ORIGINAL

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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

The TRANSCRIPT FROM THE PROCEEDINGS taken before the HEARING OFFICER MARIE TIPSORD by Kari Wiedenhaupt, CSR, at the Thompson Center, 100 West Randolph Street, Room 9-040, Chicago, Illinois, on the 29th day of July, 2013, A.D., at 10:30 o'clock a.m.

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

ILLINOIS POLLUTION CONTROL BOARD,
100 West Randolph Street
Suite 11-500
Chicago, Illinois 60601
(312) 814-6983
BY: MS. MARIE TIPSORD, Hearing Officer

ILLINOIS POLLUTION CONTROL BOARD MEMBERS PRESENT:

Mr. Jerome D. O'Leary, Lead Board Member
Ms. Jennifer Burke, Board Member
Dr. Deanna Glosser, Board Member
Ms. Carrie Zalewski, Board Member
Mr. Anand Rao, Technical Unit
Ms. Alisa Liu, Technical Unit

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276
(217) 782-5544
BY: MS. DEBORAH J. WILLIAMS,

Appeared on behalf of the Illinois Environmental Protection Agency;

DENTONS US LLP
233 SOUTH WACKER DRIVE
SUITE 7800
CHICAGO, IL 60606
(312) 876-2380
BY: JEFFREY C. FORT
IRINA DASHEVSKY

Appeared on behalf of CITGO Petroleum Corporation and PDV Midwest Refining, LLC;

A P P E A R A N C E S: (Continued)

ILLINOIS ENVIRONMENTAL REGULATORY GROUP
215 EAST ADAMS STREET
SPRINGFIELD, IL 62701
(217) 522-5512 ext. 232
BY: MR. ALEC M. DAVIS

Appeared on behalf of Illinois Environmental Regulatory Group;

ALBERT ETTINGER
53 WEST JACKSON #1664
CHICAGO, IL 60604
(773) 818-4825

Appeared on behalf of Environmental Law and Policy Center, Natural Resources Defense Council, Open Lands, Friends of the Chicago River, Prairie Rivers Network and the Illinois Chapter of the Sierra Club;

HODGE, DWYER & DRIVER
3150 ROLAND AVENUE
POST OFFICE BOX 5776
SPRINGFIELD, IL 62705
(217) 523-4900
BY: MS. MONICA T. RIOS

Appeared on behalf of Exxon Mobile;

ICE MILLER LLP
200 WEST MADISON STREET
SUITE 3500
CHICAGO, IL 60606
(312) 726-7125
BY: MR. THOMAS W. DIMOND

Appeared on behalf of Stepan Company;

A P P E A R A N C E S: (Continued)

BARNES & THORNBURG, LLP
ONE NORTH WACKER DRIVE
SUITE 4400
CHICAGO, IL 60606
(312) 357-1313
BY: MR. FREDRIC P. ANDES

Appeared on behalf of Metropolitan Water Reclamation District of Greater Chicago;

NIJMAN FRANZETTI, LLP
10 SOUTH LASALLE STREET
SUITE 3600
CHICAGO, IL 60603
(312) 251-5590
BY: MS. SUSAN FRANZETTI

Appeared on behalf of Midwest Generation;

HODGE, DWYER & DRIVER
3150 ROLAND AVENUE
POST OFFICE BOX 5776
SPRINGFIELD, IL 62705
(217) 523-4900
BY: MR. MATT READ

Appeared on behalf of Ingredion.

I N D E X

E X H I B I T S

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, Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and the Lower Des Plaines River: Proposed Amendments to 35 Ill. Adm. Code Parts 301, 302 and 304. The docket number is R08-09 and this is Subdocket D.

With me today to my immediate left is Dr. Deanna Glosser, presiding Board Member. To my immediate right is Board Member Carrie Zalewski; to her right, Board Member, Jennifer Burke and to the far right is Board Member Jerry O'Leary. To the left of Dr. Glosser is Anand Rao and Alisa Liu will be joining us from our technical unit.

BOARD MEMBER RAO: Yes.

HEARING OFFICER TIPSORD: In addition, today we have Chad Cruz, who is Board Member Zalewski's assistant and Mark Powell, our senior attorney, who are here in the audience today.

Today's hearing is the first day

in Subdocket D revisited, but it is the 52nd overall. A few notes to remind everyone that how we are handling comments and exhibits; exhibits in each of the subdockets will continue to be sequentially numbered. So today, the first exhibit will be given number 480. Exhibit lists will be filed after the hearing along with the exhibits as always, but it will only be docketed in Subdocket D.

The Clerk's office is doing the same with public comments and some comments and actually exhibits are being docketed in more than one subdocket.

Today, we will hear the testimony of the Illinois Environmental Protection Agency, Scott Twait, in support of a motion to amend the proposal. The testimony will be marked as an exhibit and entered as if read. We will then begin with questioning starting with The Environmental Group, then CITGO Petroleum Corporation and PDV Midwest. Next will be the Metropolitan Water Reclamation District of Greater Chicago and then Midwest Generation. ExxonMobile Corporation will go next, followed by the Illinois

Environmental Regulatory Group and concluding with Stepan Company.

Anyone may ask a question. I do ask that you raise your hand and wait for me to acknowledge you. After I have acknowledged you, please state your name and whom 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 any questions 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 notions or bias.

Dr. Glosser, do you have anything to add?

BOARD MEMBER GLOSSER: No, I don't.

HEARING OFFICER TIPSORD: With that, is there anything else before we start?

(No response.)

HEARING OFFICER TIPSORD: Okay. With that, then Ms. Williams, we will start with you.

MS. WILLIAMS: Good morning. My

name is Deborah Williams. I am here on behalf of the Illinois EPA, and with me from the Agency is Scott Twait from the Standards Unit in the Division of Water Pollution Control, and also Howard Essig, E-S-S-I-G, from our Des Plaines regional office.

I am going to start out, Scott, showing you a document. Can you identify the document?

MR. TWAIT: It's my pre-filed testimony.

MS. WILLIAMS: And did you prepare this document for today's hearing?

MR. TWAIT: Yes.

MS. WILLIAMS: I would like to have the pre-filed testimony entered into the record as Exhibit 480.

HEARING OFFICER TIPSORD: Okay. Could we have him sworn in first?

(Whereupon, the witness was duly sworn.)

HEARING OFFICER TIPSORD: Is there any objection to entering Mr. Twait's testimony as an exhibit?

(No response.)

HEARING OFFICER TIPSORD: Seeing none, Mr. Twait's testimony is Exhibit 480.

(Whereupon, Exhibit No. 480 was admitted into evidence.)

SCOTT A. TWAIT,

having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MS. WILLIAMS:

Q. Scott, I am going to show you a second document. Can you identify that document?

A. It's our proposed changes to the Rule Part 302.

MS. WILLIAMS: For purposes of the record, I just want to clarify that when the Agency filed proposed changes to Part 302, the filing inadvertently contained three identical copies of the same language. I apologize for any confusion.

But I'd move at this time to have Part 302 to proposed changes entered as an exhibit into the record.

HEARING OFFICER TIPSORD: Is there

any objection?

(No response.)

HEARING OFFICER TIPSORD: Seeing none, we will mark the proposed changes as Exhibit 481, noting that it was a motion to amend that the Board has not ruled on.

(Whereupon, Exhibit No. 481 was marked for identification.)

MS. FRANZETTI: Can I ask a question?

HEARING OFFICER TIPSORD: Sure.

THE COURT REPORTER: What's your name?

MS. FRANZETTI: Susan Franzetti, F-R-A-N-Z-E-T-T-I, counsel for Midwest Generation.

When you note it's a motion that the Board has not ruled on, is the Board going to rule on it as part of its decision in Subdocket D down the road, first notice time period or sooner than that?

HEARING OFFICER TIPSORD: I would say that the Board will rule on it when we go to first notice.

Okay. Anything else,

Ms. Williams?

BY MS. WILLIAMS:

Q. Yeah. Just one more item. Mr. Twait, I have shown you a third document, and can you identify what that is?

A. It's an errata sheet.

Q. And what do you mean by an errata sheet?

A. During the review of the questions that were submitted, theres' three areas that came to our attention that needed to be addressed. One was that the phrase, "on an average basis," should have been deleted from both temperature, water quality standards, and it was only done for one.

The term "uses" should be deleted to -- deleted between "to protect fish and aquatic life from the deleterious effects of cold shock."

And the other one is Section 302.410, the title should have been changed.

MS. WILLIAMS: Thank you. I don't have anything further.

HEARING OFFICER TIPSORD: If there is no objection, we will admit the errata sheet as

Exhibit 482.

(No response.)

HEARING OFFICER TIPSORD: Seeing none, it's Exhibit 482.

(Whereupon, Exhibit No. 482 was admitted into evidence.)

Anything else?

MS. WILLIAMS: I don't have anything else.

HEARING OFFICER TIPSORD: Okay. With that, we will begin the questions starting with Mr. Ettinger.

CROSS-EXAMINATION

BY MR. ETTINGER:

Q. Yes, I am Albert Ettinger. That's E-T-T-I-N-G-E-R. I am representing today the Environmental Law and Policy Center, Natural Resources Defense Council, Open Lands, Friends of the Chicago River, Prairie Rivers Network and the Illinois Chapter of the Sierra Club.

With that, I will go through the pre-filed questions. Number one, is it the IEPA's proposal that the Upper Dresden Island Pool be treated like other general use waters once the

designation is finally adopted and that all of the water quality standards will be applied there as they are in Section 302, Subpart B of the Illinois standards?

A. Yes, with the exception of bacteria standard.

Q. How will the bacteria standard vary?

A. The Board has adopted a designated use that does not have a fecal coliform bacteria standard. So no fecal coliform bacteria standard would apply.

Q. Is that true of the other waters in the CAWS or of the waters in the CAWS that there is no fecal coliform standard?

A. Not all of them. The Board designated a primary contact recreation for five segments of the CAWS. Otherwise, with the exception of those five segments, there is no bacteria standard.

Q. So as I understand it then, as to the Upper Dresden Pool, the area above the I-55 bridge will not have a fecal coliform standard, but the area below the I-55 bridge, which is already general use has the statewide fecal

coliform standard?

A. That is correct.

Q. Okay. Number two, specifically regarding temperature, is it the IEPA's proposal that provisions of Section 302.211 will be applied to the entire Upper Dresden Island Pool?

A. Yes, that's our current proposal.

Q. And that includes the five degree delta T provisions and provisions to maintain seasonal temperatures?

A. Yes.

HEARING OFFICER TIPSORD: And Mr. Dimond, do you have a follow-up with that?

MR. DIMOND: I also have a follow-up on number one.

Referring to the Agency's Exhibit No. 481, which is the revised proposal, and directing you in particular to 35 Illinois Administrative Code 302.101(d), is it correct that that proposed regulation states that the standards for the Chicago Area Waterway System and the Lower Des Plaines River are set forth in Subpart D?

THE WITNESS: No. The Lower Des Plaines River will be part of Subpart B. We have

taken them out of Subpart D.

MR. DIMOND: But as proposed, doesn't that regulation say Subpart D contains the Chicago Area Waterway System and the Lower Des Plaines River water quality standards?

THE WITNESS: Yes, it does.

MR. DIMOND: Is that consistent with the testimony that you have just given, that it's the Agency's intent that the aquatic life use standards for general use apply to the Upper Dresden Island Pool?

THE WITNESS: That language is not consistent.

MR. DIMOND: And if I could also direct you to -- for this question, I -- Madame Hearing Officer, I think I need to enter another exhibit. This is a -- what I am proposing to enter is a copy of 35 Illinois Administrative Code Part 303.

HEARING OFFICER TIPSORD: And Mr. Dimond, you need to identify yourself for the record.

MR. DIMOND: I'm sorry. I'm Tom Dimond on behalf of Stepan Company.

HEARING OFFICER TIPSORD: If there is no objection, we will mark Part 303 as Exhibit 483.

(No response.)

HEARING OFFICER TIPSORD: Seeing none, it's Exhibit 483.

(Whereupon, Exhibit No. 483 was marked for identification.)

MR. DIMOND: Mr. Twait, directing you to section -- I will need you to refer to this in a second, but if I could -- back on Exhibit 481, if I could direct you to Section 302.401 as proposed by the Agency, it is titled Scope and Applicability.

The second sentence of that proposal reads, the Subpart B general use and Subpart C public water supply standards of this part do not apply to waters described in 35 Illinois Administrative Code 303.204 and listed in 35 Illinois Administrative Code 303.220 through 303.235 as the Chicago Area Waterway System or Lower Des Plaines River, and then there is an exception clause for the bacteria standard.

So did I read that correctly

into the record?

THE WITNESS: Yes.

MR. DIMOND: Okay. This section, as proposed by Illinois EPA, contains a reference to Illinois 35 Administrative Code 303.204. With reference to what we have identified as Exhibit 483, do the waters described in section 303.204 include the Lower Des Plaines River?

THE WITNESS: Yes, they do.

MR. DIMOND: And is the Upper Dresden Island Pool included within the definitions of the Lower Des Plaines River?

THE WITNESS: Yes, it is.

MR. DIMOND: Okay. And again, looking back at 302.401, as proposed by the Agency, and as referenced to the phrase listed in 35 Illinois Administrative Code 303.220 through 303.235, is it correct that the Upper Dresden Island Pool is listed in Section 303.225(h)?

A. Yes, it is.

Q. So given that we -- given that we have established that the Upper Dresden Island Pool is both described in Section 303.204 and

that it's listed in a section encompassed between 303.220 and 303.235, is IEPA's draft proposal for Section 302.401 consistent with an intent to apply the general use aquatic life use standards to the Upper Dresden Island Pool?

MS. WILLIAMS: Objection. I don't think this witness needs to be the expert on the legal drafting. He is trying to explain what the Agency means and intends, and if we see -- if the lawyers see problems with the drafting, we are certainly going to address that in the comments. I don't know if this is fair for this witness.

MR. DIMOND: Well, anybody from the Agency can respond, but I think it's important that the language that was chosen be consistent with the intent.

MS. WILLIAMS: I agree.

THE WITNESS: I think the Agency will have to clean up that language.

MR. DIMOND: That's all I have. Thank you.

HEARING OFFICER TIPSORD: Okay. Mr. Ettinger, you can continue.

BY MR. ETTINGER:

Q. Well, that was very helpful.

So let's go back. Again, the intent is to apply -- with the exception of this fecal coliform standard, the intent is to apply the general use standards to the Upper Dresden Pool?

A. Yes.

Q. Okay. In light of Mr. Dimond's clarifications, I think we are going to have to be a little clearer on -- in my questions on what I mean by the Lower Des Plaines River. The Lower Des Plaines River for the purpose of these questions now has to do with the waters that are not to be designated general use under the proposal, but really only -- is only really the Brandon Pool of the lower Des Plaines.

So I would ask you to think about that, because the rest of these questions or most of the rest of these questions are addressed to the waters, which were not to be designated general uses, as I understand your proposal, but to the waters that are -- either have the B or C category under the Board's order?

A. A or B.

Q. A or B. I'm sorry. A or B category under the Board's order. And so where it says Lower Dresden Pool here, we are really just talking about the Brandon Pool -- or Lower Des Plaines River we are talking about the Brandon Pool.

Okay. So, three, in USEPA's comments on the October 2007 version of proposed water quality standards revisions for the Chicago Area Waterway and Lower Des Plaines River, USEPA requested that IEPA include additional analysis showing that the proposed period average thermal criteria are protective of existing and designated aquatic life uses.

How does IEPA's proposal to use background temperatures to establish period averages protect existing and designated aquatic life uses? Which survival end points were used to establish or justify those criteria?

A. I will answer your first question. The Agency established the background temperatures on a least impacted site per Chris Yoder's methodology. And I will have to ask you to clarify your second sentence or your second

question. Which criteria are you talking about?

HEARING OFFICER TIPSORD: Before you do that, I want to note for the record, that Chris Yoder testified back in 2008, and his testimony was entered in the base R08-09 docket as Exhibit 13. Go ahead.

BY MR. ETTINGER:

Q. Okay. I believe we looked at a series -- under the Yoder testimony, we looked at a series of potential end points, and I'm not sure right now I can actually tell you about them all, but they had to do with various situations in which the fish went belly up or avoided the area based on various temperatures, and what we are asking here is which of those end points that were identified by Yoder were the ones that were used by the Agency in setting these?

MS. WILLIAMS: What Scott is asking for you to clarify, Albert, is in setting which? So, you know, if you ask the question about the summer versus the non-summer or max or average.

BY THE WITNESS:

A. Your first question was on the period averages, and your second question is --

are you asking that question for the period averages?

BY MR. ETTINGER:

Q. Yes.

A. None of them.

Q. So what -- well, let me just ask the question, how did you come up with the period averages based on the Yoder reference sites?

A. They were -- his methodology uses a leased impacted site, and it looks at the historical data and basically you set the standard to keep the historical temperature regime from that least impacted site, and in this case, the Agency chose -- or has revised its site to the Route 83 bridge at the -- on the Cal-Sag Channel and the effluent from the MWRDGC plants.

Q. And so --

MS. WILLIAMS: Will you explain about the summer period average, how that was derived?

THE WITNESS: Yes. The summer period -- or, yes, the summer period average was derived by subtracting two degrees Celsius from the daily max in the summer, and those summer

daily maxes were based on survival end points.

BY MR. ETTINGER:

Q. Okay. And the other -- the winter averages were just that, they were averages or you used a percentile?

A. We used percentiles to come up with a period average.

Q. And that was the 75th and the 90th percentile numbers?

A. Yes. We used 90th percentile for the ambient station and used 75th percentile for the effluent.

Q. Going on now to number four, in USEPA's comments on the October 2007 proposal, public comment number 286, USEPA recommended deriving seasonally based maximum criteria to replace the year round maximum thermal criteria contained in IEPA's proposal. Why did IEPA decline to establish lower maximum criteria in the non-summer months?

A. The Agency believed that the acute standard was to prevent fish from dying, lethality, and the chronic standard protects for

gametogenesis. It's the Agency's position that our proposal is sufficiently protective of the aquatic life.

Q. Well, as a practical matter, this may be impossible, but as a logical matter, did the Agency consider whether it would be healthy for the aquatic life if the temperature were to briefly reach the high 80s in January or February?

A. We have also introduced a cold shock part of our proposal, and it will protect fish from lethality if the -- from the temperatures warming up.

Q. Well, are you aware of some fish eggs hatching based on the temperature of the water?

A. Yes.

Q. If you had a period in which the temperature got very warm in an abnormal period, could the fish hatch and then not survive when it reached more normal temperatures later?

A. I'm not qualified to answer that question.

Q. Number five --

MS. FRANZETTI: I'm sorry. Can I

ask a follow-up?

HEARING OFFICER TIPSORD: Okay. Ms. Franzetti?

MS. FRANZETT: I didn't want to interrupt you.

Mr. Twait, were there discussions between the Agency and the USEPA regarding the reasoning that you have just testified to about why you maintained the daily max as an acute standard throughout the year and did not go to some sort of seasonally derived standard?

THE WITNESS: Yes.

MS. FRANZETTI: And can you tell us a bit about the outcome of those discussions?

THE WITNESS: I believe that they were satisfied with that answer.

BY MR. ETTINGER:

Q. I'm sorry. What answer?

A. They were -- one of the comments that they had that you are citing to was in reference to our proposal about keeping the daily maximum temperature. In our talk with them, we explained why we kept it, and they seemed to be

okay with us keeping it.

Q. Okay. Well, did you, to your knowledge, ever look at the risk of the eggs maturing at the wrong time of year as a result of abnormal temperatures developing in the system?

A. I did not. However, I would like to also mention there is -- in the math involved, if you are in the wintertime and you increase the heat to the receiving stream to where you are pushing the maximum temperature in the winter, that you are going to have a difficult time meeting the period average, and that was part of our justification to USEPA.

Q. I believe I am to number five.

And I am going to -- if it's okay with you, Ms. Williams, I am going to go on reading the whole number five rather than breaking it down, and that way he can answer however he sees fit, rather than the asking subparts as subparts?

MS. WILLIAMS: Give it a shot and we'll see how it goes.

BY MR. ETTINGER:

Q. Number five, in USEPA's comments on

the October 2007 proposal, public comment number 286, USEPA expressed concern that using the MWRD affluent temperatures to establish non-summer thermal criteria for segments upstream of the influence of a wastewater treatment plant could potentially disrupt fish reproduction in those segments.

Did IEPA consider revising non-summer thermal criteria for those segments upstream of the influence of wastewater treatment plants?

A. The Agency considered it, but decided against it. The Agency believes that due to flow reversals and density currents that it was not appropriate.

Q. Tell me about flow reversals.

A. It's the Agency's understanding that when there is some flow reversals to Lake Michigan on the Calumet System, that effluent will go upstream, and, therefore, there is not a -- there is not really an upstream in this case.

Q. Is that true for the north side plant?

A. At the north side plant, we have

been told of instances where there is a discharge and they get flow upstream in some instances.

Q. And that would also be true for Stickney?

A. I'm sure it would, but Stickney one was kind of a moot issue, because there is no upstream, because it's effluent from the north side. That's up stream of them.

Q. Did the Agency consider the affect of cooling of water between the Stickney discharge and the Brandon Pool?

A. No.

Q. About how many miles is there between the Stickney discharge and the Brandon Road lock and dam?

A. I don't know exactly, but I would guess 10, maybe 15.

Q. And the -- let's just understand where we are here. The Stickney discharge will technically be warmer in the winter than normal ambient water quality because of water temperatures because of the wastewater treatment process?

A. The wastewater treatment process

doesn't heat the water. The water comes into the plant warmer than the ambient temperature and it stays that way.

Q. And so typically, a discharge from wastewater treatment plants is going to be about what in January as opposed to what you would expect?

MS. WILLIAMS: I am going to use an exhibit. Will that help?

MR. ETTINGER: Sure. Well, I haven't seen it yet. I don't know whether it would help, but I have faith in you.

MS. WILLIAMS: Scott, can you explain what this document is I am handing to you?

THE WITNESS: That's not the right one.

MS. WILLIAMS: Never mind. We don't have a document.

THE WITNESS: For January -- and these numbers aren't directly comparable. So I am just trying attempt to answer your question.

The 90 percentile in the Cal-Sag Channel is 44 degrees Farenheit. The 75th percentile in the effluent is at

approximately 54. So in January I am guessing it would be somewhere -- 10 degrees or less.

BY MR. ETTINGER:

Q. Thank you. That's helpful.

A. And as I said, that was the 90th percentile verses the 75th percentile. So I don't -- I would expect it to be less than 10 degrees.

Q. Number six, in USEPA's comments on the October 2007 proposal, PC number 286, USEPA asked IEPA to explain its rationale for Section 302.408(a) allowing an increase of 3.6 degrees Farenheit above the proposed standards for two percent of the hours in a year.

How will this provision effect survival of the representative aquatic species identified for aquatic life in Use A, and aquatic life Use B?

A. The Agency does not believe that the excursion hours will impact the aquatic life for either use. Short-term avoidance of warm water is a term that the -- or is a process that fish use and we don't believe that will have a long-term effect.

Q. Okay. And where would they -- is there any particular papers or other documents that would be the basis for your believing that they would not have a long-term effect?

A. I don't know of any papers. I'm not a thermal expert.

Q. Do you know of any studies that the Agency relied on in reaching its conclusions?

A. We relied on our expert, Chris Yoder.

Q. Okay.

MS. FRANZETTI: I'm sorry. If I may, I am going to ask a similar question, Mr. Twait, to the one I did previously, but on this issue now.

Did you discuss this excursion hours issue with the USEPA, and if so, can you tell us what was discussed and the outcome of that discussion?

THE WITNESS: Yes. We discussed this with USEPA. They are still not satisfied with the use of our excursion hours.

MS. FRANZETTI: I'm sorry. I couldn't hear the very end. They are not

satisfied --

THE WITNESS: They are not satisfied with our use of excursion hours.

MS. FRANZETTI: Can you explain a little further what they are not satisfied with?

THE WITNESS: They are concerned that our use of -- they are -- yeah. They believe that heating the river by 3.6 degrees Fahrenheit will -- could impact some species that are more sensitive to temperature. It would push it above the UILT or the critical thermal end points.

MS. FRANZETTI: Do you recall which species they were concerned about, Mr. Twait?

THE WITNESS: I don't remember.

MS. FRANZETTI: If I could ask the Agency, if they could --

THE WITNESS: I could try to look it up.

MS. FRANZETTI: Okay.

THE WITNESS: I mean, I won't be able to look it up because I don't have that in front of me, but I might be able to figure it out.

MS. FRANZETTI: If you want to take just a minute to see if you can, but otherwise,

it would be acceptable if the Agency could just provide us with that information.

THE WITNESS: That would probably be better.

MS. FRANZETTI: At a later time.

THE WITNESS: That would be better.

MS. WILLIAMS: We will do our best, but I'm not sure we can speak for USEPA on this matter either. We can just do our best to explain what we understand to be their issues.

MS. FRANZETTI: I understand.

So is the nature of the issue being discussed with USEPA on excursion hours, is -- let me try and rephrase that.

Do you know whether the USEPA agrees with the concept of excursion hours, but just has an issue with the 3.6 degree Fahrenheit delta for the excursion hour provision?

THE WITNESS: I couldn't -- I couldn't tell you what their concern was. I mean, I -- when we talked about their concern, they indicated that the temperature was above the thermal end points for survival, and I think that's where their concern lies.

MS. FRANZETTI: Can you state why the Agency decided to maintain the -- its recommendation of the 3.6 degree excursion hour range?

THE WITNESS: Yeah. We just thought it was appropriate. Our general use standard has something similar, and the secondary contact standard has something similar. And in this case, general use is one percent of the time, and the secondary contact was five percent of the time, and our proposal was for two percent, and we are also in the middle in temperature rise in there also.

MS. FRANZETTI: Thank you. No further questions.

BY MR. ETTINGER:

Q. I am a little uncomfortable with us just talking about USEPA. Were there individuals at USEPA that you met with?

A. Yes.

Q. And who were they?

A. Candice Bauer and Linda Holst.

Q. Seven, how is the existing variance held by Midwest Generation regarding the

temperature requirements at the I-55 bridge to be handled if the Board's proposed designation and IEPA's proposal regarding criteria for the Upper Dresden Island Pool is adopted?

MS. FRANZETTI: I have an objection, just for the record. And to clarify, Midwest Gen does not hold a variance. It holds an adjusted standard, AS 96-10.

So if that's what Mr. Ettinger is referring to, it should not accurately be referred to as a variance.

BY MR. ETTINGER:

Q. Ms. Franzetti, as always, is very helpful. So let me restate the question as it should have been written in the first place.

How is the adjusted standard held by Midwest Generation regarding the temperature requirements at the I-55 bridge to be handled in the Board's proposed designation and IEPA's proposal regarding criteria for the Upper Dresden Island Pool is adopted?

A. Once the Agency modifies the permit, the water quality standard would have to be met at the edge of the mixing zone, unless they were

granted further relief.

MS. FRANZETTI: I'm sorry. Mr. Twait, are you -- are you aware that the AS 96-10 adjusted standard addresses more than just the thermal numeric standards in the general use thermal water quality standard?

THE WITNESS: In what respect?

MS. FRANZETTI: Well, that it also covers the narrative provisions of the thermal water quality standard, like the restriction against going more than five degrees above the natural temperature.

THE WITNESS: I was not aware of that.

MS. FRANZETTI: Okay. Given you were not aware of that, might your answer be different if you had time to consider the full scope of the AS 96-10 standard?

THE WITNESS: It's quite possible.

MS. FRANZETTI: Mr. Twait, did you also consider -- well, let me back up.

Are you aware of just how many Midwest Generation thermal stations -- electric generating stations AS 96-10 applies to?

THE WITNESS: I believe it was five.

MS. FRANZETTI: Okay. You are correct. But again, to clarify for the record -- but since the time AS 96-10 was granted, the Fisk and Crawford stations to which it also applied have closed, right?

THE WITNESS: Yes.

MS. FRANZETTI: So that today there are three operating stations that it applies to; Will County, Joliet 9 and Joliet 29. Is that consistent with your understanding?

THE WITNESS: Yes.

MS. FRANZETTI: Now, with respect to Will County, that station does not discharge to the UDIP, correct?

THE WITNESS: Correct.

MS. FRANZETTI: So Will County right now under these proposed thermal standards would be subject to the UC thermal standards and not the general use thermal standards, right?

MR. ETTINGER: I am going to object to that. Mr. Twait is not a lawyer. I am not sure what you are asking him about. If you are asking him to testify that upstream discharges

don't have to comply with downstream water quality standards, I think we would have to talk about that.

MS. FRANZETTI: I am not asking that, but what I am trying to point out is another problem with the Agency's response here with respect to your question about AS 96-10, when it talks about having to comply at the edge of the mixing zone, the general use standards don't apply in the vicinity of the Will County station's discharge, or at least that's not what is proposed. So Will County, even under what's proposed, does not need to comply at the edge of its mixing zone with the general use thermal standards.

MR. ETTINGER: I understand where you are coming from now. There's two questions there.

HEARING OFFICER TIPSORD: I think Mr. Twait can answer.

THE WITNESS: I think they would have to meet the Use B temperatures outside of their mixing zone for the Will County station.

MS. FRANZETTI: Right. And so for

purposes of showing compliance with downstream general use standards, at least in particular for the Will County station, there could still be a need to continue the AS 96-10 type of relief, right?

THE WITNESS: It's possible.

BY MR. ETTINGER:

Q. That's at the I-55 bridge?

A. Yes.

MS. FRANZETTI: No further questions.

BY MR. ETTINGER:

Q. Number eight. To your knowledge, has the existing variance held by Midwest Generation regarding compliance at the I-55 bridge affected any other discharger to the CAWS or the lower -- Lower DuPage River.

HEARING OFFICER TIPSORD: Des Plaines River.

MR. ETTINGER: Lower DuPage River.

HEARING OFFICER TIPSORD: And adjusted standard, not variance, correct?

THE WITNESS: Right.

BY MR. ETTINGER:

Q. All right. We are going to start over that entirely. Strike eight as written. We are going to ask a much better question.

To your knowledge, has the existing adjusted standard held by Midwest Gen regarding compliance at the I-55 bridge affected any other discharger to the Upper Dresden Pool?

A. Not that I am aware of.

Q. Nine, what was the effect of IEPA using different background temperature data instead of using the temperatures at the Cal-Sag Channel Route 83 to establish period average thermal criteria?

A. The proposed monthly average period decreased in some periods and increased in others.

Q. And we can determine that by comparing the numbers as written on the proposal?

A. Yes.

Q. Okay. Ten, are you aware of whether there are native muscles in any of the waters covered by the proposed Subpart D criteria?

A. I am not aware of the presence or absence of native muscles.

Q. Has the Agency ever looked for them?

A. Can we -- we would like Howard to answer. I don't know if he has been sworn in.

HEARING OFFICER TIPSORD: Not today, so let's swear him in.

(Whereupon, the witness was duly sworn.)

MR. ESSIG: Could you repeat your question?

MR. ETTINGER: I'm not sure I could. Maybe we better have the -- well, it was the -- did the Agency look for them?

MR. ESSIG: The Agency has not looked for muscles in large rivers like the Lower Des Plaines River, at least to my knowledge.

MR. ETTINGER: Are there muscles in large rivers?

MR. ESSIG: There can be, yes, but I am not aware of if they were present or absent in that -- in the Lower Des Plaines River.

MR. ETTINGER: And the Agency doesn't look for them in not wadeable waters.

MR. ESSIG: Generally, no.

BY MR. ETTINGER:

Q. Eleven, are you aware of any studies

regarding the effects of cyanide on native muscles?

A. No.

Q. Twelve, are there any specific numeric water column criteria of general applicability that have been developed to protect human health for fish consumption now in any of the Illinois standards?

A. Yes.

Q. What are they?

A. Mercury and benzine.

Q. And the mercury number is the 0.0012 parts per billion?

A. Yes, 12 nanograms per liter.

Q. Is that number applicable to any of the waters that we have been talking about in these proceedings?

A. The current standard, no, but in our proposal, yes.

Q. It will be?

A. For mercury.

Q. The mercury number will be applicable to the Upper Dresden Pool?

A. Yes.

Q. Will it be applicable to any of the waters, the A or B waters?

A. Yes.

MS. WILLIAMS: And that's consistent with our original proposal from 2007, correct?

THE WITNESS: Yes.

BY MR. ETTINGER:

Q. Has the Agency ever looked at selenium?

A. Yes.

Q. When did you last look at it, and what did you determine about selenium in Illinois fish?

A. You know, I don't know the date that we have looked at it. We have had discussions with USEPA. We were not satisfied with their current criteria. We have had issues with it.

Q. You are not alone in that.

The -- getting back to mercury, are you going to be applying the USEPA fish tissue standard or the Illinois numeric standard that's currently in the rules in the waters in the CAWS?

MS. WILLIAMS: What do you mean, apply?

BY MR. ETTINGER:

Q. That's a good question. In terms of making 303(d) decisions, making other decisions regarding permitting and impairment, will you be looking at the 0.0012 number or the USEPA fish tissue numbers?

A. We have not adopted the USEPA fish tissue number. We have -- I have got an -- I have to find it. The Agency will follow its current methodology for analyzing fish tissue, and we have a jointly -- the program fish contaminant monitoring program is jointly administered by the Illinois EPA, Illinois DNR and Illinois DPH.

Q. Okay. I guess I will -- I anticipated some of my own questions here.

So 13, in USEPA's comments on the October 2007 version of the proposed water quality standards revisions for the Chicago Area Waterway and Lower Des Plaines River, public comment number 286, USEPA references, quote, Numerous published health -- human health criteria recommendations that have been derived to protect human health from the exposure of contaminated fish, (organism only exposure criteria), end

quote.

Which of these USEPA recommended criteria has IEPA considered adopting for the waters at issue in this case?

A. We considered all of the ones that USEPA brought forward; however, the Agency believes these are best dealt with on a statewide basis rather than for just these waters.

Q. Does the Agency anticipate having a proposal on a statewide basis to address these human health criteria?

A. We have not begun that process.

HEARING OFFICER TIPSORD: I'm sorry, Mr. Fort. Do you have a follow-up?

MR. FORT: Yes. Jeff Fort, from Dentons US, LLP.

Mr. Twait, if there are provisions or standards that you were thinking about on human health criteria, USEPA human health criteria recommendations, which are coming later, why have you included a couple here such as mercury?

THE WITNESS: Mercury, we have adopted on a statewide basis already, and benzine,

we have adopted on a statewide basis already.

MR. FORT: So it's strictly because they have been done statewide that they are being included here in this proceeding?

THE WITNESS: Yes. And when I say statewide, I mean it was all the general use waters, which are exclusive of the CAWS waterway.

BY MR. ETTINGER:

Q. Okay. Well, maybe I will just ask about -- this is a good place to ask about, what is the effect of your changes to proposed Section 302.648, determining the human threshold criteria?

A. You asked about the changes?

Q. Yes. This is -- specifically your proposed regarding procedures for determining water quality criteria, Section 302.648 and 657.

A. We are making our derived criteria applicable to these waters, instead of only to general use waters.

Q. Okay. Now, as I understand it, you have got two human health based numbers in Illinois, mercury and benzine, and otherwise, you use this derivation process; am I correct?

A. Correct.

Q. So if someone wanted to discharge another pollutant, which might affect human health, you would use this process to determine what would be an acceptable level; is that correct?

A. Yes.

Q. And the affect of this change of deleting the term general use here is just to make that process applicable to all of the waters, the A and B waters, as well as the general use waters?

A. Yes.

MS. FRANZETTI: If I might, just to follow-up.

Mr. Twait, the Subpart F, procedures that this Section 302.648 is a part of, those only come into play, though, don't they, if -- in the absence of a general use numeric water quality standard?

THE WITNESS: Yes.

BY MR. ETTINGER:

Q. But we have only got general use numeric water quality standards for mercury and benzine with regard to human health?

A. Yes.

MS. FRANZETTI: Well, I was going to ask another follow-up, because I am confused and maybe it's I don't correctly understand how Subpart F works.

MS. WILLIAMS: If you did, that would be a surprise to us, because just so the Board -- it's very complicated. We didn't bring our expert, but Scott can do the best he can.

MS. FRANZETTI: And, Mr. Twait, if you don't know, or if you are not comfortable with answering any of my questions, just say so. Okay.

So does -- can Subpart F's procedures be used for any parameter for which there is not a human health based water quality standard?

THE WITNESS: Yes, as long as that chemical has toxicity.

HEARING OFFICER TIPSORD: Mr. Davis, then did you have a follow-up?

MR. DAVIS: I did, and it was actually relating to something you said a bit ago. Alec Davis with the Illinois Environmental Regulatory Group.

Actually, it was Mr. Ettinger

who brought up the 303(d) decisions in the context of --

MS. WILLIAMS: This is not okay, though. We cannot see your face.

MS. FRANZETTI: He is the great ox.

MR. DAVIS: Yes. With regards to making those 303(d) listing decisions for impaired waters, does the Agency base those decisions on water column data currently? And I guess I am most specifically interested in mercury, but I guess generally as well.

THE WITNESS: It's my understanding that the Agency uses fish tissue base, fish tissue for its basis for listing for mercury.

MR. DAVIS: And these would be fish that were sampled in the segment for which that determination was going to be made?

THE WITNESS: Yes.

MR. DAVIS: Thank you.

BY MR. ETTINGER:

Q. Okay. Well, that heightens the mystery.

So the 0.0012 number is the Illinois human health mercury standard. When is

it used? What is it used for?

A. It is used for permitting purposes mainly.

Q. Okay. So you have got the numeric standard for permits and the fish tissue standard for 303(d) listings? I guess that's what throwing people.

A. We would probably use the water column data for mercury, if we had it, but I don't think we have done that on a statewide basis to collect low level mercury data.

HEARING OFFICER TIPSORD: Mr. Fort?

MR. FORT: Excuse me. Just for the correction of the record, I think it's only one zero. It's 0.012 parts per billion or 12 parts per 12 trillion.

MS. WILLIAMS: I recommend to everyone to please use 12 nanograms. I think it will be much clearer.

BY MR. ETTINGER:

Q. That's great. 12 nanograms.

Anyway, having worked that out, I am done with that. So too late. You should have broke it in earlier.

Now, my question is, does the Agency proposal contain a narrative water quality standard regarding unnatural sludge? I asked that question here as a pre-filed question, but I guess what we are really saying is did you just delete Section 302.403 here as a -- to save paper on this?

A. No. 302.403 is still applicable.

Q. And the reason it doesn't appear here is just that there is no change to it?

A. Correct.

Q. Does the Agency proposal for ammonia criteria in Use B waters protect larval fish present in Use B waters from March through October?

A. Yes.

Q. How does it do that?

A. Illinois EPA interprets that the proposed ammonia standard provides sufficient protection for all life stages to allow attainment of the proposed aquatic life use. Specifically, this means enough protection to maintain aquatic life populations predominated by individuals of tolerant types.

Q. And that would include larval stages of tolerant types?

A. Yes.

Q. Okay. Here's the question that Jessica threw in just to show how badly I can pronounce things.

Does the Agency proposal incorporate criteria that are at least as protective as the USEPA national criteria recommendations including those for cadmium, chloride, lead, silver, selenium, copper, diazinon, methyl tertiary-butyl ether, nonylphenol and tributyltin?

A. The Agency's position is that the water quality standards that we have proposed are protective for the uses that we have proposed for these waters that are below the Clean Water Act goals.

Q. Have you considered whether changes to the cadmium -- I'm sorry -- to the chloride standard might be useful in terms of addressing the problems present in these waters from rock salt?

A. USEPA originally had issues with

our chloride number, and they still do. And they were suggestive that we should use the national criteria document or the Iowa procedure.

However, before we made our filing, they noted that USEPA is coming out or is looking at the chloride standard again, and they told us that even the most recent Iowa derivation would not be approvable. Therefore, the Agency decided to stick with its current proposal.

HEARING OFFICER TIPSORD: Mr. Fort?

MR. FORT: Yes. Mr. Twait, you have talked about I think at least three different USEPA criteria; the national criteria for chlorides, the Iowa proposal, which I believe is something that was adopted in the state of Iowa in some fashion and then there may be another USEPA chloride criteria document?

THE WITNESS: It's not a criteria document. They have -- to my knowledge, they have started looking at new chloride data.

MR. FORT: Okay. So just with respect to the USEPA criteria and data on chlorides, have any of these ever been promulgated as a regulation in 40 CFR?

THE WITNESS: I don't know.

MR. FORT: These are suggestions that are made by USEPA to the states?

THE WITNESS: Okay. The national criteria documents are put out as toxicity -- based on the toxicity numbers, and they are published and available for public comment.

MR. FORT: And these criteria documents are done based upon lab studies?

THE WITNESS: Yes.

MR. FORT: And they are done based upon intolerant species in those lab studies.

THE WITNESS: The studies are -- the studies look at all manner of organisms.

MR. FORT: Are you aware of any of those studies being done for tolerant species only?

THE WITNESS: No. They will use whatever data is available.

MR. FORT: Okay. So with respect to habitat, those studies do not take into account the particular habitat of a stream body, correct?

THE WITNESS: Correct.

MR. FORT: And I believe the Agency

has looked at some of these issues, and I will just limit it to chloride, of whether or not there will be an improvement to the number of aquatic species in the Lower Ship Canal, as a result of the adoption of the chloride standard?

MS. WILLIAMS: Is there a question there?

MR. FORT: I think so.

THE WITNESS: I didn't hear it either.

MR. FORT: Does the Agency believe that there will be improvement in aquatic fish species in the Lower Ship Canal if the chloride standard that you have proposed is adopted?

THE WITNESS: The Agency is under an obligation to adopt protective criteria, and we believe that removing the toxicity of -- or acknowledging the toxicity of chloride is one of the things that we have to do.

MR. FORT: Have you done any studies of any chloride toxicity for the Lower Ship Canal due to chlorides, given the tolerant species in that area?

THE WITNESS: In addressing the

water quality standard that we have proposed?

MR. FORT: Or otherwise.

THE WITNESS: We looked at whether or not we could eliminate species from the national criteria document and from Iowa's proposal or adopted rules, and we didn't feel that we could remove species from that. We also looked at whether certain species would be viable in the wintertime, and we did not feel that we could make an adjustment based on that.

MS. WILLIAMS: Explain what you mean by viable. You look at whether certain species would be viable in the wintertime.

THE WITNESS: We looked at whether the species would be present or present in a form like -- such as muscles bury themselves in the mud in the wintertime, and so they are not -- they are not seeing what the water quality is in the receiving stream. And with other organisms, whether they would be present in the wintertime or if they would be in the egg stage.

MR. FORT: Is that study reduced to a memorandum or some sort of written document?

THE WITNESS: No.

MR. FORT: This was a discussion that you had in a meeting or something?

THE WITNESS: Yes.

MS. WILLIAMS: Sorry. Are you describing the analysis you personally did of the national criteria document?

THE WITNESS: Yes. With the caveat that some of the biologists were involved in the decision making.

MR. FORT: So there is not a memorandum that reflects this analysis that the Agency did at least with respect to chlorides; am I hearing that correctly?

THE WITNESS: Correct.

MR. FORT: And the Agency has not done its own investigation as to the presence of these species that are in the national criteria document at least as it applies to the Lower Ship Canal?

THE WITNESS: We looked at that.

MR. FORT: You looked at what?

THE WITNESS: We looked at removing species that we didn't feel would be -- would be present.

MR. FORT: And did you remove any?

THE WITNESS: We did. I believe that we only felt comfortable removing the muscles and a snail, and I am going from memory on that.

MR. FORT: Okay. What happens when you start removing species from the criteria?

THE WITNESS: Unless you are removing the four most sensitive species, if you start removing other species, then the number of species that have been evaluated goes down, and when you remove species, sometimes you can remove them to the point that your safety factor increases to the point that the criteria starts moving in the direction where it becomes more protective.

MR. FORT: You need to have enough data point in order to reduce your confidence interval to an acceptable space?

THE WITNESS: I believe that would be a good way to say it.

MR. FORT: Thank you.

HEARING OFFICER TIPSORD: Okay. Mr. Ettinger, are you done with your pre-filed questions?

MR. ETTINGER: I am done, yes. I am just sitting here listening.

HEARING OFFICER TIPSORD: Well, in that case, next is CITGO PPD. So let's take about five minutes while you guys rearrange.

Okay. Monica has some follow-up.

MS. RIOS: I have a couple of follow-ups.

HEARING OFFICER TIPSORD: We will do that first. Okay.

MS. RIOS: Monica Rios, ExxonMobil Oil Corporation, and Mr. Twait, I just have a couple of follow-ups regarding your earlier testimony on AS 96-10.

You stated EPA was not aware that -- aware of AS 96-10 effecting any other discharges in the UDIP. Can you just explain your basis for that conclusion?

THE WITNESS: I believe that of the dischargers downstream, we have given mixing zones to those facilities, and I can't think of any facilities where we didn't give a mixing zone and they had to put in additional treatment.

MS. RIOS: And what downstream dischargers did you consider?

THE WITNESS: Well, starting to the farthest north, which was downstream of Crawford and Fisk there is Corn Products, CITGO. Coming downstream, I know Stepan has a thermal component, ExxonMobil.

MS. RIOS: And, Mr. Twait, this goes way back to the initial set of hearings back in 2008 where your testimony was that AS 96-10 would be moot upon adoption of the proposed water quality standards. Has that conclusion changed?

THE WITNESS: I think it would be better if I didn't answer that. I will leave it to the lawyers.

MR. DIMOND: Tom Dimond on behalf of Stepan Company.

Mr. Twait, what mixing zones are you aware of that's been issued for Stepan?

THE WITNESS: I am not aware that Stepan has had a mixing zone offhand, but it was my understanding that they had a thermal component to their discharge. I might be mistaken.

MR. DIMOND: Okay. And are you

aware of a mixing zone being issued for any discharger into the Upper Dresden Island Pool for thermal issues other than Midwest Gen?

THE WITNESS: ExxonMobil for sure.

MR. DIMOND: That's all I have.

HEARING OFFICER TIPSORD: All right. Let's take a five-minute break, and then we will come back and try to at least get through the first section of CITGO's questions before we go to lunch.

(Whereupon, a short break was taken.)

HEARING OFFICER TIPSORD: I understand ExxonMobil has one more follow-up before we get to Mr. Fort.

Ms. Rios, you had another follow-up?

MS. RIOS: Mr. Twait, right before the break, you stated that ExxonMobil has a mixing zone. Does ExxonMobil have a defined mixing zone in NPS format?

THE WITNESS: I don't know what's in there, what's in the permit. I do know that we have looked at mixing zone studies done by Huff &

Huff for the thermal component.

MS. RIOS: Do you know if they are granted allowed mixing in their permit?

THE WITNESS: I believe it was allowed mixing, and I'm not sure if that's specifically recognized in their permit or not.

MS. RIOS: Thank you.

HEARING OFFICER TIPSORD: All right. With that, I believe we are ready to proceed with your pre-filed questions.

CROSS-EXAMINATION

BY MR. FORT:

Q. Thank you, Madame Hearing Officer. Good morning or good afternoon now.

Madame Hearing Officer, Members of the Board, Board Staff, Agency and other stakeholders here, my name is Jeff Fort with Dentons US, LLP. When this matter started, it was Sonnenschein Nath & Rosenthal and then we became SNR Denton US, LLP and now it's Dentons US, LLP. I am in the same office, same practice, but the names have changed.

Mr. Twait, I am here representing CITGO Petroleum Corporation and PDV

Midwest Refining, LLC, which I will refer to in my questions as the Lemont refinery.

I assume you have had a chance to look at the pre-filed questions before now?

A. Yes.

Q. Okay. These questions I am focusing on for the location of the Lemont refinery, which is in the Lower Ship Canal near the regulated navigation zone, and for purposes of these questions, that segment of the ship canal will be called the Lower Ship Canal or the MWRDGC and the safety zone.

For members of the audience, Ms. Williams and I had a conference this week, and I have agreed to withdraw many of my questions or several of my questions, I guess I should say. So I will read off what I am not going to ask, and if there is something in there that you think is really important, you will have a chance to revive it.

So these will include -- I am going to drop one through four, 11 and 12, 15.

MS. FRANZETTI: Jeff, can you go a little slower?

MR. FORT: Yes, ma'am.

One through four, 11 and 12, 15, 20 through 24, 27 and 28 and 30.

HEARING OFFICER TIPSORD: Look at that. We are halfway through the first group already.

BY MR. FORT:

Q. I am doing my best.

Mr. Twait, you are here to testify on behalf of the Agency, correct?

A. Yes.

Q. Does the Agency expect to call any other witnesses to provide testimony regarding this docket, Docket D, concerning the proposed water quality standards?

A. No. I am the only person testifying on the changes that we have proposed.

Q. And you are not expecting that the Agency is going to call somebody else to talk about the proposed water quality standards in this docket?

A. If there are -- it is not the Agency's intent. If there is a question that I cannot answer, we can provide an answer to the

Board or possibly have somebody else testify.

Q. And you have reviewed the Board's first notice of opinion and order in Docket C in which the Board established three different uses for the water bodies affected in Docket D?

A. Yes.

Q. Okay. Is it correct that even though the Board adopted three different uses for the waterways at issue here in this proceeding, the Agency only proposed one set of water quality standards with the exception of temperature and dissolved oxygen?

A. Ammonia is different also.

Q. Okay. So except for those three materials, the proposed standards are identical?

A. No, not quite.

MS. WILLIAMS: Jeff, can you clarify, when you -- are we talking now here about three -- are you asking him to compare general use to A and B and each of -- all, or just A and B, because you are talking about three uses. I think it makes the answer hard.

BY MR. FORT:

Q. Well, I am as much reacting to how

the strikethroughs worked, in that all of the water bodies that used to be secondary contact and indigenous use seemed to have the same criteria. Now, I suppose moving UDIP to general use might change that. So I am welcoming him to explain at least why A and B are the same.

MS. WILLIAMS: Okay. I think that will keep it clear for now if we could start with that.

BY THE WITNESS:

A. With the exception of dissolved oxygen, temperature and ammonia, the standards are more or less the same, the chemical constituent, and part of that happens because of the national criteria document, when you start removing species, they become more stringent, and in some cases, the Agency didn't -- didn't believe that some of the most sensitive species wouldn't be there.

Q. So I heard two different things there. First, you said that if you removed species, the criteria would get more stringent?

A. Sometimes.

Q. And that's because of the issue that

we talked about before the break of having a smaller population and, therefore, the confidence intervals would get bigger and the acceptable criteria would get lower?

A. Correct, the safety factor increases.

Q. So do you remember what materials or chemicals you had that observation concerning?

A. Cadmium is the big one that comes to mind and copper, we removed -- copper, we removed species that we didn't think would be present.

Q. And what was the affect of removing those species for the copper standard?

A. The water quality standard became less stringent.

Q. So you really have to go through each chemical and look at the species that you expect to be present in a particular water body to know which way the -- the numbers would result?

A. Yes.

Q. But yet we ended up with the same standards for use A and use B?

A. Yes. The Agency, if it was felt that the water could meet the proposed water

quality standard, that the Agency didn't need to look at criteria for getting it less protective.

Q. What chemicals that -- if you can recall, had that situation where the water in the use B waters -- let's just limit it to the Chicago Sanitarian Ship Canal -- already met the standard that you were proposing?

A. The B tech's parameters of fluoride, manganese, the mercury, acute and chronic, nickel, total residual chloride.

Q. Those were which?

A. Those were ones that we believed would be met in the use B waters.

Q. So that means that for all the other chemicals that you were proposing to be included for the ship canal, you did not have evidence that they -- it was being met?

A. No. I just gave you a partial list. I would really have to go back and see what we looked at.

Q. Okay. And I asked you at least a question before the break with respect to chloride.

With respect to all the

chemicals, is there any memorandum from within the Agency that reflects your thought processes, your analysis, to get to this conclusion?

A. In our statement of reasons. And we explained -- in there we specifically explained where we were varying or changing the national criteria document. So if we made the decision that we can change the national criteria document, we outlined it in the statement of reasons. If we didn't, if we didn't make a change, we just noted that it was exactly the same as the national criteria document.

Q. So this was the criteria document we talked about before the break that are in published form, but they have not been adopted as a regulation by the USEPA?

MS. WILLIAMS: Objection. That calls for a legal conclusion. I don't think he should be answering.

He has testified they have been published in the Federal Register. I don't think it's appropriate to expect a non- -- a lay witness to say whether they are -- what their regulator affect is.

BY MR. FORT:

Q. Well, let me rephrase the question then.

To your knowledge, have they ever been published in 40 CFR as a regulation by USEPA?

A. I don't know. I don't have that knowledge.

Q. Okay. I would ask the Agency, if you have any such references, that we would appreciate having those.

MS. WILLIAMS: Would you like references to the legal affects of national criteria documents on states with regard to the obligations to adopt water quality standards as stringent as them; is that your question?

BY MR. FORT:

Q. If you want to make that legal argument, that's fine, too, but I am asking for, has USEPA actually promulgated these as a federal regulation?

MS. WILLIAMS: We can address those in comments.

BY MR. FORT:

Q. And what I just note here is that we have in Illinois what are called the bypass rules, where if you have hazardous waste rules, Clean Air Act rules that can go through the Title Seven proceedings before the Board, without going through technical feasibility and economic reasonableness, they are pretty clear, and I think that's sub rosa what may be going on in this situation, so -- okay.

Let me get back then. So the answer on number eight, why has the Agency proposed to treat these water segments the same way while recognizing that there are different uses of them? It's because you just go to the national criteria document and you sort from that?

A. No. We are protecting for a toxicity affect, and those don't allow a large difference in the water quality standard and as I mentioned before that when you remove some species, it can become more stringent.

BOARD MEMBER LIU: Excuse me. May I ask a question along the lines of your earlier discussion? You mentioned that when

you removed species in your analysis of copper, that the water quality standard became less stringent?

THE WITNESS: Yes.

BOARD MEMBER LIU: I ran some numbers for the generic hardness value of 400, and I got more stringent. I was wondering if you could just one run the math on that again.

THE WITNESS: Are you comparing our general use standard for what we have proposed for copper?

Okay. I will agree that those are more stringent, but those -- but the numbers that are in our proposal are less stringent than the national criteria document. For the national criteria document there were some on it that were very sensitive to copper, and we removed those species.

BOARD MEMBER LIU: Thank you.

BY MR. FORT:

Q. The Agency -- other than describing the process here though, the Agency has not done a -- the general approach that you just described in the statement of reasons. You don't have a

technical analysis of what the -- taking a criteria document and for a pollutant, mercury, for example, and going through the process to say what would be protective of the species that are expected to be in a water body that has tolerant species in it in that designated use?

A. Yeah. I would agree with that.

Q. Are you generally familiar with the water discharges from my client, the Lemont refinery?

A. Yes.

Q. And just generally, how do you know -- how detailed is your knowledge?

A. I know that it's mostly cooling water. There is processed water involved with it, and we have a total dissolved issue -- total dissolved solids issue that we have been working on.

Q. Okay. And you are aware that its intake is upstream of its discharge?

A. Yes.

Q. And that pursuant to its NPDES permit, it discharges into the Lower Ship Canal?

A. Yes.

Q. And the discharge is at a point immediately upstream of what we have called the black safety zone?

A. Yes.

Q. And that the discharges within what is called the regulated navigation zone?

A. Yes.

Q. Okay. I am going to skip 11 and 12 and go to 13.

So at the point of -- upstream of -- at the beginning of the regulated navigation zone, isn't it true the Lower Ship Canal is what has been called an effluent dominated stream?

A. Yes.

Q. And do you have information of what portion of the flow on the Lower Ship Canal during normal conditions is for municipal wastewater treatment plants operated by the Metropolitan Water Reclamation District?

A. Well, I'm not sure which normal conditions you are talking about, but depending on rainfall events, it's 50 to 75 percent, up to 100 percent of effluent.

Q. When is it 100 percent effluent?

A. When there is no precipitation, and that might happen in the fall or winter.

Q. So under conditions of no precipitation, the flow in the ship canal is virtually entirely from the Reclamation District's wastewater treatment plant?

A. Yes.

Q. And other times of the year when there is more rain off -- rain water runoff and the like, it might be a lower percentage, as low as 50 percent?

A. Yes.

Q. Okay. Thank you. So in addition to the treated wastewater from the District, isn't this segment of the Lower Ship Canal also carrying pollutants from storm events?

A. Yes.

Q. Combined sewer overflows?

A. Yes.

Q. Storm water follows?

A. Yes.

Q. And flows from runoff, snow melt conditions?

A. Yes.

Q. How would you characterize the sediment quality of the Lower Ship Canal both generally and specifically with respect to mercury contamination?

A. There has been prior testimony that there was some contaminated sediments and some areas are worse than others.

Q. And that contaminated sediments includes mercury?

A. I believe that was in the testimony.

Q. Does resuspension of contaminated sediments occur?

A. Yes.

Q. And that's by barge traffic?

A. Yes.

Q. High flow periods?

A. I'm not -- I'm not knowledgeable on when -- if it happens during high flow periods.

Q. And what about the process of lowering water levels in the ship canal due to the things that the District needs to do to maintain its commitments?

A. I have no knowledge of that.

Q. Okay. And you would expect any

sediment that's resuspended from whatever cause to be things that get into the Lemont refinery water intake during those conditions?

A. If it's resuspended, it will get drawn in with their intake.

Q. Do you have any data on the level of contaminants from these sources we just talked about?

A. I believe that some data was provided by CITGO, in the record.

Q. Thank you. And I think you are right. I am going to skip 20 to 24 and go to 25.

Okay. Now, at the present time under the existing regulations for the Lower Ship Canal, the body of water into which the -- strike that.

Let me just try again and start over. Under the consistence regulations for the Lower Ship Canal, that is called a secondary contact water?

A. We call it a secondary contact water. However, the official language is secondary contact and indigenous aquatic life use.

Q. Thank you. You are getting ahead of me here.

For purposes of these questions, which would you rather have the questions asked as, secondary contact or as the official title?

A. Secondary contact is fine.

Q. Thank you. So what are the differences, if any, between these waters that we have called a secondary contact and use B aquatic uses?

A. Forty years ago when the Illinois Pollution Control Board designated this stretch, there was only a few species of fish that could live. Over the past 40 years, the water quality and fish populations have improved.

Use A and use B are still not able to meet the Clean Water Act goals, but the aquatic life has improved.

Q. And this same water body -- I know this is not in this docket -- has been designated as non-recreation, correct?

A. Yes, I believe that's correct.

Q. And what are the differences then between non-recreation and secondary contact?

A. USEPA believes that it is less protective; however, the Agency did not intend that.

Q. Okay. So in terms of the uses for the Lower Ship Canal as a secondary contact water, how are they any different today than the uses listed in use B as proposed by the Board?

A. It acknowledges fish consumption. That is one of the differences.

Q. There is fish consumption in the Lower Ship Canal now?

A. Yes. And with these proposed rules, we will be protecting -- protecting for fish consumption.

Q. Now, let me focus you in on the regulated navigation zone, which is in the immediate vicinity of the Lemont refinery's intake and its discharge and includes the black safety zone. Is it your testimony that there are -- is fish consumption occurring from fish taken from those waters?

A. I don't believe that you can fish in the black safety zone. I'm not sure of the regulated navigation zone, but the fish that

can swim to the barrier and then swim back out of the regulated navigation area, or the regulated navigation zone could be up either upstream or downstream of the fish barrier.

Q. You think that people are allowed to be fishing in the regulated navigation zone?

A. I said that I didn't know, but they could swim out of the regulated navigation zone and be caught either upstream or downstream respectively.

Q. Well, let's focus on the upstream part. Are you aware of any fishing that is done in the regulated navigation zone upstream of the electric fish barrier?

A. No.

Q. And are you aware of the physical conditions alongside of the ship canal through the regulated navigation zone?

A. No.

Q. Okay. Okay. I am going to move to 29. With respect to the following statement, after designated uses, states must establish criteria sufficient to protect those uses, which I believe is in many places in USEPA guidance and

in the Board's opinion at first notice. Did you consider that before or while you prepared your testimony?

A. Yes.

Q. And you agree with that statement?

A. Yes.

Q. And how did you apply that statement to the water quality standards that the Agency is proposing here today?

A. I think we have adopted -- we have proposed something that protects the uses that we have proposed.

Q. Are they sufficient to protect the uses or is there a big safety factor in it?

A. The -- as I have testified before, there is -- they don't have a procedure for determining water quality standards for something other than Clean Water Act goals, but you can remove species, and the Agency has done that in some instances.

Q. But a way to do it is to go through it for a particular stream body or stretch of a stream body and look at the species that are present or could be present and from that

determine what a protective water quality standard would be, correct?

A. Yes.

Q. I am going to go to 31. Is there any other canal or river or other body of water which has a black safety zone that you are aware of?

A. Not that I am aware of.

Q. And that goes for the Illinois, Midwest and United States?

A. Yes.

Q. And similarly, are you aware of any other canal, river, or other body of water which has a regulated navigation zone?

A. No. I am not aware of any.

Q. Okay. And that goes nationwide?

A. Yes.

Q. Okay. Going to 33 then. The statement of reasons filed by the Agency in 2007 had multiple attachments and exhibits, some of which included papers and information related to various water quality standards.

Does the Agency intend to supplement that list or add more documentation

or testimony to support the proposed water quality standards in this document?

A. Only my testimony, which was based on the changes that we have made from the original proposal.

MS. FRANZETTI: If I may ask a follow-up question?

MR. FORT: Go ahead.

MS. FRANZETTI: And Mr. Twait, my question is going to go back a couple of questions with respect to your answers generally of using the criteria document stating whether or not a particular species could be eliminated.

With respect to these waters, and by these waters I am referring to only those proposed for use A or use B. Those proposed uses have been specifically created for these particular waters, correct?

THE WITNESS: Yes.

MS. FRANZETTI: So did the -- given that, we are looking at enacting very site specific type uses for these waters. Did the Agency consider that given with respect to particularly use B, and the fact that the Agency

has only identified I think it's eight resident aquatic species for use B waters; is that correct?

THE WITNESS: For thermal, yes.

MS. FRANZETTI: That's for thermal only. For nonthermal, you believe that there are more than eight representative species in these waters?

THE WITNESS: I will say there is more than eight species in these waters. Representative aquatic species is something that we have used for the thermal only.

MS. FRANZETTI: Okay. What my question is is, take the species that you believe are present in use B waters, is there an alternative of deriving site specific criteria for use B waters based on the limited number of species that are present?

THE WITNESS: Well, to answer that, if you took only eight species and you said, we are only going to look at the toxicity of these eight species. If you only have eight species in your calculation, it's going to be more restrictive since there is only eight species.

MS. FRANZETTI: Right, but --

THE WITNESS: When you get to that few of species, then your multipliers go up.

MS. FRANZETTI: So use all the ones that are present. Let's get away from just the eight. I forgot that you just used eight for thermal.

So for those species that are present in use B waters, are you saying you run into the same problem with there not being enough data to keep the safety factor lower?

THE WITNESS: I will say that that will be some of the time. Maybe not all of the time.

MS. FRANZETTI: Okay. Was there any consideration within the Agency as to whether when you are dealing with a water body that had been recognized to be at a use lower than the Clean Water Act goals. Whether you really need this safety factor to be applied in the same way, because you have specifically looked at the waters and identified what species are present.

THE WITNESS: The accepted practices don't allow for or don't acknowledge setting water quality standards for less than full support of

the Clean Water Act. Specifically for cadmium, we were looking for -- we were looking for ways to apply it in such a manner, and we could not find one that was acceptable to USEPA.

MS. FRANZETTI: Did USEPA explain why it felt that although the criteria documents are created or prepared with waters in mind that are capable of meeting the Clean Water Act goals, they could not approve the use of any other alternative approach for lower use waters?

THE WITNESS: I don't think that we asked them that specific question.

MS. FRANZETTI: Okay. Thank you.

BY MR. FORT:

Q. Okay. I think we are ready for 34.

Mr. Twait, directing your attention to the proposed numerical water quality standards for chlorides, ammonia and mercury, I have three questions.

Does the record provide any information, reports studies or testimony for the proposed water quality standard for chlorides?

A. In the Agency's original statement of reasons and my previous testimony.

Q. There is not a separate technical document or technical report or chlorides?

A. No.

Q. For the proposed water quality standard for ammonia, are there any additional reports, studies or testimony, other than what appears in attachment KK of the statement of reasons that is in the record?

A. What's in the record is the Agency's original statement of reasons and my previous testimony.

Q. And for the proposed water quality standard for mercury, are there any additional reports, studies or testimony other than what appears in attachment Y of the record?

A. Not other than the Agency's original statement of reasons and my previous testimony.

Q. Okay. So with respect to the reports, studies or testimonies for ammonia including attachment KK, did any of those address necessary standards for aquatic life, such as those in secondary contact waters in Illinois or the proposed use B waters? Let's do secondary contact waters first. I'm sorry.

A. I think my answer will be the same regardless of the use, but a national criteria document includes all of the appropriate species and it is up to the state to eliminate species that are not appropriate or not present.

Q. Okay. And did any of those address necessary standards for aquatic life such as those identified by the Board in Docket C for use B waters?

MS. WILLIAMS: I can he just answered for all three.

BY MR. FORT:

Q. Mr. Twait, is that true?

A. That would be my -- the same answer.

Q. For A, B and C? C is a little different, because --

A. Yeah. C is different. So A and B.

Q. Okay. So with respect to C, how do any of those demonstrate that the existing water quality standard for ammonia for the Lower Ship Canal is not protective of the aquatic uses as identified by the Board in Docket C in their first notice opinion?

A. The current -- the current standard

for secondary contact waters is 0.1 unionized and there have been numerous national criteria documents that indicate that the toxicity of ammonia is greater than the contact secondary contact and indigenous aquatic life use standard.

Q. What sort of species are being used for those national criteria documents? Are those intolerant species?

A. They are intolerant, tolerant and intermediately tolerant. They look at all the species.

Q. And do you have any references for what those national standards or criteria are?

MS. WILLIAMS: I believe the reference is in the exhibits, right?

BY MR. FORT:

Q. So you look at the bibliography for attachment KK?

A. You would have to pull out attachment KK and, yes, the bibliographies would be in there.

Q. Okay. But you don't know how any of those studies actually demonstrate it for tolerant species?

MS. WILLIAMS: Demonstrate what?

BY MR. FORT:

Q. Demonstrate that 0.1 unionized anomia is not protective of tolerant species, if you know?

A. Yeah. I will have to say that I don't know.

MR. ETTINGER: Can I just clarify? The Illinois ammonia standard, you have already thrown out the salmonids, which are the most sensitive species. So do you know whether there is an another set of fish not present in these waters that could be thrown out that would loosen the standard there?

THE WITNESS: I don't know.

MR. FORT: Moving on to 36. With respect to the reports, studies and/or testimony relating to the proposed water quality standard for mercury and again, as applied to Lower Ship Canal, did any of those address necessary standards for aquatic life such as those in the Lower Ship Canal?

MS. WILLIAMS: Can you clarify? You

are saying proposed water quality standard for mercury singular. So there is three of them in the Agency's proposal. Are you taking them as a group or are you --

BY MR. FORT:

Q. Let's -- thank you. Good clarification. Let's take them as a group, and if we need to break them down, we can break it down?

A. I would say the answer is yes. They are necessary to support aquatic life, the acute and chronic standards, anyway, for mercury.

Q. Okay. What about the human health standard?

A. It is not based on aquatic life.

Q. And what is that standard then based on, the assumption that somebody is going to catch a fish out of these waters?

A. Yes. It's protection of the consumption of the fish.

Q. Okay. That are caught in these waters?

A. That are caught in any waters.

The human health -- excuse me. The human health criteria is based on eating a certain amount of fish that has a certain concentration of mercury. So it's based on the bioaccumulation of the mercury.

Q. Okay. I think you have answered now B, and I think you have also answered C, and number D we have touched on, but do you agree that resuspension of sediment is a significant source of particulate mercury during periods when resuspension occurs in the Lower Ship Canal?

A. I don't know if it's significant, but suspended solids are associated with mercury, and if you have a higher suspended solid, then you are most likely going to have a higher mercury concentration.

Q. What is the basis for the Agency proposing total mercury for the human health standard as opposed to dissolved mercury?

A. The goal of the human health water quality standard is to prevent fish from accumulating excess mercury in order to protect human consumption of fish. Methylmercury is the predominant form of mercury that enters the fish

and is stored in the fish tissues. Illinois EPA believes that mercury both in the suspended as well as the dissolved form can become methylated in a water environment and accumulated in fish flesh.

Q. That sounds like an expert opinion to me. Is that your view or your opinion or is that a consensus from the Agency?

A. That is -- I posed the question to Bob Mosier.

Q. So that's Mr. Mosier's view on the biokinetics?

A. Yes.

Q. So how does a suspended or mercury on a particulate become transformed into a methylmercury and available for fish tissue accumulation?

A. I'm definitely not the expert on mercury.

Q. If resuspension of sediment is causing total mercury contamination to exceed 12 nanograms per liter during periods when the flow is above the harmonic mean, does that mean that no mixing zone would be allowed for mercury and than

an effluent limit 12 nanograms per liter would be imposed on all discharges?

A. Not necessarily. Mixing zones are heard for mercury and mixing zones in general, are based on a site specific data on a site by site basis. Usually we will give a mixing zone unless it is impaired for that particular substance, and once a stream is impaired, not all of the dischargers will get a limit. We base that limit on reasonable potential of the effluent.

Q. So what does that mean when you are talking about a criteria like 12 nanograms per liter or 12 parts per trillion in term of a standard for a discharge?

A. Well, as an example, the 12 nanograms per liter, since it's a human health standard, it's based on an annual average, and as an example, we looked at MWRD's effluents for their last permit renewal, and they had on numerous samples and their average was less than 12 nanograms per liter. So we would not give them permit limits.

Q. Because their average on an annual basis was less than 12 nanograms per liter?

A. Yes. They were meeting the water quality standard and there was no reason for us to believe that they won't continue to meet that.

Q. And what if -- about a downstream discharger who is in an effluent dominated situation with 75 to 100 percent of the upstream flow, what is its flexibility here? I mean, if it's at -- if the level is at 11, does that mean mixing zones are allowed assuming -- yeah.

A. The Agency looks at the data on a site by site basis, and so we would have to evaluate whether or not a mixing zone was applicable.

MR. ETTINGER: Excuse me. I forgot the term, but do you allow a source water credit? At least in the GLI a discharger -- it's taken into account what their intake is like in determining what their discharge would be. Is that a factor that would come into play here?

THE WITNESS: I believe we do have something in our regulations for looking at background concentrations, but they are specific to what you bring into the -- what you bring in from the receiving stream, and it only applies if

you are not -- if you are not adding a significant amount or -- other than a minimal amount of that pollutant.

So you had a discharger that was taking in 12 and putting out 12 and not adding any of their own, they would probably not be caught by -- they would probably not have a limit. I would believe -- I believe that that condition would apply there.

BY MR. FORT:

Q. Well, let me follow-up then.

If your influent is 11, nanograms per liter, and you are adding two, understanding that the upstream source that doesn't have any existing mercury in the water coming by it could put in 11. You would say that the downstream discharger who is adding two instead of 11 would not have a mixing zone?

A. I would say whether 304.103 would apply or not, and that would have to be a decision made by the Agency dependant on the site specific information.

Q. And that's the issue of whether or not it's significant or minimal, phrases like

that?

A. Yes, I will see if I can find -- yeah. It says, compliance with the numeric effluent standard is therefore not required when effluent concentrations in excess of the standard result entirely from influent concentration, evaporation and/or the incidental addition of trace materials not utilized or produced in the activity that is the source of the waste.

Q. So that sounds to me like if there was 11 in the intake and you added two, that you would not have the mixing zone even though you were extraordinarily small by comparison?

A. That's a decision that's made by the permit section. I don't know which part is -- how they would do that.

Q. The Agency hasn't proposed to make any adjustments to that mixing zone rule with things like -- for things like mercury?

A. No.

HEARING OFFICER TIPSORD: Okay. Ms. Franzetti?

MS. FRANZETTI: Mr. Twait, you were

reading there from 35 Illinois Administrative Code Section 304.103, correct?

THE WITNESS: Yes.

MS. FRANZETTI: And part 304 is the effluent standards part of the water pollution regulations, correct?

THE WITNESS: Yes.

MS. FRANZETTI: And even the language you were just reading off refers to numeric effluent standards, right?

THE WITNESS: Yes.

MS. FRANZETTI: Here is my concern, Mr. Twait is, the water quality standards that we are talking about here, specifically including the mercury standards, they are water quality standards that's in Part 302. Has the Agency previously decided that the intent or the meaning of 304.103 does, in fact, apply to determining compliance with numeric water quality standard in part 302?

THE WITNESS: I don't know that I can answer that.

MS. FRANZETTI: Okay. Is that something that given the fact that these use B

waters are effluent dominated, given the sediments issue and the resuspension of pollutants, that the Agency may consider including as part of these proposed rules?

THE WITNESS: I will have to look at that.

HEARING OFFICER TIPSORD: Okay. Mr. Dimond?

MR. DIMOND: Tom Dimond on behalf of Stepan.

Mr. Twait, in one of your answers, you referred to the 12 nanogram per liter standard for mercury as being an annual standard?

THE WITNESS: Annual average, yes.

MR. DIMOND: Is -- I am looking at Exhibit 481. I guess it's 302.407(f). Is it -- I don't see anywhere in that section where it states that the 12 nanograms per liter is an annual average, but is that the Agency's practice and understanding of how that standard is to be applied?

THE WITNESS: In part 307.407, (sic) part C, it is basically saying that it shall not be exceeded when the stream flow is at or above

harmonic mean, nor shall an annual average based on at least eight samples collected in a matter representative of the sampling period exceed the human health standard except as provided in subsection D, and subsection D talks about mixing.

MS. FRANZETTI: I thought you said 307.

THE WITNESS: No, 302.407.

MR. DIMOND: Okay. Okay. 302.407.

MS. FRANZETTI: Subparagraph C?

THE WITNESS: Yes.

MR. DIMOND: Okay. Thank you.

BY MR. FORT:

Q. Mr. Twait, I think you just read the part or Mr. Dimond read the part that said it's either 12 nanograms per liter on an annual average or when the flow is above the harmonic mean?

A. Yes.

Q. And when flow is elevated, that's when we have more resuspension likely occurring, more combined sewer overflows, more storm water runoff?

A. Possibly.

Q. Have you noticed anything in the

record of this proceeding that would indicate that that condition does occur at higher flows when it doesn't occur at lower flows, the condition being a level above 12 nanograms per liter?

A. I believe CITGO provided some influent data on mercury, and they included stream flows for three of those samples and their highest sample had the highest flow.

Q. Okay. And I think there is maybe -- you may be looking at the same data that I am thinking about, but there was some data included with Jim Huff's testimony from March of 2009 that showed levels, I believe, over 12 nanograms per liter at a higher stream flow?

A. Yes.

Q. Assuming that was the case, that would say that you could not have a mixing zone under that kind of high flow condition, correct?

A. I think the Agency would look at the data in a whole -- as a whole rather than to base it on one sample.

Q. Okay.

HEARING OFFICER TIPSORD: And for the record, Mr. Huff's testimony is Exhibit 304.

MR. FORT: I think that's the one, yes.

HEARING OFFICER TIPSORD: Mr. Davis, did you have a follow-up?

MR. DAVIS: I just wanted to clarify that I heard what I thought I heard. In talking about these mixing availability determinations and he said that they would not be available in cases of an impairment, I just wanted to make sure that we were talking about site specific data based determinations and not the 303(d) impairment determinations and if I am mistaken, can you explain how that factors into that?

THE WITNESS: I am really sorry to ask you to do this, but could you repeat that?

MR. DAVIS: I will try. Unless the reporter got it. That would be easier.

(Whereupon, the record was read as requested.)

THE WITNESS: Yeah. For impairments, the Agency looks at the data that it has, and people can wish to include their data as long as it's -- has a quality control and meets their quality control assurances, and they list

and put things on the 303(d) list, and that's where it becomes impaired. We don't normally look at individual data like that to determine impairment. It would be -- it would have to be quality control and submitted to the Agency.

MR. DAVIS: And that's in the context of making the 303(d) determination?

THE WITNESS: Yes.

MR. DAVIS: And then when it comes to permitting, how does that -- you know, the fact that a segment appears on that list -- impact getting a permit issued that maybe is seeking to have a mixing zone?

THE WITNESS: If that particular parameter was listed as impaired, the Agency would typically not give a mixing zone for it.

MR. DAVIS: Thank you.

BY MR. FORT:

Q. Okay. I think I am ready for G.

Mr. Twait, we talked earlier about the total mercury HHS score and it has particulate and dissolved elements to it. Has the Agency considered the economic impact of the total HHS standard on existing discharges?

A. The Illinois EPA believes that the implementation of the general use mercury human health standard of 12 nanograms per liter over the entire state except for the Chicago UAA waters has not caused excessive economic impact on discharges and that such impact is unlikely in UAA waters that are currently being effected.

Q. Doesn't that assume that there is not resuspension of mercury from sediments, such as what we have talked about in the sanitary and ship canal?

A. In the general use waters, we have been collecting -- well, the human health standard has been in effect since 1996. Since about 2005, low level mercury data has been available for industries and municipal effluents, and to date there is two industrial and no more than five municipal facilities that have been issued permit limits for mercury of 12 nanograms per liter as an annual average.

As of this date, none of the municipal facilities with these limits have complained of hardship for meeting the limits, and one of the two industrial facilities has likewise

not complained of economic hardship. The other industrial facility is under a compliance schedule that delays the implementation, and they have found a technology. However, they believe it's too expensive. So as we are aware, there is only one facility that's saying that there is a hardship.

Q. Well, if I heard you right, it's like one out of two industrial facilities found there to be an economic effect, correct?

A. No. We have looked at -- the data that we have looked at, there is two facilities that we have determined that have a reasonable potential to exceed.

Q. Okay.

A. And for those two facilities, we have put in a permit limit for mercury of 12 nanograms per liter, and one of those two is complaining about having an economic impact.

Q. Okay. So 50 percent of those that you have imposed a limit on have complained about the economic effect of that standard?

A. That would be accurate.

Q. Now, are either of those industrial

facilities on an effluent dominated stream whereby they are taking all of their cooling water, intake water, in from a stream that might have a substantial volume of mercury present?

A. I don't know what the two facilities are.

Q. Okay. And do you know if any of these facilities, the two industrial or the five municipal, are on a water body such as the Chicago sanitary and ship canal that has significant sediment contaminations that gets resuspended during storm events?

A. No, I do not.

Q. So other than what you just said, the Agency hasn't really considered the economic effect of the total HHS standard?

A. I don't believe the economic burden for treatment is effected by which body of water that they are on.

Q. Meaning that the treatment costs are the same regardless of whether you have it in your intake or from other process reasons?

A. Yes.

Q. Okay. But if you have it in your

intake, it's going to cost as much just because if somebody upstream is putting it in there or it's accumulated over the last 100 years, for example?

A. Yes, possibly.

Q. Okay. Wouldn't that economic effect be mitigated by looking at the dissolved form of mercury as opposed to the total, because the total brings in the sediment and particulate resuspension problem?

A. The Agency believes that the total is a better parameter to look at rather than dissolved since fish can methylate the mercury.

Q. And that's, again, according to your colleague, Mr. Mosier?

A. Yes.

Q. But in terms of responsibility, if the material is from sediments that have accumulated over a long period of time and it happens to be in your intake, the Agency's position is that it would still have to be treated regardless of the source?

MS. WILLIAMS: I don't think that's what he said.

THE WITNESS: Not if you are not

adding mercury.

BY MR. FORT:

Q. Well, that gets us back to the conundrum of what is a significant addition, and is a pound a significant addition of mercury?

A. Yeah, a pound of mercury is a lot.

Q. Got to start somewhere.

A. I don't feel comfortable trying to narrow that down. I don't know what the Agency would consider insignificant.

Q. Okay. And, of course, the economic burden on the downstream sources would be mitigated or reduced if there were a mixing zone rule or an adjustment was being made to the mixing zone rule for mercury?

MS. WILLIAMS: Can you talk about what adjustment you are talking about?

BY MR. FORT:

Q. Any adjustment.

A. Sure.

Q. Okay. Without having to worry about quantifying how much of an adjustment and so on, right?

A. (Indicating head back and forth.)

Q. What would be the impact on biological resources in the Lower Ship Canal if a mixing zone were allowed for point sources when the cause of exceedance of a water quality standard -- here we are talking about total mercury -- were due to non-point sources.

A. If the human health standard is violated, I don't know if the aquatic life standard will be violated, but if the aquatic life standard is not violated, I don't know that we would have an impact for aquatic life.

MR. FORT: Okay. I am done with that set of questions.

HEARING OFFICER TIPSORD: Okay. Ms. Rios has some follow-up, and then we will take a break for lunch.

MS. RIOS: We have mentioned a few times the term "effluent dominated" and Mr. Twait, would you characterize the Brandon Pool in the UDIP as effluent dominated?

THE WITNESS: Possibly.

MS. RIOS: And what would make them effluent dominated?

THE WITNESS: I don't know what

the -- the qualification of whether or not you would have effluent domination or not. It would depend on how much water you are getting from the upper Des Plaines River.

MS. RIOS: My next question is on the question of mercury data. Do all dischargers collect low level -- low detection level mercury discharge data?

THE WITNESS: All -- all facilities that we have included from 2005 on where we have included a special condition that they need to have mercury samples.

MS. RIOS: And do you -- can you explain a little bit more about which particular industries those facilities are from?

THE WITNESS: Well, for municipals -- I am going to start with them -- it's all major municipal. That's over one million gallons per day, and for industries it is dependent on the permit riders. The permit riders make that decision, and I'm not quite sure how they make that decision, whether it's majors only, or if it's dependent upon the type of discharge. I think it's dependent on the type of discharge

along with size.

MS. RIOS: Okay. Does a facility that has mercury containing thermometers on site need to sample with low detection limit, mercury, to ensure that there is no impact?

THE WITNESS: Yeah. I think that would be a permit rider decision if the facility is a manufacturer of those thermometers, and they have an incidence -- they have a high incidence of breaking them, or if it's another facility that has a high incidence of breaking their thermometers, then that might come into play, but not necessarily.

MS. RIOS: Do you typically include those types of questions in the renewal application for permits for those types of permits, NPDES?

THE WITNESS: I don't think so.

MS. RIOS: Thank you.

THE WITNESS: But --

HEARING OFFICER TIPSORD: Mr. Dimond -- were you --

THE WITNESS: I was going to say that I don't think so, but if they had a facility

inspection, and -- and I'm not going to go to the mercury thing or the mercury thermometers. I don't know that they inspect anything like that, but if the inspector goes out and he sees ammonia nitrate piled up on the ground outside where it's exposed to water, that might be a reason for him to say, you know, to the permit -- he might tell the permit section that this is something that needs to be looked at in their next permit, and we might monitor for ammonium nitrate or whatever.

HEARING OFFICER TIPSORD: And Mr. Dimond?

MR. DIMOND: Tom Dimond on behalf of Stepan. Earlier, Mr. Twait, I believe you indicated that when the Agency makes 303(d) listings for mercury, it's -- it looks at fish tissue samples and not water -- not water column samples. Did I recall that correctly?

THE WITNESS: Yes.

MR. DIMOND: Why doesn't the -- given that the human health standard is the 12 nanograms per liter, why doesn't the Agency look at water column samples?

THE WITNESS: I don't know that the

Agency has a lot of ambient data that's low level mercury. That's one issue. And the other issue is how mercury kind of presents itself by bile accumulating in fish.

MR. DIMOND: Well, even if the Agency doesn't have the data, doesn't the Agency have the ability to go out and collect it?

THE WITNESS: I believe they do, depending on -- depending on cost.

MR. ESSIG: The methodology to do the low level mercury is quite intense. USEPA basically requires two or three people to go out and do this type of sampling, and the Agency just can't do that in the half hour we have.

HEARING OFFICER TIPSORD: Mr. Davis.

MR. DAVIS: Yeah. Along those same lines, if the Agency did have, say, water column sampling data that conflicted with the fish tissue data, how would it resolve those in order to make its determinations? So if there were test data that was below 12, but fish tissue sampling exceeded.

MR. ESSIG: Are you talking about having a water column mercury violation and also

having fish contaminants that are above?

MR. DAVIS: I am talking about mercury that was below the proposed standard so it would not be violating on that basis.

MR. ESSIG: The fish tissue -- if there wasn't a water quality violation, and the aquatic life mercury standard wasn't violated, then mercury would not get listed for non-supportive aquatic life. But if fish contaminants exceeded the mercury, it would be listed for exceeding the fish consumption advisements. But we don't -- but the Agency does not collect any water quality samples for mercury, for low level mercury.

MS. WILLIAMS: So do you have a methodology that would tell you what you would do in the hypotheticals described by Mr. Davis right now? Is there a methodology that would describe how to look at that?

MR. ESSIG: No.

HEARING OFFICER TIPSORD: All right. On that note, we will take 30 minutes for lunch.

(Whereupon, a short break was taken.)

HEARING OFFICER TIPSORD: I think we are ready to go back on the record and starting with question number 37.

BY MR. FORT:

Q. Thank you. Mr. Twait, with respect to question 37, the question is with respect to the proposed water quality standard for chlorides in the Lower Ship Canal, why is the standard proposed by chlorides for Use B waters the same as what exists now for general use waters?

A. The Agency originally proposed the general use water quality standard of 500 milligrams per liter. USEPA was -- indicated to us that that wasn't acceptable. We couldn't justify it, and we considered adopting the national criteria document with adjustments or the Iowa water quality standard with adjustments. However, before we filed with the Board, they indicated that neither of those were going to be completely approvable, and so we just stuck with general use.

Q. At the present time, there is no chloride standard for the Lower Ship Canal, correct?

A. Correct.

Q. To what extent is the proposed standard for chlorides needed?

A. To protect aquatic organisms from the toxic effects of chloride.

Q. Is it your testimony that the existing 1,500 milligram per liter limit for total dissolved solids is not protective?

A. The Agency believes that having a chloride standard and a sulfate standard is a better option than having a TDS standard.

Q. And would you agree that that standard for chloride and sulfates should be based -- should be protective of the species that are present in the Lower Ship Canal?

A. I would agree with that.

Q. I think you have already answered D for me. E asks, Has the Agency determined if the Lower Ship Canal is already violating the proposed standard for chlorides for the Lower Ship Canal or in the upstream portions of the ship canal or even the CAWS?

A. Data has been provided by CITGO showing periodic exceedances during snow melts.

Some of the other data that's gathered by the Agency has not shown an issue with it, and I think part of that is the frequency of sampling.

Q. What do you mean by frequency of sampling?

A. The Agency takes samples -- I believe it's one every six weeks so they are not sampling when there is a snow melt kind of by chance.

Q. And CITGO, sampling has been on a biweekly basis during the winter months for several years now?

A. Yes.

Q. And you said that the sources of the cause of that condition are snow melt?

A. I believe that's the main source.

Q. And it's the carry off of road salt and the like from snow melt?

A. Yes.

Q. Is there any other cause that you are aware of?

A. Not that I am aware of that's a cause of the exceedances.

Q. Are most of that chloride levels

from the highway deicing practices within the city of Chicago?

A. I believe so.

Q. Now, during those periods when chlorides are above 500 milligrams per liter in the ship canal -- and let's focus on the Lower Ship Canal, then there would be no mixing zone would be allowed during these periods, correct?

A. Phrased this way, I would say I think the Agency would need to go back and look at the data that we have and make an assessment of whether it needs to get onto the 303(d) list and would make it to a mixing zone or not.

Q. You would first look at the 303(d) list criteria?

A. Yes. Look at the criteria for listing and see if it met the requirements.

Q. And if it did not meet the criteria for a listing then there would be a mixing zone?

A. I believe so.

Q. Has the Agency --

HEARING OFFICER TIPSORD: I'm sorry. I guess I am -- I have heard you say this several times, but I just want to ask this to be clear.

If the water quality standard is being exceeded, but the stream is not on the 303(d) list, you would allow a mixing zone?

THE WITNESS: I think it -- and well, when you say it's exceeding, is there one day that you went out and sampled and found a violation and does that get rid of mixing for the entire year or was this just at one time that you sampled, was that just a blip?

HEARING OFFICER TIPSORD: I am saying that if I come to you for a permit and the data you have says that the water quality standard has been exceeded in the stream, but it's not impaired on the 303(d) list, a mixing zone is an option?

THE WITNESS: I would say it might be an option. It's just dependent on the frequency of the exceedances.

HEARING OFFICER TIPSORD: Thank you. Sorry for interrupting. I just wanted to get that clear.

BY MR. FORT:

Q. Well, let me try it a little bit further. Let's say that maybe there is two

exceedances and one winter season and no exceedances in the next, is that infrequent enough to perhaps allow a mixing zone?

A. Perhaps. And I am not going to be the person that makes that decision.

MS. FRANZETTI: Who is, Mr. Twait?

THE WITNESS: Somebody above me and in management. And I don't know who ultimately will make that decision.

Your question was whether or not it makes -- not whether or not it makes the 303(d) list, but whether we grant mixing.

BY MR. FORT:

Q. Correct.

A. And I would say that somebody else is going to have to make that decision.

Q. Got it. Well, at this point in time, is there enough data on chloride levels over 500 to say that the Water Reclamation District plants might not have a mixing zone, and therefore, have to have a 500 milligram per liter chloride limit, assuming this proposal is adopted?

A. I have not seen that data and so I don't want to make a decision.

Q. Okay. And I suppose that probably answers the next one. Did the Agency intend to regulate in any way chloride levels and combined sewer overflows?

A. The agency has not evaluated that data.

Q. Including runoff from snow melt conditions?

A. Correct.

Q. And again, would you believe that the economic burden would be substantially reduced if the rules on mixing zones with respect to upgrading sources were changed or adjusted?

MS. WILLIAMS: Which question are you on?

MR. FORT: I am on L.

MR. ETTINGER: You said with regard to what kind of sources?

MR. FORT: Upgrading sources.

MR. ETTINGER: What's an upgrading source?

BY MR. FORT:

Q. Fair enough. I take the correction to the question. Thank you.

Would the economic burden be substantially reduced if the rules on mixing zones were changed or adjusted?

A. I would say yes, without knowing how they were changed or adjusted.

Q. And I think we have already answered M in one fashion or another, so --

MS. FRANZETTI: Mr. Fort, could I --

MR. FORT: Sure.

MS. FRANZETTI: Mr. Twait, has the Agency considered -- including had any discussions with region five on whether or not where you have a situation like this, where snow melt is the main source of the elevated chlorides in the Lower Ship Canal, whether or not the UAA factor that addresses human caused conditions might apply and might provide any basis to allow site specific standards or longer term variances as a solution?

THE WITNESS: They have indicated that there is a procedure for that, but the amount of data that they wanted on the sources is quite significant.

MS. FRANZETTI: Can you elaborate on the type of the extent of the data they indicated

they would need?

THE WITNESS: They would want a TMDL type data acquisition and the sources for Chicago, the surrounding communities, IDOT and how much salt they are putting down on the roads.

MS. FRANZETTI: Is there any USEPA guidance documents that they site in support of that position for such an extensive amount of data?

THE WITNESS: I am unaware.

HEARING OFFICER TIPSORD: Ms. Rios?

MS. RIOS: Mr. Twait, you mentioned that deicing within the city of Chicago contributes to chloride exceedances in the Lower Ship Canal. Do deicing practices outside the city of Chicago contribute to chloride issues and other segments of the CAWS in the Lower Des Plaines.

THE WITNESS: Yes.

HEARING OFFICER TIPSORD: Mr. Fort, back to you.

BY MR. FORT:

Q. Okay. Moving on to 38 then, Mr. Twait. Turning to proposed temperature water quality standard, didn't the Agency use

the temperature during non-summer months in the effluent from the Stickney water treatment plant at one point in time to set the proposed temperature standards in the ship canal, correct?

A. Yes.

Q. But now you are proposing a different point of reference or not?

A. We used a combination approach where we took the ambient data and started with the 75th percentile of the ambient data, and then we looked at MWRD's effluent data from all of their plants, and we considered the Calumet/Stickney North Side plant, and we took the 75th percentile of that data set, and then we chose whichever was lower during the non-summer months.

Q. Okay.

A. And so in the wintertime, we went with MWRD's data, and in the summertime it was -- or in the late spring or early fall it was based on the ambient data. For the changes that we have made this time, is we -- we kept the same effluent data, but we moved our stream from the sanitarian ship canal at Route 83 to the Calumet -- or the Cal-Sag Channel Route 83

station, but it was less impacted, and we instead of choosing 75th percentile, we chose 90th percentile.

Q. Okay.

MS. WILLIAMS: You know, can I just follow-up a little bit maybe?

MR. FORT: Sure.

MS. WILLIAMS: And so, Mr. Twait, can you tell us a little bit about what the downside was of using the Route 83 Chicago Sanitarian Ship Canal 75th percentile?

THE WITNESS: The Chicago Sanitarian Ship Canal, we used 75th percentile, and during the hearing, five and a half years ago I was asked the question if there was exceedances of our background, and I didn't expect exceedances and -- but I promised at that point that I would go back and take a look.

MS. WILLIAMS: Does this chart I have handed you reflect that?

THE WITNESS: Yes.

MS. WILLIAMS: Can you explain it?

THE WITNESS: So I went back and looked at the data and compared it to the period

average and I highlighted those instances where our background station was exceeding the period average we had chosen.

MS. WILLIAMS: At this point I would request that the chart titled Route 83 CSSC be entered as an exhibit.

HEARING OFFICER TIPSORD: If there is no objection, we will at admit this as Exhibit 484.

(No response.)

HEARING OFFICER TIPSORD: Seeing none, it's Exhibit 484.

(Whereupon, Exhibit No. 484 was admitted into evidence.)

MS. FRANZETTI: And I'm sorry. How should we refer to this exhibit?

MS. WILLIAMS: No. 484.

MS. FRANZETTI: What is it?

HEARING OFFICER TIPSORD: Explain what this document is.

THE WITNESS: It's the -- it is the -- it is a summarization of the continuous data from Route 83 in the Cal-Sag -- or, I mean, in the Chicago Sanitarian Ship Canal, and over on

the left-hand side, I put in the period averages, which are based on the 75th percentile effluent and 75th percentile stream data, and in the body of the group is I have the period average.

Like for 1998, the August average was 80.1 degrees, and so you can then compare that to the period -- or I'm sorry. That's not a good example.

In 1998, you can see December was 57.2 degrees and the period average that we had calculated of 59.9 and so there wouldn't have been an exceedance that month, but the highlighted ones are the ones that exceeded the period average that we came up with.

MS. FRANZETTI: Can I ask a few more questions?

HEARING OFFICER TIPSORD: Sure.

MS. FRANZETTI: Mr. Twait, you referred to this as continuous temperature data. Would you explain what that -- what you meant by that?

THE WITNESS: I believe -- it's been a while since I have done this. I believe there was multiple temperature readings for each day and

I took all of them in that period and did an average for that period. So if it was August, I looked at all of the August 1998 data.

MS. FRANZETTI: And then you divide by the number of days in the month?

THE WITNESS: I took an average, an average of the days.

MS. FRANZETTI: So if you had ten data points for August, you just added them up and divided by ten to get the average?

THE WITNESS: Yes.

MS. FRANZETTI: Okay. With respect to your asterisk there on the period average values, the period average is based on 75th percentile stream data and 75th percentile effluent data, and I know you have said that, but it doesn't quite make sense to me.

I mean, is it an average of those two data sets?

THE WITNESS: No. We took -- we took and looked at the effluent data and the stream data separately, and we took a 75th percentile value, and then for the period average that we chose, we chose the lesser of the

two.

MS. FRANZETTI: Got it.

HEARING OFFICER TIPSORD: Are you good?

MS. FRANZETTI: That's it.

MR. FORT: Okay. I will get back to --

HEARING OFFICER TIPSORD: I'm sorry. Mr. Dimond has a follow-up.

MR. DIMOND: Tom Dimond for Stepan.

So in the period average column, you have said it's the lower of the 75th percentile stream data or the 75th percentile effluent data. Which stream data? Is this the stream data from the Cal-Sag and 83 or from --

THE WITNESS: No. This -- what I had done is at the time, five and a half years ago, we were looking at our background station as Route 83, the Sanitarian Ship Canal, and over on the left-hand side is the period average we came up with looking at the Sanitarian Ship Canal data and the effluent data.

And during the questioning I was asked if there was violations of the data -- the

station that we had used, if there was violations of the data, because -- and the way we were looking at it is this is a background station. This is where we are coming up with our period average. We did not expect the 75th percentile to give us exceedances as much as it did. And so that's the reason we went to the 90th percentile.

MR. DIMOND: And the 90th percentile on the effluent data.

THE WITNESS: We kept with 75th percentile on the effluent data.

MR. DIMOND: And 90 percent on the stream data?

THE WITNESS: Yes.

MR. DIMOND: And so if you do an analysis similar to this using the 90th percentile of Route 83 and Cal-Sag and 75 percentile of the effluent data, do you come up with any exceedances in that analysis?

THE WITNESS: When -- when I looked at 90th percentile of Route 83 data when I changed it to the -- for the Chicago Sanitarian Ship Canal and used the 90th percentile, I did not see exceedances at the Sanitarian Ship Canal Route 83

station.

MR. ETTINGER: Excuse me. I am confused by something, too. You said you used the lower of the two numbers?

THE WITNESS: Yes.

MR. ETTINGER: On page nine here it says, generally the Agency used the effluent temperature from the MWRD, North Side, Calumet and Stickney plant facilities as the background temperature instead of using temperatures at the Cal-Sag Canal - Route 83 station during periods of the non-summer months when the effluent temperature was higher than the background temperature. Have I got something turned around here?

THE WITNESS: I got that turned around. We chose the higher of the two.

MR. ETTINGER: So when you worked out your average background temperature, you used the higher of the -- what you call the effluent temperature, which is the Stickney plant effluent or the ambient temperature, which is the Route 83 on the Cal-Sag.

THE WITNESS: Yes.

MR. ETTINGER: Thank you.

HEARING OFFICER TIPSORD: Mr. Fort?

BY MR. FORT:

Q. Okay. Going back to question 38, and I am going to go back to talk about setting background, if you will, for things other than temperature?

And this decision about using the 90th percentile from the Stickney plant or the 75th percentile from Stickney plant or 90th percentile in the stream, has the Agency considered using that same approach because this is an effluent dominated stream when you get to the Lower Ship Canal for a material like chlorides?

A. We have not, and the difference is with the background temperature we are creating where it should be versus with chlorides, we wouldn't want to set the background sample where it's a toxic condition where it would have toxicity.

Q. Toxicity to the wide range of tolerant and intolerant species or simply for the species that are indigenous or present in the ship

canal, whether it's the upper ship canal or the Lower Ship Canal?

A. I don't know if I could say what the difference would be in those.

Q. Okay. And the same question with respect to mercury, as using the -- using the presence of mercury in the Stickney plant effluent at whatever confidence interval to set a background condition for the ship canal below the Stickney plant.

A. No. I think we have to set the water quality standard that's protective.

Q. Protective of the species that are present in that body of water?

A. Protective of the people eating the fish.

Q. And aren't -- those fish uptake models all depend upon some frequency of consuming fish?

A. Yes.

Q. And that's -- for the human health piece that's an annual number and not a daily or one meal number, correct?

A. Correct.

Q. Do you know offhand what the frequency of fishing is in the ship canal during all 12 months of the year?

A. No.

MS. WILLIAMS: You were already asked that.

BY MR. FORT:

Q. Okay. Going on to 39, why is the standard for human health criterion proposed to be added to the aquatic toxicity rule 302.410 for discharges to non-recreation waters? So now I am talking about the Lower Ship Canal.

A. To protect fish consumption.

Q. And how is the proposed amendment to 302.410 necessary to protect the uses of the Lower Ship Canal?

A. To protect human health via fish consumption.

Q. And again we are back to the questions on frequency of fishing and how many fish meals are ingested from this particular segment of the CAWS, correct?

A. Yes.

Q. All right. I am going to skip over

41, 42 and 43. I think we have covered those. And we may have covered the next one, Mr. Twait, but maybe you can crystalize it.

No. 44, in light of the factors concerning the Lower Ship Canal being current wastewater, combined sewer overflows, resuspension of sediments, non-point source runoffs such as snow melt conditions -- so in light of those factors and the significant contributions from non-point sources to pollutants in the Lower Ship Canal, why is the Agency not proposing a change to the no mixing zone rule such as what is in the regulations now?

A. I don't quite know what changes you are proposing or you are talking about. The Agency can look at a proposal.

Q. Okay. So the Agency would be willing to look at a proposal?

A. I think the Agency would always be willing to look at a proposal.

Q. So I think that covers No. 45 then as well. In reviewing your pre-filed testimony, I see you outlined what was in the proposed water quality standards. I did not see any testimony

justifying these proposals based on technical feasibility or economic reasonableness. Is that correct?

Did you not try to provide information on technical feasibility or economic reasonableness for the proposed changes?

A. Yes. The water quality standards must be protective of the aquatic life use.

Q. Okay. Irrespective of technical feasibility or economic reasonableness?

A. I would say, yes.

Q. Okay. And 47, I think we have covered. I think 48 we have talked about. We have talked about the same for 49. I am going to ask 49.

Under what circumstances -- do you have, Mr. Twait, any views about any circumstances where it is technically feasible for a discharger to have a no mixing zone rule caused entirely by upstream sources?

A. The only thing that I would say is if the water quality standard is exceeded upstream, then it would be difficult to grant a mixing zone.

Q. Does the Agency have any information on technical feasibility or economic reasonableness for mercury control when upstream sources caused the Lower Ship Canal at the Lemont refinery intake to exceed the proposed standards? Or do your prior answers also address that?

A. I think my prior answer addressed that.

Q. Thank you. So we have talked about mercury control. The same consider for chloride control?

A. Yes.

Q. Why is the Agency proposing the Board adopt a new standard for ammonia nitrogen? And I apologize if you have already answered this, but maybe you can do it again.

A. Just to protect aquatic life.

Q. And this is, too, focusing on the early stage species?

A. For the Lower Ship Canal the Agency is not having extra means of protection for sensitive -- or early life stages.

Q. So for the Lower Ship Canal it's for early life stages?

A. There is no early life stage provision.

Q. Oh, for the Lower Ship Canal?

A. Yes.

Q. I'm sorry. Maybe I'm not tracking you. And so, therefore, that's why you are adopting -- or proposing the ammonia standard? Or I am missing it?

MS. WILLIAMS: Your question to him was if it was based on early life stages. That was your question to him and he said no.

MR. FORT: Okay.

MS. WILLIAMS: What question are you wanting answered, though? If you are -- are you looking at 52?

MR. FORT: Fifty-two, right.

MS. WILLIAMS: And he says, protect aquatic life.

BY MR. FORT:

Q. Well, is there something in the existing standard, existing unionized standard that is not protective?

MS. WILLIAMS: Okay.

BY THE WITNESS:

A. And the existing unionized standard is 40-plus years old, and so we don't think it's protective. It's been updated several times since then.

BY MR. FORT:

Q. But you are aware that the dischargers into the ship canal have invested millions of dollars to meet the existing ammonia nitrogen standard?

A. Yes. I am aware that they have spent millions of dollars, but it was not to comply with the water quality standard. It was to comply with the effluent standard.

Q. And the proposed ammonia water quality standards is necessary in your view to protect the early life stages that exist in the Lower Ship Canal?

A. We don't have any extra protection for early life stages for the lower sanitarian ship canal. For the aquatic life Use A waters, we have got a provision -- well, let me --

MS. WILLIAMS: Do you have a question?

MR. FORT: I thought he was going to

answer it.

MS. WILLIAMS: Well, I directed him that I didn't think a question was pending.

MR. FORT: Do you have the last question that I asked?

(Whereupon, the record was read as requested.)

MR. FORT: I would like to let him answer the rest of the question.

THE WITNESS: In Part 302.412, which is the ammonia nitrogen standard, Paragraph E tells when early life stage presence occurs, and it says, all other periods are subject to the early life stage absent period, except those waters listed in 302.235 are not subject to the early life stage present ammonia limits at any time.

MR. FORT: Thank you.

MR. ETTINGER: I'm sorry. And I just want to clarify this. And I am working off of memory, which is very dangerous.

It seems like we changed the ammonia standard about a decade ago.

MS. WILLIAMS: Yeah. I don't know.

I wasn't here.

MR. ETTINGER: I was already an old man, but the -- as I understand, we had an early life stage present standard that we adopted in '96 or something, and that's the standard that's applied to the A waters for the time in which early life -- early life stages may be present in the A waters; is that correct?

THE WITNESS: That is correct.

MR. ETTINGER: So we have got the same general use standard basically for the A waters that we have in the rest of the state.

THE WITNESS: I believe that's accurate.

MR. ETTINGER: Right. And in the B waters, we have got the early life stage and absent standard, which is applicable to the absent waters in the rest of the state except that in the rest of the state it's seasonal, but here we are saying early life stages are always absent in the B waters; is that correct?

A. That is -- it is correct that that's the way the standard is, but we are -- yes, that's correct.

MR. ETTINGER: Thank you.

MR. FORT: I will skip 55. So moving on to 56, and a series of questions here on applying Subpart F to Use B in Lower Ship Canal through the proposed amendment to 302.410(c) -- 410. With respect to the proposed amendment to the rule, Substances Toxic to Aquatic Life, and as that proposed standard might apply to the Lower Ship Canal, which is proposed to be a Use B water and had been designated as a non-recreation segment, what is the basis for deleting the existing test of one-half the 96-hour median tolerance limit for native fish or essential fish food organism for 402.410?

Why is this existing rule not adequate to protect the species in the aquatic habitat for Use B in the Lower Ship Canal?

A. As I testified four and a half years ago, we believe that we have a better method now than the 96-hour median tolerance limit.

Q. Okay. With respect to the proposed addition to 302.410(a)(1), what is the basis for applying the acute aquatic toxicity criterion as proposed are not the species to be considered in

developing that criterion intolerant species?

A. The procedure has flexibility to adjust the species that we look at on a site specific basis.

Q. So that in applying this criterion you would select the species that were in the receiving stream, not those that were in the national criterion?

A. There is no national criteria for most of these parameters, and so our toxicologist will pull out what data he can -- he can find, and if there is a fish that's not applicable or a macroinvertebrate that's not applicable to these waters, he can choose not to include it.

Q. Well, who can choose not to include it, the applicant or the Agency review engineer or toxicologist?

A. The toxicologist.

Q. Where does the proposal say that? I mean, put aside for the moment of who can do it, but I didn't see anything in the proposal that allowed the flexibility that you have just described, to choose tolerant species instead of intolerant species.

A. I don't know that I can point to a section.

MS. WILLIAMS: I think we explained earlier when Ms. Franzetti was asking questions that this process is very complicated and Scott will do the best he can to explain how it works. If there needs to be follow-up from Brian Cook, our toxicologist, we will, but, you know, the more specific you ask the questions, the easier that follow-up would be.

BY MR. FORT:

Q. Well, the basic set of questions -- and I have the same question really with respect to the varying types of criterion that are talked about; the chronic wild and domestic animal protection, put aside the human threshold criteria for now, but at least --

MS. WILLIAMS: I wasn't referring to your pre-filed questions. He has gone over all of those. I am just saying when you said, where does it say that, that was a little general, I think, for us to be able to respond to.

BY THE WITNESS:

A. I was talking to Brian, and he said he has got the flexibility to do it. I can't pull out the section that he mentions, and I will note also that part of the derived criteria has a mechanism that if it was put into a permit for the first time, that the applicant could appeal to the Pollution Control Board, and that's not a process that's been done before that I know of, but that is an avenue that's available.

BY MR. FORT:

Q. I realize that, and I am glad that they're -- you can't point to it either, because I couldn't find, what do you do here if you are going through this process? All the reference goes to this regulation that was just applicable to general use waters. It wasn't applicable to waters that had more limited aquatic habitat.

So how do you adjust those and where is the guidance to the Agency person, to the Board on an appeal, to the industry, that when you go to this criterion, you are going to be looking at the species that are present in that stream segment, whether it's intolerant or tolerant or intermediate or whatever you want to call it?

A. Well, what I can say is that the Agency has the ability to determine which species are available, because he does a literature search and a flag fish will come up. He will get cold water species, you know, you -- in the toxicity data you will get something that's only out in the western United States, and you will even get some overseas fish, and as a practical matter, we don't use those if they are not -- if we don't believe that they are resident or native species.

Q. Okay. Well, does -- so I have a whole series of questions here on the -- on the acute toxicity, chronic aquatic toxicity, wild and domestic animal protection, all of which I think come back to this same derivation process, and in the if interest of moving this along, I would ask of Ms. Williams if you or the Agency or Mr. Twait, whomever, can come up with some elaboration on where does -- the flexibility you are describing here in your testimony, where does that reside in the regulation, that it's allowed by the regulation. So I think that would dispel a lot of confusion.

Because if there is that

flexibility, then I think my question is about why using intolerant species for a Use B discharge or a discharge to Use B waters, and why are they necessary to the protect the species, so --

MS. WILLIAMS: That's fine.

THE WITNESS: We will find that.

BY MR. FORT:

Q. Okay. Thank you. So I am going to jump to G, which I think is just another way of asking the same question.

Doesn't Subpart F use only intolerant species, and you are telling me that you are not limited to using intolerant species and using Subpart F?

MS. WILLIAMS: Repeat for him which question you are reading from.

BY MR. FORT:

Q. It's Sub G.

A. All valid data from native genera are expected that are -- let me start over.

All valid data from native genera are expected to be used in driving water quality criteria. The data requirements do not specify tolerant or intolerant species to be used.

Q. So you would -- the Agency could be using intolerant species even for a discharger into Use B, which we have I think got in agreement, those are a tolerant species that are in Use B?

A. I would say that we have got the flexibility not to use it. If that would -- I don't know how else to say that, because if -- it has requirements of how much data is necessary, and as I have said before, sometimes if you don't use enough data, it gets more restrictive, and so I don't want to pin them down and say that we won't use any that's not tolerant, because that would list you to only tolerant species that he can find toxicity data from.

So if he can only find one species from -- that is tolerant, that would not be good for driving a water quality criteria.

Q. Well, I guess I am asking the other side. If there were enough data from tolerant species, then could you only look at the tolerant species and put aside the intolerant?

A. Yes. I will leave that -- I mean, yes, we could do that.

Q. Okay.

HEARING OFFICER TIPSORD: Okay. Ms. Franzetti, do you have a follow-up?

MS. FRANZETTI: I do. Mr. Twait, I think part of the concern about the application of Subpart F procedures for deriving criteria when there is no water quality standard that's been adopted by the Board is that this procedure was adopted solely in the context of general use waters. Would you agree with that?

THE WITNESS: It was adopted only for general use waters, yes.

MS. FRANZETTI: Right. And I think it was actually back in a rulemaking called R88-21 where it came to be. Is that consistent with your recollection?

THE WITNESS: I was not with the Agency at that point.

MS. FRANZETTI: Oh, all right. So I am a lot older than you. Moving on.

And so I think what is of concern to dischargers, is that given the genesis and the vetting of the Subpart F procedural rules, it was solely in the context of general use

waters, which, you know, any native fish can be in.

Did the Agency in deciding to now include it in this Subdocket D consider and vet the language of it with that in mind that now you are going to be applying it to Use B and Use A type waters that are different use designations from general use, and perhaps some specific amendments to the language might be in order, because now it is being applied to different use waters? Was that type of analysis done?

A. As it was written, it was never intended to be a statewide rulemaking. It was always intended that derived criteria would be site specific. So when they look at the water body, they are supposed to look at the native fish.

As to your question about whether we can look at adding additional language, I mean, that's something we can do if it would help clarify the thought process or whatnot.

MS. FRANZETTI: Okay. Thank you.

HEARING OFFICER TIPSORD: Okay.

Mr. Dimond?

MR. DIMOND: So if you describe Subpart F as being -- deriving site specific water quality standards, if you had one facility in Robinson, Illinois and another one in Galena, Illinois, could they derive different numeric standards for the same parameter based on differences in the aquatic life that they are protecting in those two locations?

THE WITNESS: Yes.

MR. DIMOND: Is there any -- does Illinois EPA apply any guidance or standard that limits its discretion as to how it determines what aquatic life are to be protected in those two different instances?

THE WITNESS: I don't know that we have got any guidance to limit ourselves.

MR. DIMOND: Is there any USEPA guidance that you would follow in applying Subpart F?

THE WITNESS: Yeah, I'm not sure.

HEARING OFFICER TIPSORD: Okay.

Mr. Fort?

BY MR. FORT:

Q. Okay. Thank you. I am almost done with this, but looking at the justification for adding these criteria to the aquatic toxicity rule, this is being done based upon making this rule look like the rest of the water quality standards in Illinois and not based upon an analysis of technical feasibility or economic reasonableness?

MS. WILLIAMS: Which one are you reading?

BY MR. FORT:

Q. H.

A. I would say you are mostly correct, except that we are not doing it just so that we can have one statewide method. We -- the Agency believes that this is a better method. So it's not -- we are not just trying to get to a statewide method. We are trying to get to the better method.

Q. But in doing this better method, you are not putting forward the technical feasibility of the method?

A. No.

Q. Or the economic reasonableness of it?

A. No.

Q. Okay. And I would assume that since it's a better method that Subpart F might be applied to any discharger including the Water Reclamation District?

A. Yes.

Q. Okay. Fifty-seven. Questions with respect to these proposed water quality standards and the context of the regulated navigation zone. Does the Agency wish to improve the aquatic habitat in the regulated navigation zone?

A. No.

Q. Is such a measure prudent in light of the electric fish barrier now being used to prohibit the migration of invasive species?

A. I wouldn't do it.

Q. Does the Agency oppose the use of invasive species barriers in the lower ship canal?

A. No.

Q. Has the Agency considered the impact of the proposed water quality standards on the

Lemont refinery -- just the Lemont refinery.

A. No.

Q. All right. With respect to the Lower Ship Canal and Use B waters, would the agency be willing to consider: A, leaving in place the existing water quality standards for mercury and the ammonia nitrogen for secondary contact waters or, say, the Lower Ship Canal?

A. I don't believe the Agency would consider that.

Q. Retaining the existing Rule 302.410 without the additions proposed?

A. No, I don't believe we would.

Q. Or C, establishing a new provision for mixing zone rules with respect to the Lower Ship Canal for chlorides and mercury as pollutants created by sediments and snow belt runoff conditions from upstream point and non-point sources?

A. You would have to clarify your question to be specific, because I can't answer something that we haven't seen.

Q. Okay. I think earlier you said you would be willing to consider it, but you needed a

specific proposal?

A. Yes.

MR. FORT: Thank you. Thank you.

HEARING OFFICER TIPSORD: All right. Let's go ahead then have -- okay. Mr. Read has got a question.

MR. READ: Matt Read on behalf of Ingredion. I just want to make sure I understand Exhibit 484. This is the temperature chart. If we stayed at the sanitarian ship canal here with these number for these different years and we inserted the new period averages wouldn't we see more highlighted areas on this chart?

THE WITNESS: It's possible, yes, because some of the months went down.

MR. READ: So you would see exceedances at this location, but you are just changing the background to --

THE WITNESS: Based on -- yes, we would see -- and this data, of course, is 1998 through 2007.

MS. WILLIAMS: We have another chart, if you want.

HEARING OFFICER TIPSORD: You just

want to be the one to get us to 500.

MS. WILLIAMS: No way. Scott, can you explain what this document is that I just handed you.

THE WITNESS: Yes. This is, I believe, eight stations that had monitoring data from 1998 through 2007, and what I did was break it down to every period for the years listed, and then over on the left-hand side I put in the proposed period average.

MS. WILLIAMS: So if someone wanted to compare the data that's available for those years to the new proposal, they could do that themselves with these numbers?

THE WITNESS: Yes.

MS. WILLIAMS: At this time, I would like to move to enter this chart with the heading Romeoville Road, CSSC into evidence.

HEARING OFFICER TIPSORD: If there is no objection, we will Romeoville Road, CSSC, which is a multipage document as Exhibit 485.

(Whereupon, Exhibit No. 485 was admitted into evidence.)

HEARING OFFICER TIPSORD: Seeing

none, it's Exhibit 485.

MS. FRANZETTI: Could I ask just a few follow-up questions on Exhibit 485 so that as we look through it we have a better understanding of what we are looking at.

So, Mr. Twait, each page of Exhibit 485 represents thermal data from a different monitoring station in the ship canal?

THE WITNESS: It's throughout the whole -- the system.

MS. FRANZETTI: Okay. So let's just -- can we go through and identify what each one is?

THE WITNESS: Sure.

MS. FRANZETTI: So the first page, would you identify what that -- where that station is?

THE WITNESS: It's the Chicago Sanitarian Ship Canal at Romeoville Road.

MS. FRANZETTI: And then turning to the second page.

THE WITNESS: It's Chicago Sanitarian Ship Canal River Mile 302.6.

MS. FRANZETTI: Could I ask you a

quick question on that? Are we moving steadily downstream or upstream or no, are they not -- is it not in that type of geographical order?

THE WITNESS: It's generally in that direction, I believe, but it gets complicated with putting the Cal-Sag Channel in there.

MS. FRANZETTI: Okay. But Romeoville Road is upstream of River Mile 302.6?

THE WITNESS: I believe that's the case.

MS. FRANZETTI: Okay. Let's go to the third page, and I think that's where we get off of the ship canal, correct?

THE WITNESS: Yes. It's the Cal-Sag Channel at Route 83.

MS. FRANZETTI: And that is the background station that is now being used for deriving some of the thermal water quality standards proposed by the Agency for Use A and Use B?

THE WITNESS: Yes.

MS. FRANZETTI: The next page, B&O Central Railroad?

THE WITNESS: That's on the Chicago

Sanitarian Ship Canal.

MS. FRANZETTI: And are we further downstream than the River Mile 302.6 for that station?

THE WITNESS: I don't know the answer to that. I know for sure they are not in order. I'm sorry about that.

MS. FRANZETTI: I just -- what I was trying to check, too, was that these are commonly used titles for known monitoring stations; is that correct?

THE WITNESS: Yes, I believe so.

MS. FRANZETTI: Okay. So we should be able to figure out where these stations are from these titles?

THE WITNESS: I think you can. If you can't, please give me a call.

Let's walk through the rest of them, because there is one more.

MS. FRANZETTI: Yeah, go ahead.

THE WITNESS: It's the Chicago Sanitarian Ship Canal at Lockport, and the next one is Jefferson Street. That's in Brandon Pool. So that's on the Des Plaines River and Chicago

Sanitarian Ship Canal, Route 83, and the Chicago Sanitarian Ship Canal at Cicero.

MS. FRANZETTI: Okay. Mr. Twait, would you go back to that Route 83 Chicago Sanitarian Ship Canal. That's the same station that Exhibit 484 also deals with, correct?

THE WITNESS: It is the same station, yes.

MS. FRANZETTI: But it's not the same data, because Exhibit 485 is using either the 90th percentile stream data or the 75th percentile effluent data and Exhibit 484 was using the 75th percentile of both?

THE WITNESS: Correct.

MS. FRANZETTI: Bear with me for just a moment.

MR. READ: But the data points in the chart --

HEARING OFFICER TIPSORD: Excuse me. You have to identify yourself or she can't take it down.

THE WITNESS: I want to clarify one thing. The data in the chart is the same. It's only the proposed period average that changed

between those two charts. So the data stayed the same.

MS. FRANZETTI: Thank you. That's what I meant.

HEARING OFFICER TIPSORD: Go ahead, Mr. Read.

MR. READ: That say my question.

MS. FRANZETTI: And Mr. Twait, why did you think putting this particular thermal data into this exhibit would be helpful to us? What are we supposed to glean from this once we have had a chance to study it?

THE WITNESS: Yeah. I don't know that I could get anything specific out of it. I mean, if -- because things have changed since 2007, but this is the data. I have put it all together. When -- when you asked about the -- the -- whether we compared it to the ambient data that we got, and so I just thought it would be useful for somebody that's close to one of these stations possibly, but as I mentioned, things have changed since 2007.

MS. FRANZETTI: Okay. So this was what you did originally back before the rules were

even filed to --

THE WITNESS: No.

MS. FRANZETTI: Go ahead.

THE WITNESS: I did this in response to your questions at that first set of hearings, whether we had looked at the actual period averages for these stations.

MS. FRANZETTI: Okay. So to determine whether or not the period averages that the Agency originally proposed would be complied with?

THE WITNESS: Yes.

MS. FRANZETTI: On a consistent basis?

THE WITNESS: Yes.

MS. FRANZETTI: Okay. I think I will stop there.

HEARING OFFICER TIPSORD: All right. Then we are ready to go with the -- wait. Sorry, Mr. Read you had another question.

MR. READ: Matt Read from Ingredion.

Does this temperature, is that the same data that's summarized in the temperature criteria options report?

MS. WILLIAMS: Can you reference the exhibit or attachment number?

HEARING OFFICER TIPSORD: It's Exhibit 15.

THE WITNESS: Which was an attachment to Mr. Yoder's testimony that we gave a specific number to because we referred to it so often.

HEARING OFFICER TIPSORD: Okay.

THE WITNESS: The data in -- the data that Chris relied on was 1998 to 2004, and so this has the same starting point, but the data was through 2007 for some of them, yes. Some of the data -- at least one of the sampling stations -- actually, a couple of the sampling stations quit monitoring after 2004.

MR. READ: Thank you.

HEARING OFFICER TIPSORD: Let's go ahead then and have the Agency come up. While we are doing that, I want to -- I'm sorry. The District. I was thinking the Agency because, are you able to tell us availability for our hearing, for another hearing?

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

HEARING OFFICER TIPSORD: Fredric Andes.

CROSS-EXAMINATION

BY MR. ANDES:

Q. Thank you. Good afternoon, Mr. Twait. I have a few questions for you from the Metropolitan Water Reclamation District of Greater Chicago, and we will start with the number one.

Proposed sections 302.408(b) and (c), include periods that range from 15 to 31 days. Was the length of each period considered in calculating the corresponding period average temperature value? If so, how?

A. The Agency used the data during the period to determine the period average. So if the period was 15 days, the Agency used that 15-day period for the 75th percentile or the 90th percentile for calculating the period average, and we used that over a several-year period.

Q. Thank you. What was the basis for

the Agency's agreement with USEPA to use the Cal-Sag Channel Route 83 as representative of the background temperature of the system?

A. They believed, and we agreed with them, that it was a less impacted site from thermal sources.

Q. Less impacted than the sanitarian ship canal, Route 83 station?

A. Yes.

Q. Now, you indicated in your testimony that the Agency did not expect that the period average would be violated at the Chicago sanitarian ship canal, and that the Agency has proposed using the 90th percentile of the temperature from the background station as a period average.

Does the choice of the 90th percentile indicate that the Agency anticipates that the period average temperature value will be exceeded approximately 10 percent of the time based on historical data? And if so, how does the Agency consider those period average temperature values to be attainable in the system?

A. The Agency does not think that it

will be exceeded 10 percent of the time on an average basis.

Q. Do you have a sense of how often it will be exceeded?

A. No.

Q. Let me turn your attention to -- in the exhibit that was just introduced of data from various stations, the B&O Central Railroad page.

Let me highlight for you some particular data points, and just ask you to confirm whether these would be in excess of the proposed period average water quality standard. The 2000 -- year 2000 data point for March, 58.6 would be over the standard of 54.4, correct?

A. Yes.

Q. 2004 data point for March of 55.4 would also be over the standard?

A. That would be equal to the standard.

Q. I'm sorry it's 55.4, and the standard is 54.4?

A. You are right. It would be over.

Q. The number for 2006 of 54.9?

A. Yes.

Q. Over the standard?

A. And I want to point out that this data between 1998 and 2007 has -- things have changed since then; such as, the closing down of Fisk and Crawford, and offhand, I don't know exactly where the B&O Central Railroad is.

MS. FRANZETTI: If I can, Fred, but Mr. Twait, Frisk and Crawford were also operating during the years in March where the numbers are lower. So how does that -- how is it explained that it makes a difference here whether Fisk and Crawford are operating or not?

THE WITNESS: Like I said, I don't know exactly where the B&O Central Railroad is.

MR. ANDES: If I can get a clarification, we can swear in a witness who might be able to tell you where that particular monitoring station is.

MS. WASIK: My name is Jennifer Wasik. I am a biologist with the Water Reclamation District.

THE COURT REPORTER: How do you spell your last name?

MS. WASIK: W-A-S-I-K.

(Whereupon, the witness was duly sworn.)

MS. WASIK: B&O Railroad is one of our continuous water quality monitoring stations that's downstream of Harlem Avenue. So it's downstream of our Stickney plant. I'm not exactly sure the distance, but it's close in proximity to downstream of our Stickney plant.

MR. ANDES: Do we know where that is in relation to the Fisk and Crawford plants? I am assuming that would be the question that Ms. Franzetti would be asking.

MS. FRANZETTI: Oh, I know where they are in regards to your Stickney plant. I know the answer.

HEARING OFFICER TIPSORD: Could we share that answer, Ms. Wasik?

MS. WASIK: I believe the B&O Railroad site is downstream of the Fisk and Crawford plants.

BY MR. ANDES:

Q. Mr. Twait, based on the data here -- and we could go through a number of other data points on this page and probably other pages where

there are data points that are above the period average standards, and this is the data set you all relied on in terms of developing the standards, correct?

A. What we relied on in developing the standard is the data from the Cal-Sag Channel, Route 83 station.

Q. But one of the determinants of the standard, as you laid out earlier, was you wanted to make sure that the standard did not cause the background areas to be in noncompliance?

A. What I didn't want to be in noncompliance was the background station that we chose and the number that we chose. We were trying to come up with a number that would be -- that would make that particular station the background station, and make it compliant with the water quality standards.

Q. So as to these stations, did you assess the extent of compliance with the proposed period average standards for the other stations?

A. In using this data, it would only tell you that if we had these particular standards, they would have been in violation.

Q. The -- if future temperature data are consistent with the historical data used to establish the proposed period average temperature values, how will the Agencies address exceedances that will be expected to occur at least 10 percent of the time even at the less impacted Route 83 station?

A. The Agency does not believe it's going to be exceeded 10 percent of the time.

Q. But the Agency based the standards on the 90th percentile. Doesn't that assume that there are some data points that do not meet the standard?

A. We based the standard -- we took 90 percentile of all of the individual numbers to come up with an average number that shouldn't be exceeded. If you had 100 numbers -- and I know this is never going to happen, but they went sequentially from 1 to 100, the 90th percentile on that individual data would be 90, and 10 percent would exceed it.

But if you take that 90 and make that your average value in the receiving stream as your water quality standard, your average of all

of the other data is 50. Do you --

Q. Your average of all of the other --

A. Average of the numbers one through 100, your average is 50. So that you would compare the average of your data to the 90th percentile.

Q. So you believe that the average values in the system will not exceed that 90th percentile?

A. We believe that the -- for the background station, we believe that the average value will not exceed the 90th percentile 10 percent of the time. It might exceed it, but not 10 percent of the time.

Q. But you don't know what the percentage would be?

A. No.

Q. And if those exceedances happen, which are then planned into the regulations, would the Agency impose additional and more stringent temperature limits and permits in order to address those exceedances?

A. The Agency would have to look at that.

Q. So the Agency could impose more stringent limits based on exceedances that were part of the design of the standards?

A. I don't think the -- we are designing for exceedances of the period average.

Q. But the Agency can't guarantee that even at the background station there will be no exceedances, correct?

A. I can't guarantee it.

Q. Will the Agency develop a total maximum daily load to address those exceedances that occur some percent of the time?

A. Is it possible to? Is that the question?

Q. Does the Agency think that it would be required to develop a total maximum daily load to address those exceedances?

A. Yeah. There is -- to get on the -- first, it would have to get on the list as being impaired, and then the Agency would take a look at the data and determine if it should be on the list, but there is things in between here and there that would have to be considered; such as, whether or not the thermal discharger is directly

upstream.

Q. But in determining whether there is an impairment, and if, say, temperatures were exceeding the period average temperature values five percent of the time, would the Agency believe that it has an obligation to identify that water is impaired?

A. Just off the top of my head, I don't know what the methodology is for listing a thermal impairment.

Q. Okay. Let's move to the next question.

How does the Agency expect the existing dischargers to produce current effluent temperatures sufficient to achieve the proposed period average temperature values 100 percent of the time? And that's at all stations.

A. We will note that mixing zones are available, but I don't know how we can guarantee that there will be 100 percent compliance.

Q. And are mixing zones available if the waters have been determined to be impaired, because they are not meeting the period average values 100 percent of the time?

MS. WILLIAMS: What do you mean by 100 percent of the time in this context of period average?

MR. ANDES: Well, say that the -- five percent of the time, five percent of the months.

MS. WILLIAMS: Five percent of the months; is that what you are saying?

BY MR. ANDES:

Q. That the water is exceeding the standard, and the Agency, say, lists that water as impaired, would mixing zones be available?

A. I think that would be on a site by site analysis, and we would have to look at upstream to see why it's not being met upstream.

Q. And is there a place where that policy is set forth in writing in terms of how that site specific analysis would be done?

A. No.

Q. Next question. You indicated that to the Agency's knowledge the system has not had trouble with fish kills due to cold shock. If that's the case, what is the basis for the Agency's proposal of a new narrative standard for

cold shock?

A. It was based on comments from USEPA. They thought a cold shock provision was necessary.

Q. And what's your understanding of why it's necessary?

A. They just believe that a cold shock provision such as Wisconsin had would make our water quality standards acceptable.

Q. But Illinois EPA itself in developing the proposal did not believe that that type of narrative was necessary, correct?

A. We don't have knowledge of cold shock happening in this system with fish kills.

Q. So the answer is no?

A. Yes. The answer is no.

Q. You indicated that the Agency intends to interpret the standard in a similar manner as explained by Wisconsin in development of its code shock standard. What is your understanding of how Wisconsin interprets its cold shock standard?

MS. WILLIAMS: We are going to use an exhibit for this, if that's helpful.

MR. ANDES: I had a feeling.

MS. WILLIAMS: Scott, can you -- I handed you a document entitled, "Information on Wisconsin Cold Shock Standard Provided By USEPA 7/17/12." Can you describe what this document contains?

THE WITNESS: This is Wisconsin's narrative provisions to prevent cold shock and their rationale.

MS. WILLIAMS: And is this what you relied on in describing how Wisconsin interprets their standard?

THE WITNESS: Yes.

MS. WILLIAMS: Why don't you kind of read for us the paragraph under Subpart B that says "cold shock standard," at least the beginning of that.

THE WITNESS: This is a narrative standard intended to prevent cold shock impacts to fish and other aquatic life communities. Cold shock is the exposure of organisms to a rapid decrease in temperature in a sustained exposure to low temperature that induces abnormal physical or -- behavioral or physical performance and often leads to death. Heated discharge to a confined,

narrow and small areas during cold months present the greatest risk.

An example is a heated discharge to a long, narrow channel during winter. Another example would be a heated discharge to an enclosed harbor during January.

BY MR. ANDES:

Q. And this is --

A. Let me read the rest of that for you.

Operational changes to heated discharges in high risk environments should be -- should estimate the potential for cold shock. Examples of such operational change include power plant shutdowns for maintenance and decreases in heated effluent from manufacturing facilities during lull periods.

Emergency shutdowns are not held to this standard. However, all efforts shall be made through general operational planning to avoid an emergency action that would cause cold shock.

MS. WILLIAMS: Thank you. I would like to ask now that this exhibit be entered into the record.

HEARING OFFICER TIPSORD: If there is no objection, we will admit Information on Wisconsin Cold Shock Standard Provided by USEPA 7/17/2012 as Exhibit 486.

(Whereupon, Exhibit No. 486 was admitted into evidence.)

HEARING OFFICER TIPSORD: Seeing none, it's Exhibit 486.

BY MR. ANDES:

Q. So, Mr. Twait, this information was provided to you by USEPA staff?

A. Yes.

Q. And have you had any contacts with the Wisconsin Department of Natural Resources on this issue?

A. No.

Q. So do you have any idea of how this language has been implemented in Wisconsin?

A. No, not other than it doesn't apply to emergency shutdowns.

Q. Okay. Has the Agency, Illinois EPA, given any thought to how this standard would specifically be implemented in any particular situation?

A. In what respect?

Q. What kind of new requirements could be imposed on dischargers pursuant to this new standard?

A. We would anticipate using similar language to what we have proposed as the water quality standard as a special condition, and basically it tells them that it -- they need to operate their plant to prevent cold shock.

Q. And could they be found in violation of their permit if the Agency later determines that there was a cold shock impact?

A. If they kill fish, and from their operation, I would say yes.

Q. Does the standard indicate that killing fish is necessary in order to be held in violation of the standard?

A. It says, to protect fish and aquatic life uses from deleterious effects of cold shock.

Q. So how do you define deleterious effects?

A. Behavioral or physiological performance which often leads to death.

Q. So the standard could be violated

even if death is not the result, correct, just based on a behavioral change?

A. I suppose technically.

Q. Or legally?

A. Or legally.

Q. So how does the Agency intend to let dischargers know the standard by which to control their conduct in not violating the standard?

A. I don't know that the Agency could tell them a -- an amount that would be safe, because if we had that information, then we would just provide that into the standard. If we knew that changing it by two degrees would be sufficient, sufficient protection, then we could do that. I will note that if you operate your facility and it ends up killing fish, that's going to be problematic whether the Agency says it's -- whether it's determined it's from cold shock or something else that you did.

Q. So wouldn't that already violate a permit condition if your discharge led to killing a fish?

A. I would think so.

Q. So this provision then isn't

necessary to deal with killing fish?

A. It might violate the act, but it might not violate the permit condition.

Q. So if you are killing fish but not due to cold shock, you are not necessarily violating your permit?

A. It depends on the -- what your permit says.

Q. Has the Agency assessed the extent to which fish kill incidents caused by discharges would violate permit terms?

A. Yeah. I don't know the -- that the Agency looked at that.

HEARING OFFICER TIPSORD: Mr. Dimond has a follow-up.

MR. DIMOND: Mr. Twait, Exhibit 486 has a date on it of July 17th, 2012. Is that approximately when USEPA provided this document to IEPA?

THE WITNESS: I believe so.

MR. DIMOND: Is that -- using that as the date, was that the first time that USEPA brought up the idea of this cold shock provision to IEPA?

THE WITNESS: Yeah. I believe it was in the letter that USEPA provided to the Pollution Control Board. You cited the letter. Was it 286 or maybe -- public comment number 286?

MR. DIMOND: Yeah. Just remind us. What was the date of that, if you have it?

HEARING OFFICER TIPSORD: It was filed with the Board on March 26th, 2010, and the date of the EPA letter was January 29th, 2010.

MR. DIMOND: Did EPA explain why they had not raised this issue earlier?

THE WITNESS: I think this was the first time that they put everything in writing.

MR. DIMOND: How long, to your knowledge, has Wisconsin had this cold shock provision that was the basis for USEPA's request to Illinois?

THE WITNESS: I don't know.

HEARING OFFICER TIPSORD: And just to clarify, cold shock -- and I admit I went back to five and a half years ago and read some of the transcripts, Mr. Twait. And my recall is -- and I actually have the pages here. We had some discussion on March 11th, 2008 starting at page

236 of the transcript about cold shock, and there is no cold shock provision in the general use water quality standards; is that correct?

THE WITNESS: That is correct.

HEARING OFFICER TIPSORD: So you would be -- so the cold shock would only apply to the CAWS and the Lower Des Plaines River under this proposal, correct?

THE WITNESS: Yes, that's correct. However, I will -- I think we found the effective date is October 1st, 2010.

HEARING OFFICER TIPSORD: Of the Wisconsin --

THE WITNESS: Of the Wisconsin cold shock standards.

BY MR. ANDES:

Q. But you are not aware, correct, of how that has been implemented in Wisconsin?

A. No. When I talked about how it's implemented in Wisconsin, I was specifically referring to emergency shutdowns are not applicable or are not held to the standard.

HEARING OFFICER TIPSORD: Mr. Ettinger, did you have a question?

MR. ETTINGER: I just -- are you -- have any awareness of the order of magnitude of the temperature drop that has to occur for there to be cold shock?

THE WITNESS: No, I can't state it to you.

MR. ETTINGER: Would it surprise you that it has to be considerably greater than five degrees Fahrenheit?

MR. ANDES: Is that testimony on facts?

HEARING OFFICER TIPSORD: Yeah, it's a question. Yeah, it's a question, put in the form of a question.

THE WITNESS: It would not surprise me.

MR. ETTINGER: Would a five-degree delta T standard that applies to all the general use waters in Illinois be sufficient to protect against cold shock, to your knowledge?

THE WITNESS: I don't know. Possibly.

MR. ETTINGER: Have you ever read a study by Brungs and Jones?

THE WITNESS: I have heard the name, but I have not read the study.

HEARING OFFICER TIPSORD: Could you provide that study for us, Mr. Ettinger?

THE WITNESS: I think it's already in the record.

MR. ETTINGER: I'm pretty sure it's in the record.

MS. FRANZETTI: Okay. Just so you have a sense, it's not tiny. This is, I think, what Albert is talking about.

MR. ETTINGER: Actually, there is a -- Brungs and Jones the study I know is cited in a document that I introduced that was written by Commonwealth Edison or Midwest Generation and there was a discussion of cold shock in that. Also, there was considerable discussion of this by Dr. Thomas when he testified cleaning up dead fish outside of a power plant, but maybe we should go on. I think the practical matter of this topic has received much more attention than it deserves.

MR. ANDES: As long as that's in the record.

THE WITNESS: And I would also like

to note that the Agency doesn't believe that we have had issues with cold shock in this system, and we didn't see a downside to including it.

BY MR. ANDES:

Q. Mr. Twait, in the document that we received -- that you received from USEPA, it indicates that best professional judgment should be used to address rate of temperature change issues. Can you give us any guidance as to the Agency's understanding of what best professional judgment means in this context?

A. No, I can't.

Q. But this language would under the proposal be inserted into permits and discharges would be subject to liability if they violated the standard, correct?

MS. WILLIAMS: Which language are you talking about, Fred?

MR. ANDES: The narrative standard on cold shock.

MS. WILLIAMS: I just wanted to maybe clarify for the record there is two sections here on this page, 102.28, cold shock standard and 102.29, rate of temperature change. We haven't

proposed both of them for inclusion. So to the extent you are asking him questions about the second piece, it's not part of our proposal.

MR. ANDES: The part that is in the Agency's proposal is the first part, correct?

MS. WILLIAMS: Correct.

BY MR. ANDES:

Q. Thank you.

Does the Agency expect that the proposed new narrative standard for cold shock would result in a new condition being imposed in dischargers' permits; would that be adding the narrative standard into the permits or something else?

MS. WILLIAMS: He already answered that.

BY THE WITNESS:

A. Yes. I believe we had that as a special condition, if necessary.

BY MR. ANDES:

Q. Does the Agency expect that the new narrative standard would result in waters being designated as impaired?

A. I'm not sure how fish kills get

listed on the 303(d) list and what causes that to happen.

MS. WILLIAMS: We are just trying to put our heads together. Maybe Howard can explain what he does know about this.

MR. ESSIG: We have had fish kills identified on the 303(d) list as being a cause of -- a cause and it was basically from an ethanol spill or some other substance spill. I am not aware of anything with a -- either cold shock or any other thermal issue with that.

BY MR. ANDES:

Q. But since you haven't had a narrative standard for cold shock before, now that you would have one and if you determined that it was violated, would that not lead to an impairment listing?

A. Yes.

MR. ANDES: Thank you. I have a table I would like to provide Mr. Twait to read and ask him some questions.

MS. FRANZETTI: Fred, would you mind while you are giving that to him if I asked questions?

MR. ANDES: Go ahead.

MS. FRANZETTI: Mr. Twait, you pretty clearly said, that this new cold shock proposed provision is because USEPA said one was necessary to make whatever came out of this rulemaking acceptable to USEPA with regards to thermal standards; is that a fair summary?

THE WITNESS: Yes.

MS. FRANZETTI: And that the Agency did not think such a provision was necessary given you have got no evidence of cold shock, particularly in the waters that are the subject of this proceeding, correct?

THE WITNESS: I would say that's a fair statement.

MS. FRANZETTI: Okay. So here is my concern. You just said a few minutes ago that this new cold shock provision will only lead to special conditions in a permit, if necessary.

So if the Agency doesn't even think the provision is necessary, when would it ever be necessary to put a cold shock special condition in any of the dischargers to these waters permits?

THE WITNESS: Yeah, I don't know when we would put it in there and when we wouldn't.

MS. FRANZETTI: Okay. But would you agree that it -- it may be a concern of dischargers that since the USEPA may review their NPDES permits when they come up for renewal and are proposed to be issued by the Agency, that what we may be faced with is once again USEPA deciding such a special condition is necessary, and ought to be included in a particular permit, correct?

THE WITNESS: I could see that happening, yes.

MS. FRANZETTI: Because of their original view that even though we have never had a cold shock incident on this waterway that anybody can remember, it's still necessary to have a provision to protect against it?

THE WITNESS: I can see where that's problematic.

MS. FRANZETTI: Thank you.

MR. ANDES: Mr. Twait -- do we want to have this introduced?

HEARING OFFICER TIPSORD: Yeah, if

there is no objection we will -- the Metropolitan Water Reclamation District of Greater Chicago Waterway Compliance With Proposed IEPA Temperature Standards Using 2007 through 2012 Hourly Temperature Monitoring Data as Exhibit 487.

(Whereupon, Exhibit No. 487 was marked for identification.)

HEARING OFFICER TIPSORD: Seeing none, it's Exhibit 487.

MR. ANDES: Mr. Twait, as indicated, the table is based on MWRD data and shows for the years 2007 to 2012 the percent compliance with proposed standards at various monitoring stations.

MS. WILLIAMS: Can I ask you to clarify this exhibit real quick?

MR. ANDES: Sure.

MS. WILLIAMS: What are you talking about when you say a daily limit? What is a daily? I don't think we have a daily limit -- or as opposed to the max. I would call them both the same thing, I guess.

MS. WASIK: I think that's actually supposed to read period limit.

MR. ANDES: Daily limit should be

period average.

MS. WILLIAMS: Okay. And so are we clear, this wasn't done on a daily average basis, though, right? You would have done it based on looking at the monthly or period average?

MS. WASIK: I believe so, yeah. This was done by our biostatistician and as for a periodic average, I think that that was just a misprint, but I will make sure.

MS. WILLIAMS: Thank you.

BY MR. ANDES:

Q. So my question really deals with the difference between the first two stations, one upstream of the North Side plant, and one downstream of the North Side plant and then the same comparison for the Calumet and Stickney plants. If we can start with the two stations near North Side, Main Street upstream and Foster Avenue downstream, when you look at those data, particularly in terms of percent compliance, is it accurate to say that the percent compliance for those two stations is pretty comparable?

A. Yeah, I think so.

Q. When you look at the CNW, Indiana

Railroad and Halsted Street stations, which are upstream and then downstream of the Calumet plant, is it fair to say that those values also are pretty comparable upstream versus downstream?

A. I would say they are comparable.

Q. And then finally, as to Cicero, which is upstream of Stickney, of the Stickney plant, and then the B&O Central Railroad, which is downstream of the Stickney plant, is it fair to say that the percent compliance is actually significantly higher downstream of the Stickney plant than upstream?

A. Yes.

MR. ANDES: Thank you. That's all the questions I have.

HEARING OFFICER TIPSORD: Mr. Dimond, did you have a follow-up?

MR. DIMOND: Mr. Twait, earlier today didn't you testify that sometimes we have flow reversal in the Sanitarian Ship Canal and other segments of these waterways?

THE WITNESS: Yes, I believe there are periodic flow reversals.

MR. DIMOND: Couldn't that impact

your assessment of what these data mean?

THE WITNESS: In what respect?

MR. DIMOND: How do you know that the -- how do you know that the percent compliance reflected in 487 at Cicero Avenue isn't impacted by the discharge from the Metropolitan Water Reclamation District Stickney plant?

THE WITNESS: I don't know whether it is or not. There is -- if I could ask you to clarify, because with the period average, there are only -- there is only 17 different periods in 2007. So if you had one period that exceeded the average, you would have about a 95 percent compliance. So I am not quite sure how you are getting 99.8 percent compliance with a period average.

MR. DIMOND: And just to be clear --

MS. WILLIAMS: It doesn't seem like this was done -- done as you explained that it was done.

MR. DIMOND: Just to be clear, Mr. Twait, you are not asking for me to explain this, right?

THE WITNESS: No. I am asking Fred

so that I can understand this better.

MR. ANDES: You can ask Ms. Wasik.

MS. WILLIAMS: No, I don't think we can. She didn't do it either.

HEARING OFFICER TIPSORD: She asked that it be done.

MS. WILLIAMS: I know.

HEARING OFFICER TIPSORD: And has been testifying as to what it means. So if you have a question about the chart, she is the person to ask.

MS. WASIK: Yeah, in just taking a look, I understand what you mean. I wonder if maybe this was done incorrectly. I will have to check with the person we had do this, but now that I am looking at it, I understand what you mean.

MS. WILLIAMS: Can you explain how -- you know, what we think might have been maybe misunderstood about the standard in developing this chart or what could possibly have been done incorrectly?

THE WITNESS: I think maybe if they looked at what was their daily maximum temperature for each period would be a possibility, rather

than looking at the period average, but I don't know.

MS. WILLIAMS: And so is it correct -- just to help the Board understand, the period average could only be violated how often in one period?

THE WITNESS: Yeah. There is -- for each period, which is between 15 and 31 days -- we have 17 periods through the year. So all of January you have an average that you must meet of 54.3 degrees. So if you violated that average, then you would be complying about 95 percent of the time.

MR. ETTINGER: Now, can I just clarify that? When you say you violated, it's actually the water quality that violates. We are not actually talking about any particular discharger violating at this point? We are talking about --

THE WITNESS: The receiving stream would have been violating.

MR. ETTINGER: Right. And we are not going to arrest the Des Plaines River for going over its temperature limit. So we don't

know what the regulatory consequences are of this violation?

THE WITNESS: Correct.

BY MR. ANDES:

Q. I can certainly review the table and resubmit it with revised corrected numbers, but I want to direct you back, Mr. Twait, to the main question I had, particularly with regards to Cicero and B&O Central upstream and downstream of Stickney, even just looking at the maximum limit, the percent of compliance is higher downstream of Stickney than it is upstream, correct?

A. Yes.

MR. ANDES: Thank you. That's all I have.

HEARING OFFICER TIPSORD: Ms. Rios, did you have a follow-up?

MS. RIOS: I have a few follow-up questions regarding the cold shock discussion. You stated that the IEPA is not aware of cold shock issues in the system. Do you know whether in Wisconsin the cold shock standards' focus are directed towards a specific industry, such as BTUs, or anything like that?

THE WITNESS: No. I don't know the answer to that.

MS. RIOS: And has Illinois EPA informed USEPA that there have been no recorded fish kills linked to cold shock in the segment?

THE WITNESS: Yes. We provided that.

HEARING OFFICER TIPSORD: Midwest generation is up next. Let's take a break.

(Whereupon, a short break was taken.)

HEARING OFFICER TIPSORD: Let's begin then with Midwest Generation's questions.

CROSS-EXAMINATION

BY MS. FRANZETTI:

Q. Thank you, Ms. Tipsord. For the record, my name is Susan Franzetti. I am counsel for Midwest Generation, and I am with the law firm of Nijman Franzetti, LLP, and sitting to my immediate right is one of Midwest Generation's experts, Mr. Greg Seegert, who has previously testified in this proceeding.

Mr. Twait, do you have a copy of my pre-filed questions in front of you?

A. Yes, I do.

Q. All right. Let's start at the top.

MS. WILLIAMS: Excuse me. Before you start at the top, did you plan to replace your pre-filed questions in the record where you had some mistakes, or were you just going to read them? Do you remember how there were some questions that were cut off?

MS. FRANZETTI: I believe my administrative assistant already provided the Board with a corrected copy and sent it out to all counsel. It was just in a couple of spots. So I am going to read the questions anyway.

MS. WILLIAMS: We just got an e-mail from you, right?

MS. FRANZETTI: Right. Well, you definitely got an e-mail from me subsequent to that. The corrected version was substituted.

MS. WILLIAMS: Okay. I didn't see a corrected version.

MS. FRANZETTI: Subsequent to that a corrected version was substituted.

HEARING OFFICER TIPSORD: Go ahead.

BY MS. FRANZETTI:

Q. All right. Starting with question one on thermal background temperatures, on page eight of your pre-filed testimony you state that quote, USEPA commented that they believed that the background station that the Agency picked, Chicago Sanitary and Ship Canal, Route 83 was not representative of the background temperature of the system. In discussions with USEPA, the Agency agreed to use the less impacted station, Cal-Sag Channel, Route 83.

My question went on to ask you, based on the discussions with the USEPA referenced in this portion of your testimony, please explain the reasons it was concluded that the Cal-Sag Channel Route 83 was a less impacted station than the Chicago Sanitary and Ship Canal, Route 83 station.

A. It was based solely on -- well, it was based on no heat source being upstream of the Cal-Sag, Route 83 station.

Q. Whereas, there were heat sources upstream of the Ship Canal, Route 83 station?

A. Yes. Crawford and Fisk were operating and they are 10 to 15 miles upstream and

that's just a guess.

Q. And even though -- even though they are not operating today, they only ceased operation in late 2012. So would it be difficult to go back to that station now as you would not have many data points?

A. Well, yeah, we would only have one year of data.

Q. Moving on to question two.

Did the Agency consider whether the closure of the Fisk and Crawford station has any affect upon the selection of the Cal-Sag Channel, Route 83 as the closest less impacted station? We may have just dealt with that.

A. The Agency didn't look at a new set of data, and it would only be less than a year.

Q. And you think that would be inadequate?

A. I think so. Especially -- I mean, yes.

Q. By any chance, did you discuss that with USEPA region five as to whether now they would want you to go back to the Ship Canal and Route 83 station because Fisk and Crawford have

closed?

A. We have not discussed that.

Q. Moving to question three. On page eight of your pre-filed written testimony, you state that, quote, the evaluation of the data revealed that the use of the 75th percentile data for the period average resulted in violations of the data from the background station. Therefore, the Agency has proposed using the 90th percentile of the temperature from the background station as the period average.

I know that you have today handed out Exhibit 485 that does contain at least some data on the Cal-Sag and Route 83 background station, but just so the record is clear, what is the data? And I am going to the pre-filed question subparagraph A. What is "the data," including the time period represented by that data, which you are referring to in your statement that using the 75 percentile data for the period average resulted in violations of the data from the background station?

A. It is appendix two of Chris Yoder's temperature criteria options for the Lower Des

Plaines River, and the date of the data is 1998 through 2004.

Q. Okay.

HEARING OFFICER TIPSORD: Just to clarify, that data is in Exhibit 15.

MS. WILLIAMS: Correct.

BY MS. FRANZETTI:

Q. Moving on to B. I don't think you have testified about this today. During your March 11th, 2008 UAA rulemaking hearing testimony you testified that you had not broken out the MWRDGC data into the periods covered by the proposed period average thermal standards to review whether or not there would be compliance with the proposed period averages that were based on the 75th percentile data, and have you since done this type of review of the data, and if so, what did it show?

A. Are you asking -- are you asking about their effluent data or their stream data?

Q. Well, I am asking about the data that you used in order to come up with the period averages.

A. Okay. Yes, we did look at that and

we did note that there were violations, and that's -- the summary is on Exhibit 484.

Q. Well, but that was for the -- previously -- excuse me. Exhibit 484, that was for the previously proposed period average values, wasn't it?

MS. WILLIAMS: And that's what he is answering in your question B about his 2008 testimony.

BY MS. FRANZETTI:

Q. Okay. I see how you interpreted it. All right. I understand.

Have you taken that data and looked at it based on now your proposed period average values?

A. When we used the 90th percentile of the Cal-Sag Channel station at Route 83, using the 90th percentile we did not see violations based on the period average.

Q. And is that the information that I now have in Exhibit 485 in part? I have more than that in 485.

A. Yes, that station is in there.

Q. Okay. Moving on to C. During your

March 11th, 2008 UAA rulemaking hearing testimony you testified that you did not know how much the temperature of the District's discharges varied from year to year. Have you since reviewed the District's data to determine the extent of thermal variation, and if so, please describes the results of your review.

A. I have not.

Q. Again, referring to your pre-filed testimony and moving on to Subparagraph D. You used the phrase, "resulted in violations of the data from the background station." Just please explain what you mean by the phrase "violations of the data."

A. What I was trying to imply there is we took the 75th percentile and compared it against the background station's monthly averages.

Q. So it does not in any way involve looking at any other dischargers' thermal discharges, what the temperatures are and whether you think they will be in compliance?

A. No. We were looking at compliance of the site that we chose as background.

Q. Moving on to question four, on pages

eight to nine of your pre-filed testimony, you state that quote, the thermal standards for the monthly average for the non-summer months is based on the least restrictive of the 75th percentile of the temperatures from the MWRDGC effluent and the 90th percentile of the temperature from the Cal-Sag Channel Route 83 station.

Consequently, the Agency used the effluent temperature from the MWRDGC's North Side, Calumet and Stickney facilities as the background temperature instead of using temperatures of the Cal-Sag Canal Route 83 station during the periods of the non-summer months when the effluent temperature was higher than the background temperature.

Have we earlier today established that that was a misstatement, or was that a different part of your pre-filed testimony I am thinking about, in Albert's questioning?

A. No, I think the way it's written here is correct.

Q. That is correct?

A. I had just misspoken earlier.

Q. Okay. These periods were January,

February, September 16 to 30, October, November and December, end quote.

The question is, was the purpose of using the MWRDGC's effluent temperature as the background temperature on which to establish the proposed thermal period average temperatures during these non-summer month periods instead of using the Cal-Sag Channel, Route 83 station temperatures to avoid proposing period average standards that the District's discharges would likely violate during these non-summer month periods?

A. We believe in this system that the effluent is the true background of this system. At times they are 100 percent of the flow.

MR. ETTINGER: So was that yes?

THE WITNESS: Yes. I'm sorry. That's a no.

We believe that they are the true background. We didn't -- we believe they are the true background of this system.

BY MS. FRANZETTI:

Q. Okay. Now, if you believe the District's discharge is the true background for

the system, then why don't you use the District's thermal effluent data year round?

A. Basically during the late spring and early fall, the District's effluent is traveling underground, and it gets influenced by the temperature of the ground, and so it's cooler than the rest of the stream. So we thought we came up with the -- a good way to get to a background.

Q. Okay. Maybe I am having a problem, because I can't keep it straight in my head when you are using the District's temperature data as background and when you are not.

You are using the District's data January, February. So that -- am I correct?

A. Yes.

Q. Okay. Those are winter months?

A. Yes.

Q. Not really late spring and early fall, right?

A. Yes.

Q. Okay. So I understand you are saying September 16 to 30, October, November -- well, wait. Let's stop. Let me stop. I'm sorry.

You just told me that the

District's influent to their plant in the late spring and early fall, because it passes through the ground --

A. It's getting cooled off.

Q. It's cooler, okay.

And so you don't want to use the District's effluent during those times, because it's being artificially cooled? I'm not following, Mr. Twait. I'm sorry.

A. I think that's exactly it. It's being artificially cooled by the ground, and during the wintertime it's being artificially warmed up by the ground.

Q. Okay.

MR. DIMOND: Just a question for clarification.

Mr. Twait, are you saying that it's the influent or the effluent that's traveling through the ground and either being warmed or cooled?

THE WITNESS: It's the influent to the treatment plant that's being either warmed or cooled by the ground, but it's the temperature of the effluent that we relied on for setting the

standard.

MR. DIMOND: Okay.

MR. ETTINGER: Just to simplify here, without regard to what the cause is of the temperature of the effluent, isn't sewage treatment discharge typically warmer than what you would otherwise expect in the winter and cooler than what you would otherwise expect in the summer?

THE WITNESS: It's cooler than -- it's warmer during the winter from the ambient temperature and cooler in the summer.

MR. ETTINGER: Thank you.

BY MS. FRANZETTI:

Q. Here's what I am struggling with, Mr. Twait. If the Agency believes that in this system the District's effluent is the true background, then isn't it the true background any time of the year, regardless of whether it may be a little warmer in winter than in summer, than in a natural waterway where you would never say that a municipal plant's discharge is the true background?

Isn't it -- if it's the true

background, it's really always the true background here, because it's always at least 50 percent or more of the flow?

A. I don't know how to answer that other than to tell you what we did, and I have explained that, so, yeah. I don't know how to answer that.

Q. All right. Can you tell me whether this is one of those issues where you are trying to address a USEPA concern?

MS. WILLIAMS: Why don't you explain what would happen if you -- to the proposed standard if we do what Ms. Franzetti is asking.

THE WITNESS: Well, nothing would change in January or February. March would be 54 degrees instead of 54.4, April 1st through 15th would be 57 degrees instead of 58.9, late April would be 60.8 degrees instead of 62.9 and the first part of May would be 63 degrees, 63.3 degrees instead of 68.1. May -- late May would be 65.9 degrees instead of 70.4, and the first part of June would be -- instead of -- it would be 72.5 instead of 75.5, and then the rest of the months would be the same.

So it changes March, April, May and the first part of June.

BY MS. FRANZETTI:

Q. I understand what you are saying, but I think I still have a question pending as to whether the hybrid approach is based on addressing a USEPA concern.

A. No, I don't think they had the concern at first. I think the District has pointed out that our original proposal would have them violating the standard in the winter months, and that's when the Agency started looking into it further.

Q. Okay.

MR. ETTINGER: Once again, I'm sorry. Doesn't your approach always make it easier for dischargers who are discharging heated effluent to avoid violating the standard than they would otherwise?

THE WITNESS: Our approach picks the higher number of the two, yes.

MR. ETTINGER: So, in fact, using the hybrid approach favors dischargers?

THE WITNESS: Yes.

MR. DIMOND: I am going to object. Compared to what? If you use -- if you continued to use the higher of the MWRD effluent, and the Chicago Sanitarian Ship Canal and Route 83, would not those numbers be a little bit higher than the numbers you get by using the Cal-Sag Channel and Route 83?

THE WITNESS: Not all the time.

MR. DIMOND: But in a number of periods the number would be higher, correct?

THE WITNESS: Yes.

MR. DIMOND: Thank you.

BY MS. FRANZETTI:

Q. I am moving on to 4B.

Please explain how this approach of using a municipal discharger's effluent temperatures in setting thermal water quality standards is consistent with the Clean Water Act.

A. The Clean Water Act requires us to adopt a protective standard, and we believe we have done that.

Q. Is that in part because given that it is an effluent dominated stream, the fish are going to have to acclimate to the nature of those

effluent dominated -- the temperature of those effluent dominated waters?

A. I think that the fish are going to be subject to those, yes.

Q. Moving on to C, please explain your basis for interpreting the Clean Water Act's provisions to -- well, I think you have answered this, actually. I am going to stop and -- I'm sorry. I'm sorry. Let me begin again.

Please explain your basis for interpreting the Clean Water Act's provisions to allow a municipal discharger's effluent temperatures to serve as the background temperature for purposes of establishing thermal water quality standards, but does not allow the same approach for an industrial discharger's thermal discharges.

A. Because they are not -- the municipal discharger is not inducing a thermal component.

Q. Can you explain what you mean by that?

A. They are not heating up the water on purpose.

MR. ANDES: Can I ask a follow-up?

MS. FRANZETTI: Yes.

MR. ANDES: Mr. Twait, is it also based on the fact that here the municipal discharger's effluent, in essence, is the background?

THE WITNESS: We believe so.

BY MS. FRANZETTI:

Q. Was that true of the Fisk and Crawford stations when they were discharging upstream of the District's Stickney plant?

A. They were also downstream of the North Side plant. That's where the water was coming from, if I am correct.

Q. Excuse me. My pen has decided to -- I am going to skip D, because I do think you have answered that question. Moving on to five.

Please explain the difference in the percentage of flow in the Chicago Sanitarian Ship Canal represented by the District's Stickney plant discharge between the summer months and the non-summer months as those terms are used in your written testimony and the Agency's proposed thermal standards.

A. I don't have that type of flow breakdown.

Q. Moving on to question six. Please explain how the Agency arrived at the thermal proposal -- hang on a second. If I can just take a minute to read this, because I think I am back into an area where these questions may have been mostly asked.

I am going to skip A. I think you have answered that in your prior testimony, but let me ask you B. Please explain why the 90th percentile rather than a higher percentile for the Cal-Sag Channel Route 83 station was used for your proposed period average standards?

A. We were trying to come up with an average for the water quality standard, and after someone noted that 75th would be problematic, we went back and tried the next percentile that was available in the data set, which was 90th percentile, and that made it so there was no violations in our background station, and we stopped there.

Q. Okay. So that was really the goal. Get to a number -- get to a percentile of the data

where you eliminated any exceedances of your period average standards at the background station?

A. Yes. And I will also mention that we didn't just look at average. The Yoder document also had some outlier cutoffs, the 75th plus 1.5 times the IQR, which is interquartile ratio or 75th percentile plus 2.5 times the interquartile ratio, and the Agency thought that the 90th was probably the better choice.

Q. Than those alternatives that Mr. Yoder mentioned?

A. Yes. And they were just in his chart. I don't know that he put them there for -- for a period average.

Q. I am going to ask you, 6C, is there precedent from other states or in USEPA guidance documents to support the use of either of these percentiles, the 75th or the 90th?

A. Not that I am aware of.

Q. Moving on to question seven. I think you have answered seven. I am going to skip seven.

Question eight, in his January 31st, 2008 hearing testimony, the Agency's expert, Chris Yoder, testified, there are no biological data assessments that suggest that maintaining the normal seasonal cycle requires achieving background temps uninfluenced by man, January 31st, 2008, hearing transcript at page 126.

What evidence is the Agency relying on for its position that higher temperatures than those proposed for the period averages during the non-summer months would inhibit gametogenesis or other functions of species likely to be resident during those periods?

A. The Agency did not look at any biological data. By choosing a background temperature, it is following Chris Yoder's methodology.

Q. So this proposal really hinges on Mr. Yoder's methodology?

A. Yes.

Q. What is puzzling about that is that Mr. Yoder himself testified that there is no

biological data assessments that suggest that maintaining this quote, unquote, normal seasonal cycle uninfluenced by man, particularly in a pretty much manmade canal is necessary. I am --

MS. WILLIAMS: So, wait. Are you saying that --

MR. ETTINGER: Do you want to try and pretend to make that into a question?

MS. WILLIAMS: I don't think that's -- yeah.

BY MS. FRANZETTI:

Q. But we are -- I will try and make it a question.

Does it cause you any concern that the man who is the proponent of this approach that you have to maintain this seasonal type cycle is admitting that there is no biological data to support that approach, the need for that approach?

A. Well, I am not sure what Chris was saying here, but we are not going to find in these waters a temperature that's uninfluenced by man, and I mean, we could take the background station as like the little Calumet River, but that's influenced by man also. So that's not even a good

idea, but Chris's methodology was to use a background temperature, and that's what we have done here.

Q. I understand that that was Mr. Yoder's methodology, but did the Agency give consideration to the fact that with the kinds of species you have got in these waters or likely to be present in these waters, particularly I am talking about Use B, that with those types of species they don't need this seasonal cycle of temperatures in order to protect them as to functions like gametogenesis?

A. I am not a biologist. So I don't really know the limits of what he was talking about here.

Q. Okay. Question nine, is it correct that the background temperatures at the Cal-Sag Channel Route 83 and the District's effluent temperatures are the sole basis for determining the proposed period average thermal standards and that the proposed period average standards are not based on the use of either laboratory or field derived thermal effects end points for aquatic species?

A. That is true for the non-summer months.

Q. And for the summer months, what is true is you have just knocked down the period average -- I mean, the daily maximum limit by two degrees, correct?

A. To achieve the period average, yes, two degrees Celsius.

Q. And again, that's not based on field derived thermal effects end points for aquatic species, is it, that two degrees from field data you have collected?

A. I'm not quite sure how Chris decided on the two degrees Celsius.

Q. So, once again, the two degrees Celsius approach to setting the summer month period averages, that, again, is solely Mr. Yoder's methodology is how the Agency came to propose those numbers?

A. Yes.

Q. 9A, has the Agency compared its proposed period average standards to any laboratory or field derived thermal effect studies for the types of aquatic species that Use A or Use

B use designations are intended to protect to consider whether or not the proposed period averages may be more stringent than necessary to protect the species present or expected to be present in Use A and Use B designated waters?

MS. WILLIAMS: And you are asking this about the non-summers?

BY MS. FRANZETTI:

Q. Yes.

A. No.

Q. Given the way the summer months were derived, same question with respect to the summer months.

A. I can't answer that.

Q. Okay.

A. Because I don't know.

Q. Okay. So with respect to 9B where I was giving an example of the type of comparison that might be made to data or studies regarding temperature or end points for growth; such as, the mean weekly average temperature for growth that Mr. Yoder testified about in this rulemaking as a reasonable temperature which allows species to still be able to grow and thrive, you haven't

compared your proposed period averages to any data studying what that particular growth end point is for the type of species that are present in Use A and Use B waters?

A. He does report an M watt for growth, although, I don't know that the Agency went back and made the comparison.

Q. Moving on then to the next series of questions. They are on the thermal period average standards. Okay. I'm sorry. I am just pausing to read it to make sure you haven't answered it already, and I don't think you have on this on 10B. 10A, Ms. Williams, am I correct that the Agency has corrected that with its errata sheet that it introduced into the record this morning and now both Sections 302.408(b) and 302.408(c) will be deleting the phrase "on an average basis"?

MS. WILLIAMS: That's what we have in Exhibit 482, correct.

BY MS. FRANZETTI:

Q. Thank you. But moving on to B, what was the intended meaning of the now proposed for removal language "on an average basis"?

A. I think that it was just extraneous

language.

Q. Okay. So upon reflection --

A. You've got to meet the average on an average basis, and I think there is -- I mean, if you are meeting the average, then it's already on an average basis.

Q. Okay. You know what, let's move on to the next question, because then I think it starts to get to the point that I am trying to understand how the period average will actually be applied by a discharger or how a discharger will determine compliance with a period average. So moving to 10C. Without the proposed phrase, quote, on an average basis, the language of Sections 302.408(b) and (c) would provide that the ambient water temperature in the subject aquatic life Use A and B waters, quote, shall not exceed the period average limits in the following table during any period, end quote.

Is it the intent of this language that where the period average is exceeded during any time in the period covered in the table, it would constitute a violation? So for example, taking the month of January where the

proposed period average is 54.3 degrees for the entire month, if as of January 15 a thermal discharger's average effluent discharge temperature is 55 degrees Fahrenheit, i.e., a little higher than the period average of 54.3, is that discharger in violation of the period average water quality standard, or do you need to wait up until January 31st to calculate the discharger's average effluent discharge temperature for the entire month of January in order to determine if a violation of the January period average has, in fact, occurred?

THE WITNESS: I believe you would have to wait until that month has ended to see the period average.

MR. ETTINGER: Well, and I am going to object or clarify again. She is talking about a water quality standard and a permit, and we don't know what the permit will say vis-à-vis the water quality standard. So whether or not that discharger violated or not, we don't know until we see the permit.

THE WITNESS: That would be true.

BY MS. FRANZETTI:

Q. That would be true if there is -- well, let me back up.

Aren't dischargers that have a reasonable potential to exceed the period average water quality standards going to likely get an effluent limit in their NPDES permit?

A. Yes, and that will usually apply at the edge of the mixing zone.

Q. If there is a mixing zone?

A. If there is a mixing zone.

Q. Okay. And that's fine. And we can make that assumption here, that there is a mixing zone.

But Mr. Ettinger's question seems to imply that an individual discharger for NPDES permit purposes isn't going to have to be concerned about period average water quality standard. Is that your view?

A. I would think that they would have to wait until the end of the month to see if there was a violation, to see if they met the average temperature at the compliance site.

Q. Okay. I think you have answered my question.

The discharger with a reasonable potential to exceed a period average is going to have some sort of period average number in their permit that they have got to meet each month?

A. Yes.

Q. Okay. Okay. Moving on to 11. I don't think you have answered this question today.

With regard to a thermal discharger's efforts to comply with the period average standards, does the Agency appreciate that because the discharger cannot predict or control the temperature of the receiving water upstream of its intake, that the use of period averages, particularly period averages that cover an entire month, may require a discharger to reduce the temperature of its discharge to several degrees below the period average to insure that as the month continues if receiving water temperatures rise it can still remain in compliance?

A. Yes. The Agency appreciates the complexity that it involves.

Q. Has the -- well, let me stick with the questions here.

Moving on to A; given the

difficulties in accounting for changes in the river temperature as a given month continues, would the Agency consider including in the period average standard an excursion hour concept that would provide some protection for thermal dischargers who use the receiving water as their intake water when there is a significant change in the temperature of the receiving water in the second half of a month versus the first half of a month?

A. I'm not quite sure how that would work, because then you are talking about a monthly excursion, rather than an hourly excursion for like the daily max, but I am sure that the Agency would consider it if it was brought forward.

Q. Now, believe me, I appreciate that it is hard to figure out how to apply that, but it also seems unreasonable. Again, we are in a waterway here where locks and dams are artificially controlling the flow. You can get bathtub like conditions between the dams for periods of time when there is really no new flow, and then if you get hot days towards the end of the month, we have seen that a little bit already

this year, and you can really get big differences in temperature between early in the month and later in a given month, and I think most of the dischargers here who have any thermal concerns don't really have the ability to cool their discharges, the temperature of their discharges.

And so all of a sudden things jump up in the last few days and you can slightly exceed a period average. Do you have any opinion as to whether that type of scenario is not something that will likely have any significantly adverse effect on the aquatic life?

MS. WILLIAMS: I don't understand what you would be asking as far as that. Are you saying the whole month would be out, or you would take out -- I don't think it's making sense to me what the question is that you are asking us to consider having an impact.

BY MS. FRANZETTI:

Q. Forget the use of excursion hours. It was just -- a concept. It's the idea that you get, a little bit of leeway because it is so tough to operate, to meet this new concept of period average and hence in this artificially controlled

waterway that there could be some leeway for when you get these somewhat higher temperatures towards the end of the month that could put someone over the period average?

A. Yeah. I don't know how much of an impact it would be on the aquatic life. It's something that we can look at to see if we can resolve it in any way.

Q. Mr. Twait, can I ask you just generally, have -- we haven't really talked about this since 2008. In the course of the last five-ish years, has the Agency been able to gather any additional information, such as from other states, about period average thermal standards, whether it's Wisconsin, whether it's any others, have you benefitted at all from some perhaps added experience of other regulators with these thermal period average concepts?

A. We have not.

Q. Is your sense that it's not something that really is out there in other states' regulations as of today?

A. I think it's probably something that we can look at.

MR. DIMOND: What was the answer?

THE WITNESS: I think it's something that we can look at.

BY MS. FRANZETTI:

Q. Okay. Moving on to question 12. How will a discharger be required to monitor for compliance with the period average thermal standards and use that monitoring data to determine compliance? For example, does the Agency intend to require continuous daily or less frequent monitoring and depending upon which frequency of monitoring is required, please explain how that data is to be used to calculate the average thermal discharge temperature for purposes of determining compliance with the period average.

A. The permit section will determine the frequency of monitoring, as they do with all permits, and all data that is collected should be used in the average.

Q. Assume that the permit section requires a continuous thermal monitor be placed on the discharge, the outfall, to monitor temperature. Then do you compute a daily average

from one day's worth of reading's or do you just add them all up over the course of the month and divide by something? Do you have any -- has this been talked about? Do you have any sense?

A. We haven't really talked about it. Although, I would sense that the Agency would probably just require all data that's collected to be used in the average; such as, using continuous data is once every 15 minutes rather than every second, you come up with the temperature, and so I mean, that's 96 temperatures a day. So I think they would just average over the one-month period.

Q. So if there were 30 days in the month, 30 times 96 would be your -- the value you would divide your total temperatures by?

A. Yes. And it would work out the same way if you took an average each day, and then took an average of the averages. As long as you are talking about the same number of samples each day, it would work out the same.

Q. Moving on to section three of my questions, daily maximum standards. Question 13 is Mr. Yoder's January -- excuse me. Let me start again.

In Mr. Yoder's January 31st, 2008 hearing testimony, he testified that the choice of whether to apply a daily maximum thermal standard as an instantaneous maximum never to be exceeded or instead as a daily average value, is up to the people that convert these into standards. That was January 31st 2008, the hearing transcript at page 105.

Did the Agency consider proposing daily maximum average values instead of instantaneous daily maximum standards? And if so, please describe how the Agency considered this issue.

A. The Agency did not consider it. We didn't see how it would work with excursion hours. However, if excursion hours weren't part of the standard, it might be acceptable.

Q. Okay. Moving on to section four, thermal excursion hours. Question 14, Section 302.408(a) provides for both excursion hours up to two percent of the hours in a 12-month period ending with any month, any maximum exceedance during those excursion hours if not more than two degrees Celsius or 3.6 degrees Farenheit.

Is it intended that the excursion hour provision apply to both period average standards and the daily maximum standards or to only the daily maximum standards?

A. It applies to the daily maximum only.

Q. So there are no excursion hours for the period averages?

A. The Agency wasn't clear how that would work to have excursion hours as part of the period average.

Q. Is that another way of saying that if someone came up with an approach that seemed logical and appropriate to you, to the Agency, the Agency would be willing to consider it, because it just wasn't able to come up with any approach?

A. I would say that's fair. We would have to make sure that it was acceptable to USEPA, but we would consider it.

Q. You know, I understand that USEPA has review and approval authority under the Clean Water Act of state's water quality standards, but that's supposed to be in terms of determining is it consistent with the Clean Water Act and its

regulations. On something like cold shock, which we were discussing earlier, clearly something the USEPA is pushing you all to do, have they shown you where in the Clean Water Act or its implementing regulations you have to have a cold shock provision for waters like these or otherwise you are -- your standards are inconsistent with the Clean Water Act and its regulations?

A. I have not seen such a cite.

Q. I am on the cold shock section of my questions, but I am kind of thinking at least some of them must have been answered and so bear with me.

Let me slightly change 15A. You discussed cold shock with the USEPA. You tell them, we have never seen it happen in this -- to our knowledge, there has never been harm to fish caused -- due to what everyone understands to be cold shock, sudden drop in temperature of the receiving water. What do they say back to you, given that -- given that evidence or lack of evidence that any cold shock provision is necessary, what do they say is why it is necessary in order for them to approve your thermal

standards?

MR. ETTINGER: I would like to object. What did they say, or what do they say, are you --

BY MS. FRANZETTI:

Q. What did they say, if they said anything?

A. I think their response was, then there is no reason not to include it.

Q. Okay.

MR. ETTINGER: Let me ask a question. Has the Illinois Environmental Protection Agency ever set up a program to monitor for fish kills below power plants in the winter?

THE WITNESS: Not that I am aware of.

MR. ETTINGER: Do you know for a fact that there have never been fish kills below the Quad Cities Nuclear Power Plant or Dresden or any of the other power plants in this state during the winter caused by cold shock?

THE WITNESS: Well, I do know that there have been cold shock kills of fish, but they typically happen in lakes such as Clinton Lake,

and I can't say that it's never occurred in the state in a river system. I am just not aware of any.

BY MS. FRANZETTI:

Q. Thank you. And the examples Mr. Ettinger was giving, Dresden, for example, that's a nuclear power station, isn't it?

A. Yes.

Q. And the three Midwest Gen power stations on this waterway, none of them are nuclear stations, are they?

A. No.

Q. In fact, even when Mr. Thomas, who I think was Mr. Ettinger's witness, testified a few years ago about his concern about cold shock, the only examples, I believe, that he gave were nuclear power stations causing cold shock. Do you recall that, too?

A. I don't recall that.

Q. Okay. I am going to ask 16. I don't think we have touched on that. Isn't the risk of cold shock limited to the colder periods of the year?

A. Yes.

Q. So did the Agency consider limiting the application of the proposed cold shock rule to the colder months of the year?

A. We did not. Facilities can operate to avoid fish kills from cold shock during the winter, however, during the summer there is nothing that they would need to do to operate differently that I know of.

Q. Moving to question 17. In the winter months of January, February and March, if a discharger maintains compliance with both the daily maximum standard that is 93.3 degrees Farenheit on a given day, but then drops its discharge temperature below the approximately 53 or 54 degree period average thermal standard the next day so it can maintain compliance with the period average, is that discharger protected from being in violation of the cold shock rule provided that it maintains compliance with both the daily max standard and the period average standard?

A. No, I don't believe so. If they shut down in such a manner, non-emergency, if they cause a fish kill they would be in violation.

MR. ETTINGER: Did I hear that

question? You are going from 90 to 56 in one day?

MS. FRANZETTI: Not in the same day, but in close proximity to each other, and you are doing it because you are trying to get back to the period average --

MR. ETTINGER: If I understand your question, you have heated the entire river up to 90 and you have managed to shut down the plant and had it drop to 56 in a day?

MS. FRANZETTI: Albert, you are still assuming that that's what's going to determine whether you are in compliance. We have already had testimony that this cold shock thing could lead to procedures, special conditions in one's permit that are going to add a layer of additional compliance obligations.

MR. ETTINGER: I was just attempting to understand your hypothetical.

BY MS. FRANZETTI:

Q. Well, I think you have understood it.

Question 18, has the Agency put some thought into how a thermal discharger is going to control the water temperatures of its

discharge, quote, in a manner to protect fish and aquatic life uses from the deleterious effects of a cold shock?

A. I think they would need to change the temperature slowly rather than just deciding to shut it off one day, and as you have mentioned before, nuclear facilities have that ability just to shut down or relative quickly. I don't know if coal power plant facilities have that ability to shut off quickly.

Q. What does the language "deleterious effects" of a cold shock mean?

A. I think the Agency would look at that as a death of aquatic life.

Q. What -- 19A, what is the difference between deleterious effects on fish versus on aquatic life uses as also referenced in the proposed language, or was this addressed in your errata sheet?

MS. WILLIAMS: We have deleted uses. It just says fish and aquatic life.

BY MS. FRANZETTI:

Q. 19B, what criteria will be used to determine whether a discharger failed to control

its discharge so as to prevent the "deleterious effects" of cold shock?

A. The Agency has intended for it to be a fish kill other than an emergency event.

Q. Why did the Agency choose not to provide a description or definition of the term "deleterious effects"?

A. We modeled it after Wisconsin, and we were not able to find a definition. It didn't look like they defined it.

Q. I am going to modify 20 a bit, because I think you have answered parts of it.

Mr. Twait, am I correct in understanding that the suggestion of following Wisconsin's approach came from region five, correct?

A. Yes.

Q. Did region five mention whether there were any other states that have promulgated a cold shock provision in their thermal water quality standards?

A. I don't -- I don't believe they mentioned one way or the other.

Q. Did they happen to mention whether

they told Wisconsin just like they are telling you that they needed to have a cold shock provision in their thermal standards in order to get them approved?

A. I do not know.

Q. You haven't talked to Wisconsin and asked them that question?

A. No.

Q. Okay. Has the Agency, Illinois EPA -- has anyone at the Agency tried to determine whether any other states have a cold shock provision?

A. We have not.

Q. My question 20A dealt with how Wisconsin interprets its cold shock standard, and am I correct counsel, that your exhibit --

HEARING OFFICER TIPSORD: 486.

BY MS. FRANZETTI:

Q. Whatever Ms. Tipsord just said, is the response to that question?

MS. WILLIAMS: Exactly.

BY THE WITNESS:

A. Ah-huh.

BY MS. FRANZETTI:

Q. Exhibit 486, okay. I think you have already answered 20B.

21A, the -- your proposed rules don't define cold shock. Why does the Agency believe that a definition of cold shock is not necessary?

A. The Agency doesn't oppose defining cold shock, but believes that our testimony can define it.

Q. And 22, in the USEPA's 1992 report entitled, quote, Review of Water Quality Standards Permit Limitations and Variances For Thermal Discharges At Power Plants, end quote, it was concluded that, quote, guidance also needs to be developed on cold shock, especially for older peak power facilities which operate part-time. Cold shock guidance may include parameters for controlled temperature decreases during unit shutdowns and control mechanisms to restrict fish from the discharge channel, end quote.

Does the Agency agree that since 1992 the USEPA has not developed any guidance on cold shock?

A. I don't know of any.

Q. 22A, during its discussions with region five concerning the region's belief that a cold shock provision should be included in the Agency's proposed thermal water quality standards, was there any discussion regarding postponing the adoption of cold shock regulations until the USEPA has issued guidance on cold shock as recommended in its 1992 report?

A. No.

Q. 23, did you consider the alternative of providing in the proposed rule for a maximum allowable temperature difference between the temperature of a discharger's effluent and the temperature of the receiving water as a means of prohibiting cold shock instead of the narrative provision proposed by the Agency?

A. No. We didn't know of any specific number that would prevent cold shock.

Q. Did you ask the USEPA if they did?

A. I don't know if we asked them that specific question.

Q. Question 24, does the Agency agree that the likelihood of cold shock is given by site specific considerations such as the type of

facility discharging the thermal effluent and the nature of the receiving water body?

A. I would agree with that.

Q. So if so, would the Agency consider revising the proposed cold shock provision to apply only when an evaluation of the discharger and discharge conditions indicate that there is a likelihood for cold shock occurring?

A. I don't know how the Agency or the discharger would make that determination, but the Agency is open to modifying the language.

Q. Or alternatively, would the Agency consider revising the proposed cold shock provision to provide that the Agency has the authority to include in NPDES permits provisions for protecting against cold shock when appropriate based on site specific conditions?

A. I think the Agency would be open to the language.

Q. Okay. Question 25, on page 10 of your pre-filed written testimony you state that, quote, this standard is not intended to be applied to emergency shutdowns. However, all efforts should be made through general operational

planning to avoid an emergency action that would cause cold shock, end quote.

If this standard is not intended to be applied to emergency shutdowns, is the Agency amenable to including language in the standard which expressly states that it does not apply to emergency shutdowns?

A. I don't think the Agency would be opposed. Originally, we had it in the proposed language. USEPA made a comment that they thought it was implementation and not a standard, and I don't know if they were opposed to it or just mentioning that it was implementation and not a standard.

Q. Okay. So region -- so if I understand your answer correctly, you actually had language in a prior version of this cold shock provision that said it didn't apply during emergency shutdown situations?

A. Yes.

Q. And region five commented, that sounds to us more like an implementation issue and not a standards issue?

A. Yes. And that's why we included it

in my pre-filed testimony.

Q. Got it. But I'm not sure I understand what region five is saying.

MS. WILLIAMS: Objection.

BY MS. FRANZETTI:

Q. On a lot of grounds. Can you explain to me what they mean by, it's an implementation issue? By who, the Agency or the discharger?

A. By the Agency. It would be something akin to Agency rules on how we are going to enforce the water quality standard.

Q. All right. So region five says to you, it shouldn't be in the proposed regulation. You should, in turn, issue procedures or guidance by the Illinois EPA that says this rule won't be applied to emergency shutdowns?

A. I think they just made the comment that it was wasn't a water quality standard. It was -- it was implementation.

Q. Okay.

A. And I don't think they explained it any more than that.

HEARING OFFICER TIPSORD: Ms. Rios,

did you have a follow-up?

MS. RIOS: Yes. Would the Agency consider establishing a BTU threshold above which the cold shock standard would apply?

THE WITNESS: I don't know what that BTU threshold would be, but I mean, we could look at something if it was drafted.

MS. RIOS: So you haven't had any discussions with region five on that type of issue?

THE WITNESS: No. And the smaller the BTU facility, the less chance that there is going to be a fish kill issue to begin with.

MS. FRANZETTI: All right. I think this is a good breaking point.

HEARING OFFICER TIPSORD: I think so, too. I don't think we can get through in about 15 minutes.

So thank you all. We will have a prehearing conference to set the next day of hearing, and we will start with Midwest Generation at that point. Thank you. We are adjourned.

(END OF PROCEEDINGS.)

I, KARI WIEDENHAUPT, do hereby certify that the foregoing was reported by stenographic and mechanical means, which matter was held on the date, and at the time and place set out on the title page hereof and that the foregoing constitutes a true and accurate transcript of same.

I further certify that I am not related to any of the parties, nor am I an employee of or related to any of the attorneys representing the parties, and I have no financial interest in the outcome of this matter.

I have hereunder subscribed my hand on the 8th day of August 2013.

KARI WIEDENHAUPT, CSR

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