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ILLINOIS POLLUTION CONTROL BOARD

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IN THE MATTER OF:)
)
PROPOSED AMENDMENTS TO)
)
DISSOLVED OXYGEN)
)
STANDARD 35 ILL. ADM.)
)
CODE 302.206,) No. R04-25
) (Rulemaking - Water)

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ILLINOIS POLLUTION CONTROL BOARD

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MR. RICHARD R. MCGILL, JR., Hearing Officer

21

MS. ANDREA S. MOORE, Board Member

MR. G. TANNER GIRARD, Ph.D., Board Member

22

MR. THOMAS E. JOHNSON, Board Member

MR. ANAND RAO, Senior Environmental

23

Scientist

MS. ALISA LIU, P.E. Environmental Scientist

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HEARING OFFICER: Good morning. I'd

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like to welcome you all to this Illinois

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Pollution Control Board hearing. My name is

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Richard McGill, and I am the hearing officer

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in this rule-making proceeding. The

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rule-making is entitled proposed amendments

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to dissolved oxygen standard 35 Illinois

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administrative code 302.206. The docket

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number for this rule-making is R04-25.

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The Board received this

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rule-making proposal on April 19, 2004 from

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the Illinois Association of Wastewater

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Agencies or IAWA. In May 2004, the Board

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accepted this proposal for hearing. IAWA

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seeks to amend the board's rule establishing

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general use water quality standards for

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dissolved oxygen.

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Also present today on behalf of

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the Board to my immediate left Board member

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Andrea Moore, the lead Board member for this

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rule-making. To her left Board member Tanner

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Girard, and to his left Board member Tom

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Johnson. To my right are two members of our

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technical unit. To my immediate right Anand

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Rao, and to his right Alisa Liu.

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Would any of the Board members

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present like to make any statement at this

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time? I guess my welcome covered it. All

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right. This is the third hearing in this

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rule-making, and presently no additional

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hearings are scheduled. Because it's been a

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long time since our last hearing, I'm just

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going to briefly provide some procedural

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background before we begin testimony.

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The Board held the first hearing

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in this rule-making in June 2004 in Chicago.

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The second hearing was in August 2004 in

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Springfield. Those first two hearings were

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devoted primarily to IAWA's witnesses,

16 presentation by IAWAs proposals and questions
17 for those IAWA witnesses. At the conclusion
18 of the second hearing, the participants asked
19 me to conduct a status conference call in
20 one month rather than proceed to schedule a
21 third hearing at that time. As requested and
22 after providing notice, I conducted that
23 status conference call in mid-September 2004.
24 As requested by the participants, I continued

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1 to conduct status conference calls in the
2 same manner on a monthly basis through
3 December 2004.

4 During each call, the participants
5 would report on the status of the stakeholder
6 discussions, indicated they were not yet
7 prepared to proceed with the third hearing
8 and asked me to conduct another status
9 conference call in a month. During the
10 December call, the participants asked that I
11 require IAWA to file a written status report
12 a month later instead of having another
13 status conference call.

14 So IAWA filed a report in
15 January 2005, and as IAWA requested, they
16 continued to provide monthly status reports
17 on the progress of stakeholder discussions.
18 IAWA continued to file those status reports
19 through May of 2005, and in its May 31, 2005
20 status report, IAWA indicated that based on
21 discussions of May 4, 2005 stake holder
22 meeting, it was generally agreed that the
23 rule-making should proceed with the third
24 hearing. So on June 3rd, I issued a hearing

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1 officer order scheduling today's hearing. It
2 was at the participants request that the
3 Board has allowed the unusual procedural
4 steps of conducting status conferences and
5 receiving written status reports in a
6 rule-making.

7 To accommodate the participants
8 request and to give stake holders every
9 opportunity to assess additional data and to
10 work through the issues, the Board has kept
11 the rule-making docket open for over a year
12 since the last hearing. The Board hopes to
13 hear today -- expects to hear today from each
14 of the main participants in this rule-making
15 on where they believe the stakeholder
16 discussions currently stand and where they
17 expect the rule-making to go from here.

18 Today's proceeding will be
19 governed by the board's procedural rules.
20 All information that is relevant and not
21 repetitious or privileged will be admitted
22 into the record.

23 We've had some discussion --
24 procedural discussion off the record before

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1 we got started today. My original plan would
2 be to begin with the prefiled testimony, as
3 indicated in my June 3rd hearing officer
4 order. We've received prefiled testimony by
5 the August 4 deadline from IAWA, the
6 Department of National Resources or DNR,
7 Friends of the Chicago River and Dr. Thomas
8 Murphy of DePaul University. I learned
9 earlier this morning that the Illinois
10 Environmental Protection Agencies, Toby
11 Frevert, will have testimony to provide today
12 and some of the participants have indicated
13 that they may want Mr. Frevert to give his
14 testimony earlier in the proceedings than my
15 hearing officer order had otherwise
16 contemplated. So we're going to start off
17 with the IAWA as a rule-making component, and
18 then if it makes sense and there's no
19 compelling objection, we may go a little out
20 of order on the prefiled testimony.

21 Those who did prefile, I would ask
22 that they give a summary of their prefiled
23 testimony to save time as opposed to reading
24 it in its entirety.

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1 After we finish with questions, we
2 will ask anyone else if they would like to
3 testify. We have a sign-up sheet just inside
4 the door to my left for anyone who would like
5 to sign up to testify today, time permitting,
6 we'll allow that. Those who testify will be
7 sworn in and may be asked questions about
8 their testimony, like any witness today. I
9 would have you note that there is an
10 attendance sheet if you would like to sign up
11 to indicate your attendance here today.

12 I would also ask that for the
13 court reporter transcribing this proceeding,
14 if you could speak up, try to speak slowly
15 and clearly and not talk over one another so
16 we can help produce a clear transcript.

17 At this point, we'll see how
18 quickly things move along, but if we go into
19 the afternoon, as I suspect we might, we'll
20 take a lunch break at around 1:00 for an hour
21 and start again promptly at 2:00. Are there
22 any questions about the procedures we'll be
23 following today? Seeing not, I would ask
24 that the court reporter please swear in

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1 IAWA's witnesses and attorney collectively?
2 (Witnesses sworn.)

3 HEARING OFFICER: And now I would ask
4 IAWA's attorney Roy Harsch to begin the

rule-making of proponents presentation.

MR. HARSCH: Thank you very much. My name is Roy Harsch. I'm at the law firm of Gardner, Carton and Douglas, and I've had the honor of representing the Illinois Association of Wastewater Agencies and a number of the rule-makings before the Pollution Control Board, including the present rule-making, which is an extremely important rule-making for IAWA.

I guess by way of background, the hearing officer has gone forward and presented the procedural steps that have occurred since the last hearing in August over a year ago. We do recognize and thank the Board that this has been somewhat of an extraordinary process. I think it's safe to say that the Illinois Association of Wastewater Agencies felt very strongly that, in essence, the stakeholder process and the

rule-making process itself was somewhat compromised in the second hearing. We felt somewhat blindsided by some events that occurred during that hearing, and we were hopeful that in the time period that would progress after that hearing, that we would be able to work with full participation of all of the various stakeholders, and hopefully develop a position, if not agreement, in a position through the stakeholder process where we would greatly eliminate the areas of controversy between the parties.

At this point in time, I would like to thank all of those people who fully participated in that process. In addition to the attorneys of record from Illinois EPA, we had cooperation and participation from Marcia Willhite, Toby Frevert, Bob Mosher, Paul Terrio, Gregg Good, Roy Smogor and others. They spent countless hours responding to positions and developing information to attempt to move the stakeholder process forward at a time when their resources are diminished, and they had a lot of other

things on their plate as well. At IDNR, Scott Stuewe led the discussions, Jim Mick, Steve Poll and others, fully participated during that process. Again, we thank them for their input, negotiating, discussing the issues that were raised. From USEPA, we had representatives, Mr. Hammer was there most of the meetings, if not alternatives, from Sierra Club Cindy Skrukud. Prairie Rivers Beth Wentzel.

During that time period, we had

12 representatives at some of the meetings from
13 the Illinois Environmental Regulatory Group,
14 Farm Bureau, Home Builders, et cetera. There
15 were literally thousands and thousands of
16 hours, if you added them up, attending
17 stakeholder meetings and in private
18 discussions -- follow-up discussions that
19 would occur, for example, between Dr. Garvey
20 and Scott Stuewe, Bob Mosher and IEPA.

21 IAWA has been a participant in
22 numerous rule-makings and has welcomed the
23 development of the stakeholder process as a
24 means to resolve and move regulatory efforts

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1 forward in a less confrontational manner. We
2 are very concerned, however, in this
3 proceeding, and frankly, very confused by
4 what seems to be involving this morning.

5 Based on the state of the
6 proceedings before the Board as of yesterday
7 and this morning, IAWA was very concerned
8 that the stakeholder process in Illinois may
9 be very jeopardized, and in fact, a process
10 that really is not going to lead to
11 resolution of regulatory development
12 proposals before the Board. I've had
13 discussions regarding our concerns with
14 representatives from the Illinois
15 Environmental Regulatory Group, the Illinois
16 Wastewater Operators Association,
17 professional consulting engineering groups,
18 the Illinois Farm Bureau and major statewide
19 environmental organizations. The response
20 from many of those who have been monitoring
21 the proceedings or been an active participant
22 ranges from agreement that the stakeholder
23 process may be in jeopardy to understanding
24 how we may have that belief.

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1 I guess I failed to mention the
2 Home Builders Association also in that group.

3 It is my understanding -- first
4 off, we are prepared to present the testimony
5 of Dennis Streicher, further testimony today
6 that's been prefiled, and that of Dr. Jim
7 Garvey, and I have copies of the prefile
8 testimony that I'd like to offer at this
9 point in time as an exhibit, marked for an
10 exhibit, and that exhibit number would be?

11 HEARING OFFICER: Fourteen.

12 MR. HARSCH: Fourteen. When we
13 prefiled the testimony, we did not have color
14 copies of Exhibit 3. I have extra copies of
15 those if anyone has a prefiled testimony and
16 needs those, and here are complete sets if
17 anybody needs a copy of Exhibit 14.

18 Before we proceed, I would like to

19 recommend, I guess, given what has transpired
20 as the hearing officer has referenced it,
21 it's our understanding that while we had
22 hoped when we filed our status report in May
23 of 2005 that we were at a position where IDNR
24 and IEPA would soon be able to reach

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1 resolution as to a joint state position and
2 response for our rule-making, or at least
3 have a position where IDNR could make a
4 resource agency recommendation to IEPA, and
5 IEPA then would be free to make up its own
6 mind and come forth with the state position.
7 That has not occurred today, but yet, we were
8 told -- I've read Toby Frevert's prefiled
9 testimony, that the agency is very hopeful in
10 continuing to work with IDNR, and it's also
11 my understanding that IDNR may, in fact, not
12 be presenting their witness today. So at
13 this point in time I might suggest that we go
14 out of order rather than presenting my two
15 witnesses first. That way we'll have
16 Mr. Frevert present his small, short
17 statement on behalf of the Illinois EPA, find
18 out what DNR, in fact, claims to do, and that
19 may simplify today's proceedings. We are --
20 just frankly we're very confused.

21 HEARING OFFICER: Well, we've got a
22 motion to enter the prefiled testimony with
23 the included attachment pending. I'm just
24 going to hold off on that until we get to

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1 your witnesses.

2 MR. HARSCH: Fine.

3 HEARING OFFICER: And just to clarify,
4 Mr. Frevert did not prefile testimony, but
5 has a written statement that he will present
6 this morning as testimony. Is there any
7 objection to proceeding at this point in time
8 with IEPA's presentation, and then -- well,
9 let me just ask that, is there any objection
10 at this point in time to proceeding with
11 IEPA's witness? Seeing no objection, I think
12 it makes sense then, every one seems to think
13 this will make today's proceeding more
14 understandable if we go ahead with Toby
15 Frevert's testimony.

16 So I would ask that Mr. Frevert of
17 IEPA, if you don't mind coming up so we can
18 hear you and the court reporter can get your
19 testimony more easily. Thank you.

20 THE WITNESS: Before you swear me in,
21 I just want to let everybody know that I'll
22 do my best to because I don't naturally have
23 a loud voice. So I apologize if you have
24 trouble hearing me.

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1 HEARING OFFICER: Thanks. If you go
2 ahead and swear in Mr. Frevert.

3 (Witness sworn.)

4 HEARING OFFICER: Thanks. Go ahead.

5 MR. FREVERT: Yeah, I'm going to read
6 from a written statement I've developed in
7 recent days to basically bring everybody up
8 to speed on what the agency's position and
9 functions and activities have been. My name
10 is the Toby Frevert. I'm manager of the
11 Division of the Water Pollution Control for
12 the Illinois Environmental Protection Agency.
13 I, as well as some of my staff have
14 participated in previous hearings on this
15 matter, including prior testimony.

16 The first point I want to cover in
17 this testimony is to reiterate the general
18 perspective I offered at previous hearings.
19 I believe the current dissolved oxygen
20 standard is overly simplistic, outdated and
21 not serving the state well. In that regard,
22 I agree with the Illinois Association of
23 Wastewater Agencies' perspective. The
24 comments of Dave Thomas on behalf of the

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1 Illinois Department of Natural Resources
2 focus on the variability of streams and their
3 aquatic communities across Illinois. This
4 variability is even more pronounced as you
5 consider lakes, reservoirs, wetlands and
6 other surface water bodies for which the
7 dissolved oxygen standard applies. I agree
8 with Dr. Thomas' perspective that reflection
9 of this variation in oxygen sensitivity
10 should be reflected in the state standard,
11 probably through a classification or grouping
12 system even if it is as simple as a two-tier
13 system. The United States Environmental
14 Protection Agency has been encouraging states
15 to move toward a multiple aquatic life
16 approach to standards as well. Numerous
17 activities are underway to help us evolve in
18 that direction, but a full restructuring of
19 Illinois water quality standards takes
20 considerable time, even if optimistic
21 estimate is several.

22 The second point I want to make
23 again takes us back to some prior testimony.
24 At a prior hearing, I offered my opinion that

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1 Illinois' general use dissolved oxygen
2 standards carries more significance than many
3 of our other water quality standards and
4 there is a wide diversity of opinion,
5 perspective and attitude among the various
6 constituencies participating in this
7 proceeding. In an effort to address that

8 diversity in a more constructive and
9 efficient manner, I suggested that further
10 Board activities be deferred a short time to
11 allow the parties to explore possible areas
12 of mutual support where consensus could be
13 reached and more clearly characterized and
14 articulate their position to the Board on
15 those issues where consensus cannot be
16 reached. I further offered the services of
17 myself and the agency to facilitate those
18 discussions. As history shows, the Board
19 accommodated that recommendation, and I am
20 truly appreciative for that opportunity.

21 While virtually any and all
22 interested parties were welcome and indeed
23 participated in the various proceedings and
24 discussions that took place during the past

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1 year, the more active participants were IAWA,
2 the Association of Wastewater Agencies and
3 IDNR, Department of Natural Resources
4 technical staff. Toward the late spring and
5 early summer of this year, I was encouraged
6 that we had accomplished significant progress
7 and partial agreement on most but not all of
8 the critical points of discussion. As we
9 neared the prefiling date established by the
10 hearing officer, those agreements appeared to
11 be in jeopardy and the Illinois Environmental
12 Protection Agency has continued in
13 discussions with various parties through this
14 week. As a result, I was unable to honor the
15 prefiling date.

16 I'll add something to this written
17 statement here. I'll had drafted prefiling
18 testimony early and decided that it was not
19 appropriate to enter it for the prefiling
20 date. So that's why you didn't receive that.
21 We truly attempted to honor your request.

22 Lacking agreement among the
23 parties at this stage, I nonetheless do not
24 believe that hope for agreement is lost.

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1 Therefore, I'm asking for one more
2 opportunity to resolve or at least further
3 reduce points of contention between the
4 various participants. In furtherance of that
5 desire, I am refraining from offering any
6 specific agency recommendation today. I do,
7 however, recommend against abandonment or
8 dismissal of the petition. We collectively
9 know enough to make a significant improvement
10 to Illinois' existing dissolved oxygen
11 standard. We will never reach a condition of
12 perfect understanding of dissolved science to
13 have a perfect standard. That reality is
14 fully acknowledged in section 303(c)(1) of

15 the Clean Water Act, which requires states to
16 undergo periodic and continuing review and
17 updates to water quality standards.

18 The Illinois EPA and myself
19 personally are committed to assist the Board
20 in building a complete record to support a
21 proper disposition in this proceeding after
22 the agency has an opportunity to consult
23 further with others. Illinois EPA fully
24 intends to enter additional testimony, data

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1 and specific recommendation at a later date.

2 Finally, I would like to thank the
3 Board for the opportunity to submit this
4 statement today.

5 HEARING OFFICER: Thank you. At this
6 point, I'll open it up for any questions of
7 this witness. I'll -- the Board may have a
8 question or two, but I'll open it up first to
9 the --

10 MS. WILLIAMS: Mr. Hearing Officer, if
11 you're going to open up questions, can we
12 arrange to sit up at the front table?

13 HEARING OFFICER: Sure. Let's go off
14 the record for a moment while IEPA's
15 attorneys come up and join their witness.

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

18 HEARING OFFICER: Again, I would ask
19 if any member of the audience has any
20 questions for IEPA's witness? Seeing none,
21 I'll look up here at the Board members and
22 Board staff present, any questions from any
23 of the Board members?

24
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1 BY MR. GIRARD:

2 Q. Well, I don't mean to put you on the
3 spot, Toby, but --

4 A. Sure you do.

5 Q. -- you say there's not agreement among
6 the parties at this stage, but at this stage, can
7 you give us a thumbnail sketch of the areas of
8 disagreement?

9 A. I can try to do that. Some of the
10 major areas of discussion involved the need and the
11 wisdom of having multiple sets of standards for
12 multiple types and degrees of quality systems or
13 quality waters. A lot of the discussion focused on
14 the national criteria document, which in and of
15 itself is not a perfect document, but may be the
16 most publically aired and the most well discussed
17 guidance there is out there for this matter. A lot
18 of discussion about some of the flexibilities and
19 options available to states in that criteria
20 document was the focus of those discussions. Those
21 are the general terms.

22 In getting to working through the
23 stakeholders process, I think there was a fair
24 amount of maybe cross education and opportunity to

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1 perceive the perspective or the views of the
2 inherent nature of the various participants, and I
3 thought there was movement on all sides towards some
4 kind of a middle grounding understanding
5 ramifications and applications. I still think
6 that's the case, but lacking perhaps 100 percent
7 comfort level at certain points, some of the parties
8 perhaps fell back to the prior positions that maybe
9 aren't fully reflective of what they'd ideally like
10 things to be, but lacking the consensus, people
11 typically pull back. I think a little more time and
12 some of what we actually accomplished, and I
13 personally think we did accomplish something, we can
14 refocus on that and put it in a clear perspective,
15 and I and the rest of the staff and my agency and my
16 leadership believes there is hope to reach some
17 consensus here, and if not all consensus, at least
18 enough that the points we really have to focus hard
19 and fast testimony on may be more clearly
20 identified.

21 Q. Well, you said you're going to need
22 more time. How much time? You've been at it a
23 year.

24 A. I anticipated that question. I

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1 anticipated that question perhaps the minute I
2 decided and concluded that we as the agency should
3 recommend this is the best course of action for the
4 State of Illinois. In those considerations, I can't
5 give you an exact answer today. I spent many hours
6 thinking about it. I think the reality is it should
7 go faster, and we may be willing to play more of a
8 role in helping keep the Board updated in terms of
9 status calls for whatever. We're still not the
10 proponent in this matter, but I think we've come to
11 the position that the agency obviously has a pretty
12 important role to play. We certainly have
13 volunteered and tried to take the lead in the
14 stakeholders process, and in that capacity, I would
15 think 60 days is all I'm asking for at this point,
16 and I could report to you more later on when and if
17 we should proceed to the next step after that.
18 That's -- I'd love to give you a better answer,
19 Tanner, but I can't.

20 Q. So what you're expecting to do in
21 60 days is have more discussions and come back and
22 say here are the areas where we can agree, here are
23 the areas where we cannot agree?

24 A. That's my hope and intent. In those

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1 areas where we can agree, I certainly would bring
2 forth my experts and the substantive testimony to
3 support those areas, and those areas where we can't

4 agree, I would do the same. We would bring in our
5 data and our experts and help the Board have a
6 better, more complete record. We have done some
7 data analysis and some evaluation and development of
8 our own concepts, and I think it would be more
9 constructive and everybody would be better served if
10 we held that data back at this point in time.

11 Q. I have no more questions.

12 BY MR. HEARING OFFICER:

13 Q. I just wanted to follow-up on that.
14 You're not suggesting that a hearing be scheduled
15 60 days from now, are you?

16 A. No, I'm suggesting that 60 days is
17 almost a minimal time to try to have meaningful
18 interaction with multiple groups of people
19 represented by multiple individuals. Even though
20 most of those people have indeed been involved with
21 this and openly participating, and we understand
22 ourselves better than we did a year ago, but still
23 that's a lot of logistics to deal with.

24 Q. So are you suggesting then a status

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1 report perhaps would be filed by the agency in
2 roughly two months?

3 A. I'm willing to commit to that, yes.

4 Q. A written status report?

5 A. Yes, which what would that put us at,
6 November 1?

7 MS. MOORE: Approximately.

8 BY MR. HEARING OFFICER:

9 Q. Roughly, yeah?

10 A. I will offer that, yeah, in the spirit
11 of trying to keep things moving and keep the Board
12 fully knowledgeable and aware of progress or lack
13 thereof.

14 MR. HARSCH: IAWA proponent would have
15 no objection to that.

16 HEARING OFFICER: Okay. Would anyone
17 present have an objection to my ordering IEPA
18 to provide a written status report in roughly
19 60 days from today? Seeing no objection,
20 I'll order that. I'll issue a written
21 hearing officer order that will specify what
22 we're looking for and a specific date, but it
23 will be -- you had mentioned the beginning of
24 November. November 1st is a Tuesday. If we

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1 could have it in hand, that's a little more
2 than 60 days, from today. So if we did a no
3 mailbox, that's what I'll go ahead and
4 require, and I'll document that in the
5 hearing officer order.

6 MR. FREVERT: You have my commitment
7 to that, and I'll make one more offer. Is
8 anybody in the room who has not been active
9 in participating in discussion with us and
10 they feel they would like to, I'd certainly

11 welcome that. We'll meet and discuss people
12 and share perspectives whether it be in a
13 group setting or a one-on-one setting,
14 whatever the preference. It's not our intent
15 to have anybody feel like they're left out of
16 the opportunity to help develop a position.

17 HEARING OFFICER: Okay. So any other
18 questions for this witness? Seeing none, I
19 would just ask counsel for the agency, did
20 you want to move to have the written
21 statement entered as a hearing exhibit?

22 MS. DIERS: Yes, I would please.

23 HEARING OFFICER: Okay. I didn't yet
24 mark IAWA's exhibit yet. So this IEPA

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1 statement Toby Frevert's testimony will be
2 Exhibit 14. Is there any objection to
3 entering that into the record? Seeing none,
4 that will be hearing Exhibit 14, and I've got
5 a copy of that right here.

6 MR. FREVERT: Okay.

7 HEARING OFFICER: Thank you very much.

8 MR. FREVERT: I'm available if you
9 need anything else during the course of the
10 hearing.

11 HEARING OFFICER: Thank you.

12 Continuing the trend of going out of order
13 maybe, there seems to be a consensus that it
14 would make sense to go with the Department
15 of Natural Resources' presentation at this
16 point. Is there any objection to doing that?
17 Seeing none, I'll ask counsel for DNR to come
18 up front and take a seat. If you don't mind,
19 can we go ahead and swear you in because I
20 just have a feeling you're going to be asked
21 some questions, and it may just be easier to
22 do it now. Is that okay?

23 MR. YONKAUSKI: Okay.

24

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1 (Witness sworn.)

2 MR. YONKAUSKI: Stan Yonkausk, I,
3 Y-O-N-K-A-U-S-K-I, for Department of Natural
4 Resources. The Department of Natural
5 Resources is not so pessimistic about the
6 future and status of the stakeholder
7 meetings. We've all along felt that the
8 process that was involved in the dissolved
9 oxygen proceedings here where the IAWA and
10 EPA have been extraordinarily useful.
11 They've helped focus our attention on the
12 information that we got, our needs, our
13 interests, even though those may not have
14 been communicated terribly well at some
15 point, and even though those stakeholder
16 meetings have been quite contentious at other
17 points. It's obvious that there are

18 divergent interests and divergent needs on
19 the parts of the IAWA and its members and the
20 Department of Natural Resources, but we
21 believe that there's been some progress made,
22 and the management of our respective
23 agencies, the Illinois Environmental
24 Protection Agency and their department want

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1 that progress to continue.

2 To that end, we support Toby
3 Frevert's statement and encourage the Board
4 to authorize extra time, more time for the
5 stakeholder meetings. We will be a full
6 participant and will be working with them to
7 come up with a coherent -- at least a
8 coherent state approach, as coherent as we
9 can, if not a fully integrated proposal
10 involving the major parties, at least that's
11 the hope and the goal.

12 That leaves us with the -- what
13 we're going to do today, and we do not --
14 because of this, because of the interest in
15 additional time and additional need to work
16 with the IEPA, we are not prepared to have
17 Dave Thomas's testimony presented today or
18 entered into the record. As Mr. Harsch
19 pointed out, there's some question about what
20 then is that testimony. We would not
21 consider it to be, at this time at least, the
22 statement, the position of the Illinois
23 Department of Natural Resources. Whether
24 it's appropriate to withdraw that testimony

0031

1 at this time, leave to refile at some future
2 hearing or to leave it as testimony that may
3 be withdrawn or realize, if you will, at some
4 future hearing, I'd ask advice of the hearing
5 officer. I'm certain it provides some
6 consternation for the proponent or the
7 proposer of the regulation, the regulatory
8 proposal, and as long as there are going to
9 be future hearings, we wouldn't be adverse to
10 it's withdrawal as long as there are other
11 hearings and other opportunities for
12 presentation of the full position of the
13 department.

14 HEARING OFFICER: Okay. Well, I think
15 there's a -- I mean, no additional hearing
16 has been scheduled certainly --

17 MR. YONKAUSKI: That's correct.

18 HEARING OFFICER: -- at this point in
19 time. We simply have the status report that
20 will be filed November 1st by IEPA.

21 MR. YONKAUSKI: There is an intention
22 on the EPA's part to present testimony, if
23 not comment on, as Mr. Frevert said in his
24 statement. So that at least hints at the

0032

1 potential for their interest in a hearing.

2 HEARING OFFICER: Certainly a
3 possibility. I would suggest that if this
4 rule-making goes forward, I cannot imagine
5 that there would not be another hearing, but
6 I think you indicated that at this point in
7 time Dr. Thomas's prefile testimony does not
8 represent the position of DNR?

9 MR. YONKAUSKI: Correct.

10 HEARING OFFICER: Then I'll leave it
11 up to you. If you want to make a motion to
12 withdraw that testimony with leave to refile
13 it, I can consider that motion. That's up to
14 you. I'll open it up too for any potential
15 objections. Mr. Harsch, go ahead.

16 MR. HARSCH: I don't have any
17 objection, in fact, would be more than
18 willing to support any motion that DNR might
19 want to make for leave to withdraw for the
20 right to refile, refile it as written
21 testimony in the future. In the event that
22 there's not a hearing and DNR wishes to do
23 so, they could move to file it for inclusion
24 in the record in whatever manner, but I think

0033

1 it makes more sense to withdraw it at this
2 point, and we can move forward if there's a
3 future hearing accordingly.

4 MS. WILLIAMS: Can we talk about
5 practically how that would work?

6 MR. YONKAUSKI: Please.

7 HEARING OFFICER: You're asking me to?

8 MS. WILLIAMS: Yeah. Sorry. I've
9 just never seen this before, so I'd like to
10 understand.

11 HEARING OFFICER: Well, why don't I
12 continue to survey opinions here.

13 MR. ETTINGER: I'm Albert Ettinger,
14 E-T-T-I-N-G-E-R. I represent Prairie Rivers
15 Network and Sierra Club. I would suggest
16 that we not simply withdraw it because
17 Mr. Yonkauskki has now testified all about
18 this document in the record, and anyone
19 reading the record is going to want to know
20 what the discussion is about. So if it's
21 withdrawn, I would like to offer that it be
22 readmitted as a hearing exhibit with the
23 explanation that it is what it is now, and if
24 DNR doesn't ascribe the same thing to it that

0034

1 it did before, then Mr. Yonkauskki's testimony
2 describes where it is now, but at least
3 somebody reading this record will not find
4 all of this discussion of a mystery document.

5 HEARING OFFICER: Any responses to
6 that argument?

7 MR. HARSCH: That opens up a
8 tremendous area of concern to IAWA. If it's
9 entered into the record, what weight is it
10 going to be given by the Board as an exhibit?
11 As far as we are concerned, prefiled
12 testimony that is not presented shouldn't
13 have any weight. If DNR wants to submit it
14 as a public comment at some point in time in
15 the future, they can do so. The record shows
16 that it does not reflect at this point in
17 time necessarily the view of DNR.

18 MR. YONKAUSKI: I would be
19 uncomfortable with leaving it as an exhibit.
20 It's either going to be our testimony at some
21 point in the future or not. I'd be
22 uncomfortable leaving it as an exhibit as
23 something then that we have to go and put an
24 asterisk by, like Mark McGuire's home run

0035

1 record, something that we would then have to
2 explain ad infinitum. My belief, but it's
3 based on an experience, is that the
4 testimony, if it's not presented, isn't
5 anything. It's just a document that's
6 sitting in a file some place, if you will,
7 until such time as it is tendered and
8 Dr. Thomas stands for cross-examination. I
9 don't anticipate that the product of the
10 60 days effort between the IEPA and DNR will
11 result in anything like Dr. Thomas's
12 testimony presented in the future. I
13 anticipate that there will be progress made
14 towards something that the stateside can
15 agree to. With that anticipation and hope, I
16 would move that the testimony be withdrawn
17 with leave to file at some future point
18 future hearing.

19 HEARING OFFICER: Okay. So that's the
20 motion which IAWA I think has indicated they
21 have no opposition to. Mr. Ettinger, you're
22 opposing that? You object to that?

23 MR. ETTINGER: You know, frankly, you
24 know, it's out there. We've all seen the

0036

1 nasty thing. If Dr. Thomas ever comes in and
2 testifies or DNR ever comes in and says
3 something that flatly contradicts that, I'm
4 going to offer it. I may turn around and
5 offer it -- the Board's rules are very
6 liberal as to what they'll accept as a public
7 comment. I can turn around and offer it as
8 something Albert Ettinger got from, low and
9 behold, the Pollution Control Board website.
10 So, you know, if you want to go through the
11 process of physically withdrawing it as a DNR
12 submission so that Prairie Rivers Network --
13 put it back in as Prairie Rivers Network

14 submission in a week, fine.
15 MR. HARSCH: If Albert wants to follow
16 that procedural step, he's free to do so.
17 We'll do a lot further in the stakeholder
18 operation process I'm sure.

19 MR. ETtinger: I don't want to spend a
20 lot of time on this. The fact of the matter
21 is it's out there. Whatever horrible effect
22 it's going to have, we've all seen the nasty
23 thing. So we can leave it in the record and
24 not -- we will probably -- since we've all

0037

1 seen it, I can tell you it won't go away, but
2 maybe it will go away in the sense that it
3 will never be of any practical necessity
4 because hopefully we'll all come up with an
5 agreement and there will be no need to offer
6 any further exhibits like that or any other
7 thing other than our magnificent agreement,
8 which we'll be producing to the Board.

9 HEARING OFFICER: IEPA's counsel?

10 MS. WILLIAMS: I just wanted to say
11 for what it's worth, we agree with Roy and
12 stand that we would like to see this out of
13 the record for the time being.

14 HEARING OFFICER: Off the record.
15 (Whereupon, a discussion
16 was had off the record.)

17 HEARING OFFICER: I'm going to grant
18 DNR's motion to withdraw the prefiled
19 testimony of Dr. Thomas. As DNR's counsel
20 has represented in his testimony, the
21 prefiled testimony does not represent DNR's
22 position anymore. So I think it will be less
23 confusing for all involved to grant that
24 motion to withdraw, and I will also document

0038

1 that in the hearing officer order that sets
2 the 60-day status report. That will
3 hopefully help clarify to anyone reading this
4 transcript exactly what has transpired, and
5 hopefully we can avoid any of the confusion
6 that Mr. Ettinger thought may be brought. So
7 with that, the motion is granted, and did you
8 want to continue with any additional
9 testimony at this point?

10 MR. YONKAUSKI: No, I think 60 days
11 may be barely enough, but as long as it's
12 just a status report in 60 days. We
13 recognize there's a lot of work to get done,
14 and we're looking forward to it.

15 MR. JOHNSON: Those of us that read
16 this document, are we going to be required to
17 forget it?

18 MR. YONKAUSKI: Yes or put an
19 imaginary asterisk next to it.

20 MR. JOHNSON: Okay.

21 HEARING OFFICER: Are there any
22 questions for Mr. Yonkausk?
23 MR. HARSCH: Just a statement of
24 thanks.

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1 HEARING OFFICER: Seeing no questions,
2 the Board doesn't have any questions at this
3 point, thank you for your testimony this
4 morning. I think at this point we can veer
5 back on course and continue with IAWA's
6 presentation.

7 MR. HARSCH: Thank you. I guess a
8 little bit of follow-up. We are heightened
9 by today's events that have occurred and
10 looking forward to working with IEPA and IDNR
11 and other stakeholders at either reaching an
12 agreement or eliminating the issues in
13 presentation to the Board in what will most
14 likely be an additional hearing. We have two
15 witnesses today. I think it's important that
16 we bring the Board up to date with respect to
17 what we believe as proponents have occurred
18 in the year since the last hearing. At this
19 point in time, I'd like to call Dennis
20 Streicher.

21 HEARING OFFICER: Mr. Streicher, I'll
22 just remind you and the other IAWA witnesses,
23 you've already been sworn in.
24

0040

1 BY MR. HARSCH:
2 Q. Mr. Streicher, will you state your
3 name?
4 A. My name is Dennis Streicher.
5 Q. Have you previously testified in this
6 proceeding?
7 A. I have.
8 Q. I show you a copy of what was filed
9 with the Board as written testimony. Mr. Streicher,
10 is that an accurate copy --
11 A. Yes.
12 Q. Did you prepare this prefile
13 testimony?
14 A. I did.
15 Q. Would you please summarize this
16 statement for the record?
17 A. Okay. Let me again introduce myself,
18 Dennis Streicher. I'm director of water and
19 wastewater with the City of Elmhurst. I'm also
20 president of IAWA, and I've been involved in the
21 stakeholder process from the very beginning. As Roy
22 said earlier, I'd like to thank a number of folks
23 who have really helped out in this whole process,
24 Toby Frevert and all of the IEPA staff, Bob Mosher

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1 and Paul Terrio, Gregg Good, as well as the IDNR
2 folks who were at the meetings. Those who attended

3 the stakeholder meetings were, I think -- as stated
4 earlier, were educated I think in our process and
5 what our goals were and motives were in bringing
6 this petition, and I think really after a lot of
7 work and such, we had more things that we agreed on
8 than we didn't. I've been asked to summarize this,
9 and I'm going to attempt to do that, and excuse me
10 if I'm being a little extemporaneous with this
11 because I am. As things have evolved, you know,
12 I've been having to rewrite and rethink my testimony
13 a couple of times, but in my written testimony, I
14 had, I think, outlined probably three major topics
15 or three major points that I kind of wanted to touch
16 on.

17 Throughout the last year in
18 talking with folks all over the state many of whom
19 were opposed to this petition or have a sense about
20 it, I'm seeing a perception on a lot of people that
21 this is, and you'll see these words used in
22 testimony as roll back or a lessening of a standard
23 or that sort of perception, and I just want to ask
24 the Board to look at the data and not think of this

0042

1 perception. It is just an unfortunate perception,
2 not our goal to roll back or to lessen a standard.
3 We represent the wastewater
4 agencies across the state. We are -- our
5 constituency is all of the state constituency. Our
6 goal is to do what's right with the water
7 environment, and as like any rule, you want it to be
8 right. You want it to be on target. You want it to
9 be science based, and that's what we're focussing
10 on. Many of these things get to be discussions that
11 are based on, again, perceptions or politics, and we
12 just can't let that get injected into this
13 discussion. I think it needs to be science based.
14 The current standard, as Toby Frevert said earlier,
15 is unworkable. It doesn't suit -- it doesn't serve
16 the state. It doesn't suit the needs of, if I can
17 express the needs of a natural environment, it
18 doesn't express the needs of those rivers and lakes.
19 It's antiquated. It's never been reviewed in some
20 30 years. It was probably put together at the very
21 beginning quickly without a lot of background and
22 data support.

23 Over this time, we've gotten that
24 information, and in fact, even over the last year

0043

1 these stakeholder meetings has generated a huge
2 amount of interest in a number of agencies, and as
3 Dr. Garvey will testify later, much more technically
4 than I, it's amazing how the Whiles/Garvey report
5 has so accurately predicted what occurs in natural
6 streams. The standard we have today creates
7 violation, and it puts us as an industry, and I hate
8 to use the word industry, but we are a profession
9 that is focussed on water quality, and it puts us in

10 a place that we need to modify our process and spend
11 money -- spend taxpayer money to achieve a goal that
12 may never in the end be achievable by having
13 incorrect or inappropriate values or goals for the
14 rivers. The DO numbers that we are shooting for
15 today just can't be met many times of the year.

16 One of the jokes I had or one of
17 the kind of cynical statements I had in the last
18 year is that when you take pristine rivers in
19 Illinois that don't meet the current dissolved
20 oxygen standard, and to fix it what we should do is
21 build a dam and put in aeration devices and take the
22 pristine river and make it an artificial river and
23 add oxygen that way. Of course, that's facetious,
24 but that may be the only way that we can actually

0044

1 get some of these rivers to meet the standard.

2 What's wrong here? It's not the river. So we need
3 to meet the standard.

4 Those perceptions that I mentioned
5 came out in a number of conversations that I had
6 with folks across the state, and I know the Board
7 has received a number of letters and petitions.
8 They're all posted on the website of Fox River
9 people, in particular, who are writing a form letter
10 kind of echoing that perception that we are lowering
11 the standard. As though -- I guess, as though our
12 industry can set a standard of an unrealistic number
13 and somehow turn the dial and get the river to go up
14 to that number. Or conversely, if we set the
15 standard to a different number that may be lower at
16 times of the year, we could turn the dial back down,
17 and somehow or another all this follows. I think
18 what we want is a standard that follows a natural
19 process, not a standard that forces a natural
20 process. It doesn't work that way. But that
21 perception is out there. A lot of these folks have
22 the idea that we are self-serving in this position,
23 that we are attempting to lighten our own expenses
24 or lighten our own load, and that's just not the

0045

1 case. Enough on that.

2 Another point I wanted to talk
3 about was the stakeholder process itself, and I
4 mentioned EPA and DNR. Prairie Rivers was in there.
5 USEPA was there. A number of interested
6 stakeholders, and I was amazed at the breath of
7 interest that we had from across the state. I think
8 there was a genuine desire to get this work through,
9 and there was a lot of time spent to educate those
10 folks on some of the science and some of the motives
11 and goals that IAWA had. I'm not sure that in the
12 end now, considering how things have changed, that
13 we have actually been successful in that.

14 However, while not being
15 successful in motives and goals, I think everyone
16 sees that the data that have been presented over the

17 stakeholder meetings and the new studies or the new
18 reports that had been submitted are enlightening
19 everyone greatly, and they can't deny that. They
20 can't deny that new information. What happened
21 during the stakeholder meeting, though, in one way
22 made me a little uncomfortable because -- and I
23 mentioned this in previous testimony, that you don't
24 negotiate facts, and I have a city manager at

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1 Elmhurst who I'm privileged to work for, who is an
2 engineer himself and has used that statement over
3 and over again that you're allowed to have opinions.
4 Everyone is allowed to have an opinion, and
5 everyone's allowed to change their opinion, but
6 don't change the facts. The facts are what they
7 are, and I got myself into occasional feelings of
8 feeling like we weren't getting anywhere with the
9 stakeholder meetings because we found ourselves in a
10 position negotiating facts, of negotiating a river
11 that may be having the old standard and a river that
12 has our new proposed standard. Negotiating times of
13 the year when things happen because we are in our
14 petition proposing that there be seasonal
15 adjustments to the DO -- allow DO in the rivers, and
16 we've got data to support the dates that we've
17 presented. We've got data to support that all of
18 the rivers, at least a very good number, if not all,
19 but a very good number of these rivers, will work
20 and operate very well with our proposed standard,
21 but yet, we got into this business of negotiating.
22 And I felt very uncomfortable with that, and I've
23 said that many times. I just don't want to
24 negotiate the facts.

0047

1 So in the end if there's
2 compromises, and always there is compromises, I ask
3 the Board to just be aware, compromises are going to
4 be leaving out rivers or including rivers, whatever
5 the case is, you need to just look at the notes,
6 look at the data.

7 I've been summarizing this, and as
8 I said, I've been extemporaneous, and I'm going
9 through this very quickly, but I'm -- in the end,
10 I'm impressed with our DNR folks, at least those
11 that attended the meetings. I think that they have
12 a genuine interest to do things that are right.
13 Unfortunately, I think that it's the EPA folks who
14 are really going to be on the hot seat when it comes
15 to enforcement and in having a regulation that is
16 workable and that reflects what is going on in the
17 real world. The DNR are great. They have
18 perception of wanting to protect everything, but
19 it's the EPA guys who are going to have to enforce
20 the speed limit, and I think they see the reality in
21 this, and the reality in our petition. So that's a
22 summary. That's what my -- my testimony.

23 MR. HARSCH: At this point in time,

24 Mr. Hearing Officer, I'd like to move
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1 prefiled written testimony of Dennis
2 Streicher as Exhibit 15.
3 HEARING OFFICER: Motion to enter
4 Mr. Streicher's prefiled testimony as a
5 hearing exhibit. Any objection to that?
6 Seeing none, I'll go ahead and mark that.
7 I'm sorry.
8 MR. CHINN: Howard Chinn from the
9 Attorney General's Office.
10 HEARING OFFICER: Sure.
11 MR. CHINN: I just have a question.
12 Whether his testimony is verbatim of the
13 prefiled testimony?
14 HEARING OFFICER: It is not, and
15 correct me if I'm wrong, Mr. Streicher, but
16 you were summarizing and perhaps adding some
17 additional information orally today.
18 MR. STREICHER: I've been asked to
19 summarize, and I did that as best I could,
20 but I probably did elaborate on some points
21 further than I did in the written testimony.
22 MR. CHINN: Thank you. When will the
23 transcript be posted?
24 HEARING OFFICER: Probably the middle
0049
1 of the week of September 5th. That's our --
2 the standard turn around on transcripts I
3 think is 8 to 10 working days. So it may
4 vary depending on the length of our hearing
5 today, but I would think the week of
6 September 5th.
7 MR. CHINN: Thank you.
8 HEARING OFFICER: So that was not an
9 objection to the motion. I see no objection
10 to entering prefiled testimony of
11 Mr. Streicher as a hearing exhibit, and that
12 will be Exhibit 15.
13 I ask counsel for IAWA, do you
14 want to open it up for questions for this
15 witness, or would you rather have questions
16 posed to the three of you as a panel?
17 MR. HARSCH: I think it would make
18 sense to do it as a panel. I do have one
19 kind of follow-up question.
20 BY MR. HARSCH:
21 Q. Dennis, can you explain for the
22 Board's edification where IAWA is with the process
23 of efforts at moving forward with stream
24 classification regulatory development?
0050
1 A. Right. IAWA, as I mentioned earlier,
2 is focussed on hopefully developing the best
3 regulations to work with, and this petition that's
4 before you now is maybe a first step in that regard.
5 The IAWA has several months ago authorized a number

6 of funds, a lot of funds of our own private
7 association funds, to begin the process of reviewing
8 use designation categories in Illinois, and to take
9 a look at what we might do to revise where Illinois
10 is today. IAWA has hired a consultant to this
11 regard. We've gotten a committee together of some
12 very technically competent folks, and we're
13 proceeding with this. We've got a letter out to the
14 a number of stakeholders who participated in this
15 stakeholder meeting and are inviting them to the
16 table to begin that discussion, and we'll be
17 inviting IDNR to work with them. Our intent is that
18 DNR has begun assembling a list of what might be
19 called, I guess, outstanding resource waters, list
20 of a streams that they would like to have identified
21 as having that higher use, and that's fine. That
22 may be one of the categories that we end up.

23 I think the focus here is that
24 IAWA is moving forward on this in an attempt --

0051

1 including everybody in the process, in an attempt to
2 try and maybe make up for some of the past omissions
3 or errors or just get things back on track in terms
4 of identifying the best rivers, the crown jewels,
5 they've been called in Illinois.

6 MR. HARSCH: At this point in time,
7 I'd like to call Dr. Garvey.

8 BY MR. HARSCH:

9 Q. Dr. Garvey, please state your name for
10 the record.

11 A. Dr. James Garvey.

12 Q. And, Dr. Garvey, I show you what has
13 been marked as Exhibit 16, which is your prefiled
14 testimony with the inclusion of Exhibit 3, which was
15 not included in the prefiled testimony. Is this a
16 true and accurate copy of the prefiled testimony you
17 prepared?

18 A. That's correct.

19 Q. Dr. Garvey, can you extend your
20 possible -- summarize your testimony?

21 A. Okay. I'm not sure if this is the
22 right way to go as well, but when I'm giving my
23 summary, if you have questions, feel free to ask as
24 I go along. That might make this go a little

0052

1 faster, and also I think it will be helpful for
2 people if they have points of question. Again,
3 because this is a summary of my written testimony,
4 I'm not going to go into the same amount of detail.
5 So I want to make sure that people understand what
6 I'm talking about.

7 Thanks to the Board for hearing me
8 today. I'm Dr. Jim Garvey, and I'm associate
9 professor in the department of zoology at Southern
10 Illinois University of Carbondale. I'm also the
11 associate director of the fisheries and Illinois
12 Aquaculture Center at the same institution. I'm

13 ecologist by trade primarily in aquatic systems.
14 Most of my work is focussed on fish and fisheries
15 related issues. However, I've worked in many other
16 aspects of aquatic ecology. My primary interest
17 from a research perspective is trying to understand
18 the effects of the physical environment on the
19 organisms that exist within aquatic systems,
20 primarily fish assemblages.

21 There are generally two approaches
22 to ecology, I would have to say. One of them is to
23 focus primarily on organisms and try to understand
24 why they are in a particular place at a particular

0053

1 time. People who do ithiology or any of those sorts
2 of cology sorts of fields have a tendency to focus
3 on these individual case studies, if you will, of
4 particular organisms.

5 My work is, though I've obviously
6 have been trained with ithiology, my work is
7 generally college. We're looking for general
8 patterns, trying to understand what influences the
9 suite of organisms that exist within a particular
10 system. I think it's very important to note that
11 that's a very different approach and a different way
12 in thinking about ecology and environmental issues.

13 I got involved in this process
14 about two years ago. IAWA initially approached
15 Dr. Matt Whiles, who's another aquatic ecologist at
16 Southern Illinois University, to generate a report
17 assessing the current dissolved oxygen standards in
18 the state. Matt who primarily works at the
19 invertebrates thought that it would be good to get a
20 fish person involved. So he got me to be involved
21 with this. I'd like to clearly state to the Board
22 and everyone in this room that there were absolutely
23 no expectations placed upon Dr. Whiles or I about
24 what was to go into that report. The only thing

0054

1 that we were asked to do was to provide our
2 professional assessment of the current standards in
3 light of the national criteria document that was
4 developed by the USEPA in the '80s and current
5 information that was available to us. All right.
6 Completely independent analysis. There was no
7 influence other than more or less Whiles and I and
8 talking to our colleagues, professional colleagues,
9 when we developed this report.

10 We concluded that the current
11 standard in Illinois doesn't work. We came up with
12 a modified standard of which the Board is well
13 knowledgeable. Essentially, we came up with a
14 spring standard and a summer or the rest of the year
15 standard. The reason why we had two different
16 standards was we know that the early life history
17 stages of many aquatic organisms appear generally in
18 the springtime, and we wanted to make sure that we
19 had protection for them because we know that they're

20 more sensitive to hypoxia.

21 The summer standard was an attempt
22 to reconcile the fact that we know that water at
23 warm temperatures tends to hold lower oxygen, and we
24 also know that communities respire. They actually

0055

1 breathe. Just like individuals do, well, entire
2 assemblages of microbes and fishes and invertebrates
3 breathe air in the water, and that's going to
4 influence the amount of oxygen that's available to
5 the organisms out there. They're going to respire
6 more during the summer than they do during the
7 wintertime. So our standard was developed to deal
8 with that.

9 In the second hearing before this
10 Board, I was privy to the analysis of data,
11 continuous DO data, that came from eight Illinois
12 streams, and I provided my analysis of that relative
13 to the proposed standard by IAWA, which more or less
14 came from Garvey and Whiles report, but I also
15 looked at the current Illinois standard, and I found
16 that the IAWA standard tended to find the streams
17 that had a DO problem still found a DO problem. And
18 the IAWA standard found that streams that didn't
19 have a DO problem still fell within not violating
20 that particular standard.

21 So in other words, the proposed
22 standard worked, whereas, the current Illinois
23 standard often found violations in streams that were
24 otherwise in pretty good shape from the perspective

0056

1 from the biology, the fish assemblages and active
2 rivers found within these particular systems.

3 After the second hearing, we
4 obviously wanted to have a series of stakeholder
5 meetings to discuss how we might take the Garvey and
6 Whiles standard and make it more amenable to the
7 various agencies and groups that were interested in
8 this. My general points of contact outside of the
9 stakeholder meetings -- and I did attend most of the
10 stakeholder meetings; in fact, I attended all of
11 them -- was primarily with IEPA with Bob Mosher who
12 I interacted with, and IDNR was Scott Stuewe who is
13 the acting chief of fishery, and we talked a lot
14 about how to develop the standard, and we also
15 agreed to disagree upon particular issues that also
16 came out in the stakeholder meetings.

17 What I found from my outsider
18 perspective is that the stakeholder meetings were
19 very, very useful. I think they were very -- well,
20 I think everybody came out and had their opinions,
21 and it worked out very well. Some of the things
22 that we developed during that process is we added a
23 30-day mean, which was suggested I think in the
24 second hearing. The 30-day mean of 5.5 milligrams

0057

1 per liter, and I think we talked about that during

2 the second hearing, and I'll talk a little bit about
3 analysis to see whether that works okay for this.
4 We still found that it generated a lot of violations
5 for streams that probably shouldn't have violations.

6 In addition to the analysis of
7 eight streams or continuous data that was done by
8 USGS, Paul Terrio and his crew, we also got some
9 data from Ohio EPA, Ed Rankin who's a biologist. He
10 used to be Ohio EPA, but now he's with the Center
11 for applied Bioassessment and Biocriteria, provided
12 us with a draft via Ed Hammer, I believe with the
13 USEPA. And in general, his analysis was, again,
14 looking at DO and biotic integrity relationships in
15 the State of Ohio, which is very similar to
16 Illinois.

17 And I'd have to say that you can
18 break down his analysis into two parts. One, the
19 analysis are looking at the specific species
20 accounts. What species were present as a function
21 of the grab samples of dissolved oxygen that were
22 taken at a particular site. And they found that
23 there was variation among the species in the average
24 DO that was found in on the particular site where

0058

1 that particular species resided. Well, that makes
2 sense because some species might be in areas where
3 DO might be elevated for whatever reason. It could
4 be gradient. It could be better water quality from
5 the perspective of less nutrient loading and those
6 sort of things.

7 What I'd like to point out is that
8 when you're looking at species accounts, as I said
9 before, you can run into a misleading issue of
10 finding or not finding species in particular areas
11 and trying to then assume causality. There's no DO
12 here when that species not here, but when it's low
13 DO that's causing that, but the reality is is that
14 there's another suite of factors that are
15 influencing the presence or absence of that species.
16 Whether that species was there historically, whether
17 that species is affected by the habitat, which is
18 then related to the dissolved oxygen in that
19 particular system, whether that species was
20 extricated by, say, for example, somebody coming in
21 and dumping a toxin in that particular stream.
22 Attributing it to the low DO is probably not the
23 best way to go because you can really run down some
24 particularly misleading paths if you're focusing

0059

1 primarily on individual species accounts and trying
2 to relate that to just taking DO. You have to do
3 analysis to try to tease those factors apart.

4 Also, in the Rankin report, which
5 is a robust analysis, in my opinion, and that
6 analysis was to look at community matrices based on
7 the macroinvertebrates and based on the fish
8 assemblages that were there. So the IBI and the

9 ICI, and trying to relate that to dissolved oxygen.
10 If you take a look at this report, you'll find that
11 the relationship between dissolved oxygen from grab
12 samples, minimum levels that were found in the grab
13 samples, continuous data, look like someone took a
14 shotgun and shot it at the wall in general. All
15 right. Very little relationship between -- or at
16 least apparent relationship between the dissolved
17 oxygen and the community of matrices. That is one
18 of the exhibits that I --

19 MR. HARSCH: Exhibit 4 of your
20 prefiled testimony.

21 DR. GARVEY: Yes, and you know, they
22 look like this (indicating). All right.

23 MR. HARSCH: You're referring to which
24 page?

0060

1 DR. GARVEY: Figure 3 in Exhibit 4, I
2 suppose.

3 HEARING OFFICER: So this is figure 3
4 and attachment four to Dr. Garvey's prefiled
5 testimony?

6 MR. HARSCH: Yes.

7 HEARING OFFICER: Which will be part
8 of Exhibit 15. So there will be no
9 objection.

10 MR. RAO: I have a question.

11 MR. GARVEY: Yes, jump in.

12 MR. RAO: I saw those kind of plots,
13 and I saw no correlation, but then you also
14 had some box plots left. Could you comment?

15 DR. GARVEY: That is figure five, and
16 if you take a look here, it has what are
17 called the ICI range and the ICI narrative
18 range, which are just more or less mildly
19 equivalent to the IBI. The higher the score,
20 the more sensitive organisms to habitat
21 quality may be oxygen. We're not really sure
22 exactly what the factors influencing it, but
23 from a biological standpoint, biologists who
24 work in these systems, the streams that look

0061

1 good that they think are intact, not affected
2 by humans have a tendency to have a suite of
3 invertebrates assemblages, and that's the
4 reason why they look at that. There does
5 appear to be a trend here. All right. But
6 again, the scatter around the median and the
7 means in these box blocks are huge. So we're
8 not going to put a huge amount of -- but
9 there is a relationship very, very weak of
10 DO. However, it should be noted that even if
11 systems with very high ICI values, very, very
12 high, that on occasion, not a lot, but on
13 occasion, these systems have been found to
14 either veer around 4 milligrams per liter or
15 even below that.

16 In science, the reality is that we
17 always talk about consensus, and the thing
18 that will kill any theory in science is the
19 one exception, if that happens. In this
20 case, there are a lot of exceptions here.
21 Maybe not a huge number, and there does seem
22 to be a track between DO and probably habitat
23 quality regions of the invertebrates that are
24 in that particular system, but it's really

0062

1 hard to, again, assign causality to DO as the
2 major factor that's influencing the organisms
3 that are in that particular system.

4 So I just want to be careful that
5 when we take field data and we try to make
6 broad statements about it, that we must
7 understand a lot caveats associated with it,
8 and that's why we do have to do specific
9 laboratory experiments. We have to look at
10 the particular tolerances of the organisms
11 and determine DO sensitivity that way, and
12 then extrapolate that to the field through
13 inductive testing. I just want to caution
14 people on that.

15 So through the stakeholder
16 process, talked a lot with Illinois DNR.
17 They seem to take a pretty -- I think, major
18 role at the outset. Primarily led by Scott
19 Stuewe, Jim Nick. They did come up with a
20 list of streams that is summarized -- well, I
21 guess I can't say it's summarized in Thomas's
22 prefiled testimony, but there is -- and I do
23 believe that there should be some movement,
24 and I think that's already happening, toward

0063

1 streams that are the really high ICI streams
2 in that Rankin document that have habitat
3 qualities that probably are related to
4 dissolved oxygen to some extent that we don't
5 really understand that. We need to identify
6 those streams in the state and assign them
7 extra protection. Are we there yet? Well, I
8 think IDNR worked really hard to come up with
9 an initial list of streams, but I still think
10 we're working towards that goal.

11 Another issue that I think is
12 still, and we thought when we came to this
13 hearing, was a major unresolved issue, was
14 spawning timing issues. When do we implement
15 the spring spawning time or spring standard
16 and summer standard. IAWA regarding Whiles
17 report proposed June 30th as being the cutoff
18 or July 1st being the cutoff between the two
19 times.

20 I did a series of analysis to look
21 at that. I'm sure I'll get asked a lot of
22 details about this. So I'm probably not

23 going to go into it right now, but the
24 reality is it seems to hold based on my

0064

1 analysis of the effect of spawning time in
2 the state. One thing we did talk about
3 during one of the stakeholder meetings,
4 though I never know what happened to that was
5 should there be a north/south split because
6 we know that temperature is a major factor
7 influencing the timing of spawning in fishes.
8 Fish are ectotherms. They heat up with the
9 water. When the temperature and photo period
10 are right, they spawn. In the north, they
11 probably spawn a little later than with that
12 equivalent species in the south. So there
13 might be some cutoff between those two.

14 And so after my analysis, I
15 suggested that probably the current IAWA
16 proposal of the June 30th, July 1st cutoff
17 for the south probably works, and July 15th
18 would probably be acceptable for the north.
19 That's in my prefiled testimony as well.

20 So more or less, that is an
21 analysis or I guess a summary of what I was
22 involved in with the last year. Again, I'd
23 like to just reiterate, and I said this in my
24 prefiled testimony as well, that the reality

0065

1 is is that -- oh, just one other thing that I
2 guess I should point out --

3 HEARING OFFICER: Can I interrupt you?

4 DR. GARVEY: Yeah.

5 HEARING OFFICER: Before you -- we had
6 a question on the north/south issue.

7 DR. GARVEY: Sure.

8 MR. RAO: Yeah, in going over your
9 prefiled testimony, we saw one of the
10 recommendations was maybe have the early life
11 state period different for the northern
12 stream and southern stream. Do you have any
13 analysis as to how we identify these streams?

14 DR. GARVEY: We -- well, one way to
15 look at it is just look at climatology and
16 look at the -- oh, I don't know, the degree
17 days, which would be the amount of cross days
18 that are in a particular part of the state.
19 We talked about I-70 as being a reasonable
20 split. Some people say whether above I-70
21 below I-70 is different. If you take a look
22 at the climate maps, they actually look like
23 they kind of correspond with each other, that
24 is, cooler north of I-70 and warmer. And

0066

1 that does correspond with other sort of
2 ecological ways of looking at the species
3 that were present, that sort of thing. So
4 that was the potential split, and you know,

5 IDNR -- I think Scott Stuewe was the person
6 that suggested that.
7 MR. RAO: Well, hopefully in the
8 future we'll hear a little bit more.
9 MR. STREICHER: We haven't checked
10 with IDOT on that.
11 MR. RAO: Yeah, they're not part of
12 the stakeholder group?
13 DR. GARVEY: They should be. They're
14 invited.
15 The only other issue I think that did
16 come up was the issue of spawn timing. Also,
17 we know that there are these tricky species
18 that begin spawning late spring, and then
19 from spring spawn through October, and I know
20 that in the last hearing and the first
21 hearing we went through a lot of this.
22 Again, this is something we're trying to
23 rectify because we know that during the
24 summertime the streams respire, water doesn't
0067
1 hold as much oxygen, and yet, there are still
2 species that do very well. Even with the
3 list of streams that DNR came up with that
4 were based on DO sensitive species that are
5 present in those systems, I think 30 segments
6 were found to actually have DO problems.
7 They're actually listed for DO problems.
8 So how can a DO sensitive species
9 be present in a system with a DO problem?
10 That's hard for me as a biologist and as a
11 scientist to rectify in my head. I won't go
12 any further with that, but that's something
13 we should take into account.
14 HEARING OFFICER: If I could just ask
15 you a question. I was actually go going to
16 ask Dr. Thomas, but I'm going to ask you
17 instead.
18 DR. GARVEY: Okay.
19 HEARING OFFICER: Is the mere presence
20 of those DO sensitive fish the end of the
21 analysis, or do you look at fish abundance?
22 DR. GARVEY: Well, that's the problem
23 is that in general the presence or absence of
24 the species is a very different factor than
0068
1 the actual abundance than the reproductive
2 ability and all those sort of things, and
3 I'll probably just reiterate what I've said
4 time and time again. Most of these analysis
5 are the presence or absence of the species
6 and maybe have some rough high/low abundance
7 thing, but I don't know if that data -- those
8 data are available, to tell you the honest
9 truth, at that level for that kind of
10 analysis.
11 HEARING OFFICER: Okay.

12 DR. GARVEY: So finally, what I'd say
13 is you need to take into account the habitat
14 when you're looking at these particular
15 systems because habitat is the important
16 template, and the DO probably comes in as the
17 secondary factor as the organisms that we see
18 in those particular systems, and I'll leave
19 it at that.

20 BY MR. HARSCH:

21 Q. Dr. Garvey, let's go through the
22 exhibits and have you briefly explain what they are.

23 A. Okay.

24 Q. Attachment one, which you referred to

0069

1 in the prefiled testimony as Exhibit 1, what is this
2 document?

3 A. This is a document that was brought to
4 my attention by some folks in Illinois EPA. This
5 was developed by a Chris Yoder, I believe at Ohio
6 EPA, and more or less, what they found is that
7 originally the state had, I believe, a minimum of
8 6 milligrams per liter for waters that are
9 considered to be exceptionably warm water habitat,
10 and they did an analysis and found that, more or
11 less, a lot of the streams are going to violate
12 that. They're going to drop below 6 milligrams per
13 liter. So this is analogous to that 6 milligrams
14 per liter for 18 hours a day or 16 hours a day?

15 Q. Sixteen.

16 MS. MOORE: Sixteen.

17 BY DR. GARVEY:

18 A. Sixteen, I just can't remember. In
19 this state, that the reality of reception waters
20 could get that. And so what this document does is,
21 more or less, look into data that they had, and
22 actually that Rankin document that we'll talk about
23 a little bit, I think probably drills on the same
24 source, and they found that instead of a minimum of

0070

1 5 milligrams per liter and a daily average of
2 6 milligrams per liter is probably more realistic
3 for waters that exceptional habitat. I'm not sure
4 what the distribution of these streams are in the
5 state, and again, this is the to best of my
6 knowledge, so if anybody has read this and found
7 something different, they should let me know. But
8 again, I don't know really the characteristics of
9 the streams that are considered the exceptional
10 water habitats warm water habitats in Ohio. I mean,
11 I don't know if they have the special
12 characteristics in terms of habitat or how they're
13 distributed round state.

14 BY MR. HARSCH:

15 Q. What is attachment two that you
16 referred to as exhibit to your prefile testimony?

17 A. Exhibit 2 is an analysis that I
18 presented during the great continuous two-year data

19 of DO from eight Illinois streams that Paul Terrio
20 gave to me from USGS. This is the actual report
21 analyzing those data. So this is a more -- they
22 said it was a cleaned up version, but when I looked
23 at data that I had versus the data that presented at
24 the last hearing and the data that they used is

0071

1 pretty much identical, but more or less, it's just a
2 little bit more detailed analysis of what I
3 presented in the second hearing.

4 If you want to know what it says,
5 it more or less says that there's a lot of variation
6 among streams in the state in terms of the DO, and
7 Paul did a more specific analysis in the -- that
8 we'll talk about in a few minutes.

9 Q. What is Exhibit 3 then?

10 A. That I believe is what we just brought
11 in today, the color copies, right? And this is an
12 analysis of the day that I, again, analyzed when I
13 gave my presentation in the last hearing. This was
14 done by Paul Terrio through USGS. This was not done
15 by me. Okay. So this is, more or less, an
16 independent analysis of what I testified to.

17 In a nutshell, as far as I can
18 tell and other people again can refute me, it first
19 takes a look at just the Illinois daily minimum of
20 5 milligrams per liter. It puts the continuous
21 monitoring data into that, then it finds that
22 streams that are in really bad shape in the state
23 have a tendency to violate 5 milligrams per liter a
24 lot. Streams that are more northerly, probably

0072

1 don't violate it very much, maybe 1 1/2 percent.
2 And then there is, of course, Lusk Creek, which is a
3 difficult stream in the southern part of the state.
4 That's a valuable resource, and the current
5 standard, as I mentioned in the previous hearing,
6 the current standard violates about 23 percent of
7 the time. In other words, if you're going to go out
8 to that particular site, take a DO reading, you're
9 going to say there's a DO problem in that stream.
10 On the other hand, if you take a look at the fish
11 and the invertebrate there, this is a pretty
12 valuable stream. So we've got a problem here. The
13 science doesn't necessarily fit the theory. All
14 right.

15 So what Paul then did is looked at
16 a couple scenarios. One of them was to -- what he
17 called scenario one here, which states the exception
18 of water, the warm water habitat, Ohio standard.
19 And just tries to fit the daily minimum of 5
20 milligrams per liter in the seven-day -- actually,
21 he called it the 7-day mean minimum 6. He found
22 that it still violated streams that we think are in
23 pretty good shape quite a lot.

24 Q. Which streams are you referring to?

0073

1 A. The North Folk Vermillion, the Middle
2 Fork Vermillion, the Vermillion River, and Lusk
3 Creek, in particular, would be the ones that I'm
4 talking about.

5 Then there's another analysis that
6 Paul did, and that was scenario two on these sheets,
7 and what he did there was he looked at the IAWA's
8 seasons and the IDNR's seasons, this is when we were
9 sort of haggling about what the seasons should be,
10 and applied a 5/6 standard to the nonsensitive
11 season. Again, based on what Ohio does, and then an
12 even a more stringent standard during what we
13 consider to be the sensitive season, a minimum of 6
14 milligrams per liter and a 7-day mean of 7.8
15 milligrams per liter. And lo and behold, IAWA
16 seasonal designation and the IDNR seasonal
17 designation were about the same. They found that
18 the violations were, you know, 4 percent of the time
19 somewhere.

20 Finally, we look at the IAWA
21 scenario, which is at 3.5 milligrams per liter and
22 4-day mean minimum -- or 7-day mean minimum of 4,
23 and a 30-day 5.5 milligram per liter average during
24 nonsensitive seasons, but during sensitive seasons

0074
1 one of 5.6. And basically, you can look and you can
2 see that the IAWA proposals, more or less, the
3 number of false violations fall zero for all the
4 streams that we care about, Vermillion -- the Forks
5 of Vermillion, the Vermillion River and Lusk Creek,
6 in particular, are the important ones.

7 The only one that's a little bit
8 disturbing is the 30-day mean of 5.5 milligrams per
9 liter, again, was found to violate the standard
10 24 percent of the time, the proposed standard by the
11 IAWA. So this analysis was very helpful. It kind
12 of indicated what I talked about the last hearing.
13 At least my interpretation of it is that it more or
14 less mirrors what I already talked with you about.
15 So do you have any questions about this for my
16 interpretation?

17 MR. RAO: Can you come up with a
18 written explanation of what he did, or is
19 this just what you got?

20 DR. GARVEY: Just what I got. Let's
21 just say, during the stakeholder meetings, we
22 were free to interpret the data without the
23 interpretation of various agency folks. All
24 right. And so that's my interpretation, and

0075
1 I leave it up to science experts from other
2 groups to look at this.

3 MS. WILLIAMS: Dr. Garvey, if you
4 don't mind my interrupting, I think the
5 agency would intend at some point that Paul
6 be here for you -- available to ask him
7 questions if we have another hearing and

8 explain himself of the data, that would be
9 helpful.

10 MR. RAO: Very helpful.

11 BY MR. HARSCH:

12 Q. I will draw your attention to what you
13 refer to as Exhibit 4 attachment 4 to your prefiled
14 testimony. Can you explain what that document is?

15 A. This is a draft document that was
16 provided by Ed Rankin. Who was formally with the
17 IEPA. He's more or less a fish biologist, but now
18 he's with the Center for Applied Bioassessment and
19 Biocriteria. This is actually, I believe, that
20 previous Ohio EPA document that I showed you by
21 Chris Yoder. This is more or less another analysis
22 that was very similar, but with more data. Again,
23 to get relationships that are scatter plots --

24 Q. You're referring to which?

0076

1 A. I'm referring to figure 3 IBI and ICI
2 values for minimum dissolved oxygen graph data. So
3 it's the same deal. It's really hard to place any
4 strong pattern. If you took a look at the minimum
5 values in figure 4 of that document, again not very
6 often, but some of the streams with really high IBIs
7 did drop a low four on occasion. All right. And
8 again, in these box plots -- you know, it was a rare
9 event, but they did occur. So if EPA biologist just
10 happened to be out taking a grab sample at that
11 time, they would say that system that had a high
12 biotic integrity had low DO and it was in violation.
13 All right. So that was, I guess, the main issue
14 associated with this.

15 This document also has specific
16 mean DO values, tables and tables, for various
17 species, and we could attribute -- if you take a
18 look at a particular species of the invertebrate or
19 fish here, you could interpret the DO values, the
20 means, as reflecting their DO requirements, but
21 again, I caution that there's also a habitat that
22 formed in here, and it's very difficult without
23 doing the right kind of analysis, more laboratory
24 based experiments, it's really hard to interpret

0077

1 these data.

2 MR. RAO: I have a question on one of
3 the -- that Rankin discussed the difference
4 he found between grab samples and continuous
5 samples.

6 MR. GARVEY: Yes.

7 MR. RAO: He said that the continuous
8 samples underestimated the measured DO values
9 compared to grab samples. Is that something
10 that needs to be considered when establishing
11 the standards and how we implement the
12 standards?

13 MR. GARVEY: My personal opinion, yes.
14 I think grab samples are horribly misleading

15 if you take them during the day. If you take
16 them during the day of systems that might
17 have a very bad DO problem, you're not going
18 to detect that particular problem unless you
19 have continuous data to show you when the DO
20 stags occur. I've talked with other
21 biologists that have found that sometimes the
22 DO doesn't drop right at mid or very, very
23 early morning and dawn. Sometimes
24 mysteriously the DO actually is lowest at

0078

1 midnight. Okay. And so even if we sent our
2 poor biologist out to go take grab sample
3 predawn, it might not be picking the periods
4 of lowest DO. The biologists don't
5 understand why this is occurring, but some of
6 my colleagues found that that occurs. So
7 implementing with continuous data in my
8 opinion is really the way to go with this,
9 and we mention that in our report.

10 MR. RAO: And is that part of IAWA's
11 proposal, or would that be for the agency
12 when they --

13 MR. HARSCH: I think we went on at
14 some length at one of these hearings about
15 the appropriateness of how -- whether we were
16 proposing a standard, and then there was a
17 long line of questions about the
18 implementation, and I think Mr. Frevert
19 cautioned that that was really within the
20 agency's purview, and that if we develop the
21 standard, they would be coming forward with
22 the matter that it should be implemented, but
23 we have gone on record as recommending the
24 use of continuous DO monitors, and in fact, I

0079

1 think Dennis has testified that a number of
2 IAWA members are in fact installing DO
3 continuous monitoring data recorders and that
4 data is being made available.

5 MR. RAO: Thank you.

6 DR. GARVEY: Any other questions about
7 the Rankin document?

8 BY MR. HARSCH:

9 Q. No. I draw your attention to
10 Exhibit 5 or attachment 5 to your testimony. Can
11 you explain what this document is?

12 A. Sure. During the stakeholder process,
13 I obviously was trying to think a little bit more,
14 Scott Stuewe brought up the fact that spawning
15 timing probably differs among fish, primary channel
16 catfish throughout the state. Channel catfish
17 economically important species for both the
18 recreational and commercial standpoint. They're
19 also known to have as early life stages that are
20 relatively sensitive to DO, which is a real curious
21 thing given the fact that it is from the early

22 summer spawner. So I decided to take a look and try
23 to understand a little bit more about that to try to
24 come up with this north/south split.

0080

1 More or less, I went back to the
2 literature, and instead of looking at the -- a lot
3 of the time if you take a look at the early
4 ecological test, and actually the most recent ones,
5 they tell you that species spawn on certain months,
6 you know, May through July or something like that.
7 Obviously, May through July for a fish in the
8 southern part of the state and in the northern part
9 of the state are going to be a different experience
10 in terms of temperature. What I did is try to go
11 back to the literature and look to see whether there
12 was information on the actual spawning times in
13 terms of temperature for these species. They were
14 more limited, and a lot of the time the spawning
15 temperature was given an initiation, what
16 temperature was needed to initiate spawning, but not
17 necessarily -- they didn't give the entire range.
18 So with this analysis, I just more or less asked the
19 question, how is temperature in the state as it
20 varies from northern and southern systems, and I
21 took some of the data from Terrio and what I have
22 already showed you, the temperature data, and just
23 looked to see how the temperatures differed between
24 the northern region and the southern region. I

0081

1 found that there was a pretty significant difference
2 in the amount of the warming that occurred in the
3 springtime, which would then influence more or less
4 when fish would initiate spawning.

5 From that analysis -- well, you
6 know, it's kind of tough, but what I try to do is
7 take into account the proportion of species in
8 Illinois, and when they should initiate spawning,
9 not go through the entire spawning time, but at
10 least initiate spawning. What I found is that there
11 was a north/south difference that probably by early
12 June in the southern part of the state 95 percent of
13 the species that are in the state, fishes, probably
14 initiate the spawning. They're not finished
15 spawning, but they're starting.

16 In the northern part of the state,
17 it's probably delayed by maybe 15 days, maybe
18 two weeks, somewhere in that vicinity. That was my
19 justification for that two-week difference between
20 the northern and the southern part of the state.
21 Anyway, so that was more or less the gist of this
22 particular analysis that I did.

23 Q. Can you explain for the record what
24 Exhibit 6 or attachment 6 is?

0082

1 A. Does anyone have any questions about
2 this (indicating) exhibit or is this pretty clearly
3 written?

4 The next exhibit is actually some
5 data from a from Laura Csoboth, who's one of my
6 students. These data are not published yet. These
7 are for a study that we're doing currently in the
8 vicinity of Swan Lake, which is in the Illinois
9 River. For those of you who are not familiar with
10 Swan Lake, it's near the confluence of the Illinois
11 and the Mississippi Rivers just above St. Louis near
12 Grafton and Alton.

13 Swan lake is pretty close to the
14 center of the state, and it is an area of the
15 Illinois River where we expect it to sort of reflect
16 the median of temperatures and conditions that would
17 occur in terms of the fish. All Laura did this
18 summer -- well, this is from a year ago last
19 summer -- was to quantify the larval fish that were
20 produced in the Illinois River and in Swan Lake, and
21 this analysis is more or less looking at the number
22 of fish that are moving from the river into Swan
23 Lake in -- or from Swan Lake out to the Illinois
24 River. That's out. All right. That's actually not

0083

1 that important for you guys to care about. All you
2 should care about are the symbols, not what's coming
3 from the Illinois River, the back water of Swan Lake
4 right now. But I think the important thing to note
5 is that we have spawning that occurs in fishes --
6 oh, one other thing, the gray line on this figure it
7 is just the discharge. And you can see here that
8 the depth is the depth of the particular water --
9 depth water that we had, and that corresponds with
10 the amount of discharge. In other words, we had a
11 spring flood that occurred in June, and it lasted
12 through more or less July in 2004, very different
13 than this year.

14 The point is, is that most of the
15 spawning had occurred in the larval fish component
16 before July 1st. Probably 50 percent of the
17 spawning occurred somewhere between June 1st and
18 July 1st. This, in a way, shows that, like I've
19 tried to argue in my previous testimony and also in
20 some of the exhibits that I've given, that most of
21 the spawning probably occurs prior to that July 1st
22 cutoff date. That's all I'm trying to point out
23 here. There are some stragglers, primarily
24 sur-target, for example, those are the sunfishes

0084

1 that keep spawning through July, but you'll find on
2 average that most of the spawning gets done in the
3 Illinois River and Illinois streams by that point.
4 So that kind of indicates my analysis to some extent
5 I believe. Though, I'm sure there's other analysis
6 out there that might show exceptions. I think on
7 average that's probably what occurred, but this year
8 we're finding the same basic pattern. Anyway, I
9 thought I'd provide that data just to show you that
10 we are doing research that helps to define some of

11 the statements that are made before the Board.

12 Q. Exhibit 7 or attachment 7, can you
13 explain for the record what that is?

14 A. That's a figure from Garvey and Stein,
15 which is paper on Transactions of American Fisheries
16 Society, which used to not seem like a long time,
17 but '98 is starting to sound like it is a long time
18 ago. These are from three reservoirs that I worked
19 on in Ohio as a Ph.D. student. I was privy to
20 getting a lot of data on larval fish of timing and
21 spawning, primarily are the most abundant species in
22 Ohio reservoirs, and actually is the same for
23 Illinois reservoirs, and that's gizzard shad and
24 bluegills. And all I'm showing here is basically

0085

1 the temporal progress of spawning of these species
2 in the summer in each year for '87 to '94 in three
3 lakes --

4 THE REPORTER: I didn't hear the
5 lakes. I'm sorry.

6 DR. GARVEY: Okay. The lakes are
7 Clark Lake, Stonelick Lake and Kokosing Lake.

8 BY DR. GARVEY:

9 A. And, anyway, what it's going to show
10 you is, one, that on average a lot of the spawning
11 occurs before July in most of these lakes. Again,
12 this is just more data to support what I've already
13 talked about. There are exceptions and say, for
14 example, in 1991, a lot of spawning occurred after
15 July, and I can tell you that those were sunfish
16 that were spawning at that time, and we know they do
17 that. So there are exceptions, but if I was to take
18 this analysis, and I was to look on average when
19 50 percent of the spawning occurs for these two very
20 common groups of the fishes in Ohio, it's going to
21 occur before July 1st. That was the only point I'm
22 trying to make from this particular figure, and it
23 is published. It's been peer reviewed. My
24 anonymous colleagues have looked at it and given its

0086

1 approval.

2 HEARING OFFICER: I'm sorry. You said
3 50 percent occurs by July 1st?

4 DR. GARVEY: Right. We're going to
5 have to get into the next issue here.

6 HEARING OFFICER: Which is Exhibit 8?

7 DR. GARVEY: The analysis of spawning
8 time that I talked about before was only
9 based on the initiation responding. Again,
10 we know that there are species that they'll
11 start their responding in early summer, late
12 spring, but then these little critters will
13 keep spawning and invertebrates will keep
14 making babies, and we really don't know
15 anything much about mussels when they're
16 doing their spawning thing. They're going to
17 keep going through the summer, and a lot of

18 them will do that.
19 But we need to figure out a new
20 perspective, and this is called a production
21 based effort. If you're a conservationist
22 and you want to protect every single organism
23 that lives, then you basically create a
24 standard that's not realistic that these

0087

1 streams or reservoirs can't necessarily
2 provide, but who cares, because you're going
3 to assume that that's going to protect every
4 single individual that's produced. But what
5 we found with most of fishes is that a
6 generality, and there are always exceptions
7 out there, that the fish that respond
8 earliest, i.e., probably for most of the
9 species before that July 1 date, are the ones
10 that are going probably to contribute
11 disproportionately in a large way to the
12 actual populations that are out there. This
13 holds for many different species that are out
14 there.

15 In other words, it's usually the
16 thinnest -- I can't believe I just said that.
17 That's awful. No, I'm not supposed to say
18 that as a scientist. It's usually the fish
19 that are in the best condition, big fish --
20 healthy fish are the ones that tend to spawn
21 earliest because they start out in the
22 summertime or the springtime in the best
23 condition. They don't have to eat a lot to
24 reproduce. So they get their spawn off

0088

1 early. Why is there a benefit to that?
2 Well, the general belief is there's a benefit
3 to that because it ensures that your
4 offspring have the longest time during the
5 summer to grow and bait predators, get lots
6 of food in your body so that you can put on a
7 lot of fat, so that when you approach that
8 first winter of life, you have plenty of
9 preserves to deal with the scarcity, which is
10 low temperature and low productivity of
11 winter. Usually then those fish will come
12 out of that first winter the ones that
13 survive.

14 There are later spawned
15 counterparts, the ones that respond late in
16 summer, might have a very, very small
17 probability of surviving that first winter,
18 but in general, they don't make it. That
19 will get into the next figure that I'll show
20 you in a minute. That's a generality. There
21 are times when something really weird happens
22 in the spring, and then all of a sudden,
23 usually the fishes that spawn in the middle
24 of the season, then they have some weight to

0089

1 the offspring that they produce. But very
2 seldom do those late offspring individuals
3 really ever contribute much to the
4 population. They might a little bit because
5 there must be a reason to why some fishes
6 still like to spawn, but their probability
7 isn't very good during that part of the
8 season, and I can name lots and lots of
9 studies out there that reiterate this. Not
10 that I'd say it's a theory because there are
11 a lot of exceptions that occur, but that's a
12 general rule in a lot of fish ecology.

13 MR. GIRARD: I have a question. What
14 would be some of the possible advantages for
15 the late breeders?

16 DR. GARVEY: Let's say, for example,
17 you get off at early -- well, it's actually
18 more complex than these. Dave Knuth who
19 worked really hard in some lakes around
20 Sparta, Illinois, and what he found is that
21 these really robust healthy adults they don't
22 only spawn usually earliest, but they also
23 make a lot of babies late in the season,
24 spawn and spawn and spawn because they're in

0090

1 great condition. So they still -- there
2 might be some advantage on occasion through
3 evolutionary time for spawning late. Why is
4 that? Because sometimes something really bad
5 will happen in the spring. What might that
6 be? It could be a cold snap that comes in,
7 freezes out those early spawn individuals.
8 It could be some other unforeseen effect, and
9 then usually the individuals that then spawn
10 later in the season, are usually not the ones
11 that spawn in October because usually
12 sunfish, for example, I'm talking about
13 sunfish, that come out are only about that
14 (indicating) big going into --

15 HEARING OFFICER: You're indicating
16 about an inch big just for the record.

17 DR. GARVEY: Oh, for the record, yes.
18 Can you take a picture of this. Probably
19 even less than an inch, but yeah, maybe less
20 than an inch. They just don't make it
21 through that first winter of life. There
22 are, again, exceptions, but very seldom.
23 It's bet hedging, more or less. What's
24 happening is is that you don't want to put

0091

1 all your eggs in one basket. On the other
2 hand, there's a tendency to put your eggs --
3 more of your eggs in the basket earlier than
4 you put your eggs later on in the season.
5 We're still working this out, but that's the
6 next exhibit is this study that I did.

7 MR. GIRARD: So basically what you're
8 saying is environmental factors can be
9 variable, like climate and other features?

10 DR. GARVEY: Right. And so what
11 happens is there's actually two life
12 histories -- or actually there's three life
13 histories, but two researchers Kirk
14 Weinmiller and Ken Rose are two people that
15 came up with this, what I'm basing a lot of
16 this on a paper that was written in Canadian
17 Journal of History of Aquatic Sciences in the
18 early '90s. I've kind of influenced my
19 thinking that there are different
20 philosophies to approach this kind of stuff,
21 but I tend to try to think about how the life
22 history of the organisms superimposes the
23 environment that they're in. People disagree
24 with me, but that's how I try to understand

0092
1 how the world works.

2 MR. GIRARD: So if you don't have
3 those late larval or don't allow them to
4 survive, you're reducing the variability of
5 the population?

6 DR. GARVEY: Yes, what will happen is,
7 this is something that I think anybody who,
8 for example, allows -- say, for example, from
9 fisheries management perspective, what would
10 be the ultimate thing that you would want to
11 do if you are totally protecting it? Shut
12 down the fishery. Don't let anybody fish
13 that species, right? Because you don't want
14 to take any individuals if you want a healthy
15 population there. You can do that, but on
16 the other hand, you've got to find when
17 you're trying to rectify particular factors,
18 how much fishing is allowable, how much do
19 you protect without having a huge negligible
20 affect on that population? The other thing
21 the populations have a tendency to do is that
22 if you have a predation on them, they tend to
23 respond in a compensatory way. They'll put
24 more of their effort in a time -- for

0093
1 example, spawning at a time when they're
2 going to have the most benefit.

3 Anyway, to go back to my earlier
4 point, in the fish world, probably in a lot
5 of the world, there's actually probably at
6 least two major strategies. There's the fish
7 that spawn all at once, do their thing,
8 usually on top of a resource. This typically
9 happens in fish that spawn in early spring.
10 They tend to produce their offspring all at
11 once in a periodic fashion. Those offspring
12 then usually overlap a resource. They go
13 really fast. As long as that resource is

14 there. So they're basically putting all
15 their eggs in one basket. That tends to
16 happen in spring, as far as I can tell.
17 Again, I can't name any literature on fresh
18 water fishes that really shows this. Then
19 the summer -- the late spring early summer
20 spawners tend to have this protractive thing
21 going on. They just kind of spawn and spawn
22 and spawn, and they're called an
23 opportunistic strategy, and that is your bet
24 hedging strategy where you basically --

0094

1 because of the environmental variability out
2 there, you can't predict when your predators
3 are going to be there. You can't predict if
4 there's going to be a cold snap or a flood or
5 a drought. So what you do is you don't spawn
6 all at once. Okay. But still on average the
7 fishes that spawn earliest we found at least
8 in the -- or what I have from literature and
9 my personal experience, that the fish that
10 spawn earlier probably have the highest mean
11 fitness from the perspective -- and when I
12 define fittest meaning that they have the
13 highest probability of surviving to reproduce
14 again and put off another generation.
15 Through time, even though they're still
16 spawning through time, that expected mean
17 fitness declines. Why do they still spawn
18 late in the season? Because every once in a
19 while once every 10 years, 100 years, who
20 knows, something catastrophic is going to
21 happen to those early babies, and then your
22 stock just went up really high, but only for
23 a brief time. So then -- I don't want to get
24 into it. If you look at it from an

0095

1 arithmetic standpoint, it's not actually not
2 contributing a huge amount, but that once in
3 a very rare time, obviously it contributes
4 enough that it stays in the population as a
5 strategy. Is that what you --

6 MR. GIRARD: You answered my question.

7 DR. GARVEY: That's the best I know,
8 and someone else could testify and say I'm
9 full of it, but that's my best understanding,
10 and I've written a paper on this, and this is
11 the next exhibit --

12 BY MR. HARSCH:

13 Q. Eight.

14 A. Which is called protracted
15 reproduction sunfish --

16 HEARING OFFICER: This is attachment
17 8?

18 DR. GARVEY: This is attachment 8, and
19 you just have the figure from it, but anyway
20 the paper is called protracted reproduction

21 in sunfish, the --
22 HEARING OFFICER: Let me just --
23 DR. GARVEY: It's the wrong one?
24 HEARING OFFICER: Attachment 8 to your

0096

1 prefile testimony is entitled protracted
2 spawning in fishes - implications for
3 proposed dissolved oxygen standards.
4 DR. GARVEY: Okay. That's what I'm
5 talking about.
6 HEARING OFFICER: Thank you.
7 DR. GARVEY: Anyway, the paper is
8 called the temporal dimension in fish
9 recruitment revisited. And this is the paper
10 I published when I was working in Ontario
11 Lakes --
12 MR. HARSCH: Wait a minute, Jim. I
13 don't think so.
14 HEARING OFFICER: Off the record.
15 (Whereupon, a discussion
16 was had off the record.)
17 MR. HARSCH: We've clarified the
18 attachments.

19 BY MR. HARSCH:

20 Q. If I show you what was submitted in
21 your prefiled testimony of exhibit or attachment 8,
22 can you explain what the document entitled
23 protracted spawning in fishes implications for
24 dissolved oxygen standards?

0097

1 A. Yes, you're correct and that's
2 actually what I just spent the whole time talking
3 about is more or less that this idea that the early
4 spawn fishes are the ones that contribute
5 disproportionally to the population. There are
6 exceptions I will admit, but it's a -- it's the only
7 way that I can rectify why one fish spawn in a
8 protractive fashion during the summer. Anyway, that
9 does segue into the next exhibit.

10 Q. I have a question before we segue.

11 A. Sure.

12 Q. Those protracted spawners, if I
13 understand what you've testified to in terms of the
14 continuous data that you were provided by
15 representative of the agency in the Ohio data, those
16 fish are spawning at a time when you know that the
17 dissolved oxygen levels are going to be at or near
18 the summer numbers?

19 A. Yeah, they have to be because we find
20 the communities present there that are considered to
21 be high quality, and yet, we have continuous data to
22 show that the systems do occasionally reach the
23 3.5-milligram minimum.

24 Q. So the numbers that you're proposing

0098

1 in your opinion are protective of those species that
2 have developed and evolved into the continuous

3 spawning?

4 A. To the best of my knowledge.

5 Q. Would you move on and explain what
6 attachment 9 or Exhibit 9 to your prefiled testimony
7 is?

8 A. Yes. Sorry about the confusion there.
9 That's just a figure 8 of a paper entitled
10 protracted reproduction in sunfish: The temporal
11 dimension in fish recruitment revisited. It's in
12 the journal called Ecological Applications. It
13 summarizes some work that I did with sunfish in
14 Ontario in a lake called Lake Opinicon. Anyway, all
15 that's shown here in figure 8, part of the earliest
16 -- the size distribution of young sunfish that were
17 produced back in 1999, that was a long time ago,
18 anyway, these were fish that were produced by 21
19 September in this lake. It's Ontario so by 21
20 September, we should pretty much assume that all the
21 spawning has stopped. It's getting pretty cold in
22 those systems already. If you take a look -- we're
23 really interested here in this lake frequency
24 distribution. The total length on the X axis is

0099

1 just the size of the fish. On the Y axis is
2 proportion frequency. That's just the proportion of
3 fish in the distribution. The thing that we're
4 interested in is everything to the left of the
5 dashed line in each one of the panels. Those are
6 fish that we aged using ear bones, which actually
7 allow us to get the daily age of fish, we extract it
8 from the fish. We determined that those fish were
9 actually from that year. So they're offspring is
10 from that year.

11 We found in September and October
12 of that year a distribution of fish that range from
13 somewhere between 30 millimeters and just less than
14 probably 48 or 49 millimeters. When we came back in
15 May of the following year, the following spring, we
16 found that most of those young individuals --
17 because size and age are typically related to each,
18 but the bigger you are the older you are because
19 you've had a longer time to grow during that year.
20 The small, young individuals were absent from
21 distribution. Again, to suggest that only those
22 individuals that were large enough and had enough
23 energy reserves to survive during the winters, they
24 were the ones that made it to the next side, and

0100

1 literature has a lot of examples like this, and that
2 was just me trying to make the point again that
3 typically we find that the earliest spawn largest
4 young that are the ones that contribute to the
5 population. Other than that, I don't think I have
6 anymore exhibits, unless Roy found one that I --

7 MR. HARSCH: At this point,

8 Mr. Hearing officer, I'd like to move for the
9 admission of prefiled testimony of Dr. James

10 Garvey and the nine attachments there to?
11 HEARING OFFICER: Motion to enter
12 Dr. Garvey's prefiled testimony and nine
13 attachments and that includes attachment 3,
14 the Paul Terrio USGS data, which was omitted
15 from the prefiled testimony as filed
16 August 4th, I believe.
17 MR. HARSCH: Right.
18 HEARING OFFICER: Any objection to
19 entering that as a hearing exhibit? Seeing
20 no objection, I'll mark that as hearing
21 Exhibit 16 and enter it into the record as a
22 hearing exhibit.
23 At this point, it's about 20 to 1.
24 We might as well start questions for the IAWA
0101
1 witnesses. I imagine we're going to go into
2 the afternoon with that questioning, but at
3 this point, I'll just open it up -- the Board
4 does have some questions in addition to the
5 ones we've asked, but I'll open it up to the
6 audience first. Mr. Ettinger, did you have
7 an a number of questions?
8 MR. ETTINGER: Well, if somebody has
9 questions who wants to ask them and get out
10 of here, maybe they should do it. I'm going
11 to have more than 15 minutes. I'm not
12 planning to go hours because we're all going
13 to agree on a standard in 60 days.
14 HEARING OFFICER: Okay. Well, why
15 don't we start Mr. Ettinger's questioning
16 after lunch and open it up to anyone else who
17 might have questions for the IAWA witnesses
18 who may not want to return after lunch.
19 Anyone else have any questions for any of the
20 IAWA witnesses?
21 If you could state your name and
22 organization for the record.
23 MR. CHINN: My name is Howard Chinn.
24 I'm an engineer with the Attorney General's
0102
1 Office, and the question I have is, is it a
2 fair statement of IAWA that the current
3 standard is technically feasible and
4 economically practical to comply with?
5 MR. STREICHER: No, it is not
6 feasible. It is a -- as you may have heard,
7 the diversity of the ecosystem that
8 Dr. Garvey described, with all that diversity
9 out there and that one size fits all
10 dissolved oxygen standard, and we don't think
11 that's feasible. We don't think that
12 accurately reflects what goes on in the
13 rivers that we are tributary to that we are
14 responsible for keeping -- you know, meeting
15 Illinois EPA standards. We don't think that
16 it's feasible.

17 In terms of economics, I can give
18 you an example just from my own experience at
19 the plant that I operate. There was a desire
20 by Illinois EPA to impose a dissolved oxygen
21 limit in my permit.

22 MR. HARSCH: You mean a water
23 quality --

24 MR. STREICHER: A water quality based

0103

1 effluent limit for dissolved oxygen.
2 Fortunately, I was able to argue that that
3 shouldn't be in my permit, but if it had
4 been, I would have been forced to extend some
5 dollars to modify the plant to meet that.

6 In addition to that, the river
7 that I'm on has been as a USEPA published
8 total maximum daily loading report. In that
9 report, dissolved oxygen is identified as an
10 impairment on the river, and the report
11 actually identified proposed improvements at
12 wastewater treatment plants, POTWs, within
13 the basin to comply or to mitigate those DO
14 impairments. I think they had identified
15 some \$18 million of proposed costs and other
16 estimates on \$40 million plus. If that was
17 imposed just a mitigated dissolved oxygen
18 violation on a standard that we don't think
19 is feasible to begin with, that cost would
20 have been borne by the plants. So it is
21 costly.

22 Now, having said that, let me say
23 too, if the river has a deal impairment, we
24 are not opposed to addressing that

0104

1 impairment, and there are -- some of the
2 rivers and the data that's been presented
3 show that they have impairments regardless of
4 what standard that may be imposed, the
5 existing or imposed one.

6 We're not here to take rivers off
7 of the list, so to speak. We're here just to
8 establish a correct value to work from and
9 use that number to address the river
10 impairments.

11 MR. CHINN: Have you conducted any
12 technical feasible study as to what is needed
13 to enable you to come into compliance with an
14 existing DO standard?

15 MR. HARSCH: Mr. Chinn, I can respond
16 to that.

17 We're not talking about an
18 effluent limitation.

19 THE REPORTER: Can you turn towards
20 me?

21 MR. HARSCH: We're talking about the
22 appropriateness of a water quality standard
23 for general used waters in the State of

24 Illinois, and you have missed out on two days
0105

1 of hearing. We've had some summary testimony
2 today from Dr. Garvey in the presentation of
3 continuous monitoring data collected by USGS
4 and IEPA that shows that a number of streams
5 in Illinois that are thought of as being
6 pristine streams, like the North Fork, the
7 Middle Fork and the Vermillion River do not
8 currently at all times meet the current --

9 THE REPORTER: The current what?

10 MR. HARSCH: Current use of general
11 water quality.

12 HEARING OFFICER: If you wouldn't mind
13 just spinning around for the court reporter.

14 THE REPORTER: I'm sorry.

15 MR. HARSCH: Howard, it's not a
16 question of having a discharge that complies
17 with the standard. It's a question of coming
18 up with the appropriate standard that fits
19 what we expect to see the waters of the State
20 of Illinois exhibit in terms of dissolved
21 oxygen levels and appropriate levels for a
22 standard to be set at.

23 MR. CHINN: The early comment I
24 thought I heard was that this effluent

0106
1 standard would be based upon the water
2 quality standard.

3 MR. HARSCH: Yes, Illinois EPA
4 routinely is charged with developing effluent
5 limitations for inclusion in NPDS permits
6 based on complying with water quality
7 standards, and although it's not set forth in
8 any regulation, I think it's clear from the
9 record that Illinois EPA has initiated a
10 policy of including a dissolved oxygen
11 limitation of 6 milligrams per liter to be
12 met 24 hours a day and seven days a week in a
13 number of NPDS permits, and that's what
14 Mr. Streicher testified to regarding the
15 proposed permit limitation in his permit.

16 MR. CHINN: So am I correct or is this
17 fair to say that it is technically feasible
18 to --

19 MR. STREICHER: You can meet 6
20 milligrams per liter 24 hours a day, seven
21 days a week on a system either because of the
22 physical drop or aeration or agitation that
23 occurs in a treatment plant, or you can
24 install a fine bubble diffuser, for example,

0107
1 or other aeration device and produce an
2 effluent outage sewage treatment plant
3 discharge that meets 6 milligrams per liter
4 24 hours a day, seven days a week at an
5 energy cost and a fossil fuel cost that Mike

6 Callihan testified at the last hearing, but
7 that doesn't do much if the stream itself
8 that you're discharging into does not meet
9 the current standard of six and five, and
10 that's what we're getting to is what should
11 be the appropriate standard for that stream?

12 MR. CHINN: So by changing the current
13 dissolved oxygen standard to your proposed
14 standard, will you then be able to have the
15 stream water quality standard met at all
16 times?

17 MR. HARSCH: No, because I mean the
18 stream itself wouldn't be the factor here. I
19 mean, what the quality of the stream, what
20 the habitat of the stream is.

21 MR. CHINN: So even -- but this change
22 as a proposed -- your proposed amendment to
23 the standard, it would still be noncompliance
24 in water qualities.

0108

1 MR. STREICHER: I think what we
2 believe is if a river is -- already has
3 problems in water quality.

4 MR. CHINN: Correct.

5 MR. STREICHER: Our petition isn't
6 going to change or remove a river from those
7 violations. It isn't a significant change to
8 removing these rivers out of imperative
9 state.

10 MR. CHINN: I think you answered my
11 question. I was just wondering if the Board
12 adopts proposed changes, are we all going to
13 be in compliance with dissolved rivers?

14 MR. STREICHER: No.

15 MR. HARSCH: Actually, the data that
16 is included in attachment 3 to Dr. Garvey's
17 testimony shows that with the IEPA proposal
18 there will still be rivers that -- some of
19 the rivers that have continuous data on the
20 IEPA and USGA has collected will not be in
21 compliance with the IAWA proposal. Those
22 rivers have something going on in them that
23 needs to be addressed, habitat modification,
24 you know --

0109

1 MR. CHINN: River flows.

2 MR. HARSCH: That's correct. It is
3 our testimony and our position in this record
4 that the proposal is designed to come up with
5 the appropriate water quality standard so
6 that when we go through the TMDL process, we
7 are looking at an attainable standard when it
8 is required to be protective of the
9 assemblage in that stream and one that had
10 some certainty of being achieved down the
11 road, and we're not dealing with essentially
12 artificial value. That really does not have

13 a scientific basis, and that's also going to
14 be important in the establishment long-term
15 of the development of nutrient standards in
16 Illinois, and that's in the record. The
17 first two hearings that was presented in some
18 great detail.

19 MR. CHINN: Yeah, unfortunately, I
20 haven't gone through the record. I just got
21 involved recently. Thank you.

22 MR. HARSCH: We would be more than
23 happy to meet you and other representatives
24 and have you participate during the

0110

1 stakeholder meetings.

2 MR. CHINN: Thank you.

3 HEARING OFFICER: Thank you. Any
4 further questions for any of the IAWA's
5 witnesses other than Mr. Ettinger's
6 questioning, which we'll start after lunch,
7 and the Board may have some follow-up
8 questions, anyone else have any questions
9 they'd like to pose at this point in time?
10 Seeing none, we are pretty close to our
11 estimated lunch break. It's about eight or
12 nine minutes until one. Since we forged
13 ahead without any break, I think we'll get an
14 extra eight or nine minutes of lunch time.
15 We'll start again at 2:00. So for now we'll
16 go off the record.

17 (Whereupon, a break was taken,
18 after which the following
19 proceedings were had.)

20 HEARING OFFICER: Where we left off
21 before lunch was questioning of IAWA's
22 witnesses. The first thing, though, I've
23 been asked that everybody really try to speak
24 up. Some of the people in the back have been

0111

1 straining to hear the testimony. So if you
2 could, when posing questions or responding to
3 them, please try to speak up as best you can.

4 With that, Albert Ettinger counsel
5 for Sierra Club and Environmental Law and
6 Policy Center and Prairie Rivers Network was
7 going to proceed with questions for IAWA's
8 witnesses. So with that, Mr. Ettinger, --
9 I'm sorry. Let me just quickly -- was there
10 anyone else who had a question for any of
11 IAWA's witnesses. Mr. Ettinger's questions I
12 sense may go on for a little bit. Does
13 anyone else have any other questions for
14 IAWA's witnesses.

15 DR. THOMAS: Yeah, I had a question.

16 HEARING OFFICER: Dr. Thomas from DNR
17 had a question. Would you mind if we --

18 MR. ETTINGER: Do you want to follow
19 me or do you want to --

20 MR. THOMAS: I could follow you.
21 HEARING OFFICER: I think Mr. Ettinger
22 has a number of questions. So he's agreed to
23 yield. Why don't we go ahead and have
24 Dr. Thomas from the Department of Natural

0112

1 Resources go ahead and pose your question if
2 you would, sir. Again, I'd ask you would
3 just speak up so the court reporter and other
4 folks can hear you.

5 DR. THOMAS: I'm David Thomas. I'm
6 chief of the natural history survey. I just
7 wanted to ask Dr. Garvey about one of his
8 exhibits. The Ohio EPA 1996 report.

9 DR. GARVEY: Okay.

10 HEARING OFFICER: Do you have a copy
11 in front of you?

12 DR. GARVEY: Sure do.

13 DR. THOMAS: I would just ask you to
14 turn to page four. Just look at page four
15 and five. This is under their summary and
16 conclusions so it's -- I should say, it's
17 Roman numeral four -- I'm sorry. Roman
18 numeral five and six.

19 HEARING OFFICER: Doctor, I'm sorry to
20 interrupt, but just so everybody is following
21 along here, this is Dr. Garvey's prefiled
22 testimony, which is now Exhibit 16,
23 attachment one, the Ohio EPA 1996 report, and
24 I'm sorry, you're at page Roman numeral?

0113

1 DR. THOMAS: Five.

2 HEARING OFFICER: Okay. Thank you.

3 BY DR. THOMAS:

4 Q. It's interesting because this document
5 actually tries to justify going to a minimum --

6 HEARING OFFICER: I'm sorry. If you
7 want to make some comments, and you're
8 absolutely welcome to, I'd prefer to go ahead
9 and swear you in. If you were just going to
10 pose a question, that's fine, and we.

11 DR. THOMAS: No, I was trying to set
12 up a background for my question.

13 HEARING OFFICER: If you're
14 interpreting the document, though, I'd just
15 be more comfortable swearing you in, if
16 that's okay.

17 DR. THOMAS: Sure.

18 HEARING OFFICER: Go ahead and swear
19 in Dr. Thomas.

20 (Witness sworn.)

21 HEARING OFFICER: thank you.

22 BY DR. THOMAS:

23 Q. This document actually makes the
24 justification -- well, one, is the designated --

0114

1 what they call exceptional warm water habitat, and

2 this document actually is trying to justify lowering
3 their minimum from 6 milligrams per liter to
4 5 milligrams per liter. The second to last sentence
5 says -- well, they talk about -- they justify values
6 less than 6. They say, "However, values less than
7 5 milligrams per liter were either infrequent, did
8 not correlate with fall EWA's use attainment or were
9 measured only under extreme low flow conditions.
10 The results of this analysis tends to support a
11 minimum exceptional warm water habitat dissolved
12 oxygen criteria of less than six, but not less than
13 five," and then if you go to the next page at the
14 very bottom, they say, the adoption of a 6-milligram
15 per liter daily average, a 5-milligram minimum,
16 two-number DO criteria, and then they go on and talk
17 about cold water, but then they finish it is
18 supported by the scientific evidence both field and
19 laboratory examined by this study.

20 My question to you I guess is,
21 would you -- what would your statement be that
22 whether Illinois has streams that might fall under
23 their classification of exceptional warm water
24 habitat?

0115

1 A. I'd say yes.

2 Q. And do you disagree with their
3 conclusion of reaching a 5-milligram per liter as a
4 minimum for those exceptional warm water habitats?

5 A. I'd say that it's probably better than
6 it occurred. I would even say that looking at the
7 data that he has compiled -- whoever, I'm assuming
8 it's Chris Yoder. There's still going to be
9 occasional violation, but before the Board and
10 everyone here, how many violations are acceptable,
11 1 percent, 5 percent. When I talked to Ed Rankin
12 about the basis for this report and what he
13 provided, he said that about 10 percent of the
14 stream, I was assuming segments -- but I might need
15 to be a little careful. I'm not exactly sure about
16 that -- are classified under the warmer water
17 habitat. So there are -- this does not cover all
18 the streams in the state of the ones that are
19 considered to have species that might be DO
20 sensitive or need special habitat. So I agree with
21 you there are streams in the state that need that
22 protection. I was under the understanding that when
23 we were at the stakeholder meeting that were
24 provided to us from DNR, at least, was a first step

0116

1 or attempt to identify those particular stream
2 segments and river main stems.

3 Q. And I think they also say in this
4 document that their exceptional warm water habitat
5 picks up what some biologist would call a cool water
6 species; is that correct?

7 A. Yeah, I believe so, but -- yeah.

8 Q. So what they really looked at was a

9 three-tiered system. They had cold water streams
10 with the trout and very oxygen sensitive. They had
11 a group of just called warm water streams, and then
12 they had the exceptional warm water habitat that
13 included cool water plus what they argued were
14 temperature sensitive warm water species; is that
15 correct?

16 A. I believe so.

17 Q. And the only other question that I
18 would ask is -- and I may have misheard you say
19 this, but I thought I heard you say something to the
20 effect that exceptions kill a theory, and I assume
21 this was talking about outliers, but I wasn't sure
22 what you meant by that.

23 A. Well, I always like to use the example
24 that the Einstein theory of relativity and how it

0117

1 was just a theory of light pending across when they
2 actually -- so the point is and none of this --
3 believe me, everything we're talking about here is
4 not at the level of a theory. A theory being
5 something that's the consensus, accepted idea, but
6 the point is, is that if you -- you can disagree
7 with me on this, but if we have a stream segment and
8 it has a suite of DO sensitive species or what we
9 suggest that they are, and we find that that system
10 violates that DO standard that we have. There's
11 something not right there, and the way science works
12 is, is then we go back to that particular stream
13 segment, and we try to figure out what the limiting
14 factor is because we would have to rule out that DO
15 levels that are currently there must be adequate to
16 that species. There's a lot of other factors that
17 could be involved there, but that's kind of how
18 science works. So yeah, that was kind of -- I don't
19 know if that --

20 Q. But isn't true for biological data
21 that we tend to see a lot of the scatter in our
22 data?

23 A. We do, but I think the level of
24 relationships between the DO -- and again,

0118

1 scientists can disagree, but the level of
2 variability between DO reading that Rankin provided
3 and the IBIs and ICIs are extreme.

4 Q. That's true, but I don't know how
5 familiar you are with lake trout, but the fact that
6 they need high DO because they occasionally may move
7 into low or almost anoxic waters doesn't mean -- the
8 fact that you could actually catch them occasionally
9 in very low DO water, doesn't mean that they could
10 survive in the long term in low DO water?

11 A. Absolutely. Lake trout and a lot of
12 different species that have say, for example, a
13 temperature requirement, and we're talking primarily
14 about cold water species, can't move to the top
15 layer of the water column for a very long period of

16 time without asphyxiating because there's not enough
17 oxygen. So what they do is they hangout at the cold
18 water layer between what they call the thermocline
19 or between the hypolimnion and the epilimnion, and
20 they hangout there in cold water. There's not much
21 food there, but they essentially hold their breath,
22 go up to the surface and eat some food, and they go
23 back down and digest at that cold temperature again.
24 There's a lot of the species that are cold water

0119

1 that I know of doing that, and I don't know, do you
2 know of too many warm water species that actually go
3 out and do that same sort of thing, they forge an
4 environment that a -- I can't think of any off the
5 top of my head.

6 Q. If the food is there I heard of small
7 mouth bass in Poursen (phonetic) Lake that they were
8 getting at 98 degrees.

9 A. Yeah.

10 Q. That's pretty exceptional, and that's
11 my whole point I guess. The fact that you found an
12 oxygen sensitive species below five or at four or
13 down to three, for instance, doesn't necessarily
14 mean that they would do well in a stream that
15 maintains for any length of time?

16 A. Yeah, but in a stream system -- and
17 again, I -- you know, I don't know you put a degree
18 of which streams fishes can move over a short period
19 of time.

20 Q. Yeah.

21 A. It's kind of still assuming that
22 there's some within the region -- in the
23 vicinity and I don't know if it's within that
24 particular stream segment, but the dominating

0120

1 area for that would be open for that species.

2 Q. But you do admit that frequency
3 and duration of these lower DOs are very important?

4 A. Yes, where the spatial heterogeneity
5 and the DOs have been very low are a --

6 HEARING OFFICER: I'm sorry. Just for
7 the court reporter, we're firing out --

8 DR. GARVEY: I'm sorry.

9 HEARING OFFICE: -- a lot of real
10 technical, long --

11 DR. GARVEY: Yeah.

12 HEARING OFFICER: I'm not sure I heard
13 that one, spatial...

14 DR. GARVEY: Yeah, spatial
15 heterogeneity is also important. It's not
16 just the variability in time. It's also the
17 variability in space whether you got a ripple
18 area where we talked about at the last
19 hearing we would assume that based on physics
20 we should have a little bit higher DO just
21 because of the aeration that occurs there.
22 It would be different in a pool where you get

23 a lot more biological oxygen demand, water is
24 not moving as much, not reaerating. You

0121

1 know, it might not be the best place for a
2 fish to hang out all the time.

3 DR. THOMAS: That's all the questions
4 I have. Thank you.

5 HEARING OFFICER: Thank you,
6 Dr. Thomas. Mr. Ettinger, should we just go
7 ahead and swear you in right now?

8 MR. ETTINGER: Yeah, I am going to say
9 something.

10 HEARING OFFICER: Are your colleagues
11 going to be --

12 MR. ETTINGER: No.

13 HEARING OFFICER: You can go ahead and
14 swear Mr. Ettinger in.

15 (Witness sworn.)

16 MR. ETTINGER: First, at the risk of
17 destroying our spirit of cooperation, I will
18 state on the record, I'm going to be forced
19 to put the offensive Thomas testimony into
20 the record because we filed a comment which
21 says that we agreed with it. So we will be
22 filing an Exhibit A to say what we agree with
23 even if the person who originally submitted
24 it doesn't agree with it anymore.

0122

1 Okay. With that, I'd like to
2 start with some questions for Mr. Streicher.

3 BY MR. ETTINGER:

4 Q. Looking at page seven of your
5 testimony and looking at the prefiled testimony, it
6 says, today many streams are being labeled as DO
7 impaired when they are not in fact impaired.

8 Do you know of streams that are
9 listed as impaired that are not in fact impaired in
10 Illinois?

11 A. We had asked for -- I don't know if I
12 have that list here, but we had asked for a list
13 from Illinois PA of the impairments on the streams
14 that were identified by IDNR requesting the existing
15 standard to remain. We looked for the dissolved
16 oxygen and identified a number of those that had
17 listed the DO impairments. Yet, we're being
18 proposed to have the old standard, the existing
19 standard remain.

20 Q. Is it your understanding that the DNR
21 list of high quality streams was based on the
22 particular statements that were listed?

23 A. Some were main stems, some were
24 segments. I mean, I think the Fox River was going

0123

1 to change my mind right off the bat because Fox
2 River has identified DO impairments, yet it was -- I
3 also identified by DNR as a river that had, I think,
4 seven of their listed DO sensitive species present,

5 and such who should have the existing protection
6 remain.

7 Q. Is it your understanding that a water
8 is listed impaired in Illinois based on a DO rating?

9 A. It's my understanding that if there's
10 a grab samples -- a grab DO sample that violates the
11 water quality standard, then it could be listed as
12 DO impaired at that point.

13 Q. Is a water, though, ever listed as
14 impaired --

15 A. I don't know that.

16 Q. It'll help the court reporter in
17 clarity if you let me finish my question.

18 Is a water ever listed as impaired
19 based on the dissolved oxygen data alone?

20 A. That I don't know.

21 Q. In fact, aren't waters -- well, I'll
22 just -- have you looked at the IEPA criteria for
23 listing waters as impaired?

24 A. The 303D list?

0124

1 Q. The 303D list or the 305B list?

2 A. I have it.

3 Q. Don't they, in fact, use
4 macroinvertebrate data and IBI data to determine
5 whether or not water is impaired?

6 A. Right.

7 Q. So no water is listed as impaired
8 unless it has either bad bugs or bad fish?

9 MR. HARSCH: I think he answered the
10 question.

11 MR. ETTINGER: He's still nodding,
12 though, if you'd like to the nodding on the
13 record.

14 Now, the fact that the water has
15 flown with low dissolved oxygen, and I'll
16 direct this to Dr. Garvey, the fact that
17 there are spots within a water body like the
18 Fox River, which have low dissolved oxygen
19 levels in them, does not mean that there
20 aren't other areas within the Fox River which
21 could harbor DO sensitive fish.

22 DR. GARVEY: Right.

23 MR. ETTINGER: Thank you. In your
24 next sentence here in the testimony you

0125

1 say --

2 HEARING OFFICER: I'm sorry. Who is
3 this directed to?

4 MR. ETTINGER: This is to
5 Mr. Streicher. I just brought in the last
6 question to save some time.

7

8 BY MR. ETTINGER:

9 Q. Looking at page seven of Mr.
10 Streicher's testimony it says, "Many TMDL reports
11 both published and under development are including

12 unnecessary DO violations adding to the perceived
13 mitigation efforts necessary to restore the rivers."
14 What TMDL reports are you aware of?

15 BY MR. STREICHER:

16 A. Well, I referred earlier to the TMDL
17 report that was published for the Salt Creek. I
18 know that also for the TMDL that was published for
19 the east branch of the DuPage River. Those are the
20 two that I know of that I'm dealing with directly
21 myself.

22 Q. Now, when you say they're listed for
23 violations, are you saying that those waters would
24 not be listed where the standard that's being

0126

1 proposed by the IAWA on documents?

2 A. I haven't done -- I can't say that
3 that would be the case. I know I've seen some data
4 with Salt Creek for continuous DO monitoring that --
5 for segments of Salt Creek who would not be listed
6 for DO impairments for those segments. I think
7 further downstream there could still and would still
8 probably be problems especially after the
9 impalements above the dams.

10 Q. Well, we'll just check on that. You
11 are not testifying today that either Salt Creek or
12 the east branch of the DuPage River would be removed
13 from the TMDL list --

14 A. No, I'm not.

15 HEARING OFFICER: Let him finish the
16 question and then let him finish the answer.
17 We're going to have a confused transcript
18 otherwise.

19 MR. ETTINGER: Right.

20 BY ETTINGER:

21 Q. So you're not saying that east branch
22 of DuPage or Salt Creek would be removed from the
23 TMDL list if the IAWA standard were adopted?

24 A. I am not saying that.

0127

1 Q. So when you testified earlier that
2 there were estimates that it was \$18 or \$40 million
3 relating to this DO standard, you don't really know
4 how much of that proposed sewage treatment would be
5 necessary to meet the IAWA standards as opposed to
6 current standards?

7 A. I do not.

8 Q. Now let's talk about the 6-milligram
9 per liter effluent limit, and that's -- you know the
10 difference between an effluent and ambient water
11 quality standard; right?

12 A. Right.

13 Q. For the members of the audience who
14 might not, could you just briefly tell us that?

15 A. An effluent limit is a -- is usually
16 identified an NPDS permit. It's an operating
17 limitation that is put upon the wastewater treatment
18 effluent. It must meet that limitation pretty much

19 24 hours a day. Water quality standard is a goal or
20 a standard set for the river itself. The effluent
21 limit is designed to not impact or impair the river
22 such that it would violate that water quality
23 standard in the river.

24 Q. So this proceeding is about a water

0128

1 quality standard --

2 A. Right.

3 Q. -- but your testimony here relates to
4 an effluent limit; correct?

5 A. Correct.

6 Q. Right. And your testimony is -- is
7 that in your belief the current water quality
8 standard is causing IEPA to ask for these tighter
9 effluent limits?

10 A. Say that again. I didn't quite follow
11 that.

12 Q. Well, I'm trying to -- you're saying
13 somehow that the water -- current water quality
14 standard is causing IEPA to insist on tighter
15 effluent limits on plants like yours?

16 A. You know, I don't know what IEPA's
17 thoughts are in closing a 6 milligram effluent limit
18 based upon a water quality standard. Again, I'm not
19 sure that my plant effluent which would be sometimes
20 below 6, not much, it could get down to 5.8, is
21 having any great impact upon water quality in Salt
22 Creek. My understanding with those kinds of
23 effluent limits is, again, it doesn't impact stream
24 water quality. There are zones of dilution that

0129

1 allow that effluent to mix in the with the water
2 that's in the river and such that is down after that
3 zone, we're not going to violate.

4 So to answer your question, I'm
5 not sure what EPA is coming up with the 6 milligram
6 limitation, and I argued that when my permit was
7 being discussed.

8 Q. And you avoided that 6 milligram --

9 A. Of --

10 Q. Excuse me. I'm really sorry. I know
11 I'm slow, and you can see where I'm going, but you
12 really have to let me finish anyway.

13 So you argued based on the
14 existing regulations that the 6-milligram per liter
15 effluent limit was not necessary to meet the current
16 water qualities here --

17 (Cell phone ringing.)

18 BY MR. ETTINGER:

19 Q. -- is that correct?

20 A. That's correct.

21 Q. So we don't -- can't really look at
22 your example, your plant, as a reason why we need to
23 change --

24 (Cell phone ringing.)

0130

1 BY MR. ETTINGER:
2 Q. -- the water quality standard?
3 A. I think I said at my plant that I was
4 able to negotiate a measurement, but not a limit,
5 but then I think I also said that other plants are
6 being imposed with the limit that they must need.
7 Now, whether they can meet that or not without
8 additional improvements to the plant, I can't tell
9 you.
10 Q. Your plant -- you discharged in the
11 what water?
12 A. Salt Creek.
13 Q. Now, you have some level of dilution;
14 right?
15 A. Yes.
16 Q. What's the dilution there in terms
17 between your -- in discharge at your river?
18 A. My plant average flow is about five.
19 I think the native flow within the stream average
20 flow is about 30 million gallons a day.
21 Q. Now, you say there are some plants
22 that are being asked to meet this 6-milligram per
23 liter effluent limit; right?
24 A. Yes.

0131

1 Q. Are they, to your knowledge, plants
2 that discharged into low flow streams or streams
3 without much dilution?
4 A. Some of the plants are, others are
5 not. Some are going to fairly high dilution, Fox
6 River, others are going into other smaller streams
7 where they would be principle flow in the stream.
8 Q. Based on your knowledge of permanent
9 writing from having to work with IEPA and IAWA for
10 years, are there a lot of plants in Illinois that
11 are discharging into what are called zero flow
12 streams or low flow streams at the semi --
13 A. I couldn't give you a number of how
14 many there are. I don't know that in total number.
15 I know there are some.
16 Q. There are some. Now, those plants
17 they look at their effluent limits as though they
18 have to meet the water quality standards at the end
19 of the pipe, is the term used, right, because they
20 have no dilution?
21 MR. HARSCH: Albert, who's the they in
22 your question?
23 MR. ETTINGER: IEPA.
24

0132

1 BY MR. ETTINGER:
2 Q. The IEPA, when they the effluent
3 limits based on the -- for those plants that have no
4 dilution, do they then have to meet the water
5 quality standard at the end of the year?
6 A. I believe that's the way they work it.
7 Q. If we -- if we adopted the IAWA

8 proposal, would not the sewage treatment plants that
9 were discharging into waters with no dilution still
10 have to meet a 6-milligram effluent limit most of
11 the year -- much of the year?

12 A. If the Board were to adopt this
13 petition following your only discharge limit for
14 some time of the year, we'd have a 6-milligram, you
15 know, DO water quality standard. So following that
16 logic, they would some time of the year.

17 Q. By definition, a plant that's
18 discharging where there's no dilution, if they're
19 discharging at 4.9, and the standard is 6, by
20 definition, there's a violation at the end of the
21 pipe; isn't that true?

22 A. If what you're saying is -- I would
23 suspect, yes.

24 Q. So a lot of plants will have to meet
0133

1 the 6-milligram per liter standard whether or not
2 the IAWA proposal is adopted or not?

3 A. We're working on water quality
4 standard not effluent limits, but --

5 Q. But you're the one that brought the
6 affluent limits into the case.

7 A. Yeah.

8 Q. You said that you're normally
9 discharging at about 5.8?

10 A. Our dissolved oxygen?

11 Q. Yeah.

12 A. No, I'm measuring it just these last
13 few weeks with an average of 5.8. I also had 8,
14 7.9. The average is much higher than that, but 5.8
15 is the low number.

16 BY MR. ETTINGER:

17 Q. Now, Dr. Garvey, we had a question
18 first about this Exhibit 3. I believe you testified
19 that Paul Terrio put this data together?

20 BY DR. GARVEY:

21 A. (Indicating.)

22 Q. What's going on. Is this an
23 instantaneous number here or is this their daily
24 average?

0134

1 A. I think --

2 THE REPORTER: I can't hear you.

3 HEARING OFFICER: Yeah, if you could
4 not cover up your face while you're talking.

5 DR. GARVEY: You guys need a
6 microphone in here.

7 THE REPORTER: I know.

8 HEARING OFFICER: Just for clarity,
9 this is attachment 3 to Exhibit 16 of prefile
10 testimony of Dr. Garvey. Thanks.

11 BY DR. GARVEY:

12 A. Yeah, I could check real quickly, but
13 I think it was every 30 minutes.

14 BY MR. ETTINGER:

15 Q. And looking at the one here that says,
16 I think, Vermillion River, it's the third one of
17 these charts, dissolved oxygen, and...

18 MR. HARSCH: Vermillion River near
19 Danville.

20 MR. ETTINGER: Yeah, I couldn't read
21 it.

22 BY MR. ETTINGER:

23 Q. The Vermillion River near Danville?

24 A. Yeah.

0135

1 Q. Looking at July -- early July, we
2 see -- what is that represent? You've got a sort of
3 blue blur here that goes off the way from 20 to
4 zero?

5 A. Showing huge daily fluctuations in
6 dissolved oxygen. If you were to break this down on
7 a daily basis, it would fluctuate from -- well,
8 early July, it would fluctuate from here to zero all
9 the way to 20 milligrams per liter.

10 I'm speculating here because it's
11 been a while since I've actually looked at the data,
12 but a level with zero probably occurred concrete on
13 20, which was probably sometime midday during the
14 full sun.

15 Q. And what would cause it to fluctuate
16 20 milligrams per liter in a day?

17 A. I actually, again, haven't looked at
18 the hydrograph in a long time, but I would presume
19 that it probably was a low period, and at height
20 there was enough biological oxygen demand to take
21 all the oxygen that was produced during the day by
22 the primary producers --

23 (Cell phone ringing.)

24

0136

1 BY DR. GARVEY:

2 A. So anyways, the Vermillion River --

3 THE REPORTER: I need to move closer.

4 HEARING OFFICER: Off the record.

5 (Whereupon, a discussion
6 was had off the record.)

7 HEARING OFFICER: We left off with
8 Mr. Ettinger's question of what would cause
9 it to fluctuate 20 milligrams in a day, and
10 Dr. Garvey started to answer that when we got
11 cut off. So Dr. Garvey, if you wouldn't mind
12 just restating your answer to that question.

13 DR. GARVEY: Well, I could answer I
14 don't know for sure, but given the time of
15 the year probably a combination of warm water
16 holding less oxygen, and then there's
17 probably a lot of algae and plants, aquatic
18 plants and that kind of thing, and also the
19 microbes in the water probably influencing
20 it, and like I said before, I hadn't looked
21 hydrograph in a while. So I'm not sure if it

22 was a low flow period during that time, but
23 certainly that could be important in
24 influencing the oxygen demand in that

0137

1 particular stream region.

2 BY MR. ETTINGER:

3 Q. Looking at the fifth page under stream
4 lift, it's under stream list of Dr. Garvey's prefile
5 testimony. Of these -- we have a sentence here
6 which is towards the end of the paragraph called
7 stream list.

8 A. Okay.

9 Q. It says, of these, IEPA has noted that
10 about 30 segments within the streams are currently
11 listed for aquatic life use impairment due to low
12 dissolved oxygen.

13 A. Yes.

14 Q. Is that what we were talking about
15 before?

16 A. What do you mean talking about before?
17 I don't understand.

18 Q. I'm sorry. We discussed earlier, I
19 believe, some DNR streams that were identified by
20 DNR as having --

21 A. Yes.

22 Q. -- some dissolved oxygen sensitive
23 species present?

24 A. Right. Their criteria was -- it was

0138

1 it five for tributary and 7 dissolved oxygen.

2 MR. STREICHER: No, it was 4 for
3 tributaries and five for means.

4 BY MR. GARVEY:

5 A. In other words, those dissolved oxygen
6 sensitive species of the list of which is -- I could
7 give that to you off this (indicating), but it came
8 from -- more or less from the Rankin report, and
9 also -- if I understand right, it also came from
10 just folks thinking that those were sensitive DO
11 species. They were present in segments that were
12 not attaining their aquatic life use designation,
13 and DO was listed as the impairment cause, if I
14 understand correctly, and some of those -- well,
15 several of those segments were the Fox River, Poplar
16 Creek, Sugar Creek, Indian Creek, the Embarrass
17 River, Spring Creek. So there's a list of those 30.

18 Q. Is it you are understanding that IEPA
19 lists causes for impairments as opposed to potential
20 or possible causes for impairments?

21 A. I do not know that and the person in
22 the room who might be able to answer that best is
23 Bob Mosher, would probably be able to answer that,
24 not to put him on the spot.

0139

1 Q. He's not sworn in, and he's not
2 looking.

3 A. He's nodding his head.

4 Q. Yeah, he's smiling. Do they look --
5 A. Wait here. On the top -- Bob's
6 sending me telepathy. It's on the top of the thing.
7 These are the three criterias by which they came up
8 with the list, located in the water --

9 HEARING OFFICER: I hate interrupting
10 you, but they came up with the list, this is
11 DNR's list?

12 DR. GARVEY: IEPA's. IEPA, via Bob
13 Mosher and whoever in the minions of IEPA put
14 this thing together at the request of IAWA.
15 Okay?

16 HEARING OFFICER: Okay.

17 DR. GARVEY: And this list is
18 generated. This list of 30 stream segments
19 that have the DO sensitive species but are
20 currently not -- yeah --

21 MR. STREICHER: Not meeting --

22 DR. GARVEY: Not meeting the --

23 MR. STREICHER: -- dissolved oxygen --

24 DR. GARVEY: -- dissolved oxygen --

0140

1 MR. STREICHER: -- standard.

2 DR. GARVEY: Which is --

3 MR. STREICHER: This is the list I
4 referred to earlier in my answer to Albert on
5 a list that was developed in the stakeholder
6 meeting as a, quote, compromise on rivers
7 that may maintain the old or existing DO
8 standard versus the new proposal.

9 DR. GARVEY: Yeah, the five six.

10 HEARING OFFICER: And I had understood
11 that that was the list that DNR was
12 compiling. Are there two different lists
13 here or --

14 DR. GARVEY: DNR compiled a list of
15 streams on main segments, tributaries and
16 main stems, and then IEPA looked at that
17 list, and said, okay, we're going to look at
18 this, and first, we're going to look and see
19 what discharges are present on these IAWA
20 facts, but also look and see which ones are
21 currently listed as impaired and as in
22 cause. The potential cause is DO, and as I
23 was trying to get to --

24 HEARING OFFICER: Thank you.

0141

1 DR. GARVEY: One, located in the
2 watershed of any for 40 high DO streams.
3 That's 40 streams we're talking about. Two,
4 at which aquatic life use is not fully
5 obtained, i.e., impaired as of April 1st,
6 2004, and three, in which low dissolved
7 oxygen has been identified as a potential
8 cause of aquatic life use of air. So that
9 was that list of 30 segments.

10 MR. RAO: Is this part of the record

11 now, or are you just referring to this?
12 DR. GARVEY: It's not part of the
13 record.
14 MR. ETTINGER: Well, he's testifying,
15 so it becomes part of the record by virtue of
16 him saying it, and you're now reading a
17 portion of an IEPA document.
18 DR. GARVEY: Yeah.
19 MR. RAO: No, what I was asking was it
20 entailed that -- you know, a list -- a
21 contents of lists that.
22 DR. GARVEY: Well, it was in Thomas's
23 testimony.

24 HEARING OFFICER: I guess the question

0142

1 is, obviously, the Board would like to see
2 the list, as I understand it.
3 DR. GARVEY: Yeah.
4 HEARING OFFICER: DNR did not --
5 MR. ETTINGER: We'll withdraw it from
6 the record. Keep a copy so you can go ahead
7 and look at that list --
8 MS. MOORE: You can only look at the
9 list.

10 MR. ETTINGER: You can only look at
11 it, but you can't use it.

12 MR. GIRARD: Albert, you said that
13 you're going to reintroduce it because you
14 referred to it in your testimony. So you
15 will have -- that's the question I wanted to
16 ask, will we have a copy of this list?

17 MR. ETTINGER: May I reintroduce that
18 as Sierra Club exhibit, whatever it is, as
19 the document that we reference -- or that
20 Prairie Rivers references, and it's August
21 23rd, 2005.

22 MR. HARSCH: You're introducing it for
23 the limited purpose of clarifying what you're
24 referring to in your prefiled testimony?

0143

1 HEARING OFFICER: It's public comment
2 number 81, I think, and that's the Sierra
3 Club and a number of other environmental
4 organizations, their public comments.

5 MR. ETTINGER: Yes, and so what I'm
6 doing is, I will either through a separate
7 filing or if you would prefer an amended
8 filing of our public comment, I am submitting
9 an Exhibit 1 to that public comment that will
10 consist of what used to be Thomas prefiled
11 testimony.

12 MR. HARSCH: My question is, is that
13 for the limited purpose of identifying what
14 you referred to in that prefiled comment --
15 or that public comment?

16 MR. ETTINGER: This is really getting
17 complicated here.

18 MR. HARSCH: Yes, it is.
19 MR. ETTINGER: All I want is for
20 people to see the document, and yes, it's for
21 whatever limited purpose you want, and if
22 some deranged minds go and read it for some
23 other purpose, I guess I just can't stop
24 them.

0144

1 MS. WILLIAMS: Can I point out -- can
2 I just point out for purposes of the record
3 that counsel for the department is not -- no
4 longer in attendance at the hearing, just for
5 the record. I mean, I don't know whether
6 they would have an opinion one way or the
7 another, but I just want the record to
8 reflect that they're no longer represented.

9 MS. MOORE: That's right. They left.

10 HEARING OFFICER: I appreciate you
11 pointing that out. Yeah, their motion to
12 withdraw has been granted, and counsel for
13 DNR is not present currently. At this point
14 in time, though, prefiled testimony of Dave
15 Thomas with it's various attachments is out
16 in the public domain and Mr. Ettinger is
17 suggesting that it will be an attachment to
18 public comment 81. Are you moving to have
19 that entered as a hearing exhibit now, or are
20 you going to file that and serve it as a
21 amended public comment?

22 MR. ETTINGER: No, actually, as I
23 think of this, this is -- I better introduce
24 it as a hearing exhibit as mentioned by,

0145

1 since it was referred to by Dr. Garvey, and
2 was earlier mentioned by DNR. I'm moving it
3 as a hearing exhibit, and I'm not offering it
4 for any particular purpose other than for
5 clarifying the record and allowing people to
6 understand what we've been referring to in
7 the course of this. Okay?

8 HEARING OFFICER: Is there any
9 objection to that?

10 MR. HARSCH: We're dancing on the head
11 of a pin here. I do find it a little strange
12 that we grant the DNR motion this morning to
13 exclude it, withdraw it, and DNR counsel, who
14 was perhaps in reliance on that, is not in
15 attendance to talk about it.

16 To the extent it is introduced
17 only to the points of clarification,
18 Mr. Streicher is not introducing it for
19 the -- but providing any technical evidence
20 to support it or solely for identification
21 purposes to clarify what we've been referring
22 to, I guess I don't have any objection.

23 MR. ETTINGER: Well, actually, now
24 that I think about it, I'm being too nice.

0146

1 Dr. Garvey, did you rely on that list in
2 formulating your testimony here?

3 MR. HARSCH: That's a different than
4 the testimony. That's a different
5 question --

6 MR. ETTINGER: Well --

7 MR. HARSCH: -- because the testimony
8 includes a lot of points other than just the
9 list we're talking about.

10 MR. ETTINGER: Okay. I'm sorry. Can
11 we go off the record?

12 HEARING OFFICER: Off the record.

13 (Whereupon, a discussion
14 was had off the record.)

15 HEARING OFFICER: Mr. Ettinger, if you
16 could just -- it sounds like you're not
17 moving to have --

18 MR. ETTINGER: Do we have the actual
19 document?

20 HEARING OFFICER: Excuse me. If I
21 could finish. You're no longer moving to
22 have Dr. Thomas's prefiled testimony entered
23 as a hearing exhibit, would you go ahead and
24 state what the current motion is and what

0147

1 motion you'd like to make now?

2 MR. ETTINGER: Off the record again.

3 Roy, do you have the -- what Cindy
4 tells me is an IEPA marked up version of the
5 Thomas list, is that what you're proposing
6 we're going to put in here?

7 MR. HARSCH: No. Are we off the
8 record?

9 HEARING OFFICER: No, we're on the
10 record.

11 MR. HARSCH: Mr. Ettinger, I think
12 you're referring to introducing into this
13 record for purposes of clarification given
14 the fact that Dr. Garvey and Mr. Streicher
15 have referred to it, which would be the list
16 of 40 streams or stream segments that DNR has
17 put together, and I believe this is it,
18 right, it's this document (indicating)? This
19 document, which is table two. And we have
20 asked -- as Dr. Garvey testified to, IAWA
21 asked IEPA to identify those segments -- or
22 stream segments that are impaired, and those
23 are two separate lists. One prepared by DNR,
24 and one prepared by IEPA. We have a

0148

1 marked-up version of the impaired list that
2 I'll gladly substitute an unmark for the
3 record. They're here if you want to look at
4 them. Do what you want to do in terms of
5 introducing them.

6 MR. ETTINGER: Well, I would move that

7 we enter the one that we can enter now into
8 the record at this point, and the one that's
9 marked up, we will agree to enter into the
10 record, but Mr. Harsch will substitute a
11 clean copy at a later time.

12 HEARING OFFICER: So we've got two
13 hearing exhibits here, and we've got a
14 witness who has testified to -- I don't want
15 to take things as hearing exhibits unless the
16 witness has testified to it or is here today
17 to testify about it now.

18 MR. HARSCH: No. These are the
19 documents, Dr. Garvey, that you've referred
20 to in your testimony?

21 DR. GARVEY: Yes.

22 HEARING OFFICER: Okay. Thank you.

23 DR. GARVEY: Which the entire
24 stakeholder group is privy too. They've all

0149

1 seen it.

2 MS. DIERS: Hey Roy, I'm sorry, can we
3 see this list that is marked up that I guess
4 EPA did?

5 HEARING OFFICER: Off the record for a
6 moment.

7 (Whereupon, a discussion
8 was had off the record.)

9 MR. HARSCH: After conferring with EPA
10 personnel, they do not have the -- they have
11 not have the ability today, apparently, to
12 verify that this is in fact the document that
13 we received from IEPA, and based on that, I
14 can't agree to its introduction. Albert, I
15 don't have any problem with your introducing
16 the list of the 40 stream segments, if you
17 would like to do so, but if IEPA can't verify
18 that that's the document, I can't
19 independently do it. I can't agree to it.

20 HEARING OFFICER: Assuming this
21 rule-making goes forward, there will almost
22 certainly be another opportunity to get the
23 verified IEPA list into the record at a
24 hearing as a hearing exhibit. So why don't

0150

1 we just focus on what we can introduce
2 without objection at this point, and that's
3 the DNR list?

4 MR. ETTINGER: Which is table two now
5 incorrectly the testimony of David Thomas.

6 HEARING OFFICER: So this was part of
7 the prefiled testimony --

8 MR. ETTINGER: This is one part of the
9 prefiled testimony.

10 HEARING OFFICER: -- that was
11 withdrawn by DNR?

12 MR. ETTINGER: We're introducing this
13 table two as the DNR list that was circulated

14 in the stakeholder process.
15 MR. HARSCH: And I think I asked the
16 question of Dr. Garvey if that was the list
17 you were referring to; correct?
18 DR. GARVEY: Correct.
19 HEARING OFFICER: So that would be
20 Exhibit 17. Any objection to entering that
21 as a hearing exhibit? Seeing none, that will
22 be hearing Exhibit 17. Off the record.
23 (Whereupon, a discussion
24 was had off the record.)

0151

1 HEARING OFFICER: Back on the record.
2 MR. ETTINGER: Have you, as part of
3 your study, looked at the effects of
4 dissolved -- low dissolved oxygen levels on
5 microinvertebrates and macroinvertebrates.
6 DR. GARVEY: Well, we have covered
7 that in our report, but that was Whiles
8 specialty, and he's primarily responsible for
9 that portion of the report.
10 BY MR. ETTINGER:
11 Q. And has anyone looked at -- as part of
12 your report, was there testimony on the effect of
13 dissolved oxygen levels on mussels?
14 A. There was a section on that, and it --
15 well, it -- yeah.
16 Q. Go on.
17 A. No, go ahead.
18 Q. Did you look at any waters in the
19 northern portion of the state that were not
20 impaired?
21 A. In -- in -- I guess you need to
22 clarify that in more detail. Look at -- I mean
23 what?
24 Q. Did you look at -- you looked at Lusk

0152

1 Creek, for example, and found low DO levels there,
2 and Lusk Creek is not an impaired water. I was
3 asking whether you had done a similar exercise for
4 any high quality streams in Northern Illinois?
5 A. No, from the perspective of looking at
6 the Terrio analysis, nothing equivalent to Lusk
7 Creek, no.
8 Q. And actually, the only water you
9 looked at north of I-80 was DuPage or Salt Creek?
10 A. We looked at Salt and Mayzon. It's up
11 there, isn't it? I'm not sure. My geography is
12 bad. Yeah, Apple River would be real useful in
13 something like that.
14 Q. Looking at Exhibit 7 of your tables
15 here.
16 HEARING OFFICER: This is attachment 7
17 Exhibit 16.
18 MR. ETTINGER: Attachment 7 regarding
19 testimony, which I believe is Exhibit 16.
20 HEARING OFFICER: Yes.

21 BY MR. ETTINGER:

22 Q. Looking at a number of these boxes in
23 these areas, it appears that at least some years
24 much or most of the reproduction or spawning

0153

1 occurred in August; is that not true?

2 A. July and August. Actually, it more
3 looks like it was July. There's very few here. So
4 I'd say if I had to count the number of the years
5 out of all of them where most of the spawning
6 occurred, probably two. Two out of the multiple
7 years.

8 Q. Well, let's count those. We got --
9 looking down the left column, we've got 91 and
10 that's in Clark. Stonelick we've got 88. That's in
11 August; right?

12 A. I'd say probably about 50 percent of
13 the spawning occurred prior to that.

14 Q. There is this peak here that seems to
15 be occurring?

16 A. There is a peak of sunfish that were
17 spawn. That's pretty typical to see if you have two
18 or three spawning species through the season.

19 Q. Really? And then in 91 in Stonelick,
20 I don't quite understand this chart. It flattens
21 out at the top. Does that mean it went off the
22 chart?

23 A. Yeah, it's off the chart. That means
24 that it was very high at the time.

0154

1 Q. 91?

2 A. A lot of the variation. Yep, 91.

3 Q. And then looking at Kokosing in 91,
4 there's like -- there's peaks over in May, and then
5 another peak over in August?

6 A. One late peak in August. Yeah, I
7 guess it is in September.

8 Q. That's in September?

9 A. Yeah. Well, we note, and I've
10 mentioned this in testimony that sunfish spawn
11 potentially through October -- well, through
12 September to early October. That will happen. I'm
13 also saying it's not the majority of the time, and
14 the reality, if you take the average of all these,
15 it would be about 50 percent of the spawning occurs
16 at least before July on average.

17 Q. Now, are you counting bluegill as a
18 sunfish?

19 A. Yeah, it's a sunfish. Bluegill is a
20 Lepomis. That's the genus it's in, which is a
21 sunfish. Again, I know that exceptions exist, but
22 we've got to understand that what we're trying to
23 manage is probably more for the average rather than
24 the exception.

0155

1 Q. Looking in your -- you had a lot of
2 testimony in other hearings, earlier hearings, about

3 various recommendations that you and Dr. Whiles made
4 as your original report as to how the standards
5 should be implemented. Is there anything in that
6 earlier testimony that you wanted to revise now or
7 feel is no longer correct?

8 A. Not off the top of my head.

9 Q. I take that back. I may have
10 misspoke. Are there any of those early
11 recommendations that you want to take back or think
12 are unwise in light of --

13 A. In terms of implementation?

14 Q. Yes.

15 A. The only thing I can think of is the
16 differential timing spawning due to -- might be a
17 reasonable way of taking into account seasonal
18 differences in spawning.

19 Q. Would be that July 15th versus
20 July 1st?

21 A. Yeah.

22 HEARING OFFICER: Just a reminder,
23 everybody would just please speak up so we
24 can hear in the back.

0156

1 MR. ETtinger: Thank you.

2 DR. GARVEY: Thank you.

3 HEARING OFFICER: So Mr. Ettinger has
4 concluded his questions at this point in
5 time?

6 MR. ETtinger: Correct.

7 HEARING OFFICER: Are there any other
8 persons who have questions for IAWA's
9 witnesses?

10 MR. HARSCH: I have a couple of
11 clarifications.

12 BY MR. HARSCH:

13 Q. Dr. Garvey, in reviewing the Ohio
14 data, my understanding is that data -- I want to ask
15 you about 24-hour composites and grab samplings
16 during the day?

17 A. Yes.

18 Q. Would those grab samplings during the
19 day tend to miss a lower dissolved oxygen
20 concentration that those streams would have
21 exhibited?

22 A. Right. It might be actually be on
23 average higher because of what we saw with the
24 Vermillion River, diagonal streams.

0157

1 Q. And it's your understanding that those
2 streams -- a number of the streams in Ohio that have
3 been designated as AWR, in fact, don't comply with
4 the standard that Ohio has opted for?

5 A. I, of course, can't give you the exact
6 number, but there are a few exceptions.

7 Q. From review the data?

8 A. Yes.

9

10 BY MR. HARSCH:

11 Q. Mr. Streicher, in your response to the
12 question of Mr. Ettinger regarding what would be the
13 impact of the adoption of the IAWA proposal in terms
14 of the impact on Salt Creek. Isn't Salt Creek --
15 the data included in Salt Creek in Exhibit 3 of
16 Dr. Garvey's testimony?

17 A. Yes, I had forgotten that there was
18 some continuous DO monitoring done on Salt Creek in
19 the southern section.

20 Q. And if the IAWA proposal were to be
21 adopted by the Board, doesn't that data show less
22 violation?

23 A. It shows fewer dissolved oxygen
24 violations.

0158

1 Q. And the data that you referred that
2 you were well aware of recent continuous dissolved
3 oxygen sampling performed by the Metropolitan Water
4 Reclamation district in the City of Chicago?

5 A. Yes, they performed that earlier this
6 summer.

7 Q. That's all. Thank you.

8 HEARING OFFICER: Does anyone else
9 present in the audience have any questions
10 for any of the IAWA's witness?

11 MR. ETTINGER: I just want to clarify
12 the record.

13 HEARING OFFICER: Go ahead, Mr.
14 Ettinger.

15 BY MR. ETTINGER:

16 Q. I'm sorry. You mentioned Metropolitan
17 Water Reclamation District data?

18 BY MR. STREICHER:

19 A. Yes.

20 Q. Is this something that has been
21 published?

22 A. It has not been published. It was
23 shared with me by one of the district employees,
24 Dick Laney (phonetic).

0159

1 Q. And it was a study done by the Water
2 Reclamation?

3 A. It was the results of continuous
4 dissolved oxygen monitoring at two sites on Salt
5 Creek in Cook County, the northern regions of Salt
6 Creek.

7 Q. Thank you.

8 MR. RAO: I have a follow-up.

9 HEARING OFFICER: Were you finished,
10 Mr. Ettinger?

11 MR. ETTINGER: Yeah.

12 MR. RAO: Dr. Garvey, page three of
13 your prefiled testimony you state that since
14 the last hearing more data was provided for
15 streams in Illinois. Can you please explain
16 what kind of additional data was provided,

17 who provided these data and how the data was
18 used in your evaluation? The reason I ask
19 this question is, we keep talking about new
20 stuff in data every few minutes. So I just
21 want to make sure we know what this data
22 involved and where it's coming from, and if
23 possible, at a later date, if you can provide
24 that information into the record?

0160

1 DR. GARVEY: True enough. More data
2 was provided the streams of the Midwest,
3 which I primarily was talking about the
4 Rankin and the Ohio EPA data. Okay. And
5 when I said primarily from Illinois, you
6 know, I think I was talking primarily about
7 the continuous monitored streams and the
8 reanalysis of that. I think that was a
9 misleading statement in my testimony. Of
10 course, I have in the back of my mind also
11 the data that my students have collected and
12 those sorts of data. I also got a little bit
13 of data from IDNR relative to catfish,
14 spawning, those sorts of things. I think
15 that's primarily what I was talking about.

16 There's also some data that I
17 don't think is permissible to actually say,
18 but IEPA has provided some snip-its of
19 preliminary data that I've seen in the
20 stakeholder meetings, but I'm not sure if I
21 should talk about that here.

22 MR. RAO: That's fine. If you provide
23 it later, that should be okay. Thank you.

24 HEARING OFFICER: Just one follow-up

0161

1 question. On attachment 7 to Dr. Garvey's
2 prefiled testimony on Exhibit 16, Clark
3 Stonelick and Kokosing, are those lakes?

4 DR. GARVEY: Yes, they're small stream
5 impoundments. I think most of us are
6 probably familiar with this fact, but the
7 reality is, is that very, very few lakes in
8 Illinois or the Midwest, for that matter, are
9 natural. They're all impounded. They live
10 in generally a stream dominating part of the
11 world, and so whenever we talk about lakes,
12 these are mostly manmade structures that
13 we're talking about.

14 HEARING OFFICER: And there's
15 reference to shad and bluegill. The copy
16 I've got is not in color. I'm not sure.

17 DR. GARVEY: Yeah, it wasn't a color
18 graph.

19 HEARING OFFICER: It was?

20 DR. GARVEY: No, it was not.

21 HEARING OFFICER: It was not. How do
22 you tell which was --

23 DR. GARVEY: One is a broken line and

24 the other one --

0162

1 HEARING OFFICER: Oh, it is.

2 DR. GARVEY: It might not have been
3 copied correctly. The broken line I believe
4 is bluegills, and the solid line is shad, but
5 I should take a look at it.

6 HEARING OFFICER: I think I can see
7 that.

8 DR. GARVEY: I can tell you right now
9 that Clark Lake, even though I don't have the
10 DO data here, routinely, routinely, went
11 below 4 milligrams per liter in an
12 epilimnion, and we still have communities of
13 gizzard shad and bluegills and other
14 sunfishes in that particular system year
15 after year.

16 HEARING OFFICER: Thank you.

17 MR. GIRARD: I have a clarifying
18 question to the attachments. Dr. Garvey, in
19 your testimony what we called Exhibit 16
20 attachment 3 has all those continuous DO
21 measurements, and all the different stream
22 segments.

23 DR. GARVEY: Okay.

24 MR. GIRARD: And I notice at the top

0163

1 we've got two different data numbers one is
2 an IEPA data number. One is a USGS data
3 number or data set, I guess, but the
4 information, was it just taken with one
5 continuous DO monitoring piece of equipment,
6 or was it that both organizations have their
7 own equipment out there and --

8 MR. GARVEY: My understanding is that
9 there is one unit, if I understand right,
10 funding primarily came from the joint effort
11 between USGS and IEPA, but IEPA I think
12 maintained a lot of these and put them out,
13 and it was just one unit that was regularly
14 maintained, and I can tell you that that was
15 a substantial amount of person time and cost
16 to keep these things running out there. They
17 also went through a very strict data, like a
18 cleaning exercise to make sure that the data
19 that are presented here they're pretty darn
20 sure that they are the actual values of that
21 particular stream segment. So they went
22 through some process by which they cleaned up
23 the data.

24 MR. GIRARD: So there's one set of

0164

1 data, and if you went to the Illinois EPA
2 site or the USGS site, you would find --

3 DR. GARVEY: It's the same data
4 settings. It's the same data.

5 MR. GIRARD: Thank you.

6 MR. HARSCH: For clarification, the
7 photographs in Exhibit 3, you understand to
8 be the photographs from where the sample
9 location was?

10 DR. GARVEY: Yeah, that was Paul's
11 attempt to give us a better idea about what
12 site because it was very hard to characterize
13 it as a riff or a pool area.

14 HEARING OFFICER: Just another
15 question on attachment 3. We're all seeing
16 this for the first time today so we certainly
17 have some follow-up questions. Could you
18 just briefly explain what scenario one and
19 two and an then IAWA scenario, and then
20 within that there's IAWA seasons and IDNR
21 seasons; can you explain what means?

22 DR. GARVEY: Just a little bit of
23 background. This occurred during maybe
24 halfway through a little bit further of the

0165
1 stakeholder process, and we asked Paul to
2 provide us with this analysis.

3 HEARING OFFICER: I'm sorry. Who?

4 DR. GARVEY: Paul Terrio.

5 HEARING OFFICER: Thank you.

6 DR. GARVEY: To help us to make a
7 decision, and at that time, we were talking
8 about potential differences in seasons, and
9 IAWA had one idea about what the seasons were
10 supposed to be, and IDNR was coming up with a
11 different set of seasons. If you can see
12 here, the primary difference is that IAWA
13 seasons was mid-July through February for the
14 nonsensitive season, and the rest would be
15 the sensitive season, and the IDNR season was
16 mid-August for the nonsensitive season
17 through February, and then March through
18 August for the sensitive season. So they
19 were trying to extend that period of time
20 that we expect to see early life history
21 stages full month ahead of what IAWA was
22 proposing. So we were playing around with
23 those scenarios.

24 The current standard just

0166
1 simply -- if I understand correctly what Paul
2 did, current standard, just how many times
3 did one of those 30-minute measurements of DO
4 go below the daily minimum of 5 milligrams
5 per liter. For scenario one it was just, if
6 I understand right, daily minimum of five and
7 then the potential for a 7-day mean minimum
8 of 6 year round, and that just showed the
9 number of days that the DO reading went down
10 below that point, and my understanding is he
11 was trying to mimic the Ohio perception
12 exception of water standard.

13 HEARING OFFICER: With scenario one?
14 DR. GARVEY: Scenario one.

15 With scenario two, if my
16 understanding is right, is that we were
17 tweaking or he was tweaking whether we have
18 an exceptional water -- warm water habitat
19 scenario five and six during the nonsensitive
20 season, and then to make it, I think,
21 equivalent to what we would have for a cold
22 water group of species of six and seven
23 during the sensitive season when the early
24 life history stages are. So that shows the

0167
1 number of the violations that would occur
2 there.

3 The IAWA scenario is what IAWA
4 proposed via the Garvey and Whiles report,
5 which is the nonsensitive season being
6 3.5-milligram per liter minimum, and we're
7 all familiar with those proposed standards.
8 The only difference between the two is the
9 IDNR with the August 16th, and IAWA had the
10 July 16th analysis.

11 My analysis that I gave the second
12 hearing very similar to this IAWA scenario
13 one, except for I didn't have a July 16th
14 cutoff. I had a July 1st cutoff for my
15 analysis. So that's the primary difference
16 between what Paul did and what I did, little
17 differences, but not much.

18 HEARING OFFICER: Very helpful.

19 MR. GIRARD: I hate to keep beating on
20 this attachment 3, but --

21 DR. GARVEY: Yeah, it's a very
22 important attachment.

23 MR. GIRARD: I do have another
24 question on this, and I don't know if you can

0168
1 do it, Dr. Garvey, or if you can get the EPA
2 or someone else, but I just wonder, to flesh
3 out the record here, if someone could dig up
4 the other physical information on those sites
5 that probably is somewhere in the report
6 going along with this, but I'm not talking
7 about other, you know, chemical data, but
8 other physical data pertaining to where these
9 DO measurements were made, you know,
10 including something like depth and some of
11 these other physical characteristics of those
12 habitats I think would be very helpful.

13 DR. GARVEY: Much of it will be in
14 this exhibit that I filed. The report by
15 Gleason and King, which is the Paul Terrio
16 data that was published. So this would
17 provide that information, and then --

18 HEARING OFFICER: Is that attachment
19 two to Exhibit 16?

20 DR. GARVEY: Yeah, it's an attachment
21 to my testimony. So reading that would give
22 you a little bit more information about just
23 what the sites look like, what the general
24 characteristics are, and it's pretty good

0169

1 detailed, you know, description. So it
2 should give you an idea of what these sites
3 looked like.

4 MR. GIRARD: Do you have flow rates
5 and probe placement?

6 DR. GARVEY: They do provide
7 information about the probe placement, and
8 more or less what they wanted to do was make
9 sure that even at base flow or below base
10 flow that the probe was still under water.
11 So it was sufficiently deep, I would say, at
12 that level, if I understand correctly. That
13 was what influenced the probe placement in
14 terms of depth. But these pictures were to
15 give you some idea about what the site looked
16 like, I think, at a relatively high flow and
17 low flow period, so...

18 HEARING OFFICER: And as Anand Rao
19 just reminded me, I think IEPA mention
20 earlier that Paul Terrio would be provided as
21 a witness assuming we have another hearing at
22 some point?

23 MS. WILLIAMS: Absolutely.

24 HEARING OFFICER: So we can follow-up

0170

1 with him then as well.

2 DR. GARVEY: Yeah. IEPA has another
3 continuous monitoring data that has come to
4 bear that I also failed to mention that to
5 you, and it might be wise for them to conduct
6 a similar analysis. I don't think -- I think
7 it was only for 72-hour periods. It wasn't
8 for an entire two-year period, but to do
9 some -- some analyses similar to that.
10 Looking for violations would probably be
11 helpful to the Board as well. So that might
12 be something requested by EPA.

13 HEARING OFFICER: We'll let IEPA think
14 about whether they'd like to do that. It
15 sounds helpful. Any further questions for
16 any of the IAWA's witnesses? Seeing none,
17 why don't we go off the record.

18 (Whereupon, a discussion
19 was had off the record.)

20 HEARING OFFICER: We're now going to
21 continue with the prefiled testimony. First,
22 is Todd Main the director of Policy and
23 Planning of the Friends of the Chicago River.
24 Will the court reporter go ahead and swear in

0171

1 Mr. Main?

2 (Witness sworn.)

3 HEARING OFFICER: Thank you for being
4 here today, Mr. Main. Thanks for waiting.
5 It's so late in the afternoon. I have asked
6 you to provide a summary of your prefile
7 testimony, which I understand you're prepared
8 to do, and in fact, you have actually
9 prepared a written summary that you're going
10 to read, a summary of your prefiled testimony
11 that may also include some additional
12 information; is that correct?

13 MR. MAIN: Yeah, some additional.

14 HEARING OFFICER: Okay. Why don't you
15 go ahead -- seeing there's no objection to
16 that, I'm going to ask Mr. Main to go ahead
17 and read the prepared statement that he has
18 here.

19 MR. MAIN: And actually, in the
20 interest of brevity, I'm going to actually
21 make it a very brief summary because we've
22 been here a long time and a lot of things
23 have changed. Good afternoon. I want to
24 thank you for the opportunity today. My name

0172

1 is Todd Main. I'm the director of Policy and
2 Planning for the Friends of the Chicago
3 River. For the past 25 years our mission has
4 been to foster the vitality of the Chicago
5 River for the plant, animal and human
6 communities within its watershed. While
7 we're new to this process, we have a long
8 track record, and I'm here today representing
9 the interest of our 2000 members in the
10 Chicago area.

11 Friends of the River has serious
12 and substantive reservations about this
13 proposal, and we urge the Illinois Pollution
14 Control Board to reject this proposal and
15 making it until further study and establish
16 that the reduction of dissolved oxygen levels
17 will not harm aquatic life in the Illinois
18 surface waters. We're very concerned about
19 the impact that the proposed standards have
20 had on the reproductive cycles particularly
21 the refresh water mussels and late spawning
22 fish, which we've discussed quite a bit
23 today.

24 For the past three years, the

0173

1 Friends of the River and their partnership
2 with Shedd Aquarium has conducted a fresh
3 water mussel survey in the Chicago River.
4 Our survey has documented the presence of
5 mussels in multiple locations in the river.
6 Research has shown that unionid mussels,
7 which have been found in the north branch are
8 specially threatened because they require

9 host fish for reproduction. Only about
10 25 percent of the host fish for the mussels
11 in the U.S. have been correctly identified.
12 So it's difficult to predict the impact that
13 human activity has, as clearly the diversity
14 has helped. The fish populations within the
15 river will -- the river system will effect
16 the reproductive success of these mollis
17 species. For example, long-term breeders
18 spawn and fertilize eggs in the late spring,
19 summer and early fall, as we have heard
20 today, producing muriatic leucadia by late
21 fall winter, or the leucadia may not be
22 released until late spring or early summer of
23 the following year. The contrast short-term
24 breeder spawn, fertilize eggs, develop and

0174

1 release leucadia from late spring to early
2 fall. It is difficult to accurately
3 determine when low dissolved oxygen levels
4 would be safe because reproduction of the
5 species is sensitive at various different
6 stages.

7 In order to the protect the
8 current populations and ensure their survival
9 and reproduction, we need to ensure that the
10 Illinois rivers can provide habitats to
11 support their complex and sensitive life
12 cycle. Fresh water mussels are especially
13 vulnerable to habitat disturbance. Of the
14 unionid mussel species native to Illinois,
15 more than half are currently threatened,
16 endangered, extricated or extinct.

17 The second point that we want to
18 raise is that we think that -- we agree that
19 the current regulatory model has some flaws
20 in it. I think that's a consensus, and I
21 think people agree on that, but we also think
22 that this proposed solution suffers from some
23 of those same kind of things because it also
24 appears to be a one-size-fits-all approach to

0175

1 the problem. And we're very concerned about
2 the strategy that we're proposing here, and
3 we think that we need to move more of a tier
4 system approach, very similar to what's been
5 discussed with Ohio model. We're very
6 concerned because in that model there appears
7 to be no opportunity for backsliding of
8 standards.

9 When streams are shown to be
10 nonattainment, then actions are taken to
11 bring them up to the standard, and so then
12 over time, water bodies will improve in
13 quality, and I think that's the direction we
14 want to be going in. We think that this
15 proposal doesn't do that. In fact, we also

16 agree that people shouldn't debate the facts.
17 Okay. We can debate opinions, but the facts
18 are the facts, and the fact is that when you
19 lower the dissolved oxygen standard, at the
20 end of the day, you have lowered the
21 dissolved oxygen standard. That's a fact.
22 That's not a debate. And so we would hope
23 that Illinois, given its position in the
24 greater region, would be a leader in adopting

0176

1 regulatory models that promote healthier
2 waters over time. Thank you.

3 HEARING OFFICER: Thank you, Mr. Main.
4 I'll open it up for questions. The Board has
5 a few questions for Mr. Main, but I'll open
6 it up to the audience first. Deborah
7 Williams, counsel for IEPA?

8 MS. WILLIAMS: I just had one quick
9 area of questioning that I think may -- your
10 testimony at least to me is a little
11 confusing for the Board. Can you just
12 clarify for
13 us -- not all portions of the Chicago River
14 are impacted by the proposal before the
15 Board, are they?

16 MR. MAIN: True.

17 MS. WILLIAMS: Can you explain a
18 little bit?

19 MR. MAIN: The portion of the Chicago
20 River now is going through a UAA process --

21 HEARING OFFICER: Could you explain
22 what that is?

23 MR. MAIN: Use attainability analysis
24 to discover -- or to redefine the use

0177

1 standards, and so the portion of the Chicago
2 River that we are concerned about that is
3 impacted by this proposal concerns the area
4 of the river that is north of Clark Park
5 where the Skokie and the Middle Branch and
6 West Fork all come together, right in there,
7 and that's actually the area where most of
8 our mussel survey has been done. So that's
9 our reason.

10 MS. WILLIAMS: Okay. Thank you. I
11 think that clears it up quite a bit.

12 Well, is it correct that most
13 portions of the Chicago River where they're
14 south of where you're talking about are
15 subject to secondary contact warm quality
16 standards at this time?

17 MR. MAIM: Well, that's actually what
18 the UAA process will determine. The area
19 that's under the UAA is sort of the north
20 channel -- the north shore channel all the
21 way down through the city and then out past
22 Bubbly Creek.

23 MS. WILLIAMS: Thank you. That's all
24 I have.

0178

1 HEARING OFFICER: Any further
2 questions for Mr. Main?

3 BY MR. HARSCH:

4 Q. What's your educational background?

5 A. I have an undergraduate degree in
6 international relations and business from Michigan
7 State.

8 Q. So you don't have a technical
9 background?

10 A. I do not have a technical background.

11 Q. You're not a biologist?

12 A. No.

13 Q. You're not an ecologist?

14 A. I'm not an ecologist.

15 Q. Have you read the entire record?

16 A. I think I read most of it.

17 Q. Can you explain how the adoption of
18 the IAWA proposed dissolved oxygen standard would
19 result in the lowering of the dissolved oxygen level
20 in the north branch of the Chicago River?

21 A. Well, my understanding is that the
22 proposal is to lower it -- lower the standard in the
23 period of the late summer through February.

24 Q. How would it physically result in a

0179

1 lower dissolved oxygen level in the river?

2 A. Well, I think it would lower the
3 standard criteria standard.

4 Q. And that's different than actually
5 having a physical lowering of dissolved oxygen level
6 in a river?

7 A. True.

8 Q. And that's something that
9 Mr. Streicher testified about this morning.

10 In your prepared testimony, you
11 referred to dissolved oxygen levels being
12 dramatically impaired in the Chicago River due to
13 confined sewer overflows, and you attribute
14 lowering, I assume, the standard somehow would
15 impact that. How would a change in the standard
16 impact the application of the current rules
17 requiring substantial work be done on combined sewer
18 overflows?

19 A. Actually, let me clarify that. We
20 filed the initial comments. We looked at -- we were
21 operating on an understanding that this would effect
22 the entire Chicago River System, and so those
23 comments are directed to the CSO issue. We have
24 changed and taken that out of our summary that we're

0180

1 testifying today.

2 Q. So that should be excluded from --

3 A. Right.

4 HEARING OFFICER: Let me make sure I

5 understand that there was a statement in the
6 prefiled testimony that --
7 MR. HARSCH: It would be point 2 on
8 page 2, I understand.
9 HEARING OFFICER: And it's the --
10 Mr. Main, it's your testimony now that what,
11 I'm sorry, you're changing that position?
12 MR. MAIN: Well, the first thing, we
13 used data -- it was all about NWRD data from
14 Bubbly Creek and some other areas that were
15 dramatically effected by the CSOs. That's
16 not subject to this hearing, and so we
17 withdraw those points.
18 HEARING OFFICER: Thank you.
19 MR. HARSCH: And point number 4 on
20 page 3, my understanding that the portions of
21 the north channel you're concerned about
22 currently do not make current standard
23 presumed time; is that your testimony?
24 MR. MAIN: (Indicating.)
0181
1 HEARING OFFICER: The answer is yes?
2 MR. MAIN: Yes.
3 BY MR. HARSCH:
4 Q. Despite the fact that the current
5 standard is not being met 50 percent of the time, is
6 it your testimony that the fish species and wildlife
7 have improved dramatically in this stretch?
8 A. The health of the river has improved
9 dramatically all through the watershed.
10 Q. I know you're not a scientist, but
11 what level of dissolved oxygen would you expect the
12 north channel of the Chicago River to achieve and
13 what time frame?
14 A. I don't know that that's our role to
15 give you an answer to that question. Actually, I
16 would defer to the people who have the scientific
17 training and the ability to develop those answers
18 and present their testimony. So we're speaking from
19 a policy perspective and not a scientific
20 perspective.
21 MR. HARSCH: No further questions.
22 HEARING OFFICER: Any further
23 questions for Mr. Main? The Board had just a
24 couple questions for you, Mr. Main.
0182
1 Mr. Main, you've mentioned in your
2 prefiled testimony and today a fresh water
3 mussel survey on the Chicago River that Shedd
4 Aquarium and the Friends of the Chicago River
5 conducted. Do you know whether those results
6 have been published?
7 MR. MAIN: The first two years have
8 been published. This is our third year that
9 we -- we just finished in August, and then
10 we'll publish those results, and I would be
11 happy to share those with the Board.

12 HEARING OFFICER: We would very much
13 appreciate that, and ask you to do that.
14 MR. MAIN: Sure.
15 HEARING OFFICER: Thank you. Any
16 other questions for Mr. Main?
17 MR. HARSCH: Just for clarification, I
18 think we referred to both the north shore
19 channel and the north branch. What
20 specifically are you referring to?
21 MR. MAIN: The north shore channel is
22 the area of the river south of sort of
23 Evanston that runs along the lake, and the
24 area that I was referring to is sort of the

0183

1 confluence of the Skokie and the West Fork
2 and the Middle Fork.
3 MR. HARSCH: So it's the north branch
4 you're referring to, not the north shore
5 channel?
6 HEARING OFFICER: I'm sorry. What was
7 Mr. Main's response to that?
8 MR. MAIN: What we're referring to
9 is -- yeah, the north shore channel runs down
10 that way (indicating), and I guess what I was
11 referring to was the north branch.
12 MR. HARSCH: And then the dissolved
13 oxygen data that you referenced to meet the
14 current standard 50 percent of the time, and
15 where was that data taken?
16 A. NWRD data.
17 Q. From where, north channel, north
18 branch, if you know?
19 A. I don't have that here with me, but
20 I'd be happy to provide that to you.
21 Q. And do you know if that data was
22 continuous or --
23 A. I believe it was continuous, but I'm
24 not sure. I would have to go back and check.

0184

1 Q. Do you have that data?
2 A. Not with me.
3 Q. Would you provide it to me, please?
4 A. Sure. Sure.
5 Q. Thank you very much.
6 HEARING OFFICER: The Board would
7 certainly like to see that as well, and we
8 can discuss how you can present those. Any
9 further questions for Mr. Main. Seeing none,
10 I thank you very much for participating
11 today, and we will move onto the last of
12 those who prefiled testimony. Dr. Thomas
13 Murphy, professor of chemistry at DePaul
14 University. If we could go ahead and swear
15 in Dr. Murphy, please.
16 (Witness sworn.)
17 HEARING OFFICER: Dr. Murphy, are you
18 prepared to provide a summary of your

19 prefiled testimony?
20 DR. MURPHY: I made some alterations.
21 HEARING OFFICER: Well, I think given
22 the proceedings today and all the changes
23 that we've faced --
24 DR. MURPHY: I don't have it right

0185

1 now.
2 HEARING OFFICER: Why don't you go
3 ahead and provide the testimony as amended
4 and everyone will be able to ask you
5 questions on that afterwards.
6 DR. MURPHY: Thank you for the
7 opportunity to make these comments. These
8 comments both summarize and expand upon the
9 written comments I submitted. I'm Thomas J.
10 Murphy, an emeritus professor of chemistry at
11 DePaul University. One of the courses I've
12 taught in recent years was instrumental
13 analysis, a senior level course that dealt
14 with making reliable chemical measurements
15 using instruments. I co-founded the
16 environmental science program at DePaul and
17 shared it for a number of the years, and I've
18 been involved with data quality issues and
19 water quality issues in Illinois for more
20 than 35 years. My research is principally
21 related to the Great Lakes, and I served as
22 editor of the general Great Lakes research
23 for six years.

24 To support that request to lower

0186

1 the water quality standard for general use
2 waters for water quality standards for DO in
3 general use waters in Illinois, the IAWA
4 justified their request with an assessment
5 document submitted to the Board. This
6 document is based heavily on the USEPA's 1986
7 national criteria document on dissolved
8 oxygen. While most of the data in these
9 documents are from laboratory studies, both
10 documents admit that these results understate
11 the DO requirements for aquatic organisms in
12 the much more complex natural environment.

13 The 1986 national criteria
14 document of the EPA gives a number of reasons
15 that DO requirements for aquatic organisms
16 are higher in natural waters than in
17 laboratory studies. Perhaps the most
18 important reason is that oxygen concentration
19 in natural waters are quite variable. They
20 can have significant variation around the
21 mean. DO standards then must include a
22 sufficient safety factor to protect all
23 aquatic species that are native to the rivers
24 from the short-term and long-term low

0187

1 dissolved oxygen excursions, whether due to
2 natural or anthropogenic causes.

3 Based on continuously monitored DO
4 concentrations, the Ohio EPA reported in 1986
5 that the minimum of 5 milligrams per liter of
6 dissolved oxygen was needed to permit DO
7 intolerant species to be maintained in warm
8 waters. Rankin reported on the association
9 between DO and fish and microinvertebrate
10 assemblages in wadeable Ohio streams. Based
11 on a large number of fueled measurements, he
12 found that fish and shellfish species that
13 are intolerant of low DO levels are abundant
14 in rivers where the DO concentration is
15 greater than or equal to 7 milligrams per
16 liter, but they are rare in rivers with an
17 average DO of less than 6 milligrams per
18 liter. The Illinois natural history survey
19 data indicate that there are 25 species of
20 fish in Illinois that are intolerant of low
21 DO levels.

22 It should be noted that all of the
23 discussion and reports on this topic discuss
24 and report DO levels in milligrams per liter

0188
1 rather than percent saturation. While these
2 different measures of dissolved oxygen are
3 related to one another, there is an important
4 difference. The availability of oxygen to
5 organisms depends on its activity - its
6 percent saturation oxygen tension as directly
7 sensed by electrochemical DO probes rather
8 than its concentration in milligrams per
9 liter as determined by chemical measurements.
10 Thus, a given concentration of oxygen will be
11 less available to organisms when the water is
12 colder and more oxygen is required for the
13 water to be saturated. For example, 3.5
14 milligrams per liter of dissolved oxygen
15 corresponds to 43 percent of saturation at 25
16 degrees, but only 24 percent of the
17 saturation with 0 degrees. Thus, the IAWA
18 proposal would permit one day DO values below
19 25 percent saturation during times when the
20 water is at freezing temperatures. The
21 comparison, the oxygen activity to summit of
22 Mt. Everest is 33 percent of the oxygen
23 tension at sea level, one-third higher than
24 the level proposed by the IAWA for cold

0189
1 Illinois waters.

2 A word of caution to the Board
3 from a chemist, all measurements have
4 uncertainty associated with them. When
5 interpreting the results of the chemical
6 analysis, one needs to take their liability
7 into account. In addition, all reported

8 results are not correct or reliable.
9 Instruments can be out of calibration or not
10 correctly functioning. Continuous DO
11 monitors are particularly susceptible to
12 physical or biologic fouling of the membrane
13 or the sensor and other problems, usually
14 leading to low results. Figure one in Rankin
15 supports this suggestion. There are many
16 cases shown where the chemical measurements
17 show a high dissolved oxygen, but the
18 electrochemical probe shows a low dissolved
19 oxygen. There are very few cases where the
20 opposite is true. In interpreting other data
21 from the Rankin report in today's hearing,
22 the presence of DO, dissolved oxygen,
23 intolerant organisms in the presence of low
24 dissolved oxygen when interpreted is proving

0190

1 that organisms can thrive at low dissolved
2 oxygen concentrations.

3 My first response to these Rankin
4 data would be to review the quality assurance
5 data for those dissolved oxygen measurements.
6 Are they reliable? Were there replicates?
7 Was the instrument calibrated to get the
8 chemical measurements?

9 The other quality issue on stage
10 is to validate these DO measurements. With
11 respect to the in stream measurements of
12 dissolved oxygen, it's well documented that
13 significant DO gradients can be present
14 particularly when the flow is latter. So the
15 positioning of the sensor relative to it can
16 get very different measurements at the same
17 period of time.

18 I agree that reliable outliers
19 often give significant insight to systems.
20 On the other hand, there's good reason --
21 there is often good reason not to put great
22 significance on outliers because they may not
23 be reliable for a variety of reasons.
24 Unfortunately, many people put more faith in

0191

1 the results of chemical measurements than the
2 data deserved. I suggest that if the DO
3 measurements for these Ohio DNR samples were
4 quality assured that many or most of the
5 outliers due to low DO would not be present.

6 The IAWA proposal before the
7 Illinois Pollution Control Board is to permit
8 a one-day minimum of 3.5 milligrams per liter
9 dissolved oxygen and a 7 day mean minimum of
10 4 milligrams per liter from July through
11 February. With respect to aquatic organisms
12 that spawn after June, with its lower
13 dissolved oxygen limits, they make the
14 statement that warm water species that spawn

15 later during the summer should have
16 adaptations for naturally occurring
17 reductions and dissolved oxygen
18 concentrations expected to occur during the
19 warm months. This statement assumes that the
20 DO levels occurring in Illinois waters during
21 the summer are natural and the deforestation,
22 channelization and the inputs of
23 anthropogenic oxygen demanding waste have not
24 effected these levels. They offer no field,

0192

1 laboratory or other scientific data to
2 support this claim.

3 A revision of the water quality
4 standards of DO for general use waters of
5 Illinois would need to take into account the
6 particulars of the stream in question,
7 including: The seasonal DO requirements of
8 the native aquatic organisms; the short and
9 long term variability of the DO from natural
10 and anthropogenic causes; and any difference
11 in the current temperature regime compared to
12 historic values. The standards should
13 include a sufficient safety factor, and they
14 should be based on the percent saturation of
15 oxygen in the water.

16 If the Illinois EPA is going to
17 base its water quality standard for dissolved
18 oxygen on the basis of a few outliers, they
19 better be very, very certain that their data
20 and representative are valid. Changes in the
21 DO regulations need to be based on good
22 science, not on verified self-serving
23 assumptions to the Illinois Association of
24 Wastewater Agencies.

0193

1 One consequence of this proposal
2 by the IAWA to lower the water quality
3 standards for DO in Illinois waters for eight
4 months of the year could be to permit
5 increased amounts of oxygen demanding
6 substances to be discharged to the rivers of
7 the Illinois. This is clearly contrary to
8 the current national goal of the Clean Water
9 Act that all discharges of pollutants into
10 the navigable waters of the U.S. be
11 eliminated. Have we spent billions of
12 dollars in Illinois in recent years to clean
13 up our rivers only to allow more pollutants
14 to be discharged? I think not, and I urge
15 the Board to reject this proposal from the
16 IAWA. Thank you.

17 HEARING OFFICER: Thank you, Dr.
18 Murphy. I'll open it up to the audience.
19 Does anyone have any questions for Dr.
20 Murphy? Mr. Frevert from the IAWA?

21 MR. FREVERT: I recognize I continue

22 to be sworn in this may not be a question so
23 much as an invitation and comment.
24 Dr. Murphy's an individual -- I've been

0194

1 involved in water quality standards in the
2 State of Illinois for over 20 years.
3 Dr. Murphy is someone I haven't had the
4 pleasure to work with yet, but to the extent
5 he's obviously invested his time and effort
6 to put together this testimony and come to
7 the hearing today. I suggest if you leave a
8 business card or some contact information,
9 I'd be happy to follow-up and make sure you
10 have an opportunity to participate in some
11 stakeholders meetings. I can assure you
12 there are some points of perspective on how
13 the regulations work and the science that we
14 may have some differences on, and we'll have
15 the opportunity to persuade one another
16 with -- perhaps I could go your way, you
17 could go my way, but putting in as much
18 efforts as you have, I want to make it clear
19 you're certainly invited, and I'll try to
20 help you participate in that.

21 DR. MURPHY: I appreciate that.

22 HEARING OFFICER: Any questions for
23 Dr. Murphy?
24

0195

1 BY MR. HARSCH:
2

3 Q. I have some. I guess I would echo
4 some of what Toby was saying.

5 Dr. Murphy, I think I'm familiar
6 with your work from -- in the Great Lakes on
7 phosphorus release and uptake, et cetera?

8 A. Atmospheric input and beautification
9 problems in the past.

10 Q. And a lot of the work also, I believe,
11 to be a straight transfer. Most of your interest I
12 think you said has been in the Great Lakes?

13 A. Yes.

14 Q. You understand -- what's your
15 understanding of whether the standard applies to the
16 Great Lakes?

17 A. I'm sure it does not, or I don't think
18 it does.

19 Q. And if I recall, your background is
20 chemistry not biology?

21 A. Yes.

22 Q. Your testimony is substantially in
23 part different than the summary you presented. So I
24 may not get this right, but I think you've inferred
that the current DO standard is led to market

0196

1 improvements in water quality. Do you know how many
2 stream segments in Illinois currently do not comply
3 with the water quality standard?

4 A. No.
5 HEARING OFFICER: I'm sorry. What was
6 your answer there?
7 DR. MURPHY: No.
8 BY MR. HARSCH:
9 Q. Have you evaluated the report that was
10 put together by USGS and I think is exhibit --
11 attachment 2 to Exhibit 16?
12 A. No, I did not.
13 Q. Have you evaluated -- had a chance
14 to review the work Paul Terrio did, which is
15 attachment 3 to Exhibit 16?
16 A. No.
17 Q. You don't hold yourself out as an
18 expert in the study of the biological
19 inter-relationship of water quality in streams, do
20 you?
21 A. No, I've --
22 HEARING OFFICER: Did you want to add
23 to that?
24 DR. MURPHY: Well, I'm a chemist, I
0197
1 think my comments related more to the
2 chemistry and to how that chemistry relates
3 to some of the submissions before the Board.
4 BY MR. HARSCH:
5 Q. If, as Dr. Garvey has testified to,
6 Paul Terrio and others have rigorously gone through
7 the data -- continuous monitoring data that is
8 included in attachment 2 to Dr. Garvey's testimony
9 and attachment 3 to Dr. Garvey's testimony, which is
10 Exhibit 16, and eliminated the outliers if they had
11 a question over the sampling results, that's in
12 essence what you're suggesting should occur in the
13 Ohio data?
14 A. I don't know what was done with Ohio.
15 All I have is what is presented, and so I don't
16 know. A lot of those data are old, and quality
17 assurance procedures and requirements have escalated
18 many fold in recent years, and I think there's some
19 hint in the Rankin data that the continuous probe
20 data can, in fact, be low or when there's a -- well,
21 anyway, that there were more problems with the
22 continuous probe data. More problems with the
23 reliability of electrochemical sensors for dissolved
24 oxygen than there are for chemical. Those required
0198
1 transanalysts are all in favor of the continuous
2 measurements, which you have to be more careful
3 with.
4 Q. If, as Dr. Garvey's testified, the
5 IAWA proposal fits the -- what has been found to
6 exist in waters in Illinois that are thought to be
7 relatively unimpacted by mankind development, Middle
8 Fork, the Vermillion and others, for example, how
9 would the Board's adoption of the water quality
10 standard that fits what IEPA's data seems to suggest

11 is occurring naturally in those streams lead to
12 increased pollutant codings?
13 A. I mean, that's how -- that would
14 depend on how the regulations are applied, but
15 obviously, if the regulations allow for lower
16 dissolved oxygen concentrations, then that could
17 allow for the oxygen concentrations to become lower.
18 Q. Are you familiar with Anti Degradation
19 Rules in Illinois, and how those are applied?
20 A. No, sir.
21 Q. I have no further questions.
22 HEARING OFFICER: Any further
23 questions for Dr. Murphy?
24

0199

1 BY MR. STREICHER:
2 Q. I have some questions. Maybe Roy
3 already asked this, and I might just ask it a
4 different way, but I think towards the end of your
5 testimony as you suggested that a change in the
6 dissolved oxygen standard would allow wastewater
7 plants to discharge more oxygen in any material; is
8 that what you said?
9 A. No, I said could.
10 Q. Could. How would it do that?
11 A. Well, their permit may allow it.
12 Q. Are you aware that wastewater plants
13 have operating permits that have limits on those?
14 They're not suggesting --
15 A. Yes, and permits are renewed on a
16 regular basis and rules change, and if DO limits
17 were zero parts per million, then my guess is that
18 permits would reflect these lower limits, and my
19 guess is that that could result in discharge of more
20 oxygen demand in --
21 Q. So your guess is then that the agency
22 would change the --
23 A. No, no.
24 Q. -- BOD discharge?

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1 A. I'm not guessing, sir. I would think
2 it's a possibility.
3 HEARING OFFICER: Let him finish his
4 thought.
5 BY DR. MURPHY:
6 A. As I said, it's a possibility. It
7 could happen.
8 BY MR. STREICHER:
9 Q. And so you think it's possible then
10 that the EPA if they have a different dissolved
11 oxygen standard in this state would then go on and
12 modify other effluent limitations.
13 A. Yes, yes.
14 HEARING OFFICER: Any further
15 questions for Dr. Murphy? The Board had just
16 a couple questions.
17 BY MS. LIU:

18 Q. Good afternoon, Dr. Murphy.
19 A. Good afternoon.
20 Q. You introduced a very interesting
21 concept of mathematical relationships and how
22 dissolved oxygen is measured milligrams per liter
23 and how it relates to percent saturation and certain
24 water temperature.

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1 A. Yes.
2 Q. And I was wondering if you were aware
3 of any DO standards in perhaps other states that use
4 that as some sort of basis for their standards at
5 all?

6 A. No. Everybody uses milligrams per
7 liter because that's what you're measuring. It's
8 easy to do, but you have to understand that that's
9 not what's important. That's not what the organisms
10 see. They see percent saturation.

11 Q. Are you aware of the studies, for
12 instance, that we've heard about today or any other
13 ones you might have read that use that as a
14 parameter to judge the health of --

15 A. As I remember, the EPA water quality
16 criteria document mentioned it, but then all of the
17 data in there were milligrams per liter.

18 Q. Is that --

19 A. The significance is, is that at
20 zero degrees the saturation is about 15 milligrams
21 per liter, 15.6 or something. In the summertime
22 when the water is getting pretty warm, the
23 saturation is under 10 milligrams per liter. So
24 that's a factor of about 50 percent more oxygen

0202

1 required for the water to desaturate when it's cold.

2 So what I'm saying, the
3 implication in this case is that if the proposal
4 before the Board is 3.5 milligrams per liter, it
5 would permit water to be less than 25 percent
6 saturated. It's my feeling that that would probably
7 stress on the organisms in this water.

8 Q. Well, what you're saying makes great
9 sense to me. I was just wondering the reason they
10 don't do it that way perhaps is because it is more
11 difficult to measure it in terms of saturation?

12 A. You just have to give a little
13 saturation and present the data differently.

14 HEARING OFFICER: Dr. Murphy, you
15 mentioned the EPA water quality criteria
16 document, I believe?

17 DR. MURPHY: Yes.

18 HEARING OFFICER: Are you referring to
19 the USEPA national --

20 DR. MURPHY: Yes, 1986.

21 HEARING OFFICER: Thank you.

22 MS. LIU: Thank you very much.

23 HEARING OFFICER: Anymore questions of
24 Dr. Murphy? Seeing none, before I excuse

0203

1 these two witnesses, I just want to handle
2 their prefiled testimony as hearing exhibits.
3 You both provided testimony today that
4 testimony has been transcribed and that will
5 appear in the transcript and you can look at
6 at and review for accuracy and let the Board
7 know if anything is inaccurate.

8 Do you have any document here
9 based on what you were reading from today
10 that you would like to present as a hearing
11 exhibit? You don't have to. I just want to
12 give you that opportunity.

13 MR. MAIN: I think probably -- what
14 I'd like to do is look at the transcript and
15 then get back to you. Just because given all
16 the things that have gone on today, we've
17 been scribbling all over our prepared
18 testimony.

19 HEARING OFFICER: Fair enough. And we
20 can discuss the process for that.

21 MR. MAIN: Sure.

22 HEARING OFFICER: Do you want to have
23 your prefiled testimony entered as a hearing
24 exhibit, and I'll ask you first -- just let

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1 the record reflect that both witnesses did
2 not want to have entered as a hearing exhibit
3 either of their statements today, but would
4 you like to have -- Mr. Main, would you like
5 to have your prefiled testimony entered as a
6 hearing exhibit?

7 MR. MAIN: Isn't the prefiled
8 testimony already on the record?

9 HEARING OFFICER: It's in the Board
10 record, but traditionally, as we've done with
11 most of the other witnesses today, we enter
12 it as a hearing exhibit. With the
13 understanding that you've amended some of
14 your statements that appear in your prefiled
15 testimony.

16 MR. MAIN: Yes.

17 HEARING OFFICER: Okay. Why don't we
18 just deal with that motion to enter
19 Mr. Main's prefiled testimony as a hearing
20 exhibit. It would be hearing Exhibit 18.

21 MR. HARSCH: That's with the striking
22 of comment number 2 on page 2?

23 MR. MAIN: Yes.

24 MR. HARSCH: No objection.

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1 HEARING OFFICER: Any objection to
2 that? Seeing none, that will be entered as
3 hearing Exhibit 18. And Dr. Murphy, your
4 prefiled testimony, would you like to have
5 that --

6 DR. MURPHY: I think so.

7 HEARING OFFICER: -- entered as a
8 hearing exhibit?

9 DR. MURPHY: I think so, yeah.

10 HEARING EXHIBIT: Is there any
11 objection to that? Seeing none, Dr. Murphy's
12 prefiled testimony is hearing Exhibit 19.
13 Thank you both very much for participating
14 here today.

15 I'll just ask, for the record, is
16 there anyone else who wishes to testify
17 today? Seeing none, and the sign up list
18 doesn't indicate anyone else who wants to
19 testify, I'll just move onto a few procedural
20 items very quickly.

21 As mentioned earlier today, I'll
22 be putting out a hearing officer order that,
23 among other things, will reflect a
24 November 1st filing deadline for IEPA to

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1 submit a status report to the Board. The
2 mailbox rule will not apply to that, so we'll
3 need to have that in hand on November 1st.
4 That will be served on -- the agency will
5 have to serve that on everyone on the service
6 list as with any filing with the Board. So
7 if you're on the service list, you'll see
8 that. If you're not on the service list, you
9 can talk to me about getting on the service
10 list.

11 At this point in time, no
12 additional hearing is scheduled, but that's
13 certainly a possibility. Let's see how
14 things unfold. In the meantime, the Board
15 continues to receive public comments. People
16 may file written public comments with the
17 Board. I just remind you that if you do
18 that, you do need to serve them on those
19 persons on the service list, and if you're
20 interested in any of these filings with the
21 filing itself with the Board can be done
22 electronically through the Board's electronic
23 filing project through the clerk's office
24 on-line system.

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1 Copies of today's transcript
2 should be available at the Board the week of
3 September 5th. Shortly after that, the
4 transcript will be posted on the Board's
5 website at www.ipcb.state.il.us. If anyone has any
6 procedural questions you can contact me at
7 my phone number (312) 814-6983. That's
8 (312) 814-6983 or my e-mail is
9 mcgillr@ipcb.state.il.us. You can come up
10 after the hearing, I've got my card here.

11 Are there any other matters that
12 need to be addressed at this time?

13 MR. CHINN: When is the last date that

14 we can file comments?
15 HEARING OFFICER: There's no deadline
16 at this point for filing public comments. We
17 have not gone to first notice yet. So at
18 this point, public comments are being
19 received, and we will -- when the time comes,
20 we would make public what that filing
21 deadline is, but there's no deadline at this
22 point.

23 MR. CHINN: Thank you.
24 HEARING OFFICER: Any other matters

0208
1 that need to be addressed? Seeing none, I'd
2 like to thank everyone for participating
3 today. This hearing adjourned.
4 (Whereupon, there were no
5 further proceedings had
6 on this date.)
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1 STATE OF ILLINOIS)
2) SS
3 COUNTY OF WILL)
4

5 JULIA A. BAUER, being first duly
6 sworn on oath says that she is a court reporter
7 doing business in the City of Chicago; that she
8 reported in shorthand the proceedings given at the
9 taking of said hearing and that the foregoing is a
10 true and correct transcript of her shorthand notes
11 so taken as aforesaid and contains all the
12 proceedings given at said hearing.
13
14
15

16 JULIA A. BAUER, CSR
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Chicago, Illinois 60603
License No.: 084-004543

18
19 SUBSCRIBED AND SWORN TO
20 before me this 6th day
21 of September, A.D., 2005.

22 Notary Public
23
24