

ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:)
)
 WATER QUALITY STANDARDS AND) R08-9
 EFFLUENT LIMITATIONS FOR THE) (Rulemaking -
 CHICAGO AREA WATERWAY SYSTEM) Water)
 AND LOWER DES PLAINES RIVER)
 PROPOSED AMENDMENTS TO 35 ILL.)
 ADM. CODE 301, 302, 303 and 304)

TRANSCRIPT OF PROCEEDINGS held in the
 above-entitled cause at the James R. Thompson
 Building, 100 West Randolph Street, Chicago,
 Illinois, Room 2-025, on the 17th day of February,
 2009, at 9:00 a.m.

BEFORE: MARIA E. TIPSORD, HEARING OFFICER,
 ILLINOIS POLLUTION CONTROL BOARD
 100 West Randolph Street
 Suite 11-500
 Chicago, Illinois 60601
 312-814-4925.

1 APPEARANCES:

2

3 MS. MARIE TIPSORD, Hearing Officer,
4 MS. ALISA LIU, Environmental Scientist,
5 MR. ANAND RAO, Senior Environmental Scientist,
6 MR. G. TANNER GIRARD, Acting Chairman,
7 MR. SHUNDAR LIN, Board Member,
8 MS. ANDREA S. MOORE, Board Member,
9 MR. THOMAS E. JOHNSON, Board Member.

10

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23 MS. JESSICA DEXTER;

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APPEARANCES (cont'd):

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MR. FREDRIC P. ANDES,
appeared on behalf of the Metropolitan
Water Reclamation District.

I N D E X

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1 MS. TIPSORD: Good afternoon,
2 everyone. Let's go ahead and go back on the
3 record.

4 We have with us Adrienne Nemura.
5 And Ms. Nemura's testimony was previously at
6 Exhibit 116.

7 I will note that you are,
8 therefore, still under oath. And we have
9 some questions that we're going to come back
10 to.

11 At this point I'm going to start
12 with the IEPA.

13 ADRIENNE NEMURA,
14 called as a witness herein, having been previously
15 duly sworn and having testified, was examined and
16 testified further as follows:

17 EXAMINATION (Resumed)

18 BY MS. WILLIAMS:

19 Q. Good afternoon, Ms. Nemura.

20 I believe you testified in
21 September that you were not making a specific
22 recommendation to the Board for a wet weather
23 exemption for recreational uses. Is that correct?

24 A. Correct.

1 Q. Is it your testimony that the same is
2 true for aquatic life uses?

3 A. That is true.

4 Q. I believe you also testified in
5 September that you were not aware of any UAAs in
6 other states that had been completed that allowed
7 for the suspension of aquatic life uses in wet
8 weather. Is that correct?

9 A. The UAAs that have been done for
10 aquatic life haven't specifically addressed the
11 issue of wet weather. Although wet weather periods
12 may have been included in those UAAs.

13 Q. Okay.

14 MS. TIPSORD: Ms. Williams, would it
15 help if I had premarked Question 5 marked?

16 MS. WILLIAMS: Well, I think she just
17 addressed that.

18 MS. TIPSORD: Okay.

19 MS. WILLIAMS: That's why I'm trying
20 to see if -- I think I can skip on to
21 Question 20.

22 MR. JOHNSON: What number?

23 MS. WILLIAMS: Twenty.

24

1 BY MS. WILLIAMS:

2 Q. It says on Page 7, Paragraph 3 -- you
3 state, quote, "Several states have modified their
4 water quality standards to reflect challenges
5 associated with attaining uses during wet weather."

6 Do any states allow for dissolved
7 oxygen levels to fall to zero during wet weather
8 events?

9 A. Well, there is -- as part of the
10 Chesapeake Bay UAA, there are specific criterion
11 that are -- can be exceeded. And those criterion
12 are one milligram per liter DO as well as 1.7
13 milligrams per liters DO.

14 And there are times when the
15 standards allow those criteria to be violated.
16 Whether those periods would include wet weather
17 events or not, isn't specifically addressed.

18 MR. ANDES: And we can -- we have
19 copies of those standards.

20 MS. TIPSORD: And I just note for the
21 record that there is, at Exhibit 118, a link
22 to the website on the UAA for the Chesapeake.
23 We referred to it again, I wanted to get in a
24 reference to it.

1 MR. ANDES: The document is an excerpt
2 from Maryland regulations water quality
3 criteria specific to designated uses
4 26.0802.03-3.

5 MS. TIPSORD: And if there is no
6 objection, I will happily, and with all
7 excitement, state that we will enter this as
8 Exhibit 200. Seeing none, that is
9 Exhibit 200.

10 (WHEREUPON, a certain document
11 was marked Exhibit
12 No. 200 for identification,
13 as of 2/17/09.)

14 MR. ANDES: I believe we have 201, as
15 well.

16 MS. TIPSORD: All right.

17 MR. ANDES: This is a related
18 document, a use attainability analysis for
19 the federal navigation channels located in
20 titled portions of the Patapsco River.

21 MS. TIPSORD: If there's no objection,
22 we will mark the document just identified as
23 Exhibit 201.

24 MS. WILLIAMS: I'm not sure -- so this

1 is from the Chesapeake Bay also? I'm just
2 trying to make sure I understand before --

3 BY THE WITNESS:

4 A. The Chesapeake Bay UAA was the
5 regional UAA for the Chesapeake Bay affecting
6 several states. And that document is also used as
7 supporting information for states to do specific
8 UAA, such as the Patapsco.

9 MS. WILLIAMS: I have no objection.

10 MS. TIPSORD: With that, we will mark
11 this as Exhibit 201.

12 (WHEREUPON, a certain document
13 was marked Exhibit No. 201
14 for identification,
15 as of 2/17/09.)

16 BY THE WITNESS:

17 A. And at the end of the Patapsco UAA, it
18 does indicate that Maryland's proposal was that the
19 criteria for the navigation channel could be zero
20 milligrams per liter from June 1 to September 30,
21 inclusive.

22 BY MS. WILLIAMS:

23 Q. Can you show me in 200 where the
24 dissolved oxygen standards are you're referring to?

1 A. If you go to Page 5 of Exhibit 200,
2 under Section 6.

3 MS. TIPSORD: VI?

4 THE WITNESS: VI.

5 BY THE WITNESS:

6 A. That speaks to -- the adopted standard
7 allows seven percent of the spatial and temporal
8 area in a particular segment for seven percent of
9 that spatial temporal time period, the standard does
10 not apply. So there -- in this example, we have
11 instances where Maryland has adopted criteria lower
12 than EPA's 1986 fresh water criteria.

13 And they also have acknowledged
14 that those criteria, even though they're lower,
15 can't be met all the time.

16 BY MS. WILLIAMS:

17 Q. Can you explain why this section that
18 you identified to us states for dissolved oxygen
19 criteria restoration variance? Can you explain the
20 significance of the term "variance" in that passage?

21 A. Well, a variance indicates that it's
22 issued for a particular period of time, and it is
23 reassessed along with water quality standards. So
24 the restoration variance indicates that the goal is

1 to restore this section so that it could meet the
2 proposed criterion and that that will be
3 re-evaluated.

4 Q. Would you assume that the -- that it
5 would be re-evaluated when the long-term control
6 plan is implemented?

7 A. This criteria was not -- the UAA was
8 not specifically to address a long-term control
9 plan.

10 Q. Let's see. Question 31.

11 "Attachment 4 indicates that
12 elimination of gravity CSO discharges may not result
13 in attainment of a dissolved oxygen standard." And
14 I just want to add the last sentence there. "Does
15 the district believe" -- or do you believe
16 actually -- strike that.

17 "Do you believe the proposed
18 dissolved oxygen water quality standards would be
19 met when Tarp is completed?"

20 A. I don't know the answer to that
21 question. In Attachment 4, it was specifically
22 addressing a hypothetical situation with the
23 District's water quality model.

24 In the Agency's rulemaking, they

1 acknowledged that these -- the proposed criteria by
2 the Agency may not be met when Tarp is completed.

3 Q. Can you point to us where it says it
4 may not be met when Tarp is completed, for dissolved
5 oxygen you're talking about.

6 A. On Page 61, it discusses -- "The
7 Agency's testimony discusses that you do have
8 violations of the secondary contact on indigenous
9 aquatic life, due to the combined overflow impacts.
10 The Agency indicates, similarly, at least until the
11 Tarp is completed, it is highly likely the proposed
12 dissolved objection standards will be violated. It
13 may be necessary for MWRDGC to implement additional
14 flow augmentation aeration treatment technologies in
15 order to achieve compliance with these dissolved
16 oxygen standards."

17 Q. Does that sentence express an opinion
18 on what the status will be after Tarp is completed?

19 A. It does not. But there's no
20 indication that it will be met.

21 Q. There's no indication that what?

22 A. That the DO criteria will be met.

23 Q. In the Agency's?

24 A. Correct.

1 Q. But what about in your opinion?

2 A. In my opinion, because you have
3 continuing wet weather problems that will occur,
4 such as tributary runoff, storm water runoff, you
5 still will have some CSO events and pump station
6 discharges. In my opinion, you may not be able to
7 meet the proposed dissolved oxygen criteria when you
8 have wet weather loads within the Chicago area
9 waterways, because of the unique nature of the
10 system.

11 MR. ANDES: I think it will help if we
12 pass out copies of -- this was Figure 5 in
13 Attachment 4, what she's referring to.

14 BY MS. WILLIAMS:

15 Q. I don't think it's what you're
16 referring to; is it? Because we're talking about --
17 oh, I see.

18 Explain to me why you would say
19 this is what you're referring to now?

20 MS. TIPSORD: Wait a minute. Let's be
21 clear. This is Figure 5 to Attachment 4 of
22 Ms. Nemura's Exhibit 116 of her prefiled
23 testimony; correct?

24 MR. ANDES: Yes.

1 BY THE WITNESS:

2 A. This figure is relevant. It is a
3 chart produced with the District's water quality
4 model, which is the best available tool for
5 evaluating, so to speak, what-if scenarios. What if
6 we could control CFOs.

7 In this example, the dissolved
8 oxygen that is calculated by the model for
9 Halsted Street on the south branch of the Chicago
10 River -- so that's just upstream of Bubbly Creek.
11 It shows the dissolved oxygen concentrations over
12 two wet weather events, July 24th through August 9th
13 of 2001. Those were the conditions simulated with
14 the model.

15 The blue line shows the
16 calibration of the model based on current
17 conditions. The dashed line shows the hypothetical
18 effect of -- if you could all of a sudden eliminate
19 all of the gravity CSOs.

20 And what I mean by gravity CSO is,
21 there's over 200 locations of CSO outfalls that are
22 represented in the model. When the District's
23 interceptors fill up with runoff from rainfall
24 events, as they're designed to do, those individual

1 pipes going out to the river, they can't divert the
2 storm water and the sewage into the interceptor, so
3 it flows out by gravity to the Chicago area
4 waterways.

5 MR. ANDES: So when you talk -- to
6 clarify. When you talk about the gravity
7 CSOs, it's the two main components of the old
8 CSO system or the pump stations, like
9 Racine Avenue -- enormous pump stations with
10 a lot of flow -- and then several hundred
11 individual CSO outfalls; correct?

12 THE WITNESS: Correct.

13 MR. ANDES: And you're talking about a
14 scenario where you would eliminate every one
15 of the several hundred individual CSO
16 outfalls?

17 THE WITNESS: Right.

18 BY MS. WILLIAMS:

19 Q. But, Ms. Nemura, I guess what I'm
20 getting at is, does this chart reflect the modeling
21 that would happen without gravity CSOs? But it
22 doesn't -- it's not just gravity CSOs that Tarp is
23 designed to address; is it?

24 Isn't Tarp also going to address

1 the pump station discharges?

2 A. I'm not familiar with the specifics of
3 the District's Tarp program.

4 MR. ANDES: Is your understanding that
5 Tarp will eliminate 100 percent of the
6 gravity CSOs?

7 THE WITNESS: No.

8 MR. ANDES: So this hypothetical is
9 actually very conservative, in terms of
10 assuming that, let's see what would happen if
11 we eliminated every single one of those
12 several hundred CSO outfalls.

13 THE WITNESS: Correct.

14 So you can see that the dash line
15 where that simulation was run, there will be
16 some wet weather events, even if you could
17 eliminate the CSO discharges where you would
18 still violate the criteria.

19 BY MS. WILLIAMS:

20 Q. In the hypothetical scenarios that you
21 eliminate gravity CSOs, but not the huge volume from
22 the pump station discharges; correct?

23 A. Correct.

24 Q. Question 32 presents a quote from

1 Page 5, Paragraph 3 of your testimony. Quote,
2 "These data show that dissolved oxygen can get very
3 low, zero to two milligrams per liter at time. And
4 even -- in the last several days to a week at a
5 time."

6 And the crux of this question is
7 would this result in fish killing?

8 A. Associated with CSOs?

9 Q. Correct.

10 A. I'm not aware of any. And
11 Dr. Dennison has testified that under current
12 conditions we -- the Chicago area waterways do
13 experience low levels of DO. And that there have
14 not been observed fish kills.

15 MS. WILLIAMS: I don't have anything
16 else for this witness. Thank you.

17 MR. ANDES: I have a --

18 MS. TIPSORD: I was just going to the
19 environmental law policies, if you have some
20 follow-ups, go ahead.

21 MR. ANDES: Ms. Nemura, I want to
22 follow up.

23 If you were to develop wet weather
24 water quality water standards for aquatic

1 life, how would you go about doing that?

2 THE WITNESS: First, I would obtain
3 the result of the District's habitat studies
4 to assess the species of fish that any
5 proposed revision to the standards would be
6 trying to protect. Such as was done with the
7 Chesapeake Bay program.

8 Then, I would use research that
9 had been conducted in the laboratory and
10 potentially supplement that with research in
11 the field to identify what types -- what
12 magnitude, frequency and duration of low DO
13 could those species be exposed to from an
14 acute prospective, meaning they wouldn't die,
15 such as in a fish kill, but also from the
16 chronic perspective, where their growth and
17 reproduction may be affected. And in that
18 research, that has already been conducted,
19 there's information that suggests that
20 different species are able to tolerate very
21 low levels of dissolved oxygen, less than,
22 say, .7 milligram per liter, for a short
23 period of time.

24 And the research also supports

1 that different species of fish can detect and
2 avoid low dissolved oxygen conditions. So in
3 a situation like the Chicago area waterways,
4 where you have a load of oxygen-demanding
5 material coming out, say, from a CSO, that
6 will cause the dissolved oxygen to drop in
7 the waterways and then it will -- that area
8 of low DO water will move downstream and be
9 supplemented with higher DO water from
10 upstream.

11 So in the District's testimony,
12 where they speak to the fact that fish may be
13 able to avoid those low DO pockets,
14 supplement that with the research that
15 suggests that certain species can not only
16 avoid those low DO pockets by, say, going up
17 to the surface or moving up to the side. But
18 they can also, at times, be exposed to those
19 low DO pockets and not suffer either death or
20 growth and reproductive problems.

21 And that could be used -- that
22 information could be used to develop
23 site-specific criteria that would be
24 protective of the species that you're trying

1 to protect.

2 MR. ANDES: And we have two reports
3 that Ms. Nemura is referring to. The first
4 one is Behavioral Response of Fish Larvae to
5 Low Dissolved Oxygen Concentrations in a
6 Stratified Water Colony.

7 MS. TIPSORD: And that article is by
8 D.L. Wreitburg, from Marine Biology 1994.

9 If there's no objection, we will
10 enter this as Exhibit 202. Seeing none, it's
11 Exhibit 202.

12 (WHEREUPON, a certain document
13 was marked Exhibit
14 No. 202 for identification, as of
15 2/17/09.)

16 MR. ANDES: The second report, titled
17 The Influence of Fish Size on the Avoidance
18 of Hypoxia and Oxygen Selection by Large
19 Mouth Bass.

20 MS. TIPSORD: And this is from the
21 Journal of Fish Biology 2001. If there's
22 objection, we will mark this as Exhibit 203.

23 Seeing none, it's Exhibit 203.

24

1 (WHEREUPON, a certain document
2 was marked Exhibit
3 No. 203 for identification, as of
4 2/17/09.)

5 BY MS. WILLIAMS:

6 Q. So, Ms. Nemura, can you tell us
7 whether this Exhibit 202 addresses Channel Catfish
8 or Large Mouth Bass?

9 A. They do address Large Mouth Bass.

10 Q. And 202?

11 MR. ANDES: Can we take a copy back of
12 202? Do you have an extra?

13 MS. TIPSORD: Actually, yes. There's
14 some right there.

15 BY THE WITNESS:

16 A. No, I'm sorry, Exhibit 202 provides
17 references that do discuss the phenomenon that I was
18 talking about. And I don't know whether those
19 specific references would -- the studies included
20 the Large Mouth Bass.

21 Exhibit 202 is related to two
22 species, the Naked Goby and the Bay Anchovy. And it
23 specifically addressed larvae, which are sensitive,
24 as well as the adult Naked Gobies that could

1 tolerate .7 milligrams per liter DO for seven hours
2 or less.

3 BY MS. WILLIAMS:

4 Q. Do we have the entire document in
5 front of us?

6 A. It appears that that is not the entire
7 document. But we can make that available.

8 MR. ANDES: We can certainly provide
9 the entire document if that -- people want to
10 read it.

11 BY THE WITNESS:

12 A. But the gist of this study is you have
13 a dissolved oxygen gradient. And the question was
14 whether the low DO that are present in those
15 gradients could be tolerated by fish.

16 BY MS. WILLIAMS:

17 Q. Would you agree, Ms. Nemura, that once
18 you determine -- well, first of all, how would you
19 determine the list of potential fish species that
20 you'd be looking at under the methodology that you
21 just described?

22 A. How would I determine it?

23 Q. Uh-huh.

24 A. You would look at the -- as part of

1 the habitat study the District is conducting, they
2 are gaining information on the species of fish that
3 are present in the Chicago area waterways. You can
4 also evaluate the habitat that is available to
5 determine whether the habitat is suitable for the
6 propagation of the resident fish species, as well as
7 other species biologists may feel could reside
8 within that habitat.

9 Q. Would you agree that once you've done
10 that analysis, the dissolved oxygen criteria you'd
11 developed would need to protect the most sensitive
12 of the species you're trying to protect?

13 A. You would need to evaluate all of the
14 stressors that affect the fish.

15 Just, for example, let's say we
16 were able to aerate the entire Chicago area
17 waterways and have it be 12 milligrams per liter of
18 DO all the time. Whether or not you would see a
19 change in the fish assemblage is a big question,
20 because there are other stressors that would affect
21 whether fish would actually start appearing in
22 different segments.

23 Q. But I don't think that's -- that
24 wasn't the question; right? I mean, you are

1 saying that first you determine which fish could
2 live there, then you need to determine what
3 dissolved oxygen you need to protect them; correct?

4 A. Right.

5 But your question to me was how
6 would I go about determining what fish would live
7 there, which is what I was trying to speak to.

8 Q. So you're flipping it around.

9 You're saying if we made the
10 dissolved oxygen as high as possible, what fish
11 could live there. Is that how you look at it?

12 A. No, I was saying that when -- your
13 question to me was -- if I understood it correctly,
14 was how would I determine what species of fish
15 should be protected for, and would I protect for the
16 most sensitive species. And what I'm saying is that
17 question has a whole lot to do with a lot of other
18 factors than specifically dissolved oxygen.

19 So my hypothetical example of,
20 just because the Agency would pick a dissolved
21 oxygen number, doesn't necessarily mean you would
22 actually achieve any better fish population than
23 what you have today.

24 Q. Right.

1 A. Because of these other stressors.

2 Q. Right.

3 A. So your question was more complicated
4 than...

5 Q. But -- well, I don't -- I guess I
6 don't know -- I think you're presenting the analysis
7 in the way I would agree it should be done. First
8 you determine what habitat is there, support -- and
9 what fish live there and what is the attainable
10 aquatic life use population; correct? That's the
11 first step of the analysis.

12 It may be complex, it may have
13 different levels, but that's first what you do?

14 A. Right. What is the highest attainable
15 use.

16 Q. Once you've determined that, you have
17 to adopt criteria to protect that use; correct?

18 A. Correct.

19 Q. Do you disagree that the process for
20 determining the criteria would involve what
21 dissolved oxygen level is necessary to protect the
22 most sensitive species that you're protecting for?

23 A. Which you would have determined
24 through --

1 Q. Which we have already determined,
2 already settled?

3 A. Yes.

4 Q. You agree?

5 A. Yes.

6 Q. I think that's all I was trying to get
7 at, thank you.

8 MS. TIPSORD: Any additional
9 follow-up, Mr. Andes?

10 MR. ANDES: No.

11 MS. TIPSORD: Dr. Lin has a question.

12 DR. LIN: You talk about fish species
13 important to DO. How about the nitrate
14 content in fish -- is very important for fish
15 species. Do you consider this problem?

16 MR. ANDES: Are you talking about
17 nitrate or nitrogen?

18 MR. LIN: Nitrate and nitrogen, same
19 thing.

20 THE WITNESS: Okay. You would also
21 need to look at appropriate ammonia and
22 nitrogen criteria, because there can be
23 toxicity with that.

24 On the general question of

1 standards should be adopted that would allow DO
2 levels to include indigenous aquatic life from
3 living in areas of the CAWS during wet weather
4 events?"

5 MS. TIPSORD: This is the prefiled
6 Question No. 5.

7 BY MS. DEXTER:

8 Q. Prefiled Question No. 5.

9 BY THE WITNESS:

10 A. Well, it goes back to if the Agency is
11 going to adopt uses and criteria for the Chicago
12 area waterways, they should be attainable. And I'm
13 not suggesting that the Agency adopt standards that
14 would allow fish kills or would prevent fish from
15 living there.

16 But what I am saying is that you
17 have a system that is affected by wet weather
18 discharges. And that system will continue to be
19 affected by wet weather discharges.

20 So you need to -- in evaluating
21 what the uses and the criteria should be, you have
22 to account for the fact that those wet weather
23 discharges are going to impact conditions within the
24 waterways, specifically with respect to the

1 dissolved oxygen.

2 Q. My prefiled Question 7 is, "Does the
3 District have actual DO measurements taken during
4 summer 2001 at the sites, which you have modeled,
5 that can be shown on the plots of Figures 2 through
6 9 in Attachment 4 of your prefiled testimony, which
7 is, I believe, Exhibit 116?"

8 A. In that exhibit -- let me clarify that
9 it was the District that ran these model
10 simulations, not me. And I'm not saying that this
11 is exactly what would happen in 2001.

12 Because it is a model, and it is
13 used to evaluate the what-if scenarios that you
14 cannot do with data alone. The data measure what's
15 going on in the system at the time it was measured.

16 There are continuous monitors the
17 District operates that were operating in 2001, that
18 during the same periods that were simulated -- the
19 District simulated with the model. But what you're
20 trying to do with the model is say what would happen
21 if we can eliminate the gravity CSOs?

22 What could happen if we control
23 the other sources of wet weather loads? So
24 overlaying the data wouldn't tell you that answer.

1 Q. Okay.

2 MS. DEXTER: That's all I have.

3 MS. TIPSORD: Anything further for
4 Ms. Nemura?

5 Thank you very much for coming
6 back.

7 (WHEREUPON, the witness was
8 excused.)

9 MS. TIPSORD: That takes us to
10 Mr. Freedman.

11 (WHEREUPON, the witness was duly
12 sworn.)

13 MR. ANDES: Here is a copy of his
14 testimony.

15 MS. TIPSORD: And if there's no
16 objection, we will mark Mr. Freedman's
17 prefiled testimony as Attachment to Exhibit
18 204. Seeing none, it's Exhibit 204.

19 (WHEREUPON, a certain document was
20 marked Exhibit
21 No. 204 for identification, as of
22 2/17/09.)

23 MS. TIPSORD: And whenever you're
24 ready, Ms. Williams.

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PAUL L. FREEDMAN,

called as a witness herein, having been first duly sworn, was examined and testified as follows:

EXAMINATION

BY MS. DIERS:

Q. I will be asking questions on behalf of the Illinois EPA. I'm going to begin with Question 3 of our prefiled questions.

And the question states, "What study should the Board weigh on to assist with establishing aquatic life uses for CAWS?"

A. I believe I outlined those studies in both my testimony and the attached report in my testimony on Pages 12 and 13, I outlined them. And in it, I highlighted numerous deficiencies.

So it was any opinion that the EPA proposal lacked certain information that could be resolved by data from scientific and engineering studies that are ongoing. The Board spent considerable time with Dr. Mackey talking about some of those deficiencies.

And I listed a number of studies in addition to the ones Dr. Mackey referred to. Included in them was the Habitat and Biological

1 assessment study that you spent a lot of time in
2 your question and answer, as well as some additional
3 dissolved oxygen modeling, water quality monitoring
4 that's ongoing, the development of an integrated
5 water quality strategy that looks at the implication
6 of a number of different activities, field tests on
7 the SEPA stations, economic environmental impacts
8 and hydraulic modeling. And you just spoke with
9 Dr. Garcia this morning on those.

10 And it's that collection of
11 studies that I was speaking to that I felt it was in
12 the best interest of the state and the best interest
13 of the EPA to await this large compendium of new
14 information and use it to develop the standards.

15 Q. And what studies are you specifically
16 involved in?

17 A. My company is involved in conducting
18 the habitat study, although I can't say that I'm
19 specifically involved in the day-to-day activities
20 on that. But -- and we have, shall we say,
21 coordinated a little bit with the District on some
22 of the dissolved oxygen modeling.

23 And -- but the only study that has
24 direct involvement through my company is the habitat

1 study.

2 Q. And that's Limno-tech; correct?

3 A. That's Limno-tech in particular.

4 Oh, I -- I want to append.

5 There's also the integrated water quality strategy,
6 excuse me. And we are involved in that as a
7 subcontractor to an engineering firm that's working
8 for the District.

9 Q. Which firm is that?

10 A. CTE, now known as AE Comp.

11 Q. With respect to the Habitat and
12 Biological Assessment Study, do you know, were
13 habitat microinvertebrates, fish sediment and water
14 quality data considered in the CAWS UAA?

15 A. I'm sorry, was your question --

16 Q. I think what -- quoting, "We're
17 looking at the Habitat Biological Assessment
18 Study" -- just a second.

19 Okay. Based on what you've stated
20 on Page 12, the Habitat Biological Assessment Study
21 will provide more comprehensive data.

22 Do you know what habitat
23 microinvertebrates, fish sediment and water quality
24 data considered in the CAWS UAA?

1 A. As I understand your question, you're
2 asking me if they considered habitat and considered
3 biologic -- the biologic in the UAA?

4 Q. Yes.

5 A. Yes, I -- they did consider it. But
6 my opinion was that the information was
7 insufficient, and that it would be in the best
8 interest of the state to consider that information
9 and do a more comprehensive and scientifically
10 thorough development of the standards.

11 And the Habitat and Biological
12 Assessment Study that is now currently underway,
13 provides a lot of that needed information.

14 Q. Okay. Prefiled Question 4.

15 "Are you suggesting in your
16 prefiled testimony that the general use daily
17 minimum and seven-day minima for the CAWS is
18 unwarranted? If yes, please explain."

19 A. I guess you'll have to say -- I'll
20 have to ask you what you mean by "unwarranted,"
21 because that was not my terminology. If you mean
22 unjustified, I would agree.

23 Because I said it was unjustified
24 and premature. I expressed in numerous places in my

1 testimony, as I think the other experts have, that
2 the system is truly unique, has limited biologic
3 potential and has the need for very site-specific
4 water quality standard, which is not just an easy
5 and arbitrary, shall we say, plucking a number out
6 of the general use standards and sticking it into
7 the CAWS.

8 And it is my opinion that the IEPA
9 failed to define those biologic conditions specific
10 enough and then match those specific -- that
11 specific definition with a specific criteria that
12 would be attainable. And that was the -- so, my
13 opinion -- I did not use the term "unwarranted," I
14 was speaking whether it was justified and whether it
15 was premature, and I stand by that opinion.

16 Q. I'm going to go to Question 6.

17 "What dissolved oxygen standard
18 would you propose" -- I'm going to change it just a
19 little bit and say, what dissolved oxygen standard
20 would you propose for the CAWS? Do you use A
21 waters?

22 A. Well, I did not propose this specific
23 standard in my testimony to be candid, I thought
24 that was the role of IEPA to propose the standards

1 and to justify it. And my feeling was that you were
2 not thorough enough in the justification.

3 My testimony focused on the
4 deficiencies in that justification. And that -- and
5 I did not propose a specific number.

6 Again, I think that in order to
7 support a specific number, you need more information
8 of those studies that are, as we speak today,
9 ongoing.

10 Q. So once you complete the habitat
11 study, would you be in position to propose a
12 standard for these waters?

13 A. Well, yes and no. I believe that's
14 one piece.

15 But in developing a dissolved
16 oxygen standard for a waterway, there's multiple
17 pieces that one has to get all aligned when you do a
18 UAA. Because in the Use Attainability Analysis, you
19 need to not only look at what the suitable habitat
20 is, what the ambient species are, as Mr. Lin pointed
21 out, what the other chemical constituents are.

22 You also need to look at what is
23 actually attainable in terms of the water quality
24 criteria. Because, hence, the use of the term "Use

1 Attainability Analysis," is what use and what
2 criteria can actually attain.

3 So in partial answer to your
4 question, yes, once the habitat study is completed,
5 you will begin to have the foundation for how to put
6 this, shall we say, puzzle all together. Put all
7 those pieces together to define both the use and the
8 criterion.

9 Q. Question 7.

10 "What are the significant impacts
11 you are referring to on Page 4 of the prefiled
12 testimony?"

13 MR. ANDES: Do you mean significant
14 impact?

15 BY THE WITNESS:

16 A. I think you're quoting?

17 BY MS. DEXTER:

18 Q. Yes.

19 A. I guess I would refer you to Pages 4
20 and 5 of my testimony, as well as Pages 3 and 4 of
21 my report. And there I draw from the research of
22 others.

23 I talk about loss of habitat, flow
24 variations, which is the loss of habitat Dr. Mackey

1 talked about before. The flow variations Dr. Garcia
2 was talking about this morning and water level
3 fluctuations, stagnation and stratification, all of
4 those were talked about this morning.

5 High solids and resuspension, low
6 dissolved oxygen. I can read for you an excerpt
7 from my testimony, if that helps, which
8 highlights -- relates directly back to the statement
9 and it follows that.

10 If you'd like me to read for the
11 record. "The differences highlighted above have a
12 significant impact on attainable uses and water
13 quality and the affected waterways. The available
14 literature is replete with recognition of how
15 altered conditions impact water quality and
16 potential biologic uses.

17 "For example, as described in my
18 report, the Army Corp of Engineers describes
19 navigation channels as having altered flow, limited
20 mixing and stratification and sediment effects that
21 all can lead to low dissolved oxygen and unstable
22 bottom substrate. USEPA also states the physical
23 and hydrologic characteristics of manmade water
24 bodies are not conducive to the establishment of a

1 balanced population of aquatic biota.

2 "Many other scientific
3 publications document the negative ecological
4 effects of navigation on manmade channels, including
5 some mortality of fish eggs, larvae and adult fish,
6 prevention of effective spawning and severe
7 limitations and growth and development of fish
8 larvae and young and Deer Fish."

9 And those were the impacts that I
10 was referring to, as described in that discussion in
11 my testimony.

12 Q. Are you saying one needs to do a UAA
13 on a criteria?

14 A. A UAA is a use attainability study,
15 which is designed to, again, determine the
16 attainable uses. And attainable uses, as I think I
17 said before, involves a collection of
18 considerations.

19 And you have to look at not only
20 habitat and biologic species, but you have to look
21 at how the six UAA factors, those alterations in the
22 system, might affect what the potential is for water
23 quality conditions. And so, part of the process is
24 to look at whether any proposed criteria is

1 attainable.

2 Q. Where does it say that, what you just
3 stated? Where would I find that at?

4 A. I guess I don't have the UAA guidance
5 here, but it would seem it would be common sense if
6 you're looking at an attainability analysis that you
7 would have to -- it would be kind of foolish for the
8 state to propose a specific use and a specific
9 criteria that couldn't realistically be attained.

10 BY MS. WILLIAMS:

11 Q. Mr. Freedman, I'd like to follow up
12 here just for a second, because I think this is
13 along the line of what I was just asking Mr. Nemura
14 about.

15 My understanding is you do a UAA
16 by first determining which uses are attainable;
17 correct?

18 A. Yes. But uses, as I said, if you
19 don't have adequate -- if you can't attain a certain
20 water quality condition, how can you possibly say
21 that that use is attainable?

22 Q. But you can't point to anywhere in the
23 USEPA guidance where it directs you to look at
24 whether a criteria is attainable?

1 A. I guess I don't have the specific
2 guidance here in front of me to --

3 MR. ANDES: Are you intending that the
4 use has to be attainable but the criterion
5 doesn't?

6 BY MS. WILLIAMS:

7 Q. I believe we established with
8 Ms. Nemura's testimony that once you do a use
9 attainability, then -- and I'm just asking if you
10 agree with this statement. Once you determine which
11 uses can be attained, therefore must be protected,
12 isn't it correct that you develop criteria to
13 protect those uses? Is that correct?

14 A. And my opinion was that in order to
15 define the attainable uses, that you have to look at
16 all the different stressors on the system, which
17 includes biology, it includes habitat, it includes
18 flow and it includes water quality. Now, that's not
19 to say that you necessarily look at the existing
20 water quality, because there could be higher levels
21 of water quality that you might want to set as the
22 criteria.

23 But you need to look at what is
24 feasible in terms of attainment. And the UAA

1 guidance outlines six different factors that might
2 prevent that attainment, including altered
3 conditions, the kind of things that -- dams, flow
4 modifications, navigation kinds of things that are
5 present in the CAWS.

6 MR. ANDES: So if I can follow up on
7 that, just to clarify.

8 Are you saying that once you set
9 attainable uses, the criteria need to be set
10 to protect those attainable uses? Is that
11 correct?

12 THE WITNESS: As long as your
13 attainable uses have considered all the
14 different stressors, yes.

15 MR. ANDES: So if you set uses
16 properly, and, say, you've decided that the
17 water was limited use of some sort, but then
18 you set a criterion that was based on higher
19 than limited use, would that be improper
20 under of the Clean Water Act?

21 THE WITNESS: That would be
22 inconsistent, that's correct.

23 MR. ANDES: Is that what you're saying
24 they're doing here?

1 THE WITNESS: That is my contention
2 here, that they have set -- that they haven't
3 evaluated whether the criteria effectively
4 matched the actual uses.

5 MR. ANDES: Thank you.

6 MS. DEXTER: I'd just like to note
7 that there are some legal opinions getting
8 mixed in with the scientific opinions here
9 that the witness is giving. And to the
10 extent he's giving legal opinions, I don't
11 think he's qualified to give a legal opinion
12 about what the Clean Water Act requires.

13 I just wanted to note that.

14 MS. TIPSORD: It's noted. But I would
15 note that he was sort of asked the question.

16 BY MS. DIERS:

17 Q. Prefiled Question No. 9.

18 "What do you deem as significant
19 effects in the CAWS due to wet weather impacts?"

20 And I think this is referring to
21 your statement on Page 5, the last paragraph.

22 A. Yeah, I think on Page 5, in my
23 testimony, I thought it was rather clear. I can
24 excerpt from it again.

1 Q. Well, why don't you, since I asked the
2 question, please.

3 A. "The CAWS has unique hydrologic and
4 hydraulic dynamics impacted by wet weather and flow
5 management. In anticipation of a major rain event,
6 the water level in the CAWS is rapidly lowered by a
7 controlled release of water at the Lockport
8 Powerhouse to accommodate overflows from large
9 storms and avoid overbank flooding.

10 "In response to a storm, the CAWS
11 can receive enormous inputs of storm water, CSO and
12 pump station wet weather flows. This can result in
13 a significant pollutant load and dramatic rise and
14 fall of water levels with extreme changes in flow.

15 "These rapid fluctuations and flow
16 in the CAWS can result in substrate scouring,
17 sediment resuspension throughout the water column,
18 dry and platorial aquatic habitats and a sudden
19 decrease in dissolved oxygen below the standard."

20 And those were the impacts that I
21 described. I think those were discussed about in
22 Dr. Melching's testimony, and I believe it was also
23 addressed in other testimonies.

24 Q. Do you think a wet weather standard is

1 needed for these waters?

2 MR. ANDES: I'm sorry, what was the --

3 MS. DIERS: I asked him if he thought
4 a wet weather standard was needed for these
5 waters.

6 BY THE WITNESS:

7 A. It's my opinion that a provision for
8 wet weather conditions would be appropriate in the
9 CAWS, because of the unique wet weather management
10 in the system. And that it -- it needs special
11 consideration, and part of -- yes, I do.

12 BY MS. DIERS:

13 Q. And how would you envision that wet
14 weather standard for these waters?

15 A. I guess I haven't specifically
16 proposed a specific numerical criteria. But I -- in
17 terms of the attainability of a water quality
18 standard being a use and a criteria, I think it was
19 the responsibility of IEPA to consider the effects
20 of wet weather and evaluate what would be the
21 appropriate provisions that would be matched with
22 the highest attainable use in the system.

23 MR. ANDES: And would you agree with
24 the statements set forth earlier by

1 Ms. Nemura of how to set a wet weather
2 standard?

3 THE WITNESS: I would concur with her
4 comments.

5 BY MS. DIERS:

6 Q. Is the habitat study that you're
7 involved in, would it help one work on a proposal
8 for a wet weather standard?

9 A. It's a foundation, but, in the case of
10 wet weather, there's many other complicating factors
11 that aren't specifically addressed in the habitat
12 study.

13 Q. And what are those complicated
14 factors?

15 A. I think I detailed them before, the
16 rising and lowering of flow, the existance of storm
17 water loads, what might be happening with combined
18 sewer overflows and pump stations, scour and
19 sediment deposition as a result of changes in flow
20 and the stagnation conditions. I think you'd have
21 to consider all those factors when considering a wet
22 weather provision.

23 Q. Prefiled Question 12.

24 "In your prefiled testimony on

1 Page 11, in the last sentence you state that
2 Illinois EPA has not provided an adequate
3 demonstration that the proposed aquatic life use can
4 be achieved. In the second paragraph on Page 12 of
5 Attachment 2 to your prefiled testimony, this
6 concern is reiterated in the statement that Illinois
7 EPA did not show that proposed beneficial uses can
8 be attained in the foreseeable future."

9 The first question, "Have you
10 performed an analysis that proves their states show
11 that the aquatic life uses proposed by Illinois EPA
12 cannot be obtained in the waters for which they have
13 been proposed. If yes, what biological physical and
14 chemical information did you use and how did you
15 interpret it to arrive at your conclusion?"

16 A. Did you want to read the rest of the
17 question?

18 Q. I can if you want.

19 "On what basis do you conclude the
20 aquatic life uses proposed by Illinois EPA cannot
21 possibly be attained in the waters for which they've
22 been proposed?"

23 A. The answer to the question is no, that
24 I have not performed any independent measurements

1 and analysis of the attainability. And I guess, in
2 my view, I felt that it was the responsibility of
3 IEPA to provide the demonstration that the uses are
4 attainable, not the responsibility for me to prove
5 that they're not attainable.

6 But I would also contend that in
7 the supporting material to -- from that -- from
8 IEPA, that they provide some information that shows
9 that they either did not demonstrate that
10 attainability or that it would not be attained. For
11 example, they talk about protection of early life
12 stages as one of their criteria, yet there was no
13 evidence that they collected any data on early life
14 stages.

15 They also have other statements
16 that the DO criteria will not be met without
17 supplemental programs of aeration and flow
18 augmentation. And that, even then, that the
19 improvements in the fish community that they're
20 proposing and wanting to support, might not be
21 attained without habitat improvements. And the
22 habitat improvements, as was outlined in the UAA,
23 were unplanned and no one has any plan or provision
24 for them.

1 So there was a number of things in
2 there, a number of what I would call red flags that
3 said, well, wait a second, where is the IEPA's
4 evidence that these uses can be attained. And my
5 feeling was that that evidence was not there, in
6 fact there was some contradictory efforts.

7 Q. Question 13. "On Page 13 in the first
8 paragraph of your conclusions of your prefiled
9 testimony, do you recommend that the Illinois
10 Pollution Control Board establish a separate use
11 classification for Bubbly Creek, i.e., the south
12 fork of the south branch Chicago River, that differs
13 from the proposal by Illinois EPA?

14 "Additionally, you recommend that
15 the Board does designate Illinois EPA's proposed Use
16 B rather than Use A for Cal Sag Channel. Have you
17 performed a scientific investigation to arrive at
18 these recommended use designations? A, if yes, on
19 what biological, physical and chemical information
20 interpretation is that analysis based? B, if no,
21 how did you determine that the biological potential
22 of the south fork of the south branch of the Chicago
23 River is less than the biological potential
24 represented by Illinois EPA proposed aquatic life

1 use for this water?"

2 A. I guess this is somewhat related to a
3 previous question that was asked, and I would resay
4 again that no, I didn't conduct any independent
5 rigorous scientific measurements to demonstrate
6 that.

7 Again, my contention is that the
8 role of the IEPA in proposing certain new uses and
9 standards to provide the scientific justification,
10 and that there is some evidence in their limited
11 information they have that suggests otherwise.

12 MR. ANDES: If I can follow up.

13 Can you explain more about your
14 thought process on this issue, these water
15 bodies?

16 THE WITNESS: Well, just as an
17 example. For instance, if you're talking
18 about the Cal Sag. And one of the defining
19 characteristics in the Cal Sag was for -- I'm
20 sorry, for Class B characterization.

21 Class B waters was, you know, a
22 deep draft steep walled channels. Yet in the
23 actual descriptions that were in the
24 documentation provided IEPA, they described

1 the Cal Sag as having steep solid walls. You
2 know, it sounds awful similar to me.

3 And as another example, I think we
4 spent a lot of time on Bubbly Creek about its
5 unique conditions and stagnation and
6 stratification with Dr. Melching, and
7 Dr. Garcia. And even Dr. Dennison's
8 discussion.

9 And the -- so the conditions in
10 Bubbly Creek are unique, even within the
11 context of the uniqueness of the CAWS. But,
12 furthermore, I found it quite surprising that
13 in that very specialized unique area, that
14 the IEPA had no data on the Bubbly Creek to
15 demonstrate how it would fit in any of the
16 use classifications.

17 So it was my conclusion that the
18 IEPA had failed in their ability to provide
19 the necessary scientific justification.

20 BY MS. DIERS:

21 Q. Question 16.

22 "How did you term that the
23 biological potential of the Calumet Sag Channel is
24 less than the biological potential represented by

1 Illinois EPA's proposed aquatic life use for this
2 water?

3 MR. ANDES: I think he just answered
4 that.

5 BY THE WITNESS:

6 A. I think I spoke to that already.

7 Just as one example, the steep
8 solid walls was kind of one of the -- if you compare
9 the wording, how they characterize A and B, they --
10 there's two defining things. One is whether it's
11 tolerant or intermediately tolerant to organisms.
12 And the other was the description of deep grafts,
13 deep walls.

14 And in the IEPA's own supporting
15 information, they call it steep solid walls. I
16 mean, I may not be a Ph.D. biologist, but I am an
17 engineer, and I know what deep -- you know, steep
18 solid walls are. And common sense would say that it
19 would fall in line with that.

20 There was other evidence that's
21 been introduced by other experts talking about
22 biologic conditions and habitat, and I think the
23 other experts were better capable of speaking to
24 those issues. And they spoke to this matter at

1 length before the Board.

2 Q. Did the UAA also indicate that the
3 Cal Sag Channel had shallow shoreline areas?

4 A. In some areas. But I think that was a
5 major shortcoming of the IEPA study and something
6 that would be improved on by the current habitat
7 study. That if you're doing a large generalization
8 of a water body, you know, miles and miles of
9 reaches, you need to do a more comprehensive
10 characterization of the system and be able to say
11 that just because you have some areas that might be
12 shallow, you also -- they describe it as steep solid
13 walls.

14 So, you know, which is it? And
15 without a comprehensive characterization and
16 comprehensive habitat study, looking at not only the
17 shape but also the sediment conditions, it would be
18 difficult to make the proper scientific
19 classification, which is, again, returning to -- I
20 hate to return to my theme, but it's the -- it's --
21 a major thrust of my testimony is that it would be
22 in the best interest of the state to wait for these
23 other studies and then we'll have a comprehensive,
24 scientific and thorough assessment of the habitat

1 along the whole length of the Cal Sag, as well as
2 all areas of the CAWS.

3 MR. ANDES: If I can follow up, have
4 you -- did you also review and agree with
5 Dr. Makke's statements indicating that during
6 his testimony that there might be limited
7 areas of refuge but not for spawning?

8 BY THE WITNESS:

9 A. I reviewed his testimony. But, you
10 know, not being, again, a, quote, "biologic expert,"
11 I would concur with his conclusions.

12 But I haven't viewed all the
13 habitat data, as Dr. Mackey did. And so I would
14 rely on his testimony.

15 BY MS. DEXTER:

16 Q. Dr. Mackey is not a biologist;
17 correct?

18 A. He's a habitat specialist. I guess
19 I'm not here to speak through -- to his --

20 MR. ANDES: I don't think he's an
21 expert on Dr. Mackey.

22 BY MS. DIERS:

23 Q. Are you a Biologist?

24 A. No, I'm not.

1 Q. Question 18.

2 "In the first sentence of Page 4
3 of the prefiled testimony, and again in the second
4 paragraph on Page 2 of Attachment 2 to your prefiled
5 testimony, you state that the Chicago area waterway
6 system is unique with no other comparable system in
7 Illinois or in the entire United States. Do you
8 believe that no other water body in the
9 United States has the same potential level of
10 biological condition as the CAWS? If yes, what
11 defines these unique levels of" -- and I'm going to
12 add potential biological condition in the question
13 there, because it wasn't worded very good.

14 A. There may very well be systems with
15 similar biologic potential. I'm willing to concede
16 that that might be a possibility.

17 But what my contention was is that
18 I do not feel that IEPA made the necessary
19 assessment to evaluate these potential comparables.
20 Based on my 35 years of experience, I would have to
21 say that the CAWS is unique in its combination of
22 factors.

23 Yes, you could take any individual
24 factor and you could say that factor existed in

1 other systems, but when you look at the whole
2 compendium of them, that there's no system that I'm
3 aware of that has all of these in one setting.
4 Manmade or severely altered redirection of flow,
5 reversal of flow, channelization, deep walls,
6 contrived, nonnatural hydraulics with emptying and
7 filling, flow regulated, lack of shallows and
8 ripples, sedimentation, flow reversals, effluent
9 dominated, CSOs, pump stations, barge traffic, you
10 know, stratification, when you take this
11 combination, it's -- it's very unique.

12 And whether there are comparable
13 or not, I guess again I'd return whether if -- if
14 IEPA says it's unique, then I don't feel that
15 they've developed really unique site specific. If
16 they feel it's comparable to some other systems,
17 then I would contend that they failed to look at
18 other similar systems, as I pointed out in any
19 testimony and say, well, might this apply here.

20 So, either way, I feel that the
21 IEPA was deficient. Either they didn't develop the
22 site-specific criteria for this unique setting or
23 they failed to look at other possible applications
24 as a comparable.

1 Q. Question 19.

2 "Of the states that have aquatic
3 life uses based on a concept of a tiered aquatic
4 life uses approach, do you know if any aquatic life
5 uses that are defined by those -- that particular
6 species or taxa of aquatic organisms. And, if so,
7 can you provide some examples?"

8 A. Yes, I would say that Ohio, Texas and
9 Maine both have adopted tiered aquatic uses, and
10 they have used a biological conditioning gradient
11 that's combined by a particular taxa. And there's a
12 number of other states that are in the drafting
13 stage and have not been approved yet, but
14 Connecticut, New Jersey, California, Minnesota.

15 It's kind of becoming the standard
16 of practice in the field. Although it's not yet a
17 promulgated procedure, it's kind of the growing
18 conventional scientific approach to this issue.

19 MR. ANDES: If I can follow up on
20 that.

21 Can you provide an example of a
22 state developing site-specific standards
23 based on a list of species -- particularly
24 species that are present in that water body?

1 THE WITNESS: I guess I would repeat,
2 Maine is certainly an example, where they've
3 done the tired aquatic uses.

4 MR. ANDES: And if I can stop you
5 there.

6 I believe we have some information
7 about the Maine approach from the IEPA draft
8 guidance.

9 THE WITNESS: Yes. So if we could
10 enter that...

11 MR. ANDES: These are selected pages,
12 32 to 37, from a draft EPA document entitled
13 Use of Biological Information to Better
14 Define Designated Aquatic Life Uses in State
15 and Tribal Water Quality Standards: Tier
16 Aquatic Life Uses.

17 MS. TIPSORD: We will mark this draft
18 USEPA document as Exhibit 205, if there's no
19 objection.

20 Seeing none, it's Exhibit 205.

21 (WHEREUPON, a certain document was
22 marked Exhibit

23 No. 205 for identification, as of
24 2/17/09.)

1 MS. TIPSORD: Thank you, Mr. Freedman,
2 go ahead.

3 THE WITNESS: I'd also like to point
4 to a specific case study in Colorado for the
5 South Platte River, where the state there
6 looked at the individual species and actually
7 did testing of those native species that
8 resided in the water body and looked at their
9 tolerance. So it related -- it looked at the
10 unique characteristics of the South Platte,
11 it identified the species that were there, it
12 took the resident species, which were adapted
13 to those conditions, tested them for their DO
14 tolerance and developed specific DO criteria
15 for the conditions in the Platte --
16 subPlatte.

17 And given the -- that being kind
18 of a fairly unique system, given the unique
19 nature of the CAWS, it could be a very
20 comparable approach. Not saying comparable
21 standard, mind you, criteria, but comparable
22 approach that could be used here.

23 MR. ANDES: The two documents we have
24 regarding the Upper South Platte, one is the

1 actual water quality standards. The document
2 is entitled Upper South Platte River
3 Segment 15 Site-specific Minimum Dissolved
4 Oxygen Ammonia Standards.

5 MS. TIPSORD: And if there's no
6 objection, we will mark the Upper South
7 Platte River standards as Exhibit 206.

8 Seeing none, it's Exhibit 206.

9 (WHEREUPON, a certain document was
10 marked Exhibit
11 No. 206 for identification, as of
12 2/17/09.)

13 MR. ANDES: This is an excerpt from a
14 technical report concerning the Upper South
15 Platte. The title is Final Technical
16 Memorandum Responses Seven Fish Species to
17 Diel Fluctuations in Dissolved Oxygen.

18 MS. TIPSORD: If there's no objection,
19 we will mark this as Exhibit 207. It's
20 the -- it's prepared for the Metro Wastewater
21 Reclamation District, Denver, Colorado, by
22 the University of Wyoming.

23 MS. WILLIAMS: I mean, I don't -- I
24 guess I'll object. I mean, I don't want to

1 be difficult, but this is just a table of
2 contents, and a one-page introduction to this
3 document. I don't understand for what
4 purpose it's being offered.

5 MR. ANDES: Just a moment.

6 I would say that, actually, there
7 were pages that were supposed to be copied
8 that were not.

9 MS. WILLIAMS: Well, we'll withdraw it
10 at this time then and present it later?

11 MR. ANDES: We can certainly file the
12 full set of pages that were to be done.

13 MS. WILLIAMS: I don't think that's
14 reasonable, because I don't think we can --
15 we can't cross-examine this witness on a
16 document that's not here to look at; right?
17 I don't think that's reasonable.

18 MR. ANDES: Mr. Freedman can certainly
19 testify as to the water quality standard and
20 his understanding for the basis for it.

21 MS. TIPSORD: We're going to hold off.
22 We will not mark this as Exhibit 207. We
23 will hold off, and when you get the complete
24 document, we can put it in.

1 MR. ANDES: Surely.

2 MS. TIPSORD: But Exhibit 206, which
3 is the introduction of the standard, we're
4 leaving.

5 THE WITNESS: Then maybe I could speak
6 to the one document that has been entered.
7 This is the Upper South Platte River
8 Segment 15 Site-specific Minimum DO and
9 Ammonia Standard has been entered?

10 MS. TIPSORD: Yes.

11 THE WITNESS: And I was asked if there
12 were other examples, and I would contend that
13 this is an example where they did use
14 site-specific species. I think I
15 characterized how they went about the study.

16 And I'd also like to point out
17 that they did it by segment. You'll notice
18 this has Segment 15.

19 You'll also notice that they have
20 some quite low DO criteria that were
21 developed for that specific segment and those
22 specific native fish. And those criteria are
23 lower than what's proposed in the CAWS.

24 Again, I'm not proposing these

1 criteria for the CAWS, I'm just illustrating
2 the kind of process that one would go through
3 to do this and how one might come up with
4 different criteria than what are in other
5 more general use waters.

6 BY MS. DEXTER:

7 Q. Have these standards been adopted in
8 Colorado? I don't see a citation on here.

9 A. Yes, they are adopted. We can get you
10 the actual citation.

11 Q. Okay.

12 A. So we'll get the more complete
13 documentation and the citation.

14 MR. ANDES: Sure. That is a page
15 taken directly for the Ohio regulations
16 online -- Colorado, excuse me.

17 MS. DEXTER: I just don't see a site
18 here.

19 MR. ANDES: They don't site
20 numerically, unfortunately, in the Colorado
21 regulations.

22 BY MS. DIERS:

23 Q. Question 25.

24 "For the Cuyahoga River shipping

1 canal in Ohio, do you believe that this water body
2 differs from the CAWS with respect to biological
3 potential? Why or why not?"

4 A. I guess the nature of my testimony
5 wasn't that -- wasn't a critical comparison between
6 the two. I believe that there are many similar
7 aspects to the systems that are comparable.

8 They're both navigational
9 channels, they both have modified geometry, they
10 both have a lot of barge traffic, they both have a
11 lot of sediments and resuspension.

12 There are some conditions in the
13 CAWS that are higher elements of stress than what
14 exists in the Cuyahoga. For instance, the CAWS is
15 basically effluent dominated, very little flow
16 coming in from Lake Michigan.

17 The CAWS also has these dramatic
18 hydraulic swings that were discussed by Dr. Garcia
19 earlier this morning. And another important
20 distinction is that the CAWS is -- there's a barrier
21 of connectivity between the Chicago waterways and
22 Lake Michigan that doesn't exist in the Cuyahoga.

23 The Cuyahoga is an open barrier.
24 So in many respects the conditions in the Chicago

1 area waterways are much more severe.

2 I only pointed out the comparison
3 because the IEPA did make a comparison. And I
4 thought they were -- if they were going to make the
5 comparison -- again, this relates to the
6 comparability discussion that we had before.

7 That if you're going to compare
8 it, you ought to be more comprehensive, which I
9 don't feel that they did. And that it would be
10 their kind of responsibility to kind of look at
11 similar systems and kind of make an assessment.

12 And I don't feel that they -- they
13 did that job thorough enough.

14 BY MS. DEXTER:

15 Q. Can I ask you, you just -- you stated
16 how the systems between the Cuyahoga and the Chicago
17 area waterways differ, but I'm not sure you answered
18 the question of how they differ in respect to its
19 biological potential.

20 A. And in terms of its biological
21 potential, I have not done a comprehensive study to
22 compare the two of them, so I don't think I could
23 answer that question thoroughly and accurately.

24 MS. DEXTER: Okay.

1 BY MS. WILLIAMS:

2 Q. I have one area I'd like to follow up
3 on with your testimony, Mr. Freedman. And it's
4 regarding Pages 4 and 5 and your discussion of the
5 Illinois general use designation. I'm going to
6 refer you to Page 5, the first full paragraph.

7 MR. ANDES: Page 5 of his testimony or
8 his report?

9 MS. WILLIAMS: His testimony at this
10 point. I think something similar is in the
11 report, but...

12 BY THE WITNESS:

13 A. Yeah.

14 BY MS. WILLIAMS:

15 Q. And I am going to read the second
16 sentence -- well, can you just read the second
17 sentence of that paragraph?

18 A. Start with further?

19 Q. Yes.

20 A. "Further, general use waters are
21 designed to protect communities predominantly
22 composed of pollution sensitive species, where the
23 CAWS proposed aquatic life uses decide to predict
24 tolerant or intermediate tolerant species, which

1 presumably could be supported by less stringent
2 criteria."

3 Q. Can you point us to the basis for your
4 statement regarding general use water? You have a
5 quote in the middle of that.

6 A. Yeah.

7 Q. And it doesn't refer to what you're
8 quoting from.

9 A. I'm not sure I brought the -- I can
10 give the exact page. I'm not sure I have the
11 general use criteria here with me.

12 Q. Well, I don't think it's in there,
13 that's why I -- but you think you're quoting from
14 the general use criteria?

15 A. I believe so. Or it might be from the
16 EPA criteria document.

17 And I'm afraid, since that wasn't
18 one of the supplied questions, I don't have the
19 supporting information on that. So I don't think I
20 failed to respond right here.

21 Q. Why don't you take a look at Page 4 of
22 your report and see if that jogs your memory at all.
23 I think that's where the same information is
24 presented.

1 A. I'm on Page 4 of my testimony.

2 Q. No, Page 4 of the --

3 A. From the report, excuse me. The
4 report, yeah.

5 Q. And I think you do provide a citation
6 there. And I can show you the section that you're
7 referring to, if you want me to.

8 Do you see what I'm talking about?

9 A. I see exactly where it gives an EPA
10 citation.

11 Q. And what is that, for the record?

12 A. It says, "IEPA Title 35, Part 202,
13 Section 302.105."

14 Q. And why don't you read the sentence
15 again. Can you read the sentence that precedes
16 that?

17 A. In this -- in the report?

18 Q. Uh-huh.

19 A. "In contrast, general use waters,
20 which apply to most Illinois streams, are designed
21 to protect communities predominantly composed of
22 pollution sensitive species.

23 Q. I'm going to show you -- I hope this
24 is okay, for reference, it's the Board regulation.

1 I'm showing you the Board Regulation 302105.

2 A. Okay.

3 Q. And I'd like you to look for that
4 language and read it. If you can find it, read it.

5 A. 302105?

6 Q. Can you just read the title of that
7 section for the record?

8 A. Antidegradation. You know, I don't
9 see those exact words here initially, and maybe I've
10 mistakenly taken the wrong citation.

11 Q. Is it possible you've mistakenly
12 defined what general use waters are defined as in
13 the Illinois regulations also?

14 MR. ANDES: Is the Agency stating that
15 this isn't the language from the Illinois
16 regulations?

17 MS. WILLIAMS: That's quoted in his
18 testimony?

19 MR. ANDES: Correct.

20 MS. WILLIAMS: Yes. As defining
21 general use waters, yes.

22 I think he's implying that that
23 language is used to define general use
24 waters, and I don't see where that's present

1 in the Illinois regulations, as a definition
2 of general use waters. I believe there is a
3 reference of similar language possibly in
4 that section, but that's not the same thing.

5 MS. TIPSORD: You know what, why don't
6 we take a ten-minute break and let you review
7 that language in 302105; okay?

8 MR. ANDES: Okay. Thank you.

9 (WHEREUPON, a recess was had.)

10 MS. TIPSORD: I think we are ready to
11 go back on the record. And we were in the
12 process of looking over some documents.

13 And, Ms. Williams?

14 BY THE WITNESS:

15 A. Can I respond?

16 BY MS. WILLIAMS:

17 Q. Yes.

18 A. Obviously, I've made a mistake in my
19 reference here. I'm afraid in this time frame that
20 I can't identify where the attribution came from,
21 since it wasn't in the Q and A.

22 But the bigger point that I was
23 trying to make here was that the general use
24 standards were developed for a different biologic

1 potential than the Chicago area waterways and to
2 protect a different collection of species. And
3 different biologic conditions, and...

4 Q. Do you understand what that potential
5 is?

6 MR. ANDES: Which potential?

7 BY THE WITNESS:

8 A. I guess you'd have to define that for
9 me.

10 BY MS. WILLIAMS:

11 Q. You said the larger point you were --
12 let me know if I'm correct.

13 A. Well, I want to repeat myself.

14 Q. The point you were getting at is that
15 the general use standards were developed for
16 different biological potential. And I'm asking you,
17 do you know what biological potential is?

18 A. I do know that the Chicago area
19 waterways are very different waterways and have
20 different biologic conditions than do the general
21 waterways in the state of Illinois. And -- but I
22 haven't reviewed the biologic conditions in all of
23 the Illinois waterways to characterize their
24 biologic condition.

1 Q. On Page 4 of your testimony, there's a
2 chart. And you have General Use on one side of the
3 chart and you have Chicago Area Waterways on the
4 other side of the chart.

5 A. Yes.

6 Q. Can you explain what you used to
7 develop that chart?

8 A. I base this on a -- certainly the
9 column to the right, the Chicago Area Waterways, the
10 description is based on my experience in the
11 waterways and description of other experts. On the
12 left-hand of this chart, I characterize what's, in
13 general, naturally flowing waters that aren't
14 significantly altered as are the Chicago area
15 waterways.

16 Q. So you're describing in that column
17 natural waterways?

18 A. Yes.

19 Q. Under the column that says General
20 Use?

21 A. Yes.

22 Q. You are not attempting to -- the
23 actual waters in Illinois that are --

24 A. Nothing specific.

1 Q. Do you know if in Illinois there are
2 general use waters that are channelized?

3 A. I would expect there are some.

4 Q. What about general use waters that are
5 primarily urban industrial?

6 A. I would expect there are some, too.

7 Q. What about having areas with stagnant
8 areas?

9 A. I would expect there might be some.

10 MR. ANDES: If I can follow up on
11 that.

12 Isn't there a specific provision
13 for stagnant areas in general use waters?

14 THE WITNESS: Yes, there is.

15 BY MS. WILLIAMS:

16 Q. What provisions are you referring to,
17 Mr. Freedman?

18 MR. ANDES: It's in his testimony.

19 BY THE WITNESS:

20 A. I believe it's referred in my
21 testimony, if I can look that up?

22 BY MS. WILLIAMS:

23 Q. Sure.

24 A. Let me...

1 MR. ANDES: And while he's looking, if
2 I can just clarify. Does the Agency contend
3 that cause waters are just like general use
4 waters? Because he's saying they're not, and
5 that seems to be contested here in this line
6 of questioning.

7 MS. WILLIAMS: Am I supposed to answer
8 his questions, or is he making an objection?

9 MR. ANDES: I'm just trying to
10 clarify.

11 MS. TIPSORD: I think he's trying to
12 clarify his --

13 MS. WILLIAMS: I don't have a -- I
14 think Mr. Freedman understands the question,
15 he's looking to a page of his testimony.

16 BY THE WITNESS:

17 A. I have found the page.

18 BY MS. WILLIAMS:

19 Q. Thank you.

20 A. "General use waters at all locations
21 must maintain sufficient dissolved oxygen to prevent
22 offensive conditions, as required in Section
23 302.203. Quiescent and isolated sectors of general
24 use waters, including but not limited to wetlands,

1 sloughs, backwaters, waters below the thermocline
2 and lakes and reservoirs must be maintained at
3 sufficient dissolved oxygen concentrations to
4 support their natural ecological functions and
5 resident aquatic communities?

6 And in that regard, the state
7 seems to recognize that there are some conditions
8 that are different in these different kinds of
9 protection.

10 Q. Within the dissolved oxygen general
11 use criteria, is that what you're referring to?

12 A. Yes.

13 Q. Would you be recommending that the
14 Board adopt something similar towards these
15 waterways?

16 A. I do recommend that the Board consider
17 the fact that certain waterways in the CAWS system
18 are stagnant and stratified, as Dr. Garcia had
19 discussed this morning, and that they naturally
20 might have lower dissolved oxygen and different
21 biologic conditions, and special provisions should
22 be made for those conditions.

23 Q. Will the District be prepared to
24 present to the Board a proposal about what types of

1 stagnant conditions should be reflected in this
2 rulemaking?

3 A. I guess I can't speak to what the
4 District might be willing to propose, but it is my
5 opinion that those kinds of conditions need special
6 consideration. And those special considerations
7 weren't embodied in the IEPA proposal.

8 I think you spent quite a bit of
9 time this morning with Dr. Garcia talking about the
10 complexities of the hydraulics and special
11 conditions, and I think those conditions are unique
12 in the state.

13 MS. WILLIAMS: That's all I have on
14 this.

15 MS. TIPSORD: With that, we go to
16 Ms. Dexter.

17 BY MS. DEXTER:

18 Q. I'm going to start with my prefilled
19 Question No. 1.

20 "In various parts of your
21 testimony, you mentioned temperature effects
22 proposing but not including the IEPA adequately
23 studied. What portion of the CAWS needs further
24 study with regard to temperature effect?"

1 A. I really only mentioned temperature in
2 the -- in some limited context in my testimony. For
3 example, I mentioned temperature when quoting
4 others, such as Dr. Garcia, as to the factors
5 affecting stratified stagnant conditions, which I
6 think are factors that need more study.

7 Another example I quoted was from
8 the UAA study from CDM, which talks about water
9 quality not meeting criteria and the need for
10 site-specific criteria. So the questions about
11 temperature were not really a focal point of my
12 testimony, but this was a peripheral issue.

13 Q. Do you know who the significant
14 thermal discharges to the CAWS are?

15 A. I didn't study the thermal discharges
16 in the CAWS, so I wouldn't be able to rely giving an
17 opinion on that.

18 Q. That's fine.

19 Are the current CSOs harming
20 aquatic life in any portion of the CAWS?

21 A. I really have not made a study of CSO
22 impacts on aquatic life, per se, so I -- and I
23 didn't testify to that, so I couldn't express an
24 opinion about the effects on actual aquatic life.

1 Q. I'll skip Question 4 then.

2 Five. "Are you aware of any wet
3 weather standards that would allow dissolved oxygen
4 conditions to fall below one milligram per liter and
5 provide information on that issue?"

6 MR. ANDES: I believe several examples
7 were provided on that issue.

8 MS. DEXTER: Of what weather standards
9 would allow --

10 MR. ANDES: Yes.

11 MS. DEXTER: -- dissolved oxygen to
12 fall below one milligram per liter?

13 MS. ANDES: Right.

14 MS. WILLIAMS: I thought she testified
15 she didn't know of any wet weather aquatic
16 life standards.

17 MR. ANDES: The Patapsco was an
18 example, I believe, in Maryland.

19 MS. NEMURA: I testified that what the
20 UAA has done for aquatic life uses were not
21 specifically done with wet weather conditions
22 in mind, but conditions addressed by the UAAs
23 could include wet weather conditions.

24 MS. DEXTER: We're talking about the

1 variance that allows the dissolved oxygen
2 standard to be --

3 MS. NEMURA: The restoration variance
4 that was established based on the Chesapeake
5 Bay and Patapsco.

6 MS. DEXTER: But no base, like,
7 criteria has been set for less than one
8 point...

9 MS. NEMURA: The restoration variance
10 allows the DO seven percent of the spatial
11 and temporal time. The DO criteria of 1.7 or
12 1.0, depending on which segment you're in,
13 does not have to be met all the time.

14 THE WITNESS: If I may supplement
15 that.

16 The states of Maine and
17 Massachusetts have specific provisions that
18 allow the suspension of DO standards or
19 temporary suspension of them for wet weather
20 CSO events.

21 MS. WILLIAMS: Can I follow up?

22 MS. DEXTER: Please.

23 BY MS. WILLIAMS:

24 Q. I think Ms. Nemura said she would

1 testify that she was not aware that the standards in
2 Maine had ever been utilized in practice anywhere.
3 Do you disagree with that?

4 BY THE WITNESS:

5 A. I don't disagree with that. I'm just
6 staying that the State Water Quality Standards
7 provide the allowance for that condition.

8 MR. ANDES: I think that was the
9 question.

10 BY THE WITNESS:

11 A. And that was all that I was stating.

12 MS. DEXTER: Okay.

13 MR. ANDES: We also have copies of the
14 Maine and Massachusetts regulations, that we
15 can introduce.

16 The first document is from the
17 Maine Water Quality Standards, 38, Section
18 464 of classification of Maine waters.

19 MS. TIPSORD: If there's no objection,
20 we will mark the Maine Classification of
21 Waters.

22 MS. WILLIAMS: I have an objection.
23 I'm sorry, but it goes from Page 1 to Page 3.

24 MR. ANDES: The relevant sections may

1 not site all the various pages of that
2 particular Maine regulation, only the
3 relevant portions.

4 MS. TIPSORD: With that -- with noting
5 that, I'm going to enter it over
6 Ms. William's objection as Exhibit 207.

7 (WHEREUPON, a certain document was
8 marked Exhibit
9 No. 207 for identification, as of
10 2/17/09.)

11 MR. ANDES: The same is true as to the
12 following exhibit, which is from 314CMR4.00
13 Massachusetts Surface Water Quality
14 Standards. The particular excerpt that's
15 included beyond the first page is
16 Section 4.06, that's the relevant section.

17 MS. TIPSORD: If there's no objection,
18 we will site -- we will enter the
19 Massachusetts 31CMR for Division of Water
20 Pollution Control, Massachusetts Water
21 Quality Standards as Exhibit 208 -- excerpt.

22 MS. WILLIAMS: And I would just like
23 to request for the record that with regard to
24 Exhibit 207, that the District be asked to

1 supplement with this Page 2. Because I
2 have -- I think I have reviewed these regs,
3 and I do think what's on Page 2 is relevant.

4 Do you see what I'm saying? It
5 starts with procedures for reclassification
6 and then it cuts off. Would you be willing
7 to do that?

8 MR. ANDES: Sure. I think the
9 portion, though, that we were discussing is
10 the temporary removal of designated uses
11 section, Section 2(b), sewer overflows.

12 And that's why we didn't include
13 Pages 2 or 5 or 6 or 7. But I can certainly
14 provide Page 2.

15 MS. TIPSORD: If there's no objection
16 to entering Exhibit 208, it's entered.

17 Seeing none, we will enter it.

18 (WHEREUPON, a certain document was
19 marked Exhibit

20 No. 208 for identification, as of
21 2/17/09.)

22 MS. DEXTER: I have no further
23 questions or witnesses.

24 MS. TIPSORD: Anything else for

1 Mr. Freedman?

2 MS. DIERS: Thank you very much,
3 Mr. Freedman.

4 THE WITNESS: Thank you.
5 (WHEREUPON, the witness was
6 excused.)

7 MS. TIPSORD: That moves us on to
8 Dr. Dennison.

9 Good afternoon, Dr. Dennison.

10 I will remind you you've been
11 sworn in at least twice before, so we will
12 not do so again. You are still under oath.

13 And with that, we can do his
14 prefiled testimony.

15 MR. ANDES: Yes.

16 MS. TIPSORD: If there's no objection,
17 we will enter Dr. Dennison's prefiled
18 testimony in this section, which is on behalf
19 of the District, concerning dissolved oxygen
20 standards proposed for protecting aquatic
21 life in the designated Aquatic Life Use A
22 Waters and Aquatic Life Use B Waters of the
23 Chicago Area Water System. We will enter
24 that as Exhibit 209, if there's no objection.

1 using a digital buret. Dissolved oxygen is
2 expressed in milligrams per liter.

3 MR. ANDES: And I have copies of that
4 method. This is from A Standard Method For
5 the Examination of Water and Waste Water,
6 19th edition, 1995. It's the excerpt
7 involving method 4500-OC azide modification.

8 MS. TIPSORD: If there's no objection,
9 we will enter this, Standard Methods For the
10 Examination of Water and Waste Water, as
11 Exhibit 210.

12 Seeing none, it's Exhibit 210.

13 (WHEREUPON, a certain document was
14 marked Exhibit
15 No. 210 for identification, as of
16 2/17/09.)

17 BY MS. DIERS:

18 Q. Question 3.

19 "Why are you of the opinion that
20 additional aeration systems will not increase the
21 fish population in the CAWS?"

22 A. Because of the severe aquatic habitat
23 limitations of the Chicago area waterway system,
24 additional aeration systems would not be expected to

1 substantially increase the fish population in the
2 CAWS. This was discussed by Drs. Mackey and
3 Melching, and I have also had personal knowledge of
4 habitat limitations, which I mentioned in my
5 testimony on the Cal Sag Channel and on
6 Bubbly Creek.

7 Q. Question 4.

8 "On Pages 3 and 4 of your prefiled
9 testimony, you referenced compliance statistics for
10 the continuous monitoring stations with the lowest
11 compliance rates on proposed dissolved oxygen
12 standards occurring during the years 2005 through
13 2007. Why is compliance with the proposal lower at
14 the identified stations than at the other stations?"

15 A. Well, there are more instances of low
16 dissolved oxygen at those stations. I have not done
17 an analysis as to why this is, there could be many
18 factors throughout the CAWS.

19 I suggest that you wait for
20 ongoing studies to be completed.

21 Q. And what studies are you referring to?

22 A. For example, the Habitat Evaluation
23 Study. And I think there are a number of others,
24 but that's the one that comes to mind as the most

1 important.

2 Q. Question 5.

3 "What would you recommend for CAWS
4 A waters with respect to dissolved oxygen?"

5 A. I agree with the testimonies of
6 Dr. Mackey and Melching and Mr. Freedman.

7 Q. I'm sorry, could you repeat that?

8 A. I agree with the testimonies of
9 Dr. Mackey, Dr. Melching and Mr. Freedman.

10 Q. And did they say they didn't have a
11 recommendation for dissolved oxygen?

12 MR. ANDES: Does he have to
13 characterize their testimony?

14 MS. DIERS: I'm asking a question. I
15 can't remember what we talked about in
16 December.

17 So if he can answer it, fine. If
18 he can't, fine.

19 BY THE WITNESS:

20 A. Yes, I can't be more specific than to
21 say that we should wait for these studies to be
22 completed.

23 BY MS. DIERS:

24 Q. Once these studies are completed, is

1 the District going to make a recommendation for
2 these waters to the Board?

3 A. I don't know.

4 MR. ANDES: That question can
5 certainly be raised to Dr. Grenado when he
6 raps up testimony for the District.

7 MS. DIERS: Can we just have a second?

8 MS. TIPSORD: Sure.

9 MS. DIERS: Thank you.

10 I have nothing further.

11 MS. TIPSORD: Anything further for
12 Dr. Dennison?

13 MS. DEXTER: I have one follow-up
14 question.

15 BY MS. DEXTER:

16 Q. This morning, when we were talking to
17 Dr. Nemura about what Tarp could do, there was some
18 uncertainty about whether or not Tarp would address
19 the -- CSOs. Do you have any insight on that?

20 MR. ANDES: Is that on --

21 BY THE WITNESS:

22 A. Could you repeat the question? I
23 didn't quite catch the last part of the sentence.

24

1 BY MS. DEXTER:

2 Q. This morning when we talked to
3 Dr. Nemura, she wasn't certain whether Tarp would
4 address more than just gravity CSOs if there was --
5 if it would also address those from the stations.
6 Do you know more about Tarp, as an employee of the
7 District, that you can shed some light on that?

8 MR. ANDES: So particularly with
9 regard to, say, pump stations?

10 MS. DEXTER: Particularly with regard
11 to the uncertainty that Dr. Nemura had this
12 morning, about whether Tarp would do more
13 than just gravity.

14 MR. ANDES: Let me see if I can help.
15 Is it your understanding that Tarp
16 will eliminate all the pump stations based on
17 your understanding?

18 THE WITNESS: No.

19 MR. ANDES: It might reduce the
20 discharges from some of them?

21 THE WITNESS: Certainly.

22 MR. ANDES: Is it going to eliminate
23 all of the CSO discharge points?

24 THE WITNESS: It's not understand that

1 it would.

2 MR. ANDES: But it might reduce the
3 number and reduce the frequency of overflows
4 to some extent?

5 THE WITNESS: Yes.

6 MR. ANDES: Okay.

7 MS. DEXTER: I guess that's pretty
8 good.

9 MS. TIPSORD: Anything else for
10 Dr. Dennison.

11 Thank you very much Dr. Dennison.

12 (WHEREUPON, the witness was
13 excused.)

14 MS. TIPSORD: Let's go off the record
15 for just a second.

16 (WHEREUPON, discussion was had
17 off the record.)

18 MS. TIPSORD: Back on the record.

19 Instead of adjourning this hearing, I'm going
20 to continue this hearing on the record to
21 March 3rd and 4th, both hearings to be
22 continued here Chicago. I've talked to
23 Mr. Andes off the record and his witnesses
24 will be available on those two days. And we

1 plan to finish with the last five of the
2 district's witnesses on March 3rd and 4th.
3 We also will have a prehearing conference on
4 February 27th at 1:00 in the afternoon by
5 phone. And we will discuss at that point
6 additional hearings in April, May, June and
7 what that schedule is going to look like.

8 I thank you all again for your
9 patience and for your willingness to
10 compromise and work on these issues. If you
11 all weren't as willing as you are to do this
12 stuff, this could be a very much more
13 difficult time for all of us. So thank you
14 all again.

15 And with that, we will continue
16 this on the record, and we are recessed for
17 today. Thank you.

18 And I will do a hearing officer
19 order laying out rooms, time, phone numbers,
20 all of that.

21 (WHICH WERE ALL THE MATTERS
22 HEARD IN THE ABOVE-ENTITLED
23 CAUSE THIS DATE.)

24

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

4 I, SHARON BERKERY, a Notary Public within
5 and for the County of Cook, State of Illinois, and a
6 Certified Shorthand Reporter of said state, do
7 hereby certify:

8 That previous to the commencement of the
9 examination of the witness herein, the witness was
10 duly sworn to testify the whole truth concerning the
11 matters herein;

12 That the foregoing hearing transcript was
13 reported stenographically by me, was thereafter
14 reduced to typewriting under my personal direction
15 and constitutes a true record of the testimony given
16 and the proceedings had;

17 That the said hearing was taken before me
18 at the time and place specified;

19 That I am not a relative or employee of
20 attorney or counsel, nor a relative or employee of
21 such attorney or counsel for any of the parties
22 hereto, nor interested directly or indirectly in the
23 outcome of this action.

24 IN WITNESS WHEREOF, I do hereunto set

1 my hand and affix my seal of office at Chicago,
2 Illinois, this 23rd day of February, 2009.

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Sharon Perkins
Notary Public, Cook County,
Illinois.

My commission expires 7/22/2010.

C.S.R. Certificate No. 84-4327

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