0001

ILLINOIS POLLUTION CONTROL BOARD

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

REPORT OF THE PROCEEDINGS held in the above entitled cause before Hearing Officer Marie Tipsord, called by the Illinois Pollution Control Board, taken by Steven Brickey, CSR, for the State of Illinois, 100 West Randolph, Chicago, Illinois, on the 25th day of September, 2008, commencing at the hour of 9:00 p.m.

0002

A P P E A R A N C E S

MS. MARIE TIPSORD, Hearing Officer
MS. ALISA LIU, Environmental Scientist
MR. ANAND RAO, Senior Environmental Scientist
MR. TANNER GIRARD, Acting Chairman
MR. JOHNSON
MR. NICHOLAS MELAS

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276
(217) 782-5544
BY: MS. DEBORAH WILLIAMS
MS. STEPHANIE DIERS
MR. ROBERT SULSKI
MR. SCOTT TWAIT
MR. HOWARD ESSIG

BARNES & THORNBURG
BY: MR. FREDRIC P. ANDES
One North Wacker Drive
Suite 4400
Chicago, Illinois 60606
(312) 357-1313
Appearing on behalf of the Metropolitan Water Reclamation District

MS. ADRIENNE D. NEMURA
DR. SAMUEL G. DENNISON
MR. STEPHEN F. McGOWAN

NATIONAL RESOURCES DEFENSE COUNCIL
MS. ANN ALEXANDER
THE CHICAGO LEGAL CLINIC
BY: MR. KEITH HARLEY
2938 East 91st Street
Chicago, Illinois 606017
(773) 731-1762

ENVIRONMENTAL LAW AND POLICY CENTER
33 East Wacker Drive
Suite 1300
Chicago, Illinois 60601
(312) 795-3707
BY: MR. ALBERT ETTINGER
MS. JESSICA DEXTER

OPENLANDS
BY: MS. STACY MEYERS-GLEN
24 East Washington Street
Suite 1650
Chicago, Illinois 60602
(312) 863-6265

FRIENDS OF THE CHICAGO RIVER
BY: MS. MARGARET FRISBIE
28 East Jackson Boulevard
Suite 1800
Chicago, Illinois 60604
(312) 939-0490

OFFICE OF THE ATTORNEY GENERAL - STATE OF ILLINOIS
BY: MS. SUSAN HEDMAN
69 West Washington Street
Suite 1800
Chicago, Illinois 60602
(312) 814-4947

REPORTED BY:
Steven J. Brickey, CSR
CSR License No. 084-004675

MS. TIPSORD: Let's go ahead and begin with your questions, Mr. Ettinger.

MR. ETTINGER: I guess I'll start with my pre-file questions and I'll follow up with

some documents and other things that we worked with here. Do you know if CSO discharges contain the same level of human pathogens as discharges from municipal waste water treatment plants that do not disinfect?

MS. NEMURA: Well, in general, there's more fecal coliform in combined sewer overflows than even in undisinfected municipal effluent.

MR. ETTINGER: Might that vary from CSO to CSO?

MS. NEMURA: Yes. And it could also vary depending on the nature of the rainfall event and at what point in the CSO discharge you collect the sample.

MR. ETTINGER: How does that effect it?

MS. NEMURA: The level of human pathogens would be dependant upon the proportion of untreated sewerage as well as the level of

0005

human pathogens that may be present in the storm water, which generally is lower than what is in untreated waste water and depending on the rain event, you could have a higher proportion of untreated sewerage to that storm water and also over the -- during the discharge, the proportion of untreated sewerage to the storm water, which is a function of runoff from the streets, may vary too.

MR. ETTINGER: How would it vary?

MS. NEMURA: It depends on the nature of the combined sewer overflows catchment, sort of the mini watershed for the CSO. So if a drop of water falls here, it may go to this CSO or it may go somewhere else. So it depends on the size of the catchment. It depends on the relative development of the catchment. It just depends on a lot of things and each storm event is different. So in development of long-term control plans, typically for decision purposes you will select an average fecal coliform concentration that you apply and when you do all CSO's -- and then for all the events -- and then when you evaluate CSO control alternatives, you use that average

0006

concentration to look at relative benefits between different alternatives.

MR. ETTINGER: So you might want to control the CSO's that are principally human sewage before the ones that are principally storm water runoff?

MS. NEMURA: I wouldn't say that. It depends on -- under the combined sewer overflow policy, for example, there's a sensitive area provision, which is intended to protect -- if you have an area where you have primary contact

recreation such as bathing beaches, CSO policy directs communities to try to eliminate or relocate CSO's away from that area. Therefore, those CSO's would be given a higher level of priority than a CSO that might not have a lot of runoff.

MR. ETTINGER: So there's a variety of factors you would look at in deciding what the priority of the controls of CSO's would be?

MS. NEMURA: Yes. And a lot of it has to do with affordability. If you can, for instance, because of the nature of the uses of the water body, if there are some CSO's that are more

0007

easily eliminated than others or treated than others, you might want to direct your resources to those CSO's first and save the more expensive, more capital intensive ones for later. The whole concept of green infrastructure has sort of caused CSO communities and EPA to reevaluate how you prioritize your other overall CSO control alternatives. There's a lot of factors.

MR. ETTINGER: How does the concept of green infrastructure effect that?

MS. NEMURA: A lot of our CSO problem is due to storm water runoff. And the concept of green infrastructure is that you go back into a community and you assess the amount of impervious area, you know, the pavement, the roofs and all of the storm water that is falling off that impervious area and getting into your combined sewer system causing the overflows. If you can use green infrastructures such as green roofs, porous pavement, rain gardens, bio swails, infiltration devices, you're taking that storm water, you're allowing it to infiltrate into the ground or you're capturing it and reusing it for irrigation, for example. You don't have to spend

0008

money to convey and treat that as combined sewerage. From a conservationist standpoint, it's a more cost -- it can be a more cost effective approach to reduce the amount of combined sewer overflows and it also provides ancillary environmental benefits such as reducing the urban heat island. It provides esthetic value to the community. And it can reduce the cooling costs for, you know, large buildings such as data centers.

MR. ETTINGER: Might you consider reducing the amount of impervious surfaces in some circumstances?

MS. NEMURA: Yes.

MR. ETTINGER: Do you know whether any of these things, I think you described as green infrastructure techniques, have been considered by the Water Reclamation District?

MS. NEMURA: I don't know of any specifics. I do know that the city of Chicago and the District's green infrastructure is on -- they are evaluating it. I don't know the specifics of how they are evaluating it.
MR. ETTINGER: Okay. Looking at
0009
page seven of your testimony, you mention a number of options that states can pursue for adopted standards that are identified by US EPA including segmenting the water body, adopting sub classes and high flow cutoffs. Do you suggest that the CAWS be segmented differently for consideration in the IAA than -- in the IAA and, if so, how?
MS. NEMURA: I'm not objecting to the segmentation that the agency proposed. My concern is more that they go through the processes of determining the appropriate and attainable uses for those segments.
MR. ETTINGER: Well, if they went through that process, might they determine that the segment lines aren't drawn right?
MS. NEMURA: I suppose that's a possibility.
MR. ETTINGER: What is a high flow cutoff and how does it work?
MS. NEMURA: A high flow cutoff is when the water quality standards recognize that under certain high flow conditions uses are not attainable and therefore are suspended or they don't apply. So you could evaluate the flow
0010
conditions in the water body and pick a certain discharge flow and say above that -- if the flow is higher than that, then the uses don't apply.
MR. ETTINGER: We've heard a lot of talk about Ohio, but my question in 13 relates specifically to ORSANCO. Are you familiar with ORSANCO?
MS. NEMURA: Yes.
MR. ETTINGER: Has ORSANCO adopted wet weather standards?
MS. NEMURA: They have not adopted wet weather standards. The Ohio River is still designated for primary contact recreation. What they did adopt that I referred to in my previous testimony is a provision that allows a CSO community to submit a long-term control plan and a UAA and to propose alternative criteria.
MR. ETTINGER: And have any CSO communities in the ORSANCO area proposed such standards?
MS. NEMURA: They have not proposed such standards. Cincinnati's long-term control plan acknowledges the need for wet weather standards and the other communities are in the
0011

process of either developing or updating their long-term control plans and I fully anticipate that those plans will also identify the need for wet weather water quality standards. Particularly, what is considered to be the poster child of small communities for CSO, which is Wheeling, West Virginia.

MR. ETTINGER: Some of these questions that I had here were already dealt with by Ms. Williams. Did he deem the Santa Anna River in California?

MS. DIERS: I don't think so.

MR. ETTINGER: Since I pre-filed it, I might as well ask the question. What is the standard that was adopted for the Santa Anna River in California?

MS. NEMURA: They have not yet adopted a wet weather water quality standard. They have a storm water task force and this is an instance where it's recognized because the storm water discharges -- a wet weather standard may be appropriate. They have challenges with high flow conditions similar to LA county and they have been considering various options including high flow

0012

suspensions of recreational uses, but they haven't adopted anything yet.

MR. ETTINGER: Does the Santa Anna River during dry weather times have pathogen standards applicable to it?

MS. NEMURA: Yes, they would have the recreational use standards that are in the basin plans.

MR. ETTINGER: And those are primary contact standards?

MS. NEMURA: I'm not -- because I didn't focus on dry weather for my testimony, I'm not exactly sure what those would be, but they would be some sort of indicator bacteria.

MR. ETTINGER: Okay. Finally, what is the standard that was adopted for Ballona Creek, California?

MS. NEMURA: That is the suspension of the recreational use during the half inch or greater for 24 hours after a rainfall ceases.

MR. ETTINGER: I'm going to mark some exhibits which sort of clarify the numbers that we had some testimony on this morning relating to these various other waterbodies and I

0013

just want to confirm that we have the right plan and we have the right numbers and I gave a copy of all of these documents to Mr. Andes during the lunch break so he's had a chance to -- Well, some chance to determine if I've created utter forgeries.

MR. ANDES: That I haven't checked

on.
MR. ETTINGER: Well, Caroline is here. It would be her. What I'd like to do is offer these documents as well as a tooth brush to Caroline and this would be 122.
MS. TIPSORD: Yes.
MR. ANDES: Do you want to mention which documents you're referencing by title?
MR. ETTINGER: Yes. 122 is the Massachusetts regulations, 314 CMR 405 and 406.
MS. TIPSORD: If there's no objection, we'll mark these as Exhibit 122. Seeing none, it's Exhibit 122.
MR. ETTINGER: Okay. I'm going to mark them all because I'm standing here if that's okay with you.
MR. ANDES: I didn't think you were

0014

allowed to.
MS. TIPSORD: He's going to give them to me to mark.
MR. ETTINGER: I'm going to request --
MR. ANDES: There's a special pen.
MR. TIPSORD: That is right. It's my exhibit pen.
MR. ETTINGER: A second document, which I believe was obtained from the Ohio River Valley Water Sanitation Commission, entitled Wet Weather Standards Proposal.
MS. TIPSORD: If there's no objection, we'll mark that as Exhibit 123. Seeing none, it's Exhibit 123.
MR. ETTINGER: 124 is another document from the Ohio River Valley Water Sanitation Commission -- that's an awfully long name -- entitled Background Summary of Proposed Revisions.
MS. TIPSORD: If there's no objection, we will mark that as Exhibit 124. Seeing none, it's Exhibit 124.
MR. ETTINGER: And then, finally,

0015

125 is an order of the state of California State Water Resources Control Board in the matter of Own Motion Review of Failure to Modify Recreational Use Standards for Ballona Creek.
MS. TIPSORD: If there's no objection, we will mark this as Exhibit 125 as identified by Mr. Ettinger. Seeing none, it's Exhibit 125.
MR. ETTINGER: I'll just stay over here if you don't mind.
MR. ANDES: A little too close.
MR. ETTINGER: I showered this month.
MR. ANDES: I knew that. Go ahead.

MR. ETTINGER: On Exhibit 122, which is the Massachusetts regulations, the regulation I believe that you brought to our attention earlier is on the second to last page with writing on it. This exhibit is entitled Partial Use BCSO and SBCSO.
MS. NEMURA: Yes.
MR. ETTINGER: And this sets forth the rules under which there can be this partial use designation?

0016

MS. NEMURA: Yes.
MR. ETTINGER: Looking back at the second page of what I handed you which is section 405, three, four, three in parens, four. I didn't invent this numbering scheme.
MS. NEMURA: 3A4.
MR. ETTINGER: 3A4. I'm glad to hear they got that down in Massachusetts. We see a heading here for bacteria.
MS. NEMURA: Yes.
MR. ETTINGER: And under bacteria, we have a little C -- B is for bathing waters. Do you see where I am there?
MS. NEMURA: Yes.
MR. ETTINGER: And C is for other waters?
MS. NEMURA: Yes.
MR. ETTINGER: Is it your understanding that that would be the standard that would be applicable during dry weather conditions of the Charles River?
MS. NEMURA: I believe the Charles River is designated Class B.
MR. ETTINGER: So how would that

0017

differ from this?
MS. NEMURA: If you go to the next page under 405 3B4 -- I have a lot of practice with these. I believe those are the numbers that would apply.
MR. ETTINGER: Very well. So that is just for the record the top of the fifth page of this exhibit and it specifies a number based on e-coli samples?
MS. NEMURA: Yes.
MR. ETTINGER: And that would be the number applicable, you believe, to the Charles River during wet weather conditions?
MS. NEMURA: It would be the number applicable to the Charles River across the entire recreation season regardless of dry or wet weather conditions because the Charles, they received a variance from the state.
MR. ETTINGER: We discussed that earlier. They had a variance rather than a wet weather UAA for the Charles River. Do you know

where those conditions came from?
MS. NEMURA: Those numbers are the same as the 1986 criteria and I assume -- Well, I don't want to assume, but they're the same as the 1986 criteria.
MR. ETTINGER: Looking now at --
MR. ANDES: If I can follow up on that for a minute?
MR. ETTINGER: Sure.
MR. ANDES: Are they trying to protect the swimming use in the Charles?
MS. NEMURA: Yes.
MR. ETTINGER: Are you familiar with the history of the Charles at all?
MS. NEMURA: Somewhat, yes.
MR. ETTINGER: Was it a very nice river in 1970?
MS. NEMURA: Let's see, I would have been eight. I don't recall visiting the Charles when I was eight, but I did go there when I was --
MR. ETTINGER: Well, you're 18 now, right?
MS. NEMURA: Seventeen.
MR. ETTINGER: I'm sorry.
MS. NEMURA: And I was watching the Harvard boys sail in the Charles and watching the inexperienced Harvard boys tip their sail boats over and saying "Oh, my God. Why are they even considering doing that."
MR. ETTINGER: And that was when?
MS. NEMURA: That was when I was 17, so that was '79.
MR. ETTINGER: Has the Charles recovered some since '79?
MS. NEMURA: Yes, it has improved.
MR. ETTINGER: It there swimming going on now in the Charles?
MS. NEMURA: I don't have firsthand knowledge of that, but I do know though that when they report -- when they measure the progress of improvement on the Charles, it is measured and recorded in terms of the number of days that the swimming standard is met.
MR. ETTINGER: Would it surprise you to know that over 50 percent of the days the swimming standard is now met in the Charles according to Region I?
MS. NEMURA: No.
MR. ETTINGER: Looking now, I guess, Exhibit 123 and 124. First of all, did you work with the Ohio River Valley Water Sanitation Commission?
MS. NEMURA: Limited Tech (phonetic) has conducted at least three projects for ORSANCO,

but in terms of did I work for them on their wet weather standards proposal, no and Limited Tech didn't either.

MR. ETTINGER: Okay. Looking at the second page of this first document, wet weather standards proposal, the document discusses various categories of use, including light use, is it your understanding that the light use is the one applied to the Ohio River?

MR. ANDES: Do we know what date this document is?

MR. ETTINGER: I don't.

MS. NEMURA: I believe this document was prepared not during this round of ORSANCO's triennial review, which is ongoing, but the previous round and this was information that was prepared for a work group most likely established by the pollution control standards committee to evaluate wet weather uses for the Ohio River.

MR. ETTINGER: Do you know whether the light use category has changed since this

0021

document was produced?

MS. NEMURA: ORSANCO's standards for the Ohio River designate the river for primary conduct recreation. They do not distinguish between different levels of use of the Ohio River.

MR. ETTINGER: So what standard is now applicable to the Ohio River?

MS. NEMURA: The primary contact recreation standard, which is applied on a monthly basis and it includes both the fecal coliform geometric means and the e-coli geometric means as well as the single sample criteria.

MR. ETTINGER: So is that based on the 1986 criteria for e-coli or some other figure?

MS. NEMURA: The e-coli criteria, the geometric mean is the same as the 1986. ORSANCO, when they -- the fecal coliform -- or the e-coli criteria can be used to assess attainment in the Ohio River.

The fecal coliform criteria, the geometric means is 200 and not more than -- the single sample maximum associated with that is not more than ten percent of the values in a month -- can exceed 400. For the e-coli criteria, ORSANCO

0022

adopted the 1986 criteria and the problem that occurred is they did not allow ten percent of the values collected in a month to exceed the single sample maximum of 235. So there's a disconnect in the way the two criteria are applied.

MR. ANDES: So just to be clear, this particular proposal was never adopted?

MS. NEMURA: Correct.

MR. ANDES: Go ahead.

MR. ETTINGER: Thank you. That's

helpful.
MR. ANDES: Just trying to be helpful.
MR. ETTINGER: I know. The last document that we've marked, 125, have you seen this before today?
MS. NEMURA: This particular document?
MR. ETTINGER: 125.
MS. NEMURA: That particular document, no, I did not review that document.
MR. ETTINGER: Have you worked on Ballona Creek?
MS. NEMURA: No.

0023

MR. ETTINGER: You did not personally work on Ballona Creek?
MS. NEMURA: No.
MR. ETTINGER: Did Limited Tech work on Ballona Creek?
MS. NEMURA: No.
MR. ETTINGER: What is the basis for your information on Ballona Creek?
MS. NEMURA: Reviewing the documents associated with the -- California's water quality standards for the Los Angeles River Basin Plan as well as Ballona Creek is a UAA case study on EPA's website. But as you know in California, they generate lots of documents so I'm not surprised that I missed this one.
MR. ETTINGER: I don't get to California much, but I'll take your word for it. Thank you. I have no more questions.
MS. TIPSORD: Anything else for Ms. Nemura? Thank you very much and we look forward to seeing you again soon.
MR. ANDES: Before we move on to the next witness. I do have some materials that are responsive to questions that were asked of us

0024

yesterday.
MS. TIPSORD: I was beginning to be despaired by the lack of exhibits we had today.
MR. ANDES: I'm here to help. First, I have this on disc. Dr. Blatchley mentioned his full report done on behalf of the Water Environment Research Foundation which is voluminous. We have that document on a disc.
MS. TIPSORD: I just need one of these.
MR. ANDES: Sure.
MS. TIPSORD: And for the record, this is blank, but I'm going to mark this as the Blatchley Report. Is that okay?
MR. ANDES: Sure.
MS. TIPSORD: And then I'll mark it as an exhibit so we know which CD ROM is which.

I'm going to mark this compact disc as Exhibit 126 if there's no objection. Seeing none, it's Exhibit 126.

MR. ANDES: Next, we have two documents which can be separate. Both respond to questions that were asked regarding variances and the duration of variances. One is a US EPA

0025

document dated January 24th, 1992, entitled Requests for Views on Allowable Duration of Water Quality Standards Variances.

MS. TIPSORD: And I've been handed that document as described by Mr. Andes and if there's no objection, we'll mark that as Exhibit 127. Seeing none, it's Exhibit 127.

MR. ANDES: The second document is from the US EPA Water Quality Standards Academy website and it's entitled Key Concepts of Variance: Temporary Modification to Water Quality Standards and it has an attachment.

MS. TIPSORD: We will mark that as Exhibit 128 as identified by Mr. Andes if there's no objection. Seeing none, it's Exhibit 128.

MR. ANDES: Next, there were questions raised about the Missouri water quality standards and I have copies of the relevant portions of the Missouri regulations. It's in two documents. One is the actual rules and the second is tables that are attached to the rules on the water quality standards. Here are the rules.

MS. TIPSORD: I think I'm going to mark these separately. The rules of the

0026

Department of Natural Resources we'll mark as Exhibit 129 if there's no objection. Seeing none, it's Exhibit 129. And the tables that accompany that, we will mark as Exhibit 130 if there's no objection. Seeing none, it's Exhibit 130.

MR. ANDES: Finally, we have two documents that respond to questions about existing uses, the regulatory concept of existing uses. One of them is a presentation series of slides entitled Water Quality Standards: Wet Weather Issues and Recreational Use Protection. A presentation by Ephraim King of US EPA.

MS. TIPSORD: And we'll mark that exhibit as Exhibit 131, as identified by Mr. Andes, if there's no objection. Seeing none, it is Exhibit 131.

MR. ANDES: Finally, this is a document of the Indiana Department of Environmental Management dated April 11th, 2008. The subject is Application of Existing Use Concepts in Conducting Use Attainability Analyses for Long-term Control Plan Communities for Primary Contact Recreational Uses.

MS. WILLIAMS: Do you recall which

0027
request this one is in response to?
MR. ANDES: I can go back and give the number of the question, but the question is about -- the question is being asked about how the existing use concept was being applied and this was a particular one where this document was issued by Indiana in consultation with US EPA. So it explains how the concept is utilized.
MS. TIPSORD: We will mark Indiana Department of Environmental Management Agency Nonrenewal Policy Document, policy number Water-014 as Exhibit 132 if there's no objection. Seeing none, it's Exhibit 132. If that's all Mr. Andes, if you want to have Mr. McGowan come up and get settled while I finish this paperwork.
MR. ANDES: Sure.
MS. TIPSORD: And do we have a copy of his testimony? We will mark his pre-filed testimony as Stephen F. McGowan and the attachment as Exhibit 133 if there's no objection. Seeing no objection, it's Exhibit 133. And then I believe we go to IEPA.
MS. WILLIAMS: Good afternoon, Mr. McGowan.
0028
MR. McGOWAN: Good afternoon.
MS. WILLIAMS: I'm Debby Williams. I'm representing the Illinois EPA and I just want to explain before I start that our questions were not clearly broken out between the subject of your testimony today and the subject of your testimony later. So I'll skip over a few where I've identified that they're specifically on dissolved oxygen.
MR. McGOWAN: Okay.
MS. WILLIAMS: Question number one, what do you base your assumption on page four of your disinfection testimony that, quote, these power plants are generally coal based electric generating facilities?
MR. McGOWAN: I know we'll get into this a little bit more, but there is a data basis, E grid, that breaks the United States into regions and Chicago is in the region referred to as RFCW and in this region, 72.8 percent of the power generation facilities are coal based. So, generally or mostly, the power generating facilities are coal based.
MS. WILLIAMS: So by mostly, you're
0029
saying 72 percent and you're getting that from --
MR. McGOWAN: E grid. I know you had some other questions on that.
MS. WILLIAMS: Okay.
MR. ETTINGER: Can I just ask how big that region is?

MR. McGOWAN: I believe I can give you a generalization.
MR. ETTINGER: That's all I want.
MR. ANDES: Was the map in the testimony?
MR. McGOWAN: No. I don't believe I have it.
MR. ETTINGER: It looks like it contains Northern Illinois, Indiana, Ohio, West Virginia and maybe some parts of western Pennsylvania and western North Carolina.
MS. WILLIAMS: Do you know specifically for Illinois whether that percentage is an accurate breakdown for Illinois?
MR. McGOWAN: There is not a breakdown for Illinois for the power generating facilities. They are broken into the regions that I described and that's where the emission factors
0030
come from.
MS. WILLIAMS: In E grid, there isn't?
MR. McGOWAN: Correct.
MS. WILLIAMS: Did you look for any other sources?
MR. McGOWAN: I don't believe so, no.
MS. WILLIAMS: Did you, in fact, assume -- so you didn't assume that a hundred percent was --
MR. McGOWAN: Correct.
MS. WILLIAMS: You used the factors from E grid?
MR. McGOWAN: Correct. And they are proportional to the power generating sources, a certain percent of coal based, a certain percentage nuclear, a certain percentage natural gas. So the emissions then that would come out would reflect the proportionality of the different power sources in the region.
MS. WILLIAMS: Do you recall what the percentages are for nuclear in that region?
MR. McGOWAN: Could we go to the
0031
board?
MR. ANDES: Sure.
MR. McGOWAN: This was not a table in my testimony, but given that I anticipated this question, I put a board together to show what the breakdown was.
MR. ANDES: We do have copies.
MR. McGOWAN: I'm not sure if everyone can see that. It shows that coal based is about 72.8 percent and a little further down is nuclear, which is listed at 23.2 percent and I know one of your questions was where is the information available and I do have that for you.

MS. WILLIAMS: Okay. Would Mr. Andes like to introduce that as an exhibit at this time?
MS. TIPSORD: Yes. He said he has copies.
MR. ANDES: Yes. As soon as I pull it out of the file. I'm looking. Here we go. It's always in the most obvious place.
MS. TIPSORD: We will mark this chart that's entitled Exhibit 1, Year 2004 E grid Summaries and Resource Mix, we'll mark this as
0032
Exhibit 134 if there's no objections. Seeing none, it's Exhibit 134.
MS. WILLIAMS: So can you just walk through with us how your outputs and conclusions would change if the number under nuclear was closer to 48 percent?
MR. McGOWAN: The emission factors would then change. I don't know what they would change to. For example, there's a certain amount of carbon dioxide emitted based on what type of plant it is. When the percentages of the plants change, the emission factors would change as well.
MS. WILLIAMS: So if the percentage of nuclear went up, would the emission factors go down?
MR. McGOWAN: I believe so. At this point in time, I would like to point out and not jump the gun, but on your question number 11, you ask if I am the expert in calculating air emissions. I am not. I have brought Steven Frye from Malcolm Pernie who worked directly for me on this project and he is an expert at calculating air emissions. So if the questions do get more technical than that, I would suggest he be allowed
0033
to answer.
MS. WILLIAMS: I don't think my questions will be very technical, but I have no problems with swearing in Mr. Frey.
MR. McGOWAN: Because I'm not sure those answers would change.
MS. WILLIAMS: I would like a definitive answer to that, but I don't consider it very difficult, but --
MR. McGOWAN: I am unsure how that would change.
MR. TIPSORD: In that case, can we swear in Mr. Frey and see if he can give us a more definitive answer? First, let's swear you in and get your name.
MR. FREY: The name would be Steven Frey, F-R-E-Y.
MR. TIPSORD: And do you remember the question? Could you ask the question again, Ms. Williams?

MS. WILLIAMS: Yes. I would just like to know if the number that is listed here that has now been marked Exhibit 134, if the percentage number under nuclear were closer to 48

0034

percent, how would that change the emissions factors in the resulting carbon dioxide conclusions?

MR. FREY: Since the emission factors are based on pounds of emission per megawatt and you change the percentages of the megawatts, the emission profile changes by each one of those different types of fuel sources. So the emission factor would change.

MS. WILLIAMS: It would go down?

MR. FREY: I'm not an expert on nuclear plants so I'm not quite sure of the level of emissions from a nuclear plant, but in theory, a nuclear plant is not a fossil fuel plant. So, yes, it should go down.

MS. WILLIAMS: That's about as technical as I'm looking for. I want to continue a little bit with that saying. Would the same be true for wind and solar?

MR. FREY: Yes.

MS. WILLIAMS: So over time if those emission factors were to increase from virtually zero, I think, one is zero and one is 0.06 percent, if those numbers were to increase, how

0035

would that change?

MR. FREY: Same effect. Both of those are referred to as renewable energy sources so they don't actually have a combustion associated with them so their factors would actually drop from a greenhouse gas point of view.

MS. WILLIAMS: And do either of you know -- I am making an assumption so I would like to know if it is the correct assumption that the District obtains its energy off the grid?

MR. McGOWAN: Does the District obtain the energy or the --

MS. WILLIAMS: You're assuming this electricity is coming from the grid so that the standard percentages would apply?

MR. McGOWAN: Correct. That would be an assumption that we were making.

MR. ANDES: In terms of the number on nuclear you were offering, was that an arbitrary number or are you planning to offer evidence on that? Given a number of 48 instead of 23, I just wasn't sure if there was a basis for --

MS. WILLIAMS: I don't think I meant to be arbitrary. If you would like me to call

0036

rebuttal witnesses on the breakdown of nuclear versus coal in Illinois -- I mean I think our case

is closed at this point, but if there is a need to call someone or provide affidavits for that breakdown we could. Is that what you're asking?
MR. ANDES: I'm asking if we're talking about a number that was being introduced into evidence -- as long as it's not being offered into evidence, that's fine.
MS. WILLIAMS: No, it's not.
MR. ANDES: Okay. I'd like to follow up with a couple of questions. I'm not sure which fellow I'm asking. In terms of nuclear energy in this region, is that generally a base load that it's used for?
MR. McGOWAN: It could be. It's my understanding that in reality most folks aren't exactly sure where their power is coming from. Once it's in the grid, you really don't know where it came from unless it's hardwired to your house or to your facility or something like that.
MR. ANDES: So the basic assumption is that, in general, people will get their power in some mix reflecting this region?

0037

MR. McGOWAN: Yes.
MR. ANDES: Do you know of any additional nuclear power plants being built in this region in the next 20 years?
MR. McGOWAN: I am not a nuclear facility person so I am unaware of those types of things. My expertise is more in the environmental.
MS. WILLIAMS: Just generally, do you know if Illinois has more nuclear plants than some of the other states you named in the region?
MR. McGOWAN: Excuse me?
MS. WILLIAMS: Are you aware of if Illinois has more or less nuclear plants than other states in this region?
MR. McGOWAN: I don't know the breakdown.
MS. WILLIAMS: You don't know if it's more or less?
MR. McGOWAN: No, I don't.
MR. ANDES: You also --
MR. McGOWAN: I'm sorry. Let me back up. The states that I named are all from the same region. They all get the breakdown for all

0038

of the region as this. As you go to individual states, I don't know the individual breakdown. If you take the region as a whole, this is the breakdown.
MS. WILLIAMS: I understand.
MR. ANDES: And since you're getting power off the grid, you are not necessarily getting it from the power plant closest to you?
MR. McGOWAN: That's my

understanding.
MR. ANDES: Thank you.
MS. WILLIAMS: Would it be possible that all the District's energy was coming from nuclear power?
MR. McGOWAN: I am unqualified to answer that question.
MS. WILLIAMS: One way or the other?
MR. McGOWAN: I am not qualified to answer that question.
MS. WILLIAMS: Okay. And did you explain in your answer already how the E grid database can be obtained?
MR. McGOWAN: I can read something off to you or did we have something written on
0039
that or not?
MR. ANDES: You mean this?
MR. McGOWAN: Yes. This would be the website that we got the basic background information where people could access it.
MR. ANDES: We have a document that we pulled off the EPA website. I would have to say because of the nature of how the EPA put it on the website, a lot of it does not print off well, but the copy we have does at the bottom of the first page have the link to the E grid material on the EPA website.
MS. TIPSORD: We will mark this seven page document, E grid FAQ Clean Energy US EPA, a seven page document, as Exhibit 135 if there's no objection. Seeing none, it's Exhibit 135.
MS. WILLIAMS: I think I'll skip a little bit. You were doing pretty good.
MR. HARLEY: May I ask a question, please?
MS. TIPSORD: Yes.
MR. HARLEY: Does the District buy its electricity from E grid or does it buy it from
0040
a utility?
MR. McGOWAN: I'm only qualified to answer that to a certain degree. E grid is not an energy selling entity. It is an information collecting entity. So I doubt they're buying anything from E grid. After that, I don't know where the District buys their energy directly from.
MR. HARLEY: So you don't know if the company which is providing power to the District might be obtaining power in a different proportion of sources than the one you described for E grid generally?
MR. McGOWAN: Correct. I don't think that anyone really knows that because once you're pulling power from the grid, it's hard to

really ascertain where any of it ever came from.
MR. HARLEY: Would it surprise you if I told you Commonwealth Edison knows exactly the proportion of different energy generating units in one category where it draws its energy from? Would that surprise you?
MR. McGOWAN: Where they draw their energy from and when it is distributed with other

0041

power, I think that's where the uncertainty comes. I would understand that they know where they're getting their power from. They have to track their raw materials and how much energy they produce, but, again, I know a certain degree about this, but I am not a power expert. It is my understanding in talking to folks that have worked with us on the report that there is not a great understanding of where all the energy comes from in the breakdown.
MR. HARLEY: For the District?
MR. McGOWAN: For anyone.
MR. HARLEY: Would it surprise you if I told you that Commonwealth Edison affirmatively discloses to all of its users the source of the energy it provides?
MR. McGOWAN: Would it surprise me? I guess not if I would believe you.
MR. HARLEY: But you didn't inquire of Commonwealth Edison about that?
MR. McGOWAN: No.
MR. HARLEY: Thank you.
MS. TIPSORD: We have a question in the back. Ms. Hedman.

0042

MS. HEDMAN: Sue Hedman from the Office of the Attorney General. Can I infer from your answers to the earlier questions -- may I conclude that you're not aware that state law requires all utilities to disclose the mix of fuel sources for the electricity delivered to customers?
MR. McGOWAN: I am unaware of that.
MS. TIPSORD: Okay. Ms. Williams.
MS. WILLIAMS: Question seven asks whether you have calculated the air emissions impact on a per customer or per gallon of water treated basis?
MR. McGOWAN: No, we did not.
MS. WILLIAMS: Could you have done that?
MR. McGOWAN: Yes.
MS. WILLIAMS: Why didn't you do that?
MR. McGOWAN: We didn't think it was relative to the analysis.
MS. WILLIAMS: And you didn't think it would have given some perspective on the

relevance of the total numbers you've given? Why
0043
wasn't it relevant?
MR. McGOWAN: We didn't think it was relevant. I didn't see the reason to do it.
MS. WILLIAMS: How would one go about doing that if they were going to do it, do you know?
MR. McGOWAN: You would have to take the unit in question whether that's tons of carbon dioxide or methane gas and divide it by the number of customers.
MS. WILLIAMS: So it wouldn't really be that difficult?
MR. McGOWAN: I don't think it would be that difficult, but it would give you pounds per customer and I don't know that that was something we were trying to get to.
MS. WILLIAMS: Would you be willing to do that if you were asked to do this for this proceeding?
MR. McGOWAN: At this point in time, I work directly for the District and the District would have to ask me.
MR. ANDES: I assume that the state could take the pounds that are provided in his
0044
testimony and divide it by the number of customers or any other denominators it wants.
MS. WILLIAMS: I'm not sure that the state thinks any of this testimony is relevant to the proceeding to be honest.
MR. ANDES: So we could stop here.
MS. WILLIAMS: Question ten, did you consider the environmental benefit of reduced transportation emissions from providing safe recreational opportunities closer to the population center?
MR. McGOWAN: No.
MS. WILLIAMS: Question 12 cites two pages in your report and asks whether the mercury calculations reflect pending and future reductions in emissions from coal power generating stations in Illinois or -- Well, in the region. Why don't we change that to the region. Or are they based on current conditions? Do we need Mr. Frey to answer that?
MR. McGOWAN: Steve and I have spoken about this. I can start the answering. It's based on current conditions.
MS. WILLIAMS: And if there were
0045
changes to treatment technologies for mercury, how would that impact the results of this particular set of calculations?
MR. McGOWAN: It would change the calculations if there were different controls.

MS. WILLIAMS: In what way would it change? Would it make them go down?
MR. McGOWAN: You would have to tell me what the regulation or requirement would be. I'm assuming you're saying that the requirement would allow less mercury so, yes, there would be less.
MR. ANDES: If there were additional coal power plants built, would that then increase the number in terms of total mercury emissions?
MR. McGOWAN: If the percentage went up and the coal went up, I believe the mercury would go up.
MS. WILLIAMS: Do you have any reason to think the percentage of the coal number is going up?
MR. ANDES: Do you have any reason to think -- Never mind. Answer that question first.

0046

MR. McGOWAN: Again, what I would like to clarify is our investigation wasn't to find out where all the power was coming from. We took the E grid information and used it in an environmental analysis. So I'm unqualified to tell you how many nuclear facilities or coal fired facilities will be built in the future.
MS. WILLIAMS: Whether I asked you or whether Fred asks you?
MR. McGOWAN: Or if anyone else asks me.
MS. WILLIAMS: I'll try and go back to question three. Can you explain in more detail what you mean when you state on page five of your testimony, quote, environmental impacts are identified through professional --
MR. McGOWAN: Yes. We were trying to do a holistic analysis of the environmental impact and it's something that's somewhat new so we had some brainstorming sessions with folks. We contacted manufacturers. An example of this would be the manufacturing of UV bulbs involves mercury. So we wanted to talk to the manufacturers and what are the environmental impacts of operating UV

0047

bulbs, but are there environmental impacts in the manufacturer or in the use of the raw materials? So what we were trying to do was go another level or so beyond. So we had some brain storming sessions. We had some contact with manufacturers and we looked at literature to see if we would make the determination and get as comprehensive of a list as we possibly could.
MS. WILLIAMS: And can you explain how the impacts were ranked and prioritized?
MR. McGOWAN: They were done with a traditional matrix type of analysis where we

grouped certain effects. We gave them a weighting and then we scored them and we used that as a tool to help us kind of focus on what would be the more critical components in the analysis and what would be less critical. So it wasn't a definitive ranking, it was more of a guidance ranking.

MS. WILLIAMS: And by, we, you mean --

MR. McGOWAN: The project team which included staff from Malcolm Pernie, the District and other subconsultants that were on our team.

MS. WILLIAMS: Who was involved from

0048

the District on this process?

MR. McGOWAN: Matt Schultz was our project manager and there were several staff from M & O, maintenance and operation, and some from the engineering. To get the exact names, I would have to go back to the minutes of the meetings. We do have that written down who participated in the workshops.

MS. WILLIAMS: Can you describe some of the assumptions that were made?

MR. McGOWAN: Could you be a little more specific? Assumptions about what?

MS. WILLIAMS: That's a good question. Why don't we move on for now and I may come back to this.

MR. McGOWAN: Okay.

MS. WILLIAMS: On page seven of your testimony, you describe --

MR. McGOWAN: Which question are you on?

MS. WILLIAMS: Question five refers to your discussion of baseline conditions on page seven. Can you describe in more detail what you mean by base line conditions and how you arrived

0049

at them?

MR. McGOWAN: Certainly. I'll use an example. What we wanted to do was be able to make a comparison. So, for example, we compared the amount of energy currently used at the three plants Stickney, Calumet and North Side. And that was the baseline, the energy that was used at those three facilities. Then we calculated how much more energy would be used whether UV disinfection or chlorination followed by dechlorination was utilized and that would be utilized to say what type of increase there would be above the baseline.

MS. WILLIAMS: And whose work did you rely on for assumptions regarding the engineer parameters of the disinfection technologies? You didn't develop those on your own, correct?

MR. McGOWAN: Correct. Consoer Townsend CPE did the master planning and several

technical memos for the District and they did the investigations on the technologies, ultraviolet disinfection, as well as chlorination followed by dechlorination. So the design parameters were from those documents.

MS. WILLIAMS: Do you know if someone from that group will be testifying?

MR. McGOWAN: I believe so.

MR. ANDES: Mr. Zenz. And he will be able to answer any of those questions.

MS. TIPSORD: Actually, I have a quick follow up. I just want to be sure. On page two of your testimony, you cite the Consoer Townsend UV disinfection offsetting and also the draft at Stickney. Are both of those in the record either through Mr. Zenz's testimony or through Mr. McGowan's testimony?

MR. ANDES: Let me check on that question. I'm not sure if they are in the record yet.

MS. TIPSORD: And that's the same with the chlorination/dechlorination on page three, if you could check on that. I'm not positive either and I couldn't lay my hands on them this morning when I tried to look for them. Thank you. I apologize for interrupting, Ms. Williams.

MS. WILLIAMS: That's okay. Question six asks for your UV impact estimates of transportation impacts, is it possible that delivery and waste transportation for this technology could be absorbed by existing deliveries and waste shipments with no increase in transportation emissions?

MR. McGOWAN: I would preface it by saying I'm not in charge of the manufacturers shipping techniques. However, we did contact them and they said anything they ship over 150 pounds would go by an independent truck and they will be using thousands of pounds of bulbs per year. So I would conclude from that that probably not, but I would not want to give an absolute definitive.

MS. WILLIAMS: And you considered it?

MR. McGOWAN: We did. We looked at that.

MS. WILLIAMS: Question eight, you testified regarding the amount of land needed for the various treatment technologies and the amount of the impervious surface that would be created. You also testified that storm water runoff will increase. Could these impacts be eliminated or significantly minimized by using green infrastructure technologies for pavement, water,

roof gardens, et cetera?
MR. McGOWAN: Theoretically, yes. Given your word significantly reduce, I don't know. Given the very, very preliminary stage of the facilities, we don't know what they look like. We don't know how feasible that would be. So, significantly, I'm not sure I would agree with, but, in theory, anything you would do along those lines would reduce runoff.
MS. TIPSORD: Mr. Harley, do you have a follow up?
MR. HARLEY: On the same topic of the use of environmentally beneficial practices, did you consider the possibility that the District could employ power purchase options like the use of renewable energy credits as an alternative to purchasing power in the same portions that are typically provided in E grid?
MR. McGOWAN: No, we did not look into that.
MR. HARLEY: Thank you.
MS. TIPSORD: Ms. Williams.
MS. WILLIAMS: And you would agree

0053

that the city of Chicago is encouraging these types of green infrastructure projects?
MR. McGOWAN: I don't know.
MS. WILLIAMS: Question nine, with regard to Attachment Two and I cite to a particular page in the table page 4-29, table 4-23, what percentage of the existing precipitation is currently runoff and should that be subtracted from the total?
MR. McGOWAN: I guess there's -- you could do it that way. There's two ways of doing it. Doing an entire total and then subtracting out the old buildings or the way we did it was we just looked at the amount of runoff that was coming from the old and we estimated what was coming from the new. So we didn't subtract anything.
MS. WILLIAMS: Maybe you need to explain better how you went about estimating the runoff comparing existing to proposed.
MR. McGOWAN: We took existing land, did normal runoff calculations and estimated an amount of storm water based on, I believe, it was a typical year of 36.4 inches of rain for an

0054

average. Then we made some estimates of what the new facilities might look like and did some runoff calculations for those and that would be what would be in addition, somewhat in addition, because one of the actual technologies, chlorination followed by dechlorination, when applied at Calumet would result in the removal of some tanks so the actual runoff went down at that

facility. So I don't want to --
MS. WILLIAMS: I guess I'm trying to understand how you address if you had a parking lot and they were going to turn the parking lot into a building for treatment technology, would -- the runoff wouldn't change. So how did you account for that in your analysis?
MR. McGOWAN: I don't believe there was a lot of replacing a parking lot with a building. I think most of it was in a green space area, which is why runoff went up.
MS. ALEXANDER: So you looked at that and you accounted for that in your answer.
MR. McGOWAN: Yes.
MS. WILLIAMS: I'm moving down to question 13. It says on page 2-4 of your

0055

environmental assessment report it states, quote, the UV system proposed in the January 2008 estimates approximately twice the power consumption trend (11.9 kilowatt hours MGD), at peak hour design flow compared to the system in August 2005 report (6.1 kilowatt per MGD) with all other key design parameters flow and UVT equal. The high-power requirements in the January 2008 report is due to the use of the lower e-coli value 400 CFU per 100 milliliters, which seems to be reasonable. Please explain the basis for this conclusion.
MR. McGOWAN: When we were hired to do the analysis, there was a preliminary analysis of the disinfection technologies that were using a somewhat higher coliform count and somewhere during the process that was changed. I believe it was somewhere in the neighborhood of a 1,000 or 1,030 and it was subsequently changed to about 400. What we were just doing was documenting in our report that we recognized that there was a change and we wanted people to understand that we knew that so when people were reading the report they would say "Were they using the old number or

0056

the new number?" We just wanted to document that we were using the newer number. So we recognized that there was a change, that the coliform limit in the analysis went down. Therefore, energy went up and we just wanted to make sure we had that documented properly in our report.
MS. WILLIAMS: Based on the fact -- you have obviously read my question because you clearly have read and understood them, anticipating my next question, would you agree that 400 e-coli forming units per milliliter is not the correct new number?
MR. McGOWAN: Four hundred is not --
MR. ANDES: If I can just interject for a moment?

MS. WILLIAMS: Question 14, just asks why do you use a 400 e-coli CFU from a 100 milliliter value when the effluent standard proposed by the agency is 400 fecal coliform CFU?
MR. McGOWAN: Right number, wrong letter, that's why I was getting confused. Sorry. Yes, that was a typo that was passed on. We just used what was given to us and, subsequently, we found that was a typo, that it should have been
0057
fecal.
MS. WILLIAMS: Does this error affect any of the figures in your final report?
MR. McGOWAN: If it doesn't affect the equipment and sizing, it won't affect anything in the report.
MS. WILLIAMS: But it might affect the equipment and sizing, right?
MR. McGOWAN: I wouldn't be the one to answer that. You'd have to get the folks who did the sizing of the equipment to answer that.
MS. WILLIAMS: And would that be Mr. Zenz as well?
MR. ANDES: That would be Mr. Zenz, but I think what he will tell you is that fecal was used, but when he gets here he can tell you himself. It's simply a typo.
MS. WILLIAMS: If a water quality standard were available that appropriately represented the highest level of indicator bacteria in the CAWS that would protect existing regulation uses, could MWRDGC disinfection process be adjusted to reduce power consumption?
MR. McGOWAN: So as not to frustrate
0058
anyone. This may be the beginning of several questions where I would defer to Mr. Zenz to those who did the analysis of the equipment itself.
MS. WILLIAMS: And if Mr. Zenz were to come back to you and say this would change the design standard, that would change the design standard, that would reduce power consumption, how would that affect your conclusion in your report?
MR. ANDES: Hypothetically.
MR. McGOWAN: Hypothetically, it would -- in general, the power consumption and the greenhouse gases emitted and the criteria pollutants move proportionally with the size or house power. That is in general. There are other little factors, but proportionally, it would either go up or down based on the equipment and the energy usage -- it would move up or down proportionally.
MR. ANDES: And Mr. Zenz can answer that in more detail.
MS. WILLIAMS: Are there any other components besides the bulbs in UV that would

affect the power consumption up and down?
MR. McGOWAN: There's a very small
component that I don't know if you noticed. We also used the energy being used by delivery and removal, but that's a very small component and then --
MS. WILLIAMS: That's different from transportation?
MR. McGOWAN: No, that would be the transportation aspect. I believe, by and large, that was it, but I'm not a 100 percent certain. I would, again, defer to Mr. Zenz on that one, Dr. Zenz.
MS. WILLIAMS: Question 16 is similar to an earlier question. But, you know, I actually think you said "I don't know" to the earlier question. So I'm going to read it to you. On page 5-5 of your environmental assessment report, you referred to Chicago's environmental action agenda, does that agenda recommend energy efficiencies measures and green infrastructure?
MR. McGOWAN: I don't know the details of that.
MS. WILLIAMS: So you haven't reviewed that?
MR. McGOWAN: Not in its entirety.
I know it was suggested that that would be consistent with that, but I would have to look at that.
MS. WILLIAMS: Mr. Harley.
MR. HARLEY: Yes.
MS. TIPSORD: Mr. Harley, you're going to have to speak up. The trains are going by.
MS. WILLIAMS: Can I just finish this? I'm sorry. Is that okay with you?
MR. HARLEY: Yes.
MS. WILLIAMS: I am almost done with this. I just want to finish this particular question on this particular page. I'd just like to read the quote from the section I'm referring to you. You say "as described in the study the environmental impact of implementing disinfection technologies at the North Side, Calumet and Stickney plants are not consistent with the goals of the Chicago environmental action agenda. So you're comfortable telling us that implementing disinfecting that agenda, but not in telling us that the agenda recommends conservation and green infrastructure?
MR. ANDES: Let's go to that page.
MR. McGOWAN: I believe it's about the last page of the report, isn't it?
MS. WILLIAMS: Section five.

MR. McGOWAN: So, yes. I'm sorry. Where did your quote end?
MS. WILLIAMS: The first sentence on that page.
MR. McGOWAN: As described in this study, the environmental impacts of implementing DO enhancement technologies in the CAWS are not consistent with the goals of the Chicago environmental action agenda.
MS. WILLIAMS: Do you agree with that statement?
MR. McGOWAN: I think it's in two spots.
MS. WILLIAMS: Do you agree with that statement, Mr. McGowan?
MR. ANDES: Can you explain it further by reading the next sentence?
MR. McGOWAN: Presented in section 2-4, the environmental action agenda advocates environmentally friendly policies in the city's
0062
departments and other agencies to strengthen Chicago's economy and improve the quality of life.
MR. ANDES: So your testimony is that the environmental impact of implementing disinfection are not consistent with the general goals of the environmental action agenda?
MR. McGOWAN: Correct.
MR. ANDES: But you didn't look specifically at what the green infrastructure policies recommended?
MR. McGOWAN: Correct.
MR. ANDES: Thank you.
MS. WILLIAMS: Did you even review the document?
MR. McGOWAN: I did not. My staff did.
MR. TIPSORD: Mr. Harley, do you have a follow up?
MR. HARLEY: Yes. As part of reaching the conclusion about Chicago's environmental action agenda, did you consult with anybody in the city of Chicago?
MR. McGOWAN: No.
MR. ANDES: Did you figure the
0063
document was clear enough to read by itself?
MR. McGOWAN: I didn't read the document. My staff did.
MR. HARLEY: Did your staff also write that sentence?
MR. McGOWAN: Yes.
MR. HARLEY: Thank you.
MR. TIPSORD: If we're done with that question, then let's take a ten-minute break.
(Whereupon, a break was taken after which the following

proceedings were had.)
MS. TIPSORD: Let's go ahead and get settled back in. Let's go back on the record. Mr. Andes, you had something you wanted to ask on the record?
MR. ANDES: Yes. We had provided a document earlier today about Attachment Four to Dr. Rigal's testimony explaining the data and estimate issue. I just want to find out if anybody had any follow up for Dr. Dennison or Dr. Rigal or I can let them go.
MR. HARLEY: On these?
MR. ANDES: Yes.

0064

MR. HARLEY: Yes, I do have questions about these.
MR. ANDES: Are those figures two and three?
MR. HARLEY: Yes.
MR. ANDES: Why don't we let --
MS. WILLIAMS: I would like to finish. I only have a couple more questions.
MR. ANDES: Is it possible to finish with her questions and then do Dr. Dennison?
MS. TIPSORD: Yes. If that's all right with Albert. We'll finish with the IEPA and then finish with Mr. Harley questions to Dr. Dennison and then come back to Mr. McGowan. Go ahead, Ms. William's.
MS. WILLIAMS: We're going to skip ahead to question 21. There are several that are focused on dissolved oxygen. In appendix B of your report, table B2, you identify a variety of economic information you gathered for preparing your report for municipal and local government such as household income, bond ratings and property taxes. Does this information appear anywhere in your study?

0065

MR. McGOWAN: At one point in time Malcolm Pernie -- a future witness, John Mastracchio will be testifying on certain economic issues. At one point in time our environmental and economic analysis was going to be presented as a single report. Based on the progression over the last six to eight months, it had been decided to separate those. It would be easier to ask and answer questions. That information was left in the appendix inadvertently. We don't do anything with that in our environment assessment report. It was not taken out when we separated the reports.
MR. ETTINGER: I'm sorry. I'm confused. What's happening with the economic?
MR. McGOWAN: There was separate testimony filed on economic issues and --
MR. ANDES: John Mastracchio is the

witness on those issues.
MR. ETTINGER: So --
MR. ANDES: You'll have your chance.
MR. ETTINGER: What?
MR. ANDES: You'll have your chance to question him.

MR. ETTINGER: That's all I was asking. So he's not the witness on the economic --
MR. McGOWAN: Correct.
MR. ETTINGER: -- just this report?
MR. McGOWAN: Correct. So some of the information was inadvertently left in an appendix.
MS. WILLIAMS: Question 23, skipping over 22, also the dissolved oxygen. I believe it's dissolved oxygen. Question 23, in section 4.5 of your report, page 4-17, you discuss a labor burden and indicate that all plaintiffs will have additional mental and physical challenges with the operation of the disinfection system and the additional and mundane tedious labor requirements associated with extensive bulb replacements.
Specifically, UV operations will require 16 hours per day, 80 hours per week at North Side, Calumet Water Reclamation Plant, but will require 20 hours per day to operate and maintain chlorination/dechlorination at all three plants. Did you consider this -- Now, moving on to question A. Did you consider using a UV

disinfection system design that includes automatic online cleaning to reduce operation and maintenance costs associated with manual cleaning?
MR. McGOWAN: Again, that would be better answered by CTE. We did not evaluate different kinds of UV. We were given the system and the energy and then we did an environmental analysis of that. So we did not evaluate any alternative UV systems for cleaning or anything like that.
MS. WILLIAMS: So the system you were given did not include automatic cleaning?
MR. McGOWAN: I don't know if it included automated, but all of the M & O information was received from CTE.
MS. WILLIAMS: I see. So even though you're not sure, you're sure that those numbers -- you didn't make any assumptions about those numbers --
MR. McGOWAN: Correct. They were given to us. They did the capital and M & O.
MS. WILLIAMS: I definitely would have to ask this question of Mr. Zenz as well.
MR. McGOWAN: Yes.

MS. WILLIAMS: I'll try B. Do you know if most waste water treatment plants with UV systems clean and replace the lamps after the disinfection season is over?
MR. McGOWAN: I wouldn't want to say that I know about most. First of all, a number of facilities don't have a disinfection season. They have all year round. So barring the word "most", they do need to replace them as they go out because you can only afford a couple of bulbs to be out before you would start violating permit. So it's more of a replacement on an ongoing basis from the ones I am familiar with.
MS. WILLIAMS: So you would say from the ones you're familiar with, you disagree that most plants that you're familiar with wait until a certain time of the year to replace all of them?
MR. McGOWAN: Correct.
MS. WILLIAMS: And the reason is because -- why don't you --
MR. McGOWAN: The reason that they don't wait until --
MS. WILLIAMS: Yes.
MR. McGOWAN: Because some of them

0069

don't have time to wait until. They disinfect all year round. So there is no off season and the others -- the other reason is my discussion with the plants operators is you can only afford one or two bulbs to be out and then you'll start violating permit. You have to replace them. You don't have time to wait.
MS. WILLIAMS: I'm going to ask C, but I'm going to read first with what you've explained your role is here. Would using a programmable logic control system and chemical disinfection system, control system integrated with supervisory control and data acquisition systems reduce the personnel hours required to operate and maintain disinfection systems?
MR. McGOWAN: Again, I didn't look at the different systems or using a PLC or a SKATA (phonetic) system or integrating those. Those, again, would have all been done by Dr. Zenz and CTE.
MS. WILLIAMS: I understand that, but would these systems identify, which I admit I have no understanding of what they do, would they reduce man hours, person hours?

0070

MR. McGOWAN: We weren't involved in it, but my understanding is, and, again, you'd have to talk to Dr. Zenz, most of the labor hours and person hours we were talking about were talked about the replacement of the bulbs. So a PLC or SKATA system wouldn't go out and change a bulb. So that's my understanding, but, again, you'll

have to ask Dr. Zenz.
MS. WILLIAMS: Any reductions would be small is what you're saying?
MR. McGOWAN: I would assume so.
MR. ANDES: We'll have Dr. Zenz here to answer that more fully.
MS. WILLIAMS: Next time, right?
MR. ANDES: Yes.
MS. WILLIAMS: Yes. Question 24 is the last one. Is it your testimony that if MWRDGC is required to implement disinfection technologies, that they will not have future options to reduce future alternatives?
MR. McGOWAN: The testimony is that implementing those technologies will utilize land, money, air shed from emissions and things like that and those resources will be utilized and

0071

won't be available for other treatment technologies or other uses at those facilities. That's all we're saying.
MS. WILLIAMS: Were you referring to any in particular?
MR. McGOWAN: No.
MS. WILLIAMS: That's all I have for this witness.
MS. TIPSORD: In that case then, let's go ahead and ask Dr. Dennison to come up. I'm sorry.
MR. ANDES: We just wanted to try to get Dr. Dennison out of here. Do you have follow up to this?
MS. HEDMAN: I have an exhibit, however.
MR. TIPSORD: Is this a follow up to that question?
MS. HEDMAN: Not that specific question.
MS. TIPSORD: Okay. Can we ask this then in just a couple minutes. Let's finish with Dr. Dennison and we can get him out of here and then Mr. McGowan will be back.

0072

MS. WILLIAMS: I would like a second to review because I had no idea during this break that we were going to be doing this. If someone else had questions, I think that will give me enough time, but I will let you know if I need more time.
MS. TIPSORD: And I'll let you know that Dr. Dennison will be back for future hearings. I would remind Dr. Rigal and Dr. Dennison that they're still under oath and, I believe, we're talking about Exhibit 119, is that correct?
MR. HARLEY: Is that figure 2?
MS. TIPSORD: Exhibit 119 includes

the two figures for figure two and figure three both. Go ahead, Mr. Harley.

MR. HARLEY: On Exhibit 119, you have provided information about fecal coliform bacteria at the north area and south area stations with estimated die off densities and along the bottom you've identified miles downstream from the effluent outfall. Do you see what I'm referring to?

MR. DENNISON: Yes.

0073

MR. HARLEY: I wanted to call your attention to figure three which is the second page of Exhibit 119. On figure three, you have actually provided a dry weather sample data point and a wet weather sample data point below zero. It's between zero and negative five. Can you describe for the record what those data points represent?

MR. DENNISON: Those data points represent the values of fecal coliform densities at the Indiana Avenue Station, which is upstream of the Calumet Water Reclamation Plant.

MR. HARLEY: So what we're actually seeing with those data points is what the fecal coliform concentration is before the water flows past the outfall of the Calumet facility?

MR. DENNISON: Yes.

MR. HARLEY: And so when we get to zero, zero is the point of the outfall?

MR. DENNISON: Yes.

MR. HARLEY: And can you describe why it is as to the dry weather sample the figure jumps from approximately zero to between 2,500 and 3,000 at the point of the outfall?

0074

MR. DENNISON: That would be the concentration. You are referring to the circle, the white circle.

MR. HARLEY: Yes, that's correct.

MR. DENNISON: That is the value of the geometric mean of fecal coliform bacteria at Halsted Street on the Little Calumet River.

MR. HARLEY: Which is downstream from the plant?

MR. DENNISON: Which is downstream from the Calumet Water Reclamation Plant.

MR. HARLEY: Okay. Can you please explain to me why it is during a wet weather period upstream of the Calumet facility the level of fecal coliform is still well below 1,000 colony forming units?

MR. DENNISON: During dry weather?

MR. HARLEY: No. During wet weather.

MR. DENNISON: During wet weather, there are other factors that come into -- such as

storm water or non-point runoff that can cause fecal coliform to increase.

MR. HARLEY: Yes. We have heard

0075

that as part of other testimony, but what stands out is how low that wet weather sample still is it still appears to be even below 500 colony forming units before it goes past the waste water treatment plant, is that correct?

MR. DENNISON: That's correct.

MR. HARLEY: So despite all of the other factors that we've heard about, the level during a wet weather event upstream of the Calumet Waste Water Treatment Plant is still below 500 colony forming units?

MR. DENNISON: That's correct.

MR. HARLEY: And then the next sample that would be plotted is after -- I'm talking about the wet weather samples here. The next wet weather sample that is plotted is after the outfall of the Calumet falloff, is that correct?

MR. DENNISON: Yes.

MR. HARLEY: And at that point, we have a cluster of three samples, all of which are approximately between 4,500 and 5,000 colony forming units?

MR. DENNISON: That's correct.

0076

MR. HARLEY: So what would you conclude about the influence during wet weather conditions of the Calumet plant on the level of fecal coliform, again, during wet weather conditions?

MR. DENNISON: Certainly, the values are higher than they were during dry weather condition at Halsted Street, which is below the plant outfall. Also, the figure at 5,000 is actually at Ashland Avenue on the Little Calumet River, which is a tributary. It's not in the flow from the plant.

MR. ANDES: And that level is similar to the level after the plant?

MR. DENNISON: Yes. And at the next one in the cluster is 4,800 at Ashland Avenue on the Cal-Sag Channel, which is below the entrance of the tributary on the Little Cal.

MR. HARLEY: All three are downstream of the Calumet plant?

MR. DENNISON: Well, the Halsted location and the Ashland Avenue location on the Cal-Sag Channel are actually in the stream flow from the plant. The Little Calumet River location

0077

has not joined the flow of the Little Calumet River yet.

MR. ANDES: So that one is not

affected by the plant?
MR. DENNISON: That is not effected by the plant, no.
MR. HARLEY: For the two other samples, why would there be any other influence except the plant itself during wet weather to account for that remarkable rise during wet weather?
MR. DENNISON: Combined sewer overflow.
MR. HARLEY: Is there a combined sewer overflow in the area between where the plant outfall is and where you're taking these samples?
MR. DENNISON: There is one at 125th Street.
MR. HARLEY: And do you know the relative allocation of introduction of fecal coliform from the combined sewer overflow or from the facility itself at these sampling locations?
MR. DENNISON: The level of -- could you explain that a little bit?

0078

MR. HARLEY: If you were trying to allocate between the combined sewer overflow contribution of fecal coliform and the plant contribution of fecal coliform, could you do that?
MR. DENNISON: I don't recall having the data for the CSO.
MR. HARLEY: Is it safe to say or would you agree that the Calumet facility is contributing to the level of fecal coliform that we see at these sampling locates during wet weather events?
MR. DENNISON: It would be hard to tell for sure unless you knew all the contributions that were coming in, both from the plant itself as well as any CSO's.
MR. HARLEY: So you don't believe that the Calumet plant is contributing fecal coliform during wet weather events?
MR. DENNISON: I believe it certainly would have at least the dry weather flow count in it and probably more flow through the plant, but I don't actually know that.
MR. HARLEY: That last phrase you used "would probably have more flow through the

0079

plant" --
MR. DENNISON: Because of the wet weather.
MR. HARLEY: So during a wet weather event, there is typically more flow through the waste water treatment plant itself?
MR. DENNISON: I actually don't know. I am not aware of any value on that.
MR. HARLEY: If you were to disinfect at the Calumet Waste Water Treatment

Plant, speaking about fecal coliform here, that initial white dot that's plotted on this page that is below the outfall for the Calumet facility, what do you think would be the result going forward past the outfall if you were to disinfect during dry weather?
MR. DENNISON: I have no data for disinfection.
MR. HARLEY: Thank you.
MS. TIPSORD: Anyone else?
MS. WILLIAMS: I just want to be sure that my Exhibit 119 is accurate and complete.
MS. TIPSORD: Mm-hmm.
MS. WILLIAMS: How many pages?

MS. TIPSORD: Four, I believe.
MS. WILLIAMS: Okay. I think we started with only three pages so I wanted to make sure I understand which page is missing.
MR. ANDES: It should be two pages of text and then figure two and figure three.
MS. WILLIAMS: We only had one page of text.
MS. TIPSORD: Please refer to the report and then the difference between the wet weather and fecal coliform densities and then what is figure two, which is page six, and figure three, which is page seven.
MS. WILLIAMS: Thank you.
MR. ANDES: If you don't have a complete copy, I can --
MS. WILLIAMS: We have it now. I just wanted to make sure. Thank you.
MS. TIPSORD: Any other questions?
MR. ETTINGER: Yes. Looking now at figure two, I was looking at the dry weather flows. There's the site above the plant and then there seems to be -- do each of these little zeros here, do they indicate a sampling point?

MR. DENNISON: Yes.
MR. ETTINGER: Okay. So you have two sampling points, one of which looks like it's approximately the same amount and miles downstream from the plant as the other?
MR. DENNISON: Yes. That I think what you're referring to -- the first one that is to the left of the zero mark is upstream of the plant and the next one that you see very close to that is at a tributary to the north branch shallow portion as it's entering the north branch deep portion at -- the sampling point is at Albany Avenue.
MR. ETTINGER: Which one is that?
MR. DENNISON: That's the other one that is very low. It's actually about a 710 count.

MR. ETTINGER: I see. And then the spot that looks like about an inch higher than that should be about 7500, where is that sampling point?
MR. DENNISON: That is at Foster Avenue on the North Shore Channel just upstream of where the shallow portion of the north branch

0082

enters the deep portion of the north branch at -- what is that river part?
MR. ETTINGER: Is that above or below the dam?
MR. DENNISON: It's above. It's on the North Shore Channel above the dam at the point where the north branch enters over the dam.
MR. ETTINGER: And then this next point to the right, where is that one?
MR. DENNISON: Wilson, which is downstream of the dam on the deep draft portion of the north branch.
MR. ETTINGER: I asked this question of Dr. Rigal yesterday. Have you -- or do you know whether the Water Reclamation District has studied the flows of the water waste under various conditions?
MR. ANDES: Flow rates of the waste water or of the --
MR. ETTINGER: Flow direction of the discharge from the sewerage treatment plants, have you ever studied the flow direction under various circumstances?
MR. DENNISON: I have not.

0083

MR. ETTINGER: Do you know whether the Water Reclamation District has?
MR. DENNISON: No.
MR. ETTINGER: Sorry. My question wasn't too good. Do you know that they have never done so or you don't know whether it's never been done?
MR. DENNISON: I do not know.
MR. ANDES: Whether it's been done?
MR. DENNISON: Whether it's been done.
MR. ETTINGER: Thank you.
MS. MEYERS-GLEN: Can I ask one follow up question, please. Stacy Meyers-Glen with Openlands. You state that there are samples here -- they are by the outfalls, correct, in figure two and figure three of Exhibit 119, you have sampling points by the outfall of the --
MR. DENNISON: The first sampling point that is on that figure which is to the left of the zero mark or upstream of the plant on the North Shore Channel that's at Oakton Street, which is 0.6 miles upstream on the -- that's on figure two. On figure three, Indiana Avenue is 1.4 miles

0084
upstream from the Calumet Water Reclamation Plant outfall.
MS. MEYERS-GLEN: And then I see that there's a dot that's very close to zero for dry weather, how far was that to the outfall?
MR. DENNISON: Which figure, please?
MS. MEYERS-GLEN: I'm sorry. If you look at figure three, Exhibit 119, for your dry weather samples, I notice that you have dots there indicating that there are samples close to zero. I'm presuming that's the outfall?
MR. DENNISON: That's to the left of the zero mark?
MS. MEYERS-GLEN: To the right of the zero mark.
MR. DENNISON: Okay.
MS. MEYERS-GLEN: How close is that to the outfall that you took those samples from?
MR. DENNISON: The furthest right, that's about 17 miles on the graph.
MS. MEYERS-GLEN: No. If you look on figure three where you've got your zero mark, that's for the outfall, correct?
MR. DENNISON: Yes.
0085
MS. MEYERS-GLEN: And that's for the outfall of the Calumet Waste Water Treatment Plant?
MR. DENNISON: Yes.
MS. MEYERS-GLEN: And how close were the samples that are above that zero mark, how close was the sampling point to the outfall?
MR. ANDES: Are you talking about the two to the left?
MS. MEYERS-GLEN: I'm trying to figure out how far away the samples were taken from the outfall.
MR. DENNISON: I'm just going to make sure I can answer you. Are you referring to the zero -- I mean to the left of the zero mark?
MS. MEYERS-GLEN: Downstream.
MR. DENNISON: Downstream.
MS. MEYERS-GLEN: Correct.
MR. DENNISON: To the right of the zero mark.
MS. MEYERS-GLEN: That's correct.
MR. DENNISON: The first one, that is approximately 2,700. Do you see that on the --
MS. MEYERS-GLEN: How close was that
0086
to the outfall, how many feet?
MR. DENNISON: Well, it's one mile downstream.
MS. MEYERS-GLEN: One mile downstream. And that's for the Calumet?
MR. DENNISON: Yes. The next dry

weather mark, which is above that at 4,000 is at the Little Calumet River. That's the tributary location.

MS. MEYERS-GLEN: I was just most interested in the ones that were closest to the outfall, what the proximity was to the outfall. So thank you.

MR. ANDES: And if I could follow up on that. That 4,000 was on the Little Calumet, which is the tributary. So that level would not be effected by the plant.

MR. DENNISON: Correct.

MR. ANDES: Thank you.

MR. ETTINGER: I have to ask two questions. Do you have any idea where the 4,000 is coming from the tributary, why it's reading 4,000 during dry weather conditions?

MR. DENNISON: No.

0087

MR. ETTINGER: Coming off the CID landfill?

MR. ANDES: He said no. No idea. Maybe geese.

MR. ETTINGER: The last question I had on studies, have you ever or to your knowledge has the Water Reclamation District ever looked at what the time of travel is of these flows, for example, to look at your point on the right downstream from the Calumet plant, how many days it takes to go the 17 miles that's reflected by that point?

MR. ANDES: Time for the effluent to travel?

MR. ETTINGER: Yes. What's the time of flow there? Have you calculated it?

MR. DENNISON: I'm not personally aware of any.

MR. ETTINGER: Okay.

MS. TIPSORD: Dr. Dennison, one last time.

MS. WILLIAMS: I have a couple quick ones. Do both of the graphs, figure two and figure three, have data points that were taken on

0088

tributaries?

MR. DENNISON: Yes.

MS. WILLIAMS: Would it be possible to provide copies of these graphs with the data points marked for the locations?

MR. DENNISON: Yes.

MS. WILLIAMS: I think we would find that very helpful.

MR. TIPSORD: And just to clarify, those two figures are from the Attachment 5 or is it --

MR. ANDES: Four. Those are four.

MR. TIPSORD: Four was the interim

report?
MR. ANDES: Yes.
MS. TIPSORD: Attachment 4 to Dr. Rigal's testimony.
MS. WILLIAMS: And these are the same as the ones in Dr. Rigal's testimony?
MR. DENNISON: Yes.
MS. WILLIAMS: Thank you.
MS. TIPSORD: Mr. Harley.
MR. HARLEY: Just to clarify. Is it your testimony that the flow -- was it in the

0089

Little Calumet River is not effected by the Calumet Waste Water Treatment Plant?
MR. DENNISON: Yes.
MR. HARLEY: And would the same thing be true with the Grand Calumet?
MR. DENNISON: I would think so.
MR. HARLEY: Why do you say that?
MR. DENNISON: The Grand Calumet River is a considerable distance upstream of the Calumet Water Reclamation Plant.
MR. HARLEY: And why would you say that about the Little Calumet River?
MR. DENNISON: The Little Calumet -- the shallow portion of the Little Calumet River is out of the flow from the plant outfall. It hasn't joined the deep portion of the Little Calumet River yet.
MR. HARLEY: But you've never done any analysis of the flow as you answered Mr. Ettinger's question.
MR. DENNISON: It was flow rates.
MR. HARLEY: He also asked about flow pattern as well.
MR. DENNISON: Of the effluent.

0090

MR. TIPSORD: He did. It's effluent and flow rates.
MR. ETTINGER: I asked about direction, I believe, and flow rate.
MR. DENNISON: I'm aware of direction, but flow rates, I don't measure.
MR. HARLEY: Thank you.
MS. TIPSORD: Thank you, Dr. Dennison. We look forward to seeing you again soon. That takes us back to Mr. McGowan and, Ms. Hedman, you had a follow-up question for Mr. McGowan and then we'll go to Mr. Ettinger's question.
MR. HEDMAN: I do. I have two follow-up questions and I have two exhibits.
MS. TIPSORD: Okay.
MS. HEDMAN: Do you want me to bring them to you?
MS. TIPSORD: I'll meet you half way.

MS. HEDMAN: All right.
MS. TIPSORD: Actually, I just need three copies of each. I've been handed two sections of the Illinois Compile Statutes. The

0091

first is 20 IL CS 3855/1-75, which we'll mark as Exhibit 136 for ease of the record if there's no objection. Seeing none, it's Exhibit 136. And the second is 220 IL CS 5/16-127, which we'll mark as Exhibit 127 if there's no objection --
MS. WILLIAMS: I think we need copies.
MS. HEDMAN: It should be coming around.
MS. TIPSORD: Seeing no objection, it's Exhibit 137. Go ahead.
MS. WILLIAMS: Are they both coming around?
MS. HEDMAN: Yes. One is a single page and one is multiple pages stapled and just to be clear, is it 16127 that is Exhibit 136?
MS. TIPSORD: No. 137.
MS. HEDMAN: Mr. McGowan, I'm Susan Hedman from the Illinois Attorney General's Office. I'm going to direct your attention to Exhibit 137, which is Illinois' Environmental Disclosure Statute and that statute says that -- and I'm reading "effective January 1st, 1999, every electric utility and alternative retail

0092

electric supplier shall provide the following information to the maximum extent practicable with its bills to its customers on a quarterly basis and the first item on the list is the known sources of electricity supplied, broken up by percentages of bio mass power, coal fired power, hydro power, natural gas power, nuclear power oil fired, solar power, wind power and other resources, respectfully.
I'd like to further direct your attention to sub B, which indicates that, in addition, every electric utility and alternative electric supplier shall provide to the maximum extent practicable with its bills to its customers on a quarterly basis a standardized chart in the format to be determined by the commission in a rule following notice of hearings, which provides the amounts of carbon dioxide, nitrogen oxide and sulfur dioxide emissions and nuclear waste attributable to the known sources of electricity supplied and set forth in subparagraph I of subsection A. Now, I'd like to know if you had known that this source of data existed, would you have used it instead of -- I believe you testified

0093

earlier that you did not know about the statute, is that correct?

MR. McGOWAN: Correct.
MS. HEDMAN: If you had known this source of data existed, would you have used it instead of E grid?
MR. McGOWAN: Again, what I would like to do is defer to Steve Frey who was our air emissions expert on this. What we used just as a lead in was what was available from an EPA published website for emissions, not just the amount of power supplied, but actual emission factors that would come with it.
MS. WILLIAMS: I would just like to just clarify for the record. Do you mean the US EPA website?
MR. McGOWAN: Yes. I'm sorry.
MR. FREY: To answer your question, yes, we could have used that data for the percentages that was used in the report, but I couldn't have used that data for the emission determination because they do not provide you pounds of emissions for kilowatt unless -- I don't know that specific statutes. That says they have

0094

to provide emissions on megawatt or kilowatt basis. If they did, and they could say, yes, that was the source of emissions for that particular facility or facilities, then it could be used as a reliable tool, but we just went to the US EPA for a reliable tool.
MS. HEDMAN: So if I were to tell you that Illinois utilities and other electric suppliers are required to report their sales on a per kilowatt hour basis of electricity each year, you would have been able to make that calculation.
MR. FREY: We would have been able to make the determination of the percentage of the breakdown at the different types of fuel combustion sources.
MR. ANDES: Let me ask you if you can follow up on that with a couple of questions. One is, there is a distension, am I right, between the power that a particular utility actually supplies in terms of generating from its own production facilities and the power that it specifically distributes to particular customers, which may be from other sources around the country, am I right?

0095

MS. HEDMAN: I'm going to object to that question because it assumes facts that are not in evidence and is not true. Illinois utilities do not own electric generating plants.
MR. ANDES: Okay. I'm not sure how that changes anything. My question was whether -- Fine. Let me modify the question. The question is the information you would have you would need to do that calculation would need to be

particularly key to where is the power that is specifically distributed to specific customers coming from, which could be coming from plants in Illinois owned by whoever or from other states?
MR. FREY: That would be correct. Yes. Based on some of the literature and I'm not an electrical or utility expert on what they do with their power. I do have expertise --
MS. TIPSORD: Mr. Frey, we're losing you. There are trains going by.
MR. FREY: I'm not an expert necessarily in electric utility and their generation of power and how it's distributed within the grid. I do have expertise on combusting fuel in a boiler or a turban and what

0096

types of air pollutants are generated. So using that information -- Actually, what we did was in looking at the E grid database and going to the US EPA web page, it actually identifies what you should be using for appropriate emission factors based on regions and they based it on power control areas.
So that area that we talked about, and I forget the acronyms, that is intended to represent a specific control area over where electricity is going and I'm assuming that they grouped it that way. Another source is climate registry that says if you're going to calculate indirect emissions from the combustion from electricity in terms of megawatts or kilowatts, you should use as a provision, meaning you don't have any onsite electrical generations feeding you directly, you need to go to the E grid system. And then it says you should not use state specific factors because you don't know where the power is coming from.
MS. HEDMAN: Is there a fence around the region that you used here?
MR. FREY: In terms --

0097

MS. TIPSORD: Ms. Hedman, I only heard part of that.
MS. HEDMAN: Is there a fence around the region that you used here?
MR. ANDES: A wooden fence?
MS. HEDMAN: Is there a physical fence that would prevent electrons from coming or going from the regions?
MR. FREY: No, I'm not aware of anything.
MS. HEDMAN: So electricity from outside of those boundaries could also flow in and out, is that correct?
MR. FREY: I'm not an electrical expert so I don't have an answer for that.
MS. HEDMAN: But yet you asserted,

did you not, that does occur when using the data that is collected here, but apparently it doesn't occur with this particular group of states somehow?

MR. FREY: I'm not quite sure what you're referencing there.

MS. HEDMAN: You testified that you used this group of plants and this geographic

0098

area, but would not use this data because --

MR. ANDES: What's this data?

MS. HEDMAN: The data collected pursuant to Illinois law both with respect to generation mix and emissions mix --

MR. ANDES: Which we don't have in evidence, by the way.

MS. HEDMAN: I'm simply asking him whether or not he would have used this data source.

MR. FREY: And I actually said if we knew that source was available, we could have used that source to come up with a different percentage mix. Since we weren't aware of that, we went to EPA's source and the climate registry quantifying emissions for the combustions of fuels to determine green house emissions and determine traditional --

MS. TIPSORD: We lost a whole lot of that. You're going to have to come up all the way. We have the El trains going by us and everything else and the minute that train goes by we can't hear anything on the other side of that panel.

0099

MR. FREY: You had asked if we were aware of that statute or citation and I indicated we were not. If we were, we could have looked at that data or that mix and said, yes, this specific mix based on Commonwealth Edison, if that is the particular source of electrical power to the District, than that would be, yes, a reliable source to look at.

One additional comment I made is that, yes, that's a mix of fuel. However, to calculate emissions and greenhouse gas emissions as well as criteria pollutants that would not necessarily help me because I don't know the particular fuel, the emission factors their using and so forth. So to my knowledge, the only source of information available electronically or via a massive database is the E grid system and it was developed by the US EPA for the energy sector to use as well as for folks doing greenhouse gas emission quantification as well as greenhouse gas calculation tools, a whole wealth of individuals use that source.

MR. ANDES: And I'd like to follow

up on that question if I can on that answer.

MS. HEDMAN: I have to ask a further question.

MR. ANDES: Go ahead.

MS. HEDMAN: Did you hear me read the portion of the statute that requires the utilities to report the amounts of carbon dioxide, nitrogen dioxide and sulphur dioxide emissions and nuclear waste attributable to the source of the electricity supplied? Did you hear me read that?

MR. FREY: Yes. And then the answer --

MS. HEDMAN: And you wouldn't have considered that data?

MS. TIPSORD: Please let him answer, Ms. Hedman.

MR. FREY: And, yes, we would have considered that data if that data could be used to quantify emissions on a per kilowatt basis as an emission estimation tool that would be acceptable. Yes, it depends on how the data is presented.

MR. ANDES: But to follow up, I want to introduce this document, which is called Exhibit 2, but it's obviously not going to be Exhibit 2. It's a summary of the information that these fellows presented in their report and I have some follow-up questions about that.

MS. TIPSORD: I've been handed what's been called Exhibit Number 2, Summary of Electrical Consumption and Air Emissions, which we'll mark as Exhibit 138, I believe, if there's no objection. Seeing none, it's Exhibit 138.

MR. ANDES: Let me ask Mr. McGowan, this is a summary of -- Am I right, that this is a summary of the information presented in your report?

MR. McGOWAN: Yes.

MR. ANDES: And it contrasts the electrical consumption and the air emotions for UV versus chlorination/dechlorination.

MR. McGOWAN: Yes.

MR. ANDES: So the increase in electricity, which ranges between 95 and 126 million kilowatts hours per year, if you took that down, say, 25 percent of your numbers would be in the neighborhood of maybe 75 to 85 million kilowatt hours per year. The number of homes equivalent energy use of 8,000 to 10,600, if you took those down 25 percent, that would be, say, 6,000 to 8,000 homes?

MR. McGOWAN: Yes.

MR. ANDES: Increase the CO2 emissions, which range between 75 and 100,000 tons a year, reduced by 25 percent would be, maybe, 60

to 75 tons a year?
MR. McGOWAN: Yes.
MR. ANDES: The number of trees, 11 million to 15 million would reduce to, maybe, 9 to 12 million trees?
MR. McGOWAN: Yes.
MS. HEDMAN: I'm sorry. I'm missing what we're doing here. We're doing some math here.
MR. ANDES: And I'm doing some very rough math to get a sense of if the numbers that were used would reduce the air emissions by a factor of, say, 25 percent, I wanted to get a sense of how these numbers in his report would change and I think we've done that. Thank you.
MS. HEDMAN: So your testimony is then, Mr. McGowan, is that if you had known that this data source existed, you would have considered it, is that correct?

MR. McGOWAN: Absolutely, we would have considered it.
MS. HEDMAN: Now, let me turn your attention to Exhibit 136, which is the Illinois renewable portfolio standard and if you go to page three of that exhibit you'll see a subsection C on that page.
MR. McGOWAN: Yes.
MS. HEDMAN: And if you read in that paragraph it says that a minimum percentage of each utilities total supplies to serve the load of eligible retail customers as defined in the act procured for each of the following years, shall be generated from cost effective renewable energy resources. At least two percent by June 1st, 2008. At least four percent by June 1st, 2009. At least five percent and on until we get to increasing by at least 1.5 percent to each year thereafter until at least 25 percent by June 1st, 2005. To the extent that --
MR. ANDES: 2025.
MS. HEDMAN: 2025. To the extent that it is available, at least 75 percent of renewable energy resources used to meet these

standards shall come from wind generation. And I believe that Mr. Andes just went through a recitation of what these numbers would be if they were 25 percent lower, is that correct?
MR. McGOWAN: Correct.
MS. HEDMAN: So if -- when you did your study, were you aware that Illinois had a renewable portfolio standard?
MR. McGOWAN: I personally wasn't.
MR. FREY: I am familiar with that portfolio standard. I had not focused on the state of Illinois or anybody. I know what it is,

but did not correlate it to this analysis. The actual quantification of emissions was the E grid system. Going back to that, it's actual emissions based on actual combustion of fuel in the calendar year 2004. And these portfolio standards are looking out into the future and making sure that they have renewable energy at a certain percent over a certain period of time.

So it will effect emissions within a certain graphical region or on a global being greenhouse gas related over time, but our focus was what was available in actual emissions.

MS. HEDMAN: For 2004?

MR. FREY: Yes.

MS. HEDMAN: So you assumed a facility that would be built in the future in Illinois would be drawing electricity from the same set of generating facilities as existed in 2004?

MR. FREY: No. I think the assumption was that we looked to the available tool to help us quantify emissions and I feel it's more practical to look at emission factors that are based on historical emissions to paint the picture as it exists today, not necessarily -- because I have no idea when a certain type of pollution control project may be installed and operational. So I was looking at it at this particular point in time using the best available data that we were aware of.

MS. WILLIAMS: Can I please ask a follow up?

MS. TIPSORD: Go ahead, Ms. Williams.

MS. WILLIAMS: Mr. Frey, you testified that the E grid -- I don't know. Is it a database or model?

MR. FREY: It's an electronic database.

MS. WILLIAMS: It relies on actual emission data, is that correct?

MR. FREY: That's correct.

MS. WILLIAMS: And do know which plants it looks at?

MR. FREY: The actual database lists every plant. Based on my understanding of reading the technical document, it is fairly complicated, but it identifies every cell within the workbook, which incorporates every electrical generating facility that meets a requirement within the United States.

So they're required to provide the amount of electrical power they generated on a kilowatt or megawatt basis. They're required to provide a list of fuels combusted and the amount

of emissions based on those different fuels. The emissions change based on the difference in the fuel being combusted, based on, also, the equipment that is being combusted in.
So that database was prepared

for US EPA. Technically, it was prepared by a consulting firm on their behalf.

MS. WILLIAMS: Does it result in an average figure then? I mean do they average various facilities?

MR. FREY: What we would actually be doing is we'd be taking emissions for those geographical regions we talked about and then just taking total emissions and dividing by the total kilowatts. So you'll have so many pound of CO2 per kilowatt of electrical generation for that geographical region.

MS. HEDMAN: Excuse me. Per kilowatt or per kilowatt hour. You seem to be mixing up the two.

MR. FREY: Per kilowatt hour.

MS. WILLIAMS: So for the purposes of developing the emission factors, does it lump different types of fossil fuels together or does it break it up separately?

MR. FREY: The database -- the factors we're using are an average of all the different fuels. I'm not quite sure if it actually breaks it down by individual types of

fuels. It might, but the data is there. I'm sure someone could calculate it as such, but, again, their purpose was to look and try to help folks to find what types of emissions will occur from the consumption of electricity because you usually don't have that data available to you being an industrial facility or whatever it may be.

MS. WILLIAMS: I could see why an industrial facility might not, but can you identify whether the information put into that database is the same information the state would have in their own emission inventory?

MR. FREY: There's different inventories.

MS. WILLIAMS: Can you explain the difference? I'm not an expert in this area.

MR. FREY: From an air point of view, the state will, they're required by statute for industrial facilities, to file annual air emission reports. That's the quantity of regulated air pollutants, which does not include CO2 or any other greenhouse gas at the time. It may in the future, but that's how much they actually emitted from a given facility. So the

District would be doing that. They do file their

appropriate annual emission reports. So that's actual emissions from the equipment on their site. That's not from the consumption of electrical power at that particular facility.

MS. WILLIAMS: Right. That's recorded at the generating facility, the annual emission reports.

MR. FREY: What they would be admitting from their boiler or turbans, yes.

MS. WILLIAMS: Is that information from the generating facilities and emission reports that goes into the E grid database?

MR. FREY: That would be correct, yes.

MS. WILLIAMS: That's all I was trying to follow up on.

MS. HEDMAN: Now, I need a point of clarification from what you were asking. Are you suggesting the E grid database also include industrial sources.

MR. FREY: No. If Commonwealth Edison, if they have a boiler generating electrical power -- by burning a certain fuel,

0110

they'll emit emissions and they have to file that with the Illinois Environmental Protection Agency from their particular plant.

MS. HEDMAN: And do you know whether Commonwealth Edison owns any electric generating facilities?

MR. FREY: I don't know. I'm just assuming whoever is generating the power at the facility, whatever their name is, whoever owns and operates that particular combustion device has to report it. So if they're generating electrical power and they're also required as part of the E grid system through other mechanisms, not through IEPA, to file the appropriate information that's needed for the database in terms of generation and fuels combustion.

MS. HEDMAN: And do either of you two know if the District purchases its electricity from Commonwealth Edison or from an alternative retail electric supplier?

MR. McGOWAN: I don't know.

MR. FREY: I don't know.

MS. HEDMAN: And did you do any sensitivity analyses that would have considered

0111

self-generation by the District, self-generation of electricity?

MR. McGOWAN: No, we didn't do an analysis. Do you mean if they were to burn methane gas and something like that -- No, we did not do a sensitivity analysis to that.

MS. HEDMAN: I think that's all I have.

MS. TIPSORD: Mr. Ettinger, than we're ready to move on to you.
MR. ETTINGER: First, a point of clarity, a point of clarification from me. Am I the only thing standing between this body and cocktail hour?
MS. TIPSORD: Well, for some people, yes.
MR. ETTINGER: Okay. That will affect the extent of my questioning. So moving quickly, Mr. McGowan, have you worked on disinfection issues regarding Milwaukee, Detroit, Norwalk, Columbia, Maryland or any other plants?
MR. McGOWAN: Yes.
MR. ETTINGER: I was hoping for no. That would move this along faster.

0112

MR. McGOWAN: If I weren't under oath.
MR. ETTINGER: Which plants did you work on disinfection?
MR. McGOWAN: My most experience would have been with disinfection issues in Detroit.
MR. ETTINGER: And what were the issues considered there?
MR. McGOWAN: They use very large tanker trucks of chlorine gas for their plant. It's about a 1.8 billion gallon per day wet weather treatment plant. So they have a lot of chlorine gas. And I help them review a scrubber facility where they would contain their gas and certain things like that. I also help in a number of -- in re-rating their waste water treatment plant to treat maximum wet weather flows and we had a talk about what kinds of dosing they would require and those types of issues.
MR. ETTINGER: Are they doing anything differently as a result of your work?
MR. McGOWAN: Some of the flow proportioning and the doses for wet weather

0113

treatment because we did push more wet weather flow through there so they have to track things a little differently, but for the most part, we did not change systems or anything along those lines if that's what you mean.
MR. ETTINGER: As I understand -- you're actually disinfecting for wet weather conditions also.
MR. McGOWAN: They disinfect dry and wet weather flows. Their dry weather flow is about 650 MGD, 700 MGD. But they can get up to 1.8 billion gallons of wet weather.
MR. ETTINGER: Are they disinfecting for 1.8 billion gallons of wet weather?
MR. McGOWAN: Yes.

MR. ETTINGER: Where do they discharge?
MR. McGOWAN: The Detroit River -- Excuse me. They are at the confluence of the Detroit River and the Rouge River so certain effluent at very high flows may go into the Rouge River, but by and large it goes into the Detroit River.
MR. ETTINGER: Do you know if there

0114

are any beaches at the confluence of the Rouge River and Detroit River?
MR. McGOWAN: Have you ever been there?
MR. ETTINGER: Actually, I worked for George McGovern in River Rouge in 1972.
MR. McGOWAN: I am unaware of anything other than steel facilities and that type of thing at the Rouge and Detroit Rivers. But, no, seriously I don't believe there are beaches in that near facility.
MR. ETTINGER: Okay.
MR. ANDES: Do you have any idea how much money the city of Detroit is spending to do those things?
MR. McGOWAN: Oh goodness, I could get back to you on that. I wouldn't want to say right now because it would be -- it's been several years since I've been there.
MR. ANDES: Thank you.
MR. ETTINGER: Was that the only plant that you've worked disinfection issues on?
MR. McGOWAN: Substantially, yes. I worked at that facility for about eight years.

0115

There are other very minor ones, but that would be the best exactly.
MR. ETTINGER: In view of the hour, we'll just talk about Detroit. Number two, to your knowledge has the Metropolitan Water Reclamation District of Greater Chicago ever done an environmental assessment like the one you did regarding DO enhancement and disinfection for any of its other operations, proposed operations?
MR. McGOWAN: I am unaware.
MR. ETTINGER: Do you know whether any assessment like this was done with regard to any portion of TARP?
MR. McGOWAN: I am unaware of that as well.
MR. ETTINGER: Ms. Williams asked a more specific version of this question, but let me ask the general question. Have you or to your knowledge anyone else ever attempted to calculate any favorable environmental effects on land, air, energy use or other portion of the environment that might result from disinfection at the

Calumet, North Side or Stickney plant?
MR. McGOWAN: We did not get into
0116
the receding water quality aspect. Which may be construed as the benefit. We were only involved in the maintenance and operation and construction. So we did not get into those other than the adverse effects, if you will.
MR. ETTINGER: Okay. So you didn't consider whether there might be any energy savings resulting from fewer trips outside the area due to more recreation in this area or anything like that?
MR. McGOWAN: Oh, I see. The similar question from before. No, we did not do that.
MR. ETTINGER: Okay. Number eight. On page 2.1 of your report, you assume that disinfection will be provided from March through November. Why did you decide to use this assumption?
MR. McGOWAN: Essentially, we were reiterating what we were given, Consoer Townsend, in their design -- laid out the operational parameters. Those were the ones that were given to us. So we used energy usage from March through November. We didn't want to use the whole year.
0117
We wanted to make sure we were consistent with the way they were intending the planning and design of the facilities would go. So it was information that was given to us.
MR. ETTINGER: Obviously, if you used the shorter period, you would come out with different results?
MR. McGOWAN: I would assume so.
MR. ETTINGER: Thank you.
MS. TIPSORD: Thank you, everyone. We will start then in Joliet with Charles Haas, your next witness and then David Zenz, followed by Thomas Kunetz and John Mastracchio. Do we have any realistic expectation that we can do Thomas Granato while we're in those two days?
MS. WILLIAMS: Repeat the witnesses, please.
MR. TIPSORD: The witness list right now is Charles Haas, David Zenz, Thomas Kunetz, John Mastracchio and then Thomas Granato before we start aquatic uses.
MR. ANDES: We'll aim for that, but I know there are a lot of issues that we're asking Mr. Lanyon, including financial issues that we've
0118
deferred to Kunetz and Mastracchio. So that might take a while.
MS. TIPSORD: Okay. We'll shoot for those five witnesses in Joliet. I've been warned

that the line to get into the Will County courthouse is atrocious in the morning. Keep that in mind. Thank you very much. I'll see you all at the end of October.

0119

STATE OF ILLINOIS.)
) SS.
COUNTY OF COOK)

I, STEVEN BRICKEY, being a Certified Shorthand Reporter doing business in the City of Chicago, Illinois, County of Cook, certify that I reported in shorthand the proceedings had at the foregoing hearing of the above-entitled cause. And I certify that the foregoing is a true and correct transcript of all my shorthand notes so taken as aforesaid and contains all the proceedings had at the said meeting of the above-entitled cause.

_____
STEVEN BRICKEY, CSR
CSR NO. 084-004675