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STATE OF ILLINOIS)
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COUNTY OF C O O K)

ILLINOIS POLLUTION CONTROL BOARD
NOVEMBER 9, 2009

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

REPORT OF PROCEEDINGS at the hearing of the above-entitled cause before Hearing Officer Marie Tipsord, taken before Rebecca A. Graziano, Certified Shorthand Reporter within and for the County of Cook and State of Illinois, at the Bilandic Building, Room N-502, Chicago, Illinois, commencing at the hour of 9:00 a.m. on the 9th day of November, A.D., 2009.

A P P E A R A N C E S

ILLINOIS POLLUTION CONTROL BOARD:

Ms. Marie Tipsord, Hearing Officer
Ms. Alisa Liu, P.E., Environmental Scientist
Mr. Anand Rao, Senior Environmental Scientist
Mr. G. Tanner Girard, Acting Chairman
Mr. Shundar Lin
Mr. Thomas Johnson
Ms. Andrea Moore

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

Ms. Stefanie Diers
Ms. Deborah Williams

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BY: MR. ALBERT ETTINGER
MS. JESSICA DEXTER

Appeared on behalf of ELPC, Prairie Rivers Network, and Sierra Club,

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BY: MS. SUSAN FRANZETTI

Appeared on behalf of the Midwest Generation, L.L.C.,

A P P E A R A N C E S

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BY: MR. TOM DIAMOND

Appeared on behalf of Stepan and Company.

MS. TIPSORD: Good morning, everyone. My name is Marie Tipsord, and I've been appointed by the Board to serve as a hearing officer in the proceeding entitled Water Quality Standards and Effluent Limitations for the Chicago Area Waterway System and Lower Des Plaines River, proposed amendments to 35 35 IL Admin Code 301, 302, 303, and 304. This is docket number R08-9.

With me today to my immediate left is the acting chairman, G. Tanner Girard. To his far left is Board Member Shundar Lin, and Board Member Andrea Moore will be joining us shortly. To my far right is Board Member Thomas Johnson. To my immediate right is Anand Rao, and to his right, Alisa Liu from our technical unit. I don't think Clair is here today. One of our interns may be joining us later.

This is the 34th day of hearings. We are continuing to hear testimony from members of the public, and today the purpose of the hearing is to hear the testimony from Midwest Generation, starting with Julia Wozniak and Greg Seegert.

The testimony will be marked as an exhibit and entered as if read. After marking the

pre-filed testimony as an exhibit, we will then proceed to questions for the testifiers, and we'll start with the IEPA, followed by the Environmental Law and Policy Center, and then Stepan.

Anyone may ask a follow-up question, and you need not wait until your turn to ask questions. I do ask that you raise your hand, wait for me to acknowledge you, and 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're speaking over each other, the court reporter will not be able to get your questions on the record. Please note that any questions asked by the Board members or staff are intended to help build a complete record for the Board and not to express any preconceived notion or bias.

I had indicated at the last hearing that we would look at dates in December or January to complete Midwest Generation's testimony. I did receive an e-mail from Susan Franzetti about December 9th through the 11th to be potential availability dates. I responded to her at that time that I didn't know if the Board would be available,

and unfortunately we are not.

The Board received a Clean Air Act rulemaking, which is required under Section 28.5, as recently readopted in a public act -- and I don't know the public act number off the top of my head -- but we are required to have hearings within a set amount of days from the date of set of that proposal, and we have to continue the first hearing day to day until completion.

That being the case, we have to go to hearing on that on December 9th and continue day to day. So although it may only take one day, it could potentially and possibly take the week, so the Board is not available that week in December. So we'll need to look at dates in January to finish up your witnesses.

With that, Dr. Girard.

DR. GIRARD: Good morning. Thank you all for coming. I know you've heard it over 30 times, but the Board is extremely grateful for all the time and effort that everyone is putting into this hearing to help us create a very extensive and hopefully complete record in this rulemaking. So thank you all. We look forward to your questions

and testimony today.

MS. TIPSORD: Thank you. Anything else from anybody before we start with the witnesses? Okay. Ms. Franzetti?

MS. FRANZETTI: Thank you. We are ready for the questions. We're not doing any opening statements.

MS. TIPSORD: All right. Then let's go ahead and have the witness sworn in and we'll admit her pre-filed testimony as an exhibit.

(Witness sworn.)

MS. TIPSORD: And do you have a copy of her testimony for us?

MS. FRANZETTI: Yes, but not purposefully.

MS. TIPSORD: You can give me a copy later. We'll just reserve the exhibit number.

MS. FRANZETTI: That's fine.

MS. TIPSORD: If there's no objection, we'll admit the pre-filed testimony of Julia Wozniak as Exhibit 364. Seeing none, it's Exhibit 364.

MS. FRANZETTI: Actually, Madam Hearing Officer, do you need all of the exhibits attached to it for your copy?

MS. TIPSORD: Yeah.

MS. FRANZETTI: Okay. Yeah, we'll bring it later.

MS. TIPSORD: And with that, I believe we're going to start with the IEPA.

MS. DIERS: Good morning. My name is Stephanie Diers, and I'll be asking questions on behalf of the Illinois EPA today, and I'll just begin with our pre-filed question one.

In your pre-filed testimony, you state that part of the responsibilities of your position at Midwest Generation include modeling the complex thermal hydrodynamics of power plant and waterway interactions and overseeing thermal compliance monitoring and developing, and running complex models that are used to optimize station loads during critical generation periods, while maintaining environmental compliance.

Please explain your role in these activities, and what training have you received related to modeling of thermal hydrodynamics.

MS. WOZNIAK: I'm the codeveloper of the site-specific thermal hydrodynamic model called Jolder -- it's J-o-l-d-e-r -- that was created in

the late '80s by the Iowa Institute of Hydraulic Research at the University of Iowa in collaboration with Commonwealth Edison.

I continued to run this model on a regular basis as a means of maintaining compliance in the alternate thermal limitations that are effective at the I-55 bridge under the adjusted standard granted in AS 96-10.

There's also another model that's used for general compliance, greeting purposes, that was developed by the Iowa Institute of Hydraulic Research in the late '90s, and that's known as CS2. This model was customized for Midwest Generation's application in 2002. It is now also regularly used throughout the year to get a snapshot of predicted I-55 thermal compliance status, and it's also useful for running various scenarios to determine potential effects on compliance.

Both models use many of the same input parameters, but the CS 2 is a less refined model that doesn't -- isn't accurate enough to be used for cooling tower operation or degrading decisions. But both of the models are used to adjust Joliet's station operations in order to

maintain compliance with the applicable thermal standards.

MS. DIERS: I'm not sure if you answered this in the answer you just gave, but what training have you received with respect to the modeling?

MS. WOZNIAK: Much of my training has been just in the experience of doing it. And I've been, you know, working with this model since 1988.

MS. DIERS: Question two, you refer to the Joliet stations on the study area as Joliet 6, 7, and 8. Please explain the numbering system for the Joliet facilities.

MS. WOZNIAK: Okay. The term Joliet 6 means the operating unit at that location, which is -- Unit 6 is at the Joliet station. And when I referred to Joliet 7 and 8, those are the two operating units on the opposite side of the Lower Des Plaines River. So it's also called Joliet Station 29 sometimes.

MR. ETTINGER: Excuse me. Seven and eight equals 29?

MS. WOZNIAK: Yes.

MS. TIPSORD: Albert, don't forget to

identify yourself for the record.

MR. ETTINGER: I'm Albert Ettinger.

MS. TIPSORD: Thank you.

MR. ETTINGER: As long as we're -- is there a nine that's referred to?

MS. WOZNIAK: Nine is the same as Joliet Unit 6.

MS. FRANZETTI: Doesn't that make complete sense to you?

MS. WOZNIAK: The numbers are from Commonwealth Edison, and I'm not sure where the 9 and 29 -- you know, what the purpose is.

MR. ETTINGER: Sometimes -- we see a lot of documents, and I just want to be clear here. Six sometimes means nine, or nine sometimes means six, and seven and eight is sometimes equal to 29?

MS. WOZNIAK: Correct.

MS. DIERS: Question three, which regions of the CAWS do the Fisk, Crawford and Will County stations discharge to?

MS. WOZNIAK: Fisk discharges into the south branch of the Chicago River just upstream of Bubbly Creek, and both Crawford and Will County discharge in the Chicago Sanitary and Ship Canal.

Crawford discharges at Pulaski Road, and Will County discharges, I think, Romeoville just downstream of the location of the Corps of Engineers aquatic species electric barrier.

MS. DIERS: Question four, please identify the other two Midwest Generation generating stations in Illinois, and what type of cooling is utilized at these two stations and the Western Pennsylvania station.

MS. WOZNIAK: The two other Midwest Gen plants in Illinois are Waukegan and Powerton. Waukegan utilizes open cycle cooling on Lake Michigan, and Powerton has a cooling pond. The Homer City plant in Pennsylvania has three natural draft cooling towers.

MS. DIERS: Question five, why were cooling towers installed in 1999 at the Joliet 7 and 8 facilities?

MS. WOZNIAK: Helper cooling towers were installed at Joliet 7 and 8 in 1990 in order to lessen the amount of unit D ratings that were necessary during critical electrical demand periods to meet the alternate I-55 thermal standards granted in AS 96-10.

MS. DIERS: Question six, explain how the towers are used to meet near field thermal standards during critical low flow periods that occur in the Dresden Pool -- see Pages 4 and 5 of the testimony. What happens at the other facilities during these periods?

MS. WOZNIAK: Based on my experience and knowledge of the available data, the Joliet station is subjected to the most critical and adverse flow fluctuations in the waterways because it's directly downstream of the Brandon Road Lock and Dam.

Flow changes at this location occur by orders of magnitude over the course of one or more hours, often resulting in zero flow for extended periods of time. Prolonged low flow requires immediate response by the station in order to maintain compliance with the existing thermal standards, and this is accomplished by turning on cooling towers to improve heat dissipation and mixing of the effluence.

For Will County, Fisk and Crawford, we monitor and record end of pipe discharge temperature in discharge monitoring

reports. And giving the allowance of the mixing zones, along with other midstream reference data, we've been able to maintain compliance.

MR. ETTINGER: Excuse me. What do you mean by zero flow for long periods of time?

MS. WOZNIAK: The measured flow -- the reported flow from the lock and dam is reported as zero for several hour periods. That doesn't mean there's no water, it just means it's not moving.

MR. ETTINGER: And by long periods of time you mean several hours?

MS. WOZNIAK: Yes, at times.

MR. ETTINGER: So basically the water below the lock and dam is just sitting there?

MS. WOZNIAK: Pretty much. We've been reporting our discharge temperature data for years, and never had the Agency advise us that the discharge temperatures violated thermal water quality standards for any of our discharges.

MS. DIERS: Question seven, who developed the thermal models used, what are the inputs of the model, and where is the data obtained from, and how are the results of these models tested against real world conditions?

MS. WOZNIAK: As I stated earlier, I'm the primary collaborator with the Iowa Institute of Hydraulic Research personnel in developing the thermal models, which are currently used by Midwest Gen. The calculational basis and coding was done exclusively by the Institute of Hydraulic Research, with the local data input, geographic location information, and validation provided by either Com Ed or Midwest Gen, depending on which model we're talking about.

The inputs of the model were detailed in my testimony, but I can go over each of them again. River flow is one. It's obtained from the U.S. Army Corps of Engineers real time versus their website, and also historical data is FTP'ed directly to our server.

River temperature data is used, intake discharge and I-55, which are real time monitoring data points that Midwest Gen takes care of. Meteorological data, including wind speed, relative humidity, dew point, wind direction, are from several difference sources, including the National Weather Service.

We have a local met station at our

Joliet facility. We ascribe to a weather service -- a forecasting service, and there's also other -- you know, we look at various other meteorological data inputs just to make sure that our predictions are accurate.

Stationed by Gotlow (phonetic) is another data input and we, you know, monitor that continually and maintain historical records of all of our operating data, and we also look at cooling tower operation, which has real time operational parameters, including the inlet and discharge to the cooling towers to gauge their efficiency.

As far as how the results of the models are gauged against real world conditions, the model is constantly validated by comparing model temperature predictions to the temperatures that are monitored by Midwest Gen at the I-55 bridge.

Midwest Gen is required to maintain a calibrated temperature monitor at the site year-round for MPDS permit conditions. Real time temperature data from I-55 is also incorporated into the model, which allows for ease of comparison. Any deviations between predicted versus actual I-55 water temperature are corrected by adjusting cooling

tower modules or station loads. This is an iterative process that's done almost continually whenever the thermal model is used. So in essence, real world conditions continuously calibrate the model.

MS. DIERS: Do you know how river flow is measured by the U.S. Army Corps of Engineers?

MS. WOZNIAK: I believe it's based on the number of gates they have at the lock and dam and how far they are opened or closed.

MS. DIERS: Okay. Question eight, where is the 26-acre mixing zone applicable to the Midwest Generation's CAWS and Lower Des Plains River facilities found, and then how is compliance with a secondary contact temperature limits measured?

MS. WOZNIAK: The 26-acre boundary is not a stagnant or in a fixed location that's always in the same place in the waterway. Its location varies depending on the relative flows of the station versus the receiving stream. And not only its location, but also its size varies based on those same parameters. A full 26-acre mixing zone is also sometimes not even necessary in order to meet the existing standards.

As far as how secondary temperature limits are measured, in our prior discussions with Illinois EPA water division staff responsible for issuing MPDS permits to our station, IEPA has always recognized difficulty in continuously monitoring the mixing zones in these artificially controlled waterways, because the edge of the thermal is constantly moving.

Hence, the installation of an in-stream monitoring location at the edge of the mixing zone really isn't feasible, effective, or practical, because the edge of the mixing zone changes depending on effluent temperature, ambient weather conditions, and there's also barge traffic that's going through the barge channel. So you can't have a monitor out in the middle of the river. It wouldn't stay there very long. Therefore, MPDS permits require we monitor and report to the station the discharge temperature.

In addition, at various times in the past, we have sent some field crews out to do in-stream thermal monitoring in order to confirm compliance with thermal standards at the edge of the mixing zone under various conditions. And this

field data has been continued to be used as reference data to set thermal compliances for these stations under conditions that exist at any given time.

MS. DIERS: Question nine, Page 4, Paragraph 2 of your pre-field testimony states Unit 6, the design maximum temperature rise in the circulating water is approximately 10.7 degrees Farenheit. Units 7 and 8, the design maximum temperature rise in the circulating cooling water is approximately 12.4 degrees Farenheit.

Does this take into account the cooling towers, and why are these numbers different from the Board's opinion, adjusted standard 9610, page 3, last paragraph, which states, "The station has two thermal discharges to the Des Plaines River. The maximum design temperature rise in the circulating cooling tower is approximately 9.4 degrees Farenheit."

MS. WOZNIAK: Okay. To answer the first part of the question, no. The circulating water temperature rise represents temperature differences caused in a condensed area only. So it's delta from discharge to intake, and, therefore,

does not include anything associated with the cooling towers.

To answer the second, the value in my testimony was obtained from Joliet station personnel during the preparation of my testimony, and I believe that the difference may be in the fact that design delta T really is a calculated value that's based on certain assumptions regarding, you know, how many cooling pumps are on, what their efficiency is, how much following there is.

So, you know, it's not one number that anyone can look up and they just calculate it. So it could have been calculated slightly differently. But, you know, they're all within that ballpark. One thing I do know is that there's nothing that's physically changed at the station which would result in the different values.

MS. DIERS: Question ten, Page 4, Paragraph 3 of your pre-filed testimony, you state the cooling towers for Unit 7 and 8 were voluntarily installed in 1999 at a cost of -- I should say approximately -- $23 million. In the adjusted standard 9610, Com Ed determined the cost of the cooling towers to be $68 million.

Why the discrepancy in the cost, and why the change of position in installing cooling towers after the Board was told it was not economical?

MS. WOZNIAK: Okay. To answer the first part, there is not a discrepancy in the cost. It's, sort of, an apples to oranges cost comparison. The Com Ed cost estimate of $68 million back in the mid '90s was for something much different than the help of cooling towers, which were stalled in 1999.

As I recall, the Com Ed $68 million cost estimate was instead for closed cycle cooling towers. The helper towers installed in 1999 and cost abruptly $23 million, are one-through modules, not closed-cycle cooling towers. They are not recirculating. They do not allow the station to operate in closed-cycle mode.

Also, the Joliet cooling towers that are out there now are only large enough to cool approximately one-third to one half of Joliet Unit 7 and 8 discharge, and there are no cooling towers at Joliet Unit 6.

For the second part of your question, there really was no change in position.

As I said earlier, the closed-cycle cooling towers that would have been necessary to meet the general use thermal standards at I-55 without granting of an adjusted standard were and remain economically unreasonable, and also have technical difficulties associated with them.

The installation of the more limited helper cooling towers was a decision subsequently made by Com Ed in order to reduce the number of unit degrades that were occurring in order to maintain compliance with the AS 96-10 adjusted thermal standards during critical demand periods when electricity was needed to meet customer demands. The use or help of towers lessens the amount of units to be necessary to meet the applicable I-55 thermal limits.

MS. DIERS: Question 11, Adjusted Standard 96-10, March 16th, 2000, Page 4, the last paragraph states, based upon the assurance of Com Ed and Midwest that the management and operation of the generating stations will continue unchanged, does deregulation change the operating of the generating station?

MS. WOZNIAK: No. The stations

continue to be operated in response to power demand.

MS. DIERS: Has power demand gone up over time?

MS. WOZNIAK: I'm not sure. I would say it's pretty much the same.

MS. FRANZETTI: Maybe, Counsel, just for clarification, when you say over time, what's -- the last ten years?

MS. DIERS: That's fine.

MS. FRANZETTI: Is that what you were assuming?

THE COURT: And also for clarification, I assume you're asking about power demand from --

MS. WOZNIAK: From this station is what I understand that to be.

MS. DIERS: That's correct. Question 12, you state on Page 6 of your pre-filed testimony, "In 1996, IEPA did not view the thermal discharges as limiting aquatic diversity in the receiving waters." Which receiving waters are you referring to in this statement?

MS. WOZNIAK: The Lower Des Plaines River.

MS. DIERS: Is it upstream or downstream of I-55?

MS. WOZNIAK: Actually, that quote was taken directly from the AS 96-10 in reference, so I believe they were referring to below the I-55 bridge.

MS. DIERS: I'm going to strike Question 13. Question 14, is there anything in the Agency's proposal to the Board that would impact the language of Midwest Generation's regulatory relief at the I-55 bridge?

MS. FRANZETTI: Just a point of clarification, Counsel. What are you including in the word impact? Can you clarify that question just a bit for us?

Well, maybe I can help. You want us to assume that the AS 96-10 standards will continue to apply or not with what the Board does here superseding? Is that what you want -- which way do you want us to assume it?

MS. DIERS: Yes.

MS. FRANZETTI: The latter?

MS. DIERS: Yes.

MS. FRANZETTI: That we would have to

comply with what your proposed standards are?

MS. DIERS: Yes. Thank you, sorry.

MS. WOZNIAK: Okay. Given that the Agency's proposal would change the current secondary contact thermal standards that apply to Joliet station's discharges prior to I-55 and make those stricter, I believe the Agency's proposal would significantly change what the Joliet station now needs to do in order to achieve thermal standard compliance.

The existing regulatory relief in AS 96-10 does not apply to near field temperature limits, which is what the Agency is proposing to make more stringent. So, in essence, the I-55 thermal standards become moot if we need to comply with the proposed IEPA thermal limits near field.

MS. DIERS: Thank you. Thanks, Susan, for the clarification.

Question 15, on Page 9 of your pre-filed testimony, you state through subsequent studies and modeling efforts, Midwest Gen determined that the Joliet facilities (and not the three CAWS stations) had the greatest influence on water temperatures at the I-55 bridge. Therefore, efforts

by Midwest Gen to maintain thermal compliance at the I-55 bridge remove mostly around the operations at the Joliet facilities.

Are there any activities of the CAWS facilities that are used to regulate temperature at the I-55 bridge, or is this exclusively done by the Joliet station?

MS. WOZNIAK: Maintenance and compliance of the I-55 thermal limits is controlled by the operations of the Joliet station.

MS. DIERS: Question 16, you testify on Page 12 of your pre-filed testimony that the model has been filled, verified, and has been shown to be accurate within two degrees Farenheit, assuming the model input parameters are also accurate. What happens to the accuracy when model inputs are not accurate?

MS. WOZNIAK: As I mentioned before, if the model projections of the I-55 temperature don't match where the actually measured adjustments are at I-55, adjustments are made to the input parameters of the model to obtained better concurrence between their projections and the actual temperatures monitored at the bridge.

This is, sort of, part in parcel of the modeling effort that's taken on a continuing basis during critical weather flow or low demand conditions. Experience of implementing the model over the years may impact the various changes in the values if the input hasn't proved the accuracy of the models predictions. It's iterative process that occurs, you know, sometimes 48 hours a day with constant adjustments being made.

MS. DIERS: Do you know which parameters are changed most often due to real world conditions?

MS. WOZNIAK: I would say the number of cooling towers and the number of unit derates that may need to be adjusted in order to match up model projections to actual temperatures being measured at that bridge. We're projecting out three days in advance, so there's a lot of things that are changing that need to be adjusted for so we maintain compliance.

MS. DIERS: I'm going to strike 17 and go to 18.

What values are used in the model for intake and ambient water temperatures?

MS. WOZNIAK: Joliet 6 and Joliet 7 and 8 intake temperatures are used in the model for both intake and ambient water temperatures.

MS. DIERS: I'm going to strike Question 19, I'm going to strike Question 20, and I'm going to strike question 21.

MS. FRANZETTI: Keep going.

MS. DIERS: Question 22, in your opinion, do you believe the heat from Midwest Generation's facility is having an impact on aquatic life in the CAWS and Lower Des Plaines River?

MS. WOZNIAK: I don't believe that there's any adverse impact on aquatic life in this CAWS or the Lower Des Plaines River related to thermal discharges.

MS. DIERS: 23, what experience and firsthand observations through the UIW studies helped to formulate your conclusion that the adjusted standards provide an adequate level of protection for the aquatic community below I-55 and provide a more representative, normal, seasonal fluctuation in either the secondary contact or the general use numeric standard?

MS. WOZNIAK: I've personally worked

on this waterway since about 1984. And in that time, having done field work and reviewed other people's reports, I've personally not observed any adverse impacts on aquatic life, which would be expected if heat were having an adverse impact. No fish kills or anything of that nature, nor of any of the fisheries monitoring reports I've reviewed now for many years found any impacts from heat. The assemblage of fish appears to be representative of a somewhat degraded habitat-limited waterway, but is not indicated of any limitations that would be caused by heat alone.

The AS 96-10 standards are more representative of normal seasonal fluctuations in the Lower Des Plaines River than either of the current secondary contact or general use limits that provide for a more gradual transition period both the spring and fall, rather than either a constant temperature year round, rather or a drastic instantaneous change in the case of general use when the limit goes from 60 degrees Farenheit on March 31st to 90 degrees Farenheit on April 1st, and then from to 90 degrees Farenheit on November 30th to 60 degrees on December 1st.

MS. DIERS: In your opinion, has a waterway improved in terms of diversity and number of fish in your time looking and working with the Joliet stations?

MS. WOZNIAK: I'd say there have been improvements over time in the fish community since I've been looking at the data.

MS. DIERS: And question 24, which UIW studies are you referring to in your pre-filed testimony?

MS. WOZNIAK: Okay. These are the compilation of the physical, chemical, and biological studies, which were conducted in the Upper Illinois Waterways to support the AS 96-10 standards.

MS. DIERS: Question 25, please explain why it's more often than not that the adjusted standards compliant means that dictate Unit D ratings and the use of cooling towers. I think this is reference in Page 10 of your testimony.

MS. WOZNIAK: Okay. The far field adjusted standards are more stringent than the existing near failed type of secondary contact thermal limits. Therefore, station operations must

be adjusted to meet the far field limits, even when the near field thermal compliance is maintained.

MS. DIERS: I'm going to strike 26. And that's all we have at this time.

MS. TIPSORD: All right. Then next we have the Environmental Law and Policy Center. You know what, why don't we go ahead and take a couple minutes while everything is rearranged.

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

MS. TIPSORD: We're back on the record, and we're ready to start with the Environmental Law and Policy Center.

MR. ETTINGER: Okay. I'll start with question number one. In Page 2 of your testimony, you mention that the Midwest Generation stations use large volumes of surface water. What is the intake volume used by each of the Fisk, Crawford, Will County, and Joliet stations relative to the low flow of the water body from which the water is taken?

MS. WOZNIAK: The average flow rates for these plants from the most recent MPDS permit renewal information are as follows: Fisk is about

239 million gallons per day, Crawford is 466 million gallons per day, Will County is 741 million gallons per day, Joliet 6 is 315 million gallons per day, and Joliet Unit 7 and 8 are 173 million gallons per day.

From the South Branch and the Ship Canal, there really isn't any official flow gauging station upstream of Romeoville or Lemont. So the upper flow of the upper regions of the canal is largely unknown. And from my understanding, this is due to the inherent complexities of the system and the erratic level changes, which make remote monitoring of flow in the waterways very difficult.

The only known upstream flow that's published is from the MWRDGC's North Side Treatment Plant, which provides the majority of the flow into the upper canal system, along with the Lake Michigan Diversion.

In any case, the flow in the canal system cannot be likened to flow in a pipe. Because of the impounded nature of the waterway, the navigational pools are much more like a bathtub or a lake than a true flowing river system. And, as such, trying to relate the amount of water used for

condenser cooling to the amount of flow available in the waterway is not an accurate representation of what's occurring in the waterway at times.

There's always a large volume of water available in the navigational pool to dilute effluent, including heating ones. In the quantity, water may not be moving, but it's there nonetheless.

MR. ETTINGER: When we're looking at the upstream plants -- first of all, Fisk and Crawford -- if there's no flow at times, aren't you, in effect, taking the same water out that you -- in that you just put out? Regarding heat temperature, you're taking water out of the same bathtub and putting it back in.

MS. WOZNIAK: If the flow remains low for long periods of time, that can happen on occasion. The flow is changing constantly out there. Not that we know what it is, but we know it's changing.

MR. ETTINGER: And does it provide -- does it cause problems for you if the water coming in is hot?

MS. FRANZETTI: Counsel, clarification. What do you mean by problems?

MR. ETTINGER: Problems.

MS. FRANZETTI: What's the problem? Operationally?

MR. ETTINGER: Yes.

MS. WOZNIAK: Operationally, if the water is too warm the unit will not be able to operate efficiently in their need to drop load on it.

MR. ETTINGER: Thank you. Now, looking at Joliet, we heard that the low sometimes there was zero. Is that correct?

MS. WOZNIAK: From the information from the Corps of Engineers, it says it goes to zero, yes.

MR. ETTINGER: Okay. What is the flow -- or intake at Joliet relative to the average flow at the Lower Des Plaines?

MS. WOZNIAK: I'm not sure I know what the average flow is offhand.

MR. ETTINGER: Now, as I understand it, your -- you don't know what the flow is at the Joliet plant or at -- I'm sorry. As I understand your testimony, the intake at Joliet total is about 14 hundred million gallons per day?

MS. WOZNIAK: Approximately.

MR. ETTINGER: And I saw another number somewhere here for 7 and 8 of 1325. Yeah, this is on Page 4. It says Units 7 and 8 are capable of producing approximately 1,000, a designed circulated water flow rate of approximately 1325 million gallons per day.

MS. WOZNIAK: That number in my testimony was the maximum. What I gave you just now was the average.

MR. ETTINGER: Oh, okay. That explains the difference. So if we are -- I've done my math right, we've got a maximum flow based on that number and the other number you gave me of about 17 million gallons per day. Is that correct?

MS. FRANZETTI: Are you adding the 315 million gallons a day for Joliet 6?

MR. ETTINGER: I'm adding 1325 to 376, which is the other number that she gave me.

MS. FRANZETTI: In her testimony?

MR. ETTINGER: Written testimony.

MS. FRANZETTI: Written testimony?

MR. ETTINGER: Correct. And that gives me -- I went to law school, so math was

hard -- but I think I got 1,700. Is that correct?

MS. WOZNIAK: 1,400, isn't it?

MR. ETTINGER: I'm doing the max.

MS. WOZNIAK: Okay, yes. 1,700

MR. ETTINGER: So the max would be about 1,700, and that's about 2,600 CFS?

MS. FRANZETTI: We need a calculator, Counsel.

MR. ETTINGER: 1.55 times --

MS. WOZNIAK: Oh, I know what the conversion is, I just can't do it in my head.

MR. ETTINGER: Very well. Have you ever done the conversion?

MS. WOZNIAK: Yes.

MR. ETTINGER: Have you ever looked at what the flow is -- the intakes of those plants compared to the low flow CFS?

MS. WOZNIAK: What low flow are you referring to?

MR. ETTINGER: Well, you told us zero at one point.

MS. WOZNIAK: Well, that's an easy comparison.

MR. ETTINGER: So for substantial

periods you may be running the same water into Joliet that you're putting out?

MS. FRANZETTI: Object to form, Counsel. I don't know what you mean by substantial periods.

MR. ETTINGER: Well, if it goes to zero for several hours at a time, that would be several hours in which you were clearly doing that.

MS. WOZNIAK: It's not necessarily the same water. Because as I said, it is more like a pool or a bathtub. It's not moving. It's just a large volume of water in that whole pool, compared to what we're taking in for the condenser cooling.

MR. ETTINGER: Are the intake to the Joliet plants sometimes larger than the Lower Des Plaines River flow?

MS. WOZNIAK: As I said before, it's not really appropriate to relate flow velocity, which is what the flow is reported in by the Corps of Engineers, to the overrule volume contained in the navigational pool. They say it's more like -- there's more water out there than there is being circulated through the plant. The river never runs dry.

MR. ETTINGER: That's true. Are you ever actually causing a backflow in the Des Plaines River?

MS. WOZNIAK: I've not seen the whole river move backwards.

MR. ETTINGER: Does Midwest Generation -- I think you did say Midwest Generation kept records of its power production at those plants.

MS. WOZNIAK: Correct.

MR. ETTINGER: Have you ever compared what the power production was of those plants under Midwest Generation compared to Commonwealth Edison production?

MS. FRANZETTI: So over the entire time Com Ed ran it versus ours?

MR. ETTINGER: Well, let's go back. Good clarification. When did Midwest Generation take over this place?

MS. WOZNIAK: December of 1999.

MR. ETTINGER: December of 1999. If you compare the period of, say, the '90s to the comparison since December of 1999, was Midwest Generation running the plants more or less than

Commonwealth Edison?

MS. WOZNIAK: I would say it varies on a year-to-year or even seasonal basis. But overall, I think the operational levels are pretty consistent.

MR. ETTINGER: You participated in the heat demonstration proceedings in the late '80s, did you not?

MS. WOZNIAK: Yes.

MR. ETTINGER: Do you recall the representations that were made by Commonwealth Edison as the capacity factor at which those plants would be run?

MS. WOZNIAK: I don't remember.

MR. ETTINGER: Do you recall whether Commonwealth Edison said those plants were going to be run at an increasingly lower capacity factor over the coming years?

MS. WOZNIAK: I don't recall that.

MR. ETTINGER: Does Midwest Generation have plans to close this, Crawford, Will County, or Joliet plants or units in the foreseeable future?

MS. FRANZETTI: Do we have pre-filed --

MS. TIPSORD: Yeah, that's question seven.

MS. FRANZETTI: Oh, sorry. I was still back at four.

MS. WOZNIAK: Will County Units 1 and 2 are scheduled to be closed at the end of 2010, and to my knowledge there are no plans for other unit closures.

MR. ETTINGER: Okay. Number eight, should we assume in this proceeding that any capital cost of putting supplemental cooling equipment on those plants can be fully amortized over the life of the plants?

MS. WOZNIAK: I don't know the answer to that question.

MR. ETTINGER: Number nine, does Midwest Generation claim as to any station or unit that the pollution control equipment is not justifiable because the plant will soon close?

MS. WOZNIAK: Yes.

MR. ETTINGER: And which ones is that?

MS. WOZNIAK: Will County 1 and 2.

MR. ETTINGER: But other than Will County 1 or 2, we don't know whether it would be --

MS. WOZNIAK: I don't know.

MR. ETTINGER: I'll skip ten. That's become a matter of public record.

Are you aware of any power plants anywhere that have been retrofitted to add cooling capacity, other than the cooling towers built for Joliet Unit 7 and 8?

MS. FRANZETTI: And Albert, can we just ask clarification on that? By retrofit, do you mean go to closed-cycle cooling? Is that what we're supposed to assume?

MR. ETTINGER: No. Actually, I meant it more broadly than that.

MS. FRANZETTI: Oh, okay. So included in things like helper cooling towers in Joliet?

MR. ETTINGER: Any sort of retrofitted cooling equipment, I'm asking her for her knowledge.

MS. FRANZETTI: Okay. Give me just a second, because I think we interpreted it you meant going to closed site.

MR. ETTINGER: I don't know why you would do that, since I said other than 7 and 8.

MS. FRANZETTI: Not a problem. Go ahead.

MS. WOZNIAK: I'm aware that Exelon's Dresden nuclear station has a cooling pond, but also installed supplemental cooling towers. But as far as that, I don't know of any others.

MR. ETTINGER: Has Dresden over the years had trouble meeting its heat discharge limits?

MS. FRANZETTI: I would note that Dresden's not owned by Midwest Gen for the last ten years. So I believe that question goes beyond her knowledge.

MR. ETTINGER: I believe you're wrong. Let's inquire about Ms. Wozniak's knowledge from the time in which she worked at Commonwealth Edison, which I believe was 1984 to 1999.

MS. FRANZETTI: So for that time --

MR. ETTINGER: During that period, did the Dresden plant have any problem meeting its heat discharge limits?

MS. WOZNIAK: They did have some thermal exceedance during that time.

MR. ETTINGER: To your knowledge, did they decide -- when did they put the supplemental heating -- or cooling equipment on the Dresden plant?

MS. WOZNIAK: When I was employed by Com Ed, I know they had rental cooling towers for one or two summers. And any subsequent cooling that they put in afterwards, I mean, I think was permanent, but that was after I stopped working there.

MR. ETTINGER: Basically the cooling pond is too small for the size plant they're operating on?

MS. WOZNIAK: I don't know for sure.

MS. TIPSORD: Our voices are falling off a little bit. Remember, we're talking to the back of the room, both the witness and the questioner. Thank you.

MR. ETTINGER: Okay. I have another question here, and this one is easy. On Page 2, you talked about Midwest Gen as an independent tower producer --

MS. FRANZETTI: On Page 2 of her testimony?

MR. ETTINGER: Of her pre-filed testimony.

MS. FRANZETTI: Okay.

MR. ETTINGER: And so I guess I was

wondering independent of what?

MS. WOZNIAK: It's not considered a utility, whereby it cannot pass its costs along to its customers in the form of rate base. It's strictly wholesale marketing of power.

MR. ETTINGER: It's a merchant producer?

MS. WOZNIAK: Correct.

MR. ETTINGER: It is a subsidiary of a California corporation, isn't it?

MS. WOZNIAK: It is, but they also have a utility. We are the non-utility piece of that.

MR. ETTINGER: Thank you. You mention on Page 5 that the -- and now we're back to the pre-field question 12 -- you mentioned on Page 5 that the allowed mixing zone is currently 26 acres. Are you aware of any study that has determined whether the heat discharge from the Joliet station contains more than 26 percent of the cross sectional area or volume of flow of the Des Plaines River?

MS. TIPSORD: And before you answer that, Albert you read that 26 percent, but the pre-filed question itself says 25 percent.

MR. ETTINGER: I stand corrected. Please answer my question as though I said what the pre-filed question asked.

MS. TIPSORD: That one percent could make a difference.

MR. ETTINGER: It could make all the difference in the world. In fact, it does.

MS. WOZNIAK: No, I'm not aware of any study that determined that. We did in-stream monitoring in 2002. The temperatures showed we were not using more than 25 percent of the cross-sectional area or volume of flow. And as I recall, the UIW studies done in support of AS 96-10 showed similar results.

MR. ETTINGER: And how did you do that study?

MS. WOZNIAK: It was a thermal monitoring study that did cross-sectional, top-to-bottom, side-to-side measurements.

MR. ETTINGER: And that's part of the UIW study that was done in the '90s?

MS. WOZNIAK: Correct. And we did one -- and we did in-stream monitoring in 2002 that did similar work.

MR. ETTINGER: Now, you say that 26 acres, it fluctuates. What do you mean by that?

MS. WOZNIAK: Depending on the relative flow of the plant and the flow of the river, it could be wide, it could be long and narrow. It's constantly moving, because the flows are constantly changing. So it's a surface area, so it's moving.

MR. ETTINGER: Okay.

MS. WOZNIAK: The edge is moving, so you would have to go out and measure it.

MR. ETTINGER: Now, does six get a 26-acre and seven and eight get a 26-acre, or is it a total 26-acre for the two plants?

MS. FRANZETTI: I'll just note I think that question is probably best put to the Agency. But what our understanding --

MR. ETTINGER: I can't -- I'll have -- why not the second best? How's that.

MS. WOZNIAK: I think each station is entitled to its own 26-acre mixing zone.

MR. ETTINGER: Its own 26 acres. Now, if you reach the 26 acres across the river, there's not enough river there, right?

MS. FRANZETTI: You're asking a hypothetical?

MR. ETTINGER: Yeah.

MS. FRANZETTI: Assume --

MR. ETTINGER: How wide is the river at Joliet, at the place where the Joliet plants are?

MS. WOZNIAK: I can't recall offhand.

MR. ETTINGER: Is it less than 400 feet?

MS. WOZNIAK: I seem to recall it's something around 500, but I'd have to refer to the Corps of Engineers river model maps to know for sure.

MR. ETTINGER: Question 13, are you aware of any study that is determined that the mixing zone at the Joliet station maintains a zone of passage where aquatic life at which the temperature standard of 93 degrees Farenheit is met 95 percent of the time?

MS. WOZNIAK: Yes. The same 2002 in-stream monitoring data showed a zone passage for aquatic life maintained under typical Joliet station operating conditions, which includes conditions during the summer months.

MR. ETTINGER: Do we have that study in the record anywhere now?

MS. FRANZETTI: It's not a study. It's in-stream monitoring data.

MR. ETTINGER: I'm sorry. Do we have that -- whatever it is, do we have it?

MS. FRANZETTI: I don't think it's part of the record. It's in the Agency's hands, but I don't think they've -- I don't think they've included that data in this proceeding. So the answer is, Albert, I don't think so.

MR. ETTINGER: Well, why don't we find out. Why don't we decide -- the record -- although we're trying to set a record here, we've definitely already done so, and it's probably unbeatable, sort of like Ty Cobb's base stealing record. So why don't we look at it and decide whether it belongs in the record, before we burden the record with them.

MS. FRANZETTI: Works for me. Are you going to look at it or am I?

MR. ETTINGER: Why don't we both look at it.

MS. FRANZETTI: I'll look at it and let you know.

MR. ETTINGER: Okay. It says -- in number 14, it is suggested in your testimony at Page 7 that the current rules applicable to the temperatures of the I-55 bridge under AS 96-10 are more stringent than the general use standards. What was the purpose of Commonwealth Edison then in seeking the variance in 1996?

MS. FRANZETTI: I'm just going to note for for the record, Madam Hearing Officer, that Ms. Wozniak is not a Commonwealth Edison employee, hasn't been for ten years, and I don't think the question is appropriate to ask her what the purpose of Com Ed seeking the variance was in 1996, as if she was a company representative.

But I recognize she worked for them, and she'll answer, if you wish, as best she can.

MR. ETTINGER: Well, I'm not seeking to draw adverse inferences against Commonwealth Edison here. I'm just trying to get information from an employee who may know -- a formal Commonwealth Edison employee who may well know the answer to the question. So you've defended Commonwealth Edison -- that's good -- and we can go

forward.

MS. FRANZETTI: I'm not in the business of defending Commonwealth Edison, and I didn't. I'm pointing out she is not a company representative for Commonwealth Edison. I think this is actually an appropriate question for me to answer as much as it is Ms. Wozniak as to what was the purpose of Com Ed seeking --

MS. TIPSORD: Let me try this: On Page 8 of your pre-filed testimony, Ms. Wozniak, you state that -- you were talking about the general use numbers and comparing the general use numbers and such, and you say for the remaining ten months of the year, the thermal standards applicable to the I-55 bridge are more stringent than the existing general use thermal standards that apply to the UIW waterway down stream of the I-55 bridge.

So I guess my question is: Can you explain that in the context of -- assuming that information was the same in '96, did that have an impact on Commonwealth Edison seeking a variance?

MS. WOZNIAK: I guess in that regard, you know, Com Ed sought a variance in '96 from the general use thermal limits at the I-55 bridge for

several reasons, one of which is that there are certain periods of the year when the discharges from the Joliet station could not meet those general use limits. And the second was there's also a provision of the general use standards of the five degree above natural limitation, which Com Ed never felt was applicable to a far field standard, but there were others that felt it was applicable.

And because there was no way to, kind of, come to an agreement on what the five-degree delta T should be and what ambient was and what natural was and related to a far field condition, that was also part of the reason we went for a variance for an alternate standard to remove that five-degree delta T from the adjusted standard, because we felt -- Com Ed felt it was not applicable.

MR. ETTINGER: And when you testified earlier today about how the general use standard as this jump step-wise function going from 60 to 90 right away, were you taking into account the five-degree delta T restriction, which is also part of a general use standard?

MS. WOZNIAK: I was not. Because as I

said, there was no way to figure out what you were getting a five-degree delta T from. So that's why I was comparing just the numeric standards and the fact that the alternate standards provide that stairstep without having to deal with the five-degree delta T when you don't know where to measure it.

MR. ETTINGER: Has Midwest Generation, or to your knowledge Commonwealth Edison, determined what the temperature of the Des Plaines River would be at the I-55 bridge if the Joliet plant were not operating?

MS. WOZNIAK: Midwest Gen has not. And there was some modeling work done for Com Ed to address such scenarios as part of the AS 96-10 proceeding. And from what I recall, the estimates of river temperature with or without the plants are based on a lot of very gross broad assumptions.

MR. ETTINGER: Now, those studies that you've referred to that were done in the '90s and that you rely on in your testimony, those were done by Commonwealth Edison not Midwest Gen, correct?

MS. WOZNIAK: Correct.

THE COURT: And just for the record --

we've talked about those studies a lot, but those studies are part of the record in the AS 96-10 in prior proceedings as well, correct?

MS. WOZNIAK: Yes.

MR. ETTINGER: Seventeen, has Midwest Generation or Commonwealth Edison or anyone else, to your knowledge, determined whether temperatures of the I-55 bridge are more than five degrees Farenheit higher than temperatures in the Kankakee, the Upper Des Plaines, or the DuPage Rivers, or other waters in the area?

MS. WOZNIAK: Not to my knowledge. I have not seen anything, no.

MR. ETTINGER: Eighteen, has Midwest Generation or Commonwealth Edison or anyone else, to your knowledge, studied how temperature affects the toxicity of the pollutants that are present in the Upper Dresden Pool?

MS. WOZNIAK: I don't recall any specific studies for that particular area. But based on my general understanding, water temperature can either increase or decrease the toxicity of pollutants depending on site-specific conditions. And it's not a simple issue or a direct correlation

as far as I know.

MR. ETTINGER: As far as you know, sometimes increased temperature will make some pollutants more toxic?

MS. FRANZETTI: Counsel, you need to add in it depends on site-specific conditions.

MS. WOZNIAK: Temperature can also break down toxic things more quickly.

MR. ETTINGER: Thank you. Would that depend on site-specific conditions?

MS. WOZNIAK: Yes.

MR. ETTINGER: So we've never studied, to your knowledge, whether the site-specific conditions in this watershed are such as to make heat more toxic or less toxic?

MS. WOZNIAK: Midwest Gen hasn't.

MR. ETTINGER: To your knowledge, has anyone?

MS. WOZNIAK: Not that I can remember seeing.

MR. ETTINGER: Does Midwest Generation intend to make any investments in any of the plants on the CAWS or the Upper Dresden pool to reduce impingement of aquatic life?

MS. FRANZETTI: I'm going to object to the relevance of that question.

MR. ETTINGER: You know, I'm going to drop back a second and ask whether you've ever studied impingement at the Joliet plant.

MS. WOZNIAK: Yes, we have.

MR. ETTINGER: What have you found?

MS. WOZNIAK: That we impinge fish.

MR. ETTINGER: Have you ever studied how impingement at those plants may be affecting the aquatic life in the Lower Des Plaines River?

MS. WOZNIAK: No, we haven't.

MR. ETTINGER: Does the Joliet -- do the Joliet units now have -- what, if anything, is done at the Joliet plants now to reduce impingement?

MS. FRANZETTI: Same objection in terms of relevancy.

MR. ETTINGER: I can explain the relevance, if someone has a question. We're studying the system and we're comparing various fish life to one system and another. It gets quite clear that we need to look at all of the things that may be affecting the aquatic life before we go putting in fish studies here and assuming that that habitat

or something is the cause of a problem when there may be other issues.

MS. FRANZETTI: But you haven't established that impingement has any sort of significant effect on the aquatic life out there.

MR. ETTINGER: I don't have to establish that. I just asked a question of the witness whether she knows.

MS. FRANZETTI: And she said that that has not been determined.

MR. ETTINGER: Is that what you said?

MS. WOZNIAK: Yes, we've not studied that.

MR. ETTINGER: Thank you. That's all I wanted.

MS. FRANZETTI: I thought she had said that --

MR. ETTINGER: We established it. I'm sorry. What was my last question before that?

(Whereupon, the record was read as requested.)

MR. ETTINGER: To your knowledge, has Midwest Generation made any study of the capital investments that would be needed to meet federal

requirements regarding intake?

MS. FRANZETTI: Objection to form in terms of what federal requirements are you basing that question on? What federal requirements to you intend are currently applicable for that question?

MR. ETTINGER: 316-B of the Clean Water Act.

MS. FRANZETTI: Just that section of the act, or are you pointing to regulations?

MR. ETTINGER: I think my question is broad. I asked the question broadly precisely to get around that set of problems.

MS. FRANZETTI: But --

MR. ETTINGER: Your witness is a very smart person. I believe she's probably heard of controversies regarding impingement regulations. And I am just asking whether they've made any study of the capital cost regarding compliance with those regulations.

MS. FRANZETTI: But there aren't any regulations currently effective, Albert. That's why I'm asking you to be clear about what your question is asking. Because the answer right now is there aren't any regulations, so we're not doing anything

to --

MR. ETTINGER: In the broadest possible sense, has your company ever made any study of what might be necessary to meet possible federal regulations regarding impingement at the Joliet plant?

MS. WOZNIAK: We have monitored impingement, and we are getting ready to do some additional study. But because the 316-B was being suspended and is in limbo until the Agency comes up with the new rule and we don't know what's going to be in the new rule, we have not done anything further than that.

MR. ETTINGER: Thank you very much. To your knowledge, does heat discharge by the Joliet plant attract fish to come up from below the I-55 bridge during the winter?

MS. WOZNIAK: I'm not aware of any data that would support that theory.

MR. ETTINGER: Have you ever looked?

MS. WOZNIAK: We do annual fish monitoring during the summer period, but we do not do winter monitoring.

MR. ETTINGER: Are you aware of any

testimony in the heat demonstration proceeding regarding fish attraction?

MS. FRANZETTI: Counsel, the heat demonstration proceeding?

MR. ETTINGER: We've already discussed that, Counsel. That was the 1988/89 demonstration that your witness refers to in her testimony.

MS. FRANZETTI: Just clarification for the record. Just want to make sure we're talking about the same thing.

MS. WOZNIAK: I don't recall that being discussed.

MR. ETTINGER: Thank you. Question 23, has Midwest Generation or Commonwealth Edison measured the effect of heat generated by the Fisk, Crawford, Will County, and Joliet plants on dissolved oxygen levels at the I-55 bridge?

MS. WOZNIAK: Yes. Midwest Gen monitors DO and temperature at the I-55 bridge from May to September on a continuous basis. This began in '97 and continues through present. These reports are submitted on a generally annual basis to Illinois EPA.

The data has shown that there's

little correlation between DO and temperature. It shows when there are higher temperatures when they're not consistent, and low DOs, which suggest that there's other factors apart from temperature that would be impacting DO in that system.

MR. ETTINGER: Has any study been done of the effect of the Fisk, Crawford, Will County, or Joliet plants on dissolved oxygen levels on the I-55 bridge since that of Dr. John F. Kennedy for the Joliet heat demonstration proceeding, PCB 87-93?

MS. WOZNIAK: From what I recall, Dr. Kennedy's study only involved modeling of thermal. That's what I remember.

MR. ETTINGER: Okay.

MS. WOZNIAK: As I said in my prior answer, since '97 we've been monitoring -- or there's been water temperature and dissolved oxygen continually monitored at I-55 in May through September.

MR. ETTINGER: I guess what I'm getting at -- and we'll hold out Dr. Kennedy's study -- but what I'm looking at is you've looked at those numbers and didn't see any correlation. Has there been any formal analysis done by somebody who

looked at those numbers and tried to sort out the factors, or is it just a matter of eyeballing it and seeing that you don't see any relation?

MS. WOZNIAK: The studies -- the company reviewed this data, as has the consultant that's prepared it and formed an evaluation. But we've not sent it out to anyone else to look at.

MR. ETTINGER: So IEPA is not seeing any such analysis?

MS. WOZNIAK: IEPA has the annual reports.

MR. ETTINGER: Okay. 29 we can skip. Question 30, has Commonwealth Edison or Exelon violated its MPDS permit with excessive heat discharges from the Dresden nuclear plant?

MS. FRANZETTI: Counsel, is your question with regard to the time period Ms. Wozniak worked for Commonwealth Edison and not since then?

MR. ETTINGER: Well, my question was open. If she happens to know from hearing from her old buddies at Commonwealth Edison or something, I'd like to know that too. But if she only knows about it from the period in which she worked at Commonwealth Edison, then she can only say what she

knows.

MS. FRANZETTI: Just for the record, both object in terms of relevancy, and I think it's a vague question. I think it's a question that should be posed to Commonwealth Edison or Exelon, or perhaps the Agency, to whom they submit their DMRs with respect to the Dresden plant.

MR. ETTINGER: Well, I --

MS. FRANZETTI: Ms. Wozniak has not -- Counsel, let me just finish making my point for the record. Ms. Wozniak hasn't worked for Com Ed or Exelon since 1999. As I've said already, she can't speak for those companies.

Further, the Dresden plant is located below the five-mile stretch downstream of the I-55 bridge in the confluence of the Kankakee River with the Des Plaines River. So I don't see how that is relevant here. But if you would like her to answer, she'll answer as best she can.

MR. ETTINGER: Well, as much as I would love to respond to that speech, I've given your final statement that she should answer the best that she can and it would be best if we just went on and let her do that.

MS. TIPSORD: Actually, for the record, I'd like you to respond, because I'm inclined to grant the objection. I don't really see the relevance. I mean, you've already asked some questions about Dresden that weren't objected to. But I'm not sure I see the relevance. So can you explain why you think they're relevant?

MR. ETTINGER: As far as the first point, I'm not asking her to speak for Commonwealth Edison. I think we all understand that. And furthermore, Midwest Generation has not been at all bashful here about relying on Commonwealth Edison studies done in the '90s, or Commonwealth Edison heat demonstrations done in the '80s when they felt that those benefitted them. So I'm simply asking that we use the same information source that we can here to further develop the record.

As for the relevance of this, I think we're going to find in Mr. Siegert's testimony and Dr. Otto's testimony various comparisons made of the fisheries above and below the I-55 bridge with the suggestion made that the area where there is the most heat impact above the I-55 bridge in some cases doesn't look a lot different from the area below the

I-55 bridge.

My point here and the reason we're developing these facts regarding temperatures below the I-55 bridge is to show and explain that there is nothing like a natural temperature regime there either.

And so comparisons made that draw a simple analysis on -- based on those -- on the comparison above and below the I-55 bridge are not valid and should take into account the unnatural temperature regime that is also present above the Dresden Lock and Dam but below the I-55 bridge.

MS. TIPSORD: All right. With that, given whatever personal knowledge you have from your time with Commonwealth Edison, I think you should answer the question.

MS. FRANZETTI: And Madam Hearing Officer, I'd just point out that if any of what counsel says is true, which is not established in the record, at the least, I think if it's going to be relevant to what we're talking about, we should be talking about at least the last ten years, which this witness can't speak to, and not something back into the '90s where there may have been exceedance

if there were a permit limit. But with that, go ahead.

MS. TIPSORD: Go ahead and answer to the best of your recollection.

MS. WOZNIAK: Okay. I'm not aware of anything within the past ten years. I don't have any friends left at Com Ed or Exelon who would fill me in on those things. But for the timeframe when I did work for the company, Dresden did have some exceedance of the thermal limits, which were reported to the Agency and subsequently corrected.

The exceedances would occur during extremely hot summers, or in some instances they had problems with some of their equipment that required them to divert from their cooling pond directly into the river.

But I would note that their discharge is actually into the Illinois River. It's not into the Lower Des Plaines, so they're really downstream of what's referred to as the five-mile stretch, so they're actually, you know, well downstream of the Lower Des Plaines River. They're already into the Illinois.

MR. ETTINGER: Okay. Question

31 -- now you'll be happy this is limited to Midwest Generation -- 31, has Midwest Generation investigated the amount of fish habitat in tributaries of the Upper Dresden Pool or other waters connected to the Upper Dresden Pool, including the DuPage River, Hickory Creek, Jackson Creek, and the Kankakee River?

MS. WOZNIAK: Okay. Just let me clarify, because I believe there's a question -- this question has some inaccuracies in it. The DuPage River and the Kankakee River are not tributaries of the Upper Dresden Pool, which is the area of the I-55 up to Brandon. Those two rivers are in the lower Dresden Pool, and Midwest Gen has not assessed habitat in the DuPage River.

For the Kankakee River, there are some QHEI scores from the 1993/94 studies for Com Ed. Midwest Gen has not investigated the amount of fish habitat at Hickory Creek, and we have assessed habitat, and what we've referred to is the amount of Jackson Creek adjacent to Exon Mobile.

MR. ETTINGER: I stand corrected on the DuPage River. Is there anything, to your knowledge, keeping the fish from swimming from the

DuPage delta north of the I-55 bridge?

MS. WOZNIAK: From what I recall, that area is very shallow, the connection between the DuPage and the Lower Des Plaines. So I don't know what kind of fish would be able to go back and forth. I would defer to the experts on that.

MR. ETTINGER: Okay. Are you aware of any fish kills caused by heat discharges from the Dresden, Fisk, Crawford, Will County, or Joliet plants?

MS. FRANZETTI: Just for the record, same objection with respect to including the Dresden plant in that. But the witness can answer.

MS. WOZNIAK: I don't know any. I've not heard of any fish kills from any of those. I can't speak for Dresden within the past ten years. But other than that, no.

MR. ETTINGER: Are you -- specifically, are you aware of any fish kills at the Joliet plant at any time?

MS. WOZNIAK: I don't recall anything specifically related to Joliet's operations in fish kills.

MR. ETTINGER: What was Thomas

Heninger (phonetic) position in 1988?

MS. FRANZETTI: Objection. Relevancy.

MR. ETTINGER: Thank you. I have no further questions, but I do have an exhibit to offer at this time. This is from the heat demonstration proceeding on August 5, 1988. It's a document from -- a letter from Thomas Heninger to Mr. Kenneth Rogers regarding a fish kill at the Joliet plant of gizzard shad.

MS. TIPSORD: If there's no objection, we'll admit the August 5th, 1988, letter to Mr. Kenneth Rogers from Thomas Heminger. There is no letterhead. We'll admit this as Exhibit 365. Seeing no objection, it's Exhibit 365.

And with that, if you have no further questions, the next set of questions is with Stepan.

MR. DIAMOND: There weren't any questions asked about it, right? I object to it's admission, at least for the truth of the matters asserted therein. No one has given any foundation for this letter. It's -- you know, it's just being thrown into the record. There's no foundation that's been laid for it. I see no basis for

admitting it to the record.

If Mr. Ettinger wants to call a witness to provide foundation for it and tie it up to how it's somehow related to this proceeding, I can see it being brought in. But without any foundation, how is the Board supposed to assess any credibility for this document, and what -- even if it was being -- even if it was being marked as an exhibit for purposes of asking the witness a question, that would be one thing. But here we've just got a letter being thrown into the record that has no foundation attached to it.

MS. TIPSORD: I understand your objection, and were this a contested case, it would be a little different situation. This is a rulemaking proceeding. It's arguably relevant, because he did ask her if she had any idea about fish kills. This is a letter that seems to claim there was a fish kill in Joliet in 1988.

Certainly, the Board -- it's not testimony. It is an exhibit to the proceeding, and the Board can take it for -- and, you know, I think admitting it as an exhibit is acceptable.

MR. ETTINGER: And I would be

delighted to give the testimony from the '88/'89 proceeding regarding this document, as well as a further explanation of its relevance in a file that I'll make next week.

MS. TIPSORD: Thank you.

MS. FRANZETTI: Can we take a five-minute break for Stepan?

MS. TIPSORD: He was going to stay back there, but that's fine. If you need five, that's fine.

MS. FRANZETTI: Can we take five?

MS. TIPSORD: Sure.

MS. FRANZETTI: Thank you.

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

MS. TIPSORD: Albert, you had a few more questions?

MR. ETTINGER: Yeah. Sorry, Ms. Wozniak. These will be real easy ones though.

You were sent a bunch of pre-filed documents along with the testimony. I just want you to identify a few of these documents. Looking now at the last four pages of the pre-filed documents

you were given in Exhibit 1, there are a series of forms, and I'm just --

MS. FRANZETTI: Albert, why don't you give the title of the document just so it's clear what we're talking about.

MR. ETTINGER: Okay. Well, one of them is National Pollutant Discharge Elimination System document, permit number Illinois 0002208, and it's for the monitoring period of 2003, July 1, to 2003 of July 31.

MS. FRANZETTI: Okay. Wait, Albert. We're in the wrong spot then. We're in the last four pages but in 1999.

MR. ETTINGER: Mine is double sided. Maybe it's the 8th page. There's one after that, which is '99.

MS. FRANZETTI: Okay, wait.

MS. TIPSORD: For the record, we're talking about the exhibit to the pre-filed questions.

MR. ETTINGER: Yes, these are exhibits to the pre-filed questions.

MS. FRANZETTI: Albert, I'm sorry. Did you say July 2003?

MR. ETTINGER: I'm sorry. I meant August. No, it's '03 July.

MS. FRANZETTI: We're here.

MR. ETTINGER: Okay. Is this a document that's filed by -- the type of document that's filed by the Midwest Generation Company?

MS. WOZNIAK: Yes. It's a Will County station discharge monitoring report.

MR. ETTINGER: And it shows that -- does it show the intake temperatures at Will County anywhere?

MS. WOZNIAK: Yeah. I don't think intakes are required to be reported on these.

MR. ETTINGER: Okay. Going now to the next document, which is Midwest Generation Will County station, this is a July 24, 2000, document. This is -- I'm sorry.

MS. FRANZETTI: Albert, I don't think we're with you.

MR. ETTINGER: I'm sorry. You're right. It was received -- it's stamped on the top, received January 24th, 2000. But it's actually from December 1 to December 31, 1999.

MS. FRANZETTI: We're on the same page

as you are.

MR. ETTINGER: Right. Is this the sort of document that was filed by Midwest Generation?

MS. WOZNIAK: It's also a discharge monitoring report, yes.

MR. ETTINGER: Yes. Okay. This is for Will County?

MS. WOZNIAK: That's what it says, yes.

MR. ETTINGER: Right. We have the intake temperature here. You have a minimum, an average, and a maximum. Would those -- for the intake temperature, was there an effort made for that intake temperature to avoid any heat influences of the discharge?

MS. WOZNIAK: I don't --

MS. FRANZETTI: I'm just going to object to the form on the record. I'm not sure it's clear.

MR. ETTINGER: Well, let me just drop that then. To the best of your knowledge, is that the temperature of the ambient water above Will County at that time?

MS. WOZNIAK: If it's intake temperature, it's the measurement of the waters that's going into the plant, not upstream of the plant.

MR. ETTINGER: Okay. So that would be right at the plant?

MS. WOZNIAK: Correct.

MR. ETTINGER: At the intake. So that would be the temperature of the water?

MS. WOZNIAK: Yes.

MR. ETTINGER: And presumably, the discharge temperature is these numbers below?

MS. FRANZETTI: On the line that says -- in the row that district charge temperature, correct, Counsel?

MR. ETTINGER: Discharge temperatures, right.

MS. WOZNIAK: Yes.

MR. ETTINGER: Okay. Now, are you involved in the preparation of these documents?

MS. WOZNIAK: No, I'm not.

MR. ETTINGER: Who would be?

MS. WOZNIAK: People at the station.

MR. ETTINGER: People at the station.

Okay. That's good enough. Now I am done.

MS. TIPSORD: All right. Mr. Diamond, we'll go with you then.

MR. DIAMOND: Thank you, Madam Hearing Officer. I'll start with my first pre-filed question. Explain what is meant by the term derating, as referenced in your testimony concerning how Midwest Gen maintains compliance with the thermal water quality standards.

MS. WOZNIAK: Derating is a term used by the industry, which means that essentially the electrical unit load is deliberately reduced in order to meet regulatory requirements and criteria. When the electrical generated station derates, it means that it reduces the amount of electricity that can be produced.

MR. DIAMOND: Second question, for the recent past, provide additional information concerning the frequency with which Midwest Generation has employed the rating to maintain compliance with the thermal water quality standards, including to what extent these deratings have occurred during periods where the ambient atmospheric temperature was above 90 degrees

Farenheit, and provide estimates concerning the estimated number of households that equate to the amount of derating taken by Midwest Generation.

MS. WOZNIAK: Midwest Gen derates the Joliet stations in response to the need to comply, and usually that's when you have hot, dry, humid weather, and there's a high demand for electricity. So any summer like that, you're going to have deratings.

As an example, this past summer we haven't had any because it was so cool. But within the past few years, the highest frequency of derates occurred in 2005 when, for example, total derates for the Joliet stations to maintain compliance with thermal water quality standards was over 200,000 megawatt hours, covering a period of over 80 days that year. And since the average U.S. household uses approximately 27 kilowatt hours per day, the derate equates to a loss of power to approximately 92,500.

The frequency of derates is tied to ambient weather conditions as well as water temporaries. In 2006 and 2007, there were years of cooler temperatures for the number of derates were

lower in the range of 20 to 40 days per year, with total derates of 500,000 to 100,000 -- 50,000 to 100,000 megawatt hours for the Joliet station.

It's also important to note that during the time these derates are taken, available power to the grid system is also often limited so this power may not be easily or economically replaced. Since the Joliet station is in the closest proximity of the I-55 bridge, it's the station that necessarily bears the brunt of any derates necessary to maintain compliance with the AS 96-10 standard.

The other upstream stations, as well as Joliet stations, have not historically needed to derate to meet the existing thermal standards, and this will change dramatically if the existing near field thermal standards change.

MR. DIAMOND: My third question, why hasn't Midwest Generation installed cooling towers at the other Midwest Generation plants, namely Fisk, Crawford, and Will County, in addition to the cooling towers installed at the Joliet plant?

MS. WOZNIAK: Installation of cooling towers at these plants has been considered by

Midwest Gen management. But based on the engineering studies done, there are considerable constraints, including lack of space, existing infrastructure, overhead power line proximity to residential areas, highways, and airports, that would make such installation extremely difficult or impossible.

MR. DIAMOND: Question number four, explain what is meant by the phrase the, quote, "Design maximum temperature rise in the cooling water," end quote, in your description of the Joliet facilities.

MS. WOZNIAK: Okay. This is the design change in temperature of water as it passes through the stations condensers from intake to discharge. It generally identifies how much warmer the water is going to get from the point of intake to the discharge to the waterway. There are many factors that affect the actual delta T, including bio following, inlet temperature, and other things.

MR. DIAMOND: And my fifth question, in your description of the Joliet cooling towers, you state that, quote, "They are helper cooling towers which are not designed for long-term,

continuous runs," end quote. Why weren't the cooling towers designed for long-term, continuous runs?

MS. WOZNIAK: When the towers were installed in 1999 by Com Ed, the original intent was to use them to maintain compliance with the existing thermal limitations only during critical periods, which would be the hot, dry summer or potentially abnormally warm spring or fall periods.

This was -- the reason the cooling towers were put in was to preserve as much low capability unused as possible at this time to serve the increased power demands during these periods.

As such, they wouldn't be necessary at all times of the year, so they weren't built with the intention of long-term continuous use. They're equipped with smaller pumps, manual controls, no freeze protection, and they were not built to withstand such use, particularly extended use into the winter months.

If stricter thermal water quality standards were adopted for the winter months, Midwest Gen could not rely on the availability of the helper towers to further cool its discharges.

MS. WILLIAMS: Can I ask a quick follow-up?

MR. DIAMOND: Sure.

MS. WILLIAMS: What's the earliest month in the spring and the latest month in the fall that the towers have been used?

MS. WOZNIAK: Well, historically, as I said, it depends on the weather every year. But we have used them as late as December and as early as January. But only when the weather conditions, you know, are over 60 degrees, which is very abnormal. Because if you've got close to freezing, the equipment, you know, would cool the water such that it would freeze in the cooling tower.

MS. WILLIAMS: So they have been used all year, depending on the weather?

MS. WOZNIAK: Very -- no. I mean, they're used on an as-needed basis, so you turn them off and turn them on only form certain periods of time in order to meet the temperature limits.

So I would say, you know, maybe once in the past ten years they were used for one or two days in January. The same is true for December if it was abnormally warm.

MS. WILLIAMS: Okay. Thank you.

MR. DIAMOND: My question number six, what do you mean when you state that the Joliet cooling towers, quote, "Are capable of cooling approximately one-third of Units 7 and 8 total designed discharge," end quote. Why can't the Joliet cooling towers cool more than this portion of the discharge?

MS. WOZNIAK: Okay. The total design flow of the Units 7 and 8 plants is on the order of 1325 MGD, while the maximum design flow of the cooling towers is about 515 MGD. So that equates to approximately one-third when all of the circulating water pumps are operating.

When Joliet 7 and 8 aren't operating with all four of their pumps, they usually run with only three. The ability of the cooling towers to cool a larger percentage of the discharge is possible, and that reaches approximately 50 percent of the discharge flow with three pump operations.

And this also assumes that the towers are running at good efficiency. If the dew point is too high, the towers will do little to cool

the station's discharge, no matter how many circulating pumps are in operation.

MR. DIAMOND: My question number seven, why doesn't Midwest Gen have to use cooling towers in the winter months?

MS. WOZNIAK: As I've mentioned before, the primary purpose of the towers is to ensure compliance with the I-55 temperature limits during the summer period and at times in the spring and fall when there's abnormally warm weather conditions.

Compliance with the existing thermal elements during the winter months has not historically needed the help for cooling towers, which is why they're not designed for year-round operation.

MR. DIAMOND: Question number eight, you state in your pre-filed testimony that, quote, "Generally the towers are used when the circulating water discharge temperature exceeds 93 degrees Farenheit for an extended period of time. The towers do not work efficiently when the temperature of the station condenser discharge flow is less than 90 degrees Farenheit, or when the dew point

temperature (i.e. temperature to which the air must be cooled at constant pressure for it to become saturated) approaches 78 to 80 degrees Farenheit," close quote.

Please explain further what you mean by these statements.

MS. WOZNIAK: Since the existing near field thermal water quality standard for the Joliet station is the secondary contact standard, there's generally been no compliance concerns when the discharge temperature of the plant is 93 degrees or less.

However, with extended discharge temps over 93 degrees, especially during erratic and unpredictable flow conditions of the Lower Des Plaines River, the towers are turned on to ensure continuing compliance.

Also, since the towers perform best when the water temperature coming into them is higher, they do not perform well when the intake primary to them is less than 93 degrees. The total amount of cooling is less.

When there's a greater difference in temperature of the water and the wet temperature

of the air, more evaporative cooling can take place. That's why when the dew point is high, which is usually about over 78 degrees Farenheit, which is what you would experience on a hot, muggy day, there isn't much evaporative cooling possible so tower performance drops off.

MR. DIAMOND: Question number nine, your pre-filed testimony states that, quote, "Based on my experience and firsthand observations through the UIW studies, the adjusted standards provide an adequate level of protection for the aquatic community below I-55 and provide a more representative, normal, seasonal fluctuation that needed a secondary contact for the general use numeric standards," close quote.

What is the experience and firsthand observations you are referring to?

MS. WOZNIAK: Okay. I've been involved with the Ship Canal and the Lower Des Plaines River since 1980 when I was a summer intern at Com Ed. I spent a considerable amount of time out on the waterway taking temperature measurements, performing sediment studies, and accompanying biological contractors and routine fisheries

monitoring trips.

This involvement has been ongoing ever since I accepted a full-time position with Com Ed's environmental affairs department in 1984. My primary area of responsibility for Com Ed, as well as Midwest Gen, has been to ensure continuing thermal compliance for all of our stations, as well as to perform monitoring studies to make sure the current level of heat in the waterway is not having an adverse impact on the aquatic communities which reside in them.

As such, I have over 25 years of direct experience with these waterways, and therefore feel I'm sufficiently qualified to provide an informed opinion on this subject.

MR. DIAMOND: My tenth question, you state in your pre-filed testimony that, quote, "Ambient stream temperature is largely associated with the volume of flow in the river. Midwest Gen's compliance efforts are, therefore, largely dictated by the upstream flow manipulations and perturbations in the CAWS that, in turn, affect the volume of flow to the Upper Dresden Pool," close quote.

Please explain the basis for your

statement that the volume of flow is largely associated with ambient stream temperature, and what you mean by your reference to, quote, "Upstream flow manipulations and perturbations in the CAWS," close quote, including how these actions affect the volume of flow to the Upper Dresden Pool.

MS. WOZNIAK: Temperature in the waterway is largely influenced by upstream flow manipulations, especially during the summer months. This includes dominant POTW flow from Stickney, as well as the effects of storm events.

When the flow in the waterway is low and the ambient air temperature is high, the waterway picks up heat from the atmosphere more quickly as it moves downstream. There's also less ambient cooling taking place during these conditions, which adds to the overall water temperature.

Conversely, when there are large flushing events caused by flood control activity in the upper waterway -- and by this I mean the drastic level manipulations of the canal system to accommodate runoff from the city of Chicago and surrounding areas -- there's a huge glut of water

released to the waterway in a short period of time, which effectively dilutes the effects of any heat inputs into the system, including those from POTW effluent, industrial discharges, and solar radiation.

Large localized rainfall events also serve to decrease local water temperatures while increasing river flows, and all of these flow events also dictate how the Joliet station is able to comply with the temperature limitations because we have to respond to those different flows because of changes to travel time in the system.

So we need to constantly be adjusting our station operations in order to ensure that we're meeting our downstream temperature standards.

MS. WILLIAMS: Can I ask a follow-up here? Ms. Wozniak, do you have any reason to question whether the flow information that you're being provided by the Corps of Engineers is accurate?

MS. WOZNIAK: I would say it's accurate to the extent that when we put it into our model and it comes out with the projections of what

the temperature is going to be seven miles downstream, based on that it flows in two-hour increments, that the projections are pretty good. So I would say it's as accurate as you're going to get.

MS. WILLIAMS: Have you seen any information to make you question whether it is accurate though?

MS. WOZNIAK: No. I mean, the only thing is -- I mean, when you get significant flow fluctuations up and down, the model needs to take those into account to try and assimilate them.

Corps data, I've seen nothing that would lead me to believe it's not accurate.

MS. WILLIAMS: Thank you.

MS. WOZNIAK: There isn't anything else to compare it to, anyway.

MS. WILLIAMS: We can move on. Thank you.

MS. TIPSORD: Mr. Diamond?

MR. DIAMOND: Thank you. Question 11, with regard to the thermal -- let me start over.

With regard to the thermodynamic model that Midwest Gen runs to monitor compliance

with thermal water quality standards, how often does the model run during the summer months?

MS. WOZNIAK: Models run on an almost continuous 24-hour per day basis during high-drive periods during the summer months. The model is not automated, except for certain data streams that are captured, so it must be manually run by an experienced individual every time one or more of the input parameters change, including weather conditions, river flows, intake temperatures, cooling towers operations, and megawatt load.

MR. DIAMOND: Question 12, with regard to Attachment 4 to your pre-filed testimony, the water flow graphs, please explain in greater detail what these graphs show and why they are representative of the flows in the Upper Dresden Pool. As to the flow graphs showing flow changes in July of 2008, have such significant flow changes been seen at other times?

MS. FRANZETTI: Tom, can you just give us a second to get out Attachment 4?

MR. DIAMOND: Sure.

MS. TIPSORD: You can take a whole minute.

MS. WOZNIAK: Okay. These graphs show typical flow fluctuations in the Brandon Road Lock and Dam, which is located directly upstream of your Joliet stations. While these graphs, you know, only show several weeks during the course of the last four years, they're very representative of what goes on a year-round basis.

The graphs show there are no gradual flow changes, and there's no indication of what you would expect as a normal seasonality associated with flows in the waterway. The flows change every two hours, or sometimes more frequently based on field experience, and are often changed by orders of magnitude.

It's not unusual for changes of thousands of CFS within a two-hour period, either up or down. And this doesn't necessarily correspond to rainfall events, so these type of changes can be seen, you know, any week of the year.

Flow in the Lower Des Plaines River, as well as the rest of the CAWS, is artificially manipulated between correlation of the U.S. Army Corps of Engineers and the MWRD, who regulate flow and level for both commercial

navigation and flood control purposes, which is the two primary functions of the Lower Des Plaines as well as the upstream CAWS.

MR. DIAMOND: You're finished?

MS. WOZNIAK: Yes.

MR. DIAMOND: Okay. Question 13, with regard to your testimony that, quote, "Flow conditions at any given time cannot be predicted with great precision, and flow does not follow any type of normal trend," close quote, explain why flow conditions, quote, "Cannot be predicted with great precision," end quote, and why this is relevant to the thermal water quality standards for the CAWS and/or LDP.

Also, please explain what is meant by the statement that, quote, "Flow does not follow any type of normal trend," close quote.

MS. WOZNIAK: Flows in the waterway can't be predicted because they're artificially controlled by a series of upstream locks and dams.

In a typical waterway, during wet weather conditions, usually in the spring, flows are generally higher. In dry weather, fall and winter, generally lower. This is sometimes true for the

Chicago area waterways or Lower Des Plaines River in a broad sense, but the extreme daily and hourly flow fluctuations are unnatural, unpredictable, and extremely problematic in trying to maintain compliance with thermal water quality limitations, especially the I-55 limits.

I've provided examples in Attachment 4 of my testimony to show that flows in the Lower Des Plaines fluctuate continually, especially downstream of the Brandon Lock and Dam, regardless of weather conditions. There are hourly flow changes, sometimes thousands of CFS at a time, and they follow no discernible trend, and often have no readily identifiable explanation. These are not step-wide changes, but extreme highs and lows, which are not predictable.

These large scale flow fluctuations must be responded to immediately by Midwest Gen in order to ensure continuing compliance with downstream I-55 temperature limits. The reason for this is that sudden changes in flow can result in local changes in water temperature, as well as changes in downstream travel time.

We must coordinate our Joliet

station operations to real time flow conditions in the waterways so that compliance with the I-55 temperature limitations are continually maintained, requiring that the thermal model be run any time there's a flow change, especially one of a larger magnitude, either up or down.

During critical conditions, these abrupt, unpredictable flow changes can dictate cooling tower use, as well as the need to unit deratings, which must be taken in a timely manner to be effective in maintaining compliance with the far field temperature limits.

With the current secondary contact standards in the place, we've generally been able to comply with near field thermal water quality standards at each of our stations. This is due to the fact that although local flow may go to zero at times, there's still a significant amount of water in the system, and it never runs dry, as what might hatch to a natural stream's flow when it goes to zero.

MR. DIAMOND: My 14th question, with regard to the Lower Des Plaines River use attainability analysis stakeholder process, your

testimony states that Midwest Gen provided extensive comments that general use thermal standards were not justified based on the lack of adequate habitat to support an aquatic community that justified such stringent thermal standards.

Was there a discussion during the Lower Des Plaines River use attainability analysis stakeholder process concerning the habitat issue, and if so, what was the outcome of that or those discussions?

MS. WOZNIAK: I recall the habitat was extensively discussed, and there was a general understanding that habitat was one of the limiting factors preventing the establishment of a higher quality of aquatic life, along with contaminated sediments, which would contribute to less than full Clean Water Act goal support.

There wasn't any demonstration in those Lower Des Plaines UAA discussions that show that habitat in the Upper Dresden Island Pool was capable aquatic life use goal.

MS. WILLIAMS: Excuse me. Can I follow up here? So it's your testimony that the contract for for the Lower Des Plaines UAA

recommended that Clean Water Act goals could not be met in the Upper Dresden Island Pool?

MS. FRANZETTI: Counselor, I'm just clarifying. You're talking about the contractor's UAA report and what he recommended --

MS. WILLIAMS: Yes.

MS. FRANZETTI: -- versus the discussions that were held. It's fine, I just --

MS. WILLIAMS: Go ahead.

MS. WOZNIAK: My comments were related to the discussion with the biological subcommittee.

MS. WILLIAMS: Okay. Maybe we should be more specific. So you're saying not the whole stakeholder group, but within the subcommittee of the stakeholder group that was discussed?

MS. WOZNIAK: It was discussed, but there was never any demonstration made at that time that the Upper Dresden Pool would meet aquatic life use goals.

MS. WILLIAMS: And ultimately what does the UAA contractor conclude?

MS. WOZNIAK: I believe the report said that it could with a general use.

MS. WILLIAMS: Okay. Thank you.

MR. ETTINGER: Just to clarify again, when you say there wasn't any discussion during the UAA process, you're just focusing on that biological committee and what you heard at those meetings?

MS. FRANZETTI: I think you misunderstood her.

MR. ETTINGER: I did, that's why I'm clarifying.

MS. FRANZETTI: Because she's talking about there was discussion about habitat. Why don't you go ahead and elaborate a little bit more.

MS. WOZNIAK: Yeah. There was a lot of discussion about habitat and limiting factors, but there was no demonstration or conclusion reached that the Upper Dresden Pool would be able to meet the Clean Water Act goals.

MR. ETTINGER: Within that committee?

MS. WOZNIAK: Yeah. The results of the committee discussion were supposed to -- my understanding were supposed to inform the rest of the process.

MR. ETTINGER: Okay. There were other discussions and other more public meetings, and you're not trying to recall what everybody said in

those public discussions to summarize their conclusions?

MS. WOZNIAK: I believe the charge of the biological subcommittee was to have the experts gather in one room to discuss the issues, and then discuss what their findings were and what their conclusions were to the rest of the UAA stakeholder group.

MR. ETTINGER: Okay.

MS. FRANZETTI: If I can -- go ahead.

MR. ETTINGER: All I'm saying is there were other meetings of the stakeholder group in which a wide variety of uses were proposed, including that of Pehow (phonetic) and others, and you're not purporting to say that those discussions are included in your statement that -- or the suggestion that nobody concluded that he was an actor or that their water was capable of meeting fishable swimable standards?

MS. FRANZETTI: Counsel, give me a second. She's confused in terms of what you're saying.

MS. WOZNIAK: Others may have had different views, but my experience is the biological

subcommittee.

MR. ETTINGER: That's all I wanted to clarify. Thank you.

MS. FRANZETTI: And just so I can clarify now, going back to the original question -- and I'll limit it for the moment to the biological subcommittee -- is what you're saying that the biological subcommittee discussed habitat conditions in the Upper Dresden Island Pool? Let me first just take that part.

MS. WOZNIAK: Yes.

MS. FRANZETTI: And with respect to those discussions, was it, based on your understanding, a consensus among the members of the biological subcommittee that there were limitations on habitat that would prevent the Upper Dresden Island Pool from maintaining the Clean Water Act aquatic life goals?

MS. WOZNIAK: That's my understanding.

MS. TIPSORD: I think we're ready for you again, Mr. Diamond.

MR. DIAMOND: Thank you, Madam Hearing Officer.

My 15th and final question, with

regard to the draft use attainability analysis report on the Lower Des Plaines River, you testified that Midwest Gen's comments regarding the draft report raised substantive issues that were ignored as part of the revised use attainability analysis report. What are the substantive issues that you are referring to?

MS. WOZNIAK: Okay. A few -- just a few examples of comments that Midwest Gen had submitted but were not addressed in the final Lower Des Plaines UAA report. They relate to misinterpretation and mischaracterization of Midwest Gen discharge temperature and I-55 temperature data, misrepresentation of providing Corps of Engineers river flow data, bias regarding existing secondary contact thermal limits, lack of reliance on actual field collector fisheries data provided by Midwest Gen when making statements regarding legality of existing thermal limits.

For example, on the filing UAA report, Page 2-70, last paragraph, I didn't correctly state that the maximum temperature in the Upper part of the Dresden Island Pool in during the summer reaches 100 degrees Farenheit. Midwest Gen

provided extensive documentation to show this statement was not accurate.

Based on that data, the statement was eliminated in one place of the temperature section of Chapter 2 of the final UAA report, but is still there in several other places, in both Chapter 2 and the rest of the UAA report.

MR. ETTINGER: Excuse me.

MS. WOZNIAK: There's more.

MS. FRANZETTI: Go ahead.

MR. ETTINGER: Were you done with that answer?

MS. FRANZETTI: Do you want to keep going?

MS. WOZNIAK: Yeah.

MR. ETTINGER: Sorry.

MS. FRANZETTI: All right. Hold, Albert.

MS. WOZNIAK: Okay. On Page 2-89, Figure 2.42, we indicated in our original comments that the graph of U.S. Army Corps of Engineers flow data, we depicted 6:00 a.m. values only, and is not representative of continuous flow data for the entire period and only represents a snapshot of the

day. The consultant improperly implied that the graph depicts a continuous flow record.

The U.S. Corps of Engineers data -- the Corps of Engineers measures flow on a two-hour basis -- and this data is available real time and upon request for historical data -- shows that the river fluctuates by orders of magnitude on any given day, regardless of precipitation events or not.

Midwest Gen relies on this two-hour data to make unit derating decisions to remain in compliance with applicable thermal limits, but the contractor just assumed the 6:00 a.m. value persisted for an entire day.

In addition, it was acknowledged that the flow is supplemented by diversion flow during the summer period. Both of these factors would indicate there is in constant low flow which would be necessary to create adverse conditions that the consultant presumes to incur in the Lower Des Plaines.

This is one example of where it could result in this manipulated data to infer that thermal conditions are negatively impacting the

biological integrity of the waterway, rather than objectively evaluating the data showing that other factors are causing negative impacts, and if such an evaluation were done, it would contradict the consultant's ultimate conclusion that none of the five UAA criteria evaluated or satisfied.

One other example is on Page 2-94 regarding the critique of the current secondary contact of indigenous aquatic life standards. In this section, as well as throughout the final UAA report, the consultant refers to the secondary contact temperature standards as being above the legal limit for fish. This bias against the secondary contact thermal limits is not supported by the fisheries monitoring data that Midwest Gen has been collecting for over 20 years.

Midwest Gen provided actual long-term field monitoring data, which clearly demonstrates that the very fish species the consultant claims cannot survive in the Lower Des Plaines because of the lethal secondary contact thermal standard are, in fact, found in abundance and doing well. This is based on scientifically defensible field data, rather than reliance on

outdated laboratory derived lethal endpoints that have no relation to actual waterway conditions.

We believe the reason why the consultant did not rely on actual biological data is that would directly refute the related references -- repeated references to the theoretical basis for the conclusion that the secondary contact thermal limits are lethal. It appears that the consultant has no more than a theory to explain to the Board why there's not been dead fish repeatedly showing up in these lethal thermal conditions of the UAA reach of the river.

One last example is on Page 2-98, third paragraph, beginning with figures 2.44 and 2.45. The first sentence states that the secondary contact indigenous aquatic life standard is above the lethal temperature of several warm water fish species.

The consultant goes on to say that adult fish would vacate the river during hotter periods of the year to escape the lethal temperatures allowed in the waterway. If this were truly the case, Midwest Gen's routine fisheries monitoring program, as well as programs run by the

Department of Natural Resources, would pick up such a drastic change.

In reality, there has been, and continues to be, a healthy assembly to the resident warm water fish species in the waterway, despite the continued operations of the Joliet units. Avoidance of the immediate discharge canal has been documented during the hottest times of the year. The fish continue to be found both upstream and downstream of these areas at this time, and thankfully they are alive and not dead.

There's no data to suggest a mass migration of fish to the Kankakee River during the summer period, nor is there any evidence to support the consultant's position that younger fish are killed by higher temperatures. To the contrary, the Midwest Generation fisheries monitoring program continues to collect both adult and young fish throughout the expanse of the Dresden Pool.

And one last example that the consultant misinterpreted Midwest Gen's data is on Page 3-5, Footnote 2. Although we've spent considerable time to explain to the consultant how to properly interpret data provided by Midwest Gen

as part of the UAA, the consultant persists in the incorrect assumption that the condenser discharge temperature from the Joliet plants is equivalent to the temperature of the entire Dresden Pool.

Quote -- and this is from the report -- see Figure 2.46 that indicates that, "Rhe temperature of 37.8 degrees C, or 100 degrees Farenheit, may have been obtained or exceeded in 1999 in the Upper Dresden Island Pool for a period of two months," end quote.

MS. WILLIAMS: Can you clarify exactly where you're reading from there?

MS. WOZNIAK: This is actually Page 3-5, Footnote 2, of the final UAA report. The quote from the report is what the consultant was using with station discharge temperature, but he was applying that to the entire Dresden Pool.

MS. WILLIAMS: Ms. Wozniak, do you recall if this footnote was edited by the Agency as part of exhibits to this proceeding?

MS. WOZNIAK: I understand -- it was discussed that it was edited in certain portions of the report, but it's still in other pieces of that document.

MR. ETTINGER: As long as we're interrupting here, you don't deny that part of the Upper Dresden Pool hit 100 degrees sometimes?

MS. WOZNIAK: In our discharge canal.

MR. ETTINGER: Your testimony is that it never exceeds 100 degrees at any time in the Upper Dresden Pool.

MS. WOZNIAK: In the main body of the waterway, I've not seen any data that shows that.

MR. ETTINGER: But in the discharge canal, it does reach levels over 100 degrees sometimes?

MS. WOZNIAK: It can go above 100 degrees at times.

MS. TIPSORD: And for the record, your references are to the UAA, which is Attachment A to the Agency's proposal. Are there any other questions for Ms. Wozniak?

MR. ETTINGER: I have two.

MS. DIERS: I have one. Albert can go first.

MR. ETTINGER: One, are there any significant heat inputs in the Upper Dresden Pool below the Joliet plant?

MS. FRANZETTI: Albert, what do you --

MS. TIPSORD: Just a second. Tom could not hear you at all.

MR. DIAMOND: Could the court reporter just read it back? I just could not hear the question.

(Whereupon, the record was read as requested.)

MS. FRANZETTI: And, Counsel, I was just asking what -- how do you define significant for purposes of that question? Anybody -- any industrial --

MR. ETTINGER: Well, let me drop that question. Is there anything -- when you do your modeling of making sure you reach compliance with the I-55 bridge, is there any temperature input below the Joliet plant that you have to take into account?

MS. WOZNIAK: No.

MR. ETTINGER: And why is that?

MS. WOZNIAK: I don't believe there are any heat inputs between the Joliet station and the I-55 bridge.

MR. ETTINGER: Thank you. To your

knowledge, did the Commonwealth Edison company or Midwest Generation consider building cooling ponds at any of these plants?

MS. WOZNIAK: I would say that would be impossible because there's no room for them.

MR. ETTINGER: There's no room around the Joliet plant for any size?

MS. WOZNIAK: Not anything that would do you any good.

MR. ETTINGER: Thank you.

MS. TIPSORD: Miss Diers?

MS. DIERS: Ms. Wozniak, which model determines near field mixing and the size of the mixing zone?

MS. WOZNIAK: We have a compliance matrix that we use to comply -- to determine compliance or gauge compliance with near field. There isn't a model, per se.

MS. DIERS: Can you explain how the matrix works?

MS. WOZNIAK: It was -- we had a meeting with Illinois EPA back in 2001 to discuss that matrix, and it uses river flows, intake temperature, station operations, cooling tower

operations, and it calculates where the temperature would be in the middle of the river.

MS. DIERS: Thank you.

MS. TIPSORD: Mr. Diamond, did you have another follow-up?

MR. DIAMOND: Yes. Ms. Wozniak, why do you believe there are no heat inputs to the river downstream of the Joliet 6 and Joliet 7 and 8 plants?

MS. WOZNIAK: I guess I should rephrase that. There are no major heat inputs that would impact our model. Studies were done when that model was put together, and we did some infrared studies to show what the heat inputs were out there, and there was nothing of the magnitude that we would need to incorporate it into our model.

MR. DIAMOND: Thank you.

MS. TIPSORD: Any questions for Ms. Wozniak? Let's go off the record for just a second.

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

MS. TIPSORD: Let's take an hour for lunch. We'll be back in about an hour. Thank you,

everyone.

(Whereupon, a lunch break was taken.)

STATE OF ILLINOIS)
) SS
COUNTY OF COOK)

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

Rebecca Graziano

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SUBSCRIBED AND SWORN TO
before me this 17th day
of November, A.D., 2009.

Kimberly A Meeks
Notary Public

NOTARY PUBLIC OFFICIAL SEAL STATE OF ILLINOIS
KIMBERLY A. MEEKS
MY COMMISSION EXPIRES
NOVEMBER 30, 2011