual metric scores were not  
3 provided. Could the District provide copies  
4 of the QHEI field sheets along with the  
5 pertinent field sheets -- with other  
6 pertinent field sheets?

7 MR. DENNISON: Yes.

8 MS. DIERS: Question 10 on Page 3 of  
9 your prefiled testimony you state, "According  
10 to the Illinois EPA, QHEI classification  
11 scales quote," and our question is is this --  
12 are you referring to Ohio EPA instead of  
13 Illinois EPA here?

14 MR. DENNISON: I was referring to the  
15 classification scale in Table 4-13 on Page  
16 4-22 in the final CAWS UAA report titled  
17 narrative ranges of the QHEI based on a

18 general ability of that habitat to support  
19 aquatic life. A quote by -- from Rankin  
20 2004.

21 MS. DIERS: Question 11: On Page 3 of  
22 your prefiled testimony you state, "In  
23 addition, both the Chicago Sanitary and Ship  
24 Canal and the Calumet-Sag Channel are

0085

1 dominated by soft homogeneous sediments that  
2 are not conducive to a balanced benthic  
3 invertebrate community."

4 The question is, in your opinion,  
5 do you think Illinois EPA has proposed a  
6 designated use that represents a balanced  
7 benthic invertebrate community?

8 MR. DENNISON: Not in those words.

9 MS. DIERS: How would you explain it  
10 then?

11 MR. DENNISON: The answer -- the same  
12 question directly from Dr. Melching's  
13 testimony. The rulemaking proposal before  
14 the Board is requiring that the CAWS meet in  
15 certain critical aspects the general use  
16 dissolved oxygen standards and Rule 04-25  
17 that was recently adopted by the Board. A  
18 benthic community that is unbalanced and less  
19 healthy could be achieved with substantially  
20 reduced dissolved oxygen concentration  
21 targets just such as those used by the Ohio  
22 Environmental Protection Agency or other  
23 cases cited in Paul Freedman's testimony.

24 MS. DIERS: So, again, are you relying

0086

1 on what Melching stated in his testimony for  
2 that quote that I just read from your  
3 testimony?

4 MR. DENNISON: Yes.

5 MS. DIERS: Do you know if dissolved  
6 oxygen standards are designed to protect the  
7 benthic organisms or fish?

8 MR. ANDES: Could I go back for a  
9 second? The statement that we were -- that  
10 was asked about on Question 11 was your  
11 statement that in addition both the Ship  
12 Canal and the Cal-Sag Channel are dominated  
13 by soft homogenous sediments that are not  
14 conducive to a balanced benthic invertebrate  
15 community. In making that statement, were  
16 you basing that on your biological judgment?

17 MR. DENNISON: Yes.

18 MR. ANDES: Thank you.

19 MS. DIERS: I want to go back to my  
20 question that I had just asked: Are DO  
21 standards designed to protect the benthetic  
22 organisms or fish?

23 MR. DENNISON: Fish.

24 MR. ANDES: In order to protect the

0087

1 fish, do you need to protect the benthic  
2 organisms?

3 MR. DENNISON: Yes.

4 MS. DIERS: Twelve: On Page 3 of your  
5 prefiled testimony you state, "In fact, the  
6 waterways are both dominated by  
7 pollution-tolerant invertebrates."

8 The question being, how does the  
9 current condition of the waterway indicate  
10 potential aquatic life conditions?

11 MR. DENNISON: The substrates are such  
12 that they would be expected to be dominated  
13 by such tolerant invertebrates. Since the  
14 substrate quality is what is limiting  
15 invertebrates, the communities are not going  
16 to change.

17 MS. DIERS: Could you repeat the last  
18 sentence of that again, the last phrase.

19 MR. DENNISON: Since the substrate  
20 quality is what is limiting invertebrates,  
21 the communities are not going to change.

22 MR. ANDES: In other words, even if  
23 you improve water quality, that's not going  
24 to help the state of the community?

0088

1 MR. DENNISON: Correct.

2 MS. DIERS: I'm going to strike  
3 Question 13.

4 Question 14: On Page 3 of your  
5 prefiled testimony you state, "Over the years  
6 there has been extensive land use  
7 development, urbanization, and the  
8 Calumet-Sag Channel water shed."

9 Question: How many acres of  
10 forest preserve are available in this water  
11 shed?

12 MR. DENNISON: I don't know.

13 MS. DIERS: Do you know how many miles  
14 of the Calumet-Sag Channel are bordered by  
15 forest preserves?

16 MR. DENNISON: I don't know.

17 MR. ANDES: Could that information be  
18 available as part of the LimnoTech study?

19 MR. DENNISON: Yes. That's what we're  
20 looking forward to for the geographical  
21 information system portion of the LimnoTech  
22 study.

23 MS. DIERS: And that's the habitat  
24 study that's ongoing right now?

0089

1 MR. DENNISON: Yes.

2 HEARING OFFICER TIPSORD: If I may,  
3 Dr. Dennison, I believe that we asked  
4 Dr. Mackey this and he wasn't able to  
5 specify. When is the projected date for the  
6 LimnoTech study?

7 MR. DENNISON: Well, we're expecting a  
8 report to be available in the summer of 2009.

9 HEARING OFFICER TIPSORD: Thank you.

10 MS. DIERS: And just asking on that  
11 line of question, I think I asked Dr. Mackey  
12 this yesterday. Does that time frame, is  
13 that -- Have you accounted for a peer review  
14 in that time frame for a summer of '09?

15 MR. DENNISON: No.

16 MS. DIERS: Is that going to be the  
17 final report is what you're expecting?

18 MR. DENNISON: That's why we're going  
19 towards the summer of 2009. The contract  
20 itself was originally from April to April,  
21 mid April to mid April.

22 MS. DIERS: Will you be integrating  
23 the biological information by next summer?

24 MR. DENNISON: Yes.

0090

1 MS. DIERS: That takes care of  
2 Question 4 and 5. Page 134.

3 HEARING OFFICER TIPSORD: Sorry.

4 MR. ANDES: I'm sorry. Actually, I  
5 just want to follow up on No. 4 because I  
6 wanted to ask if you could explain a little  
7 bit, Dr. Dennison, about what information the  
8 consultant is developing in that study.

9 MR. DENNISON: The present Chicago  
10 area waterways habitat evaluation and  
11 improvement project will formulate a habitat  
12 index that is applicable to the deep draft  
13 waterways of the CAWS. For development of  
14 this habitat index, the District's consultant  
15 LimnoTech is using fish, macroinvertebrate  
16 and habitat data sampled by the District  
17 during the period 2001 through 2007 from the  
18 District's 26 sampling stations on the CAWS.  
19 During 2008, 25 District sample stations were  
20 sampled using expanded habitat procedure plus  
21 five additional stations not previously  
22 described; three of these additional stations  
23 are on the Cal-Sag Channel and two are on the  
24 Chicago Sanitary and Ship Canal. Eight CAWS

0091

1 stations were sampled by the District in 2008  
2 for fish and macroinvertebrates and LimnoTech  
3 collected fish and macroinvertebrates from 14  
4 stations, not sampled by the District during  
5 2008. LimnoTech is also including the  
6 analysis of collected digital video of bank  
7 conditions and habitats and high resolution  
8 aerial imagery and bathymetry to support the  
9 assessment of the habitat conditions and  
10 index development.

11 LimnoTech is conducting an  
12 examination of the potential of navigational  
13 effects to adversely affect habitat

14 conditions.

15 Finally, LimnoTech is  
16 examining sediment chemistry and toxicity  
17 data to evaluate the potential for adverse  
18 impacts to forage resources.

19 HEARING OFFICER TIPSORD: And I think  
20 you said in 2008, I think you stated expanded  
21 procedure. Can you explain what you meant by  
22 that?

23 MR. DENNISON: The LimnoTech study  
24 will be developing a habitat index that is

0092

1 applicable to the CAWS, and the expanded  
2 procedure will include a number of variables  
3 that will be measured in order to calculate  
4 this new habitat index.

5 MR. ANDES: Additional metrics and  
6 data that the District hasn't collected  
7 before?

8 MR. DENNISON: Yes. Additional.

9 MS. DIERS: I'll go back to Question  
10 15. On Page 4 of your prefiled testimony you  
11 state, "These conditions prevent the waterway  
12 from attaining a healthy biological  
13 community." Will you please explain what is  
14 meant by healthy?

15 MR. DENNISON: A community, by healthy  
16 I mean a community in a stream that has  
17 biological integrity which is commonly  
18 defined as the ability to support and  
19 maintain a balanced, integrated, and adaptive  
20 community of organisms having a species  
21 composition, diversity and functional  
22 organization, comparable to those of natural  
23 habitats within a region. This is a  
24 reference, quote from a reference Carr, JR

0093

1 and DR Dudley, 1981, Ecological Perspectives  
2 on Water Quality Goals. It was in  
3 Environmental Management No. 5, Page 55  
4 through 68.

5 MS. DIERS: Question 16: Do you agree  
6 or disagree with the conclusion of the Agency  
7 that the aquatic life use potential of the  
8 Chicago Sanitary and Ship Canal is lower than  
9 the potential of the Cal-Sag Channel?

10 MR. DENNISON: I have stated in my  
11 testimony that the habitat in both waterways  
12 is similar. Drs. Melching and Mackey have  
13 also presented testimony that this is the  
14 case. The only difference that seems to  
15 stand out is that the sediments in the  
16 Cal-Sag Channel were found to be more toxic  
17 to benthic invertebrates than the sediments  
18 in the Chicago Sanitary and Ship Canal.  
19 However, further analysis of the quality of  
20 the habitat is warranted, and this analysis

21 is ongoing in the habitat evaluation and  
22 improvement study.

23 MS. DIERS: Did Dr. Mackey agree  
24 littoral zone was greater in the Cal-Sag

0094

1 Channel? Do you recall?

2 HEARING OFFICER TIPSORD: Just to  
3 clarify, Miss Diers, you mean the greater  
4 than the Sanitary and Ship Canal?

5 MS. DIERS: Yes.

6 MR. DENNISON: It was my understanding  
7 that Dr. Mackey said that they were similar  
8 when comparing the two.

9 MS. DIERS: Question 17: You state  
10 that Factor 3, the human case conditions, is  
11 applicable to the Cal-Sag Channel with regard  
12 to the Aquatic Life Use A. Can you explain  
13 why these conditions cannot be remedied or  
14 would cause more environmental damage to  
15 correct than to leave in place.

16 MR. DENNISON: Well, navigation is  
17 essential in the Cal-Sag Channel. Cal-Sag  
18 Channel has no riffling pool sequence or  
19 meandering characteristics. It is deep draft  
20 with few shallow areas along the banks, and  
21 it's stream velocity is very slow. There  
22 were no plans identified in the UAA to change  
23 the situation. Also these habitat  
24 characteristics, riffle pool, meander,

0095

1 shallows, would not be consistent with barge  
2 traffic and would preclude you from changing  
3 these characteristics.

4 MS. DIERS: Of all the factors you  
5 just mentioned, which one is limiting aquatic  
6 life in the Cal-Sag Channel?

7 MR. ANDES: By factors you meant the  
8 riffle and pool, meanders, deep draft, slow  
9 velocity?

10 MS. DIERS: Everything he just stated,  
11 yes.

12 MR. DENNISON: Well, the lack of those  
13 factors and many things that are limiting  
14 with the habitat being the limiting factor.  
15 So many of the things I mentioned, they're  
16 all habitat related.

17 MR. ANDES: Is it possible to single  
18 one of them out, or is it a combination of  
19 all.

20 MR. DENNISON: It's my opinion that  
21 it's a combination.

22 MS. DIERS: So do you believe habitat  
23 improvements are not possible anywhere in the  
24 Cal-Sag Channel?

0096

1 MR. DENNISON: In general, yes.

2 MS. DIERS: In general, yes, there

3 could be improvements or no?  
4 MR. DENNISON: No. In general they  
5 cannot be improved.  
6 MS. DIERS: Question 18: You state  
7 that Factor 4, the hydraulic modifications,  
8 is applicable to the Cal-Sag Channel with  
9 regard to Aquatic Life Use A. Can you  
10 explain why the channel cannot be restored to  
11 its original conditions or operate in such a  
12 way that results in attainment of the use?  
13 MR. DENNISON: Well, restoring the  
14 channel to its original conditions would  
15 require filling it in as it is an entirely  
16 manmade channel. The channel cannot be  
17 operated into a natural river.  
18 MS. DIERS: Question 19: You state  
19 that Factor 5, physical conditions, is  
20 applicable to the Cal-Sag Channel with regard  
21 to Aquatic Life Use A. Can you explain the  
22 applicability of this factor and why it is  
23 irreversible in the foreseeable future?  
24 MR. DENNISON: As I mentioned in my

0097

1 testimony, the lack of proper substrate, lack  
2 of pools and riffles and the necessity to  
3 maintain navigational depth are applicable  
4 physical conditions in Calumet-Sag Channel.  
5 In order to maintain navigation, that's the  
6 way things are going to be. Furthermore,  
7 frequent commercial navigation in the  
8 waterway will continue to cause resuspension  
9 of these sediments and shore line scouring  
10 and erosion.

11 MR. ANDES: Keep going.

12 MR. DENNISON: United States Army  
13 Corps of Engineers' data indicates that a  
14 total of 8,792 barges traveled along the  
15 Calumet-Sag Channel in 2006. As stated in  
16 the UAA report on Page 5-4, since these  
17 waterways are maintained for navigational  
18 uses critical to the economic vitality of the  
19 city, the potential for dramatic improvements  
20 to create aquatic habitat to support a higher  
21 designated use would likely be unproductive  
22 and would severely conflict with important  
23 navigational uses.

24 MS. DIERS: Can you explain why you

0098

1 think that these limitations are not  
2 reflected in the CAWS Use A designation?

3 MR. DENNISON: It's not applicable in  
4 the standards. The Use A waters are really  
5 very close to general use standards.

6 MS. DIERS: I don't have anything  
7 further on the Cal-Sag Channel.

8 HEARING OFFICER TIPSORD: Any  
9 questions on Cal-Sag? All right. Let's go

10 off the record.

11 (Off the record.)

12 HEARING OFFICER TIPSORD: Let's move  
13 on to Dr. Dennison's prefiled testimony on  
14 Bubbly Creek. And we will go through lunch  
15 until about 1:00 o'clock, and we'll break at  
16 1:00 and get out of here before the storm.

17 I'm going to mark this as  
18 Exhibit 192 if there is no objection.

19 Seeing none, Dr. Dennison's  
20 prefiled testimony on Bubbly Creek is  
21 Exhibit 192.

22 MR. ANDES: It's not the dissolved  
23 oxygen. It's the one that talks about south  
24 fork and --

0099

1 HEARING OFFICER TIPSORD: With that,  
2 we'll go to the Agency.

3 MS. DIERS: I'm going to start with  
4 Question 1 of our prefiled questions. It  
5 should be Page 7.

6 Question 1: Will you please  
7 explain the difference you see between the  
8 South Branch of the Chicago River and the  
9 South Fork of the South Branch Chicago River.

10 MR. DENNISON: In his testimony,  
11 Dr. Mackey has stated that the channel  
12 morphology and flow characteristics of Bubbly  
13 Creek, the South Fork of the South Branch  
14 Chicago River is what I will refer to it as  
15 Bubbly Creek, and the south branch of the  
16 Chicago River are distinctly different from  
17 each other. The south branch has flow during  
18 dry weather. The south fork or Bubbly Creek  
19 is generally stagnant during dry weather.  
20 During wet weather flow in the south fork is  
21 from combined sewer overflows and storm  
22 water.

23 MS. DIERS: Did you say you were  
24 relying on Dr. Mackey or Melching? I might

0100

1 have misunderstood.

2 MR. DENNISON: I said Dr. Mackey.

3 MS. DIERS: Okay.

4 HEARING OFFICER TIPSORD: If I may,  
5 Dr. Dennison, since Dr. Mackey is a  
6 geologist, when she says explain the  
7 difference between Bubbly Creek and the  
8 Chicago South Branch of the Chicago River,  
9 what you're basing the main difference on is  
10 the habitat or the geology of the two creeks.  
11 Is that correct?

12 MR. DENNISON: Yes.

13 MR. ANDES: Just to clarify, the south  
14 branch of the Chicago River, and then there's  
15 the South Fork of the South Branch which is  
16 Bubbly Creek.

17 HEARING OFFICER TIPSORD: Thank you.  
18 I knew I mixed those up.

19 MS. DIERS: Do you know the page in  
20 Dr. Mackey's testimony where he referenced  
21 this discussion about the South Branch of the  
22 Chicago River and the South Fork of the South  
23 Branch? I don't remember Mackey talking  
24 about that, so if you could give me a page

0101

1 number, that would be great.

2 MR. ANDES: I don't know that we have  
3 that handy.

4 MS. DIERS: Later is fine. You don't  
5 have to search through all the documents. I  
6 don't recall. It seemed like that was more  
7 of a Melching than a Mackey.

8 MR. DENNISON: I know what you mean.  
9 We'll check on that.

10 MS. DIERS: Okay. Thank you.

11 Question 2: Is it your opinion  
12 that the South Fork of the South Branch  
13 Chicago River and the Chicago Sanitary and  
14 Ship Canal only differ due to dissolved  
15 oxygen levels seen in these two segments?

16 MR. DENNISON: Well, no, because of my  
17 previous answer.

18 MS. DIERS: Due to what we just talked  
19 about, is that what you mean in your previous  
20 answer?

21 MR. DENNISON: Yes.

22 MR. ANDES: And, in particular, just  
23 to restate, you're talking about flow  
24 characteristics and channel morphology. Do

0102

1 you want to explain what channel morphology  
2 means?

3 MR. DENNISON: Well, it's the physical  
4 appearance of the banks on the cross-section  
5 of the channel itself.

6 MS. DIERS: Question 3: In your  
7 opinion, why would flow augmentation not  
8 enable the South Fork of the South Branch  
9 Chicago River to attain dissolved oxygen  
10 standards?

11 MR. DENNISON: Well, we had a Bubbly  
12 Creek demonstration project drawing the creek  
13 through the Racine Avenue Pumping Station, I  
14 often call that RAPS, to Stickney. We found  
15 that it could not be used as a tool to meet  
16 Illinois Pollution Control Board DO standards  
17 in wet weather. I'm referring to report,  
18 R&D Report 04-8. I'm not sure what  
19 attachment that is. Because the capacity at  
20 the Stickney Water Reclamation Plant may not  
21 be available and operational costs also to  
22 treat the river water are substantial.  
23 Moreover, it's my judgment that full

24 augmentation would resuspend oxygen-demanding

0103

1 sediment, high sediment oxygen, biochemical  
2 oxygen demand, and chemical oxygen demand  
3 would further deplete oxygen.

4 MS. DIERS: When was this project  
5 done?

6 MR. DENNISON: The report came out in  
7 2003, I believe. January 2003, is not it?  
8 That is -- we had another --

9 HEARING OFFICER TIPSORD: June 2004.

10 MR. DENNISON: June 2004. Yes.

11 MR. ANDES: It was cited as a  
12 reference in the testimony. I don't believe  
13 we provided it as an attachment. We can  
14 certainly provide a copy of that.

15 MS. DIERS: And in this report what DO  
16 standards were you looking at? Not the ones  
17 proposed -- currently proposed by Illinois  
18 IPA. Would that be correct?

19 MR. DENNISON: No. This would be the  
20 secondary contacts.

21 MR. ANDES: So if the -- If the  
22 results of that project indicated that flow  
23 augmentation wouldn't meet the current  
24 standards, it would be even tougher to meet

0104

1 the proposed standards.

2 MR. DENNISON: That's correct.

3 MR. ANDES: By the way, I think I can  
4 cite to Dr. Mackey's answers to questions.  
5 He talked about channel morphology and flow  
6 characteristics in response to Question 36.

7 MS. WILLIAMS: He said the testimony.  
8 Dr. Dennison was referring to Dr. Mackey's  
9 testimony, correct, in the prefiled  
10 testimony?

11 MR. ANDES: Or his answers?

12 MR. DENNISON: I used the word  
13 testimony.

14 MR. ANDES: I'm sorry. On Page 7 of  
15 his prefiled testimony Dr. Mackey made that  
16 statement. And then it was discussed in  
17 response to Question 36 from the Illinois  
18 EPA.

19 MS. DIERS: Thank you. Has the  
20 District also looked at supplemental aeration  
21 with respect to the South Fork of the South  
22 Branch Chicago River or, as you're referring  
23 to, Bubbly Creek?

24 MR. DENNISON: Could you repeat that?

0105

1 That's not part of this.

2 MS. DIERS: Has the District looked at  
3 supplemental aeration for this waterway?

4 MR. DENNISON: For Bubbly Creek?

5 MS. DIERS: Yes.

6 MR. DENNISON: No.  
7 MR. ANDES: Well, I think we do have  
8 other witnesses who discuss that. I think,  
9 in particular, Dr. Zenz talks about -- will  
10 talk about the cost of that.  
11 MR. DENNISON: Excuse me. You weren't  
12 referring to presently?  
13 MS. DIERS: Yes. We talked about  
14 either as a project for flow augmentation the  
15 District did for Bubbly Creek. I'm just  
16 asking has there been a project done for  
17 supplemental aeration?"  
18 MR. DENNISON: Not that there's  
19 ongoing supplemental aeration? Okay. No.  
20 MR. ANDES: So you're talking about --  
21 I'm sorry. Was the question has there been  
22 studies of using supplemental aeration to  
23 meet the proposed standards?  
24 MS. DIERS: Yeah.

0106

1 MR. ANDES: Or at all?  
2 MS. DIERS: At all. The proposed  
3 standards specifically. I just want to know  
4 if you've looked at that on Bubbly Creek.  
5 MR. ANDES: And we'll have Dr. Zenz  
6 will testify and Dr. Garcia who also -- his  
7 testimony is specific to Bubbly Creek and  
8 will be discussing that issue as well.  
9 MS. DIERS: Thank you. I'm going to  
10 skip over and go over to Page 9, Question 14  
11 just for the ease of the record.  
12 On Page 2 of your prefiled  
13 testimony, you state that, "Flow in the South  
14 Fork of the South Branch Chicago River  
15 primary fluctuates as a result of the Racine  
16 Pumping Station." How often does that  
17 pumping station discharge?  
18 MR. DENNISON: As a general matter,  
19 RAPS discharge frequency is 15 times a year.  
20 It's something we saw in 2006.  
21 MS. DIERS: Do you know what the range  
22 in flow value is from the Racine Pumping  
23 Station?

24  
0107

1 October 2008 RAPS released 4.9 million  
2 gallons to 4,018 million gallons per combined  
3 sewage overflow event.  
4 MR. ANDES: So if I can clarify, the  
5 maximum flow there for CSO event was four  
6 billion gallons?  
7 MR. DENNISON: Yes.  
8 MR. ANDES: Thank you.  
9 MS. DIERS: I'm going to skip  
10 Question 15.  
11 Question 16 you state on  
12 Page 3 of your prefiled testimony that,

13 "Dissolved oxygen levels are low in dry  
14 weather." Can you state how low?  
15 MR. DENNISON: I guess depends on what  
16 does low mean. One of our dissolved oxygen  
17 reports I believe that we've attached to  
18 this?  
19 MR. ANDES: Attachment 3, I believe.  
20 MR. DENNISON: From 2006 I'd refer you  
21 to Table 5 and Report 07-25.  
22 MR. ANDES: Page 13 of that report.  
23 MR. DENNISON: For example, for 36  
24 Street and Bubbly Creek, which is in the

0108

1 Chicago River system portion of that table,  
2 less than two value, DO of less than two  
3 would have been 51 percent of the DO values  
4 would be in less than two milligrams per  
5 liter.  
6 MS. DIERS: Do you know what's causing  
7 the low DO?  
8 MR. DENNISON: Sediments, stagnant  
9 flow, sediment oxygen demand.  
10 MS. DIERS: Do you think this is  
11 reverse -- is something that can be reversed  
12 in the future?  
13 MR. DENNISON: Can we change the  
14 quiescent condition in Bubbly Creek? Flow  
15 augmentation doesn't work. I don't know any  
16 feasible way to reverse it.  
17 MS. DIERS: Question 17 on Page 4 of  
18 your prefiled testimony you state, "For the  
19 South Fork of South Branch Chicago River, the  
20 dissolved oxygen recovery following wet  
21 weather events takes longer than in other  
22 areas of CAWS." How much longer?  
23 MR. DENNISON: Well, recovery can take  
24 weeks longer than the rest of the CAWS even

0109

1 during high drawback test periods, 75 million  
2 gallons per day through RAPS during 2003.  
3 MS. DIERS: Is that because of the  
4 size of the pumping station?  
5 MR. DENNISON: Well, stagnant flow  
6 conditions allow longer exposure to oxygen  
7 demanding substances along with low  
8 reaeration rates. Probably there's a number  
9 of causes, but stagnant flow is certainly one  
10 of them.  
11 MS. DIERS: Okay. Question 18: You  
12 state on Page 4 of your prefiled testimony  
13 that, "Dissolved oxygen can fall to zero for  
14 three days during a typical wet weather  
15 event." What happens to the aquatic life  
16 during these periods?  
17 MR. DENNISON: Well, while we really  
18 don't know, but since there are not usually  
19 fish kills, the fish must find someplace to

20 go. Oxygen-breathing organisms would have to  
21 find a source of oxygen to stay alive. If  
22 they can't breathe, they'll die.

23 MS. DIERS: Question 19: On Page 4 of  
24 your prefiled testimony, you indicate that

0110

1 the second highest sediment oxygen demand  
2 value obtained by the District was found in  
3 the South Fork of the South Branch Chicago  
4 River. Where is the highest?

5 MR. DENNISON: Most recently during  
6 2006, 4.81 grams per square meter per day was  
7 the highest measured and that was measured in  
8 an off-channel embayment near Diversey  
9 Parkway near the north branch of the Chicago  
10 River.

11 MS. DIERS: I'll come back to 20 and  
12 21. So I'm going to go on to 22. On Page 4  
13 of your prefiled testimony, you state with  
14 regard to South Fork of the South Branch  
15 Chicago River that, "Chemical analysis of the  
16 sediments have dictated legacy organic  
17 containment such as polycyclic aromatic  
18 hydrocarbons, I'm not sure I'm saying it  
19 right, and heavy metals." What do you mean  
20 by legacy, and how do you differentiate  
21 between legacy and contemporary containment?

22 MR. DENNISON: Well, there is no exact  
23 cut-off date. Legacy sediments are old  
24 sediments, not routinely scoured by high

0111

1 flows; contemporary sediments would be new  
2 sediments.

3 MS. DIERS: Twenty-three, are the  
4 contaminants available to aquatic life; and,  
5 if so, what data do you have and what  
6 methodologies do you use to support that the  
7 contaminants are available to aquatic life?

8 MR. ANDES: I think that Miss Wasik  
9 just answered that question.

10 MS. DIERS: Okay. Twenty-four: Are  
11 the levels of listed contaminants in the  
12 South Fork of the South Branch Chicago River  
13 different than the levels reported for other  
14 reaches of the CAWS?

15 MR. ANDES: Can we clarify? Are we  
16 talking about levels in the water column,  
17 levels in the sediment?

18 MS. DIERS: Sediments.

19 MR. DENNISON: I don't know.

20 MS. DIERS: Okay.

21 MR. ANDES: Is that information  
22 provided as attachments to Miss Wasik's  
23 testimony?

24 MR. DENNISON: Yes, it is.

0112

1 MR. ANDES: But you haven't done an

2 assessment to compare the data between Bubbly  
3 Creek and the other areas?

4 MR. DENNISON: That's correct.

5 MR. ANDES: And just to add,  
6 Miss Wasik's testimony, I believe she  
7 summarized the sediment data for the various  
8 reaches.

9 MR. DENNISON: Yes.

10 MS. DIERS: I'm going to jump back to  
11 Page 7 just for flow of the record and go to  
12 Question 8. On Page 4 of your prefiled  
13 testimony you state, "The District measured a  
14 sediment option demand, SOD, of 3.64 grams  
15 per meter squared per day at Interstate I55  
16 on the South Fork of the South Branch Chicago  
17 River.

18 Are there established criteria or  
19 guidelines that indicate sediment conditions  
20 based on SOD concentrations; e.g., what  
21 levels of SOD are considered low, moderate,  
22 and high?

23 MR. DENNISON: Not to my knowledge.

24 MR. ANDES: Was it your intent simply

0113

1 to note that these were high values within  
2 the CAWS? Did -- the Bubbly Creek SOD levels  
3 were among the highest in the system?

4 MR. DENNISON: That's correct.

5 MS. DIERS: Do you know what the  
6 highest and lowest concentrations were and  
7 where they were in the Chicago Area Waterway  
8 System?

9 MR. DENNISON: In 2001 the highest SOD  
10 was 3.89 grams per square meter per day  
11 measured at Simpson Street on the North Shore  
12 Channel. And the lowest SOD in 2001 was 0.59  
13 grams per square meter per day measured at  
14 the Conrail Railroad Bridge on the Little  
15 Calumet River. In 2006 the highest SOD was  
16 4.81 grams per square meter per day, as I  
17 mentioned earlier, in a small embayment near  
18 Diversey Parkway. That was on March 8, 2006.  
19 The lowest SOD in 2006 was 0.23 grams per  
20 square meter per day measured in the main  
21 channel of the Calumet River upstream of  
22 Wisconsin steel slip.

23 MS. DIERS: I'm going to skip 9.

24 Ten: On Page 4 of your

0114

1 prefiled testimony you state, "High  
2 phytoplankton levels sustained by abundant  
3 nutrient loads." How are high phytoplankton  
4 levels determined?

5 MR. DENNISON: Well, we measure  
6 chlorophyll and systonic chlorophyll is a  
7 surrogate measurement for phytoplankton, and  
8 it's a good indicator for phytoplankton.

9 MS. DIERS: How do you decide they  
10 were high?

11 MR. DENNISON: Well, I looked at  
12 others chlorophyll values in the CAWS, and  
13 they were very high in comparison with them,  
14 with the majority of them.

15 MS. DIERS: What were they?

16 MR. DENNISON: Well, the maximum  
17 chlorophyll concentration in Bubbly Creek was  
18 90 micrograms per liter in the 2001/2004  
19 period, Report No. 08-02; and 130 micrograms  
20 per liter in 2005, which is Report 08-33.

21 MS. DIERS: Do you agree that the  
22 median chlorophyll A concentration in the  
23 South Fork South Branch Chicago River from  
24 January 2004 through May 2007 was 8.8 UGL?

0115

1 MR. DENNISON: I didn't go through  
2 that data to calculate that value, but that  
3 could be correct. However, there were also  
4 many high values greater than 25 micrograms  
5 per liter, for example, that had been  
6 detected during the period 2001 through 2008  
7 since we've been collecting these data.

8 MS. DIERS: Do you consider 8.8 high?

9 MR. DENNISON: Everything being  
10 relative in the CAWS, that's higher than  
11 other stations perhaps for -- Is that median?  
12 But it certainly is less than the maximum  
13 values that I was talking about.

14 MS. DIERS: I'm going to skip 12.

15 MR. ANDES: Did you skip 11?

16 MS. DIERS: I'm sorry. Eleven is that  
17 what you asked?

18 MR. ANDES: We were on 10 and you said  
19 you --

20 MS. DIERS: I skipped 11 and 12, yes.  
21 Sorry.

22 Question 20, and that will be on  
23 Page 10. On Page 5 of your prefiled  
24 testimony, you indicate that, "Efforts in

0116

1 2006 to draw back water at the Racine Avenue  
2 Pump Station and send it to the Stickney  
3 Plant for treatment demonstrate that flow  
4 augmentation will not enable South Fork of  
5 the South Branch Chicago River to attain the  
6 dissolved oxygen standard proposed. Would it  
7 result in attainment of the current secondary  
8 contact standard in dry weather? If not,  
9 please explain why.

10 MR. DENNISON: It will not  
11 consistently attain the secondary standard,  
12 even at the high drawback of 75 million  
13 gallons per day.

14 MS. DIERS: Why?

15 MR. DENNISON: That was our result

16 from our study.  
17 MS. DIERS: Would supplemental -- I'm  
18 sorry.  
19 MR. ANDES: I'm sorry. Just a couple  
20 of questions. Do you believe that that is  
21 due to the basic physical and hydraulic  
22 nature of the water body?  
23 MR. DENNISON: Yes.  
24 MR. ANDES: And are those limitations

0117

1 part -- and the fact that it would have  
2 problems even attaining the current standard,  
3 is that one of the reasons why you're  
4 proposing that Bubbly Creek have a different  
5 use, a Use C, with a narrative standard?

6 MR. DENNISON: Yes.  
7 MS. DIERS: And I'm asking about dry  
8 weather. So does that make a difference in  
9 your answer?

10 MR. ANDES: Are there attainment  
11 issues in wet and dry weather?

12 MR. DENNISON: Yes.

13 MS. DIERS: Would supple aeration work  
14 alone or would both be necessary? Would you  
15 need the supplemental aeration with flow  
16 augmentation?

17 MR. DENNISON: Well, I haven't looked  
18 at that. I suppose Dr. Garcia's testimony  
19 may be the one to check.

20 MR. ANDES: That would be right.

21 MS. DIERS: Dr. Garcia?

22 MR. ANDES: Yes.

23 MS. DIERS: Okay. I'm going to strike  
24 21. I'm going to strike 25. I'm going to

0118

1 strike 26.

2 I'm going to go to  
3 Question 13. It's Page 9. On Page 6 of your  
4 prefiled testimony you state, "To this end  
5 the District recommended a narrative TDO  
6 standard to be developed that prevents fish  
7 kills.

8 Is the District going to  
9 propose a narrative standard for us to look  
10 at, or are you thinking of the narrative  
11 standard that was used in the DO rulemaking  
12 for general use waters? And I kind of fixed  
13 that question a little bit. I'm sorry.

14 MR. ANDES: It wasn't quite what we  
15 thought it was.

16 MR. DENNISON: Could you repeat it?

17 MS. DIERS: What I'm asking is there  
18 seems, reading your testimony, a need for a  
19 narrative standard. So I guess the first  
20 question I start with, can you explain why we  
21 need a narrative standard? And I guess --

22 HEARING OFFICER TIPSORD: That was

23 actually Question No. 4.  
24 MS. DIERS: Thank you. I guess first  
0119  
1 the real question is the narrative standard  
2 just for Bubbly Creek?  
3 MR. DENNISON: Well, as things stand  
4 now, it's my understanding that it would be  
5 just for Bubbly Creek.  
6 MR. ANDES: As proposed in the  
7 testimony.  
8 MS. DIERS: And can you explain  
9 what -- give us an idea of what your  
10 narrative standard would be.  
11 MR. DENNISON: Well, we've got to  
12 prevent fish kills. We would like to prevent  
13 defensive odors from happening. That's what  
14 we would like to put into the standard to see  
15 that happen.  
16 MS. DIERS: Is that something that the  
17 District is going to do in this process is  
18 prepare language for a narrative standard for  
19 Bubbly Creek?  
20 MR. DENNISON: Not that I know of as a  
21 definite thing that's happening. I'm sure  
22 that --  
23 MR. ANDES: I think when Dr. Grenado,  
24 when he wraps up the testimony, will  
0120  
1 summarize the District's proposals. I don't  
2 believe that's the intention to propose  
3 specific language, but a conceptual approach.  
4 And I think that's reflected in the testimony  
5 to date.  
6 MS. DIERS: That takes care of 4, 5,  
7 6, and 7 on Page 7. Just give me a few  
8 minutes --  
9 MR. ANDES: If I can follow up on that  
10 for a minute in terms of the need for a  
11 narrative standard. I don't think we really  
12 got to that. Do you believe that we can  
13 identify a numeric standard that Bubbly Creek  
14 can meet?  
15 MR. DENNISON: Things are just so  
16 variable in Bubbly Creek that I don't see how  
17 you could identify a numeric standard.  
18 MS. DIERS: Why do you --  
19 MR. ANDES: And that's the basis for  
20 proposing a narrative instead?  
21 MR. DENNISON: Yes.  
22 MS. DIERS: So instead of a numeric  
23 standard, you think a narrative standard  
24 would be the best way to go for Bubbly Creek?  
0121  
1 MR. DENNISON: Yes.  
2 MR. ANDES: And that would be for the  
3 period at least while the TARP projects are  
4 going on, the 2024 which would address some

5 of the CSO issues?  
6 MR. DENNISON: Certainly.  
7 MR. ANDES: So after the CSO issues  
8 are addressed through TARP, it could be that  
9 a different standard could apply?  
10 MS. WILLIAMS: Fred, are you  
11 testifying?  
12 MR. ANDES: No. I'm asking him if  
13 that's correct.  
14 MR. DENNISON: That's correct.  
15 MS. DIERS: So how would this  
16 narrative standard be protective if we don't  
17 have a numeric criteria?  
18 MR. DENNISON: Well, it would be an  
19 operational standard, I believe. It would be  
20 faced with having to make sure that there  
21 were no fish kills or offensive odor  
22 production.  
23 MR. ANDES: Are you aware that the  
24 State has other narrative standards in its  
0122 regulations?  
1 MR. DENNISON: There is one for  
2 general use for stagnant waters that's  
3 somewhat similar situation as Bubbly Creek.  
4 MS. DIERS: So is your thought that  
5 the narrative standard would prevent fish  
6 kills?  
7 MR. DENNISON: That would be the goal.  
8 MS. DIERS: Prohibit, I'm sorry. I  
9 don't think I meant as a preventative.  
10 Prohibit fish kills.  
11 MR. DENNISON: So that fish wouldn't  
12 be dying.  
13 MS. DIERS: Just give me a second and  
14 see if I have any more questions.  
15 So what aquatic life use would  
16 you propose for Bubbly Creek?  
17 MR. DENNISON: Well, without -- If  
18 things had to go on right now without any  
19 other way of going about things, I guess I  
20 would have to say an Aquatic Life Use C. But  
21 I'd rather see the habitat study that's going  
22 on be able to be completed to help make that  
23 decision.  
0123  
1 MS. DIERS: How would you envision  
2 Aquatic Life C? If we're sitting here today,  
3 we don't have the habitat study. How would  
4 you envision Aquatic Life C?  
5 MR. ANDES: What do you mean how would  
6 you envision?  
7 MS. DIERS: We've come up with  
8 proposal for Aquatic Life A and B. You're  
9 saying those don't work for this. So what  
10 would C be?  
11 MR. DENNISON: Well, I guess it would

12 be something, as I've mentioned, that would  
13 prevent fish kills and offensive odors. I'm  
14 not sure of how -- what sort of language it  
15 would be or what, but it's that goal that we  
16 certainly would have to focus on.

17 MR. ANDES: And it would only contain  
18 Bubbly Creek. Am I right?

19 MR. DENNISON: Yes.

20 MR. ANDES: And am I right in your  
21 testimony you say this would be appropriate  
22 until the sediments are capped, removed, or  
23 remediated and the frequency of discharge of  
24 RAPS is diminished sometime after 2024?

0124

1 MR. DENNISON: Yes.

2 MS. DIERS: Doesn't the current  
3 standard prevent fish kill?

4 MR. DENNISON: Permit?

5 MS. DIERS: Prohibit. I'm sorry. I'm  
6 trying to understand how this would be any  
7 different from what we already have.

8 MR. ANDES: Can you contrast it to the  
9 current numeric standards?

10 MS. WILLIAMS: No.

11 MR. ANDES: You asked him how it was  
12 different than what we already have, right?

13 MS. WILLIAMS: But I think she's  
14 asking about use designations, not about --

15 MR. ANDES: She just said -- I don't  
16 think that's so.

17 MS. WILLIAMS: Okay.

18 MR. ANDES: You asked about the  
19 standards, whether the current standards  
20 prohibit fish kills.

21 MS. DIERS: I did.

22 MR. DENNISON: I'm just recalling  
23 numeric values. I don't remember that  
24 wording in such.

0125

1 MS. DIERS: That's fine. We have  
2 nothing further.

3 HEARING OFFICER TIPSORD: All right.  
4 Then let's go to Miss Dexter.

5 MS. DEXTER: I will start with my  
6 prefiled questions.

7 MEMBER LIN: Just a moment.

8 HEARING OFFICER TIPSORD: Yes,  
9 Dr. Lin?

10 MEMBER LIN: On Question 16, very  
11 important. You say the most important  
12 factor. I have two questions: Do you know  
13 how much the accumulation per year? A second  
14 one, the sediment more important so does --  
15 Do you think that dredging will cure the  
16 problem? Dredging very costly.

17 MR. ANDES: Right. So the second part  
18 is do we believe dredging would cure the

19 problem?  
20 HEARING OFFICER TIPSORD: The  
21 dissolved oxygen problem on Question 16.  
22 MEMBER LIN: Because sediment --  
23 MR. ANDES: And I wasn't clear on the  
24 first part of the question.

0126

1 HEARING OFFICER TIPSORD: Question 16  
2 is the dissolved oxygen issue, I believe. Is  
3 that correct, Dr. Lin?  
4 MEMBER LIN: Yes.  
5 HEARING OFFICER TIPSORD: Dissolvable  
6 oxygen, whether or not dredging would cure  
7 the problem with the dissolved question given  
8 the sediment.

9 MEMBER LIN: That's question two.  
10 Question one is do you know what the annual  
11 accumulation rate per year is?

12 MR. ANDES: The annual accumulation  
13 rate.

14 MEMBER LIN: Right. It's really  
15 important.

16 MR. DENNISON: I understand what  
17 you're asking. I don't know the annual  
18 accumulation rate.

19 As far as your second  
20 question, you must remember that the Racine  
21 Avenue Pumping Station will be continually,  
22 for quite a while anyway, pumping during wet  
23 weather events into the Bubbly Creek which  
24 would add to the sediment load. If you

0127

1 dredged it completely, certainly that would  
2 take out the sediments that are exerting the  
3 SODs. But, of course, you would then begin  
4 building up again the same situation in that  
5 quiescent stagnant body of water there.

6 MEMBER LIN: Can you repeat that? In  
7 history, it should be considered to evaluate  
8 the cost, cost of dredging and the aeration,  
9 so whole package. It's very important.

10 MR. ANDES: Is it -- Let me ask a  
11 question to follow up on that. I believe  
12 Miss Wasik talked about there being a  
13 demonstration project to cap a small portion  
14 in four acres at the mouth of Bubbly Creek.

15 MR. DENNISON: She did mention that.  
16 And all I know about that project is that,  
17 yes, it is indeed a project.

18 MR. ANDES: So that is being studied?

19 MR. DENNISON: Yes, yes.

20 MR. ANDES: But am I correct to say  
21 that, and maybe Miss Wasik can answer the  
22 question, but do we know when the results of  
23 that will be available or sort of what the  
24 future steps are in that effort?

0128

1 MS. WASIK: Well, everything so far in  
2 that project has taken much longer than they  
3 anticipated. So right now they're at the  
4 engineering design phase, and they've awarded  
5 the contract to an engineering firm. But I'd  
6 say it'll be several years before they have  
7 data regarding the results.

8 MR. ANDES: So long-term those issues  
9 are being assessed in terms of sediment  
10 capping possibility?

11 MS. WASIK: Capping.

12 MEMBER MOORE: Are there any  
13 measurements of the accumulation rate  
14 anywhere within the CAWS?

15 MR. ANDES: The sediment accumulation  
16 rate?

17 MEMBER MOORE: Yes.

18 MR. DENNISON: I don't know.

19 MR. ANDES: Miss Wasik?

20 MS. WASIK: Dr. Garcia may have  
21 measurements like that, but they would be  
22 model results, but I'm not sure.

23 MR. ANDES: I think that Dr. Garcia  
24 will talk a lot about flow and sort of where

0129

1 sediment goes. So I think we can ask him  
2 those questions. And he's the next witness  
3 up.

4 HEARING OFFICER TIPSORD: Thank you.

5 MS. DEXTER: Okay. I will begin with  
6 my prefiled Question No. 1. On Page 4 of  
7 your testimony you indicate that DO levels  
8 fall to zero for up to three days following  
9 rain events.

10 Has the District seen evidence  
11 of fish kills caused by sediments?

12 MR. DENNISON: Yes.

13 MS. DEXTER: Are they frequent? Can  
14 you describe them?

15 MR. DENNISON: Infrequent as far as we  
16 know. The last one from Bubbly Creek that  
17 I'm aware of was in 2004. It would depend on  
18 whether I'm made aware of them or not. But  
19 it appears to be less than once a year.

20 MS. DEXTER: And do you know of any  
21 before Bubbly Creek?

22 MR. ANDES: You mean before 2004?

23 MS. DEXTER: Yes. I'm sorry. I was  
24 typing and talking at the same time.

0130

1 MR. DENNISON: Not personally. And I  
2 can't really say that I do unless I've had  
3 the data in front of me.

4 MS. DEXTER: Okay.

5 MR. ANDES: If I can follow up on that  
6 for a minute. Dr. Dennison, in terms of that  
7 particular incident in 2004, I wonder if you

8 could tell us a little bit about what the DO  
9 levels went down to and how quickly that  
10 happened.

11 MR. DENNISON: Within a matter of  
12 hours, a couple hours went from  
13 approximately, if I'm remembering correctly,  
14 six to zero, six milligrams per liter to  
15 zero. It was very quick.

16 MS. DIERS: I have a quick follow-up.  
17 Does the District check to see if there are  
18 fish kills after each overflow event?

19 MR. DENNISON: It's my understanding  
20 that we would rely on reports of fish kills  
21 unless they are noticed by our pollution  
22 control boats during their normal operation.

23 MS. DIERS: When you say rely on  
24 reports, what do you mean by that?

0131

1 MR. DENNISON: For example, a  
2 citizens' report.

3 MS. DIERS: Thanks.

4 MS. DEXTER: Where do the fish that do  
5 not die go after such an event?

6 MR. DENNISON: I don't know. I assume  
7 that they would swim into the south branch of  
8 the Chicago River; however, I haven't tracked  
9 movements nor has anyone at the District  
10 tracked the movements of the fish.

11 MS. DEXTER: Prefiled Question 3.  
12 Generally does the District know where fish  
13 go to avoid extreme low DO conditions in  
14 Bubbly Creek?

15 MR. DENNISON: No.

16 MS. DEXTER: Do you know where fish go  
17 when DO conditions are extremely low in the  
18 North Shore Channel?

19 MR. DENNISON: I do not know. I  
20 assume that they would seek areas of higher  
21 DO such as downstream and the North Side  
22 Water Reclamation Plant.

23 MR. ANDES: Is that because the  
24 stagnant flow above the north side

0132

1 reclamation plant results in very low DO  
2 levels?

3 MR. DENNISON: Yes.

4 MR. ANDES: So the levels are higher  
5 below the plant?

6 MR. DENNISON: Yes.

7 MR. ANDES: Thank you.

8 MS. DEXTER: I'm going to skip  
9 prefiled Question 5 for now. I'm assuming  
10 that you've answered prefiled Question 6 when  
11 I asked Question 1.

12 MR. DENNISON: Yes.

13 MS. DEXTER: All right. I'm going to  
14 skip 7 and 8 for a few minutes and go to

15 Question 9. Who prepared Attachment 2 to  
16 your testimony?

17 MR. DENNISON: The U.S. Army Corps of  
18 Engineers.

19 MS. DEXTER: And what has happened to  
20 the recommendations and ideas suggested in  
21 Attachment 2?

22 MR. DENNISON: I don't know.

23 MS. DEXTER: Has the District  
24 considered doing any of the things discussed

0133

1 in Attachment 2?

2 MR. DENNISON: I do not know.

3 MS. DEXTER: Now I'll go back to  
4 Question 5. Were there fish kills that  
5 resulted from any of the DO drops that are  
6 reflected in Attachment 3?

7 MR. DENNISON: Yes.

8 MS. DEXTER: Can you describe? Are  
9 they different than the ones that you've  
10 already described?

11 MR. DENNISON: In August of 2006, fish  
12 kills occurred in the CAWS, though I didn't  
13 have a report of one in Bubbly Creek.

14 MS. DEXTER: Are there any others?

15 MR. DENNISON: Any others? Any --

16 MS. DEXTER: That you know of.

17 MR. ANDES: You mean during 2006?

18 MS. DEXTER: What?

19 MR. ANDES: Fish kills during 2006?

20 MS. DEXTER: Fish kills associated  
21 with the DO drops in Attachment 3. That's  
22 all that you know of?

23 MR. DENNISON: Well, they were at  
24 other locations in the CAWS. I believe it

0134

1 was on the North Shore Channel, the North  
2 Branch of the Chicago River that we had  
3 investigated.

4 MS. DEXTER: On Page 15 of Attachment  
5 3, do you know what caused the DO collapse at  
6 Main Street in December 2006?

7 HEARING OFFICER TIPSORD: This is  
8 Question 14?

9 MS. DEXTER: Sorry.

10 MR. DENNISON: I do not know.

11 MS. DEXTER: Okay. Now I'm going to  
12 go back to Question 7. Does the District  
13 propose that conditions be allowed to  
14 continue such that dissolved oxygen levels  
15 are allowed to fall below 3 milligrams per  
16 liter in Bubbly Creek?

17 MR. DENNISON: No matter what you do,  
18 that's going to happen. It's the nature of  
19 the water body.

20 MS. DEXTER: Would the answer be yes  
21 then?

22 MR. ANDES: I think he answered the  
23 question.

24 MS. DEXTER: I don't think he answered  
0135 the question.

1 MR. ANDES: He gave you a response.  
2 It just wasn't a simple yes or no.

3 HEARING OFFICER TIPSORD: Are you  
4 comfortable giving us a yes or no answer,  
5 Dr. Dennison?

6 MR. DENNISON: I'm trying to determine  
7 that. Because of the variability, I don't  
8 see how you could answer that other than the  
9 way I have.

10 HEARING OFFICER TIPSORD: Okay. Thank  
11 you.

12 MS. DEXTER: All right. Question 8:  
13 Does Bubbly Creek now at this time constitute  
14 an attractive nuisance for fish as stated on  
15 Page 5 of your testimony?

16 MR. DENNISON: Not now.

17 MS. DEXTER: And now I'm going to go  
18 down to Question 12. On Page 6 of your  
19 testimony you propose a narrative standard  
20 for Bubbly Creek that would stay in place  
21 until sometime after the 2024. As a  
22 practical matter, what DO levels would need  
23 to be maintained to protect such a narrative  
24 standard?

0136 1 MR. DENNISON: Well, I don't know. I  
2 haven't done that analysis.

3 MS. DEXTER: Would the District need  
4 to do such an analysis to meet the narrative  
5 standard?

6 MR. DENNISON: Are you asking that as  
7 part of Question 12?

8 MS. DEXTER: I'm following up to  
9 Question 12, yes.

10 MR. DENNISON: I don't know.

11 MS. DEXTER: What would the District  
12 do to assure compliance with the proposed  
13 narrative standard?

14 MR. DENNISON: I don't know.

15 MR. ANDES: Might be better addressed  
16 to people with more operational  
17 responsibility. That would be Dr. Grenado  
18 later.

19 MS. DEXTER: Okay. If Bubbly Creek  
20 cannot be expected to maintain a standard of  
21 four milligrams per liter of dissolved  
22 oxygen, how is it that the North Shore  
23 Channel at Main Street generally stays above  
24

0137 1 five milligrams per liter of dissolved  
2 oxygen?

3 MR. DENNISON: Flow augmentation from

4 the Wilmette Pumping Station.  
5 MS. DEXTER: Is that all?  
6 MR. DENNISON: That's all that I can  
7 think of.  
8 MR. ANDES: I'm sorry. Are there  
9 significant differences in characteristics  
10 between North Shore Channel and Bubbly Creek?  
11 MR. DENNISON: Yes. Bubbly Creek is  
12 stagnant. The North Shore Channel isn't. It  
13 has flow when there's flow augmentation from  
14 the Wilmette Pumping Station.  
15 MS. DEXTER: I'm sorry. Just -- I'm  
16 not sure that I heard what you said. The  
17 flow augmentation what? What causes the flow  
18 in North Shore Channel?  
19 MR. DENNISON: The flow augmentation  
20 from the Wilmette Pumping Station.  
21 MS. DEXTER: Okay. That's all I have.  
22 HEARING OFFICER TIPSORD: Anything  
23 else for Dr. Dennison?  
24 MS. DIERS: We may have just a couple

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1 more questions.  
2 HEARING OFFICER TIPSORD: If you need  
3 to talk about it, let's take five minutes.  
4 (Short break taken.)  
5 HEARING OFFICER TIPSORD: I think  
6 we're ready to go back on the record.  
7 Miss Diers, you had some additional questions  
8 for Dr. Dennison?  
9 MS. DIERS: Yes. Dr. Dennison, in  
10 your opinion, do fish in the Chicago River  
11 System experience stress from low DO levels?  
12 MR. ANDES: Are you talking about at  
13 any time?  
14 MS. DIERS: Yes.  
15 MR. DENNISON: I think that if a fish  
16 found itself in an area of low DO and it  
17 wasn't something that could be avoided, it  
18 would be under stress if it was below the DO  
19 that would be required to -- so that it would  
20 be below the DO that would be required for  
21 its normal health during the day, so to  
22 speak.  
23 MS. DIERS: We have nothing further.  
24 HEARING OFFICER TIPSORD: Anyone else?

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1 MR. ANDES: I wanted to do one  
2 follow-up, actually, with Miss Wasik.  
3 HEARING OFFICER TIPSORD: Okay.  
4 MR. ANDES: There was a question asked  
5 about the Attachment 2 to Dr. Dennison's  
6 testimony in terms of what was the status of  
7 the projects laid out in that report. And I  
8 think Miss Wasik can address that.  
9 MS. WASIK: Well, I just wanted to  
10 mention that Attachment 2 was a

11 reconnaissance study done by the U.S. Army  
12 Corps of Engineers, and that marks the  
13 beginning of their feasibility study for  
14 Bubbly Creek. And the ideas put forth in  
15 that document are what they call options for  
16 the feasibility study. So they'll be looking  
17 at those set of options over the next decade  
18 or so according to their time line. So I  
19 wouldn't necessarily say they're  
20 recommendations, but they're options, one of  
21 which would be no action, and that they  
22 compare all of those options throughout the  
23 feasibility study.

24 MR. ANDES: Thank you.

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1 HEARING OFFICER TIPSORD: Anything  
2 further? All right. We will have hearings  
3 February 17 and 18, rooms to be announced,  
4 but downtown somewhere as we're already  
5 encountering weather issues this year. We  
6 will go with Dr. Garcia, Miss Demura, and I  
7 pronounced that wrong, Mr. Freedman, and then  
8 we'll have Dr. Dennison available as well.  
9 That's four witnesses. Hopefully we can get  
10 through all four of them in those two days.  
11 With that, thank you again. It's been a  
12 pleasure. We'll see you all in a couple  
13 months. Happy holidays.

(Which were all the  
proceedings had.)

\* \* \* \* \*

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1 STATE OF ILLINOIS )  
2 ) SS.  
3 COUNTY OF COOK )

4 I, LAURA MUKAHIRN, being a Certified  
5 Shorthand Reporter doing business in the City of  
6 Chicago, Illinois, County of Cook, certify that I  
7 reported in shorthand the proceedings had at the  
8 foregoing hearing of the above-entitled cause. And  
9 I certify that the foregoing is a true and correct  
10 transcript of all my shorthand notes so taken as  
11 aforesaid and contains all the proceedings had at  
12 the said meeting of the above-entitled cause.

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LAURA MUKAHIRN, CSR  
CSR NO. 084-003592

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