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 PROCEEDINGS held in the above-entitled cause before Hearing Officer Marie Tipsord, called by the Illinois Pollution Control Board, taken before Laura Mukahirn, CSR, a notary public within and for the County of Cook and State of Illinois, at the Thompson Building, 100 West Randolph, Chicago, Illinois, on the 24th day of September, 2008, commencing at the hour of 1:00 p.m.

A P P E A R A N C E S

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MS. ANDREA MOORE, Member
MR. THOMAS JOHNSON, Member
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HEARING OFFICER TIPSORD: Let's go ahead and go back on the record. Good afternoon, everyone. I hope you had a nice lunch break, and we're ready to pick up with Dr. Rijal and the IEPA's questions.

MS. WILLIAMS: Good afternoon, Dr. Rijal. I'll just start with No. 1. I believe that Attachment 3 to your testimony is the same as what has been entered as Exhibit 38 in the record. Can you clarify that for us today?

DR. RIJAL: Yes.

MS. WILLIAMS: Great. Question 2, your testimony indicates that the district performed various fecal coliform distribution studies to assist the Illinois EPA in determining what the appropriate bacteria water quality standard should be for the study area. Do you believe fecal coliform is an appropriate indicator on which to base a water quality standard.

DR. RIJAL: I do not believe that fecal coliform is an indicator of health risk.

MS. WILLIAMS: Could you repeat that.

You do not believe it's an indicator of what?

DR. RIJAL: I do not believe fecal coliform is an appropriate indicator on which to base the water quality standard.

MS. WILLIAMS: Do you have an indicator that you would recommend on which to base a water quality standard.

DR. RIJAL: I don't have any recommendation at this time.

MS. WILLIAMS: And that would be true for whatever type of recreational activity we're referring to.

DR. RIJAL: Yeah. I don't -- I don't know. This is reference to Question No. 3, isn't it? Yeah.

MS. WILLIAMS: Three expands on Question 2. And if your answer is that you don't have one, probably that covers three, yes.

Question 4 at the top of Page 3 of your prefiled testimony you conclude that the District's effluent was, quote, was not adversely impacting the microbial quality of the Des Plaines River downstream of the

junction. Can you explain by what you mean by not adversely impacting?

DR. RIJAL: That first impact here is in reference to the fecal coliform bacterial lowering.

MS. WILLIAMS: And can you explain what the impact is of the fecal coliform load.

DR. RIJAL: We compared, as we discussed earlier, we compared the fecal coliform levels at two sampling locations: One being the Des Plaines River site and other being the Chicago Sanitary Ship Canal, and we compared the fecal coliform lower. So this impact was in reference to the levels of fecal coliform load impacting the waterway downstream of the --

MS. WILLIAMS: But by impact you mean it didn't raise the levels at all.

DR. RIJAL: No.

MS. WILLIAMS: And what specific data do you base that on.

DR. RIJAL: When we compared the levels of fecal coliform that we found, the individual data as well as the geometric mean

data, and we found the levels were similar at both the locations. But when we did the statistical analysis, we find higher levels when we compared to the general use standard of geometric mean of less than or equal to 200 fecal coliform, less than or equal to 200 fecal coliform in a 30-day period geometric mean standard. When we compared that we found that the levels was higher at the Des Plaines River site compared to the Chicago Sanitary and Ship Canal site.

MS. WILLIAMS: When you say the levels were higher, you mean what.

DR. RIJAL: When we compared with the general use fecal coliform levels.

MS. WILLIAMS: Do you mean average levels? Do you mean --

DR. RIJAL: Geometric mean. And we also looked at the -- it is explained in the report that 10 percent of the samples should not exceed 400 fecal coliform unit too. We looked at that criteria, too, and we found the number of samples at the Des Plaines River would exceed that advisory limit

compared to the Chicago Sanitary and Ship Canal.

MS. WILLIAMS: I mean I think you're explaining what I'm trying to get at where you're talking about numbers of -- comparing numbers of violations or comparing actual loading numbers or --

DR. RIJAL: Loading number and compared to the general use standard levels. So that's why this is in reference, the adverse impact here in reference to the fecal coliform load.

MS. WILLIAMS: Do you -- Isn't it correct that the maximum fecal coliform values were higher in the Sanitary and Ship Canal than the values you found in the general use waters.

DR. RIJAL: I'm going to go over to the report which is Attachment --

MS. WILLIAMS: Three.

DR. RIJAL: Three of my testimony. And I just don't want to give you a wrong number, but the geometric mean actually came out to be lower at the Chicago Sanitary Ship Canal

than the Des Plaines River, and the ranges --

MS. WILLIAMS: My question was very specific about the maximum.

DR. RIJAL: The ranges -- I'm going to give you the ranges. I don't have it here. So this is Page 28 of the Attachment 3. In 2000 the fecal coliform concentration ranged from 10,000 to 15,000 CFU per 100 mL at Des Plaines River; at Sanitary and Ship Canal, the fecal concentration ranged from 10 to 21,000 CFU per 100 mL. So I don't understand. The maximum range is within the same range that we see at the Des Plaines River compared to the Chicago Sanitary and Ship Canal.

MS. WILLIAMS: What do you mean within the same range.

DR. RIJAL: It's the 15,000 versus -- or 21,000.

MS. WILLIAMS: 21,000 is higher than 15, right? I mean I'm really not trying to confuse you. It's a very simple question, I think, right.

DR. RIJAL: Okay. But I'm just --

MS. WILLIAMS: The maximums were higher.

DR. RIJAL: Maximum, yeah, was higher, yeah.

MR. ANDES: That's with a particular sample that was the maximum of the range was higher than one set than the other.

MS. WILLIAMS: Right. And in 2001, also, right? It was quite a bit higher.

DR. RIJAL: It was, yeah --

MS. WILLIAMS: 15,000 versus 10,000; is that correct?

DR. RIJAL: 10,000, yeah.

MS. WILLIAMS: Would you consider that within the same range.

DR. RIJAL: Well, if, you know, the criteria is based on the geometric mean, too. So we take that also into account. But the maximum range here is we are talking about 10,000 versus 20,000 versus 15,000. So when you compare these three numbers, yes, it's higher.

MS. WILLIAMS: Okay. So when you say it does not adversely impact the area

downstream, when we're saying we don't -- in this question I asked about the Sanitary and Ship Canal levels not adversely impacted, you're not suggesting that there aren't times when the concentration in the Sanitary and Ship Canal is higher than the water coming in from the Des Plaines River, are you.

DR. RIJAL: What do you mean by the concentration --

MS. WILLIAMS: I mean it's not always higher from the Des Plaines River, is it? Are you trying to -- sometimes it's much higher coming from the Sanitary and Ship Canal, correct?

DR. RIJAL: I'll have to look at the individual data here. And there are also times where Des Plaines River are higher, you know, coming -- the concentration of FC levels are higher.

MS. WILLIAMS: So you think both are true? Sometimes it's higher.

DR. RIJAL: Yeah.

MS. WILLIAMS: From Des Plaines River, sometimes from Sanitary and Ship Canal.

DR. RIJAL: And which is justified by the geometric mean which takes care of this -- and you see actually the geometric mean from that point we can see that the tendency of higher fecal coliform contribution to the lower Des Plaines is the Des Plaines River then the Chicago Sanitary and Ship Canal. And if you had reviewed this report carefully, we tried to also predict the FC levels at the lower Des Plaines. And if you see the slope, you see that the prediction is that higher level of FC will contribute to the lower Des Plaines River compared to the Chicago Sanitary Ship Canal. So this was the finding from the support.

MS. WILLIAMS: And there's data from downstream of the confluence in the report.

DR. RIJAL: No. We compared these to location and --

MS. WILLIAMS: I just wanted to make sure that I wasn't misunderstanding. Yeah. What about CSOs in the -- I don't want to say upper Des Plaines River, but the portions of the Des Plaines River that you were looking

at upstream of the study area. Do you know anything about the CSOs in that area.

DR. RIJAL: I know there are CSOs in the Des Plaines River.

MS. WILLIAMS: Question 6, with regard to your report 07-79, you state on Page 3 of your testimony, quote, the purpose of this study was to determine from the collected data whether disinfection of effluence from these WRPs, which stands for water reclamation plants, would significantly reduce the fecal coliform load in the receiving streams during wet weather and how the fecal coliform concentration in the waterways compares to the effluent disinfection standard proposed in this rulemaking.

I think you tried to address this issue earlier, but I don't think you directly answered this question. Was there an effluent disinfection standard being proposed by the Illinois EPA at the time you began this study?

DR. RIJAL: As I discussed earlier, I

know I didn't -- I might not have answered it. The study was pursued to address issues raised by the stakeholder committee which includes the Agency and their consultant. And this was on the Chicago area use analysis. And this meeting, especially the May 16, 2002 meeting, during that meeting the Agency consultants suggested that to achieve a water quality standard set the lower Des Plaines disinfection standards could be applied at that time.

MS. WILLIAMS: But that was a water quality standard they were looking at, right? There was no effluent disinfection standard.

DR. RIJAL: But they also discussed that in order to desire to achieve that standard you would have -- it was implied that the disinfection would be required to meet that water quality standard. And specifically I do --

MS. WILLIAMS: As a water --

DR. RIJAL: Specifically I do have memorandum of the June 16 dated 2003 meeting minutes for the future of the Chicago Area

Waterway System public meeting. And if you look at Page 13 here --

MR. ANDES: I assume this will be part of Exhibit 36, right? Because it's among the meeting minutes from the advisory group.

MS. WILLIAMS: Did you say Page 13?

DR. RIJAL: Page 13 of public meetings, June 16, 2003. The first paragraph --

MS. WILLIAMS: Wait. Public meeting on the Chicago -- on the CAWS UAA now we're talking about.

DR. RIJAL: Yeah.

MS. WILLIAMS: I thought earlier you testified this was in relationship to meeting standards downstream in the lower Des Plaines River.

DR. RIJAL: Which -- yeah. There was that -- I think you're getting confused.

MS. WILLIAMS: Yeah. I know I am.

DR. RIJAL: The earlier one was agreement that was made between the district and IEPA. That was December, I think, 2002 agreement. And the subsequent meeting there

was -- when they brought up this issue, there was -- the disinfection was implied to achieve the water quality standard at the lower Des Plaines.

MS. WILLIAMS: Okay. But there wasn't an effluent standard proposed.

MR. ANDES: Let me clarify. We're talking about the 2007 report, right?

MS. WILLIAMS: Right. I'm trying to understand how a 2007 report --

DR. RIJAL: So I'm getting confused.

MS. WILLIAMS: Would have taken --

DR. RIJAL: Let me explain. I think I'm getting confused here. Because I -- the first time in the morning I gave an explanation to the 2003 report. And this report here, which we are referring to as Attachment 5, was conducted between 2004 and 2006. So I am answering in context to this report.

MR. ANDES: And that one was as to the CAWS, correct?

DR. RIJAL: That was to the CAWS, yeah. And based on this June 16, 2003 public

meeting report, we can read -- I'll read it from the first paragraph. That if disinfection becomes recommendation of the UAA --

HEARING OFFICER TIPSORD: Slow down.

DR. RIJAL: I'm sorry. If disinfection becomes a recommendation of the UAA, it will be the responsibility of the discharges to fulfill the disinfection requirement in conjunction with the IEPA permit crosses, whichever acknowledgment they choose. So this implies that either a disinfection standard or a permit requirement would be imposed.

MS. WILLIAMS: Okay. But -- And it never talks about what that number would be of a disinfection standard, does it.

DR. RIJAL: I was not part of that meeting, so I don't recall that.

MS. WILLIAMS: Do you recall whether at that time fecal coliform was being discussed as a potential indicator that would be used.

DR. RIJAL: We came across several versions of the CAWS UAA and we had fecal

coliform one time and then the E. Coli and then to fecal coliform. So I'm not sure which one you're talking about. But they're very -- both fecal coliform and E. Coli were discussed. Not both I mean --

MS. WILLIAMS: As potential water quality standards.

DR. RIJAL: Yes.

MS. WILLIAMS: And we're not talking about effluent standards. We're talking about --

DR. RIJAL: The water quality.

MS. WILLIAMS: Ambient.

DR. RIJAL: Ambient.

MS. WILLIAMS: Did you consider monitoring for E. Coli when you did these studies.

DR. RIJAL: No. Because our permit regulation is for fecal coliform bacteria. So we just monitored fecal coliform.

MR. ANDES: If I can follow up. Did IEPA ever suggest that you monitor for E. Coli as well?

DR. RIJAL: No.

MR. ANDES: Thank you.

DR. RIJAL: This is the permit for Egan, Curry (ph.), and Hanover Park and not for the North Side or Stickney or Calumet.

MS. WILLIAMS: No. 7, at the top of Page 4 of your testimony you describe a wet versus dry weather study of fecal coliform in the waterways. And, quote -- and define, quote, light rain conditions in which no pumping station discharge occurred and heavy rain conditions in which pumping station discharge did occur. Question A: Did you review CSO monitoring records and take into consideration whether other CSOs within outside or upstream of the CAWS had occurred during light rain or dry weather events.

DR. RIJAL: The information provided in this report is based on the district reported CSO events. So we have the data only from the district-reported CSO events.

MS. WILLIAMS: Okay.

MR. ANDES: If I can follow up on that. Were you trying in this report to isolate particular sources other than the

planned effluence and determine what their specific contributions were?

DR. RIJAL: No. We were trying to look at the levels in -- the fecal coliform levels in the waterway upstream and downstream.

MS. WILLIAMS: But if you're defining a period as dry weather, you'd agree it's relevant whether the CSOs are impacting the system from --

DR. RIJAL: Even if it was impacting, we would -- you know, the data is based on the fecal coliform levels. So what we see would be the levels of fecal coliform that we'd find during that period of time.

MS. WILLIAMS: Can you go back to what you testified this morning? I don't think I was following very well when you were explaining to Miss Alexander, what percentage of a year -- You were trying to describe the percentages of the year that are dry weather versus wet weather? Can you try to repeat that?

DR. RIJAL: Based -- you know, can

I -- I'm going to go over with my testimony and explain to you a little bit of how the study was designed so that will help clear some confusion here. Now, the fecal coliform density were measured during dry and wet weather and now the dry weather here was defined as on any day in which there was no measurable rainfall occurred and then the day --

MR. ANDES: What page?

DR. RIJAL: This is Page 4 of my testimony. That's the first paragraph. And I won't take much of your time, but rain -- so there was no rainfall two days prior when the samples was collected and also a day after when the sample was collected. And the light rain period was defined as measurable rainfall that occurred on the same day or the one or two days prior to the collecting of the routine fecal coliform sample. And as I mentioned earlier, heavy rain was, which exceeded the capacity of the TARP and which resulted into a discharge from the pumping station. This was classified as a heavy rain

period. So -- and we have -- and the rainfall was measured based on the rain gauge data we have which is from the North Side plant, North Side pumping station and the Calumet location, also by the pumping station. And we tabulated the rainfall measured with the dry period. And we found for each year that there are approximately, average that comes out to be within of this, 2004 to 2006, approximately 145 days within that year fall into the category of rainfall as we described in -- rain event as we -- or the wet weather samples as described in this study. So it's 145 days. So does that answer your question?

MS. WILLIAMS: So let's just -- I think we're all a little confused. I'm not sure that that's your fault. But so the 145 days, through that, per year, right? That's per year?

DR. RIJAL: Yes. That's each year.

MS. WILLIAMS: During that period of 2004 to 2006 were days that a measurable rainfall occurred.

DR. RIJAL: Yes.

MS. WILLIAMS: Okay. Not whether it rained the day before --

DR. RIJAL: No. This was based on a measurable rainfall, rain gauge data.

MS. WILLIAMS: And if it did not rain that day, it was considered a dry weather day.

DR. RIJAL: We will have certain times that it would be included in the light -- no, not in the -- it would be -- see, if you see the definition of light rain event that it has a dry period of one to two days prior.

MS. WILLIAMS: So within that 145 days you're including impacts from prior days.

DR. RIJAL: No.

MS. WILLIAMS: Any measurable rainfall occurred on the same day or one or two days prior?

DR. RIJAL: What is your question then?

MS. WILLIAMS: I know. I haven't asked the question yet, but --

HEARING OFFICER TIPSORD: Just a minute, Miss Meyers-Glen.

MS. WILLIAMS: Do you have a follow-up?

MS. MEYERS-GLEN: I'm absolutely confused on this definition of dry weather, especially if you put it next to the definition of wet weather. So if I could look at the definition of dry weather for a second, specifically looking at --

HEARING OFFICER TIPSORD: You need to keep your head up and project out. She can't hear you.

MS. MEYERS-GLEN: Thank you. First of all, for the record, Stacy Meyers with Openlands. I'm looking at Page 4 of your testimony and you define dry weather here, as you just stated, as defined as any day on which no measurable rainfall occurred. Including no rainfall two days prior and one day after a day on which a routine fecal coliform sample was collected. And I'm confused. I don't understand where you -- what the significance is of and one day after the day on which a routine fecal coliform sample was collected as defining dry weather.

Can you explain that?

DR. RIJAL: Okay. I think you're getting confused here. Now, the explanation I provided here on the Page 4 is this is the way the data was grouped for the fecal coliform levels that constituted the dry weather. And your question was about how do you define the rainfall wet weather event from 2004 and how did I come up with the 145 days. Now, the 145 days that we got average for 2004 to 2006 is based on attachment 5 of the report. If you see Table 1, Page 5.

MS. MEYERS-GLEN: I --

DR. RIJAL: As I mentioned earlier, so that's the rainfall -- based on this data here where we have actual rain gauge data for 2004, 2005, 2006 at each North Side and the Calumet location, we have number of days of gauges in operation, and that's how we got the wet weather days, 145 days. And the fecal coliform levels were grouped in dry weather, light rain, just to make sure that we don't get the effect of the rain event. So we collected the fecal coliform samples

two days prior to when it didn't rain and one day after the rain. So that constituted the dry period FC levels here. So I think we are comparing two different things here.

MS. MEYERS-GLEN: Okay. So I'm trying to clarify, though -- thank you. But I'm still confused. And maybe this is just me, but I'm trying to work this out here. I'm trying to figure out -- you're saying not -- are you saying now that it was one day after there was a rain event?

DR. RIJAL: That was for --

MS. MEYERS-GLEN: Is that what that means, the one day after the day in which a routine coliform sample was collected? That's how you're defining --

DR. RIJAL: That would be the light rain. In the dry weather there was no rainfall one or two days prior and on which a routine fecal sample was collected. No rainfall two days prior.

MS. MEYERS-GLEN: Okay. I'm --

MS. WILLIAMS: Can I --

MS. MEYERS-GLEN: Specifically as to

that phrase, I'm trying to just confine -- I'm confused specifically about that phrase, so I'm trying to understand what that particular phrase means, trying just to leave wet weather out of it for just a second, honing in on that. When you say you define dry weather, in part, as one day after the day on which a routine fecal coliform sample was collected. Can you please describe to me what that means as far as metrics?

DR. RIJAL: If we had already collected the data, we do go out, as I mentioned, first Tuesday and the second, what was it, Thursday that was routine samples were collected. So it happens to be that we have the data. So we have the fecal coliform data. So it doesn't -- it didn't trigger us to go and take the sample. Is that why you're getting confused? So we looked at the rain gauge data and we have the FC levels. So if it didn't rain two days prior to the day we sample and also the following day there was no rain, then that was -- that would be the dry weather data.

MS. MEYERS-GLEN: So there could have been other dry weather days that aren't captured by this but occurred. You guys just didn't measure those because they didn't fall within the dates that you were sampling; is that correct?

DR. RIJAL: No. Also, there is a possibility that we didn't sample, you know, because it could have been the weekdays or weekend and we have reported that no samples were collected. But we have the rain gauge information for those dates, too.

MS. MEYERS-GLEN: Okay. So this is going to be a different definition than generally when you're talking about dry weather?

DR. RIJAL: This is the dry weather definition.

MS. MEYERS-GLEN: Are you using this for everything you're talking about today when you say dry weather, or does this definition only pertain to this particular report when you're looking at measurements?

DR. RIJAL: Only this report for the

measurements, yes.

MS. MEYERS-GLEN: So when you're not looking at this report and you're not talking specifically about how you measured, what then is your general definition of dry days, dry weather days? How is that different?

DR. RIJAL: Well, as I mentioned this morning, too, the dry weather in terms of the fecal coliform levels has some influence of the wet weather event. And which could be two days or longer, we don't know.

MS. WILLIAMS: Okay. Let me -- I think that there's just one piece of this definition that I'm knocking around and I really think we need to close the loop on. You went out on Mondays and Thursdays, right? That was the routine days?

DR. RIJAL: Yeah.

MS. WILLIAMS: I forget what you said, second of one --

DR. RIJAL: Routine, yeah, it is in the report. I don't have the dates, but.

MS. WILLIAMS: The second Tuesday and the first Monday or the first Tuesday and

second Monday. Okay. First Tuesday you go out, you take a sample. It's not raining. Then the first Wednesday following the first Tuesday of it rains. That was not considered a dry weather sample?

DR. RIJAL: So the first Tuesday and then the Wednesday sample?

MR. ANDES: The next day you mean the following --

MS. WILLIAMS: The next day it rains. You take a sample. The day after it rains. The sample is what?

DR. RIJAL: If it's collected Tuesday, but this -- we take a weekly sample.

MR. ANDES: Taking samples two days in a row.

DR. RIJAL: We are not taking --

HEARING OFFICER TIPSORD: Right. The question is they took the sample on Tuesday --

MS. WILLIAMS: I understand that.

HEARING OFFICER TIPSORD: You took the sample on Tuesday. It rained Wednesday. Is that a wet weather, light rain, or dry

weather sample?

MR. ANDES: And if it didn't --

DR. RIJAL: If it -- if it didn't rain prior to that day, then it would be a dry weather data.

HEARING OFFICER TIPSORD: Even if it rained on Wednesday after you took the sample on Tuesday?

DR. RIJAL: Yeah.

HEARING OFFICER TIPSORD: That's not what you've been saying.

MS. WILLIAMS: So why does it say two days --

HEARING OFFICER TIPSORD: Now we're getting -- Hang on. Sorry. Because what she's been saying is if it rained the day after you took the sample it was a light rain day.

MR. ANDES: Right, right.

HEARING OFFICER TIPSORD: Okay. That's the question we just asked. You took a sample -- we go out and take a sample today. It didn't rain yesterday or the day before. We take a sample today, it rains

tomorrow, that is not a dry weather sample; is that correct?

DR. RIJAL: That is not a dry weather sample.

HEARING OFFICER TIPSORD: That is a light rain sample, correct?

DR. RIJAL: That is a light rain sample.

MS. WILLIAMS: Why? Please tell me why.

DR. RIJAL: Well, you know, if you look at the -- you know, we have those routine samples, but just to understand the microbiological quality, we didn't bias it, but we grouped it based on this definition here. We grouped the data into what available data we had, we grouped it to see the estimate die-off rate after any rain event. So that was the main purpose also to see if fecal coliform levels.

MR. ANDES: Is part of it also since -- is part of it also that you want to make sure that when you sample that you're not collecting wet weather flow that's coming

from downstream and you're not -- and that gauges are in certain locations but aren't necessarily reflecting rainfall all over the area? So you're trying to have a --

MS. WILLIAMS: I think he's leading the witness.

MR. ANDES: If this is wrong, then she can tell me. But if that also reflects a margin around the data to make sure that's a dry weather day?

DR. RIJAL: Yeah.

MS. WILLIAMS: Yeah what? Explain to me what, yes what?

DR. RIJAL: Yes. It's a dry weather -- because, you know, based on the definition here we have grouped it as a light rain, as you mentioned earlier.

MS. WILLIAMS: But you don't think it could bias the light rain data to include days where it didn't rain?

DR. RIJAL: You know, if you look at the fecal coliform date, that was the -- we categorized it that way. But if you look at the levels, it doesn't bias the results.

MR. ANDES: Does that only bias it down?

DR. RIJAL: Yeah.

MS. WILLIAMS: Is this definition used anywhere else in any of the District's reports or information submitted into this record or just in this particular report?

DR. RIJAL: This is just in this report.

MR. ANDES: If I can follow up on that. If you classified a day as light rain that someone else could have been characterizing it as dry weather, isn't that only going to take the light rain numbers down compared to where they would otherwise be? They'll be lower because they'll only reflect dry weather sources?

DR. RIJAL: Yeah. It's possible.

MS. WILLIAMS: Yeah it's possible what?

DR. RIJAL: That, you know, the levels what we have in here is based on the definitions that we have used to categorize both the light rain, the dry weather data,

and the heavy rain. But I, you know, it's not that whether -- we cannot just go and collect samples. The samples were already scheduled for certain dates. It is only during the heavy rain period we followed, you know, the sampling.

MS. WILLIAMS: Right. I understand that. And I don't -- and I don't -- I'm not -- I understand why you look at two days prior, but I'm not sure I understand this one day after.

HEARING OFFICER TIPSORD: Miss Dexter, you had a follow-up?

MS. DEXTER: I want to make sure I'm reading this right. If you did classify what was -- what many of us would consider a dry day as a light rain day would that bias the percentage of days that you're calling rain days in your report? Would it make it so there were -- there was a greater percentage of rainfall days or wet weather days in your --

DR. RIJAL: No. I think, again, this is the grouping that we used to group the

fecal coliforms. But we, as I mentioned in the Attachment 5 of the -- my testimony, in this report, Table 1, Page 5, the rainfall datas were based on the rain gauge number of days that we measured -- measurable amount of rainfall.

MS. DEXTER: So those two are not related at all?

DR. RIJAL: No. These are the actual rainfall levels, so this happened in the Chicago area during 2004 through 2006, and that's how we -- from this table here we got an average of about 145 days where measurable rainfall fell in the Chicago area.

HEARING OFFICER TIPSORD: But you're not saying that there was 145 wet sample days, right? The 145 is the days it rained, but you're not saying that there were 145 wet sampling days?

DR. RIJAL: No.

MR. ANDES: I might suggest also that we also -- one of the other authors of that report, Sam Dennison here who I believe has already been sworn in for other testimony,

and I think he might be able to add something to this.

HEARING OFFICER TIPSORD: Okay.

MR. DENNISON: Probably I hate to say this, but could you --

HEARING OFFICER TIPSORD: You need to speak up a lot.

MR. DENNISON: I hate to say this, but could you please state a question that I could answer now.

HEARING OFFICER TIPSORD: No. I think you just need to clarify what you -- if you have something to add you can just add it at this point. I mean I don't know what question you're looking for.

MR. ANDES: The particular issue might be that when we define dry weather for purposes of this report to include samples -- I'm sorry. We include light rain, define light rain to include where there was no rain for two days before but there was rain the day after the sample is collected that was defined to be a light rain sample. So the question is why is that defined to be a light

rain sample when the rain only occurred after the sample was collected:

MS. WILLIAMS: I mean I think the question is confusing because you didn't actually define light, right, but you -- but you grouped the data that way. Is that the better --

DR. RIJAL: Yeah, that's correct. That's correct.

HEARING OFFICER TIPSORD: Did you have anything you wanted to add?

MR. DENNISON: Evidently not.

MEMBER JOHNSON: Hell of a job.

HEARING OFFICER TIPSORD: Dr. Girard has a question.

CHAIRMAN GIRARD: Is all the data in the report so that if somebody else wanted to regroup the data to come up with their own definitions they could regroup it and recalculate it and come up with something?

DR. RIJAL: Yeah. The data is data. Whatever is -- you know, we have FC levels for the days that we collected samples. So, you know, we could take those data and

reanalyze it. Yes, you can do that.

CHAIRMAN GIRARD: And anybody else who would like to make up their own definitions and recalculate could do that.

DR. RIJAL: Well, it's -- you know, we tried to understand like, you know, how does the fecal coliform density, the die-off rate is seen during the dry period and what happens in between the dry and the storm events like in heavy rain period in between. So to understand that, this grouping was introduced.

CHAIRMAN GIRARD: Thank you.

HEARING OFFICER TIPSORD: Go ahead, Miss Williams.

MS. WILLIAMS: I think I left off at 7B. Did you review whether heavier rains were occurring upstream of the CAWS during the periods you define as light rain? And I think -- did you answer no already to that?

DR. RIJAL: Yes. The information we used was based on the District monitoring stations only.

MS. WILLIAMS: And would it be

possible to look at other meteorological data to determine one way or another?

DR. RIJAL: What other meteorological data -- we collected the rainfall database on the North Side plant and the pumping station and also the CSOs based on the -- the data would be -- reflects the best available data we have for the CSO events.

MS. WILLIAMS: I just felt that other witnesses for the district had indicated there was lots of meteorological data out there that if you wanted to look and see if it had been raining elsewhere that wouldn't be that difficult to do, but that wasn't something you considered doing, right? Is that correct?

DR. RIJAL: That's correct.

MS. WILLIAMS: What about did you look at whether -- Question C says did you review and take into consideration whether the disinfection exemption season for treatment plants upstream of the CAWS were responsible for bacteria levels found?

DR. RIJAL: I believe there are no

treatment plants upstream of the CAWS. There is one treatment plant which discharges to -- which is in the Lake County which discharges to the shallow region of the north branch of the Chicago River, and there is no treatment plant at, you know, the upstream location of the Calumet. There is one which is more close to the Lake Michigan which discharges into the Grand Calumet River at Indiana. So it's far upstream.

MS. WILLIAMS: But there is -- you said there's one in Lake County?

DR. RIJAL: Yeah.

MS. WILLIAMS: Do you know the name of that?

DR. RIJAL: I don't know the name.

MR. ANDES: If I can follow up. In your analysis you weren't trying to figure out where the bacteria, what sources the bacteria was coming from? You were just trying to measure what the levels were?

DR. RIJAL: Actual levels in the CAWS.

MR. ANDES: Thank you.

MS. WILLIAMS: On Pages 5 and 6 of

your testimony you state, quote, it is evident from this analysis that disinfection of the North Side and Calumet waste water treatment plant effluence during wet weather would not improve the CAWS microbial water quality downstream of these WRPs in terms of compliance with the proposed effluent standard. If MWRGDC installed disinfection technology at these plants, would they function in both wet and dry weather?

DR. RIJAL: Well, I'm not an engineer. I'm not qualified to answer this question.

MS. WILLIAMS: You don't know whether they keep the chlorination running at the other three district plants when it rains?

DR. RIJAL: At the smaller plants? Yeah. Because the discharges is to the general use water.

MS. WILLIAMS: Do you understand where compliance with an effluent standard is measured?

DR. RIJAL: Yes. End of the pipe in the effluent.

MS. WILLIAMS: And you have no reason

to believe that it would not be met?

DR. RIJAL: You know, the system designed in hydraulics and engineering. I don't know if that will handle the wet and dry flow, so, yeah, I would not answer.

MR. ANDES: If I can follow up. Am I correct to say that your statement was just intended to say that this disinfection would not improve water quality in the stream in terms of whether it met 400 as a benchmark level?

MS. WILLIAMS: Objection, 400 is not a number in the stream. That needs to be met in the stream. Why is this a follow-up?

MR. ANDES: It's a number as a point of reference. She used it as a point of reference. She can say that's what she did.

MS. WILLIAMS: Okay. Go ahead.

DR. RIJAL: I am lost now.

MR. ANDES: When you made the statement about the water quality downstream of the plants in terms of compliance with the proposed effluent standard, what were you using the proposed effluent standard for?

DR. RIJAL: We were using 400 --

MR. ANDES: And were you using it as a water quality standard?

MS. WILLIAMS: Wait. Excuse me. She started to answer and you cut her off.

MR. ANDES: I thought she was done.

MS. WILLIAMS: Let her answer.

MR. ANDES: Go ahead.

DR. RIJAL: Well, I'm comparing whether the technology-based effluent limits, which is 400 CFU per 100 mL, justifies what the levels, ambient levels of the microbiological quality of the CAWS water quality is.

MS. WILLIAMS: Is there any relevance to that comparison at all? What possible relevance is there to that comparison?

DR. RIJAL: There is, from a public health standpoint of view, you know, the technology-based effluent limits of 400 CFU is not justified when higher elevated FC levels are discharged --

MS. WILLIAMS: From a public health standpoint?

HEARING OFFICER TIPSORD: Let her finish as well, Miss Williams.

MS. WILLIAMS: I understand.

DR. RIJAL: Is discharged into the waterways. And the ambient level in the CAWS are usually higher than the 400 fecal coliforms per 100 mL. So as, you know, I have mentioned earlier, it's not --

MS. WILLIAMS: So if what they were --

DR. RIJAL: -- reflective of the water quality, microbiological water quality of the CAWS in terms of 400 CFU per 100 mL.

MS. WILLIAMS: What if they were 401? What if the ambient levels were 401? Would you still have the same conclusion about disinfecting down to 400?

DR. RIJAL: No. You know, I don't know if 4 -- I'm not sure if 400 or 401 is an appropriate level.

MS. WILLIAMS: Thank you. That's what I thought.

Question 10 asks whether you have any information that would quantify the ratio of nonpoint to point source loads of

bacteria contamination to CAWS?

DR. RIJAL: Are you asking a question?

MS. WILLIAMS: Yes. No. 10, the first part of the question, do you have any information that would quantify the ratio of nonpoint to point source close bacterial contamination in the CAWS?

DR. RIJAL: You know, we do not have a quantitative information of point sources versus nonpoint source contribution into the CAWS. But it is appropriate to say there are nonpoint source contribution into the CAWS.

MS. WILLIAMS: And are there dry weather?

DR. RIJAL: Both dry and wet weather.

MS. WILLIAMS: Do you have any information about what the dry weather sources of fecal to the system would be other than --

DR. RIJAL: The dry weather -- yeah. It could be birds. They rest on the CAWS, and, actually, this point and nonpoint source was part in my testimony because I reviewed the EPA urban storm water report, and this

report had -- EPA report did an extensive storm water studies in different cities and has reported high levels of fecal coliform bacteria which ranges from the 400 CFU to 50,000 in the storm events that is discharged. And they have also reported that it will exceed the coliform criteria of the water quality criteria, so.

MS. WILLIAMS: Does the report you're talking about address dry weather contributions?

DR. RIJAL: Well, the storm events are -- could be triggered not only by wet weather, it could storm events -- some of the storm is like just rain coming out from the park or your lawn. So there are some nonpoint source contributions to the waterways. And you have wild animals and -- one gram of goat feces contains billions and millions of fecal coliform bacteria so there is a potential of nonpoint source contribution to the CAWS.

MS. WILLIAMS: But would you have any -- we don't really have any science at

this point that helps us distinguish the contributions?

DR. RIJAL: You know, when we were conducting the study, we didn't address the issues, but we have entered into an inter-agency agreement with the UCM (ph.), and we are looking into nonpoint source of indicator bacteria in the North Shore Channel area.

MS. WILLIAMS: Okay. I think we talked about Question 11, but let me go over it here. On Page 4, Paragraph 3 of your testimony you indicate that, quote, upstream of the North Side water reclamation plant and upstream of CAWS at Albany Avenue, the level of bacteria exceeded the proposed effluent limit in a percentage of the time during heavy rain, light rain, and dry weather.

Question A, how did you insure that your upstream North Shore channel samples were not contaminated by backflows of the plan?

DR. RIJAL: My understanding is that the backflow is unlikely.

MS. WILLIAMS: So you don't think there is any backflow?

DR. RIJAL: Yeah.

MS. WILLIAMS: Okay. Thank you.

HEARING OFFICER TIPSORD: Miss Meyers-Glen?

MS. MEYERS-GLEN: Thank you. I just want to clarify. Do you think that birds that are resting along the CAWS, say, like the Cal-Sag Channel are a significant source of pathogens or fecal coliform compared to the 1.17 billion gallons of effluent that's released by the plants from the district every day?

DR. RIJAL: I didn't say the significance there. The potential sources of nonpoint contribution of fecal coliform load into the waterways.

MS. MEYERS-GLEN: So you think then that it is significant compared to that amount of effluent released?

MR. ANDES: That's not what she said.

HEARING OFFICER TIPSORD: She didn't --

MS. MEYERS-GLEN: I'm trying to -- I cannot -- I'm sorry. Can you please repeat your answer because I didn't hear it.

DR. RIJAL: The bird discharges are potential sources of fecal coliform contribution into the waterways.

MS. MEYERS-GLEN: But do you think that it's significant compared to the amount of effluent that the District is pumping into the CAWS every day?

MR. ANDES: And she doesn't have to accept the argumentative nature of your question, right?

DR. RIJAL: We don't know. We investigate that, we will investigate that in our studies. We are looking into that. We are doing a study and we will investigate that.

HEARING OFFICER TIPSORD: Miss Williams, we're back to you.

MS. WILLIAMS: I'm so sorry.

Question 13A asks the same question that you just answered about backflow from the north shore plant to the

Calumet plant. Can you answer that? Do you also believe there's no backflow to --

DR. RIJAL: It is my understanding that it's highly unlikely.

MS. WILLIAMS: Okay. I'm going to look at 14. I'm not sure if I need to come back to part of this, but I'd like to move on to 14. You state in Paragraph 4 on Page 5 of your testimony that, quote, estimated wet weather fecal coliform density -- well, hang on. You may have answered this, too. Let me take a second. So let's try and look at 15.

On Page 6, Paragraph 1 of your prefiled testimony you state during wet weather even light rainfall periods, the CAWS receives CSO municipal separate storm water sewer system and nonpoint bacteria loads that result in elevation of fecal coliform concentrations in the CAWS to levels much higher than are observed during dry weather such that disinfecting wastewater treatment plant effluents will not result in substantial reduction in fecal coliform concentrations in the water. Question A, do

you have data to support your exclusion of municipal separate storm sewers event and nonpoint bacteria loads in your statement. Why don't we take municipal separate storm system first.

DR. RIJAL: It is my understanding that there are storm sewers that feed into the CAWS, and one of the District's study that was conducted on storm -- the district report on the characteristic of storm water run-off sample at storm sewers and --

MS. WILLIAMS: Would you give us a number?

DR. RIJAL: No. This -- you know, I'm answering that. So that bases my understanding from this report that there are some storm sewers which has been identified in the Chicago areas which contributes to discharge to the CAWS.

MR. ANDES: And we can provide a copy of that report that she's relying on.

MS. WILLIAMS: I would like to know the number of the report so I can understand if we need a copy.

DR. RIJAL: Okay. The report number 03 -- 2003-25 and the title is Characteristics of Storm Water Run-off Sample at Two Storm Sewers in Evanston and Crestwood, Illinois.

MS. WILLIAMS: And is it correct that that report does not take fecal coliform measurements?

DR. RIJAL: It did not take fecal coliform, but we had some samples periodically collected and analyzed in the lab and we have levels of fecal coliform in that, so under that understanding --

MS. WILLIAMS: Wait. So the report did not address fecal coliform but it was that -- it was sampled for, just not included in the report?

DR. RIJAL: It's -- it was not included in the report because we have done few sample collected after 2006. So this is what you're talking about the testimony, so we included that as a potential source of storm sewers. So it's -- Your question is geared towards my testimony.

MS. WILLIAMS: Right.

DR. RIJAL: Is that right?

MR. ANDES: Can I follow up? So the question is when you included in that 15 that the CAWS receives municipal separate storm sewer load, bacteria loads, as one of the sources that result in high fecal levels. What was your basis for saying that?

DR. RIJAL: Based on, you know, based on this report and also, you know, we have our own analysis done after the period 2 -- you have you know, the sampling period ended, we had some data and we showed number of fecal coliform.

MR. ANDES: Also general knowledge of documents, EPA documents and other information.

DR. RIJAL: The review of the EPA documents, yes.

MS. WILLIAMS: I'm just -- I'm really not trying to trip you up.

DR. RIJAL: But to answer your question is we have limited data. We have just limited data and we did not include in

the report. But in my testimony I have mentioned it because those are potential sources of FC loading into the CAWS.

MS. WILLIAMS: So maybe could we see that data?

DR. RIJAL: Yes.

MS. WILLIAMS: Okay. Thanks.

Question B on 15 says when you say disinfecting effluents will not result in a substantial reduction of fecal coliform concentrations in the waterway. Do you mean at all times or during wet weather?

DR. RIJAL: Might have -- can we show that chart, that Figure 1?

MS. WILLIAMS: Was there a chart you wanted us to look at?

DR. RIJAL: I'm referring to the Figure 1 in my testimony. But I would like to correct the page. I'll be providing you that figure. We have a hard copy of it.

MR. ANDES: I believe we also have a chart of that.

HEARING OFFICER TIPSORD: Where is this chart located in the testimony?

MR. ANDES: This is actually a corrected version of the chart that --

DR. RIJAL: It's on the Page 5 of my testimony which is Attachment 5. But the page that you will receive is the corrected page because the south area figure was copied -- was scanned incorrectly.

HEARING OFFICER TIPSORD: Okay. So this is Figure 1 from Page -- a corrected version of Figure 1 from Page 5 of Exhibit 113 marked north area and south area. We will mark this as Exhibit 115 if there is no objection.

MS. WILLIAMS: But -- there's no objection, but I want to understand for the record which attachment to that exhibit.

HEARING OFFICER TIPSORD: It's not an attachment. It's part of the actual prefiled testimony.

MS. WILLIAMS: It was left off.

HEARING OFFICER TIPSORD: Page 5 of the prefiled testimony. There's two charts there on Page 5 of prefiled testimony. This is a corrected version of that figure one and

it's marked as Exhibit 115.

MS. WILLIAMS: Thank you.

MS. DEXTER: Can I just ask?

HEARING OFFICER TIPSORD: Go ahead, Miss Dexter.

DR. RIJAL: I'm going to come here and explain because I don't want to complicate or confuse you.

HEARING OFFICER TIPSORD: Dr. Rijal, let her ask a question.

MS. DEXTER: Is this chart something that appears in one of the reports to the attachment here?

HEARING OFFICER TIPSORD: No, no. It's not a -- It's in the testimony.

DR. RIJAL: It's part of the testimony, too, and also it's the part in the report.

HEARING OFFICER TIPSORD: Attachment 5 as well.

MS. DEXTER: I just want to make sure I have the 0515 on Pages 8 and 9.

DR. RIJAL: Yes.

So this figure here we have

the fecal coliform levels. This is estimated fecal coliform levels, the actual levels that we measure during the dry weather period and the wet weather period. And what we did is to determine what might offer when there is a disinfection which will eliminate the FC burden in the CAWS, we subtracted the dry weather fecal coliform from the wet weather fecal coliform loading and then we subtract that, the results shown across here is the fecal coliform levels in the waterway. And if you look at this figure here, this is without disinfection wet weather conditions, and this is with disinfection. So no matter with or without disinfection during wet weather, there is no marginal difference in FC concentration in the waterway.

HEARING OFFICER TIPSORD: Dr. Rijal, you're going to have to be more specific for purposes of the transcript. When you say disinfection on this chart, you're talking about the solid black --

DR. RIJAL: Okay. This is the solid black circles and this is the clear circles.

HEARING OFFICER TIPSORD: And the clear circle is?

DR. RIJAL: The dry weather.

HEARING OFFICER TIPSORD: Mr. Harley?

MR. HARLEY: For the record, Keith Harley. My question is, did you do an analysis of what the levels would be in dry weather conditions if disinfection were reported?

DR. RIJAL: Assuming that the disinfection will reduce the burden, we didn't put any number here. But if we're assuming that there is a reduction in this fecal coliform numbers here.

MR. HARLEY: Why didn't you add in a trend line for dry weather conditions with disinfection?

DR. RIJAL: Well, it would be similar -- it would be -- the trend line would be somewhere here, (indicating).

MR. ANDES: Was that part of the purpose of the study?

DR. RIJAL: That was not the purpose of the study, yeah. So to answer your

question, during wet weather condition, it is evident that with or without disinfection, there is no improvement in the microbiological quality in the CAWS whether in the north area or the south area. And this level here, you see that they are higher than the proposed 400 CFU per 100 mL limits. Now, again, I hope I will not confuse you more, but when we also factor in the lingering effects that we measured following a rain event, the elevated high FC levels were observed two days, minimum of 48 hours after the rain event, we factored that in so we will get the similar trend. So which, again, which extends to the dry weather, those levels will be higher than the 400 CFU per 100 mL. So to answer your question is that not only to do the wet weather, but you will see that the microbiological quality improvement in terms to the 400 CFU cannot be met during the dry weather conditions, too.

HEARING OFFICER TIPSORD: Mr. Harley?

MR. HARLEY: Were you a part of designing the study which gave rise to this

data?

DR. RIJAL: What do you mean part of the study? I was involved, but I was not completely involved in this -- during the time the study was launched in the beginning.

MR. HARLEY: As you were conducting the study, were you concerned that given the number of dry weather days, that there was not an analysis of the effect of disinfection during dry weather periods?

DR. RIJAL: I think the purpose of this study was to see what levels exist and if at all there would be a disinfection what would be -- what would be the microbiology quality of the waterways under that condition.

MR. HARLEY: But only during wet weather periods?

DR. RIJAL: Wet and water defects so the days following the wet weather events.

MS. WILLIAMS: And how will the completion of TARP impact these curves?

DR. RIJAL: You know, I will not get into --

MS. WILLIAMS: In a general sense.

DR. RIJAL: I will not get into that, but, you know, I will say in general sense microbiological, you know, it's complex to control the waterway, you know, the water quality, micro -- water quality. There are several input and continuous point system. It's not a swimming pool like where you -- it's contained. So the microbiological quality will change over time. And, you know, I'm not the best person to answer that question.

MS. WILLIAMS: Would you say that your conclusions presumes that the wet weather situation will continue into the future?

DR. RIJAL: I think the wet weather has an impact in the microbiological quality of any waterways, yes.

MR. ANDES: If I can follow up. Two questions: One is you were attempting to portray the sources that currently exist and their contributions. Am I right?

DR. RIJAL: Yes.

MR. ANDES: What's your understanding

of how long it's going to take until TARP is scheduled to be completed?

DR. RIJAL: My --

MS. WILLIAMS: Wait. I object. She can't say she doesn't know anything about it when I ask her, but when you want to ask her she can --

MR. ANDES: I asked what her understanding is as to when it's scheduled to be completed, not how much reduction it will make. It's public record when it's scheduled to be completed.

MS. WILLIAMS: Well, I think it's public record now what's going to happen after TARP because --

HEARING OFFICER TIPSORD: Wait a minute. Let's go off the record.

(Off the record.)

(Short break taken.)

HEARING OFFICER TIPSORD: Let's go on the record and I'll rule Dr. Rijal can answer the question, and the question is what's your understanding of when the TARP is due to be completed.

DR. RIJAL: Well, I don't know exactly because there were different numbers. I think the complete TARP reservoir completion phase, I think, is 2024.

HEARING OFFICER TIPSORD: Miss Williams, we're back to you.

MS. WILLIAMS: Question 16, your conclusions about the Des Plaines River upstream from the CAWS leads you to believe that disinfection by wastewater plants that discharge into that water body is unnecessary or inappropriate?

DR. RIJAL: I didn't make any conclusions.

MS. WILLIAMS: Wouldn't your logic, though, apply to that situation as well that you use in your report?

DR. RIJAL: I am not going to apply that, no. Because it's discharge to the general use water.

MS. WILLIAMS: And that's the distinction to you because it's a general use water?

DR. RIJAL: Yes.

MS. WILLIAMS: Attachment 2 to your testimony, I just want to understand if that's a literature search that you conducted?

DR. RIJAL: Yes.

MS. WILLIAMS: And the text within that was drafted by you?

DR. RIJAL: Yes.

MS. WILLIAMS: Question 20, I believe, was what I was trying to get to in my follow-up. I think it's worded more clearly here, and I don't believe it was answered previously. Would disinfection significantly reduce CAWS bacteria concentrations during the dry weather conditions?

DR. RIJAL: You know, I do not know because we are looking into the Stickney plant, the North Side and the Calumet. What do you mean by significant reduction?

MS. WILLIAMS: How about would there be any reduction?

DR. RIJAL: There will be reduction.

MS. WILLIAMS: That's fine.

HEARING OFFICER TIPSORD: Mr. Harley,

do you have follow-up?

MR. HARLEY: Yes. To your knowledge, is the District involved in any review or study about the effect of disinfection during dry weather conditions?

MR. ANDES: I'm sorry. Effect on? Effect on what?

MR. HARLEY: On water quality, on fecal coliform levels in receiving waters.

DR. RIJAL: I am aware that there are some pilot tests going on, but I don't have the data in front of me.

MR. ANDES: I'm sorry. Are those pilot tests as to the --

DR. RIJAL: The disinfection, yeah, different types of disinfection looking at the reduction of fecal coliform load.

MR. HARLEY: But more specifically, has anyone at the District, to your knowledge, evaluated the effect of fecal coliform levels in receiving waters during dry weather conditions if disinfection were to be employed?

DR. RIJAL: There has been studies

done in the past when chlorination, and, you know, was imposed and there was no significant improvement in the microbiological quality of the CAWS from that study and there was -- I believe it was Chuck Haas (ph.) study.

MR. HARLEY: That was from 20 or more years ago?

MS. WILLIAMS: What study are you referring to?

DR. RIJAL: Chuck Haas study, the chlorination, impact of chlorination -- I don't have the exact title here.

MR. ANDES: We can provide it.

DR. RIJAL: We can provide you that copy.

MR. HARLEY: Also on the issue of dry weather conditions versus wet weather conditions, in your prefiled testimony, you refer to wet weather conditions in terms of rain events or precipitation events. Did you ever correlate those precipitation events to CSO overflows?

DR. RIJAL: No, we have not done that.

MR. HARLEY: So you don't know that if it rains that there was a CSO overflow that was associated with that precipitation event?

DR. RIJAL: In this report that is Attachment 5, we do have during the heavy rain period which triggered CSO, we have data on that.

MR. HARLEY: I don't just mean during the heavy rain period, but if there is a light rain which for purposes of your testimony is a wet weather event, you don't know whether or not that resulted actually in a CSO overflow?

DR. RIJAL: It is my understanding that I don't have that data if there was any CSO reported on that date from the district CSO reporting site.

MR. HARLEY: So you don't know that just because there was a wet weather event that there was any CSO contribution into the CAWS during that wet weather event?

DR. RIJAL: Well, we do -- yeah. We have those days identified -- it's in the appendix of this table here and we have

identified the CSO pumping station discharge to the CAWS. And it is just marked -- it's in the appendix tables.

MS. WILLIAMS: And in terms of the 145 days that you identify as wet weather events, during those 145 days that you've identified corresponding that to the information you just referred to, how many CSO events were there?

DR. RIJAL: The 145 days is annual I'm talking about. So if we compare 2004 to -- in 2004 we had based on this data here for north shore -- North Side we had --

MR. ANDES: And we'll get back to you with a tabulation rather than add it up here.

DR. RIJAL: -- four.

MR. HARLEY: Did you say four?

DR. RIJAL: Four for the North Side.

MR. HARLEY: So there were 145 wet weather days, but there were only four CSO overflows reported at the North Side plant?

DR. RIJAL: The North Side area, yes.

MR. HARLEY: So the CSO contribution --

MR. ANDES: Wait, wait. Are you saying during the wet weather days there were only four?

DR. RIJAL: Those are heavy rain days, during the heavy rain days.

HEARING OFFICER TIPSORD: Excuse me, if I can. I think that we're going back and getting confused on this wet weather issue. The 145 days are not considered wet weather days. They're 145 days that --

DR. RIJAL: Measured rainfall.

HEARING OFFICER TIPSORD: -- measured rainfall.

MR. HARLEY: And those measured rainfall days are the -- what's referred to throughout your testimony. My question is how many of those measured rainfall days correspond with days when there were CSO overflows?

DR. RIJAL: We don't -- we didn't correlate that data, no. We don't have that data.

MR. HARLEY: So why does it matter how many rain days there were if there were no

CSO overflows potentially on those days?

MR. ANDES: She's not saying there weren't any overflows.

MR. HARLEY: How then would the contribution of CSOs have -- how would the fact that a rain in any way affect the fecal coliform levels in water if there were not a CSO event?

MR. ANDES: During which category of days are you talking about?

MR. HARLEY: The 145 rain days.

MR. ANDES: But that's not part of this study.

MEMBER RAO: Do you have that CSO data that could be used to correlate it?

DR. RIJAL: You know, we have only the CSOs that reported on the days we sample heavy rain days from 2004 to 2006. That's what we have. Is that correct?

MR. DENNISON: Yes.

DR. RIJAL: Sam was involved in the study and that's the number we have reported in the study.

MEMBER RAO: I know what you have

reported in the study. I'm generally asking if the District has CSO data during that same time period for the entire year which somebody else could use it to correlate it with 145 rain days you had to see whether there was a CSO discharge or not. Do you have the data, not in the report, but generally with the District?

DR. RIJAL: It's in the quarterly report, and I think Susan went over it this morning. I think she gave certain numbers for --

MR. ANDES: I believe we're going to provide those --

DR. RIJAL: We will provide those information.

MR. ANDES: -- reports, and somebody could correlate those.

MEMBER RAO: Thank you.

HEARING OFFICER TIPSORD: Miss Williams, did you have anything else?

MS. WILLIAMS: Just a couple things about the chart, which is Exhibit 115.

MR. ANDES: I'm sorry. Which chart?

MS. WILLIAMS: Exhibit 115, that chart that's currently on the little easel. This chart, these two charts, I should say, two graphs are found in Attachment 4, is that correct, to your testimony?

DR. RIJAL: Yes, yes.

MS. WILLIAMS: They're not in Attachment 5, though, right?

DR. RIJAL: No. It's Attachment 4.

MS. WILLIAMS: Can you just explain for us the difference between the report in Attachment 4 and the report in Attachment 5?

DR. RIJAL: The Attachment 4 is the interim report for the same -- and this was based on the data that we had for 2004 covered -- we covered 2004 and 2005 data, yeah.

MS. WILLIAMS: So there's no difference except that Attachment 5 is a final version?

DR. RIJAL: The Attachment 5 is a final report, yes.

MS. WILLIAMS: Of Attachment 4 which is an interim?

DR. RIJAL: Yeah, yeah.

MS. WILLIAMS: So earlier when you were asked by Ms. Meyers-Glen about your definition of the dry weather and whether it was used anywhere else, was it used in both Attachment 4 and Attachment 5?

DR. RIJAL: It was not used in Attachment 4. It was used in Attachment 5. Attachment 4 was interim report.

HEARING OFFICER TIPSORD: But your definition of dry weather that you used for the purposes of the final report Attachment 5, was that the same definition for dry weather that you used when you did the interim report which is Attachment 4, or did you change your definition of dry weather between the interim and final report?

MR. ANDES: Let me see if I can clarify, because we're talking about one definition for the 145 days of rainfall.

HEARING OFFICER TIPSORD: I'm not talking about --

MR. ANDES: You're talking about --

HEARING OFFICER TIPSORD: I'm talking

about the sampling that you classified as dry weather which is two days before and one day after no rain event, you said that that was only used in Attachment 5. I believe Ms. Williams' question, since Attachment 4 is the interim report, did you use the same definition in the interim report that you used in the final report to classify your samples as dry weather samples with no rain two days before and no rain one day after?

DR. RIJAL: Yeah. We used the same definition.

HEARING OFFICER TIPSORD: Was that what you were getting to, Miss Williams?

MS. WILLIAMS: Yes. I thought she said no.

HEARING OFFICER TIPSORD: She did say no. That's why I -- yes.

MS. WILLIAMS: But you meant to say yes?

DR. RIJAL: Yes. Thanks.

MS. WILLIAMS: And can you explain to us -- the title to these figures starts with estimated fecal coliform densities downstream

of the North Side and Calumet plants. Could you explain why these are estimated?

DR. RIJAL: We tried to -- it was based on the actual level, but we came up with the predicted level that would -- that will be observed downstream of the plant. We had a regression equation so -- which is described in the report, in the interim report. So it was based on the regression equation.

MS. WILLIAMS: Okay.

DR. RIJAL: To estimate the FC levels in the North Side and the South Side.

MS. WILLIAMS: When we look at the left-hand column of those -- the curves, do they represent the actual data? Do you start with the actual data there on these charts and then estimate?

DR. RIJAL: Yeah, it estimates the fecal coliform die-off rate, yes.

MS. WILLIAMS: So when you show the circles --

DR. RIJAL: That's the --

MS. WILLIAMS: Those are actual

numbers?

DR. RIJAL: Is that -- yes.

MS. WILLIAMS: Or are those estimated? I'm sorry. The left most circles of the two that -- you may have understood what I meant, but I probably wasn't clear.

MR. ANDES: I think we're going to have Dr. Dennison answer that question.

MR. DENNISON: On Figures 2 and 3 the circles are actual data.

HEARING OFFICER TIPSORD: Wait a minute. Wait a minute.

MS. WILLIAMS: I think you're confusing us.

HEARING OFFICER TIPSORD: I'm sorry, Miss Williams. This is Figure 1. What we're looking at is Exhibit 115 is Figure 1.

MR. DENNISON: Is that the only figure number?

HEARING OFFICER TIPSORD: Yes.

MR. DENNISON: On Figure 1 the -- we're talking about different figures. In the report --

DR. RIJAL: Which is Attachment 4 of

my testimony.

HEARING OFFICER TIPSORD: Wait a minute. No. We're talking about Exhibit 115. The question is about Exhibit 115. Let's all call it Exhibit 115 and look at Exhibit 115.

MR. DENNISON: Those are not the exact data on Figure 1. Those are estimated values at each one of those miles downstream from the reclamation plants.

MR. ANDES: How were those estimates derived?

MS. MOORE: I didn't hear that.

MR. DENNISON: The estimates were derived from the actual data. The -- from data that were -- from the north wet and north dry and north wet minus dry, the north area and from the south wet and south dry and south wet minus dry in south area.

MR. ANDES: So help me understand. When we're talking about the top curve of wet and the bottom curve of dry, those are based on actual data?

MR. DENNISON: Yes.

MR. ANDES: And the middle curve which is one minus the other.

MR. DENNISON: That is --

MR. ANDES: A subtraction.

MR. DENNISON: Subtraction of the top curve from the bottom curve.

MR. ANDES: And the lines in between the data points are estimates based on regression equation; is that right?

MR. DENNISON: They're estimates based on the regression equation.

MS. WILLIAMS: So you said the circles are actual data?

MR. DENNISON: Those are -- the circles are data calculated from the regression equations.

MS. WILLIAMS: Right. So they're estimates, also, right? The circles are also estimates?

MR. DENNISON: Yes. On that Figure 1.

MR. ANDES: Based on data.

MR. DENNISON: The lines, the estimates are based on actual data.

HEARING OFFICER TIPSORD: Mr. Harley?

MR. HARLEY: Is the total discharge amount from the wastewater treatment plants the same every day?

DR. RIJAL: What do you mean by discharge? The flow or?

MR. HARLEY: Yeah, the volume of wastewater that's discharged. Is it the same every day?

DR. RIJAL: It may fluctuate, but average flow will depend upon the weather condition, dry or wet weather.

MR. HARLEY: Would you expect that during wet weather events the flow through the wastewater treatment plant would be greater?

DR. RIJAL: Greater in what, compared to the average flow?

MR. HARLEY: Compared to the average flow or the flow you would have during dry weather.

DR. RIJAL: I don't know.

MR. HARLEY: So the total effluent variation on a day-to-day basis was not a part of your analysis?

DR. RIJAL: We don't do kind of daily monitoring of fecal coliform levels from our effluent, so the levels actually was in between like 10 to maybe 15,000 fecal coliform will fluctuate within that range.

MR. HARLEY: Could there be a wet weather event which did not overwhelm the system causing a CSO overflow, but nonetheless led to much greater amount of water being directed through the wastewater treatment plant?

DR. RIJAL: I think I will not answer that because the efficiency of the wastewater in the design and how it gets treated, I think someone else will answer that from the District. But I think the final effluent limits will be within that range, and we do have some data from last week discharges and the number doesn't seem to be that high.

MR. HARLEY: On any given day, how can you give an opinion about the relative contribution of the wastewater treatment plants to fecal coliform levels in the receiving water if you don't know what the

exact levels are on that day?

DR. RIJAL: We are comparing the levels with the ambient levels, too. So we are looking at the upstream ambient levels and the out, you know, outfall, downstream levels. So we are comparing those two levels, yeah.

MR. HARLEY: But how do you account for the variation that can occur from day to day at any individual sewage treatment plant?

DR. RIJAL: You know, in this study here, we are looking at the overall trend that takes place, that took place between 2004 to 2006, and upstream and downstream of the North Side and the Calumet plants.

MR. HARLEY: One last question: So you can have a day when the wastewater treatment plant was discharging wastewater with a higher level of fecal coliform or you could have a day where wastewater treatment plant was discharging lesser amounts of fecal coliform? Just to be sure that the record is clear on that question.

DR. RIJAL: As I mentioned, it could

range between 10,000 to 40, 50,000 of fecal coliform levels per 100 mL, yes.

MR. HARLEY: And you don't know if the fact that there was rain, a rainy day the way that you define it for purposes of your testimony corresponds to whether there is more or less wastewater being discharged on that day -- on any particular day?

DR. RIJAL: You know, as the engineering design of wastewater is to treat the water whether it rains or, you know, it's a dry period. So the final effluent quality would remain the same. There may be a little bit of fluctuation in the FC levels, but the contribution from the plant outfall, as we see in our results following the rain event, you don't see a sporadic increase in the FC levels in the downstream of the plants.

MR. HARLEY: But you account for that by saying, well, it rains?

DR. RIJAL: Yes.

MR. ANDES: She said she doesn't see an increase downstream of the plant, and you're saying she accounts for that by saying

it rained. I'm not sure I understand the question you're asking her.

MR. HARLEY: I asked and she answered, and I think the record will speak for itself whether or not it was a good question.

MS. DEXTER: Can I ask a quick follow-up? The data underlying this, is this data from 2004? I think you just said it was 2004 through 2006.

DR. RIJAL: 2004 to 2005. Is that correct or --

MR. DENNISON: 2004 for that figure, 2004.

DR. RIJAL: 2004 data, yeah.

MS. DEXTER: Only?

DR. RIJAL: Yes.

MS. DEXTER: And can you explain to me why the graph starts at five miles downstream from the outfalls?

DR. RIJAL: You know, if you look at the graph from the table, we have collected samples from three to four miles, so I guess is that -- does this help you to get --

MR. DENNISON: It's an arbitrary

decision.

DR. RIJAL: Arbitrary decision, yeah. So that's why I mentioned earlier it's an estimated FC.

MS. DEXTER: So you didn't find it relevant to see what the difference between these two things is the first five miles downstream of the --

DR. RIJAL: Yes.

HEARING OFFICER TIPSORD: Miss Williams, we're back to you.

MS. WILLIAMS: I might be done. Do you have any explanation -- one last question: Do you have any explanation why these curves look so different on these charts for the north area and the south area?

DR. RIJAL: The data, you know, we have lower FC levels south area, and I don't know. The number is the number we get from that location, yes.

MS. WILLIAMS: And the Stickney plant was not included in these studies?

DR. RIJAL: No.

MS. WILLIAMS: That's all I have.

HEARING OFFICER TIPSORD: Is there anything else for Dr. Rijal? Thank you very much, Dr. Rijal. We'll move on to, is it Adriana? Adrienne?

MS. WILLIAMS: I'd like to have some discussion off the record before she comes.

HEARING OFFICER TIPSORD: Sure. Off the record.

(Off the record.)

HEARING OFFICER TIPSORD: Back on the record.

(Witness sworn.)

HEARING OFFICER TIPSORD: And do we have a copy of her testimony?

MR. ANDES: Sure we do.

HEARING OFFICER TIPSORD: We will mark Miss Nemura's testimony and attachments as Exhibit 116 if there's no objection. Seeing none, it's Exhibit 116, and we will start with IEPA and their questions. Some of these questions may be reserved on the record for discussion later on when we talk about aquatic uses.

MS. WILLIAMS: Good afternoon,

Ms. Nemura. Can you start with Question No. 1 that we've prefiled. In what areas do you consider yourself an expert?

MS. NEMURA: Evaluating pollutant sources and their impacts on watersheds and waterways, and that includes sources of bacteria and nutrients, particularly for combined sewer overflows. I also consider myself an expert in development of long-term control plans and review and revision of water quality standards.

MS. WILLIAMS: When you say review and revision of water quality standards, does that cover the gamut of toxics, nutrients? Would you limit that in any way?

MS. NEMURA: I would limit that to bacteria and nutrients.

MS. WILLIAMS: Not so much in the toxics or metals?

MS. NEMURA: Correct.

MS. WILLIAMS: Your testimony discusses primarily, I believe, wet weather water quality standards; is that correct?

MS. NEMURA: Correct.

MS. WILLIAMS: What would you propose to the Board as a wet weather exception?

MS. NEMURA: I don't know what that would look like for the CAWS.

MS. WILLIAMS: But you're recommending that one be contained in the final outcome of this rulemaking?

MS. NEMURA: I'm recommending that if the Agency chooses to propose uses or propose different water quality standards for the CAWS which consist of both uses and criteria, that they should consider the differences between dry weather and wet weather conditions and whether those uses are attainable under all conditions.

MS. WILLIAMS: I'm assuming that you're aware that Agency has not proposed ambient criteria for recreational uses at this time, correct?

MS. NEMURA: Correct.

MS. WILLIAMS: So would there be a need for wet weather exemption in that case?

MS. NEMURA: As I --

MS. WILLIAMS: Or consideration of --

I'm sorry.

MS. NEMURA: As I said, if the Agency is proposing changing the water quality standards for the waterways, they need to establish attainable uses and associated criteria to protect those uses.

MS. WILLIAMS: What are the uses existing?

MR. ANDES: You're talking in the legal sense, legal sense of an existing use or?

MS. WILLIAMS: Yes.

MR. ANDES: She's not a lawyer.

MS. WILLIAMS: I'm talking in the sense of her expertise on revision of water quality standards which is a component of that is designating uses, correct?

MS. NEMURA: Correct.

MS. WILLIAMS: And when you designate uses, isn't it also correct that you must designate them for attainable and existing uses?

MS. NEMURA: The State is not allowed to remove an existing use. However, in the

terms of combined sewer overflows, I understand that Chicago's CSOs were present before 1975.

MS. WILLIAMS: Okay.

MS. NEMURA: And that has been addressed in the context of U.S. EPA has indicated that it is appropriate to -- or it can be appropriate to modify the use because the CSOs were there before 1975, and, hence, the use before 1975, whatever it was, was being impacted by CSOs and associated water quality CSOs. So the existing use issue has been dealt with by U.S. EPA in the context of CSOs.

MS. WILLIAMS: And your understanding is they've dealt with it how?

MS. NEMURA: That they have clarified that they recognize that it's okay for states to modify the uses to reflect the fact that there are CSO impacts and that to say we can't reflect that because somehow we're removing an existing use, that that's not applicable.

MS. WILLIAMS: And explain what you

mean by modify the uses in this context.

MS. NEMURA: EPA has guidance that they developed in 2001 that specifically was developed to assist states and communities in developing long-term control plans and conducting review and revision of water quality standards as long-term control plans were being developed because they recognize that combined sewer overflows -- and the CSO policy recognizes this, too, that because of the combined sewer overflows which were -- the systems were designed to overflow at some point in time when there was excess wet weather, that there would be a need to potentially review and revise the water quality standard.

MS. WILLIAMS: Do you provide a citation in your testimony to the 2001 guidance you're referring to right now?

MS. NEMURA: Yes.

MS. WILLIAMS: Can you point it out to us? I know you say U.S. EPA 2001 in quotes, but I'm not sure I found a more specific citation.

MS. NEMURA: On Page 9, the 6th reference.

MS. WILLIAMS: I don't have a page 9. Let's start there.

MR. ANDES: In her testimony?

HEARING OFFICER TIPSORD: Yes. I only have a Page 8.

MR. ANDES: It's right after the signature page. Attachments and references.

MS. WILLIAMS: Thank you. I do have a Page 9. I apologize.

Just maybe for the record we can read in the number of that document if you don't mind. It's EPA document EPA-833-R-01-002. I'm going to skip over some of Question 2 that I think is targeted to aquatic life.

Question 3 I'll just read it: Does MWRDGC want to submit a UAA with its long-term control plan?

MS. NEMURA: I don't know.

HEARING OFFICER TIPSORD: Miss Nemura, you need to remember to speak up. You're talking all the way to the back of the room

and all of us, too.

MS. NEMURA: I don't know.

MS. WILLIAMS: When you were referring in your previous answer to U.S. EPA guidance, is that what the guidance refers to, submitting a UAA as part of a long-term control plan in order to modify uses?

MS. NEMURA: That's one option that EPA identifies in that guidance document.

MS. WILLIAMS: Are there any other options?

MS. NEMURA: There are.

MS. WILLIAMS: Can you go through them for us?

MS. NEMURA: There is a watershed approach in which the community works with other contributors to pollution to look at cost-effective reduction of all the sources as opposed to just the CSOs. There are variances.

MS. WILLIAMS: When you say the -- let's go back to the first one. When you say the community, you mean the municipality or --

MS. NEMURA: The CSO community.
MS. WILLIAMS: -- utility that -- Sorry. Why don't you repeat that.
MS. NEMURA: The CSO community.
MS. WILLIAMS: Okay. It doesn't discuss Clean Water Act designated entities performing that watershed analysis, correct?
MR. ANDES: What do you mean Clean Water Act designated entities?
MS. WILLIAMS: I mean state agency -- agencies like Illinois EPA that are administering the Clean Water Act within the state, it's looking more at local governments; is that correct?
MS. NEMURA: I don't know that I would say that.
MS. WILLIAMS: Okay. If you disagree, explain how you would say it.
MR. ANDES: Who does -- Who does those analyses under that document? Who are the possible parties?
MS. WILLIAMS: And we're talking about right now about the watershed approach, just so you understand that.

DR. RIJAL: Well, one option under the watershed approach is total maximum daily loads, and TMDLs can be performed by state agencies, they can be performs by third parties.

MS. WILLIAMS: I just want to be -- so then we start with the long-term control plan with the UAA as option one that you've highlighted. And then the second one would be a watershed approach which could include, which -- a TMDL could be one version of that. What would be -- Are there any other versions of that approach?

MS. NEMURA: There are.

MS. WILLIAMS: Could you explain them for us.

MR. ANDES: Do you want her to explain the whole EPA document?

MS. WILLIAMS: Sure.

MR. ANDES: Go ahead.

MS. WILLIAMS: I just want her to give a list of -- I mean are there 20 approaches? I would think it's a fairly -- we'll get -- this won't take all night, right?

MR. ANDES: It's a complicated document.

DR. RIJAL: It depends on how specific you want to be.

MS. WILLIAMS: TMDL is not the only kind so I just want to understand what other types besides a TMBD could be.

MS. NEMURA: For example, the Sanitation District No. 1 of Northern Kentucky so embarking on a watershed approach for addressing its sewer overflows. And under that approach, they propose incremental controls that could include controls on other sources every five years so they develop a watershed plan that says here is the controls that we're going to take on the next five years, we work with these other parties and then they implement those controls and then they reassess the situation and then they go back and they come up with a revision to those five-year plans and make incremental progress towards attainment of the water quality standards.

MS. WILLIAMS: Then the third item for

the variance, right -- I interrupted you as you were going down the list. So you have long-term control plan, watershed approach, variance. Is there anything you want to explain about how a variance would work in this context?

MS. NEMURA: A variance is -- a general option under the Clean Water Act, and the permittee and the regulatory agencies agree on an evaluation of factors, very similar to those that are used for use attainability analysis. And in that instance they agree not to change the water quality standard, but they recognize that the permittee can't implement controls within a specified short time frame, so they allow that discharger to have a variance from meeting the water quality standards.

MS. WILLIAMS: And is there a limitation to the maximum time frame for a variance?

MS. NEMURA: That depends on who you talk to.

MR. ANDES: Let me ask you, in federal

guidelines is there any limitation on how many variances can be granted?

MS. WILLIAMS: No. That was not my question, no. On any given variance, how long can that variance last, not whether can it be extended, but how long can the variance last under the Clean Water Act or this U.S. EPA guidance in your understanding of that?

MS. NEMURA: I'm not sure about the specifics.

MR. ANDES: We can provide that.

MS. WILLIAMS: Right. But okay. That would be helpful if you provide that. And also if you could just answer the question that in your understanding they can't be -- they must be time limited in some form, correct, or you don't know that either?

MS. NEMURA: They are time limited in the case of the Charles River in Boston. There was a memorandum of, I don't know whether it's understanding or agreement, that was signed that offers consecutive variances.

MS. WILLIAMS: Is there any other categories? You've listed three categories.

MS. NEMURA: There's also revisions to water quality standards that EPA has identified as appropriate.

MS. WILLIAMS: Any others? Okay. Would you say that revisions to water quality standards would be the category of those examples applicable to what we're doing here?

MS. NEMURA: I was specifically referring to revisions such as CSO subclasses, such as high flow suspensions, other options.

MS. WILLIAMS: I'm just trying to understand how any of these options are applicable to this proceeding.

MS. NEMURA: Was that a question?

MS. WILLIAMS: I take it -- if I take it as a -- yes. How are any of these options applicable to these proceedings? If we take it as a given that the district had asked for some kind of variance where they could do their own UAA as a controlled plan. But as far as this proceeding, what is your -- when you say the Agency should consider these options, what options at this proceeding

would be appropriate?

MS. NEMURA: I would think that the Agency would want to review all of their options and work with the CSO community and other stakeholders to identify an appropriate approach that recognizes that this is what would be attainable under wet weather conditions.

MS. WILLIAMS: I think the Agency would like to look at all its options, too. That's why I'm trying to understand how that would work in this context.

It seems you've identified that they haven't been complete enough. If you're not going to make a specific recommendation to the board for a change, I'd like you to make a very specific recommendation about what you think is missing here.

MS. NEMURA: I think what's missing is that in the proposed revisions to the water quality standards, that the Agency has proposed that the designated use be incidental contact recreation or noncontact

recreation.

MS. WILLIAMS: Or also isn't there also nonrecreational use?

MS. NEMURA: Yes.

MS. WILLIAMS: Okay.

MS. NEMURA: And in saying that this is what the uses should be for the waterways that by not -- that by proposing those uses, the Agency should be confident that those uses are attainable under all conditions. In the proposal or in the rulemaking, the Agency states that they do not believe that proposed uses are attainable during wet weather, so I'm confused in that the proposed standards don't reflect the highest attainable use which is what the UAA is supposed to determine.

MS. WILLIAMS: So should we only be -- should the use be set at the lower level, at a lower -- I'm not saying this clearly.

I'm assuming you're recognizing that in dry weather there's a higher attainable use then, correct? I mean would you agree that there's a higher attainable

use in dry weather for recreation? We're on recreation today.

MS. NEMURA: When I prepared for this testimony that was not something that I specifically concluded.

MS. WILLIAMS: And would you say that you also specifically did not conclude that that they're not attainable? Are you relying only on the Agency statements to conclude that they're not attainable?

MS. NEMURA: During wet weather?

MS. WILLIAMS: Yes.

MS. NEMURA: No.

MS. WILLIAMS: What are you relying on to make that conclusion?

MS. NEMURA: I'm relying on the District's reports which include studies conducted under the North Side facilities planning process and studies conducted specifically for the use attainability analysis.

MS. WILLIAMS: But you didn't look at those in the context of dry weather and in the context of wet weather?

MS. NEMURA: My purpose in preparing my testimony was that experience with CSOs and long-term control plans and water quality standards, that if the State is proposing to revise the water quality standards for the waterways, that wet weather needs to be considered in those revisions.

MS. WILLIAMS: Can you define wet weather for us as you're using the term?

MS. NEMURA: I'm using the term in the context of CSOs occur during wet weather. And combined sewer systems were specifically designed to overflow during wet weather. And the CSO policy recognizes that, yes, CSO communities need to reduce the frequency and volume of CSOs, but to try to expect communities to completely eliminate CSOs is quite challenging and is very site specific. So a definition of wet weather in context of CSOs is different for each community and the associated site-specific conditions where those dischargers -- or where those CSOs discharge to.

MR. ANDES: If I can follow up on

that. When you're talking about wet weather, are you talking not specifically about when a wet weather source is discharging, but rather the overall impacts of wet weather sources on the uses?

MS. WILLIAMS: I don't think that's what she said at all. Is that what you said?

MS. NEMURA: Well, it --

MS. WILLIAMS: I thought you said when CSOs are impacting the system.

MR. ANDES: Impacting the system. That's what I was asking about. It's not just when they're discharging.

MS. NEMURA: Right. When CSOs are impacting the system.

MS. WILLIAMS: Not just when they're discharging. How are they impacting the system when they're not discharging. Maybe you need to explain that to me.

MS. NEMURA: We've heard -- the District has testified in various studies that have been produced, and it's recognized that when CSOs discharge, that the effects of that CSO can occur for several days after the

discharge.

MS. WILLIAMS: I'm sorry. So you mean during and after as the effects continue on?

MS. NEMURA: Correct.

MS. WILLIAMS: Okay. You're not just referring to -- what I guess I'm getting at is I think your answer is pretty clear that your definition of wet weather is not getting just rain events or nonsource running off during rain. You're focussing on CSO impacts to the system?

MS. NEMURA: Correct.

MS. WILLIAMS: Thank you.

MR. ANDES: If I can follow up on that. Are you talking about more than just CSOs, but rather other wet weather sources as well?

MS. WILLIAMS: I think she just said no, she's not.

MR. ANDES: And I don't think she understood the question.

HEARING OFFICER TIPSORD: Let him ask the question.

MS. NEMURA: For the waterways there

can be wet weather impacts that -- and even if all the CSOs were eliminated, there would still be wet weather impacts. And because of the unique nature of the waterways in which it is operated for flood control, I think that would have to be considered in the definition of wet weather.

MS. WILLIAMS: Is that part of your definition then you're saying here?

MS. NEMURA: I don't have a definition of wet weather for the waterways and for the Agency. What I'm saying is there needs to be some consideration of the nature of the waterways and how it's impacted by wet weather, and that was absent in the proposed rulemaking.

MS. WILLIAMS: So you've testified that you don't believe the uses designated by the Agency are attainable, is that an accurate summary, in wet weather?

MS. NEMURA: I don't believe they're attainable under all conditions.

MS. WILLIAMS: Okay. I'm referring only to recreational uses at this point, the

three that we talked about. And -- well, actually, I shouldn't say that. Would that include the nonrecreational use that's designated. When you say you don't think they're attainable under all conditions, is that limited to the incidental recreation and noncontact recreation, or does it also include nonrecreational use?

MS. NEMURA: Yeah. I didn't look specifically at the noncontact recreation.

MR. ANDES: Or the non --

MS. NEMURA: Nonrecreation.

MS. WILLIAMS: What did you look at?

MS. NEMURA: I looked at the incidental contact and the noncontact recreation.

MS. WILLIAMS: And what do you see -- And you see no difference between the incidental and noncontact in your conclusions? It's the same conclusion?

HEARING OFFICER TIPSORD: Deb, we're really losing you. Sorry.

MS. WILLIAMS: I just wanted to understand if she's including the same that

during certain periods the noncontact recreational use is also not attainable.

MS. NEMURA: In the proposed rulemaking, the Agency acknowledges that the proposed uses can't be met during wet weather and that even after TARP is fully operational that they may not be able to attain uses during wet weather and that was the basis for my opinion.

MS. WILLIAMS: I think I asked this question already. Was that the only thing that you're basing your opinion on --

MS. NEMURA: No.

MS. WILLIAMS: -- the Agency's statement of reason, and in that case I would understand. You said you were basing it on your own review of the District's reports.

MS. NEMURA: Right. But your specific question was whether, if I understood it correctly, was whether I was distinguishing between the two proposed uses. And without having criteria associated with those two uses which could be different or they could be the same, I don't know how to answer your

question.

MS. WILLIAMS: Okay. That seems to make sense to me that that's a difficult question to answer without numeric criteria to protect these different uses, right? I mean you would agree with that?

MS. NEMURA: It's difficult for me to answer your specific question whether one of those uses is attainable and one is not. That depends on the criteria that the state would associate with those uses.

MR. ANDES: If I can follow up on that. A couple questions. Would it ordinarily be the case when the state of developing water quality standards they determine uses and attach appropriate criteria to them?

MS. NEMURA: Yes. And in the case of recreational uses, the typical approach is five to ten times the primary contact recreation criteria.

MR. ANDES: And in terms of the question asked earlier about if it's only in use why does it matter if it's attainable

in wet weather because there's no criterion. Can you clarify the concept of uses have to be attainable.

MS. NEMURA: Yes.

MR. ANDES: And what consequences can happen if you designate a use that's not attainable?

MS. NEMURA: Well, in getting to the use -- the whole use attainability analysis and the purpose is to identify the highest attainable use. An excellent example of that is the Chesapeake Bay. And under the Chesapeake Bay evaluation, the UAA that was done, question was could they meet the default dissolved oxygen criteria in the bay. So they developed the models of the system and they ran the models and they determined that --

MS. WILLIAMS: This is an aquatic life use example that you're giving, right?

MS. NEMURA: It doesn't -- it still helps illustrate how highest attainable use is determined.

MS. WILLIAMS: But the example that

you -- and I don't -- I mean I want to let her answer, but the examples that you gave about U.S. EPA letting you diverge from existing uses --

MR. ANDES: That's not what she said.

MS. WILLIAMS: Is only applicable to -- I'm not -- really I'm actually not trying to mischaracterize. But you are saying there's something very different about recreational uses from CSO impacts, correct?

HEARING OFFICER TIPSORD: You know what, though, we have a question on board right now. Let's let her answer this question and -- his question, and then you can clarify that. But I think if we start asking questions before she's answered a question we're going have real difficulties. Continue.

MS. NEMURA: Okay. So with the Chesapeake Bay, they had the dissolved oxygen, it wasn't meeting the default criterion. So they ran their models and they looked at what was feasible in terms of limited technology. And they determined that

even with limited technology that they could not achieve the default criterion. At the same time they gathered information on the type of fish and aquatic life that were present in the Bay and what were the dissolved oxygen criterion that were needed to protect those species. And they segmented the bay into five different zones and adopted criteria that could specifically be met when the limited technology was applied.

So in that manner they established the appropriate aquatic life uses and the appropriate numeric criteria to protect those uses. The same could be said for developing appropriate recreational use criteria in that you would -- you would look at your system, you would look at what is feasibly attained -- attainable, and if you could not attain the recreational use of noncontact or incidental recreation under all conditions, then you should have different uses and associated criteria for those periods.

MS. WILLIAMS: Did they decide they

would be protecting different types of aquatic life then in this example that you're giving?

MS. NEMURA: Yes.

MS. WILLIAMS: Why don't I show --

MR. ETTINGER: I'll clarify that. On the aquatic life, that was cut down geographically, right?

MS. NEMURA: Yes.

MR. ETTINGER: So you weren't expecting an oyster to live with lower dissolved oxygen from levels --

THE COURT REPORTER: I can't hear you.

MR. ETTINGER: You weren't expecting an oyster to live with different DO levels during part of the week and another part, versus another part of the week in the Chesapeake Bay model?

MR. ANDES: Only on Wednesdays.

MS. NEMURA: The criteria -- the dissolved oxygen criteria account for frequency magnitude and duration of impact. So I'm not sure how to answer your question.

MR. ETTINGER: Okay. I think you

have.

MS. WILLIAMS: What I'm hearing, though, is that they concluded criterion cannot be met and they went in and tried to refine attainable uses to help with that problem.

MS. NEMURA: They determined that the default dissolved oxygen criterion of five, six milligrams per liter could not be met. And then they also looked at the different habitats within the Chesapeake Bay developed the appropriate numeric criteria to protect the species that were within those habitats, and then they also looked at what was attainable with limited technology. And all that sort of came together in the UAA.

MS. WILLIAMS: And is there a particular UAA factor they invoked in this process?

MS. NEMURA: They invoked several.

MS. WILLIAMS: Which ones?

MS. NEMURA: They invoked the human cause condition, and I would have to go back and see if there was more.

MR. ANDES: We can provide that.

MS. WILLIAMS: That would be helpful if you provided that later. I would like to -- rather than reading it into the record, but I can do that as well, I would like to show you a section from the Agency's proposal to the Board. And it's the definition of incidental contact.

HEARING OFFICER TIPSORD: Deb, it's the definition of?

MS. WILLIAMS: Incidental contact recreation, and it's the Section 301282. I can read it also, but I think it might be easier maybe if you read it into the record so that you can look at it and also the Board will know what we're talking about.

MS. NEMURA: Incidental contact recreation means any recreational activity in which human contact with the water is incidental and in which the probability of ingesting appreciable quantities of water is minimal, such as fishing, commercial boating, small craft recreational boating, and any limited contact associated with shore line

activity such as wading.

MS. WILLIAMS: Can you explain which portions of that definition you feel are not attainable?

MS. NEMURA: I would say that given that the definition includes human contact, incidental human contact, that if there was such incidental human contact with the waterways under wet weather conditions that the bacteria levels are sufficiently high such that there could be an increased risk of illness.

MS. WILLIAMS: Can you read the noncontact as well? I'm sorry. You might have to flip a page.

MS. NEMURA: I have it.

MS. WILLIAMS: Okay.

MS. NEMURA: Noncontact recreation means any recreational or other water use in which human contact with the water is unlikely, such as pass-through commercial or recreational navigation and where physical conditions or hydrologic modifications make direct human contact unlikely or dangerous.

MS. WILLIAMS: Is there some part of that definition that you believe would be unattainable during certain conditions?

MS. NEMURA: Well, based on Illinois EPA's statement in the rulemaking, quote, it is clear that as a result of CSOs during wet weather, any level of recreational activity in the waterway is unhealthy during periods when raw sewage is present. I would have to say the Agency believes that that's true under both conditions.

MS. WILLIAMS: So that section doesn't specifically differentiate either between incidental and noncontact that you're reading from?

MS. NEMURA: Well, it says any level of recreational activity.

MS. WILLIAMS: And are you relying on anything besides that statement to come to your conclusion?

MS. NEMURA: I'm relying on my knowledge of the criteria that we have to protect recreational uses at the national level and also the criterion that other

states have adopted.

MS. WILLIAMS: For incidental or secondary contact recreation uses?

MS. NEMURA: Yes.

MS. WILLIAMS: But you don't mean at the national level of those? You mean at state levels when you're referring to secondary contact uses?

MS. NEMURA: It is at the state level, but U.S. EPA has approved those criteria for those states.

MS. WILLIAMS: Do you have an opinion about whether the existing use designations for these waters are attainable?

MS. NEMURA: You mean the general use standards?

MS. WILLIAMS: Do you know what standard is applicable to these waterways for recreational uses now?

MS. NEMURA: Right now there is -- the current standards do not include -- I haven't looked at that.

MS. WILLIAMS: That's fine. Have you taken into account in forming your opinion

unattainable uses during wet weather, improvements from the tunnel and reservoir project?

MS. NEMURA: I have not specifically.

MR. ANDES: Are you talking about planned improvements or do you mean future improvements?

MS. WILLIAMS: I don't understand the difference between planned and future. Do you mean that to mean two different things or?

MR. ANDES: No, I don't.

MS. WILLIAMS: Planned future. Yes. I am referring to future improvements in the wet weather conditions in the CAWS.

MS. NEMURA: Can you restate your question, please.

MS. WILLIAMS: Does your opinion about the attainable uses for recreational purposes take into account the improvements during wet weather conditions from completion of TARP?

MS. NEMURA: That are anticipated with TARP?

MS. WILLIAMS: Correct.

MS. NEMURA: Yes.

MS. WILLIAMS: And you conclude that -- are you saying then that even after TARP the designated uses in the Agency's proposal would not be attainable?

MS. NEMURA: It's my understanding that there will still be occasions, even after TARP is implemented, where you may have a CSO event. So the uses would not be attainable with those CSO events. And if you don't recognize that in the standards when the Agency goes to develop NPDES permit conditions, when they go to develop a total maximum daily load if it's needed, there will be problems in implementing those programs because of the CSO impacts.

MS. WILLIAMS: How would those problems occur under this proposal?

MS. NEMURA: Because this proposal basically says that the two designated uses, or the proposed designated uses are attainable. And yet part of the proposal says it's not attainable during wet weather.

MS. WILLIAMS: Right. But how would

that play out as a permitting problem in this case? There wouldn't be a criteria that wasn't being met, correct?

MS. NEMURA: The use wouldn't be met.

MS. WILLIAMS: The use wouldn't be met. So how would you deal with the use not being met without a criteria violation?

MS. NEMURA: I don't know how you could write a permit when you know that the discharge could be impairing the use.

MS. WILLIAMS: I guess what I'm getting at is -- what I'm getting at is this proposal requires an effluent limit that will ensure disinfection is occurring. I don't know beyond that what else could be --

MS. NEMURA: CSOs are permitted, right?

MS. WILLIAMS: Right.

MS. NEMURA: Every CSO discharge under an MTDS permit is permitted. It's allowed. So how can you have an allowable discharge that you know is going to impair the designated use?

MS. WILLIAMS: So you think it would

have a permitting agency would have to require disinfection of CSOs under this proposal. Is that what you're saying?

MS. NEMURA: I don't know what --

MS. WILLIAMS: What else they --

MS. NEMURA: -- what the Agency would have to require.

MR. ETTINGER: Cut to the -- You're relying on the basic principle that you can't issue a permit that will allow or cause or contribute to a violation water quality standards, correct?

MS. NEMURA: Right. You can't -- you can't authorize a discharge if you know that it's going to impair the use.

MR. ANDES: If I can follow up also. You talked about the total maximum daily loads. Am I correct to say those are developed to a level necessary to attain water quality standards?

MS. NEMURA: Yes.

MR. ANDES: How would you do a TMDL to attain a use that the Agency has recognized can't be attained?

MS. NEMURA: I don't know.
MS. WILLIAMS: In your understanding of reviewing the Agency's proposal, does the Agency agree with your conclusion that all existing uses do not have to be protected?
MR. ANDES: You're asking her if the Agency agrees with her?
MS. WILLIAMS: Where does it say in the Agency's proposal that existing uses don't have to be protected? How is that?
MR. ANDES: I don't remember who said here that existing uses don't have to be protected.
MS. WILLIAMS: That's what I heard Dr. Rijal say that U.S. EPA --
MR. ANDES: That's not.
MS. WILLIAMS: -- has recognized that where CSOs are an issue, existing uses can be --
MR. ANDES: No. That's not true. It's not what she said.
MS. WILLIAMS: That's different. It was not what she said. I understand that. I just didn't want you testifying that it's not

true.

MR. ANDES: It's both, but it's certainly not what she said.

MS. WILLIAMS: Please explain why I mischaracterized your testimony for me, because that's how I understood it, so.

MS. NEMURA: Okay. If you have a CSO that exists prior to 1975, okay, it's unlikely that the water quality that existed before 1975 supported the recreational use. So, therefore, the existing use was not recreational during CSO events.

MS. WILLIAMS: So in your understanding existing use does not refer to what is occurring for recreational purposes not also include what is occurring today on the waterways in terms of recreation?

MS. NEMURA: The same logic applies. You have a CSO discharge, okay? You have a CSO discharge, and the use is not -- the recreational use is not being met during and after that CSO discharge.

MS. WILLIAMS: Is a CSO discharge an existing use in your definition? Is that

what you're trying to tell us?

MS. NEMURA: No.

MR. ANDES: Let me see if I can help. And I believe there's some EPA documents that we can provide that are relevant on this.

But let me ask you this: In terms of defining what an existing use is, is it accurate to say that EPA says you can define the existing use including both the activities taking place and the water quality conditions under which they're taking place. So in a CSO context or wet weather context, would that mean certain recreational activities, whether they take -- in defining it do they take place in the dry weather, do they take place in the wet weather and those are two different parts of the analysis?

MS. NEMURA: Correct.

MS. WILLIAMS: Okay. Okay.

MR. ANDES: Does that help?

MS. WILLIAMS: So if recreational use is occurring during wet weather, is it an existing use?

MS. NEMURA: It is recreational use

that is occurring where the water quality doesn't support the definition of contact recreation.

MR. ANDES: So if I can clarify it, does that mean that you're talking about canoeing taking place when bacteria levels are high due too CSOs?

MS. NEMURA: Yes.

MR. ANDES: That's the existing use.

MS. NEMURA: (Nodding head).

MR. ANDES: So would future conditions, when one is reducing CSO levels rather than increasing them, would that impair that existing use?

MS. NEMURA: No. You're not removing that existing use.

MR. ANDES: In fact, are you improving?

MS. NEMURA: You're improving conditions --

MR. ANDES: So that would be allowed?

MS. NEMURA: Yes.

MR. ANDES: Thank you.

MS. WILLIAMS: What would be allowed?

MR. ANDES: Changing the use to recognize that situation.

MS. WILLIAMS: To recognize the situation.

MS. NEMURA: That water quality is being improved and it's not taking away an existing use.

MR. ANDES: And there are EPA documents and state documents that we'll provide that relate to that concept.

MS. WILLIAMS: When you say we'll provide them, do you mean like -- do you mean tomorrow or do you mean subsequent to the --

MR. ANDES: We'll do the best to get them here tomorrow.

MS. WILLIAMS: Let's try Question 10. Page 2, Paragraph 4 of your testimony states in particular a provision is needed to inform the public that the waterways should not be used for recreation when impacted by wet weather discharges. Please explain how this recommendation is different than the current signs posted along the waterway.

MS. NEMURA: I don't have any

particular knowledge of the signs that are posted along the waterway. In my opinion, if the standards are going to be changed, they need to reflect the highest attainable use so that water quality managers, permittees, stakeholders, anybody who reads the water quality standards is clear that this is what is expected.

MS. WILLIAMS: I think some of my confusion or frustration is coming from the fact that it would be easier for me to understand your recommendation in this regard if you could provide specifics as to what you'd like to see the Board include in this rule to reflect that. Will it be possible at all for you to do that?

MS. NEMURA: I think the Agency should have considered the unique aspects of the waterways, the wet weather impacts that the Agency acknowledges that are there, and that they should have included that in the proposal --

MS. WILLIAMS: I mean we really think we did. I'm not trying to testify now. I

don't see how we can do that without seeing something from you about what specifically is not --

MR. ANDES: Are you telling her it's not agency's obligation to put forward a proposal that reflects sample uses?

MS. WILLIAMS: I think we have. That's why we don't --

MR. ANDES: She just cited the Agency's statement that uses aren't attainable.

MS. WILLIAMS: Did you give the page? I think you did.

MS. NEMURA: That's Page 92.

HEARING OFFICER TIPSORD: In the statement of reasons?

MS. NEMURA: Yes.

HEARING OFFICER TIPSORD: Thank you.

MS. WILLIAMS: I don't think that's -- Did you say Page 92?

MS. NEMURA: Yes.

MS. WILLIAMS: I mean I think the quote that you provided in your testimony is in the statement of reasons, but I don't

think --

MS. NEMURA: I'm sorry. It's Page 45.

MS. WILLIAMS: So let me just -- We don't need to go around and around about this anymore. I guess all I can ask is you don't have a recommendation specifically about how -- what the Board will come up with through this proceeding should be different than what's been proposed by the Agency, correct?

MS. NEMURA: My recommendation is consistent with the District's recommendation in that there is information that is being collected that will help answer some of these questions. And that if the Agency is going to propose a change to the water quality standards, that the -- it's the Agency that should determine in consultation with the impacted parties and other stakeholders what the highest attainable uses are.

MS. WILLIAMS: But is that the burden that the Agency has or is the burden in the UAA to demonstrate that the Clean Water Act uses are not attainable?

MS. NEMURA: If you do a use attainability analysis, the purpose of the UAA is to establish a highest attainable use.

MS. WILLIAMS: So if we had --

MS. NEMURA: If that information wasn't present in the UAA and there's studies underway to help inform that type of information, then wait until that information is available in establishing what the highest attainable use is.

MS. WILLIAMS: So if we had instead proposed protection of primary contact recreation in this rulemaking, we would not have that same burden, correct?

MS. NEMURA: I don't understand --

MS. WILLIAMS: Because we would not be performing the UAA then, right? We would just be performing water quality standard change.

MS. NEMURA: So are you saying that you would designate a use that you know is not attainable?

MS. WILLIAMS: I mean we designate primary contact recreation general use for

all sorts of water bodies that don't have sufficient -- that don't even have -- we don't know if there's recreation occurring.

MR. ANDES: But in this one if you know that primary is not attainable, would the Agency designate it anyway in this regard?

MS. WILHITE: We're not designating primary --

MR. ANDES: She's proposing exactly that.

MS. WILLIAMS: I feel the burden is being shifted here, and I'm trying to understand what the burden is on the Agency here as you see it.

MR. ANDES: She just explained it.

MS. NEMURA: Under the Clean Water Act, it indicates that the purpose of the UAA, if you're going to change a standard, if the state is going to change the standard you need to do the UAA. The outcome of the UAA could be to upgrade the use, it could be to keep the use the same, it could be to downgrade the use and the outcome of the UAA

which is supposed to be a scientific objective analysis, is to establish the highest attainable use.

MS. WILLIAMS: But if --

MS. NEMURA: I understand that eons back when states were doing windshield surveys, okay, or in many cases like Missouri who didn't have bacteria criteria, okay, and they were sued and they had to adopt recreational use criteria and bacteria criteria, okay. They had to do a blanket designation that all water bodies were supposed to be primary contact recreation. What they chose to do is to do UAAs for those water bodies where they felt that primary contact recreation was not appropriate. And in that case, the highest attainable use was deemed to be either whole body contact B which is less restrictive than primary, or secondary contact recreation. And that's the scientific process that is supposed to be followed with the UAA.

MS. WILLIAMS: Do you -- I don't think I asked the rest of this ten. Does the

District already have a brochure and a message on their website informing the public of hazards of recreating on the CAWS?

MS. NEMURA: I don't know.

MS. WILLIAMS: Does the District need to do more to get this information out to the public?

MS. NEMURA: I can't speak to the adequacy of the District's public beautification program.

MS. WILLIAMS: Do you think that the Board needs to adopt a numeric criteria for protection of the attainable recreational uses in this rulemaking?

MS. NEMURA: I'm not recommending that.

MS. WILLIAMS: You're recommending that they do not adopt a numeric criteria --

MS. NEMURA: No. I'm not recommending that they -- my problem lies in the fact that you have to establish the appropriate uses, and then you adopt numeric criteria to protect those uses. If you haven't adopted the appropriate designated uses, it's hard

for me to suggest to the Board what they should adopt as a numeric criteria. You have to do both at the same time, and they both have to be appropriate.

MS. WILLIAMS: So that's your testimony. That uses and criteria have to be adopted at the same time?

MS. NEMURA: My testimony is that if you're going to adopt a use, you should also -- you're supposed to adopt the appropriate use and the appropriate criteria to protect that use.

MS. WILLIAMS: And would a narrative criteria meet that definition, meet that recommendation as you described it?

MS. NEMURA: I don't know how you would adopt the narrative criteria to protect a recreational use.

MS. WILLIAMS: Do you know if U.S. EPA has ever approved a narrative criteria for recreational use?

MS. NEMURA: I don't know.

MS. WILLIAMS: Do you know if they've disapproved any?

MS. NEMURA: I don't know.

MR. ANDES: Are you aware that EPA has taken action to establish water quality standards in states that don't have numeric standards for bacteria?

MS. NEMURA: I don't believe so. Missouri is a good example. Missouri had no recreational uses, and when they adopted recreational uses, they adopted associated numeric criteria to go along with those different use classifications.

MS. WILLIAMS: But you don't --

MR. ETTINGER: Do you know what numbers Missouri adopted?

MS. NEMURA: I do. But I would prefer to review the actual water quality standards before I gave you the wrong number.

MR. ETTINGER: Could they use indicator species like --

THE COURT REPORTER: Like what?

MR. ETTINGER: -- fecal or --

THE COURT REPORTER: I still can't hear you.

MR. ETTINGER: Did they use indicators

like fecal, enterococci or E. Coli?

MS. NEMURA: They used E. Coli.

MR. ETTINGER: Thank you.

MS. WILLIAMS: One thing that I would find very helpful with regard to your testimony references to other states is if we could supplement the record at some point with citations to --

MR. ANDES: This is a list of citations at which I believe you asked for in one of the questions.

HEARING OFFICER TIPSORD: Question 4.

MS. WILLIAMS: I think I skipped it.

HEARING OFFICER TIPSORD: We will mark this as Exhibit 117 if there is no objection. Seeing none, this is Exhibit 117. And if this is probably as good a time as any to break for the evening if we're okay?

MR. ETTINGER: Not quite.

HEARING OFFICER TIPSORD: Okay.

MR. ETTINGER: I object. You didn't include Missouri here so could you --

HEARING OFFICER TIPSORD: Rather than --

MR. ANDES: Provide a --

MR. ETTINGER: Could you provide the cite for Missouri tomorrow morning since we talked so much about it.

MR. ANDES: We'll do our best.

HEARING OFFICER TIPSORD: Mr. Ettinger, rather than objecting, could you ask him to supplement and withdraw your action.

MR. ETTINGER: I objected to concluding before I asked him to supplement. Now I've asked him to supplement.

HEARING OFFICER TIPSORD: Okay. We'll break for the day. We're at 9040 tomorrow.

(At which time the hearing was continued to September 25, 2008.)

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STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

I, LAURA MUKAHIRN, 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.

_____

LAURA MUKAHIRN, CSR

CSR NO. 084-003592