

ILLINOIS POLLUTION CONTROL BOARD

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

REPORT OF PROCEEDINGS held in the above-entitled cause before Hearing Officer Marie Tipsord, called by the Illinois Pollution Control Board, taken before Laura Mukahirn, CSR, a notary public within and for the County of Cook and State of Illinois, at the Thompson Center, Chicago, Illinois, on the 14th day of January, 2010, commencing at the hour of 9:00 a.m.

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**STATE OF ILLINOIS**  
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A P P E A R A N C E S

MS. MARIE TIPSORD, Hearing Officer  
MR. TANNER GIRARD, Chairman  
MR. ANAND RAO, Member  
MS. ALISA LIU, Member  
MS. ANDREA MOORE, Member  
    Appearing on behalf of the Illinois  
    Pollution Control Board

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    Appearing on behalf of Midwest Generation

1 HEARING OFFICER TIPSORD: I think  
2 we're ready to get started this morning.  
3 Good morning, everyone. My name is Marie  
4 Tipsord, and I've been appointed by the board  
5 to serve as hearing officer in this  
6 proceeding entitled Water Quality Standards  
7 and Effluent Limitations for the Chicago Area  
8 Waterway System and Lower Des Plaines,  
9 proposed amendments to 35 code 301, 302,  
10 303, and 304. This is Docket No. R08-9.  
11 With me today to my immediate right acting  
12 chairman G. Tanner Girard, the presiding  
13 board member. To his immediate right is  
14 board member Carry Zalewski and board member  
15 Andrea Moore will be joining us shortly. To  
16 my far left is board member Tom Johnson, to  
17 his immediate right is board member Gary  
18 Blankenship. To my immediate left is Anand  
19 Rao. And to his left is Alisa Liu, our  
20 technical unit. This is our 37th day of  
21 hearing, and it's our second day with Midwest  
22 Generation's final witness in this area  
23 Dr. Allen Burton. And we'll continue with  
24 questions for the testifier from the IEPA,

1 and then move on to the Environmental Law and  
2 Policy Center. Again, anyone may ask a  
3 follow-up question. You need not wait until  
4 your turn to ask a question. I do ask that  
5 you raise your hand, wait for me to  
6 acknowledge you. After I've acknowledged  
7 you, please state your name, who you  
8 represent before you begin your question.  
9 Speak one at a time. If you speak over each  
10 other, the court reporter will not be able to  
11 get your questions on the record. Please  
12 note that any questions asked by a board  
13 member or staff are intended to help build a  
14 complete record for the board's decision and  
15 not to express any preconceived notions or  
16 bias. I did ask that you check your schedule  
17 so that we can set up a time for a prehearing  
18 conference. We'll talk at break about a date  
19 that might work for that. Dr. Girard,  
20 anything this morning?

21 CHAIRMAN GIRARD: Good morning.  
22 Welcome to Hearing Day 37. Let's get to  
23 work. Thanks.

24 HEARING OFFICER TIPSORD: With that,

1 we'll go to the IEPA.

2 E X A M I N A T I O N

3 By Ms. Williams:

4 Q. Good morning Dr. Burton. I'm going to  
5 pick up with Question 69 on my prefiled questions  
6 on Page 70. Are you familiar with the 1997 U.S. EPA  
7 document entitled, quote, the incidents and severity  
8 of sediment contamination in surface waters of  
9 United States, which I'll refer to as ISSC?

10 A. Yes. I reviewed the first edition of  
11 this report while it was drafted. I don't know if  
12 any of my data was used in the report by the  
13 contractor Tetratech.

14 Q. Are you able to summarize the  
15 precautions ISSC discusses in relying on only  
16 sediment chemistry data to make conclusions about  
17 whether sediments are toxic to aquatic life?

18 A. No. But I assume they're just like  
19 the statements made in my weight of evidence  
20 publications and earlier citations. The more lines  
21 of evidence used in an assessment, the less  
22 uncertainty if they're done correctly. I stated  
23 earlier the sediment aquatic guidelines are showed  
24 to be accurate 70 to 75 percent of the time

1 predicting benthic toxicity. And the U.S. EPA  
2 designated tier 1 sites, areas where sediments are  
3 associated with adverse specs on aquatic life or  
4 human health are probable as being the most  
5 contaminated. But for those they had both chemistry  
6 and toxicity information. In addition, they also  
7 designated areas of probable concern where further  
8 investigations or remediation may be necessary due  
9 to the high degree of contamination and the high  
10 number of tier one sites. In the nation, 48 areas  
11 of probable concern were identified in this report,  
12 and the Kankakee, Chicago, Des Plaines, and Upper  
13 Illinois were on that list fully 95 to 98 percent of  
14 the stations measured in the Des Plaines and Chicago  
15 River were identified as tier 1 or tier 2 sites.  
16 The Ship Canal had 19 tier 1 sites and Des Plaines  
17 had 18 tier 1 sites.

18 Q. And did they suggest that the  
19 chemistry data appropriate for setting regulatory  
20 criteria sites specific clean-up standards or  
21 remediation goals?

22 A. I do not recall, but this is the norm  
23 for most sediment remediation efforts.

24 Q. What's the norm?

1           A.       Using these for clean-ups as we  
2 discussed yesterday.

3           Q.       Didn't you also discuss yesterday they  
4 weren't intended for that purpose but that they are  
5 used by project managers for that purpose?

6           A.       Exactly.

7           Q.       Okay.

8           A.       Oh, yes. And I should also mention  
9 that this was discussed in a recent publication by  
10 Gus Gustafson that was published in Environmental  
11 Science and Technology in 2009.

12          Q.       What was discussed?

13          A.       Unfortunately I didn't include it on  
14 the CV.

15          Q.       What was discussed, Dr. Burton?

16          A.       The dredging of sites and the use of  
17 sediment quality guidelines.

18          Q.       And the fact that they shouldn't be  
19 used for setting clean-up goals?

20          A.       No. Just really that was the summary  
21 of a national research council report that I was  
22 part of that mainly just said what the state of the  
23 practice was.

24          Q.       Do you agree with the state of the

1 practice?

2 A. Oh, no.

3 Q. I'm going to move on to Question --  
4 the barge traffic questions. I think we've gone  
5 over a lot of this yesterday, so this should just be  
6 very brief. Question 70: Can you contrast and  
7 compare the potential effects of aquatic life of  
8 barge traffic in the Sanitary and Ship Canal with  
9 the potential barge traffic effects in the Brandon  
10 Pool and in the Upper Dresden Island Pool?

11 A. It's my understanding that the recent  
12 MWRD report by LimnoTech found a correlation between  
13 navigation and major impacts to aquatic life and  
14 Ship Canal. I can generally say that the effects on  
15 aquatic life barge traffic may be worse in the Ship  
16 Canal than in Brandon Pool and the Upper Des Plaines  
17 Island Pool due to the fact that it is a narrower  
18 stretch of water, thus less room for aquatic life to  
19 avoid the barge turbulence and solids. However,  
20 it's known that wave surges from boats and barges  
21 have an adverse effect on aquatic life and the shore  
22 line habitat. And those affect a wider area of the  
23 Upper Des Plaines.

24 Q. But you would agree generally that



1 fish have an easier time avoiding barge traffic in  
2 the Upper Dresden Island Pool than in the Sanitary  
3 Ship Canal?

4 A. Yes.

5 MR. ETTINGER: Excuse me. This is  
6 Albert Ettinger again. I represent a number  
7 of environmental groups. Could you explain a  
8 little more the effect of the wave surges on  
9 aquatic life and on other factors?

10 DR. BURTON: Well, the wave surge  
11 issue is a physical turbulence issue. So as  
12 the wave goes out, particularly through the  
13 shallower areas, it disturbs the fish  
14 behavior. So there have been studies that  
15 look at fish behavior and see that they avoid  
16 these areas where you have repeated boat  
17 traffic basically. And then when the -- that  
18 surge hits the bank, it creates swell erosion  
19 of the bank which then it creates siltation  
20 in the sediments which makes it poorer  
21 habitat.

22 MR. ETTINGER: Does it also have the  
23 effect of pushing pollutants in the side  
24 channels?

1 DR. BURTON: I haven't seen any  
2 studies that linked that to resuspension of  
3 sediments. So I'm unsure of that.

4 MR. ETTINGER: I'm sorry. If you had  
5 pollutants in the main channel, would they be  
6 driven by the wave action into the side  
7 channels?

8 DR. BURTON: It would probably be more  
9 by the resuspension from the prop which then  
10 the waves push out, yeah.

11 MR. ETTINGER: Thank you.

12 BY MS. WILLIAMS:

13 Q. Question 71: A asks what studies did  
14 you find and review on barge traffic effects?

15 A. Well, we submitted and discussed  
16 yesterday the Commonwealth Edison literature review  
17 report that I submitted. And, in addition, there's  
18 a wealth of literature on total suspended solids  
19 which I believe is the dominant barge effect; some  
20 of which I cite in the my book, CRC review, which  
21 was submitted. The U.S. EPA suspended embedded  
22 sediment criteria document that we discussed  
23 yesterday, and the review by Wood and Armitage which  
24 we discussed yesterday.

1           Q.       Subpart C: What reduction in the  
2 level or frequency of barge traffic do you believe  
3 would be necessary to allow the Clean Water Act goal  
4 aquatic life uses to be attainable in the Upper  
5 Dresden Island Pool?

6           A.       I do not know.

7           Q.       Do other segments of the Illinois  
8 River and other rivers where barge traffic occurs  
9 have the ability to attain interim Clean Water Act  
10 aquatic life goal?

11          A.       I do not know. I haven't studied the  
12 Illinois river's ability to retain Clean Water Act  
13 aquatic life goals.

14          Q.       What about in other states?

15          A.       I do not know.

16          Q.       Okay. The next section of questions  
17 we've addressed some of the points, but -- so I'll  
18 probably be skipping around a bit. We're going to  
19 start with No. 75. You state on Page 5 that, quote,  
20 overlying water quality in some cases may be  
21 considered relatively good and may even minimally  
22 meet water quality standards. Did you conduct an  
23 evaluation of the water quality; and, if so, did the  
24 results of your evaluation differ from the CAWS or

1 Lower Des Plaines UAA studies?

2 A. I use the phrase may even minimally  
3 meet water quality standards to indicate that based  
4 on the water chemistry data collected in the UAA  
5 reports of the CAWS and the Lower Des Plaines, there  
6 are areas within these two study areas where the  
7 data generally indicates they're in compliance most  
8 of the time for water quality standards for general  
9 use in Illinois. Although there are others such as  
10 DO and temperature for which there is not. For  
11 purposes of my work for this testimony, I did not  
12 conduct my own evaluation of the water chemistry of  
13 the CAWS or the Lower Des Plaines.

14 Q. Thank you. Question 76: On Page 5 of  
15 Attachment 1 with regard to the Upper Dresden Island  
16 Pool, you state, quote, the dominant stressors  
17 include contaminated sediments, metals, synthetic  
18 organic chemicals including pesticides, PAHs, and  
19 pharmaceuticals and personal care products,  
20 nutrients, flow regime alteration, and degraded  
21 habitats.

22 A: Are these listed in order of  
23 dominance? And, if not, place them in order of  
24 dominance.

1           A.       Well, as we discussed yesterday, the  
2 stressors really vary spatially and temporally. So  
3 any ranking is going to vary through the year and  
4 through this system. I stated yesterday I think the  
5 dominant stressors in the system are probably  
6 habitat, which I would include altered flow,  
7 siltation, sedimentation, and contaminated sediments  
8 being another major stressor in the system. So all  
9 of those others are additional stressors, but their  
10 importance is going to vary with the species, with  
11 the place, with the time.

12           Q.       I don't know yesterday if we discussed  
13 the flow regime alteration factor in any detail.  
14 Can you tell me what analysis you did on this  
15 factor?

16           A.       I did not analyze flow.

17           Q.       Did you analyze the impact of dams,  
18 diversions, or other hydrologic modifications?

19           A.       No. I am only aware of the literature  
20 on those.

21           Q.       Let's move on to B. With regard to  
22 metals, are you referring to water column or  
23 sediment? So you have just indicated that your top  
24 three were degraded habitats, flow alterations,

1 which you did not study in detail, and contaminated  
2 sediments, correct?

3 A. Correct.

4 Q. So when you say metals in this  
5 context, are you referring to metals in the water  
6 column, or is that repetitive of contaminated  
7 sediments?

8 A. I'm speaking to sediments.

9 Q. Okay. Same question with regard to  
10 synthetic organic chemicals. Are you referring to  
11 water column or the sediment levels?

12 A. Sediments as shown in multiple studies  
13 that we discussed yesterday.

14 Q. Okay. So these really aren't separate  
15 factors then as they're outlined in this quotation?

16 A. I'm not sure what you mean.

17 MS. FRANZETTI: Counsel, that question  
18 seems unclear.

19 BY MS. WILLIAMS:

20 Q. It has a list of dominant stressors:  
21 Contaminated sediments, metals, synthetic chemicals,  
22 PAH, pharmaceut -- you know, it lists like -- it has  
23 a list of seven items.

24 A. Right. So let me clarify. Obviously,

1 contaminated sediments are going to contain high  
2 levels of nutrients, metals, synthetic organic  
3 chemicals. In addition, those PAHs that are in the  
4 sediment as we talked about yesterday dissolve into  
5 the overlying water and cause the photo-induced  
6 toxicity. We may get the same with nutrients  
7 causing some ammonia toxicity at the bottom. So the  
8 pharmaceuticals are going to be in the water column  
9 and also in the sediments, so it's --

10 Q. Did any of the studies we discussed  
11 yesterday test for pharmaceuticals in the sediments?

12 A. I can't remember, but we can talk  
13 about those now, if you'd like.

14 Q. Sure. Did you review any studies or  
15 conduct any studies that tested for pharmaceuticals  
16 in the sediments?

17 A. Yes. I reviewed studies that were  
18 conducted. The USGS study by Groeschen et al. that  
19 we submitted yesterday was one of those studies.  
20 Another one which was not submitted yesterday is No.  
21 34 on Exhibit 371.

22 MS. FRANZETTI: Again, it was  
23 submitted. You may not have mentioned it  
24 yesterday. So No. 34, state what that is.

1 DR. BURTON: Excuse me. It was 24,  
2 Kolpen by Dana Kolpen, et al, also with the  
3 USGS which was a nationwide survey. And then  
4 Document No. 29 by Ramirez, et al., which  
5 looked at pharmaceuticals in fish tissue.  
6 All of these collected samples from this  
7 basin, samples were collected for the fish at  
8 the North Shore Channel. Samples for the  
9 water in the other two studies were collected  
10 at riverside on the Des Plaines which is just  
11 a little bit northwest of here. Also in Salt  
12 Creek which is draining the western suburbs  
13 and into the Des Plaines River. They were  
14 collected in the Ship Canal at Romeoville.  
15 So those were the major sites that USGS used  
16 in those two studies.

17 BY MS. WILLIAMS:

18 Q. I want to ask you a question about the  
19 Groeschen, et al., 2004 study. We don't have -- I  
20 don't think that's a hard copy, right, that was put  
21 into the record yesterday? That wasn't one of the  
22 ones that you provided?

23 MS. FRANZETTI: No.

24 MS. WILLIAMS: So I apologize that I'm



1 going to read a quote from it, but we can't  
2 refer to it in hard copy at this point.

3 BY MS. WILLIAMS:

4 Q. On Page 9 regarding pharmaceutical and  
5 household chemical contaminants, I'm going to quote,  
6 "Knowledge of the potential human and environmental  
7 health effects of these 95 compounds is varied.  
8 Little is known about the potential health effects  
9 to humans or aquatic organisms exposed to the low  
10 levels of most of these compounds or the mixtures of  
11 compounds found." Do you agree with this statement?

12 A. No.

13 Q. If not, why not?

14 A. Because there's been recent  
15 publications. We're missing one of the references  
16 to submit by Karen Kidd, which was kind of a  
17 Hallmark paper that was published in one of the top  
18 journals of the world two years ago. And she showed  
19 a population collapse of fathead minnows in a lake,  
20 in an experimental lake in Canada at five nanograms  
21 per liter which is a concentration. That was  
22 basically one of the estrogens that comes in birth  
23 control pills which is one of the very common  
24 products found below wastewater treatment plants.

1 And so that was a real world concentration. And  
2 they showed the collapse of the whole ecosystem due  
3 to that concentration. So since then there's been  
4 additional publications that are showing this link  
5 to collapse of aquatic ecosystems being exposed to  
6 these compounds.

7 Q. So you think the USGS study is no  
8 longer valid?

9 A. Oh, it's absolutely valid. That  
10 conclusion simply said they don't know the effects.  
11 Well, that study was done several years ago.

12 Q. So now we do? Now we feel we know the  
13 effects?

14 A. Yes, ma'am.

15 Q. You're referring to a two-year old  
16 study that's not on Exhibit 371. So I think we  
17 better provide at least a -- Can you provide for the  
18 record now the full citation?

19 A. I believe it's in here somewhere.

20 MS. FRANZETTI: I'll tell you what.

21 Can we maybe look for that at a break and  
22 come back to it rather than take the time?

23 Unless you think you can quickly.

24 DR. BURTON: Proceedings of the

1 National Academy of Science, 2007, Karen  
2 Kidd, et al. Google that and you'll have it.

3 MR. ETTINGER: Have you studied the  
4 very -- how wastewater treatment can affect  
5 the levels of personal care products and  
6 pharmaceuticals coming out of wastewater?

7 DR. BURTON: There was a study  
8 published this month by Chris Metcalfe, et  
9 al., at Trent University that stated that  
10 municipal wastewater treatment plants,  
11 typical wastewater treatment plants do not  
12 move -- remove more than 40 percent of these  
13 compounds. So 60 percent are still being  
14 discharged, and they found that they went  
15 several kilometers downstream and were found  
16 in fish downstream.

17 MR. ETTINGER: That's a standard  
18 activated sewage treatment plant?

19 DR. BURTON: I think he was referring  
20 to secondary treatment, yeah.

21 MR. ETTINGER: Secondary treatment.  
22 If you had -- Are you aware of any studies  
23 that do that for more advanced wastewater  
24 treatment?

1 DR. BURTON: I'm not aware. I would  
2 assume a carbon treatment would remove these  
3 compounds.

4 HEARING OFFICER TIPSORD: Dr. Burton,  
5 you also referred earlier to another study  
6 that didn't make the list earlier this  
7 morning. I apologize. I let that go by.

8 MR. GOODFELLOW: That was the same  
9 one.

10 HEARING OFFICER TIPSORD: Is it the  
11 same one? Okay. Thank you.

12 MS. WILLIAMS: I'm going to skip 77  
13 and 78; 79 and 80 we had asked yesterday.

14 MS. FRANZETTI: I'm sorry. Can I have  
15 just a moment.

16 I'm just going to ask Dr. Burton  
17 in addition to the Karen Kidd study, the --  
18 does the Ramirez study, which is included on  
19 the CD, No. 29 on the index of Exhibit 371,  
20 is that also a study that post dates the  
21 Groeschen study and as to the data regarding  
22 the effects of pharmaceutical products on  
23 fish?

24 DR. BURTON: Yes, it does. And the

1 nice thing about the Ramirez study which was  
2 published in 2009 is it has many citations.  
3 And I just noticed, Mr. Ettinger, they have a  
4 citation referring to the removal of products  
5 from wastewater treatment.

6 MR. ETTINGER: That's on our CD.

7 DR. BURTON: Yes.

8 MR. ETTINGER: Delightful.

9 BY MS. WILLIAMS:

10 Q. Do you believe these studies that  
11 you've listed represent a line of evidence comprised  
12 of high quality data from an adequate design to  
13 characterize spatial and temporal conditions that  
14 can be used in a weight of evidence approach?

15 MS. FRANZETTI: And I'm sorry. We're  
16 lost as to what question --

17 MS. WILLIAMS: This is a follow-up.

18 MS. FRANZETTI: Okay.

19 MS. WILLIAMS: I am looking at  
20 something from Dr. Burton that's in the  
21 record, but it's a follow-up.

22 DR. BURTON: Yes, ma'am.

23 BY MS. WILLIAMS:

24 Q. So you think we have enough data now

1 to use these studies as lines of evidence in a  
2 weight of evidence approach?

3 A. It is.

4 Q. Okay. I'm moving on to 82. Well,  
5 maybe I should ask 81 to make sure I'm familiar with  
6 which study we're referring to on phosphorous.  
7 Question 81 asks what recent USGS phosphorus studies  
8 are you referring to on Page 10 of your prefilled  
9 testimony?

10 A. The USGS report I'm referring to is  
11 the one that we submitted yesterday, No. 44. And I  
12 would like to amend a response I gave to  
13 Mr. Ettinger yesterday about the study. He asked me  
14 where they sampled. I rereviewed the study last  
15 night and they sampled the Ship Canal at Romeoville,  
16 they sampled Salt Creek at Western Springs, they  
17 sampled the Cal-Sag and the DuPage and the Chicago  
18 River at riverside. They found that every sample,  
19 every sample in the Illinois River basin exceeded  
20 the phosphorus recommended criteria of  
21 .1 milligrams. They found that ammonia in the ship  
22 canal was the highest in the basin and the fourth  
23 highest in the United States with the flow weighted  
24 mean average of 0.64. They found Diazinon

1 frequently in all the sites that had any degree of  
2 urban land use. This is a banned pesticide right  
3 now. Ninety-three percent of the samples in Salt  
4 Creek and 18 percent of these exceeded aquatic life  
5 guidelines. Benthos was degraded at all sites in  
6 the basin that had greater than 25 percent urban  
7 land use. Atrazine was in every single sample that  
8 had agricultural or mixed use land use.

9 Q. When --

10 A. Nitrate actually increased between  
11 78 and 97 in the system; the cause of the better  
12 wastewater treatment plants that were converting  
13 more ammonia which is more toxic to nitrate. But  
14 still ammonia ranked eighth nationally at the  
15 Chicago River at Riverside. And the phosphorous in  
16 the ship canal was fourth highest nationwide in  
17 their 51 watersheds they compared. So I could go on  
18 and on here, but the point is at these multiple  
19 sites we have some of the worst water quality in the  
20 nation.

21 Q. So when -- Can I just finish this one?  
22 When you're saying this is the recent USGS  
23 phosphorus study, you're referring to here, right?  
24 So 1998?

1 A. These water samples --

2 Q. So when you say recent --

3 A. -- were collected between '99 and  
4 2001.

5 MS. WILLIAMS: Thank you. That's all.  
6 Go ahead, Albert.

7 MR. ETTINGER: I was going to ask  
8 about the .1 milligram per liter measure.  
9 Where did that come from?

10 DR. BURTON: That's evidently the U.S.  
11 EPA recommended criteria.

12 And I should clarify for  
13 identification, because I've been saying 44.  
14 It's also 45. There's some overlap there  
15 studying the same water basin. Forty-five  
16 circular 1223 is the one that I've also cited  
17 as the 1230 is Groeschen, et al.

18 MS. FRANZETTI: And by 45 we're  
19 referring to the index of exhibits in the CDs  
20 that's been marked as Exhibit 371.

21 BY MS. WILLIAMS:

22 Q. Question 82: On Page 14 of  
23 Attachment 1 you state, quote, the waters of the UIW  
24 from above Chicago through the Dresden Pool have



1 high levels of nitrogen and phosphorus. What is the  
2 basis for this statement? I'm assuming the answer  
3 is the studies that we've just discussed.

4 The next question is high levels  
5 compare to what -- How do these levels compare to  
6 other areas of the State of Illinois?

7 A. Well, you're correct. I was referring  
8 to the USGS study which did nationwide comparison,  
9 and the only other comparison was within MWRD that  
10 looked at levels going downstream. And, as you  
11 know, some of those levels increased and some of  
12 those parameters decreased. The ship canal provided  
13 the most significant amount of nutrients that were  
14 being discharged into the Illinois River. And this  
15 system has been identified as one of the major  
16 sources of nutrients to the Gulf of Mexico.

17 Q. By this system you mean?

18 A. The upper Illinois -- the Illinois  
19 River basin as a whole.

20 Q. As a whole?

21 A. Yeah. And so it's being implicated in  
22 the anoxia problem in the Gulf of Mexico.

23 Q. Did you look at phosphorus levels at  
24 other parts of the Illinois River basin not covered

1 in the study?

2 A. No, I did not.

3 Q. Okay. A: Do you believe nitrogen and  
4 phosphorus can be reduced using effluent limits and  
5 best management practices on point sources?

6 A. Certainly they can. However, the  
7 increases in phosphorus that have continued over the  
8 last decade or so were attributed to municipal and  
9 industrial wastewaters as noted by Richard Landon,  
10 2003, improved effluents do not alleviate also the  
11 problems of nonpoint source loadings.

12 Q. Have you factored in any future  
13 phosphorus or nitrogen treatment at the wastewater  
14 treatment plants into your analysis of this factor?

15 A. No, I haven't. But it's not going to  
16 effect the nonpoint source loadings. With an  
17 increase in urban development as we're seeing in the  
18 southwest part of this study area, there will be  
19 subsequent increases in municipal effluent volumes.  
20 So one would think phosphorus will continue to  
21 increase.

22 Q. So have you concluded that these  
23 stressors, meaning nitrogen and phosphorus, will not  
24 be remedied in the foreseeable future?

1           A.       I don't really see how they can be. I  
2 don't see how -- well, first off, we already know  
3 the proposed deadline for TARP, 2024, and the areas  
4 outside TARP would take huge amount of municipal  
5 lead best management practices to reduce the  
6 nonpoint source. I'm skeptical whether that would  
7 occur.

8                   MR. ETTINGER: I have a couple of  
9 questions. Have you seen effects of nitrogen  
10 in the Lower Des Plaines other than with  
11 regard to ammonia?

12                  DR. BURTON: No. But I haven't  
13 targeted nitrogen as a stressor to try to  
14 tease it out of the other stressors.

15                  MR. ETTINGER: Well, what might one do  
16 to tease it out?

17                  DR. BURTON: It's fairly complicated.  
18 The environment in Canada has been doing this  
19 at some of their sites that have nutrient  
20 inputs and they have to set up streamside  
21 mesocosms and try to alter nutrient  
22 concentrations as the indigenous organisms  
23 are being exposed to them to try and tease  
24 out how that nutrient impacts that community.

1 MR. ETTINGER: Well, what would be  
2 the -- what would be the mode or way in which  
3 increased nitrogen would affect the aquatic  
4 life in the Lower Des Plaines?

5 DR. BURTON: Well, I mentioned  
6 ammonia. If you get increased ammonia,  
7 that's a problem obviously. But the  
8 increased eutrophication, which we've known  
9 about since the '70s, which degrades the  
10 habitat is another possibility. With a  
11 nutrient being increased you're going to get  
12 more photosynthesis occurring from plants and  
13 algae. So my concern would be increased  
14 algae, duckweed, macrophytes, which would  
15 then alter the system. It's up to the  
16 aquatic biologist to decide really what's bad  
17 with a more eutrophied system. But you know,  
18 as these areas become more eutrophied in the  
19 back waters, you're going to be more worried  
20 about dissolved oxygen sags.

21 MR. ETTINGER: I'm not going to get  
22 real technical here, but phosphorous and  
23 nitrogen cause eutrophication generally.

24 DR. BURTON: Yes.

1 MR. ETTINGER: And depending on the  
2 system, it may be either phosphorus or  
3 nitrogen which is the most limiting factor.

4 DR. BURTON: Yes.

5 MR. ETTINGER: And you have not looked  
6 at that specifically any the Lower Des  
7 Plaines?

8 DR. BURTON: No. But the more recent  
9 literature is suggesting where people were  
10 more focussed on nitrogen that usually it's  
11 both of those parameters that are an issue.

12 MR. ETTINGER: Now, looking, again,  
13 specifically at the Lower Des Plaines, have  
14 you seen either from going out there yourself  
15 or from looking at the literature any  
16 evidence of effects in terms of increased  
17 macrophytes or algal growth such as what you  
18 were talking about?

19 DR. BURTON: I did not in my mid '90s  
20 study. But more recently when EA was out  
21 there, they documented, and we have some  
22 photographs here.

23 MS. FRANZETTI: We have one  
24 photograph.

1 DR. BURTON: Of some primarily  
2 duckweed blooms. There were some blue green  
3 algae in this, it appeared, but it was mostly  
4 duckweed that was occurring in some of these  
5 still back waters and tributary amounts.

6 MS. FRANZETTI: I'll offer this  
7 photograph, which is captioned photograph  
8 depicting dense mat of algae, duckweed at  
9 Midwest Generation fish sampling location 408  
10 which is, paren, mouth of Jackson Creek  
11 embayment river mile, 278.3 located just  
12 upstream of the I-55 bridge taken on  
13 September 10, 2008, as the next exhibit into  
14 the record.

15 HEARING OFFICER TIPSORD: If there's  
16 no objection, we will admit the photograph so  
17 described as Exhibit 380.

18 Seeing no objection, we'll mark it  
19 as Exhibit 380.

20 MS. FRANZETTI: And if I may, if I  
21 could just interrupt. Mr. Vondruska, does  
22 the caption that I just read -- let me back  
23 you up. Mr. Vondruska, were you out there at  
24 the time this photograph was taken?

1 MR. VONDRUSKA: I was not.

2 MS. FRANZETTI: Okay. Who was out in  
3 the river when this photograph was taken?

4 MR. VONDRUSKA: Two of my fishery  
5 biologists, on-staff fishery biologists.

6 MS. FRANZETTI: By your fishery  
7 biologists, you mean EA?

8 MR. VONDRUSKA: EA's. I'm sorry.

9 MS. FRANZETTI: That's okay. You can  
10 claim them.

11 And is it correct this  
12 photograph was taken on or about September 10  
13 of 2008 by one of the EA fisheries  
14 biologists?

15 MR. VONDRUSKA: Yes, it is.

16 MS. FRANZETTI: And what was the  
17 reason they were out on the river at that  
18 time? And by that I mean they weren't  
19 looking for duckweed, correct?

20 MR. VONDRUSKA: No. We were  
21 conducting our standard fisheries monitoring  
22 program for Midwest Generation.

23 MS. FRANZETTI: And at this particular  
24 location you ran into the duckweed situation

1 and the photograph was taken to record it,  
2 correct?

3 MR. VONDRUSKA: That is correct.

4 MS. FRANZETTI: I think that puts it  
5 in context.

6 MR. ETTINGER: Just to tie it up then.  
7 You believe it's a reasonable likelihood that  
8 upstream sources of phosphorus and nitrogen  
9 caused this duckweed and bloom?

10 DR. BURTON: According to the USGS and  
11 MWRD studies, yes. They found higher  
12 concentrations upstream linked to the  
13 wastewater treatment.

14 MR. ETTINGER: Thank you.

15 BY MS. WILLIAMS:

16 Q. So in your report you concluded that  
17 blue green algae blooms are not an issue in this  
18 system, and you still support that conclusion?

19 A. No, ma'am.

20 Q. You disagree with your report on that  
21 point?

22 A. Yes, based on these recent findings.

23 Q. And these recent findings means the  
24 picture?



1           A.       Yes. I do not think you will ever  
2 have this issue out in the flowing water because  
3 phytoplankton and algae, duckweed, don't like the  
4 flowing water. But in the quieter areas, late  
5 summer when this was taken, you're likely to have  
6 this issue now.

7           Q.       Do you know if this followed a quiet  
8 period or a large storm event?

9           A.       I don't know. EA?

10           MR. VONDRUSKA: What I recall is it  
11 did not follow a storm event. Well, in fact,  
12 it was about a week before the major 50-year  
13 flood event that occurred in mid September of  
14 that year.

15           MS. WILLIAMS: Okay.

16           MR. ETTINGER: Just to clarify, and  
17 there are side channels off of the main  
18 channel in the Lower Des Plaines that we're  
19 talking about.

20           DR. BURTON: What I've been calling  
21 back water areas, right.

22           MR. ETTINGER: And so like around  
23 Treats Island (ph.) or some of these areas?

24           DR. BURTON: Right.

1 MR. ETTINGER: And those are areas in  
2 which you believe there may now be or could  
3 occur cyanobacteria as a result of the  
4 eutrophication of these waters?

5 DR. BURTON: Yes, it could. It  
6 appears in this system duckweed is going to  
7 dominate.

8 MS. FRANZETTI: I'm sorry, Counsel.  
9 Mr. Vondruska, did you want to add to that?

10 MR. VONDRUSKA: Yes, if I may. What  
11 we've noticed recently in 2007 and 2008 are  
12 these much larger duckweed blooms, algae  
13 blooms than we've ever noticed before.  
14 Myself, EA, we've been sampling the system  
15 since 1987, and for whatever reason, this is  
16 a recent occurrence.

17 MS. WILLIAMS: And you don't have any  
18 theories at this point as to what the source  
19 might be?

20 MR. VONDRUSKA: I do not.

21 MR. ETTINGER: Is it possible that  
22 it's in part because the water quality is  
23 getting better?

24 MR. VONDRUSKA: Anything is possible.

1 DR. BURTON: Well, the phosphorus  
2 levels are going up. If that was the  
3 limiting nutrient for the duckweed, then that  
4 is why we'd see the bloom occur. But  
5 obviously we haven't done the study to make  
6 that relationship.

7 BY MS. WILLIAMS:

8 Q. 84C: Have you read the District's  
9 preliminary report on phosphorus reduction at its  
10 Egan facility?

11 A. No, I have not.

12 Q. Do you have any evidence that  
13 dissolved oxygen -- this is F. I'm sorry. Do you  
14 have any evidence that dissolved oxygen levels in  
15 the Upper Dresden Island Pool are being affected by  
16 nutrient levels?

17 A. No, don't have any evidence, but  
18 microbial respiration is linked directly to the  
19 presence of nutrients. So you're going to have more  
20 respiration with more nutrients, thus less oxygen.

21 MR. ETTINGER: Excuse me again. Where  
22 you have a lot of algal respiration, you see  
23 a familiar diurnal swing in water bodies; is  
24 that correct?

1 DR. BURTON: Correct.

2 MR. ETTINGER: So you're -- During the  
3 time that the critters or the algae are  
4 taking in oxygen, you'll see an oxygen crash.  
5 And when during the day you'll have high  
6 levels of oxygen in the water column; is that  
7 correct?

8 DR. BURTON: Correct.

9 MR. ETTINGER: Have you seen any  
10 evidence of that in this system?

11 DR. BURTON: I have not looked at  
12 that. I have heard reference to DO sags in  
13 the system, and that's why this new WERF  
14 study, I believe, is being conducted that I  
15 mentioned yesterday.

16 BY MS. WILLIAMS:

17 Q. I think you answered the first part of  
18 85. The second part of that question asks have  
19 extreme reproduction disruption and feminization  
20 been shown to occur in the CAWS or lower Des Plaines  
21 River?

22 A. I should note that I just came across  
23 the complete reference on Kidd, since it pertains to  
24 your question.

1 MS. FRANZETTI: Counsel, do you mind  
2 if he reads that.

3 MS. WILLIAMS: Is it on 371?

4 DR. BURTON: It's in my answer.

5 MS. WILLIAMS: Go ahead.

6 DR. BURTON: It's Kidd, et al. 2007  
7 Collapse of a Fish Population After Exposure  
8 to a Synthetic Estrogen, proceedings of the  
9 National Academy of Science, Volume 104,  
10 Pages 8897 through 8901.

11 MS. WILLIAMS: Thank you.

12 MS. FRANZETTI: Would you like me to  
13 actually obtain a copy and supply it to you  
14 for part of the record?

15 HEARING OFFICER TIPSORD: That would  
16 be good.

17 MS. FRANZETTI: We will do that.

18 DR. BURTON: So, yes, back to what's  
19 happened in this system. The studies I cited  
20 before by Ramirez, et al., showed effects.  
21 And the two USGS studies showed these  
22 chemicals were occurring in the system and --

23 MS. WILLIAMS: That's not my question.  
24 Have extreme reproduction disruption and

1           feminization been shown to occur in the CAWS  
2           or Lower Des Plaines River.

3           DR. BURTON: There has --

4           MS. FRANZETTI: Counsel, I guess that  
5           depends on --

6           MS. WILLIAMS: I didn't ask -- We  
7           already talked about that there's been  
8           studies that have found that these chemicals  
9           are out there. The question --

10          MS. FRANZETTI: Well, no. But when he  
11          was noting earlier specifying after checking  
12          the reports and noting down all of the  
13          sampling locations, there was one in the  
14          Chicago Sanitary and Ship Canal.

15          DR. BURTON: But that was only the  
16          fish tissue. There is another study that I  
17          also believe came from that sample of  
18          largemouth bass by Hink, et al., 2009,  
19          published in Aquatic Toxicology that showed  
20          widespread occurrence of intersects in black  
21          bass throughout the country.

22          BY MS. WILLIAMS:

23                 Q.       And did that study take samples in the  
24          CAWS or the Lower Des Plaines --

1           A.       I believe one of the samples came from  
2 the North Shore Channel.

3           Q.       Okay. That answers my question.  
4 Thank you, Dr. Burton.

5           MR. ETTINGER: Can I follow up on that  
6 slightly?

7           MS. FRANZETTI: I'm sorry, Albert.  
8 Before you do, just so we can keep track of  
9 what's in the record and where. I'm sorry to  
10 interrupt you. But the Hink study is No. 19  
11 on the index of exhibits for Burton testimony  
12 Exhibit 371.

13          MR. ETTINGER: You say the Hink study.  
14 Was that Schoenfuss's work or is that a  
15 different study?

16          DR. BURTON: I don't remember the  
17 co-authors.

18          MR. ETTINGER: Are you aware of Heiko  
19 Schoenfuss's work on North Shore Channel?

20          DR. BURTON: No.

21          MR. ETTINGER: Are you aware of any  
22 studies specifically that looked at fish  
23 phytogellen (ph.) effects or other things in  
24 the Chicago area?

1 DR. BURTON: No, I'm not. It doesn't  
2 mean they're not there.

3 MR. ETTINGER: Okay. Thank you.

4 HEARING OFFICER TIPSORD:  
5 Mr. Ettinger, you're fading on us a little  
6 bit. We have a lot of traffic.

7 MR. ETTINGER: I'm fading on myself,  
8 too.

9 HEARING OFFICER TIPSORD: Just keep  
10 your voice up.

11 MR. ETTINGER: I'll be more careful in  
12 the future.

13 HEARING OFFICER TIPSORD: We have a  
14 lot of train traffic this morning, too, for  
15 some reason. Mr. Andes?

16 MR. ANDES: Of the largemouth bass  
17 taken from the north shore channel, did any  
18 show intersect effects?

19 DR. BURTON: I believe the Hink study  
20 showed that. I'm not for certain.

21 MR. ANDES: All right. We can  
22 introduce evidence that no intersects were  
23 shown in the fish sampled in the channel, and  
24 we'll provide that information later.



1 MS. WILLIAMS: Thank you, Fred.

2 DR. BURTON: What I would like to add  
3 is several of the points yesterday on urban  
4 run-off. When a phenomenon showed to exist  
5 consistently across all places studied below  
6 municipal wastewater treatment plants, one  
7 assumes it occurs here.

8 BY MS. WILLIAMS:

9 Q. So do you agree that phenomenon that  
10 are generally applicable in typical systems impacted  
11 by wastewater treatment plants are applicable in  
12 this system?

13 MS. FRANZETTI: Objection to the form.  
14 I think that's too vague, Counsel.

15 DR. BURTON: What I'm referring  
16 specifically to is phenomenon that related to  
17 municipal wastewater treatment plants and  
18 urban run-off which is what I've been talking  
19 about the last few days. And it's shown  
20 repeatedly everywhere it's studied.

21 BY MS. WILLIAMS:

22 Q. So this system is similar to  
23 everywhere that it's been --

24 A. It's actually worse because there's a

1 greater degree of both of those factors.

2 Q. Of what factors?

3 A. Of urbanization and wastewater  
4 treatment plants, the largest in the world.

5 Q. Okay. I think we probably answered  
6 86, but I want to be sure that you have directed us  
7 towards the U.S. EPA study you are referring to on  
8 Page 10 of your prefiled testimony with respect to  
9 pharmaceutical compounds and fish tissue?

10 A. Yes. That's Ramirez, et al., 29.

11 Q. Thank you.

12 MS. FRANZETTI: On Exhibit 371.

13 BY MS. WILLIAMS:

14 Q. So Question 87 says on Page 10 to 11  
15 you state a recent lake study conducted in Canada  
16 found that fish exposed to levels commonly found in  
17 untreated and treated waste waters resulted in  
18 feminization of males, et cetera. Is this the --

19 A. The Kidd, et al.

20 Q. Is the Kidd, et al, study. Okay.  
21 What compounds or compounds is this referring to?

22 A. She was using the synthetic estrogen  
23 that's used in birth control pills. Do you want to  
24 know the technical name of that compound?

1 MS. WILLIAMS: Oh, sure.

2 DR. BURTON: I'll spell it out. 17  
3 Elpha, E-L-P-H-A, dash E-T-H-Y-N-Y-L,  
4 estradiol, E-S-T-R-A-D-I-O-L. EES is what  
5 it's commonly referred to.

6 BY MS. WILLIAMS:

7 Q. Thank you. I don't know if in 88,  
8 have we established whether any of the studies and  
9 data out there have taken samples in the Upper  
10 Dresden Island Pool with regard to pharmaceutical  
11 and personal care products?

12 A. I'm not aware of any.

13 Q. Okay.

14 A. The study by Metcalfe, No. 28, on  
15 Exhibit 371, the one that I said removed 40 percent  
16 of these compounds and treatment, he found that  
17 these compounds would travel several kilometers  
18 downstream of the discharge point and they would  
19 have breakdown metabolite products that were also a  
20 problem. So one would assume they're in the Upper  
21 Dresden Island Pool.

22 MR. ETTINGER: I'm sorry. Several  
23 kilometers. What do you mean by that?

24 DR. BURTON: I mean several kilometers

1 downstream.

2 MR. ETTINGER: Well, several can mean  
3 two I was told by one witness, and two  
4 kilometers won't get us from Stickney  
5 downstream. So what do you mean by --

6 DR. BURTON: I don't remember the  
7 exact number. I'm sorry.

8 MR. ETTINGER: Okay. And by -- Could  
9 you elaborate a little on the breakdown  
10 products? Breakdown products can get more  
11 than several kilometers downstream, or what  
12 did you mean there?

13 DR. BURTON: What the compounds, as  
14 they go downstream, are degrading and forming  
15 breakdown metabolites. Those products we  
16 found downstream and implicated them as being  
17 a problem in the fish. One of the  
18 conclusions of the study was you need to look  
19 at the breakdown products.

20 MR. ETTINGER: Sometimes the breakdown  
21 products can be more toxic than the product  
22 that was discharged.

23 DR. BURTON: That's the case for  
24 atrazine, yes.

1 MR. ETTINGER: Thank you.

2 BY MS. WILLIAMS:

3 Q. Okay. Let's skip on to 91. On  
4 Page 10 of your prefiled testimony it states, quote,  
5 UIW and UDP are also adversely effected by organic  
6 compounds collectively referred to as emerging  
7 contaminants which include endocrine-disrupting  
8 compounds found in pharmaceuticals personal care  
9 products, and veterinarian livestock operations.

10 A: Does U.S. EPA have --  
11 currently have guidance or criteria on emerging  
12 contaminants?

13 A. No, they don't. The U.S. EPA is very  
14 worried about these contaminants, so they have  
15 prepared some draft guidance on how to prepare  
16 criteria for these. Their worry is if they follow  
17 the same old process, it will take them years and  
18 years to develop it. So they've proposed a speedy  
19 process to develop guidelines that would start with  
20 EPS that we just talked about. I serve on the EPA  
21 science advisory board that reviewed their initial  
22 guidance just a few months ago. And I think in the  
23 next year we'll see a formal process come forward to  
24 develop those numbers.

1 Q. Do you believe those chemicals should  
2 be regulated as part of the Agency's proposal for  
3 these waters?

4 A. I'd rather not comment on that.

5 Q. Why?

6 A. It's a policy question.

7 Q. Well, I didn't mean it as a policy  
8 question. I meant it as a scientifically whether  
9 you think it's necessary to protect aquatic life  
10 that currently exists in the system. So, in your  
11 opinion, being on this advisory panel?

12 MS. FRANZETTI: I'll just object,  
13 Counsel. He hasn't said he's developed an  
14 opinion. You can say it's not policy. He  
15 thinks it is. So with that, can you answer  
16 the question?

17 DR. BURTON: I would look at these as  
18 another stressor. That's the way I've  
19 mentioned them here in my testimony.

20 BY MS. WILLIAMS:

21 Q. Another stressor that can't be  
22 remediated or that should be remediated?

23 A. That could be remediated.

24 Q. Okay. Thank you.

1           A.       Yes.

2           Q.       Question 92: On Page 4, Paragraph 1  
3 of your testimony you state, quote, "Dominant  
4 stressors for the UDP included contaminated  
5 sediments, metals, nutrients, synthetic organics  
6 such as pesticides, carcinogenic PAHs,  
7 pharmaceuticals, and personal care products.

8                   I think we've already asked this  
9 question, but are you referring to these chemicals  
10 and the sediments the water column or both?

11          A.       As we discussed earlier, the sediments  
12 primarily. I think we've answered the rest of this.

13          Q.       Question 93, the second sentence: Are  
14 most effluent dominated waterways incapable of  
15 attaining Clean Water Act aquatic life goal uses  
16 because of endocrine-disruptures or personal care  
17 products?

18          A.       Well, if it's part of -- If it's one  
19 part of the system, it's likely to be distributed  
20 throughout the depositional sediments and waters.

21          Q.       But I know the question is getting at  
22 if this is present in most -- if these chemicals are  
23 present in most effluent dominated systems, is it  
24 really a stressor that's preventing attainment of

1 Clean Water Act goals in most systems?

2 A. It would be a site specific issue. It  
3 would vary at every site. You would have to study  
4 that.

5 Q. Are you aware of any sites that are  
6 able to attain Clean Water Act aquatic life use  
7 goals that are impacted by these stressors?

8 A. I haven't made that evaluation.

9 Q. Okay.

10 MR. ETTINGER: Were you going to ask  
11 the last sentence of No. 93?

12 MS. WILLIAMS: I thought I just did.  
13 Did I? No? I can -- if it'll help, Albert,  
14 I'll ask.

15 BY MS. WILLIAMS:

16 Q. Are you aware of any U.S. EPA water  
17 quality or effluent standards for endocrine  
18 disruptures or PPCPs?

19 A. We just answered that question.

20 MR. ETTINGER: Well, are you familiar  
21 with standards for nonylphenol ethoxylates?

22 DR. BURTON: The EPA, I believe the  
23 U.S. EPA would put that in the group of  
24 emerging contaminants that they haven't



1 developed standards for as far as aquatic  
2 life are concerned. That was part of the --

3 MR. ETTINGER: Okay. We'll talk about  
4 that later. So you're not familiar with --

5 DR. BURTON: No.

6 MR. ETTINGER: That standard or that  
7 criteria at the federal level, are you? Is  
8 atrazine an endocrine disruptor?

9 DR. BURTON: I should back up.

10 MR. ETTINGER: That's what I thought.

11 DR. BURTON: We've been focussed on --  
12 I've been talking about PPCPs,  
13 pharmaceuticals and personal care products.  
14 Of course atrazine is not a personal care  
15 product. But there are a lot of chemicals  
16 that are endocrine disruptors, as  
17 Mr. Ettinger just suggested, atrazine in some  
18 of the breakdown products. So when we talk  
19 about endocrine disruption and effect on fish  
20 reproduction, that can be a host of other  
21 chemicals.

22 MR. ETTINGER: Just to make clear,  
23 nonylphenol ethoxylates are normally not used  
24 as personal care products either. They're

1 used as surfactants. Did you mean to not  
2 consider surfactants as you were not  
3 considering atrazine or --

4 DR. BURTON: Right.

5 MR. ETTINGER: Okay. But you are  
6 aware of criteria --

7 DR. BURTON: I'm not aware of those  
8 criteria.

9 MR. ETTINGER: Okay. Thank you.

10 BY MS. WILLIAMS:

11 Q. I'm moving on to Question 96. On  
12 Page 6 you state, quote, "This widespread  
13 contamination of the UIW is reflected in the many  
14 fish consumption advisories posted throughout most  
15 of the Des Plaines watershed due to the high levels  
16 of mercury and PCBs found in the sediments."

17 The question is what is the basis  
18 for this statement and how did the fish consumption  
19 advisories in the CAWS and Lower Des Plaines River  
20 differ from the rest of the State of Illinois?

21 A. The basis is the IEPA data, but I  
22 don't know how and to what extent these advisories  
23 differ from the rest of the state because I did not  
24 make that evaluation.

1 Q. So are you aware of whether or not  
2 there are statewide fish consumption advisories?

3 A. I only focussed on this system.

4 Q. Okay. Question 97: What conclusion  
5 is to be drawn from your statement on Page 12 that,  
6 quote, "Nitrification is also inhibited by cold  
7 temperatures and ammonia is not always consumed in  
8 upper sediment layers"?

9 A. These were in response to incorrect  
10 statements made by the authors of the UAA report on  
11 the Lower Des Plaines River that incorrectly imply  
12 and overgeneralize that high temperatures are always  
13 detrimental. As I said in my testimony, there's no  
14 simple relationship between temperature and the  
15 nitrification process or aquatic toxicity.

16 Q. So do you think that the high  
17 temperatures in the Upper Dresden Pool are improving  
18 the ammonia toxicity situation?

19 A. No.

20 Q. Okay.

21 MR. ETTINGER: I'm sorry. I haven't  
22 looked at the latest. If it's just a matter  
23 of chemistry, is there a relationship between  
24 high temperature and the amount of unionized

1 ammonia that you would find in a given sample  
2 of ammonia?

3 MR. GOODFELLOW: I'll answer that one,  
4 because I'm much more familiar with the data.  
5 The relationship of unionized ammonia is most  
6 affected by pH. pH is, by far, the greatest  
7 factor. And then a 10 degree change of  
8 temperature will change substantially the  
9 toxicity of -- or the unionized ammonia, not  
10 necessarily anything on the toxicity. It  
11 will get higher, but it's in groups of 10  
12 degrees centigrades. So it's -- And it's  
13 much, much lower -- much, much smaller in  
14 comparison to DH.

15 MR. ETTINGER: So it's a smaller  
16 effect, but there is a positive relationship  
17 between temperature and the amount of  
18 unionized ammonia that you would expect for a  
19 given amount of total ammonia?

20 MR. GOODFELLOW: Correct. Now, in  
21 natural systems often higher temperatures  
22 will have lower pHs. It just -- I'm sure it  
23 has something do with gas exchange across the  
24 surface. So that process dampens it, too.

1           So it makes it more difficult, and that's why  
2           ammonia toxicity is just as complicated in  
3           the criteria document is voluminous.

4   BY MS. WILLIAMS:

5           Q.       Question 98:  On Page 15 of your  
6   prefiled testimony it states, quote:  Acute toxicity  
7   of water and sediments unrelated to temperature is  
8   and will remain a major limitation on the potential  
9   of this water body to achieve Clean Water Act  
10  aquatic life goals.  Which parameters in the water  
11  are acutely toxic?  And do you have documentation  
12  that the water is acutely toxic?

13          A.       I actually didn't study what  
14  parameters in the water were actually causing the  
15  toxicity.  I just measured the toxicity that was  
16  occurring in the water.  I was able to attribute  
17  some toxicity to total suspended solids and some to  
18  photo-induced toxicity through a TIE.

19               MR. ETTINGER:  I'm sorry.  So you did  
20               some sort of wet testing with just the water  
21               column water and found acute toxicity?

22               DR. BURTON:  Yes.

23               MR. ETTINGER:  And that's discussed in  
24               one of these reports?

1 DR. BURTON: Yes, summary report.

2 MS. WILLIAMS: Where were those  
3 samples taken?

4 DR. BURTON: We had samples that  
5 stretched from Brandon Road Lock & Dam to the  
6 intake of the Joliet plant in the discharge  
7 canal downstream to I-55 and the Kankakee  
8 River.

9 BY MS. WILLIAMS:

10 Q. Water samples?

11 A. Water samples.

12 Q. Okay.

13 MS. FRANZETTI: Counsel, just to  
14 clarify. He did a series of tests, and they  
15 were at multiple locations. That's what he  
16 was just describing.

17 BY MS. WILLIAMS:

18 Q. And over what time period? Again,  
19 just focussing on the water samples.

20 A. These -- the major study there  
21 occurred during the summer with sample periods in  
22 July and in August, and they were done in situ; that  
23 is, organisms in the field, exposed.

24 Q. I'm sorry. I meant years.

1 A. '95, I believe.

2 MR. ETTINGER: I'm sorry. Were you  
3 referring -- I believe I was reading about  
4 your '95 studies. I believe at one point  
5 there was an unidentified discharge of raw  
6 sewage that you discuss in your report. Is  
7 that what you're referring to here or was  
8 there some other sample?

9 DR. BURTON: That was one incident in  
10 one of the exposures, a subsequent exposure.  
11 There was no discharge, or at least we didn't  
12 smell one.

13 MR. ETTINGER: Okay. Have you done  
14 any -- so basically you have that one sample  
15 in '95 in which you did wet testing and  
16 thought you knew what it was caused by. And  
17 there were other samples in which you did wet  
18 testing and which were those.

19 MS. FRANZETTI: Albert, you know, if  
20 you don't mind, can I ask him to maybe back  
21 up and give a general --

22 MR. ETTINGER: That's fine with me --

23 MS. FRANZETTI: -- description. I  
24 think it will clear up the confusion of

1           what -- and what I referred to by a series of  
2           tests. Could you describe the testing you  
3           did back in 1995, the first series, second  
4           series, locations at which you did them. I  
5           know you've said it a minute ago, but if you  
6           could do all of this kind of in one answer, I  
7           think it would help everybody in terms of at  
8           least knowing what the overall amount of work  
9           was that you did. And, perhaps generally,  
10          the type of testing that it was.

11                         DR. BURTON: Okay. Quite a few  
12           different experiments were conducted. We did  
13           first a survey of the sediments over 55 miles  
14           in the Dresden Lock & Dam up to downtown.  
15           And that was to measure sediment toxicity and  
16           the chemicals in the sediment. We saw a lot  
17           of acutely toxic sediments from the Dresden  
18           area upstream. They became worse as you went  
19           upstream.

20                         MS. FRANZETTI: That's the sediment  
21           testing?

22                         DR. BURTON: That's the sediment  
23           survey. And then we did a series of tests in  
24           the Des Plaines with in situ exposures with



1 three or four organisms in cages set out in  
2 the stream at the sites I just mentioned:  
3 Upstream of Joliet, discharge canal,  
4 downstream to I-55 and the Kankakee River.  
5 We were kind of using as a reference river.  
6 And that was done on two occasions. The  
7 reason we repeated it was because in that  
8 first exposure, the effluents weren't hot  
9 enough, the water -- it was a cool period in  
10 the summer. And we got this discharge of raw  
11 sewage proximally coming from the Joliet  
12 plant.

13 MS. FRANZETTI: I'm sorry. Where --  
14 Did that affect all four stations?

15 DR. BURTON: It affected all of the  
16 ceriodaphnia that were being exposed were  
17 killed everywhere. So we repeated the tests  
18 a month later when it was warmer, so the  
19 effluents were warmer, the Des Plaines River  
20 was warmer, and all of these sites. And the  
21 interesting conclusion from that is that we  
22 saw acute toxicity throughout the system at  
23 all the stations we measured. So there was  
24 acute toxicity occurring Kankakee River,

1 I-55, upstream to Brandon Lock & Dam. And it  
2 was worse for some organisms in the thermal  
3 discharge canal.

4 MS. FRANZETTI: Can you -- I know --

5 DR. BURTON: And we did laboratory  
6 studies, seven-day exposures at different  
7 temperatures. We tried to look at ammonia in  
8 the lab. We did in situ exposures looking at  
9 ammonia in the sediment and the overlying  
10 water. And I think that's all of it.

11 MS. FRANZETTI: Okay. Would you  
12 mind -- I know you pulled out to try to help  
13 answer this question, a -- one of your  
14 reports that is entitled the Upper Illinois  
15 Waterway Ecological Survey, July 1998 to  
16 October 1998, continuous in situ toxicity  
17 monitoring and thermal effect  
18 characterization task final report, March 11,  
19 1999. This is not on the CD. We really had  
20 expected to go into this in more detail in  
21 Phase 2, but its relationship to temperature,  
22 but -- So we will get this report into the  
23 record. But could you, just to summarize,  
24 read your -- the conclusion on the in situ

1 biological responses that were found as a  
2 result of these in situ tests you've just  
3 described?

4 MS. WILLIAMS: Wait. You're asking  
5 him to read from a report, but it's not one  
6 of the reports you've provided?

7 MS. FRANZETTI: Correct. And I will  
8 put it into the report.

9 MS. WILLIAMS: You don't have it  
10 today?

11 MS. FRANZETTI: We intended to get  
12 more into this, Counsel, in the thermal  
13 standard phase.

14 DR. BURTON: One of my 15 conclusions  
15 was in situ biological responses did not tend  
16 to differ significantly between the field  
17 sites when the river water temperatures  
18 reached recorded highs. However, during  
19 periods of lower temperatures, one of the  
20 organisms chironomus tentans survivals at  
21 I-55 were lower compared to the other  
22 stations, and hyalella azteca, another EPA  
23 organism survivals were significantly  
24 different in I-55 than the other test

1 stations.

2 MS. WILLIAMS: Was one of your other  
3 conclusions --

4 MR. ETTINGER: I'm sorry. I just want  
5 to go back and give one of your answers,  
6 because I think, actually, Miss Franzetti  
7 might want to correct this. You talked about  
8 a discharge from the Joliet plant as  
9 affecting something. I'm not sure what plant  
10 you were referring to, and I suspect there  
11 was a mistake made there.

12 DR. BURTON: I have no basis for this  
13 statement other than the Joliet plant that is  
14 at the Hickory Creek which was just upstream  
15 of where we were working exists there. And  
16 we smelled raw sewage, so that's a  
17 supposition that it was from that --

18 MR. ETTINGER: You're referring to the  
19 Joliet sewage treatment plant.

20 DR. BURTON: Yes, yes.

21 MR. ETTINGER: Thank you.

22 MS. FRANZETTI: I think he had  
23 earlier, but I appreciate the clarification  
24 in the event someone thought that was a

1 Midwest Gen Joliet station.

2 MR. ETTINGER: Well, you don't  
3 discharge sewage, so that would have been  
4 surprising.

5 MS. FRANZETTI: It would be a stretch  
6 to interpret it that way.

7 HEARING OFFICER TIPSORD: Miss  
8 Williams?

9 BY MS. WILLIAMS:

10 Q. Can you explain how when you performed  
11 the in situ studies, how did you determine the  
12 control for whether there were toxic -- you  
13 mentioned you need a control to compare. Can you  
14 explain that for us?

15 A. When you're doing in situ testing, you  
16 have to do a couple of things. You need a  
17 laboratory control that's comprised of the organisms  
18 that you are using in a test that you're putting  
19 into the chambers that are going out to the stream  
20 to make sure that they're healthy. And, in fact, on  
21 a couple of occasions all of our fathead minnows  
22 died. They were in poor condition from shipping.  
23 It's also important to have a good reference that's  
24 in situ. So a waterway that you think is better

1 quality that you'll get good survival in, and that's  
2 in this case really were two: It was upstream of  
3 the Joliet plant and it was the Kankakee River, so  
4 two good references.

5 Q. I'm sorry. Based on what we just  
6 talked about when you say again upstream of the  
7 Joliet plant, you mean?

8 A. The power -- Midwest Gen.

9 MS. FRANZETTI: Try to use station.

10 MR. ETTINGER: I'm sorry. You  
11 mentioned the Kankakee again. And I thought  
12 I heard as part of your -- one of your  
13 earlier answers that you found acute toxicity  
14 in the Kankakee River also. Was that true?

15 DR. BURTON: That's one of the joys of  
16 doing in situ field work. You never know  
17 what you're going to get.

18 MS. FRANZETTI: Is the answer yes?

19 DR. BURTON: So the answer is the  
20 Kankakee has acute toxicity. It's not a  
21 clean reference site.

22 MR. ETTINGER: And where did you find  
23 that? Where specifically were you looking in  
24 the Kankakee that --

1 DR. BURTON: We were at the mouth.

2 MR. ETTINGER: At the mouth of the  
3 Kankakee?

4 DR. BURTON: Yes, sir.

5 BY MS. WILLIAMS:

6 Q. Okay. Where did we leave off? I'd  
7 like to move on to 99. On Page 15 of your testimony  
8 you state that, quote, the development of new  
9 modified standards including thermal standards will  
10 not address the key issue of excessive and pervasive  
11 pollution sources, excessive use impairments, and  
12 limited habitats in this watershed. The first  
13 question I'd like to ask is sort of a follow-up.  
14 When you say limited habitats, what habitat data did  
15 you look at to determine limited habitats?

16 A. I looked at the EA reports on habitat.  
17 I think I've also seen data, the report that just  
18 came out from MWRD, and just my own --

19 Q. Well, you didn't look at that report  
20 in developing this opinion, right?

21 A. No, no.

22 Q. Okay.

23 A. But I looked at it before this  
24 testimony. And also I was on the river a lot, so

1 that was not a QHEI. It was just my experience.

2 Q. Okay. When was the last time you were  
3 personally out there?

4 MS. FRANZETTI: Upper Dresden Island  
5 Pool area?

6 MS. WILLIAMS: That would be fine.  
7 Upper Dresden Island Pool.

8 DR. BURTON: Probably 1999.

9 BY MS. WILLIAMS:

10 Q. Thank you. Subpart B. I'm going to  
11 skip A. I think we've answered A. But Subpart B of  
12 99 asks whether you believe the current secondary  
13 contact and indigenous aquatic life use water  
14 quality standards sufficiently protect the current  
15 and potential biological condition of this system?

16 A. I haven't done that evaluation. And  
17 to do that I would want to consult with some other  
18 experts, fisheries experts.

19 Q. Have you -- do you know what they are?  
20 Have you read them?

21 MS. FRANZETTI: What is the they  
22 you're referring to?

23 MS. WILLIAMS: Secondary contact and  
24 indigenous aquatic life use water quality



1 standards.

2 DR. BURTON: I've read them. I don't  
3 think I can repeat them.

4 MS. WILLIAMS: No.

5 MS. FRANZETTI: We're not going to ask  
6 you to, I hope.

7 BY MS. WILLIAMS:

8 Q. Are you aware that most of them are  
9 based on effluent technology standards from the  
10 1970s?

11 A. I'm not surprised.

12 Q. So knowing that do you have any  
13 opinion about whether they're sufficient to protect  
14 aquatic life in this system that's currently there?  
15 The question is current --

16 MS. FRANZETTI: Counsel, I'm going to  
17 object. He answered that question.

18 DR. BURTON: Yeah. I already answered  
19 that. I'd like to consult with other aquatic  
20 biologists.

21 BY MS. WILLIAMS:

22 Q. Like Mr. Seegert?

23 A. Such as Illinois EPA.

24 Q. Are you aware that Illinois EPA has

1 concluded they're not sufficient?

2 A. No.

3 Q. Okay. I think I can skip a few here.

4 Why don't you give me a second to see how far --

5 HEARING OFFICER TIPSORD: Let's take a

6 ten-minute break.

7 (Short break taken.)

8 HEARING OFFICER TIPSORD: I think

9 we're ready to go back on the record.

10 BY MS. WILLIAMS:

11 Q. All right. Dr. Burton, I'm going to  
12 skip over most of the rest of my questions. I'd  
13 like to ask part of 109, however, if you want to  
14 flip ahead. Question 109 says, you state on Page 13  
15 of your testimony that, quote, the application of  
16 these three UAA factors does not support the  
17 upgrading of use designations under the proposed UAA  
18 rules.

19 Are you aware, Dr. Burton, that  
20 the Agency's proposal with the exception of the  
21 Upper Dresden Island Pool is proposing something  
22 less than the Clean Water Act goals? This is the  
23 follow-up. This is didn't directly in there.

24 MS. FRANZETTI: Did you understand the

1 question?

2 MS. WILLIAMS: Do you understand the  
3 question?

4 DR. BURTON: Would you repeat it,  
5 please.

6 BY MS. WILLIAMS:

7 Q. Are you aware that with the exception  
8 of the Upper Dresden Island Pool the Agency's  
9 proposal in this proceeding is proposing something  
10 less than Clean Water Act aquatic life goals for  
11 this system?

12 MS. FRANZETTI: By the something she  
13 means they're proposing a use designation  
14 that is lower than the Clean Water Act  
15 fishable goals.

16 DR. BURTON: Yes.

17 BY MS. WILLIAMS:

18 Q. Okay. In your opinion -- this is  
19 Subpart C. In your opinion, could Illinois upgrade  
20 the CAWS and Lower Des Plaines River from its  
21 current designation to something incrementally  
22 better but still below the Clean Water Act aquatic  
23 life use goals?

24 A. No.

1 Q. Explain why not.

2 MR. ETTINGER: Well, I don't know if  
3 it's my place here to interpose an objection  
4 or not, but it seems like you're asking sort  
5 of legal questions of a biological witness,  
6 so I don't understand.

7 MS. FRANZETTI: Well, we have another  
8 problem, Albert. He thought she had read B,  
9 kind of the problem with prefiled questions.  
10 Assuming she was moving to B, and she moved  
11 to --

12 BY MS. WILLIAMS:

13 Q. I did say C, right?

14 MS. FRANZETTI: No. I am not saying  
15 you didn't say it, Counsel, but he just  
16 assumed you're going to the next question to  
17 which his answer was no. So I think we need  
18 to clarify --

19 DR. BURTON: Yes. That's --

20 MS. FRANZETTI: With respect to  
21 Question 109C, would you like to amend or  
22 correct your answer?

23 DR. BURTON: Yes. Because I thought  
24 she said B. If the information supported

1           such a conclusion, I believe it could be  
2           based on my general knowledge that states  
3           like Ohio have created a use classification  
4           system that contains several United States  
5           designations that are below the Clean Water  
6           Act aquatic life use goals.

7   BY MS. WILLIAMS:

8           Q.       Thank you. Are you aware -- and this  
9           is also a follow-up. Are you aware of any use  
10          attainability analyses that have relied on  
11          contaminated sediments as a primary factor in  
12          downgrading the designated aquatic life use?

13          A.       Well, I believe I stated yesterday  
14          that I haven't reviewed any use attainability  
15          analyses in recent years.

16          Q.       Okay. And so the answer is you're not  
17          aware of any?

18                   MS. FRANZETTI: No. The answer is he  
19                   doesn't know because he hasn't looked.

20                   MS. WILLIAMS: Okay. That's all I  
21                   have.

22                   MS. FRANZETTI: I would, if you don't  
23                   mind, Albert, there was one question that the  
24                   Agency skipped that I actually would like to

1 ask and have the answer on the record. It's  
2 104. On Page 15 of your testimony you state  
3 that the Illinois EPA's presentation of the  
4 data, data interpretation and supporting  
5 statements, are often biased. Identify which  
6 statements and data presentations are biased.  
7 What do these statements reflect a bias  
8 toward? I'm not asking you why would the  
9 Illinois EPA have such a bias in your  
10 opinion.

11 DR. BURTON: I use the word bias  
12 because I believe the Illinois EPA here  
13 failed to conduct a thorough review of all  
14 the relevant factors and available data and  
15 then to present an objective review of those  
16 results. The extensive studies performed by  
17 Com Ed in the '90s found contaminated  
18 sediments occur in all three pools and are  
19 present in the side channels and back water  
20 areas, the areas that are most important  
21 biologically. EA's 2003 habitat evaluation  
22 found sedimentation was moderate to severe  
23 and 70 percent of the sites of the Dresden  
24 Pool areas. Another indicated that

1 sedimentation had not improved or appeared to  
2 have gotten worse in some areas. The data  
3 showing extensive presence of siltation and  
4 sedimentation and sediment contamination that  
5 existed was not thoroughly reviewed, nor was  
6 it objectively presented by the Agency. If  
7 it had been, the Agent could not have reached  
8 the conclusion that it thinks sediment  
9 contamination conditions are improving.  
10 Moreover, the UAA report for the Lower Des  
11 Plaines River presented an unsupported  
12 conclusion that its contaminated sediments  
13 can be removed permanently and are not a  
14 limiting factor to the overall improvement of  
15 this waterway. There was no identification  
16 of any proposal, plan, or funding by anyone  
17 that would remove the biological limitations  
18 of these sediments, contaminated or  
19 otherwise, that replace on the Upper Des  
20 Plaines Island Pool, and prevent them from  
21 recurring. In addition, other studies such  
22 as the U.S. EPA, USGS, and MWRD have shown  
23 high levels of sediment in water  
24 contamination from major pollutants from

1 multiple pollutants and that this watershed  
2 is one of the worst in the nation based on  
3 chemical concentrations of these pollutants.  
4 And that wasn't acknowledged by the Agency.

5 Further, rather than present a  
6 detailed review of peer-reviewed sediment  
7 studies from the '90s and UAA report, instead  
8 presented only average sediment sampling  
9 values from U.S. EPA's sediment sampling  
10 database. This partial disclosure of the  
11 U.S. EPA sediment sampling results did not  
12 provide any meaningful or scientific  
13 assessment. The average values do not reveal  
14 whether they reflect a broad or narrow range  
15 of individual sediment sampling locations.  
16 Grouping of sediment data together to present  
17 an average of contaminants does not provide a  
18 true picture for specific areas contaminated  
19 averaging dampens out heterogeneity which is  
20 an extremely important factor in determining  
21 the adverse effects of sediments and  
22 organisms. The data in the UAA report didn't  
23 disclose or differentiate between sediment  
24 sample types or sampling site locations on



1 any given location. There was no way to  
2 determine if that data came out of the main  
3 channel where you wouldn't have high levels  
4 or the side channel or back water areas.

5 Another example with respect to  
6 nonpoint source discharges to this system is  
7 Agency testimony showing they did not conduct  
8 a thorough review of the effects of urban  
9 run-off on this system. It testified that,  
10 "Are you telling me that in an agency's  
11 opinion the urban run-off," the question was,  
12 "which is nonpoint source to this waterway is  
13 not a significant stressor?" The answer by  
14 the Agency was, "We didn't focus our energies  
15 on that because this is an effluent-dominated  
16 waterway. It's insignificant to the other  
17 inputs into this system."

18 MS. WILLIAMS: Dr. Burton, can you  
19 please provide a citation to what you're  
20 reading there?

21 DR. BURTON: January 8, '08, Agency  
22 testimony, Sulski, Pages 107 to 108. So the  
23 lack of the review of the impacts of urban  
24 run-off also bias the Agency's result. And

1           it's odd that IEPA's Marsha Wilhite stated in  
2           2003 that urban run-off is a significant  
3           cause of impairment in the UIW and that most  
4           of the wastewater is untreated and the  
5           impairments are greatest in the Calumet and  
6           Des Plaines River. That was Wilhite 2003  
7           Urban Storm Water Issues in the Illinois  
8           River basin and the Illinois water resources  
9           center 2003 governor's conference on the  
10          management of the Illinois River system.

11           MS. WILLIAMS: Are you referring to an  
12          oral statement or a written statement?

13           DR. BURTON: This is a published  
14          proceeding special report No. 23.

15           MS. WILLIAMS: Do you know if it's  
16          part of the record in this proceeding?

17           DR. BURTON: It is not.

18           MS. FRANZETTI: I don't think it is.  
19          He found it just before presenting his  
20          testimony here. It's available on the web, I  
21          think.

22           DR. BURTON: Yes. I got it off the  
23          web. Given the mass population impervious  
24          area in the municipal effluent domination of

1 the system, the wealth of information  
2 dominating adverse effects, the lack of  
3 consideration of urban run-off, in my opinion  
4 is, frankly, amazing.

5 Also with respect to my toxicity  
6 studies from the mid '90s, I also believe the  
7 Agency accepted in the LDR UAA report an  
8 inaccurate and biased interpretation of those  
9 results of my studies which is apparently  
10 relying on to support the proposed use  
11 designation and UIP. More generally I  
12 believe IEPA gave greater way to the water  
13 chemistry above the biological and physical  
14 data. Those are some of the examples on  
15 which I base my opinion.

16 HEARING OFFICER TIPSORD: Dr. Burton,  
17 could we have the citation to the website  
18 where the Wilhite --

19 MS. FRANZETTI: I don't know that we  
20 have the website.

21 DR. BURTON: I can give you the  
22 absolute full citation.

23 HEARING OFFICER TIPSORD: That would  
24 be good.

1 DR. BURTON: Wilhite M, 2003, urban  
2 storm water issues in the Illinois River  
3 Basin in Illinois Water Resources Center,  
4 editor, 2003 governor's conference on the  
5 management of the Illinois River system,  
6 comma, the Illinois River: Sharing the  
7 Visions. Ninth Biennial Conference  
8 Proceedings Special Report No. 29 Urbana,  
9 Illinois.

10 HEARING OFFICER TIPSORD: Thank you.

11 MS. WILLIAMS: So I didn't hear in  
12 that answer, Dr. Burton, the questions in 104  
13 that say what do these statements reflect a  
14 bias toward? And why would Illinois EPA have  
15 such a bias, in your opinion?

16 DR. BURTON: As to what these  
17 statements provide a bias towards, they  
18 present a bias towards ignoring or  
19 discounting evidence that shows there are  
20 conditions in the UDIP waterway that satisfy  
21 one or more of the UAA factors. Through the  
22 ship canal they present a bias toward  
23 believing this waterway can attain a higher  
24 level of use designation than it actually

1 can.

2 MS. WILLIAMS: Why would the Illinois  
3 EPA have such a bias, in your opinion,  
4 towards not finding factors present?

5 DR. BURTON: I'm not going to  
6 speculate.

7 MS. WILLIAMS: Would you agree that  
8 there's a presumption that Clean Water Act  
9 aquatic life use can be attained unless there  
10 is definitive evidence that they can not?

11 MS. FRANZETTI: Objection. That's a  
12 legal question, and that presumption is  
13 rebutted by application of one of the six UAA  
14 factors, which you have to include to ask a  
15 fair question and that -- that's what he was  
16 addressing in his answer with respect to --

17 MS. WILLIAMS: I think the question is  
18 that he's accusing the Agency of bias which  
19 is not -- I mean that's the unfair issue I  
20 think we're trying to get. You're accusing  
21 the Agency of bias without reflecting that  
22 there is a presumption that's rebuttable.

23 MS. FRANZETTI: The presumption is not  
24 a bias. And, Counsel, if you equate

1           presumption with bias, I strongly disagree  
2           with your definition of the terms presumption  
3           and bias. A presumption is simply that.  
4           It's a starting point. And under the  
5           regulations, the UAA regulations gives six  
6           grounds on which you can rebut that  
7           presumption; has nothing to do with bias.

8                   MS. WILLIAMS: But it is your  
9           testimony, Dr. Burton, that the Agency is  
10          biased against finding UAA factors present in  
11          this case?

12                   DR. BURTON: Yes. In the presentation  
13          of the scientific data --

14                   MS. WILLIAMS: And would you agree  
15          that --

16                   HEARING OFFICER TIPSORD: Let him  
17          finish his answer, please.

18                   MS. WILLIAMS: Go ahead.

19                   DR. BURTON: The bias that I just  
20          talked about was the presentation of the  
21          scientific rationales.

22                   MS. WILLIAMS: Would you agree that  
23          the Agency invoked three of the six UAA  
24          factors in its proposal before the board in

1 this proceeding?

2 MS. FRANZETTI: Objection, Counsel.  
3 It didn't as to UDIP, so you need to exclude  
4 UDIP or that statement is inaccurate.

5 MS. WILLIAMS: In this proceeding has  
6 the Agent invoked three of the six UAA  
7 factors? I don't think that question is  
8 inaccurate.

9 MS. FRANZETTI: With the understanding  
10 you're not specifying for what waterways --

11 MS. WILLIAMS: Okay.

12 MS. FRANZETTI: You can answer the  
13 question.

14 DR. BURTON: Yes.

15 MS. WILLIAMS: And in the Upper  
16 Dresden Island Pool has the Agency invoked  
17 one of the UAA factors with regard to  
18 recreational uses?

19 DR. BURTON: Yes.

20 MS. WILLIAMS: Thank you.

21 HEARING OFFICER TIPSORD: Move on to  
22 Mr. Ettinger.

23 E X A M I N A T I O N

24 BY MR. ETTINGER:

1 Q. Just to follow up on that, you talked  
2 about the Ohio classification system. Are you  
3 familiar with the Ohio classification system?

4 A. Yes.

5 Q. How would you classify these waters  
6 using the Ohio classification system based on  
7 your --

8 A. Modified warm water habitat.

9 Q. That would be for the Lower Des  
10 Plaines or which portion?

11 A. The Ohio EPA implies -- applies that  
12 to any system that was historically channelized.

13 Q. Modified warm -- what was that?

14 A. Modified warm water, I believe.

15 Q. Modified warm water habitat I think is  
16 what you said.

17 A. It has been a while.

18 Q. Thank you. I have a problem here in  
19 that I have to go through two days of testimony and  
20 pick out the questions that I think haven't already  
21 been answered, and so we'll see where we go from  
22 here. Some of these have been touched on before,  
23 but I want to clarify them a little more or  
24 something like that. So you'll have to bear with



1 me. You'll be pleased to hear that I'm not going to  
2 ask most of my prefiled questions because they've  
3 either already been asked or we went somewhere else.

4 So I'd like to look at now my  
5 prefiled questions No. 19. We've been over this  
6 before I realize, but I want to try to get a little  
7 more information on that. The question was -- the  
8 whole question is do you believe that emerging  
9 contaminants are affecting aquatic life in the CAWS  
10 or the Upper Dresden Pool? We've certainly answered  
11 that.

12 If so, how -- I think we've  
13 discussed that. But which contaminants? We have  
14 talked about some of them, but I'd just like to get  
15 any more information you have on these emerging  
16 contaminants because you sort of named names as far  
17 as the chemicals that we're thinking about here.

18 A. I would seriously doubt that anyone is  
19 capable of providing a good answer to that because  
20 there's so many that are present simultaneously in  
21 these systems. And so it would be very difficult to  
22 say which one is causing the most endocrine  
23 disruption. There's no TIEs for endocrine  
24 disruptors.

1 Q. Is there a -- What would be the prime  
2 suspects? I mean if I were going to start looking  
3 at ones that you think would have an effect, which  
4 would be the ones that I would look at?

5 A. The prime suspect is the dominant  
6 concentration. It's probably going to be something  
7 like EES which is the first one that the U.S. EPA  
8 will probably establish a criteria for.

9 Q. EES?

10 A. That was that long scientific name I  
11 gave you, synthetic estrogen.

12 Q. All right. And the leading cause --  
13 I'm sorry -- the leading source of that is birth  
14 control?

15 A. Pills.

16 Q. Thank you.

17 MS. FRANZETTI: There are different  
18 forms.

19 MR. ETTINGER: Patches there are no  
20 problems with?

21 BY MR. ETTINGER:

22 Q. On Page 17 of Attachment 1 to your  
23 prefiled testimony -- I'm down to prefiled Question  
24 21 here. I'm going to just --

1 MS. FRANZETTI: That's fine.

2 MR. ETTINGER: -- to try to honor the  
3 process. I'll go through my prefiled  
4 questions, then I'll go through some of your  
5 testimony and ask specific questions. So now  
6 I'm on 21.

7 BY MR. ETTINGER:

8 Q. On Page 21 of your Attachment 1 to  
9 your prefiled testimony you --

10 MS. FRANZETTI: I'm sorry, Albert. I  
11 don't want you to screw up your record. The  
12 first time you said it right. It's on Page  
13 17, not Page 21.

14 BY MR. ETTINGER:

15 Q. Yeah, yeah. You see, you interrupted  
16 me and it screwed up everything. All right. We're  
17 starting over. This is the question.

18 On Page 17 of your Attachment 1 to  
19 your prefiled testimony, you state the most reliable  
20 indicator of in situ conditions are the indigenous  
21 communities present in the waterway. Did you study  
22 any of the indigenous communities in these  
23 waterways?

24 A. I did not study them directly, but EA

1 and MWRD did.

2 Q. What did you learn from those studies?

3 A. It's dominated by pollution-tolerant  
4 organisms.

5 Q. Is that in terms of fish?

6 A. Fish and invertebrates.

7 Q. Did you look at -- What invertebrate  
8 studies are you aware of in the record that you  
9 looked at?

10 A. The MWRD reports that surveyed the  
11 invertebrates.

12 Q. And those are up in the CAWS, right?  
13 Are you aware of invertebrates --

14 A. No. They have some that go  
15 downstream.

16 Q. Are you aware of any invertebrate  
17 studies taken in the areas where you did studies of  
18 sediment contamination?

19 A. Yes. They sampled in each of the  
20 pools.

21 Q. Do we know which study?

22 A. Lockport, Brandon, Dresden.

23 Q. And do we have IDI scores or something  
24 like that for those areas?

1           A.       The data that I recall are just  
2 presenting the dominant taxa that were there.

3           Q.       Do you know what studies you're  
4 referring to?

5           MS. FRANZETTI: That's why it's so  
6 hard if we don't have them written down. I  
7 don't know if Joe might be -- if you don't  
8 mind, Albert.

9           MR. ETTINGER: No. That's fine.

10          DR. BURTON: The most recent one I  
11 looked at Irwin Polls was a co-author on.

12          MR. ETTINGER: So that's probably a  
13 very old study.

14          DR. BURTON: It actually is in our  
15 list that we submitted for Exhibit 371 as  
16 No. 1, Bramier, Joel Bramier, et al. 2008.

17          MR. ETTINGER: He's spry.

18          MS. FRANZETTI: Albert, just a second.  
19 Joe, can you provide for the EA studies or no  
20 with -- I'm not trying to put you on the  
21 spot. Just if you happen to have something  
22 you can say it's at least got some of this  
23 data in it, that would be helpful.

24          MR. VONDRUSKA: Within the report

1           entitled final report Aquatic Ecologic Study  
2           of Upper Illinois Waterway, Volumes I and II.  
3           This is part of AS 9610, chapter --

4                   MS. FRANZETTI: Let me jump in. I'm  
5           sorry. That is on CD No. 1, so you've got  
6           that.

7                   MR. VONDRUSKA: And Chapter 7  
8           discusses the macro invertebrate study that  
9           was conducted for this.

10                   HEARING OFFICER TIPSORD: That's  
11           Exhibit 370, CD No. 1, Exhibit 370.

12                   MS. FRANZETTI: Yes. The CDs  
13           themselves are 370, yes.

14   BY MR. ETTINGER:

15           Q.        These are not generally wadable  
16           streams. So were these ponar studies or do you know  
17           how they took the samples?

18                   MS. FRANZETTI: I think at this point  
19           we have to say we don't -- I don't think you  
20           were personally involved.

21                   MR. VONDRUSKA: No. That was done by  
22           another contractor.

23                   MR. ETTINGER: And do you know how  
24           they took it?

1 MR. VONDRUSKA: I can tell you in a  
2 second.

3 MR. ETTINGER: We can wait a second.  
4 We've waited for two years.

5 MR. VONDRUSKA: Ponar and hester-Dendy  
6 samplers.

7 MR. ETTINGER: Those are those things  
8 that you put at the bottom?

9 MR. VONDRUSKA: The artificial  
10 multiplate samplers.

11 BY MR. ETTINGER:

12 Q. Thank you. So we've got the 2008  
13 study and that. Those are the studies that we know  
14 of that actually looked at the bugs in these areas;  
15 is that correct?

16 A. Yes.

17 MS. FRANZETTI: And, Albert, I would  
18 just add, I think there may be more, but I  
19 thought Mr. Seegert might have referred to  
20 something more, but that's what you can  
21 recall?

22 DR. BURTON: Yes.

23 BY MR. ETTINGER:

24 Q. Twenty-three: Have you studied the

1 effect of entrainment of aquatic life by Midwest  
2 Generation plants on the aquatic life in the Lower  
3 Des Plaines or the Chicago Area Waterway System?

4 A. No. I'm not sure how that's really  
5 relevant.

6 Q. Well, you answered the question, so we  
7 don't have to debate whether it's relevant or not.

8 Twenty-six: How does temperature,  
9 increased temperature caused by the operation of  
10 Midwest Generation plants affect dissolved oxygen  
11 levels in the Chicago Area Waterway System in the  
12 Upper Des Plaines -- or Upper Dresden Pool?

13 A. Can you quantify increase?

14 Q. Well, let's drop the -- let's -- I  
15 think that's fair. Let's just say in general,  
16 because it's a very general question. How does  
17 temperature affect dissolved oxygen levels?

18 MS. FRANZETTI: And as long as it's  
19 going to be used very generally, I don't have  
20 an objection.

21 DR. BURTON: It's -- less dissolved  
22 oxygen can be held in water where the  
23 temperatures are warm.

24 BY MR. ETTINGER:



1 Q. That's it for my prefiled questions.

2 I'd like to combine these  
3 questions, but I'll probably get in trouble if I do,  
4 so I'll have to ask them one at a time. On Page 4  
5 of your prefiled testimony, you say the lower area  
6 of Hickory Creek nearest to the Brandon tail waters  
7 does not support aquatic life or primary recreation  
8 uses due to impairments such as fecal coliforms,  
9 chloride, alteration to side stream or littoral  
10 vegetation flow alterations, sedimentation,  
11 siltation, total dissolved, suspended solids, zinc,  
12 nitrogen, phosphorus, and algae. Are you saying  
13 that there's no aquatic life in Hickory Creek?

14 A. No, I'm not.

15 Q. So what are you saying?

16 A. I'm just reporting what the Illinois  
17 EPA listed as sources.

18 Q. Is it your understanding that when  
19 Illinois EPA says that something does not support a  
20 use, an aquatic use, that there's no aquatic life  
21 there?

22 A. No.

23 Q. Have you studied the aquatic life in  
24 Hickory Creek --

1 A. No.

2 Q. -- other than reading --

3 MS. FRANZETTI: Let him finish his  
4 question.

5 MR. ETTINGER: I think slowly and you  
6 can think where I'm going, but you still have  
7 to let me finish my question.

8 DR. BURTON: Yes.

9 BY MR. ETTINGER:

10 Q. Have you studied Hickory Creek in any  
11 way other than looking at the U.S. -- I'm sorry --  
12 Illinois EPA reports?

13 A. No, I haven't.

14 Q. Okay. So you're not aware of any  
15 Illinois Department of Natural Resources reports on  
16 biota in Hickory Creek?

17 A. No, I'm not.

18 Q. Okay. On Page --

19 MS. FRANZETTI: Albert, can I just ask  
20 one more follow-up to clarify. When you were  
21 using the phrase does not support in  
22 connection with Hickory Creek, were you  
23 mirroring the language that was used in the  
24 Illinois EPA 305(b), 303(d) list for whether

1 or not waters are impaired? Do you  
2 understand? Or was that too long a question?  
3 I'm just simply -- I'm simply asking you were  
4 you taking your "does not support aquatic  
5 life language" from the Illinois EPA's  
6 findings in the 305(b) 303(d) list to  
7 indicate an impairment for aquatic life use?

8 DR. BURTON: Oh, I thought --

9 MS. FRANZETTI: I'm sorry. No. I  
10 can't ask Albert questions. That question is  
11 for you.

12 DR. BURTON: Yes.

13 MS. FRANZETTI: Thank you.

14 MR. ETTINGER: Okay. Now that you  
15 understand who the question is addressed to,  
16 can you answer it, Dr. Burton?

17 DR. BURTON: My answer is yes.

18 BY MR. ETTINGER:

19 Q. Thank you. Now, on Page 5 of  
20 Attachment A, you refer to Grant Creek and Jackson  
21 Creek, and, again, you use the term does not support  
22 life due to unknown impairment sources, et cetera.  
23 I'm not going to read the whole thing. But as we  
24 discussed with Hickory Creek, where this says does

1 not support, is that narrowly based on your reading  
2 of IEPA reports and their classification of that  
3 water as not supporting aquatic life?

4 A. Yes, sir.

5 Q. Thank you. And as we said with  
6 Hickory Creek, you've not studied any other  
7 independent reports or made any independent study of  
8 the aquatic life in Grant Creek or Jackson Creek?

9 A. Correct.

10 Q. On Page 8 of your prefiled testimony,  
11 you refer to waters with high contaminants. It says  
12 a recent study by the USGS found that total PAHs in  
13 the sediments in the upper Illinois River basin are  
14 among the highest for sites nationwide and nearby  
15 sites in Western Springs and Riverside tributaries  
16 from the UBP --

17 MS. FRANZETTI: Upstream.

18 MR. ETTINGER: Upstream -- I was  
19 wondering why that preposition was there --  
20 upstream from the UBP are among the highest  
21 5 percent in the nation. Do you know where  
22 Western Springs and Riverside is in  
23 relationship to the area we've been focussing  
24 on?

1 DR. BURTON: Western Springs is a  
2 western suburb, and that's what USGS is  
3 calling their station for Salt Creek which  
4 empties into the Des Plaines River kind of in  
5 that Lockport area. And then Riverside is on  
6 the Des Plaines River, and it's just west of  
7 Cicero is about the best I can tell you.

8 BY MR. ETTINGER:

9 Q. Okay. And so they're in the upper  
10 December Plaines River?

11 A. Yes.

12 Q. Have you compared the aquatic life in  
13 the Upper Des Plaines River with the Lower Des  
14 Plaines River in any way?

15 A. I have not, but these studies  
16 indicated, which looked at benthic invertebrates,  
17 that it was degraded everywhere that urban land use  
18 was greater than 25 percent.

19 Q. Would you expect then to see the  
20 effects of this sediment or this highly toxic  
21 sediment according to your statement here on the  
22 aquatic life in the Upper Des Plaines?

23 A. Certainly.

24 Q. Moving now to Page 11 of your

1 testimony, prefiled testimony. You say, "While  
2 temperature in some cases can be a stressor." Have  
3 you personally seen any cases in which temperature  
4 was a stressor?

5 A. Yes.

6 Q. Where were they?

7 A. In some of the testing I did which I  
8 submitted and is in the summary report.

9 Q. And that's in the Lower Des Plaines?

10 A. Those specifically were lab studies  
11 that I was referring to that I did at different  
12 temperatures for extended periods.

13 Q. In your work in general, have you seen  
14 other systems, be they in Mexico or the Ukraine, in  
15 which temperature was a stressor?

16 A. It's another one of those well-known  
17 facts that streams that, for example, in urban areas  
18 where the riparian corridor is removed and there's  
19 no shading anymore and then suddenly there's  
20 sunlight, that those ecosystems will change  
21 dramatically with more algae being produced which  
22 then changes the benthic invertebrates which then  
23 changes the fish that are there. And that's urban  
24 run-off off of pavement is going to increase the

1 water. So, again, due to multiple factors in the  
2 urban environment, the elevated temperature with  
3 those other habitat issues has been shown to  
4 decrease the water.

5 Q. Have you specifically studied any  
6 systems other than the Lower Des Plaines in which  
7 there were heat influence from power plants?

8 A. From my personal research, no.

9 Q. Are you familiar with cold shock, the  
10 phenomenon cold shock?

11 A. Yes.

12 Q. What's your understanding of that?

13 A. Well, it effects me every time I try  
14 to do in situ testing during cold water  
15 temperatures, so I have to carefully acclimate my  
16 organisms.

17 Q. Okay. Well, actually, that might be  
18 interesting. How does that work? You have to --  
19 What does that do to your organisms?

20 A. We are raising our organisms in the  
21 laboratory at about 23 degrees centigrade. If I go  
22 to a system that's more than two degrees cooler than  
23 that, I have to slowly acclimate them down in about  
24 1 to 2 degrees an hour in order not to have cold

1 shock.

2 Q. Well, what happens if they have cold  
3 shock?

4 A. They die.

5 Q. So changing the temperature  
6 2 or 3 degrees might cause your critters to die?

7 A. If it's rapid.

8 Q. If it's rapid?

9 A. So I can test those particular  
10 organisms that we've been talking about down to  
11 10 degrees centigrade without any problem.

12 Q. Thank you. We're moving right along  
13 here.

14 This is, again, on Attachment 11.  
15 We've gone over various other sites with high  
16 contaminant levels, and you mention on Page 11 of  
17 Attachment 1 on the Des Plaines at Russell.

18 MS. FRANZETTI: Give me just a second.

19 DR. BURTON: I don't recall where  
20 Russell is.

21 MS. FRANZETTI: What page?

22 MR. ETTINGER: Page 11?

23 DR. BURTON: Yes? I do not recall  
24 where on the Des Plaines Russell is. I'm



1 going to assume it's upstream.

2 BY MS. WILLIAMS:

3 Q. I've lived in this area for 30 years,  
4 and I don't know where Russell is either.

5 A. Did you Google it?

6 Q. No. Does anyone else know where  
7 Russell is?

8 MR. SULSKI: It's at the border.

9 MS. FRANZETTI: Oh, it's Russell Road.  
10 It's right up at the Wisconsin border.

11 MR. ETTINGER: Up at the Wisconsin  
12 border. Okay. We --

13 MS. FRANZETTI: I think there's a  
14 Russell Road exit off the tollway.

15 MR. ETTINGER: You haven't looked at  
16 the aquatic life around Russell, have you?

17 DR. BURTON: No.

18 BY MR. ETTINGER:

19 Q. Now we're going to look at what has  
20 been marked, I believe, as Exhibit 372, which is the  
21 Upper Illinois Waterway Study Summary Report  
22 Sediment Contamination Assessment, December 18,  
23 1995.

24 MS. FRANZETTI: Albert, do you think

1 he should try and pull a copy in front of  
2 him?

3 MR. ETTINGER: Yeah. That would be  
4 helpful.

5 MS. FRANZETTI: Albert, hang on. I  
6 think I gave away all my copies, but I think  
7 Dr. Burton has his. Just give us a second.

8 DR. BURTON: All right.

9 BY MR. ETTINGER:

10 Q. On Page 8 of the study, I guess I'll  
11 call it. It says -- I'll just call your attention  
12 to a sentence, the last -- second to last sentence  
13 in the first paragraph: These results suggest that  
14 the warmer upper waters of the thermal plume may be  
15 exerting a slight effect on some species. Do you  
16 know what the side effect for -- I just want to  
17 understand the plume. What do you mean by the plume  
18 and how does that work?

19 A. We had exposures that were in the  
20 upper water column at the bottom, and the  
21 temperatures were warmer in the upper because warm  
22 water rises. So I'm referring to organisms that are  
23 in that area. The depth of that would vary with  
24 plume.

1 Q. And this was actually in the plume of  
2 the power plant?

3 A. This is actually the discharge channel  
4 as I corrected yesterday. I was using the word  
5 plume probably incorrectly in my report.

6 Q. Okay. Well, okay. So it's in the  
7 discharge channel?

8 A. Right.

9 Q. You've never studied how the  
10 temperature comes from the discharge channel out  
11 into the river?

12 A. In the studies I referred to earlier  
13 today. We did have a couple of stations further  
14 downstream. We were monitoring temperature there.  
15 I didn't actually define the extent of the plume.

16 Q. And so actually within the discharge  
17 channel there's a temperature gradient?

18 A. During my study, yes.

19 Q. Okay. There's a sentence further down  
20 here. It says, ammonia production also increased in  
21 the sediment treatment from 15 to 35 degrees  
22 centigrade. What do you mean by ammonia production  
23 there?

24 A. Well, ammonia is produced by bacteria.

1 That's why I say production.

2 Q. So it's ammonia coming from the  
3 bacteria?

4 A. Right.

5 Q. Okay. Further on, the greater  
6 mortality in site water and sediment is compared to  
7 the control suggested other stressors; e.g., metals  
8 and/or organics in the samples increased the adverse  
9 effects of continual exposure at 35 degrees  
10 centigrade. This effect did not appear to be  
11 related to ammonia since water concentrations of  
12 ammonia were low. The effects observed at 35  
13 degrees centigrade do not occur in the UI -- likely  
14 do not occur in the UIW because organisms are not  
15 exposed to 35 degrees for seven-day periods.

16 Have you studied the -- First of  
17 all, could you explain that a little better? Maybe  
18 would be more helpful.

19 A. Sure. Those are talking about the  
20 laboratory exposures that we did where we maintained  
21 a constant temperature for seven days. We had the  
22 different treatments of just water at that  
23 temperature and then site water from different  
24 locations and then sediment with the water at

1 different locations. So we've got this relationship  
2 of greater effects at warmer temperatures if your  
3 waters from the river or sediments from the River  
4 were also present, greater mortality occurred.

5 Q. And that's roughly at 95 degrees  
6 Farenheit, 35 degrees centigrade?

7 A. Yeah. I have a hard time with  
8 Farenheit, but yeah, I think so.

9 Q. I have a hard time with centigrade,  
10 but I'm much older than you.

11 Okay. There's a couple -- on  
12 Page 10 there's something here I didn't understand  
13 at all. The first -- the last sentence of Page 9  
14 and the second sentence -- and the sentence  
15 following that, the results of fractionalization  
16 showed that the polycyclic aromatic hydrocarbons,  
17 and ammonia were contributing to toxicity in the  
18 above Brandon Road sediment pore water, *P promegalis*  
19 and *C denubias* survival in unaltered sediments was  
20 100 percent with the exception of *C denubias*  
21 survival of 75 percent in the above Brandon Road  
22 sample. The pore waters, however, killed all  
23 organisms within 24 hours. I don't -- what's being  
24 contrasted there and what's harmful and what's okay?

1           A.       Okay.  If I take the sediment and I  
2           squeeze out the water that's in it and I expose them  
3           to these organisms, none of them survive, 100  
4           percent mortality.  If I expose them just to water,  
5           they were okay, the overlying water, surface water  
6           was there.  If I took the pore water that I squeezed  
7           out of the sediment and I put some of it through a  
8           fractionation, which means I kind of filter it with  
9           something that removed the PAHs and the other  
10          organica, suddenly survival improved.  If I threw in  
11          some zeolite, which primarily was removing ammonia,  
12          survival improved.  So the conclusion you reach from  
13          that TIE is that PAH as an ammonia were contributing  
14          to that pore water toxicity.

15                Q.       In the sediment?

16                A.       In the sediment.

17                Q.       Okay.  And so what we're really  
18          contrasting here on the pore water is water that's  
19          taken from the sediment as opposed to water column?

20                A.       Yes.

21                Q.       Now I understand.

22                    MS. FRANZETTI:  Actually, can I just  
23          ask a follow-up question?  Why does one even  
24          test pore water?  Why is that relevant to

1           aquatic toxicity?

2                   DR. BURTON:  The U.S. EPA and others  
3           have found that pore water is the dominant  
4           exposure route for benthic organisms.  That's  
5           what they base their theoretical sediment  
6           benchmarks on.

7                   MS. FRANZETTI:  So it's another way of  
8           saying that the benthic organisms get exposed  
9           to the toxicity of sediment pore water?

10                  DR. BURTON:  Correct.

11  BY MR. ETTINGER:

12                  Q.        Further down on this page, the study  
13           states the Brandon Road tail waters possess highly  
14           desirable fish habitat and fish populations.  Which  
15           were the highly desirable fish populations that are  
16           being referred to here?

17                  A.        I'm only mimicking or quoting what has  
18           been said by IEPA, that this is a very desirable  
19           fish habitat.

20                  Q.        Okay.

21                  MS. WILLIAMS:  Where?

22                  MR. ETTINGER:  I'm sorry.  Maybe you  
23           were, but I -- this is your study and you  
24           don't cite them, so if you were only

1 mimicking them, I'm surprised.

2 DR. BURTON: I'm not a fish ecologist,  
3 so I'm relying on other people.

4 MS. FRANZETTI: What they're saying is  
5 did you do, meaning back when you wrote this,  
6 because you're still talking about -- he's  
7 still talking about this report. So are you  
8 relying on other information you'd been given  
9 that the Brandon Road tail waters had high  
10 quality habitat or did you study that?

11 DR. BURTON: I did not study that.

12 BY MR. ETTINGER:

13 Q. Okay. So that was in some --  
14 something you had read prior to your writing this  
15 report led you to say that in this report?

16 A. Exactly, correct.

17 Q. But you can't remember what that was  
18 now?

19 A. No.

20 HEARING OFFICER TIPSORD: Excuse me,  
21 Dr. Burton. Would there be more detail on  
22 that since this is the executive summary he's  
23 asking you about? Would there be more detail  
24 on that than the report itself?



1 DR. BURTON: I'm sure I can provide a  
2 citation if I need to.

3 HEARING OFFICER TIPSORD: I'm just  
4 curious since it is the executive summary --

5 DR. BURTON: I don't know. It's -- I  
6 don't know.

7 HEARING OFFICER TIPSORD: That's fine.

8 MS. FRANZETTI: We'll try and look,  
9 you know. If we can find it and answer,  
10 we'll certainly provide that.

11 BY MR. ETTINGER:

12 Q. Well, this is probably in the same  
13 category on the top line of Page 11. This report  
14 states numerous species of waterfall and fish-eating  
15 birds and inhabiting the tail water area. Do you  
16 know that or were you just quoting somebody else  
17 again?

18 A. No. That was from me seeing that when  
19 I was out there. I spent a lot of time in the tail  
20 water.

21 Q. Okay. What are the waterfall and  
22 fish-eating birds that you observed there?

23 A. Well, I'm not an ornithologist, but  
24 there were lots of ducks, there was also a duck

1 blind, so obviously other people are hunting the  
2 ducks. There were belted king fishers, and -- it's  
3 been 15 years. I didn't take field notes on.

4 Q. Have you been back there in the last  
5 15 years?

6 A. It was the late '90s, probably '99.

7 Q. Okay. I'm winding right down here,  
8 and we'll be done by lunch depending on what else  
9 other people have.

10 Give me one second. I'm done.

11 MS. FRANZETTI: Miss Tipsord, just a  
12 couple of things.

13 THE COURT: Sure.

14 MS. FRANZETTI: I realized last night  
15 that the map that is on CD No. 2 which is  
16 No. 8, the last document on CD No. 2 was the  
17 wrong map in the sense that there's one for  
18 lakes and there's a separate one for streams,  
19 so I'd like to move to enter the correct map  
20 for streams; lakes is pretty irrelevant here  
21 to the Des Plaines into evidence in  
22 substitution for No. 48 on the CDs. And this  
23 was also the map we were referring to the  
24 other day actually that has the numbering

1 segments for segments of the Des Plaines  
2 River that are used in the Appendix B to the  
3 305(b) reports that contains the 303(d)  
4 impaired waters.

5 HEARING OFFICER TIPSORD: If there's  
6 no objection I've been handed what is titled  
7 Figure 2A Des Plaines River was watershed  
8 303(d) listed waters 2002. I'll mark that as  
9 Exhibit 381.

10 MS. FRANZETTI: And last matter of  
11 business, I believe that I deferred moving  
12 for the full admission of CDs 1 and 2  
13 yesterday when Agency counsel objected  
14 initially.

15 HEARING OFFICER TIPSORD: But I went  
16 ahead and admitted them. I admitted them.

17 MS. FRANZETTI: Thank you.

18 HEARING OFFICER TIPSORD: Subject to  
19 objection to specific documents as they came  
20 up.

21 MS. FRANZETTI: Okay.

22 HEARING OFFICER TIPSORD: So they have  
23 been admitted. Seeing no objection to  
24 Exhibit 381, it is also admitted.

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Anything else?

MS. FRANZETTI: I have nothing further.

HEARING OFFICER TIPSORD: Is there anything else for Dr. Burton?

Dr. Burton, thank you very much.

DR. BURTON: Thank you.

HEARING OFFICER TIPSORD: Also thank Mr. Goodfellow. Mr. Vandruska, it was good to see you again. We are adjourned. There will be a hearing officer order about the February 5 prehearing conference. Thank you.

(Which were all the proceedings had.)

\* \* \* \* \*

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

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

*Laura Mukahirn*  
\_\_\_\_\_  
LAURA MUKAHIRN, CSR  
CSR NO. 084-003592

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