BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

In the Matter of:	)	
	)	
WATER QUALITY TRIENNIAL REVIEW: AMENDMENTS TO 35 ILL. ADM. CODE 302.105, 302.208(e)-(g), 302.504(a), 302.575(d), 309.141(h); and PROPOSED 35 ILL. ADM. CODE 301.267, 301.313, 301.413, 304.120, and 309.157.	)	R02-11

TRANSCRIPT OF PROCEEDINGS held in the hearing of above-entitled matter, taken stenographically by STACY L. LULIAS, CSR, before MARIE E. TIPSORD, hearing officer, 100 West Randolph Street, Room C-500, Chicago, Illinois, on the 25th day of July, A.D., 2002, at the hour of 10:30 a.m.

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

HEARING TAKEN BEFORE:

Illinois Pollution Control Board,
100 West Randolph Street
Room C-500
Chicago, Illinois 60601
(312) 814-4825
BY: MS. MARIE E. TIPSORD, Hearing Officer

ILLINOIS POLLUTION CONTROL BOARD MEMBERS

Mr. G. Tanner Girard

Mr. Ronald Flemal

Mr. Nicholas Melas

Mr. Michael Tristano

HEARING OFFICER TIPSORD: Good morning. My name is Marie Tipsord, and I have been appointed by the Board to serve as hearing officer in this proceeding entitled In the Matter of Water Quality Triennial Review: Amendments to 35 Ill. Adm. Code 302.105, 302.208, 302.504, 302.575, 303.444, 309.141; and proposed 301.267, 301.313, 301.413, 304.120, and 309.157; docket number R02-11.

To my right is Dr. Tanner Girard, the lead Board Member assigned to this matter; and to my left is Dr. Ronald C. Flemal; to Dr. Girard's right is Member Michael Tristano. Both Member Tristano and Dr. Flemal are also assigned to this ruling. Also we have with us today Board Member Nicholas Melas.

In addition, in the audience today, we have from our technical unit Anand Rao, Alisa Liu. We also have Amy Antoniolli, who is Mr. Melas's assistant, and Member Tristano's assistant, William Murphy, and Cathy Glenn, who is Member Flemal's assistant.

This is the third or fourth hearing in this proceeding. I've lost track. The purpose of today's hearing is two-fold.

First, this ruling-making is subject to Section 27(b) of the Environmental Protection Act. Section 27(b) of the Act requires the Board to request that the Department of Commerce and Community Affairs conduct an economic impact study, ECIS, on certain proposed rules prior to the adoption of those rules.

If DCCA chooses to conduct an ECIS, DCCA has 30 to 45 days after such a request to produce a study of the economic impact of the proposed rules. The Board must then make the ECIS, or DCCA's explanation for not conducting its study, available to the public for at least 20 days before public hearing on the economic impact of the proposed rules.

In accordance with Section 27(b) of the Act, the Board has requested by a letter dated March 12, 2002 that DCCA conduct an economic impact study for the above-referenced rule-making.

The request letters reference a letter dated March 10, 2000 from DCCA. DCCA notified the Board in that letter that it would not be conducting an economic impact study on rules pending before the Board during the remainder of

FY 2000 because it lacks, among other things, the financial resources to conduct such studies.

In the request letter, the Board asks that if they notify the Board within ten days, they're going to attempt to conduct an economic impact study on the proposed ruling.

The Board further stated that if they were not notified within ten days, the Board would rely on the DCCA March 10, 2000 letter as it required explanation for not conducting an economic impact study.

The ten days have passed, so we will accept comment on DCCA's March 10, 2000 letter, which is available at the back of the room.

Secondly, today we have pre-filed testimony from the Illinois Environmental Protection Agency, Mr. Robert Mosher, and from the environmental groups in this proceeding represented by Dr. Cynthia Skrukrud.

After the testimony of each, we will allow questions to be asked. We will take both sets of testimony as if read, so I will be entering them as an exhibit in this proceeding.

Anyone may ask a question;

however, I do ask that you raise your hand, wait for me to acknowledge you. After I have acknowledged you, please state your name and who you represent before you begin your questions.

Please speak one at a time. If you are speaking over each other, the court reporter will not be able to get your questions on the record. Please note that any questions asked by a Board Member or staff are intended to help build a complete record for the Board's decision and not to express any preconceived, notion or bias.

In addition to the pre-filed testimony, we will allow anyone else who wishes to testify the opportunity to do so as time allows. I've placed a list at the back of the room for persons who wish to testify today to sign up.

Also at the back of the room there are sign-up sheets with the notice and service list as well as the current notice and service list in this proceeding. There are also copies of the Board's opinion in order in this ruling. If you have any other questions, please feel free to ask me at the break.

At this time, I would ask --

Dr. Girard, is there anything you'd like to add?

DR. GIRARD: Yes, good morning. On behalf of the Board, I'd like to welcome everyone to this hearing this morning. The Board greatly appreciates the amount of time and effort that various people have put into this rule-making. We look forward to your testimony and questions this morning. Thank you.

HEARING OFFICER TIPSORD: Thank you.

Dr. Flemal or Member Tristano?

With that, we'll proceed first with the Illinois Environmental Protection Agency.

Could we have the witness sworn, please?

(Witness sworn.)

MR. SOFAT: Good morning. I'm Sonjay Sofat. I'm an assistant counsel with the Illinois Environmental Protection Agency. With me today are three Agency witnesses.

To my right is Alan Keller, who is the supervisor of the Northern Municipal Unit of the permit section of the Division of Water Pollution.

To my left is Robert Mosher, who is the manager of the Water Quality Standards Unit

within the Division of Water Pollution Control at the Illinois Environmental Protection Agency.

Mr. Mosher will be available to answer any questions regarding his pre-filed supplement testimony or any follow-up questions.

To Bob's left is Toby Frevert, who is the manager of the Division of Water Pollution Control at the Illinois Environmental Protection Agency.

The Agency appreciates this additional opportunity to supplement its testimony on a very important area of the Agency proposal, the Cyanide Standard.

The Agency strongly supports the Board's decision to proceed to first notice with the proposed standards for BETX substances, acute and chronic standards for zinc and nickel, GLI rules, Section 309.157 with both changes, and changes in Section 304.120 regarding the Board's decision that the proposed Cyanide Standard is not justified, the Agency has pre-filed Bob Mosher's testimony that we believe addresses most of the Board's concerns raised in the June 20, 2002 opinion.

The Agency respectfully requests

the Board to consider this testimony and strongly urges that the Board adopt the Agency's proposed Cyanide Standard. Thank you.

Mr. Mosher, I'm going to give you this document, and if you can just look at it for a few moments.

BY MR. SOFAT:

Q. Mr. Mosher, do you recognize this document?

A. Yes, I do.

Q. Would you please tell us what this document is?

A. This is my pre-filed testimony concerning the weak acid dissociable cyanide proposal for update of that water quality standard.

Q. Is that a true and accurate copy of your testimony that has been filed with the Board?

A. Yes, it is.

MR. SOFAT: I move to present the copy of Bob Mosher's testimony to be marked as an exhibit and be admitted into the record, if there are no objections.

HEARING OFFICER TIPSORD: Are there any objections?

Seeing none, we will mark the testimony of Robert Mosher as Exhibit Number 17.

At this, I'll open it up for questioning. Are there any questions of Mr. Mosher?

MR. ETTINGER: Well, I'll have some.

I'm Albert Ettinger. I represent the Environmental Law & Policy Center, the Sierra Club, and Prairie Rivers Network.

Actually, first I have a procedural inquiry I guess I should make of the Board or of the Hearing Examiner.

Since the cyanide proposal was not accepted for first notice, if it were, or some part of it, to be accepted now, would it then go back to first notice, or what would be the procedure?

HEARING OFFICER TIPSORD: We, frankly, have not discussed that, and I really can't answer that. It would depend upon several factors.

BY MR. ETTINGER:

Q. I have a question first about total cyanide.

As I understand your description of the weak acid dissociable cyanide, this includes some cyanide, but not all of the total cyanide; is

that correct?

A. That's correct.

Q. What do we know about the toxicity of the forms of cyanide that are not measured by the acid dissociable method?

A. Well, we know it takes a stronger acid to bring those components into solution. They are locked up with other molecules, and it's thought that they aren't toxic to aquatic life because of that.

Q. What studies have we cited that we know that those complexes are not toxic to aquatic life?

A. Well, the National Criteria Document for Cyanide goes into a discussion on that issue.

Q. I believe the National Criteria Document says that these compounds are probably less toxic than free cyanide.

Does it say anywhere that these compounds are not toxic?

A. It is my understanding from reading through that document several times that there are compounds of cyanide that are not thought to be a problem for aquatic life toxicity.

Q. But there are some compounds that are a problem for aquatic life?

A. That's correct, the compounds that are more easily liberated from the molecular binding. And that can be a problem for aquatic life because of that.

Q. Is it your belief that only free cyanide, only cyanide which has been freed in some way, can be a problem for aquatic life?

A. Well, I think that's generally true for toxic substances, that what we're worried about is how -- what is their ability in the environment to become freed up and therefore become toxic.

Q. So it's your testimony that cyanide is never toxic as long as it's in a compound with something else?

A. I don't think I want to go that far, but I do want to make sure everyone recognizes that there are degrees of binding. There are strong bonds and weaker bonds, and by regulating weak acid dissociable cyanide, we have, I believe, conservatively encompassed the bound-up cyanide that is of concern.

Q. I guess my question is, do you know of

any studies on the toxicity of the cyanide that is still bound up?

A. No, I don't know of any.

HEARING OFFICER TIPSORD: Excuse me.

Sort of a follow-up question, you were both talking about the National Criteria Document on Cyanide, is that a part of this record?

THE WITNESS: Yes, it is.

HEARING OFFICER TIPSORD: Could you tell me, was that part of the statement briefings, because I don't -- that title didn't jump out when I was going through the exhibit list.

DR. SKRUKRUD: Exhibit Y.

HEARING OFFICER TIPSORD: Okay. I just wanted to double-check, because the title of it is actually USEPA Ambient Water Quality, and it doesn't say National Criteria. So I wanted to get that straight to be sure I was looking at the right document.

BY MR. ETTINGER:

Q. Now, when they do these criteria documents, basically they're dealing with pure -- I mean, when they're looking at specimens in these National Criteria Documents, they're looking at pure

water, free cyanide, and the effect of that on the organism; is that correct?

A. That's correct.

Q. So we're not looking at any cumulative effects of having more than one pollutant in the water because the only thing that's in the water is cyanide?

A. That's correct, yes.

Q. And there's no other cyanide in the solution that they're looking at other than free cyanide?

A. When they set up those laboratory experiments, they're careful to do that. It becomes very difficult to test combinations, and, you know, mixtures. And so all of the cyanide toxicity tests that I'm aware of, to my knowledge, they all started out with a simple chemical compound of cyanide such as potassium cyanide. They mix that in pure water and they're getting a free cyanide solution.

Q. So none of those tests tell us anything about the toxicity of cyanide when it's in a compound with other chemicals?

A. Those tests don't, no.

Q. Do we know anything about the toxicity

of a total cyanide?

A. There are observations. And, again, I go to the National Criteria Document, that because those forms are so strongly bound, that they are either nontoxic or much less toxic than free cyanide.

Q. But have we got any study that measures how much less toxic they are than free cyanide?

A. I don't believe so. I would refer, again, that anyone interested in that would read through the National Criteria Document for -- I don't recall everything that's in that document, but that would be a good source to explore.

Q. Does the weak acid dissociable method release cyanide from ferrocyanide complexes?

A. Well, it's my understanding that the iron cyanide complexes that you're referring to are some of the stronger bound forms of cyanide. And I don't want to overstep my knowledge. I'm not a chemist, but that is my understanding, that those are the strongly bound forms, and that the weak acid dissociable cyanide test does not measure strongly-bound forms.

Q. Now, there is elements in your testimony regarding protection of trout, and I think we suggest that there would be -- strike that. Forget that.

Are you aware of the regulation saying that water quality standards must protect the most sensitive use?

A. I think that's generally a principle that we strive for in water quality standards, yes.

Q. Now, in this proposal, you're proposing to change both the acute and the chronic standard; is that correct?

A. That's correct.

Q. Dr. Sheehan testified in the ammonia proceeding, I think we all remember that, that he was comforted with regard to the trout that do exist in Illinois because they were only changing the chronic standard in that proceeding. But, in this proceeding, we are changing both the chronic and the acute standard.

Do you see any problems with regard to the trout and other salmonid species that do exist in Illinois with regard to changes in the acute standard?

A. I'm not concerned because of the distribution of trout stocking in Illinois, and because of the actual levels of cyanide in Illinois. Number one, I'm not aware of any place, any stream or lake, that has cyanide levels that would approach our proposed acute standard, and certainly not -- streams that are stocked with trout are far from any industrialized areas that would just by chance contribute cyanide. So, no, I'm not concerned that we will have trout going belly-up because of cyanide in Illinois.

Q. Now, let me pursue something you said there. You say there's no streams in Illinois that have levels of cyanide anywhere close to the acute standards that you're proposing here?

A. Yes, that's correct.

Q. Are there any waters in Illinois that have levels of cyanide that are close to the chronic standards that you're proposing?

A. No. Occasionally, we will detect total cyanide in our Illinois monitoring networks at IEPA.

Total cyanide, of course, measures more than would be covered by the standard. So

that's a conservative type of thing to look at. You're not exactly measuring what the standard is when you measure total cyanide. You're measuring more things.

And, occasionally, I've seen in some of the rivers and canals that receive industrial effluence or large municipal effluence cyanide values that are at or close to the proposed chronic standard for weak acid dissociable cyanide. But that's a rarity. Those detections of cyanide are very few and far between.

Q. So, to your knowledge, this change in the standard will not affect any discharge?

A. Well, the change in the standard, as we tried to bring out in my testimony, is one of not so much discharging cyanide or having cyanide in our waters, but the limitations of the laboratory methodology that dischargers use to measure cyanide is the problem. And that is that there is a chemical interference that we know about that causes cyanide to be measured sometimes in affluence when it's not believed to be there. And the detection limit of cyanide; in other words, what's the minimum detection limit the lab feels comfortable with

reporting, most labs cannot get down to that 5.2 parts per billion level, and, therefore, lab results usually are unavailable to tell us if a discharger has cyanide over the existing chronic standard, or, you know, whether the lab is just incapable of getting that resolution. So those are the two problems that I see exist.

Q. Let's ask first about -- are you familiar with whether there have been any new analytic methods designed for cyanide since the Water Reclamation District proceeding?

A. USEPA has been working on something, and we got a little bit of information about it, but they've never pursued it, to my knowledge, to go so far as to propose it or even get comments from people on the usefulness of that new method.

Q. New method of detecting what?

A. It was a new method of measuring cyanide in a laboratory that was supposed to get right to the toxic components of cyanide.

Q. Well, have you ever -- are you aware of any new methods that have been adopted by USEPA since 1996 for detecting cyanide?

A. No, I'm not aware.

MR. ETTINGER: I'd like to offer as an exhibit Method OIA-1677.

HEARING OFFICER TIPSORD: Is there any objection to the exhibit?

Seeing none, we will admit it as Exhibit Number 18.

BY MR. ETTINGER:

Q. Do you know how cyanide is detected in the other states that have salmonid species and are continuing to use the current level that's recommended by USEPA for cyanide criteria?

A. Well, I know of a few states. Let's see.

Pennsylvania told me that they are now using free cyanide, but the person I talked to couldn't tell me how they were handling the lab difficulties of measuring free cyanide.

They apparently had a test that was not USEPA approved, which I see as a big drawback.

Q. Well, have you ever tried calling, say, the State of Michigan asking them what they're doing?

A. No, I hadn't called Michigan.

Q. Well, I might suggest you do that, because I called them up and they told me about this new method which had been adopted.

HEARING OFFICER TIPSORD: Albert, I'm going to ask that you be sworn in at this point.

Could you swear him in?

(Witness sworn.)

BY MR. ETTINGER:

Q. I'd like for you to look at page 1 of this detection method.

It says, the method -- and look at 1.4.

It says, the method detection limit (MDL) is .5 micrograms per liter, and the minimum level (ML) is 2.0 micrograms per liter with this method.

Do you have any reason to believe that that's untrue?

A. I'm looking at this for the first time, and, usually, USEPA is pretty reliable, but I haven't read the document and I don't know if I have any concerns.

Q. I point then to page 3 of this document in which they did a warning in the middle.

MR. HARSCH: Madam Hearing Officer, on behalf of the Illinois Association of Wastewater Agencies, the witness has already testified that he's not familiar with the document. This is the first time he's seeing the document.

If Mr. Ettinger wants him to testify regarding the document, he ought to testify regarding the document, not continue to ask questions to somebody who has just seen the document for the first time, with all due respect.

MR. ETTINGER: With all due respect, I'm simply going to -- I'm obviously not asking the witness what the document means, I agree with you. I'm going to be asking him, and my question will be, and Mr. Harsch will want to pose his objection again, says, the cyanide ion, hydrocyanic acid, all cyanide salts, and most metal-cyanide complexes are extremely dangerous.

Do you know any reason that that statement is untrue?

HEARING OFFICER TIPSORD: Before you answer, Mr. Mosher, I'm going to rule on Mr. Harsch's objection.

Since this is a rule-making, we

understand that Mr. Mosher is just looking at this document. We will allow him to answer the question now.

THE WITNESS: Yes, I'm aware that cyanide is a dangerous substance.

BY MR. ETTINGER:

Q. Well, are you aware that most metal-cyanide complexes are extremely dangerous, or do you have any reason to believe that the statement made here in the USEPA-approved method is not true?

A. I think you need to understand the nature of the warning, and is it intended for aquatic life or is it intended for humans that work in laboratories.

Q. Okay.

Do you have any reason to believe that something that is toxic to humans working in laboratories is not toxic for aquatic life?

A. I know of examples where that is true. I would cite the example of chlorine, that humans drink chlorine in the tap water every day and it's not harmful, and chlorine is very toxic to aquatic life.

Q. All right, that's going the other way.

Thank you.

You also -- do you know -- I guess so that the -- as I understand the Agency's proposal, correct me if I'm wrong, you're not really concerned about cyanide in Illinois water when you're concerned about those that the testing methods are not adequately sensitive that we're now using and it's causing some problem; is that correct?

A. No. My job is to be concerned with all kinds of toxic substances in Illinois water, and cyanide is one of those things.

And my job has me look over data to determine what the proper water quality standard could be, and I've done that for cyanide to the best of my ability. But to say I'm not concerned I think is a false statement.

Q. Well, none of the dischargers -- no Illinois discharger, to your knowledge, is having a problem meeting cyanide standards at this point?

A. Very few Illinois dischargers are regulated for cyanide. Of those who are, I'm aware that in at least one case, some detections beyond the permit limit were encountered. Whether to say

that facility has a problem with cyanide in the fact that they've actually discharged quantities and are causing exceedences of water quality standards in the receiving stream, that I can't say.

I can say that, occasionally, a sample comes through that measures weak acid dissociable cyanide above a permit limit.

Q. Tell me a little bit about this chlorine interference, how does it interfere with the cyanide?

A. Well, that was detailed in a site-specific regulation a few years ago that was from the Metropolitan Wastewater District of Chicago. And they did a pretty good job, I thought, of documenting the fact that in their effluence from their civics treatment plants, something, and they thought that it might be chlorine, if my memory serves me, was somehow messing up the cyanide analysis and they were measuring cyanide where it really didn't exist.

HEARING OFFICER TIPSORD: Excuse me, just if I may interject for the record, the rule-making that Mr. Mosher is referring to is, R95-14.

BY MR. ETTINGER:

Q. This is R95-14. I'd like to just, since we brought that up, read you a sentence from this and see whether any further research has been done. The sentence in the opinion states --

HEARING OFFICER TIPSORD: Excuse me, could you specify which opinion, because there were three separate opinions.

MR. ETTINGER: I'm sorry.

BY MR. ETTINGER:

Q. The February 1, 1996 opinion in that proceeding states, the District observes that during the Summer of 1994, when the correlation between chlorination/dechlorination was becoming evident, it undertook a study of the fate of WAD cyanide concentrations during the treatment process, including sampling prior to and after chlorination.

The results verified that chlorination causes an increase in the reported WAD cyanide concentrations, although it remains uncertain whether the increase is caused by an analytical interference or by a chemical reaction that produces new cyanide.

Are you aware of whether there

have been any studies that have resolved the question as to whether or not the chlorination causes an analytical interference or whether it produces new cyanide?

A. No, I'm not.

Q. Now, I have a question with regards to the Black Shiner and Iowa Darter:

Did USEPA test any members of the genus of either the Black Shiner or the Iowa Darter in developing the cyanide standard?

A. I'd have to look.

(Witness perusing the document.)

BY THE WITNESS:

A. No, they didn't.

BY MR. ETTINGER:

Q. On page 8 of your testimony you state, USEPA Region 5 Management has assured the Agency that mussel data should not enter the derivation process as a driving factor until the controversies are resolved and reasonable experts agree that the mussel data is legitimate.

How did Region 5 make this assurance known to you?

A. We had a meeting with them, I believe it was this spring, discussing many topics, and I brought that up to ask them their position. These were the managers of the Region 5 Water Office.

Q. And what specific individuals?

A. Joan Karnowskus.

Q. And was she the one who made that statement?

A. Yes.

Q. The State of Ohio, you mentioned, has a standard which is similar to the standard being proposed here.

Are you familiar with the Ohio use designation system?

A. Somewhat familiar.

Q. They have a lot more categories of uses than Illinois, don't they?

A. Yes, they do.

Q. And do we know what standards -- what uses this particular cyanide standard applies to in Illinois?

A. It was my understanding from reading the Ohio regulations that this applied to all the waters in Ohio other than Great Lakes basin waters.

Q. Is Illinois EPA now asking dischargers to monitor for cyanide at the 5 microgram per liter level?

A. No, because we recognize that as something that would be very difficult for the dischargers, as they would have trouble finding a lab that could get down to that level.

Q. So, in fact, the only reason for making this change has already been accomplished by your telling the dischargers that they don't have to measure to that detection level anyway?

A. The primary reason for making this change is that when we review water quality Standards and look at the data, we want to derive and have adopted a standard that is the most correct standard possible. That's the primary reason we're making this suggestion.

There are other reasons, which I've already gone over, which are also good reasons for doing it. But without reason number one, in that the data tell us that this is the proper warm water cyanide standard, without that reason being correct, the others aren't valid.

Q. But you don't have any data in this

that's relevant to any of the endangered species in Illinois, do you?

A. I don't know of any data anywhere from any endangered species. They don't test endangered species.

Q. Do they test the genus of endangered species?

A. Every now and then, yes.

MR. ETTINGER: I'd like to offer one other exhibit here.

BY MR. ETTINGER:

Q. This is a permit that was issued by Illinois EPA last fall. I'd like you to just turn to page 7 of this permit. It has monitoring requirements and minimum detection limit figures.

Looking down at cyanide, you'll note that the minimum detection now is 10 micrograms per liter; is that correct?

A. That's correct.

Q. Is that, to your knowledge, the standard practice of the Agency to require that detection limit for cyanide already?

A. Yes.

Q. Looking down at mercury, the detection

limit there is 2 micrograms per liter?

A. No, that's not correct. It's 0.2.

Q. I'm sorry, 0.2.

How does that relate to the mercury standard in Illinois?

A. That detection limit is adequate to assess attainment of the acute and chronic mercury standards for general use waters, but it's not adequate to assess the human health standard.

Q. Does it bother the Agency that you have detection limits for mercury which were a multiple of the human health standard?

A. I think this is a somewhat similar case to cyanide, in that we have to wait for laboratory technology to catch up with water quality standards sometimes. And, for mercury, very recently, USEPA has adopted a new lab method that will allow minimum detection limits --

Q. Very recently as in two years ago?

A. Yes.

Q. Does the Illinois Environmental Protection Agency intend to propose to weaken the human health standard for mercury because it only intends to require a minimum detection limit of

.2 micrograms per liter?

A. No, because we feel that the existing mercury human health standard is appropriate from our knowledge at this point.

HEARING OFFICER TIPSORD: Excuse me, at this point, just some housekeeping. Is there any objection to admitting the permit of the North Shore Sanitary District issued on September 18, 2001 as Exhibit 19?

Seeing none, that will be marked as Exhibit 19. Thank you.

BY MR. ETTINGER:

Q. Finally, on page 10 of your testimony, you note that the reason for a proposal raises the chronic standard from 10 to 11 micrograms per liter stems from additional toxicity studies being found since 1996.

Could you just identify for the record which those studies are?

A. Okay. Exhibit Z of our original proposal lists some additional studies that we found that were either not found by the National Criteria Document authors or were newer than that document. And it would take me a little while to tell you

which ones those are, but the reason the standard can be where it is now is that we have more species tested since the National Criteria Document was published. When you have more species information available, that essentially your safety factoring is lessened and the standard can get a little bit higher because of that reason.

MR. ETTINGER: Can I have like a two-minute break to just talk to Cindy and see whether I have anything else?

HEARING OFFICER TIPSORD: Sure.

(Brief pause.)

MR. ETTINGER: I think we've covered everything now. Thank you.

HEARING OFFICER TIPSORD: Are there any other questions?

BY MR. HARSCH:

Q. Mr. Mosher, has USEPA and Fisherman Wildlife entered into a memorandum of understanding which both agencies agreed to jointly review USEPA's Criteria Documents for Water Quality Standards as they would impact endangered species?

A. Yes. There's a memorandum of agreement between those two agencies.

Q. So the likely optima of that may be revisions to the National Criteria when that complication process is completed in the next two years; is that correct?

A. Yes.

MR. HARSCH: Thank you very much.

MR. SOFAT: Madam Hearing Officer, my Agency has some questions for Albert.

HEARING OFFICER TIPSORD: Of Albert, let me just make that clear?

MR. SOFAT: Albert Ettinger.

HEARING OFFICER TIPSORD: Sure.

BY MR. MOSHER:

Q. I'd like to ask you a few things about the cyanide method that you have given us as an exhibit.

Are there any laboratories in Illinois that are performing that test?

A. I don't know.

Q. Do you know what the qualifications of that method are in terms of interferences such as we saw with the other cyanide methods?

A. No.

Q. Do you have any idea about

laboratories even outside of Illinois or any -- well, let me ask that question first.

Are outside laboratories doing that test that you know of?

A. I was told by Sylvia Heaton at the Michigan Department of Environmental Quality that they are using it in Michigan.

Q. The Michigan State Laboratory or a private lab?

A. No. I called her, asked what they were doing, and she said there was a new method. I can give you her number.

Q. Does this new laboratory method have anything to do with what a water quality standard should be as far as protecting aquatic life?

A. The method contains information which I find interesting that is relevant to that topic that somebody should figure out insofar as it says that the metallic compounds, if you are in effect in your proposal are assuming are completely harmless may not be, then that is something I would certainly want to look at before I adopted the standard that you are proposing.

But other than that, the reason

that we looked at the analytical method was not to look at the soundness of the standard, but instead to appraise your argument that the Illinois standard should be weakened because of the lack of analytic methods that are available to test the current standard.

Q. Does this new USEPA lab method measure ferrocyanide complex?

A. No.

MR. MOSHER: Thanks.

HEARING OFFICER TIPSORD: Anything further?

All right, then let's move on to Dr. Skrukrud's testimony. We'll have her sworn in please.

(Witness sworn.)

HEARING OFFICER TIPSORD: And if there's no objection, we will admit Dr. Skrukrud's testimony as Exhibit Number 20.

Is there any objection?

Seeing none, that testimony will be marked as Exhibit Number 20.

Are there any questions for Dr. Skrukrud? Identify yourself for the record,

too, please.

MR. CALLAHAN: My name is Mike Callahan, and I'm here on behalf of the Illinois Association of Wastewater Agencies.

Madam Hearing Officer, I was sworn during the second hearing. I would intend to adjust my comments accordingly here. Would you care to swear me again?

HEARING OFFICER TIPSORD: Yes.

(Witness sworn.)

MR. ETTINGER: Excuse me. Are we hearing testimony or --

HEARING OFFICER TIPSORD: He has some questions for Dr. Skrukrud.

MR. ETTINGER: Well, it seems like he's swearing himself in as testimony, in which case, I would have liked to have had pre-filed testimony.

MR. CALLAHAN: I think some of my questions --

HEARING OFFICER TIPSORD: Excuse me, could we go off the record for just a second.

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

MR. CALLAHAN: I'd like to submit here for the Board's review Dr. Skrukrud's graph that she included as Attachment 1 in her pre-filed testimony, on which I've indicated some numbers which I think are appropriate. And the sheet on the front is a table that summarizes the data taken directly from her graph.

HEARING OFFICER TIPSORD: If there's no objection, we will admit this as Exhibit Number 21.

Seeing none, it will be marked as Exhibit Number 21.

MR. CALLAHAN: May I just stay here for the sake of convenience?

HEARING OFFICER TIPSORD: Sure.

BY MR. CALLAHAN:

Q. Dr. Skrukrud, I would first of all like to call your attention to your testimony. On page 2 toward the end of the first paragraph, you make a statement about halfway through that paragraph.

In fact, as we explained in the post-hearing comments, the dissolved oxygen standard continues to be violated in many Illinois waters.

While we do not know the cause of these violations, many of the affected waters receive significant discharges from sewage treatment plants and other discharges of oxygen pollutants.

The fact that you don't -- do I understand that sentence to mean that you do not understand necessarily the exact cause of all of these violations?

A. Yes, that's what we stated. We do not know the causes of these violations.

Q. Could some of these violations be caused by urban and rural non-point source storm runoff?

A. Yes.

Q. Could some of these violations have been caused by channel morphology modifications, perhaps with the lack of overhanging bank vegetation? The example that I will give would be a channel which has been artificially structured so that there's an excessive wetted perimeter of flow within the channel. Water is very thin. In the summer it heats very quickly. Warm water contains less oxygen than colder water.

So channel morphology and

hydrological modifications could be contributing to some of these dissolved oxygen deficits, would that be a possibility?

A. Channel morphology could contribute to dissolved oxygen.

Q. Could anoxic siltation deposits contribute to some of these oxygen violations?

A. Yes.

Q. What about the unfortunate incident of just naturally decaying vegetation and foreign waters, could they not under some circumstances contribute to these dissolved oxygen violations?

A. Yes.

Q. So there would be a variety of things other than wastewater treatment plant discharges that could infect these water quality dissolved oxygen violations to which you're referring?

A. Yes.

Q. Let's move down to the second paragraph. This is talking about your graph in Attachment 1, the sampling of the DuPage River done in August of last year. The last sentence in that paragraph indicates that large quantities of discharge from sewage treatment plants upstream

could have contributed nutrients and oxygen-demanding fluids leading to this violation.

That's your statement, correct, did I read that correctly?

A. Yes, you read it correctly.

Q. So by the nature of that statement, we could also say that these discharges could not have contributed to these violations? If they could, then they might not have as well; is that correct?

A. Yeah, yeah.

Q. Let's take that a step further.

What if the oxygen-demanding parameters released by these treatment plants did not contribute but perhaps their nutrients did, would that be a realistic assessment?

A. Say that again. You said the nutrients would contribute, but their --

Q. Oxygen-demanding load did not.

A. I don't know quite how that would get teased out. I mean, if the effluence contains both, you know, certainly the breakdown of nutrients can deplete, can result in a consumption of oxygen.

Q. The breakdown of the nutrient can result in the uptake of oxygen?

A. Yes. Or the metabolism, if you want to say it, the metabolism of nutrients in the water by organisms in the water can result in a consumption of oxygen.

Q. Right.

A. But at the same time, if there's vital oxygen-demanding components in the effluent, those are also going to play a role. So I don't know how you could tease the two out, definitely.

Q. It would be a very specific kind of thing?

A. Right.

Q. But the presumption would be made that if a discharger was discharging a BOD of 2 milligrams per liter and a phosphorus concentration of 3 or 4 milligrams per liter, that we might expect the nutrient impact to far exceed the oxygen demand impact?

A. Yeah, potentially. And --

Q. Okay, fine.

The last paragraph on the second page, you, in a way, characterize -- I don't believe it was my testimony, I think it was my cross-examination and discussion with Albert at the

second hearing.

You've indicated here that I said a BOD and an effluent of 10 milligrams per liter would be readily attainable. Do you --

A. That was taken from the transcript of the hearing.

Q. From the transcript, okay.

I think in the event that -- if my memory is correct, and I think it is, I think I was referring to a tertiary treatment plant, as I recall, and not necessarily looking at a secondary treatment process effluent capability of 10 milligrams per liter.

The reason that we have tertiary treatment in this industry is to make the difference between the secondary capabilities and what is required for zero low flow stream discharge.

So one way or another, I just wanted to clarify that. That I am not on the record intentionally of indicating that a secondary treatment process can consistently produce a 10 milligram per liter BOD.

HEARING OFFICER TIPSORD: Did you have a follow-up to that?

MR. KELLER: Just for clarification on that, Mr. Callahan is referring to page 132 of the testimony, and it does refer to treatment plants discharging to zero flow streams, which would the 10/12 effluent versus the 20/25 effluent.

MR. CALLAHAN: Right.

HEARING OFFICER TIPSORD: Could you identify yourself for the record?

MR. KELLER: Alan Keller, EPA.

BY MR. CALLAHAN:

Q. All right, a little housekeeping there. That 10 milligram was an anticipated tertiary effluent, certainly not an evaluation of the secondary process.

The last paragraph of your written testimony, the second sentence reads, the Agency should be required to develop implementation rules for the dissolved oxygen standard and consider the contribution which nitrogenous BOD makes the total BOD load in a typical effluent.

Aren't you a member of the Illinois EPA Nutrient Science Advisory Group with me that is addressing the development of nutrient standards in this state?

A. Yes, I am.

Q. And hasn't that group been in session now assembled for probably maybe just a little over a year?

A. Yes. I don't think I was at the first meeting, so I don't know --

Q. But you have been at the subsequent meetings?

A. Yes.

Q. Well, at those subsequent meetings, haven't we discussed the applicability of the existing dissolved oxygen standard in Illinois to specifically address the requirements of nutrient control as well as possibly being appropriate for the growth of our state; hasn't that been an issue that's been discussed?

A. Yes, but I don't quite see how that's relevant here in terms of what is in my testimony here.

When I was discussing the nitrogenous BOD in a discharge --

Q. Well, I --

A. Can I finish?

HEARING OFFICER TIPSORD: Let her

finish, please.

BY THE WITNESS:

A. One of the main reasons why we are concerned that that part of the discharge be looked at was because there are permits granted without ammonia limits. And so our concerns are specific with the ammonia component of the effluent.

And I'm not sure that we focused on ammonia in the nutrient hearings because -- the ammonia because we already have a water quality standard for ammonia.

Q. Well, I might take exception with you on that, because I believe, again, if you'll review the transcript of the last hearing, Albert cross-examined me at great length about this. And I indicated that the group I thought, and it was certainly my intention, was looking at addressing nitrogenous oxygen demand as a component of the nutrient management strategy that we were trying to put together at this time.

A. I guess I have it understood that that has been a main component of our discussions.

Q. Well, I bring that all up because my question was how you would make such a statement as

you have when you've been a part of the proceedings that have been addressing the development and reassessment of our oxygen standard for approximately half a year or so at this point.

Now, you brought up the idea once again about showing that there were no ammonia limits in some of the NPDES discharge currently issued with the state, if that's correct.

Part of your testimony, and we just discussed that briefly here, and I assume that you once again are referring to the situation involving, amongst others, Beardstown, Illinois, as presented at the spring hearing?

A. That was a permit that we presented as an example of a permit that happened with ammonia.

Q. Right. And you recall our discussion about the discharge, to whose capability, and the compliance of that situation with the existing rights in the State of Illinois?

A. I'm sorry, I cannot recall that conversation.

Q. Well, I believe it was discussed at length at that hearing that there was incredible pollution capability at Beardstown, and that's the

reason that the -- the discharging of the Illinois River. I don't say this at all authoritatively, but I believe it was about 1000-to-1 pollution capability in that town.

A. What I do recall is that we've had discussions earlier in these proceedings that the current Illinois water quality standard for ammonia is focused on the issue of the toxicity of ammonia. It doesn't address the oxygen demands.

Q. Right, I would agree with you 100 percent, and I would also agree that that is totally inadequate. And that is why I'm advocating the point that we look at this as part of the eco management strategy and not try to back the word onto a process by which we evaluate the capacity as a secondary treatment.

I would like to turn now to your graph, which I have taken the liberty of marking a little bit here along with the table that I've prepared.

If we look at the first presentation of data, the titles across the top of this indicate maximum. And these are approximations. If you pardon my hen scratching,

you can see on the curves where I've tried some of the various components of maxima and minima, time of day, revoke temperature, and dissolved oxygen concentration.

By and large, the maximum for August 2 through August 5 were 98.5, 10.8, and 11.2. The time of day that those were measured was principally about 6 p.m., 5 to 6 p.m. And the temperature at the time of the maximum concentration respectively was 27, 28, 28, 28 and 3 centigrades.

Now, this may be off a degree or two. I've tried to extrapolate the best I could from your graph. But I think it's fine for illustrative purposes.

The fourth column are numbers that I copied off of the Yellow Springs Instrument Corporation's calibration curve for a YSI dissolved oxygen meter. And at 540 feet of elevation, these would be the oxygen saturation concentrations at those temperatures.

Now, admittedly, there are other things such as salinity, which is in effect a component of dissolved solids; barometric pressure; a number of things that would really give us a very

specific dissolved oxygen saturation concentration. But the numbers I'm giving here could be within two or three-tenths of a part from a million from what the actual number would be given the conditions under which the measurements were taken.

These saturation numbers by and large -- well, I think almost without exception are considerably less than the maxima that were measured on those days, are they not?

MR. ETTINGER: You're just asking if the numbers --

BY THE WITNESS:

A. Yes.

MR. ETTINGER: -- you've written in one column are larger or smaller than the other?

MR. CALLAHAN: Right.

BY THE WITNESS:

A. Yes, they are.

BY MR. CALLAHAN:

Q. Where would this oxygen come from?

A. What are you asking?

Q. Well, this is in excess of a saturation concentration of the water that we would expect to result from simple diffusion to cause the

water atmosphere inferior. Where does this oxygen come from?

A. I have to tell you I'm by no means an expert in this. That it can come from biological activity.

Q. Photosynthesis?

A. Yes.

Q. So we're supersaturating the solutions on photosynthesis, and that could be borne out by the fact that these samples were all taken and these maxima were collected late in the afternoon. That would be the maximum period of solar radiation on that water, correct?

A. Yes.

Q. I agree with you, yes. I would agree with that observation.

Correspondingly then, the minimas that we find that are woefully below what we presume to be -- by the way, what is our water quality standard for dissolved oxygen?

A. Our standard is 5 and then 5.0 milligrams per liter, and then no less than 6 milligrams per liter for a period of 12 or 18 hours.

HEARING OFFICER TIPSORD: 16.

THE WITNESS: 16 hours. I would split the difference then.

BY MR. CALLAHAN:

Q. The standard is not less than five --

A. At any time.

HEARING OFFICER TIPSORD: Excuse me, let me clarify that. I have the Rule in front of me. It's Section 302.206.

Dissolved oxygen shall not be less than 6.0 milligrams per liter during the 16 hours of any 24-hour period, nor less than 5.0 milligrams per liter at any time.

MR. CALLAHAN: Right.

BY MR. CALLAHAN:

Q. So given that current standard on the book, the minimum concentration that we're finding on the bottom half of this from the 2nd through the 5th of August is considerably below what our current standard would allow; is that correct?

A. Yes, that's why we presented this data as evidence that we are having problems in the State's waters where the DO levels are dropping below the standard.

Q. At what time of the day were those measurements taken?

A. Roughly 8 a.m.

Q. So we have very high oxygen concentration relative to saturation values at the conclusion of the period of maximum solar radiation, and then we have a standard-violating situation after a prolonged period of darkness.

Would you agree that that is a eutrophication dissolved oxygen signature?

A. Yes.

Q. How would this look different if it were related to a sustained and continuous discharge of oxygen in the air?

A. As the only component?

Q. In other words, if we just assume that this is a signature of eutrophication caused by nutrient release -- I think that's what you just said. Too many nutrients going in.

If it were caused instead by an unrestricted overly-generous release of carbonaceous oxygen demand, how would that curve look?

A. Once again, you're asking me to tease out in the real world something that can -- that's

all mixed together. So, in this case, I think that we can see, because of this signature, that there's a nutrient component that's causing this up and down levels of DO. But --

Q. So --

A. Can I finish?

Q. Yes.

A. But there can't -- it's hard for us to tease out of what we have in this graph here what is the underlying BOD demand.

Q. Right.

A. So --

Q. Well, let me suggest to you, being under oath, that if this were a curve in response to a sustained release of carbonaceous oxygen demand, that the main value would be significantly less than what we're seeing right now. And that the amplitude defining the minima and the maxima would also be significantly less than what we're seeing?

MR. ETTINGER: You don't have an answer.

MR. CALLAHAN: No. It's a suggestion. Take it as you may. I will say I'm under oath.

BY MR. CALLAHAN:

Q. But we agree principally then that this is in response to nutrient enrichment?

A. I think we have agreed that nutrient enrichment certainly plays a part in what we see in this situation here. I don't think that we can say it is the only thing.

Q. Are you familiar with the 1986 USEPA National Criteria Document for Dissolved Oxygen?

A. Yes, but don't ask me to quote from it.

MR. CALLAHAN: I may be able to just -- would you, Mr. Harsch -- somewhere in there I believe you'll find that Criteria Document. It's in the briefcase.

This is the same kind of document that we have been discussing here for toxic cyanide and that we discussed several months ago for a moment the basis of recommendation for a water quality standard.

And I would be glad to enter this as part of an exhibit.

HEARING OFFICER TIPSORD: Yes, please do.

BY MR. CALLAHAN:

Q. While I'm looking this up, do you have any data from the DuPage River on these sites in the winter?

A. I personally don't. I don't know what other data the conservation foundation and the USEPA, who were doing this study, what they might have available.

Q. Okay, all right.

A. I do know, but I don't have it with me, there are Sierra Club volunteers who have been monitoring the DuPage River, who monitor throughout the course of the year, so there is potential data available.

Q. I would ask you to take a look at Table 8 in the 1986 Criteria Document on page 34.

This is the recommended distribution of dissolved oxygen standards. By that document, based upon the presence and the absence of early life stages of fish for cold water and warm water species, and I think you'll find that it's much more complicated than we have in the state right now, isn't it?

In fact, this is the document that

we've been discussing at the nutrient meetings for approximately the last six months how we might apply this in a more meaningful manner to either validate or modify our existing dissolved oxygen standards thereby coming up with a good basis for the formation of some very appropriate nutrient standards to prevent this very eutrophication on the DuPage River that you rejected.

A. Did you have a question for me about the table?

Q. Yes, I'd like to ask you what that number right there is (indicating) and what it's indicating; it's a one-day minimum of?

A. I will read what's in the table, but I have to tell you that I'm only looking at the table, so I don't know the context of what was before it.

Q. Well, I wouldn't ask you a question that misconstrued.

A. So I'm being asked to read what is the one-day minimum -- the table's entitled Water Quality Criteria for Ambient Dissolved Oxygen Concentration One-Day Minimum Warm Water Criteria For Other Life Stages, and the figure reads 3.0 milligrams per liter.

Q. Right.

So given the fact that these occurred, the minima are all greater than 3, given the fact that these occurred in August, the presumption would be that they probably are violations of the water quality standard during the period of early life stage presence.

But if we were to take that document on its face value, that wouldn't necessarily be a water quality standard violation during the month of November, December, or whenever there would not be early life stages present, would it?

A. You're asking me to imply that this data collected in August --

Q. No, I'm just asking you to evaluate in terms of those numbers.

The 3 -- right, I mean --

A. I really don't think that's appropriate. I shouldn't be -- data that's collected during summer months, I have no way of knowing -- no way of saying that's appropriate for --

Q. I withdraw my question. I don't want

to put you in a bad position.

A. Thank you.

Q. Let's back up one more question. Well, I think that'll be it.

HEARING OFFICER TIPSORD: If there's no objection, we will admit the Ambient Water Quality Criteria for Dissolved Oxygen as Exhibit Number 22.

MR. CALLAHAN: Thank you very much.

HEARING OFFICER TIPSORD: Seeing none, it will be admitted as Exhibit Number 22.

MR. ETTINGER: I have a question of Mr. Callahan since he's made himself a witness.

HEARING OFFICER TIPSORD: Can we finish with -- make sure there's no other questions of Dr. Skrukrud?

MR. ETTINGER: I'm sorry.

HEARING OFFICER TIPSORD: Are there any other questions for Dr. Skrukrud?

MR. HARSCH: Yes, ma'am.

HEARING OFFICER TIPSORD: Let's start with Mr. Harsch.

BY MR. HARSCH:

Q. Ms. Skrukrud, when you testified at

the second hearing regarding the Fox River study, that we found out had not been reduced to writing, who prepared that work at the McGraw Foundation?

A. Peggy.

Q. Who did the work at the McGraw Foundation on the study you testified to at the second hearing regarding the Fox River?

A. I just needed to clarify my head that we had talked about it in the second hearing, because I know we then supplied some information in our post-hearing comments.

The researcher at the Bax McGraw Institute's name is Nick Santucci, S-A-N-T-U-C-C-I.

Q. You're a member of the Fox River Eco Partnership, right?

A. Fox River Ecosystem Partnership?

Q. Yes.

A. Yes. I've been a member as a representative of McHenry County Affairs.

Q. Has his study been reduced to writing since that hearing? I believe at that hearing you testified that --

A. Yes, I believe that we -- you know, Albert has our post-hearing -- we filed post-hearing

comments on April 12. I have it with me, but I think you've got the attachments. And I think that we -- maybe I can look through it. We filed some written materials as Exhibit 5 to our post-hearing comments.

Q. Since I wasn't served, what is the answer to my question; was that study reduced to writing?

MR. ETTINGER: No, 5 is the 305(b) report.

THE WITNESS: Sorry.

MR. ETTINGER: Let me see. There was --

THE WITNESS: Here it is. Exhibit 8.

MR. ETTINGER: Exhibit 8.

HEARING OFFICER TIPSORD: So the answer is, yes, it was reduced to writing, and it's been submitted as part of the record?

THE WITNESS: Yes

MR. ETTINGER: Yes.

BY MR. HARSCH:

Q. Were you present when he presented his conclusions to the Fox River Eco Group in February?

A. No, I was not, because I had already

previously attended another one of the many presentations he's given on this study.

Q. But you're aware that presentation occurred to the Group?

A. I know he was giving the presentation, I can't --

Q. It's written under the Fox River Ecosystem, and it was not in their monthly publication or quarterly publication?

A. We -- what we submitted as Exhibit 8 is the Winter Edition of the Fox River News, and that included a guest column by Vince Santucci.

Q. But that's not -- he hasn't reduced his report to writing?

A. He's certainly writing it. He's -- no, he has not finalized his report.

Q. It's my understanding from the people that were present in February that he explained that the data that he had found in the Fox River below DO levels at nighttime were indicative of the possible need to re-visit and revise the minimum DO standards in Illinois.

Did he make the same statement at the presentations that you attended?

A. No, he did not.

HEARING OFFICER TIPSORD: Mr. Harsch, we need to have you sworn in if we haven't already done so.

(Witness sworn.)

BY MR. HARSCH:

Q. You did not hear him make that statement at the meeting you were at?

A. No, I did not.

MR. HARSCH: I will provide for the record an affidavit of individuals who were present at that meeting -- the report is yet to be reduced to writing -- in which it's reported that he made that statement. And I think it goes to some substantial -- provides some substantial weight against the use of his conclusion to the way they've been presenting in this proceeding.

HEARING OFFICER TIPSORD: Any other questions?

MR. HARSCH: No further questions.

HEARING OFFICER TIPSORD: Go ahead.

BY MR. KELLER:

Q. I'd like to refer page 2 of your testimony on the last paragraph concerning the

16 milligrams liter proposal.

A. Oh, great, we get to talk about what we're actually proposing.

Q. I think you proposed that.

A. Yes.

Q. Was that just an arbitrary value that you chose, or what is the basis for that value?

A. No, it wasn't -- it wasn't arbitrary. I wanted to -- hold on a second. I had a page turned to this so I could answer that question and then it got moved around.

It wasn't arbitrary. For one, as we stated in our post-hearing comments of April 12, the federal rule that defines secondary treatment for technology-based limits states that 25 milligrams per liter CBOD5 may be substituted for 30 milligrams per liter BOD5.

So our proposal that mirrors that for the case where you currently have a 20 milligram per liter BOD standard, we would propose that a 16 milligram per liter CBOD5 standard be put in place.

Q. So this is a new technology-based type standard, or did you review any data from any

treatment plants that have a 20/25 effluent standard to show they can meet that number or what?

A. Well, again, we gave as an example in our post-hearing testimony of April 12 that this is the kind of scenario that Wisconsin uses when they -- they allow the use of a 16 milligram per liter CBOD5 standard to replace a BOD standard of 20 milligrams per liter.

Q. Did you review any data though from treatment plants that have a 20/25 standard to see if they can meet that number?

A. No, not systematically. We could do that.

Q. So you don't know if this is really achievable? I mean, Mr. Callahan --

A. I've looked at a lot of discharge monitoring reports recently.

Q. I think part of the basis of that though is, from Mr. Callahan's previous testimony that was really taken out of context, for 10/12 tertiary treatment facilities versus facilities that were allowed to discharge 20/25 pursuant to 304.120(b); is that correct?

A. What are you asking me?

Q. Part of your basis for saying that this was achievable was that Mr. Callahan said that 10 was achievable?

A. Yes.

Q. And 10 represents treatment technology for a tertiary treatment plant versus an advanced secondary treatment plant such as 20/25?

A. So he clarified for us today.

Q. Right.

A. I guess I would assume that because Wisconsin is able to do it this way that we would be able to do it this way.

Q. Would additional treatment be necessary by dischargers if they had to meet this 16 versus 20/25; do you know?

A. I don't know.

MR. KELLER: I have no further questions.

THE COURT: Are there any other questions for Dr. Skrukrud.

BY DR. GIRARD:

Q. I have a clarifying question about this issue dealing with 304.120(a) and compliance with the 30 milligrams per liter BOD5, and we've got

the 304.120(b), which says you can supply that now by measuring 25 milligrams per liter of CBOD5.

So you've said you were mirroring that requirement by coming up with the 16 milligrams per liter of CBOD5 to comply with the requirement in 304.120(b) cannot exceed 20 milligrams per liter of BOD5.

Now, primarily, are you saying you did the same ratio, the 25 over 30, is the same as 16 over 20?

A. No, it's not exactly the same ratio.

Let me see. 16 over 20 is 80 percent. 25 over 30 -- it's not exactly the same. I just calculated it out.

Q. So 16.7 something?

A. Yeah.

Q. But question is, how did get the number? They were asking for an arbitrary, how did you come up with 16?

A. One, following the federal regulations for 25 and 30; two, looking at what Wisconsin has done in the situation of 20 milligrams per liter BOD standard that they substitute 16 milligrams per liter CBOD.

Q. But they use the ratio and basically round it to that?

A. Are you asking me what did Wisconsin do?

Q. Well, I'm just wondering how you came up with 16. I'm not sure specifically -- if you say you went to Wisconsin, that's fine.

A. Yeah, basically, you know, we looked at what Wisconsin did. But I don't know whether they -- what they did was just kind of mirror what was in the federal rule for different concentrations of BOD.

HEARING OFFICER TIPSORD: Anything further?

Mr. Ettinger, you have a question?

MR. ETTINGER: There are plants that have the 20 BOD level limit now that are tertiary plants?

MR. CALLAHAN: That I can't tell you. I don't know.

MR. KELLER: What's the statement again?

MR. ETTINGER: There are plants that have the 20 BOD5 limit that are tertiary plants now,

aren't there? He said, I don't know.

MR. KELLER: That would not be true.

HEARING OFFICER TIPSORD: We need to have him sworn over.

(Witness sworn.)

BY MR. ETTINGER:

Q. There is no tertiary plant in the State of Illinois that has a BOD5 limit now of 20?

A. There may be tertiary plants that have a standard of 20. I'm going to ask what you stated before.

Q. I don't want to go through the record. My question now is, are there tertiary plants that have a BOD5 limit of 20?

A. The tertiary treatment requirement that is under 120(c), which requires 10 and 12. If they're required to have tertiary, they have a 10/12 BOD of suspended solids.

Q. Would they be required to have tertiary for ammonia and have a 20 BOD?

A. That would be a nitrification facility.

Q. Right.

A. That's not a tertiary facility.

Tertiary treatment would be additional solid removal from the plant through either filtration or additional settling capacity in the treatment plant.

Q. Well, that's interesting.

So you're telling us then that a plant that's sufficient to remove ammonia won't necessarily get you down to 10 BOD5 -- or 10 CPOD5?

A. Yes, but they also have additional treatment such as filtration for additional clarification.

Q. I see I settled this Fox River case too early.

The question then is, are you saying that there are no tertiary treatment plants in Illinois that have a 20 BOD5 limit?

A. There may be plants that have tertiary treatment with a 20/25 standard.

Q. Yeah, there are.

A. There may be.

MR. FREVERT: Can I supplement that answer?

HEARING OFFICER TIPSORD: She'll swear you in, Toby.

(Witness sworn.)

MR. FREVERT: Technologies used to remove nitrification are different technologies than the technologies used to get down to 12 milligram per liter suspended solids.

Al's language is saying tertiary -- the terminology he's using to define that design that lowers suspended solids to 12.

Nitrification is usually a secondary activated sludge process or beefed up single stage activated sludge process. But they're different technologies to address different components.

And, typically, a plant with 10/12 nitrification has both of those technologies. A plant at the present time that doesn't have a 10 milligram per liter BOD limit and only has a 20 milligram BOD limit may still need to design for nitrification for a normal reduction. But they would use a different technology and it would be a different design than a plant that was designed and built to remove ammonia and also remove suspended solids below the 25 milligram per liter level down to the 12 milligram per liter level.

BY MR. ETTINGER:

Q. So how does the ammonia limit affect BOD?

A. I believe that's part of the objective we're trying to get at here. The rule we're dealing with specifically defines technology-based requirements for the parameters that the United States Government's Clean Water Act defined as secondary treatment plants. That's biochemical oxygen demand and suspended solids.

In the State of Illinois, other than the Illinois River, to the best of my knowledge, there are no technology requirements for ammonia. Ammonia reduction is driven by a water quality need not a technology-based rule.

And when we incorporate ammonia limits, they're permitted because we've assessed the water quality impact and concluded there is a need to reduce ammonia in the discharge or that water quality standard will not be achieved.

In the case of BOD and suspended solids, unless we know there's a specific dissolved oxygen problem that warrants the dissolved oxygen analysis and supplemental carbonaceous or

nitrogenous BOD reduction, we need that DO standard.

We have routinely applied BOD and suspended solid standards based on the technology rule. We have not done a water quality analysis of dissolved oxygen. Part of the reason for that is the fact that when those standards were set, the start of my lifetime, the 1970s era, they were consciously attempting to meet the minimum federal standard nationwide and in those smaller streams incrementally reduce those technology limits so we had a cushion and safety that we were not to those point source discharges creating DO problems without doing a DO analysis.

But it did not relieve us of the obligation if indeed that assumption is wrong, those technology-based numbers are inadequate, we still have the authority and the obligation to lower those numbers below the 10/12 or 20/25, whatever they may be.

Typically, in doing that, we do that as the result of a water quality analysis. Typically, they're going to be in the form of TMDL analysis these days.

But, routinely, we do not do that.

Routinely, we rely on this technology-based standard to specify what the permit limit is.

Q. What about the 20 standard, that's not the technology-based standard, is it?

A. It is a technology-based standard. The Pollution Control Board 30 years ago said for plants over a certain size, and we feel like it's economically appropriate and capable and appropriate to go an increment below that 30 number instead of the 20.

Q. Well, what is the number that's based -- is it a size number or a dilution level?

MR. KELLER: 20/25?

BY MR. ETTINGER:

Q. The 20/25, there's not a dilution level also involved there; is there not a water quality component now built in or supposed to be built in for that 20 BOD limit?

A. My recollection, again, and I haven't personally been involved in this case, so my recollection is 20 is driven by a population equivalent of over 10,000. Medium and larger plants we hold to a 20 standard. Plants with 5 to 1 dilution can operate at 30. And then my

recollection is there's a cutoff to go to 20 if you're indeed over 10,000 PE's, there may even be a dilution ratio. The 10 is definitely driven by a dilution ratio.

Q. However, the dilution is the water quality component, it's not strictly a technology-based limit?

A. That is a generic decision or policy decision the Board made that this is sufficiently conservative enough. It's economically achievable. We can operate this way functionally and keep the machinery of the permit issue and business going without any alarm or concern we're compromising water quality, but we've got the water quality approach to back it up in those few incidents where there may be -- that may not prove to be adequate.

Q. Well, you're not suggesting that Illinois ever calculates what the total dissolved oxygen effect will be of a discharge?

A. In an area where we know there's a documented dissolved oxygen problem and there are significant sources in there that need to be reduced, we have historically -- I know 20 years ago we did this. We would do dissolved oxygen analysis

of some of the streams that had multiple sources on them. And we would look to what extent those treatment plant numbers were adequate or whether they should be lowered further, and what, if any, other sources we need to attack.

Currently, we're doing that more or less to total maximum daily load analyses that the United States Government has decided is the high priority these days.

Q. And Illinois has completed no total maximum daily load analyses?

A. That's correct. We have not completed any, but we are looking at DOs specifically in that context right now for instance on I believe it's the east branch of the DuPage and Salt Creek.

Q. And the Illinois EPA did issue a permit to the Fox River Water Reclamation District with the limit of 20 BOD now CPOD for its west sewage treatment plant?

A. In that facility, those BOD standards were driven by 304.120, technology-based requirements. They were not driven by any water quality justification we had available.

Q. What technology-based -- I do not

understand the 20 technology-based limit. How is that a technology-based limit when it includes dilution as a factor to be considered?

A. A facility -- in my own engineering background, a facility using the same stage biological treatment, general rule of thumb is 30 is a routinely achievable performance level for secondary activated sludge systems. In reality, you can beef up that design with additional tanking, additional aerations, and additional design parameters where you can get that technology where it routinely and reliably performs at a 20 level as well.

Just take the next step down from the 20 level to a 10 level, you probably can't do that merely by beefing up the design of those technologies. You have to add a supplemental technology. And that's my understanding of the thought process and the recollection about the existing standard --

Q. Well, let's look at what the Board said in the past rather than try and remember what the Board said in the past.

My question is simply though, you

can have two plants which were equivalent in terms of population level, but one would have a 30 BOD level and one would have a 20 BOD level because of the difference in dilution?

A. That's correct, that's a safety factor. And you can design and operate that 30 milligram per liter level plant cheaper than you can design and operate that 20 milligram per liter level plant.

Q. Has IEPA ever looked at whether these plants consistently make 16 CBO5?

A. Over the years, we have done some analysis of performance levels and reliability levels of activated sludge systems. I don't believe we've done that for a number of years, and I don't believe even then we specifically looked at if this 20 number was dropped to some other number, 18, 16, 15, whatever, would the percentages of compliance and the reliability of compliance significantly change, we don't have that information yet.

If the Board were to entertain, and I think the Board is free to check those numbers on anything they want, they were entertaining changing those numbers, and we think that's some

hard and fast information they'd want to have. You know, what the impact is of actually changing the numbers, not merely the test.

Q. Well, they are in effect changing the numbers by going from BOD5 to CBOD5.

A. Again, my recollection of that is that we -- we actually regulate for the most part carbonaceous BOD now rather than total BOD. And that particular switch was made at the time the United States Government modified the secondary treatment definition, and the CFR indicate that based on the parameters you're removing and the type of technology you're implying, CBOD was a more direct test of the efficiency of what the plant was designed to do.

That's the basis for our change then and that's the basis for our trying to recognize that, to get the change recognized in the regulations today.

Q. It's getting hot. I think we've all had enough fun for today; however, the new Illinois 305(b) report is due out any day; is that correct?

A. That 305(b) report will come back from our print shop on August 7, I believe, and be

available shortly thereafter.

Q. Have you seen -- well, what is going to be listed for dissolved oxygen on the Fox River?

A. I don't remember. I probably should have specifically looked at that when I reviewed the report, but I didn't.

Q. And Illinois EPA is issuing permits for 20 BOD now CPOD5 dischargers discharging into Fox River?

A. I believe our position at this time is we're supporting and encouraging a local watershed group assessment of the Fox River and its future needs. Should that ever show signs if it's not progressing well or not doing what it's intending to do, we will shift gears and do a total maximum daily load analysis to determine what in the future is necessary to make sure dissolved oxygen standards for the Fox River are attained.

Until that time, permits we have issued in the last year or two have been driven primarily by 304.120, technology-based standard. We have not felt that we had enough information or data or documentation to justify and support any particular permitted discharge in that area having

their BOD standard reduced below the standard specified by the technology limits of part 4.

However, I think we've also put everybody on notice we're specifically looking at that, and that may change in the future. We're not trying to dodge the issue. We're also not trying to pre-judge the science and the study.

HEARING OFFICER TIPSORD: Anything further from Mr. Callahan?

Seeing nothing further, I'll go off the record for just one minute.

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

HEARING OFFICER TIPSORD: The comment period will close 30 days after the Board receives the transcript. I'll put the hearing officer order out specifying that date.

Once again, I want to admonish everyone to be sure they have the most current service list. And I will say in fairness to the Agency, they have the most current service list and still left someone off when you served the testimony. Please be careful, double-check.

Mr. Harsch and Ms. Deely have not been receiving testimony and items, and they are clearly on the service list. So we need to be sure they get their information.

At this time, I'd like to thank everyone for your attention. I appreciate it.

Dr. Girard, do you have anything you'd like to add?

DR. GIRARD: No, thank you.

HEARING OFFICER TIPSORD: Thank you very much. We're adjourned.

(Which were all the proceedings had in the above-entitled cause on this date.)

STATE OF ILLINOIS)
) SS:
COUNTY OF DUPAGE)

STACY L. LULIAS, being first duly sworn on oath says that she is a court reporter doing business in the City of Chicago; that she reported in shorthand the proceedings given at the taking of said hearing and that the foregoing is a true and correct transcript of her shorthand notes so taken as aforesaid and contains all the proceedings given at said hearing.

STACY L. LULIAS, CSR
79 West Monroe Street, Suite 1219
Chicago, Illinois 60603
License No.: 084-004349

SUBSCRIBED AND SWORN TO
before me this 7th day
of August, A.D., 2002.

Notary Public