

ILLINOIS POLLUTION CONTROL BOARD
OCTOBER 20, 2010

IN THE MATTER OF:)	
)	
WATER QUALITY STANDARDS AND)	R08-9
EFFLUENT LIMITATIONS FOR THE)	
CHICAGO AREA WATERWAY SYSTEM)	Rulemaking-Water
AND THE LOWER DES PLAINS)	
RIVER: PROPOSED AMENDMENTS)	
TO 35 ILL. ADM. CODE PARTS)	
301, 302, 303, AND 304.)	

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STATE OF ILLINOIS
Pollution Control Board

REPORT OF PROCEEDINGS at the hearing of and

above-entitled cause, taken before Rebecca A. Graziano, Certified Shorthand Reporter within and for the County of Cook and State of Illinois, at the Bilandic Building, C-500, Chicago, Illinois, commencing at the hour of 9:00 a.m., on the 20th day of October, A.D., 2010.

A P P E A R A N C E S

ILLINOIS POLLUTION CONTROL BOARD:

Mr. Gary Blankenship
Ms. Andrea S. Moore
Ms. Carrie Zalewski
Mr. G. Tanner Girard
Ms. Marie E. Tipsord
Mr. Anand Rao
Ms. Alisa Liu
Ms. Thomas E. Johnson

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(312) 357-1313
BY: MR. FREDRIC ANDES

Appeared on behalf of the Metropolitan Water
Reclamation District of Greater Chicago,

NATURAL RESOURCE DEFENSE COUNCIL
2 North Riverside Plaza
Suite 2250
Chicago, Illinois 60606
(312) 651-7905
BY: MS. ANN ALEXANDER

1 MS. TIPSORD: Good morning. My name
2 is Marie Tipsord. I've been appointed by the board
3 to serve as a hearing officer in this proceeding
4 entitled Water Quality Standards and Effluent
5 Limitations for the Chicago Area Waterway Systems
6 and Lower Des Plaines River, Proposed Amendments to
7 35 Il Admin Code 301, 302, 303, 304, docket number
8 R08-9. This is Sub Docket B, and also the economic
9 hearing on Sub Docket A.

10 With me today to my immediate
11 right is acting chairman, G. Tanner Girard. To his
12 right, Board Member Carrie Zalewski, to her right,
13 Board Member Gary Blankenship, and Board Member
14 Andrea Moore will be joining us shortly. To my far
15 left is Board Member Thomas Johnson. To my
16 immediate left is Anand Rao, and to his left, Alisa
17 Liu from our technical staff.

18 This is the fourth day of hearings
19 in Sub Docket B specifically, and the 43rd day
20 overall in this hearing. We're going to continue
21 from yesterday's hearing discussing the CHEERS --
22 the Chicago Health Environmental Exposure and
23 Recreation study, known as CHEERS. The CHEERS
24 report is in the record as public comment 478, and

1 the errata sheet is public comment 484.

2 Today's hearing, as well as
3 yesterday's hearing, will also satisfy the
4 requirements of Section 27B of the Environmental
5 Protection Act for Sub Docket A. Section 27 B of
6 the act requires the board to request the Department
7 of Commerce and Economic Opportunity to conduct the
8 economic impact study on certain proposed rules
9 prior to adoption of those rules.

10 If DCEO choses to conduct the
11 economic impact study, DCEO has 30 to 45 days after
12 such a request to produce a study of the economic
13 impact of the proposed rules. The board must then
14 make the economic impact study, or DCEO's
15 explanation for not conducting the study, available
16 to the public at least 20 days before a public
17 hearing on the economic impact of the proposed rule.

18 In accordance with Section 27 B of
19 the Act, the board requested by a letter dated
20 August 11th, 2010, that the DCEO conduct an economic
21 impact study. The board received a response letter
22 on September 27th, 2010, indicating that none would
23 be conducted. A copy of the board's letter and
24 DCEO's letter are available at the back of the room.

1 We will accept comments concerning
2 the economic impact study this afternoon. I note no
3 one signed up yesterday to comment on DCEO's
4 decision. I have placed the signup sheet at the
5 back of the room. If you would like to comment on
6 DCEO's decision, please sign it before you leave
7 today.

8 Today we will continue with
9 Dr. Granato and the questions from the National
10 Resource Defense Counsel. We will then move on to
11 the Illinois Environmental Protection Agency, and
12 finally the People. After completing the questions
13 for the District, we'll move on to Dr. Marc Gorelick
14 and the questions from the District, and we'll
15 finish with Sharon Bloyd-Peshkin and the questions
16 from the District.

17 The testimony will be marked as an
18 exhibit and entered as if read. As always, anyone
19 may ask a follow-up question. You need not wait
20 until your turn to ask questions. I do ask that you
21 raise your hand, waiting for me to acknowledge you.
22 After I have acknowledged you, please state your
23 name and who you represent before you begin your
24 questions. Please speak one at a time. If you're

1 speaking over each other, the court reporter will
2 not be able to get your questions on the record.

3 Please note any questions asked by
4 the board members or staff are intended to build a
5 complete record for the board's decision, and not to
6 express any preconceived notion or bias.

7 Dr. Girard?

8 DR. GIRARD: Good morning. Welcome to
9 hearing day 43. Let's get to work. Thanks.

10 MS. TIPSORD: Thank you.

11 MS. ALEXANDER: Good morning, Dr.
12 Granato.

13 DR. GRANATO: Good morning.

14 MS. ALEXANDER: I believe when we left
15 off yesterday it was with pre-filed question five.
16 So I would like to turn to that and ask you to
17 please tell me what is the basis for the cost
18 estimate for disinfection presented in your
19 testimony at Page 5. And specifically, I'm
20 referring to the statement that disinfection is
21 estimated at a 20-year total present worth cost of
22 \$919.6 million.

23 DR. GRANATO: The basis for that was
24 the testimony that was submitted by David Zens in

1 the record previously.

2 MS. ALEXANDER: And can you clarify
3 whether that figure is for UV with or without
4 filtration?

5 DR. GRANATO: That's UV without
6 filtration.

7 MS. ALEXANDER: And could you also
8 clarify please whether that cost is capital only, or
9 is that capital plus present worth?

10 DR. GRANATO: Capital plus present
11 worth O and M.

12 MS. ALEXANDER: And when you say,
13 "present worth O and M," can you clarify the numbers
14 that were calculated?

15 DR. GRANATO: I can't elaborate too
16 greatly. It's in the record in Zens' testimony.

17 MS. ALEXANDER: Can you summarize what
18 you mean by 20-year present worth O and M?

19 MR. ANDES: I'll object. These
20 questions were asked of Dr. Zens. He's the one who
21 developed the statements. Dr. Granato simply
22 incorporated those into his testimony. This is not
23 the right witness for that.

24 MS. ALEXANDER: Dr. Granato has made a

1 statement about the cost of disinfection. I'm
2 allowed to find out how much he knows. If he knows
3 nothing about it, then perhaps he shouldn't be
4 testifying about that number.

5 MS. TIPSORD: I think that's -- he's
6 repeating Dr. Zens' testimony. To the extent that
7 you can answer, if you can refer back to Dr. Zens, a
8 response is appropriate.

9 DR. GRANATO: Well, I mean, generally
10 it takes into account the annual O and M cost, and
11 it is based on a presumed inflation rate and
12 interest rate on the funds that are required to
13 finance it.

14 MS. ALEXANDER: So essentially what
15 you did, if I understand correctly, is you added up
16 20 years of O and M costs and gave us the present
17 worth of that?

18 DR. GRANATO: Well, I didn't do it,
19 no.

20 MS. ALEXANDER: Dr. Zens did --
21 Mr. Zens?

22 DR. GRANATO: (Nodding).

23 MS. ALEXANDER: Okay.

24 DR. GRANATO: I believe that's what he

1 did, but it's in his testimony. All you have to do
2 is refer to it.

3 MS. ALEXANDER: I would like to have
4 marked, please, a copy of a letter to the Chicago
5 Tribune from Terrence O'Brien dated February 23rd,
6 2009.

7 MS. TIPSORD: If there's no objection,
8 I've been handed, "Voice of the People, Monday,
9 February 23rd, 2009, Chicago Tribune, Water
10 Treatment, Terrence J. O'Brien, president,
11 Metropolitan Water Reclamation District of Greater
12 Chicago. If there's no objection, we will mark this
13 as exhibit 411. Seeing none, it's Exhibit 411.

14 MS. ALEXANDER: Mr. Granato, have you
15 seen this letter before?

16 DR. GRANATO: I don't think so, no.

17 MS. ALEXANDER: I call your attention
18 to the reference about midway down. Do you see the
19 paragraph that starts with, "The proposal to
20 require," and it states, "The proposal to require
21 specific additional treatment of effluent from our
22 water reclamation plants comes with a price tag that
23 could exceed \$2 billion." Do you see that?

24 DR. GRANATO: Yes, I do.

1 MS. ALEXANDER: Do you have any
2 knowledge as to the basis of that statement?

3 DR. GRANATO: I do not have any direct
4 knowledge, no. I would presume that this is
5 referring to the overall cost of the rulemaking, but
6 I don't know that directly.

7 MS. ALEXANDER: Okay.

8 MR. ANDES: So Dr. Granato, when you
9 mean the total cost of the rulemaking, you mean not
10 only disinfection, but also DO requirements and
11 requirements for other pollutants?

12 DR. GRANATO: That's one explanation
13 on how they could arrive at that figure, yeah.

14 MR. ANDES: But you don't know whether
15 this is -- what present value -- whether it's a
16 present value number or what it includes?

17 DR. GRANATO: No, I do not.

18 MS. ALEXANDER: And you don't really
19 know one way or the other whether it's a correct
20 number?

21 DR. GRANATO: Well, it's a statement
22 that is -- it says it could exceed \$2 billion. I
23 suppose it could. If we do the -- if our pilot
24 testing and our ultimate design requires filtration,

1 for instance, ahead a UV disinfection, it could very
2 well exceed \$2 billion.

3 MS. ALEXANDER: And what do you base
4 that on, that it could very well exceed \$2 billion?

5 DR. GRANATO: I'm basing that on
6 recollection. I have of study that AE Com did that
7 looked at with and without filtration UV costs. And
8 I believe that with -- and I'm going by memory now.
9 I don't have the documents to refer to in front of
10 me, but I believe that the with filtration roughly
11 doubled the cost of the disinfection.

12 MS. ALEXANDER: Do you have a basis to
13 believe that filtration will, in fact, be necessary
14 with UV?

15 DR. GRANATO: Well, a lot of tertiary
16 plants do filter ahead of their disinfection
17 systems. In fact, that's very common.

18 MS. ALEXANDER: Okay. But my specific
19 question is: Do you have basis to believe that will
20 be necessary?

21 DR. GRANATO: That's my basis.

22 MS. ALEXANDER: Okay. I'm sorry.
23 Could you please state again which study it is
24 you're referring to?

1 DR. GRANATO: This was a study that
2 AE Com did. It's one of the engineering studies
3 that were conducted as part of the UAA program of
4 engineering studies the District undertook. It's
5 probably attached to Zens' testimony.

6 MS. ALEXANDER: I would like to have
7 marked as the next exhibit a document and a cover of
8 a letter dated November 8th, 2005, to Mr. Toby
9 Frevert from the Water Reclamation District.

10 MS. WILLIAMS: Can we clarify whether
11 this is already in the record? I don't know what it
12 is.

13 MS. ALEXANDER: It may be an
14 attachment to his testimony. I'm not sure. If it
15 is, then we don't need to mark it, but I did want
16 everyone to have it.

17 MS. TIPSORD: Did we establish -- it
18 does not look familiar to me.

19 MS. WILLIAMS: There's several of
20 these -- I'm not sure if -- I can't be 100 percent
21 sure if one W2 is in there. There's several similar
22 documents. I won't object if it's already in there.

23 MS. TIPSORD: Just to be on the safe
24 side, we will mark this as Exhibit 412, if there's

1 no objection. Seeing none, it's Exhibit 412.

2 MS. ALEXANDER: Dr. Granato, is this
3 the document and cover of this letter, the AE Com
4 report that you referenced?

5 DR. GRANATO: Yes, it is.

6 MS. ALEXANDER: Could you please show
7 me in here where the \$2 billion figure is supported?

8 DR. GRANATO: Well, I would go to
9 table 1.26, and added up at the bottom of the table
10 there's, "Total present worth, in millions, costs
11 for north side Stickney, Calumet," and it comes to
12 over \$2 billion if you add up those costs.

13 MS. ALEXANDER: And just to clarify,
14 table 1.26 is for UV with filtration. Is that
15 correct?

16 DR. GRANATO: Yes, that's correct.

17 MR. ANDES: So is it correct,
18 Dr. Granato, just to clarify, when you're talking
19 about the \$2 billion between UV and ozone you're
20 actually -- you're picking the UV numbers of \$379
21 million, \$1,326,000,000 and \$448 million.

22 DR. GRANATO: That's correct.

23 MR. ANDES: And at least my addition
24 comes up to \$2.153 billion for that. Does that

1 sound right?

2 DR. GRANATO: That sounds right.

3 MS. ALEXANDER: Okay. I would like to
4 present as the next exhibit an article from the
5 Chicago Tribune dated May 15th -- I need my reading
6 glasses.

7 MS. TIPSORD: That's all right. I'll
8 read it in.

9 MS. ALEXANDER: Okay. Sorry.

10 MS. TIPSORD: I'll save you the
11 trouble. Mine are built in. May 15th, 2006, "From
12 the Archives: Cleaner But Not Clean."

13 MS. TIPSORD: Off the record for just
14 a second.

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

17 MS. TIPSORD: Back on the record. If
18 there's no objection, we will mark this article as
19 Exhibit 413. Seeing none, it's Exhibit 413.

20 MS. ALEXANDER: Dr. Granato, have you
21 ever seen this article before?

22 DR. GRANATO: I'm trying to skim
23 through it to determine that.

24 (Witness peruses document.)

1 MR. GRANATO: I don't think I have. I
2 don't recall it.

3 MS. ALEXANDER: I want to call your
4 attention to the paragraph you see right in the
5 middle. There's a break that says, "Register with
6 the Chicago Tribune," and right below that it says,
7 "Top officials at the Metropolitan Water Reclamation
8 District estimate they would need \$623 million to
9 meet tougher water quality standards, including
10 \$541 million to disinfect sewage."

11 Do you have an understanding as to
12 where those numbers came from?

13 DR. GRANATO: Not for certain. The
14 \$541 million sounds like the capital cost for the
15 disinfection, but I'd have to check that. And the
16 \$623 million, I'm not sure where that came from.

17 MS. ALEXANDER: Okay. And would that
18 capital cost be based on the AE Com report?

19 DR. GRANATO: Yes, most likely that's
20 what we've been using. I'm not sure though. I
21 didn't write this, or I don't know who wrote it, to
22 be frank.

23 MS. TIPSORD: Michael Hawthorne,
24 Tribune reporter.

1 DR. GRANATO: I don't know where he
2 got his information, I guess, or who gave him the
3 information.

4 MR. ANDES: Well, let me --
5 Dr. Granato, if you look at the table 1.27 on
6 Page 80 of the report, in the capital cost numbers
7 without filtration, and correct me if I'm wrong, but
8 I believe these for UV are 83, 358, and 100, which I
9 think adds up to just about 541.

10 DR. GRANATO: That's correct.

11 MR. ANDES: And that's capital cost
12 only?

13 DR. GRANATO: Capital cost without
14 filtration, correct, for UV disinfection.

15 MS. ALEXANDER: For the next exhibit,
16 I would like to present a document entitled, "The
17 Disinfection Debate" from the Water Reclamation
18 District.

19 MS. TIPSORD: Is this the disinfection
20 packet you were talking about?

21 MS. ALEXANDER: Yes, this is.

22 MS. TIPSORD: Just wanted to be clear.
23 "The Disinfection Debate, Understanding the Science
24 and Facts About Effluent Disinfection and the

1 Chicago Area Waterway System." This is an WMRD
2 pamphlet. I don't see a date on it. I don't see a
3 date. If there's no objection, we will mark this as
4 Exhibit 414. Seeing none, it's Exhibit 414.

5 MS. ALEXANDER: Dr. Granato, have you
6 seen this document before?

7 DR. GRANATO: Yes, I have.

8 MS. ALEXANDER: Did you take any part
9 in preparing it?

10 DR. GRANATO: Yes, I did.

11 MS. ALEXANDER: Okay. I want to call
12 your attention to the -- these don't have any page
13 numbers, but the second to last sheet that is
14 headed, "What about the cost to taxpayers."

15 DR. GRANATO: Okay.

16 MS. ALEXANDER: I see a reference to a
17 cost of about \$500 million. Can you clarify the
18 basis for that?

19 DR. GRANATO: That's the figure we
20 just looked at for capital cost of disinfection at
21 the three plants.

22 MS. ALEXANDER: And that is capital
23 cost without filtration. Is that correct?

24 DR. GRANATO: That's correct.

1 MS. ALEXANDER: So would it be fair to
2 say that it's now the District's position, given
3 that you have this in your pamphlet, that UV without
4 filtration would be an appropriate technology?

5 DR. GRANATO: At this point in time it
6 looks that way, but we really won't know for sure
7 until we do testing and have more specific
8 information on the effluents from the three plants.

9 These figures are based on
10 preliminary engineering estimates. You know, as I
11 said, it's very common for filtration to be
12 installed prior to UV disinfection. That's why it
13 was part of the original estimate.

14 MR. ANDES: So Dr. Granato, is it fair
15 to say that in making these public statements, the
16 District has actually estimated on the low side?

17 DR. GRANATO: That's correct.

18 MR. RAO: Can we ask follow-up
19 questions before we move on? In the past when the
20 District submitted economic impact information to
21 the Board back in October of 2008, there was a lot
22 of cost information that was submitted to the board,
23 but we had not seen anything in terms of impact on
24 the Cook County taxpayers, like this Disinfection

1 Debate document presents that information, and you
2 just mentioned that this information is based on
3 disinfection, and it may be a low-end estimate, the
4 15 percent property tax increase.

5 Would it be possible for the
6 District to estimate what the cost impact would be
7 on Cook County taxpayers for -- you know, to comply
8 with the proposed regulations in terms of, you know,
9 a percent increase? And also, what would be the
10 increase if you calculated, in terms of dollars per
11 \$100, of equalized SS value? Is that a possibility?

12 DR. GRANATO: I think that can be
13 done. Mathematically it can be done.

14 MR. RAO: Because we have heard these
15 figures anywhere from \$1 billion to \$2 billion being
16 talked about. And to get a good handle of what
17 exactly it is costing in terms of how it's going to
18 effect the taxpayers, it would be helpful for the
19 Board to see the numbers.

20 DR. GRANATO: Well, yes, but there is
21 a complication. There's two complications, in that
22 part of the limitation that we face is that we're
23 operating under a tax cap, so that it may not even
24 be possible to levy the increase that would be

1 necessary to fund the O and M increase that would be
2 brought on by these facilities, and it's also not
3 clear whether the -- our capital appropriations
4 would support this added burden and still enable us
5 to maintain our current capital improvement plan,
6 which is required to maintain the aging
7 infrastructure and maintain the -- for instance, if
8 we were unable to maintain the current effluent
9 quality, that would call into question the
10 engineering studies that currently are showing that
11 filtration is not necessary. So all of these things
12 are interrelated and complex.

13 MR. RAO: Yeah, that's why we are
14 trying to get accurate information here.

15 MR. ANDES: So can you repeat -- I
16 think the District can and will provide the
17 analysis. Can you repeat that, so we make sure to
18 get the specific information that's being requested?

19 MR. RAO: Yeah. Basically, if you can
20 describe how the District arrived at this 15 percent
21 increase in property tax, and Dr. Granato just now
22 mentioned that it's low-end. So if you can provide
23 an analysis which gives us a clear picture as to
24 what this increase could be, and also submit into

1 the record any documents or reports that you
2 prepared to come up with this estimate, you know,
3 about how much it's going to cost in terms of
4 complying with the rules.

5 And if you can estimate the break
6 down in tax increase in terms of dollars per \$100 of
7 equalized assessed value of properties, and also if
8 you could estimate increase in user fees for tax
9 exempt organizations and industrial users in some
10 way, if it's possible.

11 And we also have some related
12 questions, because in earlier testimony, the
13 District had also expressed some concerns about the
14 cost that would be involved in nutrient control,
15 which you may have to comply with those regulations
16 when they come down.

17 Regarding that, it would be
18 helpful if you could comment on the current status
19 of that nutrient control program and any potential
20 timetable for implementation of those rules. And I
21 think the District had estimated -- given us a rough
22 estimate for nutrient control at \$2.8 billion, and
23 if you could comment on whether the \$2.8 billion
24 estimate is a preliminary estimate, or is it a

1 detailed cost analysis.

2 DR. GRANATO: That's a preliminary
3 estimate, and it's highly dependant on the ultimate
4 nature of the standards that are promulgated for
5 nutrients and the level of treatment that will be
6 required to meet those standards.

7 MR. RAO: If you can update the record
8 in terms of what's the status, and when you think it
9 would come down on the district to comply with those
10 standards. We know that we haven't received any
11 rulemaking from the Agency.

12 MR. ANDES: And I believe -- I'm
13 sorry. Mr. Rao, I believe that -- and we'll refer
14 back to Dr. Kunice's testimony, but I believe he
15 alluded to even significantly higher cost estimates.
16 Based on the Chesapeake Bay example, it's much
17 higher costs. So we'll go back and provide the
18 information on the various cost estimates and the
19 current status of the regulatory activities.

20 MR. RAO: And also, if you can talk
21 about the funding mechanisms for the nutrient
22 control, whether you will be faced with the same
23 kind of situation that you've faced with
24 disinfection, or if you'll have some funding from

1 the USEPA or any other sources for nutrient control.

2 MR. ANDES: We wouldn't count on that.

3 MR. RAO: Okay. I figured as much.

4 And also, if you can estimate the impact on the Cook
5 County taxpayers as to what that cost could be. And
6 in the same way, if you can give also in terms of
7 dollars per \$100 of equalized SS value. And also,
8 if you can discuss how the increase in property
9 taxes and user charges change over time after the
10 capital costs of the bonds are paid off, if there's
11 continuing costs in the long-term.

12 DR. GRANATO: So for the nutrient
13 issue, do you want the impact of that on the tax
14 exempt users as well as --

15 MR. RAO: Yeah, just give us an idea
16 of what the taxpayers are in for over the next 15 or
17 20 years.

18 And finally, we also wanted to
19 know if whether nutrient removal would have any
20 collateral benefits for reducing fecal coliform in
21 your effluent. If so, you can discuss that aspect
22 of it also.

23 DR. GRANATO: Okay.

24 MR. RAO: That's pretty much what we

1 have related to the economic impact.

2 MR. ANDES: And we need to submit all
3 that by December 31st?

4 MR. RAO: It will be helpful if you
5 can submit it as soon as possible.

6 MS. ALEXANDER: And I would just like
7 to add that we're going to want an opportunity to
8 respond to whatever is submitted, so I think the
9 timing needs to be such that the environmental
10 groups -- and I can't speak for the state -- will
11 have the opportunity to review that and comment.

12 MS. TIPSORD: We'll discuss scheduling
13 soon. Ms. Williams, did you have a follow-up?

14 MS. WILLIAMS: Yeah, I'll save it for
15 my questions.

16 MS. TIPSORD: Okay.

17 MS. ALEXANDER: I would like to
18 present as the next document to be marked this
19 report entitled, "Review of a Technical Memorandum
20 1WQ - Disinfection Evaluation," prepared on behalf
21 of the Metropolitan Water Reclamation District of
22 Greater Chicago, final report dated October 26th,
23 2006.

24 MS. TIPSORD: If there's no objection,

1 we will mark the report discussed as Exhibit 415.

2 Seeing none, it's Exhibit 415.

3 MS. WILLIAMS: Okay. Wait a minute.

4 This I think is already in the record twice.

5 MS. TIPSORD: Okay.

6 MS. WILLIAMS: And that would be -- so

7 I object. Is it too late?

8 MS. TIPSORD: No, that's fine, if it's

9 already in the record and you can give me an exhibit
10 number.

11 MS. WILLIAMS: Let me check and make
12 sure.

13 MS. ALEXANDER: And if it is, I will
14 withdraw it.

15 MS. WILLIAMS: I believe it was
16 Exhibit 12 the first time, and I lost exactly where
17 it was entered a second time.

18 MS. TIPSORD: That's all right.
19 Exhibit 12 works. So it's already in the docket as
20 Exhibit 12?

21 MS. WILLIAMS: I think so. There's
22 not a date on Exhibit 12, but it says, "Review of
23 Technical Memorandum 1WQ by SAIC."

24 MS. ALEXANDER: Same date,

1 October 26th?

2 MS. WILLIAMS: It doesn't have a date
3 on Exhibit 12.

4 MS. ALEXANDER: Because there were
5 several drafts going around.

6 MS. WILLIAMS: Maybe the second one is
7 the later one. That might have been the first one.
8 And then Exhibit 148 is the October 26th for
9 sure -- or October 2006, excuse me, for sure.

10 MS. TIPSORD: Okay. We'll refer to
11 this as Exhibit 148.

12 MS. ALEXANDER: 148. Thank you.
13 Dr. Granato, have you seen Exhibit 148 before?

14 DR. GRANATO: Yes, I have. It's been
15 a long time though.

16 MS. ALEXANDER: I'm going to call your
17 attention to table three on Page 9.

18 DR. GRANATO: Okay.

19 MS. ALEXANDER: Isn't it a fact that
20 the total capital cost for UV that USEPA's
21 independent consultant, SAIC, came up with was
22 \$242 million, which is less than half the figure in
23 the District's report?

24 DR. GRANATO: It looks that way, yes.

1 MS. ALEXANDER: Okay. Do you have any
2 basis for saying that's incorrect?

3 DR. GRANATO: No, I don't.

4 MS. ALEXANDER: Have you made any
5 effort to work the conclusions and the observations
6 from this SAIC report into your cost estimate to try
7 to revise it accordingly?

8 DR. GRANATO: I believe that AE Com
9 has taken a look at this and did not feel that the
10 content was worthy of revision of their estimates.

11 MS. ALEXANDER: Did they tell you why
12 they believed it wasn't worthy?

13 MR. ANDES: You know, I'll have to
14 object. Dr. Zens was here. You had every
15 opportunity to ask him these questions. He was our
16 presented expert on this issue. So to ask these
17 questions of Dr. Granato based on what Dr. Zens may
18 have told him is really improper. If you want to
19 call back Dr. Zens, we can bring him back and he can
20 answer these questions.

21 MS. ALEXANDER: I am entitled to find
22 out what he knows. If he doesn't know, he can tell
23 me. I think we've established that now. I'm going
24 to pose -- the question is pending.

1 DR. GRANATO: I don't recall having a
2 conversation with Dr. Zens on this.

3 MS. ALEXANDER: Do you recall having a
4 conversation with AE Com about it?

5 DR. GRANATO: I didn't personally, but
6 the District did, yes.

7 MS. ALEXANDER: Do you have any
8 knowledge of the nature of that conversation?

9 DR. GRANATO: No, I don't.

10 MS. ALEXANDER: Do you know if
11 anything was ever generated in writing by AE Com?

12 DR. GRANATO: I don't recall. It may
13 have, but I don't know.

14 MS. ALEXANDER: I'm going to call your
15 attention to Page 15, table six. I'd like you to
16 look on the vertical axis at cost per household per
17 month and go over to the second column to the right.
18 Do you see that?

19 I call your attention to the fact
20 that SAIC, USEPA's independent consultant, estimated
21 that the cost per household for disinfection without
22 filtration using UV would be \$1.94 per household per
23 month. Do you have any basis to believe that's
24 incorrect?

1 DR. GRANATO: Do I have a basis to
2 believe it's incorrect?

3 MS. ALEXANDER: Yeah.

4 DR. GRANATO: No.

5 MS. ALEXANDER: Okay.

6 MR. ANDES: Is it your understanding,
7 Dr. Granato, that --

8 DR. GRANATO: I don't know how they
9 derived it, so I have no way of knowing if it's
10 incorrect.

11 MR. ANDES: Is it your understanding
12 that District staff and AE Com have reviewed these
13 numbers and have determined that these are not
14 accurate?

15 DR. GRANATO: That's my understanding,
16 yes. For one thing, it's based on a household. The
17 District does not collect rates based on household
18 payers. So I don't know how households translates
19 to property owners that pay taxes, for one thing.

20 MS. ALEXANDER: Do you have an
21 understanding --

22 DR. GRANATO: Not knowing the
23 methodologies of how this is based, I can't really
24 comment on its correctness.

1 MS. ALEXANDER: So you're telling me
2 there's a different methodology but that does
3 not -- does that have any bearing on the actual
4 correctness of that figure?

5 DR. GRANATO: It could.

6 MS. ALEXANDER: How?

7 DR. GRANATO: If you use the wrong
8 method, it will be indirect.

9 MS. ALEXANDER: Can you be more
10 specific, though, about how -- the difference
11 between property owners and households could bear on
12 whether the \$1.94 figure calculated on the household
13 basis would be correct or not?

14 DR. GRANATO: Well, if you take a cost
15 of disinfection, let's say, and say there's
16 just -- for a round number, say there's 1,000
17 households. You're going to divide the cost by
18 1,000 to get a per-household cost. But if only,
19 say, 300 of those 1,000 households pays property
20 tax, the cost of those 300 is going to be 3.3 times
21 higher than the cost you calculated per household,
22 because you're taking the cost and dividing it by
23 300 instead of 1,000. It's a matter of how many
24 people you're apportioning the cost to.

1 MS. ALEXANDER: I'm going to move on
2 to pre-filed question six, which is: What is the
3 basis for your statement that, quote, "Effluent
4 disinfection would result in substantial
5 environmental impacts in the form of energy usage,
6 air emissions, and power generation and
7 transportation of raw and waste materials and land
8 usage," on Page 5.

9 DR. GRANATO: Yes. That is based on
10 the testimony of Steve McGowan.

11 MS. ALEXANDER: Were you present for
12 or have you reviewed that cross examination of
13 Mr. McGowan by Susan Headman, who was then
14 representing the people of Illinois?

15 DR. GRANATO: Yes, I was present.

16 MS. ALEXANDER: Okay. Did you
17 consider any of the information and analysis
18 presented during that cross examination in restating
19 that figure? Did you make any attempt to
20 recalculate it?

21 DR. GRANATO: The statement I made is
22 based on our current state of knowledge of the
23 impacts.

24 MS. ALEXANDER: The current state of

1 knowledge at the time of Mr. McGowan's testimony, or
2 now?

3 DR. GRANATO: I would say now.

4 MS. ALEXANDER: And my question is:
5 Did you consider any of the input from the cross
6 examination by Ms. Headman in --

7 DR. GRANATO: We did consider it, but
8 it didn't make any really significant change to the
9 magnitude of the environmental impacts.

10 MS. ALEXANDER: Moving on to pre-filed
11 question seven, regarding your testimony that, "IEPA
12 specifically asked me if CHEERS would provide
13 information that would enable them to identify an
14 appropriate indicator organism and set ambient
15 criteria that would be protective of incidental
16 contact and noncontact recreation, and I informed
17 them it would." That's on Page 6.

18 Is it your review that the CHEERS
19 study should be used by IEPA to identify an
20 indicator organism and establish ambient criteria
21 based on it?

22 DR. GRANATO: Yes, that's what we've
23 been saying throughout the hearings.

24 MS. ALEXANDER: Can you clarify when

1 IEPA made that specific ask of you?

2 DR. GRANATO: They asked it during the
3 October 28th hearing. It's in the record.

4 MS. WILLIAMS: Can I ask a follow-up
5 at this point? Isn't it correct at that hearing
6 that your response to the question was actually, "I
7 think it could."

8 DR. GRANATO: Well, the hearing was
9 two years ago. I don't remember my exact response
10 though, Deborah.

11 MS. WILLIAMS: May I approach the
12 witness?

13 MS. TIPSORD: Sure.

14 MR. ANDES: Just not too close.

15 MS. WILLIAMS: Could you repeat the
16 statement from his testimony that you are asking him
17 about, Ms. Alexander?

18 MS. ALEXANDER: Sure. "IEPA
19 specifically asked me if CHEERS would provide
20 information that would enable them to identify an
21 appropriate indicator organism and set ambient
22 criteria that would be protective of incidental
23 contact and noncontact recreation, and I informed
24 them it would."

1 MS. WILLIAMS: Mr. Granato, I'm going
2 to hand you Page 186 from the transcript of that
3 hearing, and I'd like you to read the question I had
4 marked and your answer.

5 MS. TIPSORD: Specifically, that's the
6 10/28 hearing?

7 MS. WILLIAMS: 10/28/2008.

8 MS. TIPSORD: A.m., p.m.?

9 MS. WILLIAMS: I'm guessing p.m. It
10 was a long day.

11 DR. GRANATO: Yeah, I think it was
12 p.m. The question is, Ms. Williams, "Do you think
13 the study that's being conducted is going to tell us
14 what indicator organism could be used for setting an
15 ambient water quality standard? Mr. Granato, "I
16 think it could, yes."

17 MR. ANDES: Keep going, please.

18 DR. GRANATO: Ms. Williams, "How?"
19 Mr. Granato, "Same way all other epidemiologic
20 studies do."

21 MR. ANDES: Keep going, please.

22 DR. GRANATO: Mr. Andes, "I think
23 Dr. Dorevitch explained that." Ms. Williams, "I
24 don't think he did. I don't think he explained that

1 a study would accomplish that. I'm trying to
2 understand." Mr. Andes, "I think he answered that
3 question and actually said that it would form a
4 basis for a water quality standard."

5 MS. WILLIAMS: Thank you.

6 MS. ALEXANDER: Generally speaking, do
7 you have an understanding of what the indicator
8 bacteria levels in the CAWS look like during dry
9 weather, how high they get?

10 MR. GRANATO: Yes, generally speaking.

11 MS. ALEXANDER: Would you agree they
12 often go over 1,000 colony forming units per
13 100 milliliters?

14 DR. GRANATO: Yes.

15 MS. ALEXANDER: And that they
16 sometimes go over 10,000?

17 DR. GRANATO: Yes.

18 MS. ALEXANDER: Okay. In dry weather.
19 Is it your view that the CHEERS study results so far
20 suggest that any indicator criteria that might be
21 set by IEPA should be as high as what's reflected in
22 current sampling, the numbers that you just cited?

23 DR. GRANATO: Could you repeat that?

24 MS. ALEXANDER: Would it be your view

1 that no lower standards should be set by IEPA in the
2 current ambient numbers?

3 DR. GRANATO: Well, I'd have to wait
4 and see the supplement. The CHEERS supplement is
5 going to address that.

6 MS. ALEXANDER: So you have no view on
7 that one way or the other now?

8 MR. ANDES: I'm sorry. Any other --

9 MS. ALEXANDER: You have no view on
10 that one way or the other then now?

11 MR. ANDES: Is that a question?

12 MS. ALEXANDER: Yes. Is that correct?

13 DR. GRANATO: Well, I think what I'm
14 saying is that the CHEERS study will address that,
15 but we don't have the information yet from the study
16 to assess it. So I'm --

17 MS. ALEXANDER: Do you -- I'm sorry.
18 Continue.

19 DR. GRANATO: I'm not going to
20 formulate an opinion on it until I see what the
21 CHEERS study is going to say.

22 MS. ALEXANDER: Would there be any way
23 to reduce these dry weather fecal coliform numbers,
24 other than through disinfection?

1 DR. GRANATO: Yes, there are ways.

2 MS. ALEXANDER: Such as?

3 DR. GRANATO: Filtration, for one
4 thing, could reduce them.

5 MS. ALEXANDER: Filtration as an added
6 stage in the treatment process you mean?

7 DR. GRANATO: Mm-hmm.

8 MS. ALEXANDER: By how much of
9 filtration would reduce that?

10 DR. GRANATO: I can't really say off
11 the top of my head.

12 MS. ALEXANDER: Does the District have
13 analysis on that question?

14 DR. GRANATO: We have looked at some
15 plants that currently filter.

16 MS. ALEXANDER: Which plants are
17 those?

18 DR. GRANATO: All the plants that
19 currently disinfect.

20 MR. ANDES: The District's plants that
21 go to general use waters?

22 DR. GRANATO: That's correct.

23 MR. ANDES: Is it true, Dr. Granato,
24 that one of the possible options for addressing

1 nutrients, if and when that comes due, would be
2 filtration?

3 DR. GRANATO: That could be required,
4 yes, depending how low the nutrient standards are.

5 MS. ALEXANDER: Now, the portion of
6 the CHEERS study that's been completed found
7 approximately 12 additional illnesses per thousand
8 in the CAWS. Is that correct?

9 DR. GRANATO: That's correct, relative
10 to the unexposed group.

11 MR. ANDES: Can we be clear? Are we
12 talking about acute GI symptoms?

13 MS. ALEXANDER: Yes, acute GI
14 symptoms. And isn't it also a fact that USEPA's
15 current benchmark for risk is eight illnesses per
16 1,000 for fresh water?

17 DR. GRANATO: For primary contact
18 recreation, yes.

19 MS. ALEXANDER: Right. But the
20 acceptable risk, to the extent that's an
21 appropriate, term is eight per 1,000. Is that
22 correct?

23 DR. GRANATO: Acceptable to who?

24 MS. ALEXANDER: To USEPA in setting

1 its standards.

2 DR. GRANATO: Well, for primary
3 contact. I don't know what their acceptable level
4 is for secondary, because they don't have anything
5 for secondary.

6 MS. ALEXANDER: So you're suggesting
7 it would be acceptable for more people to get sick
8 if they're engaged in other kinds of recreation?

9 DR. GRANATO: I can't speak for USEPA.

10 MR. ANDES: Is it accurate to say that
11 when EPA, at an earlier point, had a rule of thumb
12 for secondary contact, which now has been recognized
13 as not valid, they were saying it ought to be five
14 times the primary number?

15 MS. WILLIAMS: Objection. The
16 attorney is testifying.

17 MR. ANDES: I'm asking if it's true.

18 MS. TIPSORD: He can ask if it's true.

19 MS. WILLIAMS: If what's true, Mr.
20 Andes, that there's a guidance document that wasn't
21 final?

22 MR. ANDES: Right.

23 MS. WILLIAMS: Okay.

24 MR. ANDES: Did EPA suggest --

1 MS. ALEXANDER: I object to this,
2 because it's really not clear what that five-time
3 standard refers to, because it is not my belief that
4 it's a five-time standard in the sense that it's
5 appropriate for five times as many people no get
6 sick. It's more a way of adjusting the primary
7 contact standard.

8 MR. ANDES: So is that your testimony
9 now?

10 MS. ALEXANDER: Well, I'm objecting to
11 your asking him a vague question about a document
12 that we don't have in front of us.

13 MS. TIPSORD: Let's let him answer the
14 question, and if you want to follow up with more
15 specifics on the question, then you can.

16 DR. GRANATO: Well, to answer
17 Mr. Andes' question, yes, there was a five-times
18 guidance in the -- USEPA did issue that.

19 MR. ANDES: So EPA seemed -- so is it
20 your impression then EPA was recognizing that
21 different numbers would be justified for secondary
22 contact, perhaps due to the infectious dose issues
23 that Dr. Dorevitch mentioned?

24 DR. GRANATO: It's possible, yes.

1 MS. ALEXANDER: Go ahead.

2 MS. LIU: Dr. Granato, in your update
3 to the Board on USEPA's status of establishing water
4 quality criteria for bacteria, would you please
5 address why the USEPA is also planning to include
6 inland waters when it establishes criteria?

7 Would you also please address how
8 USEPA, in its past implementation guidance, draft or
9 otherwise, has handled giving states flexibility in
10 setting secondary contact water quality standards,
11 and the direction that USEPA is headed now with new
12 implementation guidance for secondary contact?

13 For example, is USEPA now
14 considering giving states the flexibility to
15 consider local conditions and epi studies, like
16 CHEERS, to establish secondary contact standards,
17 rather than a national one-size-fits all criteria?

18 DR. GRANATO: We'll certainly do that.
19 I know they are contemplating more flexibility on
20 this new approach.

21 MS. WILLIAMS: Can you explain that a
22 little bit more, Mr. Granato, what you're aware of
23 as far as the flexibility being contemplated?

24 DR. GRANATO: Well, I'm not first-hand

1 involved in the process, but I recently attended a
2 meeting on the Water Environment Research
3 Foundation, a pathogen challenge. That challenge is
4 winding down, and WERF, which is the Water
5 Environment Research Foundation, is in the process
6 of packaging all the findings from that program area
7 of research, and it was explained.

8 And let me back up and say USEPA
9 has been a very active member in this challenge.
10 The challenge was designed to develop data and
11 information that would be immediately useful to
12 USEPA. In their quest to develop the database and
13 tools by December of this year, they have a deadline
14 to complete their studies, and by December of 2012,
15 I believe it is, they have a deadline to propose a
16 new approach to this.

17 And it was explained at this
18 workshop that they had -- they were using the
19 term -- they were going to build a lot of off-ramps
20 into the process, so they would have a main national
21 route, and then various off-ramps where local
22 conditions could be considered and site-specific
23 criteria could be developed. And they were looking
24 quite a bit at quantitative microbial risk

1 assessment as a cost effective and efficient tool
2 for doing that.

3 But certainly epidemiologic
4 studies would be even better, but they're most
5 costly and probably impractical for everybody to
6 conduct. They're also looking at rapid methods,
7 QMRA, not only to get rapid results but also to
8 do --

9 MR. ANDES: QMRA is?

10 DR. GRANATO: Excuse me. QPCR.
11 Thanks for correcting me. QPCR.

12 MR. ANDES: Which is a method for
13 detecting --

14 DR. GRANATO: It's an analytical
15 method. It's a DNA-based analytical method for
16 quantitative polymerase chain reaction is the --
17 what that stands for. And that would also enable
18 some source tracking, so in local conditions to
19 determine sources of indicators. So we can provide
20 a much more detailed update than that, but that's
21 what I know at this time.

22 MR. ANDES: There are materials
23 available from the webinar and we can certainly
24 provide those.

1 MR. RAO: It would be helpful if you
2 can provide any slides or other information.

3 MS. TIPSORD: And that's -- if anyone
4 else wishes to comment on these issues that the
5 USEPA may be examining, obviously the Board would
6 invite to you do so as well.

7 MR. RAO: And along the same lines, we
8 had a few more follow-up questions, if you don't
9 mind.

10 MS. ALEXANDER: Go ahead.

11 MR. RAO: Dr. Granato, you testified
12 yesterday and also today that the supplemental
13 report and the CHEERS study supplemental report
14 basically would be providing more information that
15 would be helpful in establishing bacterial water
16 quality criteria. We were wondering if -- is the
17 District also planning to propose water quality
18 criteria for bacteria for the three recreational use
19 categories the Board has proposed in its first
20 notice regulations, or just provide information that
21 may be used to establish such criteria?

22 DR. GRANATO: We have not really
23 decided whether we would propose numerical
24 standards, but it was certainly our intent to

1 provide the information to the Board and the Agency
2 for their use.

3 MS. LIU: Would you be willing to
4 consider putting together a proposal?

5 DR. GRANATO: Yeah. We'd be willing
6 to consider that, yes.

7 MR. RAO: That would be helpful. And
8 also, if you can work into that, if you can come up
9 with the criteria for wet weather use category that
10 you had proposed.

11 DR. GRANATO: Certainly.

12 MR. RAO: And regarding the wet
13 weather use category, also it would be helpful if
14 you can propose specific language as to how this
15 category would be implemented.

16 And yesterday in your testimony,
17 you had stated that the District will accept
18 effluent limits based on water quality standards,
19 such as water quality-based effluent limits, rather
20 than technology-based standard proposed by the
21 Agency. So if you're going to propose the water
22 quality criteria for those different use
23 designations, would you also be willing to propose
24 effluent-based limits based on that criteria that

1 may apply to the District's three wastewater
2 treatment plants?

3 MS. WILLIAMS: I would just -- from
4 the Agency's point of view, just for the Board's
5 understanding, I would -- they certainly can provide
6 information on how they would see that work, but
7 typically water quality-based effluent limits are a
8 decision that's implemented in the permit, by the
9 permit right, or by analyzing -- looking at what the
10 criteria is and --

11 MR. RAO: Yeah, we recognize that.
12 This is just for information to see what those
13 limits could be.

14 MS. WILLIAMS: Okay. That's great. I
15 just wouldn't want to see a regulation that try to
16 establish a water quality effluent limit in the
17 Board's regulation.

18 MR. RAO: This is just information.

19 MS. LIU: Would the Agency be willing
20 to work with the District on deriving a water
21 quality-based effluent limit for the plants based on
22 a proposal the District may provide for water
23 quality criteria so that you can come up with a
24 number that you both agree, at least on the

1 mathematical principal of?

2 MS. WILLIAMS: My understanding -- and
3 the technical staff is not here, and we'll certainly
4 work with them on anything they're willing to do to
5 come to a compromise. We always have been willing
6 to do that. I think the testimony has shown that
7 once you have a number that requires disinfection,
8 you disinfect.

9 But the number that we've proposed
10 as an effluent limit is a number to show that
11 disinfection is working. So I'm not sure, once it's
12 determined, based on the water quality standard,
13 that disinfection will be required. Typically the
14 effluent limit then is not that difficult of a
15 decision to make.

16 MR. ANDES: If I understand the
17 request, it would be first the District has said
18 it's willing to consider suggesting possible water
19 quality standards, including a wet weather
20 provision. And obviously, the process of developing
21 effluent limits from that would be a complicated one
22 to deal with the variety of sources, but those would
23 then be limits based on the water quality standard,
24 not based on a disinfection requirement.

1 And are we willing -- you know,
2 assuming that we provide the information and we can
3 suggest proposed water quality standards, are we
4 then willing to sit down with the Agency and talk
5 about what the effluent limits might be? Yes, we're
6 certainly willing to consider that.

7 MR. RAO: Yeah. As far as we
8 are -- in terms of the information that we are
9 looking for was, first of all, whether, you know,
10 you'd consider proposing some numbers for water
11 quality criteria. And if you are doing that, then
12 give us some information as to what that would mean
13 in terms of the effluent limits.

14 And we are in no way going on the
15 Agency's turf about permitting or suggesting -- it's
16 just for this rulemaking record. Because all this
17 information is in there, and we need certain
18 specific information to, kind of, clarify some of
19 the, you know, data.

20 MR. ANDES: For informational
21 purposes, I think that's certainly something that
22 we'll take back and consider carefully.

23 MR. RAO: That would be very helpful.
24 And also, it would be helpful if the Board -- if the

1 District is willing to update its economic analysis
2 based on the water quality criteria that you may
3 propose and any effluent limits.

4 MS. LIU: As you take this back with
5 you, when you're working on the effluent limits, it
6 will obviously depend on the use designations and
7 your criteria. The Board has proposed, at first
8 notice, a set of use designations, and the District
9 has an alternate proposal. If you can take a look
10 at both scenarios and present that information, that
11 would be very helpful.

12 MR. ANDES: So present the --

13 MS. LIU: The scenario of the first
14 notice use designations proposed by the Board, and
15 the scenario of the District's ultimate proposal for
16 use designations.

17 MR. ANDES: And the two scenarios
18 would include suggested standards and suggested
19 effluent limits, based on those two alternate
20 scenarios, and then cost impacts of each?

21 MR. RAO: Yes.

22 MR. ANDES: Is that --

23 MR. RAO: Correct.

24 DR. GRANATO: Including wet weather?

1 MR. ANDES: Including wet weather.

2 MR. RAO: Yeah.

3 MR. ANDES: Okay.

4 MS. WILLIAMS: And we are hoping that
5 you have this information by December.

6 MS. TIPSORD: Mr. Harley?

7 MR. HARLEY: To clarify the request --

8 MS. TIPSORD: Excuse me, Mr. Harley.
9 Identify yourself.

10 MR. HARLEY: I'm sorry. For the
11 record, Keith Harley, attorney for the Southeast
12 Environmental Task Force.

13 Is the request for uniform
14 standards across all District facilities, or because
15 this could be based on public health factors, could
16 it be facility-specific in terms of the standards
17 and effluent limitations that might apply? I just
18 want to clarify the nature of the request.

19 MS. LIU: I think that was the
20 question.

21 MR. ANDES: Would it be based on the
22 specific standards suggested for particular regions,
23 would be my understanding.

24 MS. TIPSORD: Based on the proposed

1 uses, the water quality standards you would propose.
2 So obviously if one plant does something that the
3 Board has proposed for noncontact recreation -- so
4 it would be based on the use proposals.

5 MR. HARLEY: Okay. And -- okay.
6 Thank you.

7 MS. LIU: And the limitation obviously
8 would be different for each plant?

9 MR. ANDES: Right, or it could be.

10 DR. GRANATO: Possibly, yeah. We
11 don't know.

12 MR. ANDES: Okay.

13 MR. RAO: Thank you very much.

14 MS. LIU: And if you can't do it by
15 the end of December, we'll be very disappointed.

16 MR. ANDES: We will take this back and
17 assess and provide a timeline in terms of how we can
18 get it done as soon as possible.

19 MS. TIPSORD: Thank you.

20 MS. ALEXANDER: I'd like to return now
21 to the topic of this USEPA -- by informal unofficial
22 five-time standard, just to be clear, by five times
23 what's meant by that is five times the end stream
24 level of 200 colony forming units of fecal coliform

1 per 100 milliliters that's applicable in general use
2 waters. Is that correct?

3 DR. GRANATO: Right. I think it was
4 five to ten times was the guidance.

5 MS. ALEXANDER: So five times would be
6 1,000. Is that correct?

7 DR. GRANATO: Mm-hmm.

8 MS. ALEXANDER: And just to be clear,
9 you testified earlier, as is elsewhere in the
10 record, that the end stream water quality does
11 exceed, at times, 1,000 colony forming units of
12 fecal coliform.

13 DR. GRANATO: Yes.

14 MR. ANDES: Dr. Granato, you're not
15 suggesting that we adopt the EPA rule of thumb,
16 correct?

17 DR. GRANATO: No, I'm not suggesting
18 that.

19 MR. ANDES: Is your point simply that
20 EPA has different recommendations for secondary
21 contact than for primary?

22 DR. GRANATO: At one time they did,
23 yes. They don't have any recommendation currently
24 for secondary contact.

1 MS. WILLIAMS: So just to be clear, is
2 your testimony that this rule of thumb, as Mr. Andes
3 was calling it, was withdrawn by USEPA and is no
4 longer a recommendation?

5 DR. GRANATO: I don't know officially
6 if it's been withdrawn.

7 MS. WILLIAMS: But it's your
8 understanding that it's no longer a recommendation
9 of the USEPA?

10 DR. GRANATO: That's my understanding,
11 yeah.

12 MS. ALEXANDER: And would it also be
13 your understanding that that this withdrawn rule was
14 never a change in this benchmark of eight illnesses
15 per thousand?

16 DR. GRANATO: It was what?

17 MS. ALEXANDER: Was never actually a
18 change in the ultimate benchmark risk criterion of
19 eight illnesses per thousand.

20 DR. GRANATO: Well, I think there
21 was -- in that guidance document, I think that there
22 was -- and I have to admit that I have not looked at
23 that in a very long time, and I don't want to quote
24 an exact number, but I believe they did have a

1 different risk number in there for secondary contact
2 than they did primary contact.

3 MS. ALEXANDER: But wasn't the concept
4 of the risk number that if people were engaging in
5 primary contact activities, which they wouldn't be
6 because it's secondary contact, then there would be
7 more illnesses?

8 DR. GRANATO: I don't know.

9 MS. ALEXANDER: Okay.

10 MS. WILLIAMS: Would it refresh your
11 recollection, Mr. Granato, if I suggested that they
12 may have offered flexibility to chose a range of
13 illnesses from 8 to 14? Does that sound familiar?

14 MR. GRANATO: That might be right.
15 Like I said, I haven't looked at that in a long
16 time, and I don't want to represent exact knowledge
17 of that at this time, because I don't have it at my
18 fingertips.

19 MS. WILLIAMS: But is it your
20 recollection that there was a cap of a number of
21 illnesses around 14?

22 DR. GRANATO: That sounds --

23 MS. WILLIAMS: About right.

24 DR. GRANATO: Right. But that -- is

1 that for primary contact or secondary?

2 MS. WILLIAMS: I'm not -- I'm actually
3 not sure myself either. So if you don't recall,
4 that's fine.

5 MS. ALEXANDER: Just a couple of quick
6 follow-ups on earlier questions. Dr. Granato, are
7 you familiar with the six factors derived from Clean
8 Water Act rest regulations that were used in the Use
9 Attainability Analysis process for setting
10 essentially subcategories of a use, or the
11 designated uses in this case?

12 DR. GRANATO: Am I familiar with the
13 six categories?

14 MS. ALEXANDER: Yes, the six factors.

15 DR. GRANATO: The six factors, yes.

16 MS. ALEXANDER: Are you aware that the
17 sixth factor is for --

18 DR. GRANATO: Widespread economic.

19 MS. ALEXANDER: -- controls more
20 stringent than those required under Sections 301 B
21 306 of the Act with a result of substantial and
22 widespread social economic impact?

23 DR. GRANATO: Yes.

24 MS. ALEXANDER: Has the District done

1 analysis to determine whether such substantial and
2 widespread social and economic impact would occur in
3 the event disinfection was required?

4 DR. GRANATO: No. We have not done
5 that.

6 MS. ALEXANDER: Okay. The last
7 question, I want to go back to pre-filed question
8 six. Referring again to Ms. Headman's questions,
9 isn't it a fact that she presented information
10 concerning the sources of power that would be used
11 by the District for disinfection that were
12 substantially different from the sources presented
13 by Mr. McGowan?

14 DR. GRANATO: She presented some
15 information, yeah, about the sources of power.

16 MS. ALEXANDER: And isn't it a fact
17 that her information as to where the power would
18 come from to generate to power disinfection were
19 quite different from the sources presented by
20 Mr. McGowan?

21 DR. GRANATO: Quite different?

22 MS. ALEXANDER: Yes.

23 DR. GRANATO: I don't know about quite
24 different.

1 MS. ALEXANDER: Significantly
2 different?

3 DR. GRANATO: I don't think that we
4 agreed with her analysis at the time of the
5 hearings.

6 MS. ALEXANDER: Based on what? What
7 did you disagree with?

8 MR. ANDES: He wasn't testifying. If
9 you want to bring Dr. McGowan back to talk about it
10 we can, but he can't recall what happened in Dr.
11 McGowan's testimony a year ago.

12 MS. ALEXANDER: We are here because
13 Mr. Granato has made a statement reaffirming
14 previous testimony. I'm entitled to find out what
15 he knows. Now, if he wants to say that he knows
16 nothing, then that's his answer.

17 DR. GRANATO: Well, I'll answer your
18 question on this basis: The way it appears right
19 now from what's in the record, disinfection will
20 have no benefit, no health benefit. On that basis,
21 and looking ahead at the current concern about
22 climate change and initiatives to limit carbon
23 emissions, I would go so far to say anything that's
24 done frivolously that's going to increase carbon

1 emissions is an unreasonable environmental impact.

2 Now, what Ms. Headman presented
3 will change a little bit -- if you accept her
4 premise, it will change a little bit the emission
5 numbers, but they still were very large. And at
6 that time when perhaps policy makers are looking to
7 limit and even reduce -- turn the clock back on
8 emissions going back to 2005, or in some cases 1990
9 levels, and some significant percentage of emission
10 below those levels, it makes no sense whatsoever to
11 contemplate some type of action that's going to have
12 no benefit and increase emissions. How are we ever
13 going to reduce emissions if we layer on additional
14 treatment that's going to substantially increase
15 emissions? How are you going to offset that?

16 MS. ALEXANDER: Let me go back to my
17 question, which is: Sitting here today, do you know
18 of any basis to disagree with any of the information
19 Ms. Headman presented?

20 DR. GRANATO: I would have to go back
21 and review that, to answer your question.

22 MS. ALEXANDER: Okay.

23 MS. TIPSORD: Mr. Harley, you have a
24 follow-up?

1 MR. HARLEY: I have a follow-up.
2 Keith Harley, Southeast Environmental Task Force.

3 Do you know if any of the
4 District's facilities generate power for on-site use
5 through the combustion of bio gas, which comes out
6 of the wastewater treatment process?

7 DR. GRANATO: Yes.

8 MR. HARLEY: Which facilities generate
9 power on site through the combustion of bio gas?

10 DR. GRANATO: Stickney and Calumet.

11 MR. HARLEY: Was that taken into
12 account in Mr. McGowan's testimony?

13 DR. GRANATO: I don't recall.

14 MR. HARLEY: Thank you.

15 MS. ALEXANDER: I have no further
16 questions for this witness.

17 MR. ANDES: I had a couple of
18 follow-ups.

19 MS. TIPSORD: Okay.

20 MR. ANDES: Dr. Granato, let's go back
21 for a second to the risk assessment done by
22 Geosyntec, and I want to ask you to explain
23 something.

24 As I understand it, the risk

1 assessment identified a risk -- an estimated risk
2 due to bacteria levels, and that was in, say, the
3 two to three per thousand range. And now in the
4 CHEERS study, it identifies a risk due to water
5 recreation, both on the CAWS and general use waters,
6 of 12 or 13 per thousand. How do you explain the
7 difference between those numbers?

8 DR. GRANATO: Well, as I stated
9 yesterday, the CHEERS number is based on -- it's an
10 epidemiology derived number. So it's based on an
11 observation of all cases that exhibit acute
12 gastrointestinal illness symptoms.

13 The risk assessment study, by
14 virtue of its model, is only able to compute
15 illnesses due to exposure to and subsequent
16 infection from pathogenic organisms. So one would
17 expect that because there are potentially factors
18 other than pathogenic organisms that can cause
19 gastrointestinal illness symptoms, that an
20 epidemiologic study would find a higher level number
21 of cases per thousand than a risk assessment study.

22 MR. ANDES: So what do you think are
23 some of the other factors that could involve water
24 recreators having more risk than non-water

1 recreators, besides pathogens?

2 DR. GRANATO: Well, besides pathogens,
3 there's a potential for a chemical ingestion to
4 produce those symptoms, algal toxins. It could be
5 things such as motion. Even motion on powerboats
6 can cause nausea and vomiting. Alcohol was
7 mentioned yesterday by Dr. Dorevitch. It could even
8 be other environmental microbes that are not
9 cultured for that may not even emanate from
10 treatment plants but that are present in the
11 environment.

12 MR. ANDES: If the difference -- if
13 the 12 or 13 were all due to bacteria levels, would
14 that be consistent with the CAWS and general use
15 bacteria levels observed?

16 DR. GRANATO: No, it wouldn't, because
17 the CAWS has higher bacteria levels than general use
18 waters.

19 MR. ANDES: So if bacteria were the
20 main component of the 12 or 13 per thousand, you
21 would expect the CAWS would have a higher risk, and
22 it doesn't?

23 DR. GRANATO: That would be the
24 expectation, yes. It does not.

1 MR. ANDES: And even if you put aside
2 the risk assessment for a moment and its modeling of
3 risk and just look at the CAWS -- at the CHEERS
4 results, comparing the CAWS versus general use
5 recreators, what does that tell you in terms of the
6 benefit of disinfection?

7 DR. GRANATO: It doesn't appear there
8 would be any benefit. The general use waters
9 receive disinfected effluents. The CAWS waters do
10 not, and risks are equal.

11 MR. ANDES: Thank you.

12 MS. ALEXANDER: I have some follow-up
13 questions on that.

14 MS. TIPSORD: Ms. Williams had her
15 hand up though.

16 MS. WILLIAMS: I just want to
17 understand, Dr. Granato, I'm not an epidemiologist
18 and I don't think you are either. But didn't
19 Dr. Dorevitch tell us that we don't have the
20 information yet to correlate the levels of microbes
21 in the water when people got sick? I mean, isn't
22 that the next phase of the study? How can you make
23 this conclusion that there's no benefit to
24 disinfection until we see the next phase of the

1 study?

2 DR. GRANATO: Well, I'm basing it on
3 the comparison of illness rates in the CAWS and
4 general use waters.

5 MS. WILLIAMS: But doesn't he need to
6 do the next level then and compare what the level of
7 pathogens were in the water at the time --

8 DR. GRANATO: Well, not for this
9 analysis. I'm basically looking at two systems.
10 One system has disinfected effluents.

11 MS. WILLIAMS: But we don't know what
12 levels -- they don't necessarily have lower levels
13 of bacteria in the cases where people got sick, do
14 they? We don't know that, do we?

15 DR. GRANATO: Well, the water quality
16 data suggests that the bacteria levels are lower in
17 the general use waters. What you're talking about
18 in the supplement that if we want to know -- see,
19 both cases have increased incidents of illness
20 relative to unexposed individuals, but those
21 incidents of illness are equal in both systems.
22 Now, what the supplement will tell us is what levels
23 of water quality are responsible for various levels
24 of increased rates of illness, but that will not

1 attribute the cause of that increased level of
2 illness to pathogenic organisms.

3 I can give you an example from my
4 background of expertise, which is soil science and
5 agronomy. If you take a corn field and you
6 fertilize it with ammonium sulfate fertilizer, I can
7 generate a graph for you of sulfate -- applied
8 sulfate and corn yield, and you will see if I split
9 it into plots with different rates, that as the
10 sulfate concentration applied increases, the corn
11 yield increases, okay, and that's a valid
12 relationship. But it is not a causal relationship,
13 because it's the nitrogen, the ammonium, that's
14 causing the yield increase.

15 The same thing is true in the
16 waterways. When you make a chart of indicators
17 versus illness, you're relating those
18 mathematically, and there's a relationship there
19 that can be discerned, but that relationship does
20 not prove -- because the indicators themselves are
21 not the cause of the illness. It does not prove or
22 enlighten what the cause of that relationship is.

23 MS. WILLIAMS: I can understand what
24 you're saying that it doesn't prove. Are you -- is

1 it your testimony that the levels of indicators are
2 not going to enlighten us?

3 DR. GRANATO: They'll enlighten you in
4 terms of being able to predict illness rates.

5 MS. WILLIAMS: And is that our goal
6 here? Is the District going to provide us
7 information that will help the Board know what
8 levels of indicator organisms would be protective of
9 recreational uses in the CAWS?

10 DR. GRANATO: Yes, we just said we
11 would. We were asked to do that and we will do
12 that.

13 MS. WILLIAMS: I want to -- just one
14 last follow-up. I want to understand what you're
15 trying to say about the difference between the risk
16 assessment and the CHEERS study. The risk
17 assessment is a model, correct?

18 DR. GRANATO: Yes, it is.

19 MS. WILLIAMS: And input into the
20 model was information for epidemiological studies,
21 correct?

22 DR. GRANATO: Input into the model
23 was -- say that again.

24 MS. WILLIAMS: Didn't the model rely

1 on epidemiological studies, just like the CHEERS
2 study, in order to determine when people will get
3 sick?

4 DR. GRANATO: Yes. Some inputs into
5 the model did, yes.

6 MS. WILLIAMS: I just -- I'm really
7 having trouble understanding on a common sense level
8 why there's validity to a model when you can compare
9 it to actual data, especially when the model used
10 similar actual data in order to come up with the
11 calculation. In fact, similar but inferior data,
12 right? We had these studies on white water rafting
13 in Colorado. That's what the model had to rely on
14 because that's all there was, correct?

15 DR. GRANATO: I'm sorry. You said
16 something about Colorado?

17 MS. WILLIAMS: Prior to the CHEERS
18 study, there was very limited epidemiological data
19 for the model to rely on?

20 DR. GRANATO: What was your original
21 question? I didn't --

22 MS. WILLIAMS: Do you want her to read
23 it back?

24 DR. GRANATO: Yeah, would you do that?

1 (Whereupon, the record was read as
2 requested.)

3 DR. GRANATO: Well, I mean, I agree
4 with you. The epidemiological study is the highest
5 form of evaluation, and that's why it was undertaken
6 as a follow-up.

7 MS. WILLIAMS: That's really what I
8 was trying to get at. I appreciate it. Thank you.

9 MS. ALEXANDER: Okay. I have a couple
10 of follow-ups. Going back to your specific comments
11 about possible other causes of illness, you
12 referenced chemical ingestion. I asked you this
13 yesterday, but since you reiterated the testimony
14 I'll ask you again. What chemicals are you
15 referring to that can be ingested that can cause
16 these symptoms?

17 DR. GRANATO: Well, I wasn't referring
18 to any specific chemicals, just the fact that
19 chemicals can cause symptoms of gastrointestinal
20 illness.

21 MS. ALEXANDER: So any chemicals that
22 might happen to be in the water?

23 DR. GRANATO: Sulfate, fluoride, algal
24 toxins, metals at high enough levels.

1 MS. ALEXANDER: Do you have data to
2 suggest that there might be fluoride or metals in
3 the CAWS at high enough levels to give people GI
4 symptoms?

5 DR. GRANATO: I haven't analyzed that.

6 MS. ALEXANDER: Same with algal
7 toxins?

8 DR. GRANATO: I haven't analyzed it,
9 no.

10 MS. ALEXANDER: What other microbes
11 were you referring to that weren't studied?

12 DR. GRANATO: I wasn't referring to
13 any specific ones, but there may be ones that are
14 unknown to science even. There are not methods for
15 analyzing every microorganism known to mankind -- in
16 nature.

17 MS. ALEXANDER: Okay. I have no
18 further questions.

19 MS. TIPSORD: Mr. Armstrong?

20 MR. ARMSTRONG: A couple followup
21 questions.

22 MS. TIPSORD: And have you identified
23 yourself for the record today?

24 MR. ARMSTRONG: Andrew Armstrong for

1 the Illinois Attorney General's office.

2 Yesterday we asked Dr. Dorevitch
3 about a particular finding of the CHEERS study,
4 which was really to the CAWS north area, which has
5 some of the highest levels of pathogen
6 concentrations, and people recreating tending to use
7 some of the higher exposure activities, such as
8 kayaking and rowing, yet displaying some of the
9 lowest levels of illness, and I asked Dr. Dorevitch
10 if he could explain these results. Do you recall
11 that questioning?

12 DR. GRANATO: I recall that, yeah.

13 MR. ARMSTRONG: And do you recall his
14 answer?

15 DR. GRANATO: Why don't you refresh my
16 memory?

17 MR. ARMSTRONG: Well, let me just ask
18 this question when I asked about the reason for his
19 finding: Do you recall Dr. Dorevitch mentioning the
20 possibility of people becoming ill from chemicals in
21 the CAWS?

22 DR. GRANATO: Do I recall him saying
23 that?

24 MR. ARMSTRONG: Yes.

1 DR. GRANATO: No, I don't recall it.

2 MR. ARMSTRONG: Do you recall him
3 mentioning the possibility of people in the CAWS
4 becoming ill from any reasons, other than pathogens?

5 DR. GRANATO: Well, he did say -- not
6 specifically for the north area, but he did mention
7 alcohol as one potential source of illness, yes.

8 MR. ARMSTRONG: Do you recall me
9 asking him whether he had any data to suggest that
10 alcohol was tied to any particular types of
11 recreation?

12 MR. ANDES: Do you want to read back
13 the testimony? We're trying to remember what
14 Dr. Dorevitch said yesterday?

15 MS. TIPSORD: I think we can
16 assume -- I would really prefer that we not repeat
17 all of Dr. Dorevitch's testimony from yesterday,
18 since it was just yesterday. Now, if we're talking
19 about October of 2008 -- so if you can just ask your
20 question and assume if he doesn't remember it then
21 he can say that.

22 MR. ARMSTRONG: No further questions.

23 MS. TIPSORD: Anything else?

24 MR. RAO: We have one follow-up for

1 Dr. Granato.

2 Dr. Granato, would it be possible
3 for the District to update the record regarding the
4 status of TARP?

5 DR. GRANATO: Mm-hmm, sure.

6 MR. RAO: Basically, if you have any
7 current time table as to a completion of phase two,
8 and if there's a phase three, if you could provide
9 that information?

10 DR. GRANATO: Certainly.

11 MS. TIPSORD: Mr. Harley?

12 MR. HARLEY: Again, your --

13 DR. GRANATO: Can I interrupt you for
14 a second? I don't know if this is allowable, but
15 it's been bothering me. Since you asked your last
16 question, I think I misspoke when I answered him.
17 Could we go back to that for a second?

18 MR. HARLEY: Sure. About the bio gas?

19 DR. GRANATO: Yeah. Did you ask me if
20 we were using bio gas to generate energy? Isn't
21 that what you said?

22 MR. HARLEY: Yes, that's correct.

23 DR. GRANATO: And I think I misspoke,
24 because we're actually -- we're using it to heat

1 boilers. So we are using it, but it's not energy
2 generation.

3 MR. HARLEY: Thank you for the
4 clarification.

5 DR. GRANATO: I'm sorry for that. Go
6 ahead.

7 MR. HARLEY: TARP may not be completed
8 according to the same schedule in different regions.
9 Is that correct?

10 DR. GRANATO: That's correct.

11 MR. HARLEY: And so your request for a
12 friendly modification might be the schedule for TARP
13 completion as it relates to individual regions
14 within the District's authority?

15 MR. ANDES: That's fine.

16 MR. HARLEY: Because it would be very
17 different for the Calumet region than it is, for
18 example, for other areas.

19 DR. GRANATO: We would break that down
20 by region, sure.

21 MR. HARLEY: Thank you.

22 MS. TIPSORD: All right. Then let's
23 take a ten-minute break, and we'll come back and let
24 the People talk to Mr. Granato.

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

4 MS. TIPSORD: Let's go ahead and go
5 back on the record. We're continuing with
6 Dr. Granato, and the IEPA has some pre-filed
7 questions.

8 MS. WILLIAMS: Dr. Granato, I'm going
9 to start with question 11, the final one. On Page 2
10 of his pre-filed testimony, Dr. Granato states,
11 quote, "The District funded the CHEERS study, in
12 part at the request of IEPA." Who at IEPA asked
13 MWRDGC to fund the CHEERS study?

14 DR. GRANATO: Okay. For that, I guess
15 I'll start by saying that I don't think that -- I
16 don't have any documentation that it was
17 specifically asked for by a person at IEPA.

18 MS. WILLIAMS: Do you --

19 DR. GRANATO: I'm sorry.

20 MS. WILLIAMS: You don't have any
21 documentation of it?

22 DR. GRANATO: I don't have, like, say
23 a letter or some minutes of a meeting where it was
24 specifically asked that it fund CHEERS. My basis

1 for that statement was my understanding that the --
2 that there was an expectation that the District,
3 under its obligation, I think it was in the 2002
4 renewal of the MPDES permits, there were special
5 conditions that required the District to participate
6 in and support the UAA.

7 And as a result of that, as a
8 stakeholder process evolved, the District and the
9 Agency entered into an understanding that the
10 District would undertake various programs of study,
11 including the engineering studies.

12 MS. WILLIAMS: Right. And I really
13 just want to get at this -- we talked last hearing
14 about the more general stuff. It's just this very
15 specific -- would you agree that no one at EPA
16 specifically asked you to fund an epidemiological
17 study that turned into the CHEERS study,
18 specifically?

19 DR. GRANATO: Yes, right.

20 MS. WILLIAMS: That's really all that
21 question was getting at. It's very straightforward.

22 MR. ANDES: Let me follow-up on that.
23 Dr. Granato, can you explain the process, to the
24 best of your understanding, that led to the District

1 funding the CHEERS study?

2 DR. GRANATO: Well, that was what I
3 was starting to explain, is that we -- under our
4 obligation in the permits, we -- and over time
5 through the stakeholder process, we arrived at an
6 understanding with the Agency that we would
7 undertake program of research and information
8 gathering, including the engineering studies,
9 assessment of risk for recreating under disinfected
10 and not disinfected conditions, evaluation of the
11 USEPA criteria, and other matters, and that -- the
12 epidemiological study was an extension of that risk
13 analysis that started with our quantitative
14 microbial risk assessment study. It flowed from
15 that.

16 MS. WILLIAMS: Are you done?

17 MR. ANDES: Sure.

18 MS. WILLIAMS: Question ten, similarly
19 just gets at a very specific statement from your
20 testimony. At the bottom of Page 4 of this
21 pre-filed testimony, Dr. Granato states, quote,
22 "There was no suggestion that water recreation CAWS
23 use, or water ingestion was associated with
24 gastrointestinal illness." Would you agree that

1 statement is a little bit misleading?

2 DR. GRANATO: Yeah. I looked at that
3 after I saw your question, and I think basically we
4 write things or communicate things as an incomplete
5 expression of what we meant, and I think it should
6 contain -- the sentence should end with the phrase,
7 "due to waterborne pathogens," to answer you very
8 succinctly.

9 MR. ANDES: And specifically,
10 Dr. Granato, were you attempting on Page 4 of the
11 testimony to summarize the stool sample results?

12 DR. GRANATO: Yes, that was the basis
13 for that statement, the fact that within the stool
14 samples, that aspect of the study, one of the study
15 objectives, was to try to determine the causes of
16 waterborne illness with respect to clinical
17 pathology.

18 The stool sample analysis yielded
19 a result that 90 percent of the stool samples did
20 not yield any identifiable pathogen where pathogens
21 were present, they were present equally in unexposed
22 general use and CAWS stool samples, and there were
23 no findings of the E. Coli, salmonella, and
24 shigella, that would be the most dangerous of the

1 pathogens, or highest calls of concern in the stool
2 samples.

3 MS. WILLIAMS: Question nine is the
4 last of the pre-filed questions that we didn't get
5 to yesterday. On Page 6 of this pre-filed
6 testimony, Dr. Granato asked the Board to direct
7 IEPA to use the results of the CHEERS study,
8 including the supplemental report that will be filed
9 shortly, concerning the statistical link between
10 micro concentration in the CAWS and actual illness
11 rates to establish appropriate science-based
12 criteria to support recreational uses.

13 I think it would be helpful for
14 the Board and for the Agency for you to explain very
15 specifically what actions you are asking the Board
16 to direct the Agency to understand, step by step.

17 DR. GRANATO: Step by step?

18 MS. WILLIAMS: Yes.

19 DR. GRANATO: Well, the first step
20 would be to take what's currently in the record in
21 terms of the CHEERS report, the risk assessment
22 study, testimony of Dr. Blatchley (phonetic), the
23 District's fecal coliform study, some of the water
24 quality information that's in there from Dr.

1 Melchin's (phonetic) testimony, and to determine
2 that the effluent standard that's currently proposed
3 is not reasonable, and to -- not to adopt that, but
4 rather to request that a new analysis is made, which
5 has been done this morning, using the CHEERS
6 supplement climatological data, wet weather
7 operations data, do flow modeling, risk assessment,
8 water analysis, and various other pieces of
9 information to develop water-based -- water
10 quality-based criteria protective of the uses that
11 are proposed.

12 MS. WILLIAMS: I need you to be a
13 little more specific about how the District has
14 thrown an enormous amount of information in the
15 record, and then has said that somehow magically the
16 Board and the Agency will take all this information
17 and find a criteria, where, up until now, the USEPA
18 has not been able to do that.

19 MR. ANDES: I don't think we mentioned
20 magic.

21 MS. WILLIAMS: Right, but I need a
22 little bit more of a road map of what you would like
23 our staff to do with this information.

24 DR. GRANATO: Well, there's a

1 preliminary road map in Chapter 11 of the CHEERS
2 report. I'm not prepared this morning to outline
3 for you in, say, SOP detail exactly how to undertake
4 that and arrive at final criteria. I haven't even
5 seen the CHEERS supplement report yet. So until I
6 see that, I can't really offer you a detailed step
7 by step how-to.

8 MS. WILLIAMS: Would you agree that
9 the science-based criteria would have to be based
10 upon a particular illness rate and establishment of
11 an ambient criteria respective of a particular
12 illness rate?

13 DR. GRANATO: That's traditionally how
14 it's done, yes.

15 MS. WILLIAMS: Would the District be
16 prepared to say that it supports a criteria for the
17 CAWS and Lower Des Plaines River based on an eight
18 illnesses per 1,000 rate?

19 DR. GRANATO: I don't think I can
20 speak for the District on that matter this morning.

21 MS. WILLIAMS: You can't speak for the
22 District on what water quality criteria --

23 DR. GRANATO: Well, you're asking me
24 if an acceptable rate of illness is eight per

1 thousand. Is that your question?

2 MS. WILLIAMS: Yes.

3 DR. GRANATO: I think we would like to
4 see the supplement and see -- take into
5 consideration all the information that's typically,
6 as you mentioned, in the EPA criteria document, that
7 there is a matter of flexibility there, and I think
8 it's -- I think it's something --

9 MS. WILLIAMS: I didn't mention that
10 there was flexibility, actually. I'm not sure there
11 is. I would like to hear that there is. If you
12 think there is flexibility, or if you have, from a
13 policy perspective, a range of illnesses that the
14 District is willing to accept, I would be happy --

15 DR. GRANATO: Well, the District
16 hasn't considered that matter up until now, because
17 it's just this morning that we're being asked to
18 develop that information ourselves and provide it,
19 which we're willing to do. But up until now, we
20 have not been operating on the assumption that we
21 would be doing that.

22 MS. WILLIAMS: So you don't have a
23 policy of how many illnesses you think are
24 acceptable?

1 DR. GRANATO: No.

2 MR. ANDES: Does Illinois EPA have a
3 policy on that?

4 MS. WILLIAMS: I don't really want to
5 testify. I will if you want to swear me. I think
6 we've been pretty clear that we were unable, based
7 on the uncertainty at the federal level, to propose
8 something to the Board. We would have if we could,
9 but the flexibility we thought we had was no longer
10 available. Therefore, we relied on a technically
11 feasible and economically reasonable
12 technology-based requirement.

13 MR. ANDES: So we'll provide -- the
14 District will provide the information that's
15 requested that goes toward a development of a water
16 quality standard.

17 MS. WILLIAMS: Okay. I'm almost done,
18 I think. What about -- well, one last question on
19 that point.

20 Would the District be supportive
21 of a narrative bacteria criteria that required the
22 waters in the CAWS and Lower Des Plaines River to be
23 free from levels of bacteria that interfere with
24 designated uses established by the Board?

1 MR. ANDES: Can you repeat that?

2 DR. GRANATO: Yeah, go ahead. Repeat
3 it once.

4 MS. WILLIAMS: Would the District
5 support a narrative bacterial criteria which
6 requires the waters of the CAWS and the Lower Des
7 Plaines River to be free from levels of bacteria
8 that interfere with the designated uses?

9 DR. GRANATO: That's not something
10 that we've considered up until now either. It's not
11 clear to me what that would mean or what -- you
12 know, how that would be -- how compliance with that
13 would be verified or determined. So until that was
14 clearer, I think I would withhold --

15 MS. WILLIAMS: So you want to know
16 what actually it would mean at the plants before you
17 can determine whether you would support it?

18 DR. GRANATO: Yeah, and how would it
19 be verified.

20 MS. WILLIAMS: You were asked a few
21 questions this morning about the cost of
22 disinfection.

23 DR. GRANATO: Yes.

24 MS. WILLIAMS: Wouldn't the cost to

1 the District and to the taxpayers of disinfection
2 decrease by over half if disinfection was installed
3 over at the North Side and Calumet plants?

4 DR. GRANATO: Is that a hypothetical
5 question? That's not --

6 MS. WILLIAMS: No, it's not
7 hypothetical. The question is: Would the cost
8 decrease by more than half if the two smaller plants
9 only had the disinfection?

10 DR. GRANATO: Well, the total cost
11 would, yes, but not the cost at those plants.

12 MS. WILLIAMS: Right. The total cost
13 would decrease by --

14 DR. GRANATO: Yeah. You're asking if
15 the Stickney plant disinfection cost is half or more
16 of the total cost?

17 MS. WILLIAMS: Right.

18 DR. GRANATO: Yes.

19 MS. WILLIAMS: Would the District
20 support installing disinfection at one plant, two
21 plants?

22 DR. GRANATO: If it was scientifically
23 justified, yeah, if there's a public health reason
24 to do it.

1 MS. WILLIAMS: So you mean -- okay.
2 You don't mean technically justified or economically
3 reasonable. You mean if it was justified by a
4 public health benefit?

5 DR. GRANATO: Yes.

6 MS. WILLIAMS: I don't have any other
7 questions for this witness.

8 MS. TIPSORD: Do the People have
9 additional questions for Dr. Granato? You indicated
10 you might have one more.

11 MR. ARMSTRONG: No, we don't. Thank
12 you.

13 MS. TIPSORD: Don't forget to identify
14 yourself for the record.

15 MS. FRISBEE: Margaret Frisbee with
16 Friends of the Chicago River.

17 Yesterday you stated that MWRD
18 staff, including you, worked with the CHEERS team,
19 Geosyntec study, and other reports. Can you tell me
20 how many MWRD staff has been involved in this whole
21 process?

22 DR. GRANATO: Oh, gosh.

23 MR. ANDES: You mean everything
24 involved in the UAA?

1 MS. FRISBEE: Yes.

2 DR. GRANATO: I probably can't give
3 you an exact number, but I can give you an idea of
4 how much staff.

5 MS. FRISBEE: That would be great.
6 Thank you.

7 DR. GRANATO: I would say -- basically
8 this is entailed personnel from our research and
9 development, now called our monitoring and research
10 department, our engineering department, our
11 maintenance and operations department, and our
12 budget office and our law department. I'd say
13 there's been at least a couple dozen people
14 involved.

15 MS. FRISBEE: And for how many years?

16 DR. GRANATO: Well, I mean, a couple
17 dozen haven't been involved, you know, on every
18 single thing the whole time. But this has been
19 going on for about eight years I guess, if you go
20 back to the beginning of the stakeholder process.

21 MS. FRISBEE: Thank you very much.

22 MR. ANDES: So Dr. Granato, are you
23 saying that over the last eight years, a couple of
24 dozen people have been involved to some extent?

1 DR. GRANATO: Yes, that's what I mean.

2 MR. ANDES: Not that they have been
3 involved with all of their time?

4 DR. GRANATO: No.

5 MR. ANDES: Thank you.

6 MS. TIPSORD: Are there any other
7 questions for Dr. Granato? Seeing none, thank you
8 very much Dr. Granato.

9 DR. GRANATO: My pleasure.

10 MS. TIPSORD: And with that, we move
11 onto the testimony of Dr. Gorelick.

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

14 MS. TIPSORD: Let's go back on the
15 record. Can we have the witness sworn, please?

16 (Witness sworn.)

17 MS. TIPSORD: And with that, we'll
18 enter his testimony as if read. If there's no
19 objection, we'll mark the testimony of Marc
20 Gorelick, M.D., as Exhibit 415. I think this is the
21 third or fourth testimony.

22 MS. ALEXANDER: Third.

23 MS. TIPSORD: Seeing no objection,
24 it's Exhibit 415. And I believe the only pre-filed

1 questions we have are from the District. So
2 Mr. Andes, unless you had anything else,
3 Ms. Alexander?

4 MS. ALEXANDER: No.

5 MS. TIPSORD: Mr. Andes?

6 MR. ANDES: Good morning, Dr.
7 Gorelick.

8 DR. GORELICK: Good morning.

9 MR. ANDES: Starting with question
10 number one, your testimony identifies a
11 heterogeneity bias as perhaps the most potential
12 bias in the CHEERS study. Can you identify the
13 scientific definitions for a heterogeneity bias in a
14 cohort study from a recognized scientific
15 publication?

16 DR. GORELICK: I think part of the
17 point of that question is in any effort to be
18 succinct in wording and not sound too jargony, I
19 probably created jargon that you think I meant as a
20 specific term.

21 So what I should have said was
22 information bias due to unaccounted for
23 heterogeneity. So the term "heterogeneity bias" is
24 not an epidemiologic term. But information bias is,

1 and the concept of heterogeneity, as a cause of
2 that, is.

3 And since you asked for a
4 publication, I'll site one, which is a textbook
5 called Modern Epidemiology. The authors are Rothman
6 and Greenland. It's a standard epidemiology
7 textbook, and they refer to that concept in there.

8 MR. ANDES: Your testimony complains
9 that the analysis treats the entire CAWS as one
10 group. Do canoers and kayakers stay in one location
11 throughout their time in the water, or do they
12 paddle from place to place?

13 DR. GORELICK: That gets to this
14 question of heterogeneity. You know, the CAWS is a
15 long waterway, and we know from the information
16 presented in the final report that quality of that
17 water varies across -- from place to place on the
18 waterway, as well as from day-to-day, at a specific
19 point.

20 And so the issue here is that
21 everybody who gets out, for example, even at a
22 particular point, is treated as having been exposed
23 in the same way, even though there may, in fact, be
24 important differences, so somebody who goes in at

1 CAWS north and paddles around in circles versus
2 someone who goes in at CAWS north, paddles five
3 miles downstream and comes out down there and meets
4 somebody who's kind enough to pick them up.

5 So by lumping them all together as
6 exposed at CAWS north, or even exposed within the
7 CAWS, there's a potential for grouping people
8 together as the CAWS that might miss an ability to
9 find an association with illness if that illness is
10 only at certain points.

11 So an example from -- it may be a
12 little extreme, but gets the point across. So I
13 want to know if smoking causes cancer, and I'd say,
14 "Well, let me ask if people ever smoked or never
15 smoked." Well, never smoked is easy. Ever smoked
16 could be my son in middle school smoked a couple of
17 cigarettes when he was 12, or my grandfather, who's
18 80, has been smoking three packs a day for 60 years.
19 And completing them all together as ever smoked is
20 combining people who shouldn't be combined with
21 regard to their risk. And I might not be able to
22 find the correct association between illness and
23 smoking if I do that.

24 It's the same thing with this

1 study. By putting all of the CAWS the same,
2 although we know that there are enormous variations
3 in water quality, it might lead to a biased
4 estimate of what is the association between illness
5 and recreation on the CAWS.

6 And for studying one, which is
7 what is the rate of illness in the CAWS, that
8 estimate of 12 per thousand, it mainly is a problem
9 if the way they sample those people isn't reflective
10 of who's actually on the CAWS. Some of your other
11 questions get to this, you know, where are they
12 recreating, for example, the activities they're
13 engaged in, and so on. And by lumping them all
14 together, we might obscure the effect.

15 For the water quality aim, the
16 thing that it's going to aim to, which is going to
17 come in the future amendment, or whatever, to the
18 study, it's potentially a much bigger issue, because
19 there they've got water quality data, but it's the
20 water quality where you get exposed or ingest the
21 water that's the issue.

22 And so again, if someone goes in
23 at CAWS North but their ingestion occurs four miles
24 downstream, I'm associating water quality where they

1 went in with whether or not they got sick, and not
2 water quality where they actually were exposed to
3 it. So not having seen that, I don't know how
4 they're going to account for that, but that's
5 potentially a real problem when it comes to the
6 issue of indicators and pathogens in the water and
7 whether people got sick again for that same reason.

8 If they just take it as an
9 average, people who went in on north and not account
10 for the fact that some of them go downstream, some
11 don't, might go upstream, that's going to group
12 together people to make them look more similar than
13 they really are.

14 MR. ANDES: So that pertains to the
15 supplement in terms of when Dr. Dorevitch's group
16 tries to make the association between water quality
17 levels and illness rates?

18 DR. GORELICK: Right. With study one,
19 the one that we're looking at now, it's an issue if,
20 again, the sampling of participants doesn't reflect
21 where they really came from, so I have heterogeneity
22 and I haven't accounted for it.

23 MR. JOHNSON: You know, I would have
24 answered that question, "They paddled from place to

1 place." That's the difference between teachers and
2 lawyers.

3 MR. ANDES: Are you aware that the
4 CHEERS analysis adjusted for type of recreational
5 activity, which does vary, depending on the
6 particular segmented issue?

7 DR. GORELICK: Right. To the extent
8 there's confounding, because people tend to do an
9 activity in one place and a different activity in
10 another, that they've accounted for. The fact that
11 they may have over or under represented some of
12 those groups, that doesn't -- adjusting for it
13 doesn't take that into account.

14 MR. ANDES: And we'll get to that in
15 other questions.

16 Your testimony raises concerns
17 about non-validated survey questions. Are you aware
18 that the CHEERS survey questionnaire items regarding
19 water ingestion have been validated?

20 DR. GORELICK: Well, that wasn't
21 included in the report. So now that I've heard
22 Dr. Dorevitch's testimony about the part related to
23 how much they ingest, and they did attempt to
24 correlate that with those chemical markers, that

1 part has been validated.

2 MR. ANDES: Are you aware that
3 questionnaire used by EPA in its current NEER
4 studies to develop the criteria for swimming waters
5 have not undergone evaluation in their assessments?

6 DR. GORELICK: That's correct.

7 MS. TIPSORD: Excuse me. That's
8 USEPA, by the way.

9 DR. GORELICK: That was my
10 understanding. Yes, that's my understanding as
11 well.

12 MR. ANDES: Have you validated every
13 questionnaire used in the studies you've conducted?

14 DR. GORELICK: No, not everyone. It
15 is, as Dr. Dorevitch pointed out, cumbersome and
16 expensive and so on. And it depends a little bit on
17 what you're measuring. There are some things where
18 those measurements, especially when they're
19 self-reported are more critical than others.

20 So it's a huge field of interest
21 in dietary epidemiology, for example. Because if
22 you want to figure out whether there's an
23 association between what people ate and illness,
24 it's really hard to measure that in a lot of ways.

1 And water exposure is more similar than others.

2 So for example -- again, my field
3 is drinking water not recreational water. When we
4 did our study looking at an association between
5 drinking water and illness, we did develop and
6 validate that survey before we administered it in
7 the epidemiologic study so that we had some
8 confidence that the questions we were asking about
9 the kinds of water people used, the amounts of water
10 they used, et cetera, were, in fact, accurate.

11 MS. ALEXANDER: I have a quick
12 follow-up. Dr. Gorelick, is this document entitled,
13 "Development and Validation of a Self-Administered
14 Questionnaire to Measure Water Exposures in
15 Children," the validation research you referenced?

16 DR. GORELICK: Yes.

17 MS. ALEXANDER: I would like to
18 present this as an exhibit.

19 MS. TIPSORD: I've been handed
20 "Development and Validation of a Self-Administered
21 Questionnaire to Measure Water Exposures in
22 Children," author Marc H. Gorelick, Duke Wagner, and
23 Sandra L. McLellan. It's copyright 2008 by Academic
24 Pediatrics. If there's no objection, we'll mark

1 this as Exhibit 416. Seeing none, it's Exhibit 416.

2 MR. ANDES: Were the same questions
3 asked in this questionnaire of the CAWS recreators
4 and the recreators on the general use waters?

5 DR. GORELICK: My understanding is the
6 questionnaires were exactly the same. This is a
7 point that's come up a few times and it's in a few
8 of your other questions, and actually Dr. Dorevitch
9 referenced it yesterday. The question you're asking
10 is the same, "Is it biased?" And bias can occur in
11 two ways.

12 One is if you ask information or
13 you obtain information that's different between the
14 two groups, it can make it appear they're different
15 when they aren't really. It's because of the
16 quality of the information. If the quality of
17 information in general is just poor, but it's
18 equally poor in both groups, that still creates
19 bias. It's what we call non-differential
20 misclassification, that is misclassifying people's
21 exposure as the same whether they're in the CAWS or
22 the general use, or whether they're sick or not
23 sick.

24 And what that has the effect of

1 doing is making those two groups seem more similar
2 than they truly are. And non-differential
3 misclassification, whether of information of
4 exposure or of illness, virtually always -- and in
5 here there are some very technical exceptions to
6 this, but virtually always creates a bias -- what we
7 call a bias towards the null, which is making it
8 look like there's no difference, when there might
9 be.

10 And so non-differential
11 misclassification becomes a critical issue to look
12 at when a study doesn't find a difference between
13 two groups. And that's where the concern about the
14 questionnaires comes from, not that they are
15 different between general use and CAWS, but that
16 both of them might be of less than perfect quality.

17 MR. ANDES: Is it also accurate -- I
18 guess we talked about this a little yesterday. One
19 way to characterize the results and tables we've
20 presented is that the two groups are similar.
21 Another way of looking at it is --

22 DR. GORELICK: Similar with regard to
23 what?

24 MR. ANDES: Similar with regard to

1 gastrointestinal illness.

2 DR. GORELICK: Okay.

3 MR. ANDES: Another way to look at it
4 is both groups, when compared to unexposed, had an
5 elevated risk, and those elevated risks, as compared
6 to the unexposed, were similar, the 12 to 13 per
7 thousand difference between that group and
8 unexposed.

9 DR. GORELICK: Right. That is what
10 the study found.

11 MR. ANDES: Your testimony raises as a
12 possible source of selection bias, that the study
13 did recruiting among organized recreational groups,
14 such as rowing clubs. Would you recommend they not
15 ask questions of rowing club members, who are among
16 the most frequent users of the CAWS?

17 DR. GORELICK: No. My concern is
18 taking whole groups of them at once. So you have a
19 group of people that are fairly similar to each
20 other potentially with regard to skill, risk taking,
21 and so on, because they're all in a rowing club
22 together, and not, therefore, including other people
23 proportionally. So it's a question of are they over
24 or under represented compared to who's actually out

1 there.

2 MR. ANDES: But if they are the most
3 frequent users by far, and we had information
4 presenting that yesterday, that they are a large
5 group of people who account for most of the use of
6 the waters, isn't it appropriate that those are the
7 people you focus particular attention on in terms of
8 determining illness risk?

9 DR. GORELICK: Well, it depends. They
10 are the most -- they account for the most uses, but
11 not the most users. So if you want to look at
12 people who get sick, I'd want to know all the people
13 out there and make sure the sample is representative
14 of who is out there, not how often they're out
15 there.

16 We know, for example, from some of
17 the tables, that the sampling, who participated in a
18 study, is not completely representative of the types
19 of activities, for example. We talked about
20 motorboating being over represented and so on. So
21 again, the concern here is by going after groups of
22 people, is your sample -- if you want to say,
23 "What's the risk of illness from recreating on the
24 CAWS," you need to make sure that the sample you

1 have represents the population that uses the CAWS.

2 MR. ANDES: Let me --

3 DR. GORELICK: I saw data about
4 activities. I didn't see data about whether or not
5 the sample is reflective of other people with regard
6 to membership and rowing clubs or other organized
7 activities.

8 MR. ANDES: Well, let me ask you, for
9 a minute, about the motorboaters. Those -- that is
10 the group that, as we've discussed, seems to have
11 the highest risk for GI illness among the user
12 groups on the CAWS, and it appears you're
13 complaining we did not enroll enough motorboaters,
14 relative to canoers and kayakers. I guess I'm
15 wondering about that. Would you agree that, as a
16 general matter, that motorboaters have less risk of
17 water ingestion than canoers and kayakers do?

18 DR. GORELICK: Well, in this study
19 they did report slightly less water ingestion. Of
20 the motorboaters, 2.8 percent reported water
21 ingestion, and it was 4.7 percent of the canoers.
22 So most people in either kind of craft don't ingest
23 water. But their rates were a little bit lower in
24 the motorboaters. That's correct.

1 MR. ANDES: And the logic would be,
2 certainly in this rulemaking, that the group that
3 we've heard the most testimony about in terms of use
4 of the water and concern about their exposure would
5 be canoers and kayakers. Am I right?

6 DR. GORELICK: That's correct.

7 MR. ANDES: So are you recommending
8 that the survey should have surveyed less canoers
9 and kayakers and more motorboaters?

10 DR. GORELICK: I'm suggesting that the
11 survey or the study should have enrolled users
12 proportional to where they are in the population of
13 interest. So the conclusion is that the risk of
14 illness is 12 per thousand compared to unexposed.
15 But if, for some reason, motorboaters really are at
16 a higher risk of illness -- and we can talk about
17 anomalous results and where those are -- but that's
18 what they found, for whatever reason. I have no
19 idea why. Maybe they washed for boat with water
20 from the river. I have no idea. But let's
21 just -- they found that.

22 If motorboaters are
23 underrepresented in this study, then the real risk
24 of illness may not be one per thousand, because the

1 group that gets sick more often, there's fewer of
2 them in the sample. And so when I go to extrapolate
3 who's actually out there on the CAWS, the risk of
4 illness might be 13 or 14 or 15.

5 I don't know the answer to that.
6 All I know is that the way the sample was enrolled,
7 there were fewer people using motorboats than
8 actually used them. So it's not that there are too
9 many or too few motorboaters or too few kayakers.
10 It's that there are -- it's not representative of
11 who's using it, and so it gives you an answer that
12 may be slightly different, or maybe substantially
13 different, than the true answer of what is the rate
14 of illness on the CAWS.

15 MR. ANDES: Given that the
16 motorboaters do have the highest risk of GI illness
17 among the surveyed groups, when that group has
18 certainly less of a risk of water ingestion, I think
19 from common sense and from the data you indicated,
20 doesn't that indicate that there are other factors
21 that are likely more important in determining
22 whether these motorboaters suffer GI illness perhaps
23 more important than their water exposure?

24 MS. ALEXANDER: Wait. Let's have a

1 clarification. The first thing you said was that
2 they have less water ingestion, and then you talk
3 about water exposure as a factor. That's two
4 different things. I believe Dr. Gorelick just
5 speculated one possible source of water exposure
6 that's not ingestion specifically. We need to
7 clarify that question.

8 MR. ANDES: Sure. I think I'm talking
9 about both. I'm assuming, just because it seems
10 like common sense, that motorboaters have less water
11 exposure and water ingestion than canoers and
12 kayakers. Assuming that, and seeing that that group
13 has the highest risk of GI illness, doesn't that
14 tend to indicate that the risk is due to other
15 factors, or at least primarily due to other factors
16 besides the water ingestion or exposure?

17 DR. GORELICK: So we have -- here's an
18 example of an independent result that you look and
19 you go, "It's not common sense." Common sense is we
20 know from the germ theory of disease that pathogens
21 cause illness, and the more pathogens you get the
22 more likely you are to be sick, and there's a
23 certain infectious dose you need on average,
24 although for a given person it may vary. So it

1 would make sense that the more water you ingest, the
2 more likely you are to get sick.

3 And here we have a finding in this
4 study that that wasn't the case. We have a group
5 that said they ingested less water and said they got
6 less wet, and yet they got sick more often. That's
7 a finding. What explains that finding? Because
8 it's different than what other studies have shown.
9 It's different from basic biologic principles of
10 infectious disease.

11 So one hypothesis, which is
12 something that Dr. Dorevitch raised yesterday, is
13 that that relationship isn't linear. It's not that,
14 you know, go up by one germ you increase by a
15 certain amount of illness and so on, but that
16 there's some threshold. There's an infectious dose.
17 It's not that ingestion isn't associated with
18 illness, it's that you have to cross a threshold.
19 And if you look at it as more ingestion, more
20 illness, you don't see that. The graph doesn't go
21 like this, it goes like this. (Indicating). That's
22 one hypothesis. That's a hypothesis that we tested.

23 One hypothesis is that something
24 else is causing it. So Dr. Dorevitch mentioned

1 alcohol yesterday. Now, alcohol can cause GI
2 symptoms, although it's typically vomiting and
3 nausea not diarrhea, which you needed to get into
4 the study. But that's certainly plausible. That's
5 a hypothesis that can be tested.

6 My hypothesis is that alcohol
7 interferes with your ability to report how wet you
8 got or how much water you ingested. That's a
9 hypothesis that can be tested. Maybe there's
10 something else in the water, chemicals or something
11 like that. We heard that testimony. It's a
12 hypothesis. It's less plausible, but it can be
13 tested.

14 The data in this study don't tell
15 us which of these hypotheses is correct. And at
16 least two of those hypotheses -- one is that there's
17 a threshold effect, and one is that the quality of
18 the data is bad because of a confounding variable
19 that they didn't ask about, alcohol ingestion. And
20 is that, therefore, masking a real association
21 between water ingestion and illness. So at least
22 two of those four hypotheses are consistent with an
23 association between ingestion and illness, and this
24 study doesn't provide any way to distinguish among

1 those four hypotheses. You would need to do another
2 study to figure out which of those is correct.

3 MR. ANDES: In terms of the next
4 question -- and I think your answer may be
5 related -- your testimony mentioned that -- seemed
6 to indicate that the CHEERS study surveyed too many
7 people recreating in the CAWS North area. The basis
8 of that concern was that area had the lowest risk of
9 disease. You're aware, I assume, that this area had
10 the highest level of bacteria indicators of any area
11 in the CAWS?

12 DR. GORELICK: Yes.

13 MR. ANDES: Would you agree it makes
14 sense to survey heavily in the area with the highest
15 bacteria levels?

16 DR. GORELICK: One could -- if you
17 wanted to -- if you thought it was important to make
18 sure you got enough people at the area with the
19 highest levels, because you think that's where the
20 highest source of illness is. You could design your
21 study so that you don't sample proportionally. You
22 say, "You know what, we're going to take more people
23 from the dirtiest areas than in other areas, because
24 we want to make sure we get enough of them."

1 Because we want to make sure we get enough of them,
2 because maybe people know it's dirty and they're
3 going to avoid it. And if you just sample
4 proportionally, you won't get enough to say
5 anything.

6 You can do that, but then you
7 have -- that's called stratified sampling. So I
8 sample groups separately. It's done very commonly
9 in pollings, for example. I want to make sure I
10 have enough people from small, ethnic, and racial
11 groups so I sample more of them. But I don't just
12 add them up linearly and pretend they were actually
13 50 percent Latinos in my sample, when it was really
14 only five in the population. I have to adjust for
15 that.

16 So one could do stratified
17 sampling. That's now what they did. What they did
18 was they did what they thought what was random
19 sampling and tried to extrapolate to the population.
20 And again, my complaint isn't that they had too many
21 in the CAWS North, it's that the sample doesn't
22 reflect the recreation that's going on in the CAWS
23 without adjusting for that disproportionate
24 representation.

1 MR. ANDES: Let me move on to question
2 number 12. Do the stool sample results suggest any
3 relation between water recreation and CAWS use and
4 risk of GI illness?

5 DR. GORELICK: Well, I was a little
6 unsure about what to make of the stool sample
7 results. Dr. Dorevitch testified yesterday that the
8 purpose of the stool sample was to describe the
9 pathogens that are found in people who are
10 recreating out there, and not to look for
11 associations between illness and recreation. So to
12 the extent that that wasn't the aim of the study, I
13 wouldn't expect to to show any relation in that
14 sense.

15 What the stool samples showed was
16 when they took people who were sick, and as
17 Dr. Dorevitch testified, all the people who
18 submitted stool samples who were sick, some of them
19 were sick enough to count as ill for the study, to
20 count as a case of acute gastrointestinal illness.
21 Some had a lesser degree of symptoms, but they had
22 something that made them go, "I don't feel well. I
23 should give you a stool sample."

24 When they looked at those, as he

1 said he predicted, many of those were negative.
2 Because Dr. Dorevitch knows, as a clinician, and I
3 know, as a clinician, that most people who get sick
4 with GI illness, first of all we don't routinely
5 test their stool. But if we do test their stool, we
6 frequently don't recover a pathogen. And the
7 reasons for that are numerous. One is that most
8 illness in humans is caused by viral pathogens.
9 There are lots of viral pathogens. And we don't
10 test for all of them, so it there may be ones we
11 don't test for.

12 It's quite rare to get
13 cryptosporidia, giardia, or bacterial pathogens that
14 cause illness. Most of the illness is caused by the
15 stuff you get because you are around somebody who's
16 sick, or because your kid goes to daycare, and
17 things that get passed from person to person through
18 fecal contamination.

19 And what they found is that most
20 of the people in this study had a negative stool
21 test. And when they did test positive, it was
22 usually for viruses, which is what I would expect,
23 because if the illness is coming from
24 feces-contaminated water, what you're going to get

1 sick from is the stuff in the feces. And I know the
2 stuff in the feces is things like enteroviruses,
3 adenoviruses, and the things that they found.

4 So I'm not sure they were actually
5 looking to see if there's an association between
6 water recreation and CAWS use and illness from the
7 stool study, at least that's not what Dr. Dorevitch
8 testified. And I wouldn't make anything from that,
9 except to say that the things that are in the people
10 who are sick are the things I'd expect to find in
11 people who are sick if they got sick from a fecal
12 contamination of some kind, whether it's waterborne
13 fecal contamination, or person-to-person fecal
14 contamination.

15 MR. ANDES: Your testimony states this
16 study lacks the statistical power to fully evaluate
17 the risks in potentially more vulnerable subgroups.
18 Is there a test to determine how much statistical
19 power is needed in order to say that a study has the
20 power needed to fully evaluate a risk?

21 DR. GORELICK: Yes. So when you're
22 calculating power for a study and you ask for a
23 publication to discuss, I would refer you to the
24 CHEERS protocol, because they did a power

1 calculation for this study.

2 There are a couple of things that
3 you need to consider when you're deciding whether
4 you have enough power. The first is how big a
5 difference do you want to find between the groups,
6 how big of a difference would be important. That's
7 not a statistical question, that's a clinical
8 question.

9 So, for example, if I were trying
10 to find a difference in death rates, a very small
11 difference might be very important, because it's
12 kind of important to people if they're dead or
13 alive. A difference in rates of a skin rash, I
14 might be willing to find a bigger difference,
15 because a really small difference wouldn't be as
16 interesting to me clinically or from a public health
17 perspective.

18 So one is how big a difference do
19 you want to find. The other is how much of a margin
20 of error are you willing to tolerate. As
21 Dr. Dorevitch testified, we have, sort of, standards
22 about what those margins of error are for false
23 positives and false negatives, and then you
24 calculate how many people you need. Now, if you --

1 and that's what they did for the CHEERS study. It
2 was based on the full sample of all people taken
3 together.

4 If, in advance, there is a
5 subgroup that you think is particularly important to
6 study, then you can design your study to do the same
7 exact calculation. But it's not the number of all
8 the people in the study that it refers to, it's the
9 number of people in that subgroup that you need.

10 So if, for example, kayakers were
11 very important and I wanted to find the same size
12 difference with the same margins of error, my
13 calculations wouldn't be that I needed 10,000
14 people, it would be that I need 10,000 kayakers.
15 And the same would be true with any group you
16 identify.

17 MR. ANDES: Among the potentially more
18 vulnerable CAWS groups you discuss are anglers and
19 powerboaters. I think we've talked about the
20 powerboaters, but not the anglers. So the first
21 question is: Do these groups ingest significant
22 amounts of water while recreating?

23 DR. GORELICK: Again, in this study
24 they reported less water ingestion than the other

1 groups.

2 MR. ANDES: So why would you say
3 they're more vulnerable?

4 DR. GORELICK: Well, when I say
5 "vulnerable," they have a higher risk of illness,
6 which this study found that motorboaters and anglers
7 had the highest rates of illness. Vulnerable means
8 likely to get sick. In this study, they were more
9 likely to get sick. The reasons behind that -- as I
10 said, I can hypothesize why that is. I don't know,
11 and I don't have the data from the study to be able
12 to answer that. It would be speculation. But I'm
13 just stating what they found.

14 MR. ANDES: All right. Let me go to
15 question 17. Your testimony states the proper way
16 to determine if a subgroup is at a higher risk to
17 conduct interaction analysis. Are you aware that
18 CHEERS researchers did do interaction analysis and
19 found no statistically significant difference
20 between user groups?

21 DR. GORELICK: Right. They did, and
22 that's the proper way to do that. And again, the
23 question comes to the power. Because by looking at
24 an interaction, now I'm looking at subgroups based

1 on not one characteristic -- for example, kayaking
2 versus other activities -- but two characteristics.

3 So, for example, children might
4 behave differently in a motorboat than a kayak.
5 Their risk of illness might be different, depending
6 what activity they're doing and their age. Adults
7 behave responsibly regardless, but children behave
8 more responsibly on a motorboat than in a canoe, for
9 example.

10 So I need to actually look at
11 subgroups of children who canoe, or adults who
12 motorboat, and compare them. And each time I do
13 that, the number in each of those subgroups gets
14 smaller and smaller and smaller. So I go from
15 10,000 in the whole study, to how many of them were
16 children, to how many of them were children in a
17 motorboat versus in a kayak.

18 And that's why it was pointed out
19 in one of the peer reviewers that the test for
20 heterogeneity, the tests for those interaction
21 analyses, they tend to have low power. Because when
22 we design a study, we design it to answer our
23 primary question. And unless we've thought in
24 advance that these interactions are particularly

1 important, and I want to design the study to be able
2 to do them, we frequently don't have enough power to
3 be able to find that there are statistically
4 significant differences, even though there may be
5 real differences.

6 MR. ANDES: In assessing risks in
7 subgroups, isn't there a pitfall involving multiple
8 comparisons, which can lead to finding associations
9 by chance that don't really exist?

10 DR. GORELICK: Yeah, absolutely. So
11 this is the balance between subgroups that you have
12 clinical or policy reasons to think are important,
13 versus just looking at things because you can look
14 at them. And Dr. Dorevitch yesterday referred to
15 subgroup subterfuge. Many of us call it going on a
16 fishing expedition.

17 So I think of 50 different things
18 that might cause you to get a certain illness -- and
19 I ask about all 50 of them -- some of them might
20 have some biological plausibility, but some are
21 clearly ridiculous, but I thought of it anyway. And
22 if I do the subgroup analyses, some of them will, as
23 he testified appropriately, come up by chance as
24 being associated.

1 My favorite example of this was a
2 friend of mine, her niece had leukemia, and she
3 found a study that showed if you ate more than two
4 hot dogs a day while you were pregnant, your child
5 had an increased risk of leukemia. Well, they
6 asked, like 150 different dietary things, people
7 going back 10 years, and they found three of them
8 were associated. That's a perfect example of what
9 you're talking about. But if you have a biological
10 reason to think that an interaction is important or
11 a subgroup is important, it can be included in
12 advance. You don't have that problem with multiple
13 comparisons.

14 So we did a study recently where
15 we were interested in diagnosing head injury in
16 children, and I testified about at the last
17 testimony. We enrolled 42,000 children in the
18 study. We knew in advance that children under the
19 age of two were likely to be different from children
20 two and older, and so we designed our study with the
21 power to look separately at zero to two-year olds
22 and two to 18-year olds. And that's not a problem
23 with multiple comparisons, because it's what we call
24 a prespecified hypothesis.

1 You can't do that with a lot of
2 subgroups. But again, if there are groups that are
3 important from either a biological or a policy
4 perspective to say, "I really want to know about
5 this subgroup," you can design your study that way,
6 and that's not a problem at all.

7 MR. ANDES: Your testimony states that
8 the CHEERS study did not address several possible
9 confounders, including socioeconomic status,
10 handwashing behavior, and duration of activity. I
11 know we talked yesterday about handwashing and a
12 subsequent analysis Dr. Dorevitch had done. Did the
13 peer reviewers recommend any of these factors be
14 addressed?

15 DR. GORELICK: I saw the peer review
16 comments on the final report, and they didn't
17 comment on anything there. I don't know if it was
18 commented on at any other parts of the peer review
19 process with regard to developing the protocol. But
20 regardless of that, I know, as an editor who manages
21 the peer review process for journal, that it is not
22 perfect. And whether or not the peer reviewers of
23 this study identified it, I believe they should
24 have.

1 MR. ANDES: And the peer reviewers did
2 accept the final report, correct?

3 DR. GORELICK: Well, I don't know.
4 When I looked at the description of the peer review
5 in that appendix -- this is from the appendix to the
6 study, and there's --

7 MS. TIPSORD: How about 478, I think
8 it is.

9 DR. GORELICK: This is an introduction
10 to the peer review process, so this is appendix D.
11 It says, "Peer review members provide technical
12 advice." So a peer review can work in several ways.
13 A peer review could be, for example, for a grant,
14 peer reviewers review the proposal.

15 They usually have -- and I just
16 got a review back for a grant, and I can tell you
17 there's often a very big difference in opinion
18 between the reviewers on the relative strengths and
19 weakness of the study, which now I have to deal
20 with, and then they come up with a consensus, and
21 they vote whether to fund the grant or not.

22 The same is true for an article
23 for a journal. Peer reviewers provide me comments,
24 I have to weigh the differences between them, I have

1 to identify things they miss, and I decide whether
2 to accept it or not. The peer reviewers don't
3 decide whether to accept it or not, I do. So I, as
4 the editor, decide whether to accept it. The peer
5 reviewers don't accept it or not.

6 For something like this where
7 they're asking for input, I don't know whether they
8 did a majority vote of the peer reviewers, whether
9 they asked for unanimity in the end, or if they just
10 said, "Thank you for your comments, but we're going
11 to put the report out anyway." I have no way of
12 knowing whether they accept it. I don't know.

13 MR. ANDES: I think we provided a
14 document in the record concerning the agreement, but
15 we can make sure to provide that if it's not already
16 in the record.

17 MS. TIPSORD: Okay.

18 MR. ANDES: Are you aware of a study
19 that asked questions about amount of water
20 swallowed?

21 DR. GORELICK: Yes.

22 MR. ANDES: Shouldn't that be a more
23 direct measure of water ingestion and a person's
24 socioeconomic status?

1 DR. GORELICK: See, that's not the
2 issue here with socioeconomic status. One of the
3 things I've testified about is the possibility of
4 confounded, that is, factors that may be related to
5 your exposure, on the one hand -- in this case we're
6 talking about the CAWS versus general use waters --
7 and, on the other hand, your risk of illness.

8 Now, it's very clear from a lot of
9 the literature, including some of the studies I've
10 done, that socioeconomic status is related to your
11 risk of gastrointestinal illness. It or may not be
12 related to where you chose to go recreate on the
13 water, but it's certainly plausible that people from
14 different neighbors, who may have a different
15 socioeconomic status, may chose to recreate on the
16 CAWS versus general use waterways.

17 If that is true, then there's
18 potential confounding. If people from a lower
19 socioeconomic status group that are at a higher risk
20 of illness preferentially choose to recreate on the
21 general use waters, it will make the general use
22 waters more dangerous, not because of the amount of
23 water they ingested or something else, but because
24 there's something else that made them sick that has

1 nothing to do with the water.

2 So it's not the water ingestion
3 that's the issue, it's the analysis of waterway
4 versus illness where socioeconomic status has the
5 potential to be an important confounder. And I know
6 it's an important confounder for gastrointestinal
7 illness.

8 MR. ANDES: Is there any reason to
9 believe that -- I guess is there any reason to
10 believe that the kayakers on the CAWS would have
11 different socioeconomic status than the kayakers on
12 Lake Michigan, considering the two locations close
13 by?

14 DR. GORELICK: I don't know the answer
15 to that. I mean, there are differences with regard
16 to other things between them. People chose to go to
17 one waterway or another. The only way to answer
18 that question is to actually measure it. But it's
19 certainly plausible that people from different
20 neighborhoods would recreate in different areas.
21 That happens. Whether or not they're recreating in
22 these two areas differently, that I cannot answer,
23 and neither can the CHEERS study.

24 MR. ANDES: I think we talked about

1 the stool sample results already, so I'll pass that
2 by.

3 As to asymptomatic illness, your
4 testimony expresses a concern that surveyed dozens
5 of captured information about non-surveyed people
6 who might have come into contact with recreators and
7 gotten sick as a result. Isn't it true the study
8 also included some recreators who suffered GI
9 illness from other sources in recreation and
10 attributed those illnesses to recreation, and
11 wouldn't that balance off people who might have
12 gotten illnesses but were not counted?

13 DR. GORELICK: It is true that they
14 undoubtedly suffered illnesses from other causes
15 that would be attributed to water. Whether or not
16 they balance out is totally speculative, because I
17 have no idea how many there are relative to each
18 other. It's possible, but there's no way to answer
19 that question.

20 And the point about the
21 asymptomatic illness and spreading it to other
22 people, it's really a matter of, again, if as
23 Dr. Dorevitch testified, the study in one was to
24 quantify what is the risk of recreating on the CAWS

1 with regard to various types of illness -- and I'll
2 focus on acute GI illness here -- and they came up
3 with an estimate of 12 per thousand exposure.

4 From a public health perspective,
5 that's useful information. But if each of those
6 people is then getting other people sick, if I'm, as
7 a regulator, as a policy person, thinking, "Well,
8 how bad is that," I would be underestimating the
9 public health impact. That's the point I'm trying
10 to make there. If anything, their estimate of 12
11 per thousand is -- with regard to regulation,
12 because this is what the USEPA goes by, that's the
13 data they need to have.

14 But this question of what's an
15 acceptable risk came up from time to time. That 12
16 per thousand is a minimum estimate of the public
17 health impact, which I think is an important
18 question.

19 MR. ANDES: The same would be true of
20 recreators on the general use waters, correct?

21 DR. GORELICK: Absolutely.

22 MR. ANDES: Do the EPA studies that
23 are being done develop criteria for swimming waters
24 consider non-surveyed people who may have contracted

1 a GI illness with contact with recreators?

2 DR. GORELICK: I believe that they
3 don't. But as I've already said, from a public
4 health perspective, it might make sense for them to
5 try and do that. I understand that from an
6 epidemiologic perspective, it makes the studies more
7 complicated. So there's a tradeoff there.

8 MS. TIPSORD: Again, that's USEPA.

9 MR. ANDES: Sorry. Your testimony
10 indicates that the CHEERS study incompletely
11 addresses the issues of varying water conditions.
12 Do you have any evidence that bacteria levels
13 downstream of the treatment plants on general use
14 waters vary substantially over time?

15 DR. GORELICK: Well, there's data in
16 here to show that they do. So I'm just going to
17 pull up --

18 MS. TIPSORD: Dr. Gorelick, you said
19 there's data in here?

20 DR. GORELICK: Oh, I'm sorry. I'm
21 looking at the CHEERS final report. Section 2
22 presents a lot of data on the indicators, and they
23 present graphs of mean concentrations, and then
24 ranges.

1 So, for example, I'm just going to
2 pick a graph here, this is figure -- Roman
3 Numeral II-5, "Patterns of Enterococci
4 Concentrations by Location Group by Study.
5 Year-to-year, they're relatively constant. But
6 within a year, the range, for example, of CAWS
7 North, 2007, goes from ten to over 10,000.

8 So within a year, there seems to
9 be substantial variation over time. These figures
10 don't provide the data to be able to say over what
11 period of time, if it's two hours, six hours,
12 two days, but there is variation over time.

13 MR. ANDES: And the water quality
14 levels -- am I correct that the water quality levels
15 don't tie directly in this report into linkage to
16 illness, but that would be done in a supplement
17 where you're trying to development an association
18 between water quality levels and illness rates?

19 DR. GORELICK: That's where it would
20 be of most concern, yes.

21 MR. ANDES: Okay. Are you aware of
22 any other recreational illness studies that have
23 collected as much water quality information
24 regarding pathogens as this study?

1 DR. GORELICK: No. I mean, they've
2 collected a lot of data.

3 MR. ANDES: I believe that's all the
4 questions I have.

5 MS. ALEXANDER: I'll have a couple of
6 quick follow-ups. I just need a moment with the
7 witness.

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

10 MS. ALEXANDER: I just have a couple
11 followup questions for Dr. Gorelick. The first one
12 is I would like to ask a portion of question 16 that
13 was skipped by Mr. Andes, specifically the last
14 sentence, which asks, "Are you aware that EPA, in
15 developing recreational criteria for swimming
16 waters, bases their criteria on protecting the
17 general population, not these," which is actually
18 referencing young and old people, "or other
19 subgroups?"

20 DR. GORELICK: Yes. My understanding
21 is that USEPA, in setting their criteria, has, in
22 the past, focused on entire population, but that
23 they are making a move towards looking specifically
24 at what they consider to be vulnerable

1 subpopulation, and particularly age-based ones.

2 I know there was a meeting that
3 was, I believe, held in Chicago last year where this
4 was discussed, and the consensus was that age-based
5 criteria should be used when there is data to
6 support that. And that, to me, would suggest that
7 studies that are designed to look at these
8 associations should, in fact, be able to provide
9 data based on age.

10 MS. ALEXANDER: I have two exhibits
11 I'd like to present to follow up on that. The first
12 one is a copy of a slide show entitled, "Discussion
13 Topic One: Basing Criteria to be Protective of
14 Children."

15 MS. TIPSORD: If there's no objection,
16 we will mark as Exhibit 417 the slide show,
17 "Criteria Protective of Children." Seeing no
18 objection, it's Exhibit 417.

19 MS. ALEXANDER: And then I have
20 Exhibit 418, which would be, "Current Thinking on
21 Development of New Criteria."

22 MS. TIPSORD: And Exhibit 417, the
23 presenter is Denise Keehner, K-e-e-h-n-e-r,
24 Director, Standards and Health Protection Division,

1 USEPA.

2 "Current Thinking on Development
3 of New Criteria," Elizabeth Doyle, OST, OW, USEPA,
4 October 6th 2009. If there's no objection, we'll
5 admit that as Exhibit 418. Seeing none, it's
6 Exhibit 418.

7 MS. ALEXANDER: Dr. Gorelick, do these
8 represent slides from the meeting that you
9 referenced?

10 DR. GORELICK: Yes.

11 MS. ALEXANDER: Okay. Could you
12 describe for the Board, please, the thinking of
13 USEPA that you discussed as reflected in these
14 slides?

15 DR. GORELICK: Again, I think if we
16 look at -- is this 417? If we look at 417, I think
17 it's summarized on slide two, which is that the
18 existing criteria, the 1986 criteria, is that
19 criteria based on concentrations that are protective
20 of the general population, but that the goal for
21 2012 is that they would identify not only as a
22 minimum recommendation based on concentrations
23 protective of a general population, but, when the
24 science supports it, recommend criteria to be

1 protective of children. And the -- you know, it's
2 discussed in here, and I've testified to this
3 before, about reasons why, from a biological
4 perspective, children would be at higher risk
5 potentially of waterborne illness.

6 Now, I understand that this CHEERS
7 study found that the children had the lower rates of
8 illness. And again, that's one of those anomalous
9 findings where we go, "Hmm." There's other studies
10 that show their higher risks. I have a study here
11 that shows they're lower risk. Do I throw all the
12 other ones out and accept this one? Do I come up
13 with some hypothesis about why they may have found
14 different results, whether that's due to differences
15 in the way of the the studies or conducted, or some
16 other hypotheses I talked about.

17 But in general, the consensus
18 remains that children are at higher risk for reasons
19 of potentially greater ingestion to protect them
20 against infection. And it's based on those
21 considerations that the USEPA would like to move
22 towards an ability to set standards that are age
23 specific to provide protection for vulnerable
24 subpopulations.

1 MS. ALEXANDER: The second question,
2 Dr. Gorelick, did you hear the testimony of
3 Dr. Granato yesterday and earlier today concerning
4 the reason or the potential reason for the different
5 risk finding in the risk assessment by Geosyntec and
6 the CHEERS study?

7 DR. GORELICK: Yes.

8 MS. ALEXANDER: Do you agree with that
9 assessment that he provided?

10 DR. GORELICK: Well, as I said, you
11 know, one could hypothesize that there are -- you
12 know, that most of these illnesses that are in the
13 study were, in fact, not infectious in origin, that
14 they were caused by chemicals or something else.
15 That would not be consistent with overall clinical
16 experience or what we know about these things in
17 general, but I can't say it's wrong. It's not
18 especially plausible in my mind.

19 What's more plausible is in the
20 risk assessment -- I mentioned earlier, there's,
21 sort of, a hierarchy of studies if you want to
22 understand the question. So if I want to understand
23 the risks of illness in the CAWS, the best thing to
24 do would be to do an experiment. I'd randomly

1 assign people to go in one place or another, and
2 then I analyze them.

3 But I can't do that, so the next
4 best thing is to do an epidemiologic study and an
5 observational study and see people who happen to
6 recreate on the CAWS, and happen to recreate in
7 general use waters, and happen to recreate alongside
8 the river, what happens to them. And if you
9 can't -- and I applaud them for doing that, because
10 it's hard to do that. They're expensive studies.
11 They're logistically very challenging. My hat is
12 off to them for doing this.

13 When you can't do that, then your
14 next best thing is to do some sort of a model, where
15 you have certain assumptions, "If people do this
16 activity on average, they'll swallow this much
17 water, and on average that water would have these
18 kinds of germs in it, and on average you would get
19 sick that often." And that can be very useful,
20 depending on the quality of the data that informed
21 shows assumption and how the model is constructed,
22 but it's clearly the least best thing to do.

23 So when there's a disagreement
24 between the two, the question is why. And one, I

1 think, more plausible explanation is they just
2 didn't think of enough things in their model that
3 might make you ill.

4 So as I mentioned, there are lots
5 of viruses that can cause illness. They looked at
6 some of them in their illness, but whether they
7 looked at -- I mean in their risk assessment. But
8 whether they looked at enough different ones and
9 accounted for the fact that viruses are hard to
10 measure, so that if I take a sample of water, I
11 might mesh X number of viruses, but the real number
12 is higher.

13 And again, knowing that most
14 infectious gastroenteritis in humans is caused by
15 viruses, I think that's a more plausible -- I can't
16 prove it, but I think that's a more plausible
17 explanation for why the risks of illness were
18 different between what was predicted from the model
19 and what was actually observed in experience.

20 So again, you know, the best thing
21 to do would be to do an experiment. And the same is
22 true for this question about disinfection. You
23 know, Dr. Granato also testified that he would
24 conclude that disinfection is of no health benefit,

1 basically because we have people recreating in
2 disinfected waterways, and they get sick in this
3 study at the same rate as people who recreated in
4 waterways where the effluent is not disinfected.

5 And like any other epidemiologic
6 study, that's a plausible hypothesis, but we don't
7 really know that there's nothing else different
8 about those two waterways. 70 percent of the people
9 recreating in the general use waters are recreating
10 in the lake, for example. The relationship between
11 pathogens and illness might be very different in
12 water that's moving versus not moving.

13 Dr. Dorevitch has written about that. He said
14 that's one of the things you need to account for is
15 the fact that these water ways are all different.

16 You also don't know that that rate
17 of 12 in the CAWS might not come down to six if you
18 disinfected it. The only way to really answer that
19 question would be to do an experiment. And people
20 have done these kind of experiments for drinking
21 water.

22 They've taken communities and
23 they've -- and the best example, and it's not been
24 published yet, is in Wisconsin, where they took

1 communities that don't disinfect their water, and
2 they randomly assigned some of them to get
3 disinfected and some not, and they crossed them over
4 and they stopped disinfecting certain ones, and they
5 tested for viruses in the water, and they found the
6 rates of illness decreased by 14 percent. Almost
7 all of that illness was viruses, which don't get
8 measured as indicators.

9 But there's an example where they
10 did an experiment to actually look at that cluster.
11 You can try to answer those questions from
12 epidemiologic studies, but you need to think very
13 carefully about what else is different about the
14 general use waters versus the CAWS that could
15 potentially account for things or that might make
16 you question whether or not the association between
17 pathogen levels and illness and the effect of
18 disinfection on pathogen levels and illness is going
19 to be the same in Lake Michigan, for example, versus
20 the Chicago River.

21 And I don't know that -- there's
22 nothing in the CHEERS report that allows you to say
23 that. All you can say is the rates in these two
24 different waterways are similar. Whether that's

1 because of the disinfection difference or not is
2 speculative.

3 MS. ALEXANDER: One more question.
4 Dr. Gorelick, were you present yesterday when
5 Dr. Dorevitch testified effectively that he would be
6 surprised if another epidemiological study conducted
7 on the CAWS with roughly the same scope came to a
8 different conclusion or had different results
9 concerning risk? Do you agree that would be very
10 surprising if there was a different result in a
11 different study?

12 DR. GORELICK: The most likely result
13 would be a similar result to what they found. If
14 you think back to the figures that -- I think they
15 were entered in as exhibits, but the three posters
16 that were presented that showed the rates of illness
17 and the comparisons of the rates of illness. And I
18 don't remember the exhibit number, but --

19 MS. TIPSORD: They weren't admitted as
20 exhibits. They're part of public comment 478 in the
21 abstract of the first figure.

22 DR. GORELICK: Thank you. That's what
23 I'm referring to. There's an estimate of the rate
24 of illness is 12 per thousand, and then there are

1 some error bars around that. Error bars are what we
2 call the 95 percent confidence interval. And what
3 that means is if I did exactly what you suggested,
4 if I can convince the District to give me all that
5 money to do the study again because they wanted to
6 replicate the results, and I did it again, that I
7 would -- 95 percent of the time if I repeat it, I
8 would find a result that would be somewhere within
9 that margin of error.

10 The most likely thing is it would
11 be pretty close to what he found, but it would not
12 be all that surprising if it were anywhere within
13 that range. That's why we present those ranges. So
14 he found a difference between CAWS and general use
15 of 0.6, but the confidence interval went from
16 anywhere from ten more in the CAWS to ten fewer in
17 the CAWS.

18 If I did that experiment -- or if
19 I did that study and I found a difference of six,
20 that would be completely statistically consistent
21 with the results of the CHEERS study because it
22 falls within that 95 percent confidence level. Does
23 that answer your question?

24 MS. ALEXANDER: It does. I have

1 nothing further.

2 MR. ANDES: I'm sorry. One follow-up.
3 Let's go back for a moment on the USEPA thinking --
4 the current thinking on development of new criteria
5 document you referenced from Elizabeth Doyle is from
6 October 2009, correct?

7 DR. GORELICK: Yes.

8 MR. ANDES: Okay. Have you reviewed
9 information from your current conferences and
10 webinars concerning EPA's concern thinking?

11 DR. GORELICK: I have not.

12 MR. ANDES: We'll provide that
13 information for the record.

14 On the discussion topic one
15 slides, at the bottom of the second slide, it
16 reads -- well, the 1986 criteria points out those
17 are protective of the general populations. So
18 subgroups were not considered in the 1986 criteria.
19 Am I right?

20 DR. GORELICK: That's correct.

21 MR. ANDES: The 2012 criteria
22 indicates that, at a minimum, EPA will base new
23 criteria recommendations on indicator density
24 protective of the general population, and to the

1 extent the science supports it, recommend criteria
2 to be protective of children.

3 DR. GORELICK: Right. So this is
4 analogous to what the FDA has done. In the past,
5 there wasn't a lot of incentive for pharmaceutical
6 companies, for example, to study whether or not --
7 to provide data that on whether or not drugs were
8 effective and safe in children because there wasn't
9 enough of a market.

10 The FDA said you have to do that,
11 and now there are -- because we want the science to
12 know whether or not -- because they're being used in
13 children, we want the science to support it. So
14 they now do the studies that provide that science.

15 So there is some science around
16 subgroups of children. I would think, as an
17 epidemiologist, that if the EPA says, "We want to
18 develop criteria if the science supports it,"
19 they're asking for the science to be done.

20 MR. ANDES: Are you aware of studies
21 that have been done or are in the process since
22 October of 2009 regarding children and primary
23 contact recreation?

24 DR. GORELICK: And recreation? I'm

1 not aware of exactly what's going on. I know the
2 NEER study results are still being analyzed.
3 Obviously CHEERS.

4 MR. ANDES: We'll provide, for the
5 record, some documentation about those studies and
6 concerns that have been risen. You agree that if
7 science is not supported, EPA would not set criteria
8 to protect -- to address the children. It's an
9 issue of whether the information is there when they
10 issue the proposed standards?

11 DR. GORELICK: Right. Their thinking
12 is we want science-based criteria. In the past,
13 we've only asked for science around everybody
14 together. Now we'd like science based on vulnerable
15 subpopulations based on age.

16 MR. ANDES: Based on age?

17 DR. GORELICK: That's what they're
18 asking for here.

19 MR. ANDES: Okay. Thank you.

20 MS. TIPSORD: Anything additional for
21 Dr. Gorelick? Thank you very much, Dr. Gorelick.
22 It was a pleasure seeing you again.

23 Ms. Alexander, I understand your
24 next witness is not available until 3:45. Is that

1 correct?

2 MS. ALEXANDER: That is correct.

3 MS. TIPSORD: All right. We're going
4 to recess. I want everyone -- let's get back at
5 3:30, in case there's anyone who wants to comment on
6 the DCEO for Sub Docket A.

7 (Whereupon, a short recess was
8 had.)

9 MS. TIPSORD: Good afternoon. We're
10 back on the record. I have checked the list yet
11 again, and no one has requested an opportunity to
12 testify regarding the Department of Commerce and
13 Economic Opportunity's decision not to perform an
14 ECIS on Sub Docket A in this rulemaking. Let me ask
15 one more time does anyone wish to comment?

16 Seeing no comment, we have
17 satisfied the requirements of Section 27 B of the
18 Act for Sub Docket A. We had a discussion off the
19 record, and I'll do a hearing officer order that
20 notifies everyone that final comments in Sub Docket
21 A are due by November 30th.

22 And with that, Ms. Alexander, you
23 have one more witness?

24 MS. ALEXANDER: Yes, I have Sharon

1 Bloyd-Peshkin, and I have her pre-filed testimony to
2 enter into the record.

3 MS. TIPSORD: All right. Could we
4 have her sworn in, please?

5 (Witness sworn.)

6 MS. TIPSORD: If there's no objection,
7 I will admit the testimony of Sharon Bloyd-Peshkin
8 as Exhibit 419. Seeing no objection, it's admitted.
9 Mr. Andes, whenever you're ready.

10 MR. ANDES: Good afternoon.

11 MS. BLOYD-PESHKIN: Good afternoon.

12 MR. ANDES: Let's start with question
13 number one. If the District were to disinfect the
14 effluents from its three treatment plants, would
15 that do anything to effect bacteria being discharged
16 to the Chicago area waterways from combined sewer
17 overflows or municipal storm sewer systems or other
18 systems of urban runoff?

19 MS. BLOYD-PESHKIN: Clearly, when
20 there's a high rainfall event and there's a combined
21 sewage overflow, there are going to be bacteria
22 discharged into the water during those times. But
23 what we're talking about with lack of the
24 disinfection is four hours a day, seven days a week.

1 And I guess my response to that
2 would be if you have one unruly neighbor who threw
3 garbage in the street once a month, would you say
4 everybody should throw garbage in the street every
5 day?

6 MR. ANDES: So your answer is no?

7 MS. BLOYD-PESHKIN: Would it change --
8 no, of course not. No.

9 MR. ANDES: And are you aware that the
10 facts of wet weather events can last for days or
11 even weeks after the rainfall?

12 MS. BLOYD-PESHKIN: I'm aware of that,
13 but it's not a 24-hour day, seven-day a week,
14 contributor of pathogens to the cause.

15 MR. ANDES: Have you reviewed data on
16 that issue?

17 MS. BLOYD-PESHKIN: I can't answer
18 that.

19 MR. ANDES: Given that there would
20 still be sources contributing bacteria levels to the
21 CAWS even if the District were to disinfect its
22 treatment plan effluents, would you change your
23 behavior in terms of precautions you'd take when
24 kayaking on the CAWS if disinfection were required?

1 MS. BLOYD-PESHKIN: Absolutely. I
2 would say that we adjust our behavior really in
3 proportion to the perceived risk on every waterway.
4 And so if it were proportionately cleaner, we could
5 be proportionately less concerned.

6 MR. ANDES: And if there were -- if
7 you were kayaking within a few days after a wet
8 weather event, you would -- because disinfection is
9 required, you would basically take no extra
10 precautions?

11 MS. BLOYD-PESHKIN: That's not
12 actually what I said. I said we would be
13 proportionately less careful, depending what we knew
14 to be going on at the time. There are wet weather
15 events that cause CSO overflows into Lake Michigan.
16 If I paddle on Lake Michigan on those days near a
17 beach that is closed, I'm more careful on those days
18 than I am on other days. So I would say we remain
19 quite cautious when a CSO event has happened
20 recently.

21 MR. ANDES: So would you check whether
22 CSO events have happened in the last several days or
23 weeks before kayaking?

24 MS. BLOYD-PESHKIN: I do check.

1 MR. ANDES: And how do you check?

2 MS. BLOYD-PESHKIN: I do check,
3 because of the need to do that even on Lake
4 Michigan. It's public information. It's easily
5 accessible on-line, and it's often distributed on
6 kayaking reserves. So I'm pretty aware after a
7 heavy rainfall to know what's going on in the local
8 waterways.

9 MR. ANDES: So what's the difference
10 between the precautions you take when you have
11 checked and you've determined in the last several
12 weeks there has been a wet weather event versus when
13 there's not?

14 MS. BLOYD-PESHKIN: That's a great
15 question. If there's been a wet weather event, and
16 if there's been a CSO, we treat a lot of waterways
17 more like the way we most routinely treat the CAWS,
18 which is to say that we're extremely careful not to
19 get wet.

20 MS. ALEXANDER: I have a follow-up to
21 that. The question, I believe, specifically
22 pertained to a CSO event in the last several weeks,
23 and I'd like to ask you to clarify. Would there be
24 a difference in how you behaved if there had been a

1 CSO event in several, say, three weeks earlier as
2 opposed to two days earlier?

3 MS. BLOYD-PESHKIN: Yes, there would
4 be.

5 MR. ANDES: So what's your dividing
6 line?

7 MS. BLOYD-PESHKIN: You know, I mostly
8 get my wisdom on this as a non-scientist from people
9 I trust that have more knowledge of it than I do,
10 and those are frequently sources of information
11 distributed among kayakers that this is what we
12 know, this is what we found from this source, this
13 is what we know about bacteria levels now. I'd say
14 I'm on the cautious side, but I've been trained as a
15 kayak instructor to weigh the risks and weigh them
16 as best I can with the available information to me.

17 MR. ANDES: And you believe most
18 kayakers gather all that information and make those
19 determinations based on information about CSO events
20 that have occurred recently?

21 MS. ALEXANDER: You're asking her to
22 speculate about most kayakers anywhere on the CAWS.
23 Can we be a little more specific?

24 MR. ANDES: Are you aware -- in terms

1 of the kayakers that you encounter, is it your
2 understanding that most of them consult records of
3 CSO events to determine whether they should take
4 extra precautions or not?

5 MS. BLOYD-PESHKIN: We have a former
6 president of the Chicago Area Sea Kayakers
7 Association who regularly monitors that information
8 and puts it out on a list serve that goes out to,
9 like, 400 local kayakers. So that's a lot of -- the
10 way that this information gets out. So everybody is
11 not individually going and doing that research
12 themselves.

13 We have somebody who publicizes
14 that to the group as a public service, because this
15 organization, the Association of Sea Kayakers, is
16 concerned with paddling safety. That's part of the
17 mission of the organization. So he is the guy, the
18 point person, who gets that information and puts it
19 on the list serve for others.

20 MR. ANDES: And again, do you have a
21 sense of what the dividing line is where if there
22 was a CSO within two days that everybody is
23 cautious, or three days, or a week?

24 MS. BLOYD-PESHKIN: I don't have a

1 precise number of days for you.

2 MR. ANDES: But when -- but your
3 impression is when people believe that there are CSO
4 impacts, or I guess wet weather impacts generally,
5 they take the same basic precautions as they would
6 in the CAWS due to -- because of the general nature
7 of the CAWS?

8 MS. BLOYD-PESHKIN: In my experience,
9 yes. And it's clearer on the beaches, because there
10 are days when they are opened and days when they're
11 closed, and that's a fairly good indication that
12 there are higher bacteria levels, and that's useful
13 information to us.

14 MR. ANDES: If you're concerned about
15 risks involving kayaking on the CAWS, why do you
16 still kayak on those waters?

17 MS. BLOYD-PESHKIN: Because they are a
18 local treasure. They're one of the few places where
19 you can see Chicago architecture, Chicago's
20 infrastructure, the bridges, all these things up
21 close from the water. There's no other such vantage
22 point, and they're scenic in their own strange
23 industrial and urban way. I mean, they're really
24 part of what makes Chicago wonderful, is having this

1 ability to travel on the waterways and see the water
2 from that vantage point. So we ought to be able to
3 paddle on the CAWS. It's just -- it's an amazing
4 local treasure.

5 MR. ANDES: And is it safe to kayak on
6 the CAWS?

7 MS. ALEXANDER: I'm going to object.
8 What do you mean by "safe?" Do you mean completely
9 safe, relatively? Relative to what? That's kind of
10 a vague word.

11 MR. ANDES: There a lot of vague
12 questions here.

13 MS. ALEXANDER: There are.

14 MR. ANDES: If you kayak on the CAWS,
15 I assume that means you believe it is safe enough to
16 kayak?

17 MS. BLOYD-PESHKIN: I would say it's
18 safe enough, given appropriate precautions. I have
19 been trained to assess environmental risks and other
20 kinds of risks before I take other people out for
21 certain. I do the same for myself, just as you do.
22 Is it safe to ride on the highways? Well, there's
23 some risks and so you take some precautions. I
24 would say I take considerable precautions on the

1 CAWS.

2 MR. ANDES: Your testimony states that
3 you almost never teach kayaking skills in the CAWS,
4 and have only led one sightseeing trip on the
5 Chicago River. Are you aware that there has been
6 testimony in this matter that there are many
7 site-seeing trips on the CAWS by canoers and
8 kayakers every year?

9 MS. BLOYD-PESHKIN: I'm aware that
10 there are many such sight-seeing trips, and that's
11 different than teaching kayaking skills. There's a
12 fundamental difference there. And there should be
13 sight-seeing on the CAWS.

14 MR. ANDES: Aren't there several high
15 school and college rowing teams who train in the
16 CAWS?

17 MS. BLOYD-PESHKIN: Absolutely.

18 MR. ANDES: Do the leaders of those
19 activities, are you aware of them having a different
20 opinion than you do as the risks involved?

21 MS. BLOYD-PESHKIN: You would have to
22 ask them. I cannot answer for them.

23 MS. ALEXANDER: I have a follow-up.
24 Is it your understanding that there would be a

1 different level of water exposure or likelihood of
2 immersion in rowing than in kayaking, as you
3 practice it in the general use waters.

4 MS. BLOYD-PESHKIN: Yeah. There's
5 absolutely a difference. I mean, they don't
6 intentionally get in the water, get wet, flip their
7 rowing vessels the way that we do in general use
8 waters. It's a very different use. We're trying to
9 stay dry essentially.

10 MS. TIPSORD: Would that also not be
11 true of CAWS -- in the CAWS, they don't tip it as
12 kayakers do in the CAWS?

13 MS. BLOYD-PESHKIN: That's exactly
14 right.

15 MS. ALEXANDER: I'm sorry. I think
16 there may be some confusion here. Are you
17 testifying that kayakers do rolls in the CAWS and
18 immerse.

19 MS. BLOYD-PESHKIN: No. They do not
20 immerse in the CAWS. Yes in the general use
21 waterways, but not in the CAWS. So I would say that
22 behavior of the rowers in the CAWS would be more
23 similar to the sight-seeing trips by kayakers in the
24 CAWS where the attempt is to stay dry, to not

1 immerse yourself.

2 MS. TIPSORD: You're unaware of any
3 kayakers immersing themselves in the CAWS?

4 MS. BLOYD-PESHKIN: I'm unaware of any
5 kayakers deliberately immersing themselves in the
6 CAWS, yes.

7 MR. ANDES: When you lead kayak groups
8 on waters other than the CAWS, what instructions do
9 you provide group members about staying dry,
10 touching the water, avoiding capsizing, washing
11 hands, and other precautions?

12 MS. BLOYD-PESHKIN: In general use
13 waters?

14 MR. ANDES: Yes.

15 MS. BLOYD-PESHKIN: I don't warn them
16 to not get wet. I encourage them to get wet,
17 repeatedly flip over, hang upsidedown, get out of
18 their boats, get back in their boats. We frequently
19 sit in an inch of water all day when we're paddling
20 in general use waterways.

21 MR. ANDES: And do you monitor
22 information in general use waters when bacteria
23 levels might be high?

24 MS. BLOYD-PESHKIN: If I have that

1 information because of the list serve, or there's
2 been a CSO event that particularly applies to Lake
3 Michigan, then I'm going to change my behavior out
4 there, as I said earlier.

5 MR. ANDES: So you would still go out
6 there, but you would take precautions, similar to
7 the ones you take in the CAWS?

8 MS. BLOYD-PESHKIN: Yes, as I said
9 earlier.

10 MR. ANDES: Are you aware that there
11 are data in the CHEERS report showing virus levels
12 are higher in some general use waters than in the
13 CAWS?

14 MS. BLOYD-PESHKIN: I have not read
15 the entire CHEERS report. I've been a participant
16 in the CHEERS study, and my study centers not on the
17 results of it, which came afterwards, but some
18 problems, I think, in comparing behaviors that are
19 not comparable that were implicit in the data in the
20 CHEERS study.

21 MR. ANDES: So assuming for the moment
22 that those data are as I stated them, which is that
23 virus levels in some general use waters are higher
24 than in the CAWS, would you then follow the same

1 precautions for kayaking in those waters that you
2 follow in the CAWS.

3 MS. BLOYD-PESHKIN: Viruses are not
4 the only pathogens we're talking about here.

5 MR. ANDES: But they are pathogens,
6 right?

7 MS. BLOYD-PESHKIN: They are a
8 pathogen. But the problem is the exposure levels
9 that they were looking at those viruses and -- that
10 we're looking at in comparable. So I can't answer
11 your question specifically about the CHEERS study
12 not having that data.

13 MR. ANDES: I'm sorry. We're looking
14 at water quality levels and viruses. If the virus
15 levels in another water body are higher than the
16 CAWS, wouldn't you then urge the same precautions
17 you follow in the CAWS?

18 MS. BLOYD-PESHKIN: I would -- if I
19 had that information -- and I don't. I don't have
20 information about specific pathogens in specific
21 bodies of water. I am always adjusting my exposure
22 according to what I know. I don't have that
23 information.

24 MR. ANDES: Your testimony indicated

1 that kayaking on the CAWS involves different
2 activities and different degrees of water exposure
3 between kayaking on other waters in the area. Are
4 you aware in the CHEERS study the final risk numbers
5 controlled for those factors?

6 MS. BLOYD-PESHKIN: I had questions
7 about their ability to control for those factors
8 based on the questions I was asked as a participant
9 in the CHEERS study, and knowing that my responses
10 and the responses of those other paddlers who were
11 asked couldn't be neatly compared one for one based
12 on -- and I don't know your term "control" to
13 be -- I'm sure there's an epidemiological
14 word -- usage of that word.

15 But what I do know is that it asks
16 things like, "Did you swallow one or more mouthfuls
17 of water." And I can tell you that out on Lake
18 Michigan, I could never tell you how much water I
19 swallowed. It would probably be one or more. I
20 don't know. I don't know how much more because I'm
21 not concerned. And I can tell you if I swallow a
22 mouthful of water on the CAWS, I'm going to remember
23 that for years.

24 So when I saw the way these

1 questions were asked, I realized that those
2 one-for-one comparisons that were supposedly
3 controlled for could not possibly be controlling for
4 what they thought they were controlling for.

5 MR. ANDES: Are you aware that those
6 specific questions on water ingestion were validated
7 by comparison to actual levels in urine in tests of
8 CHEERS participants?

9 MS. BLOYD-PESHKIN: As I told you, I'm
10 not an epidemiologist -- I can't even pronounce the
11 word -- and I don't know how they controlled for
12 variables and verified them. I cannot answer that
13 question.

14 MR. ANDES: Your testimony states that
15 the questionnaire didn't allow respondents to
16 distinguish between the repeated prolonged
17 immersions and single quick immersions. Are you
18 aware of the testimony of Dr. Gorelick concerning a
19 possible recall bias, especially when answering
20 detailed question?

21 MS. BLOYD-PESHKIN: I'm not aware of
22 other people's testimony, no. I'm only aware of my
23 own.

24 MR. ANDES: Are you aware that only a

1 small number of respondents indicated any type of
2 immersion at all?

3 MS. BLOYD-PESHKIN: In where?

4 MR. ANDES: In any water.

5 MS. BLOYD-PESHKIN: No.

6 MR. ANDES: As to the question of
7 whether people have been paddling then washed their
8 hands before eating, are you aware that the
9 questionnaire did ask whether the respondent had,
10 after recreating, washed their hands before eating?

11 MS. BLOYD-PESHKIN: I don't recall. I
12 don't recall being asked that question. I remember
13 some of them well, but not that one.

14 MR. ANDES: If, as your testimony
15 states, recreators risk illness every year due to
16 the recreation on the CAWS, do you recommend those
17 recreators pursue their activities instead on other
18 water bodies?

19 MS. BLOYD-PESHKIN: No, for the reason
20 I told you earlier. I really see the CAWS as being
21 an important recreational asset here in Chicago.
22 And just like I know people die in highway
23 fatalities every year and I don't suggest that
24 nobody drive their car on the highway, I suggest

1 that the highways get safer. I would suggest that
2 the CAWS get safer for recreators.

3 MR. ANDES: Do you inform people when
4 you're training them that they risk illness by
5 recreating on the CAWS?

6 MS. BLOYD-PESHKIN: Yes.

7 MR. ANDES: And that they can avoid
8 that illness if they take certain precautions?

9 MS. BLOYD-PESHKIN: Yes, absolutely.

10 MR. ANDES: Thank you. That's all.

11 MS. TIPSORD: Are there any additional
12 questions? Thank you very much, Ms. Peshkin. And
13 with that, I think we've concluded our business for
14 today.

15 We do have an outstanding motion
16 for the People, which we're expecting a response to
17 in this sub docket. After the Board has ruled on
18 that motion, I would anticipate a prehearing
19 conference -- a conference being scheduled to
20 discuss deadlines for comment. So keep watching
21 your e-mails on the website. Thank you very much.
22 We're adjourned.

23

24

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2) SS
3 COUNTY OF COOK)
4
5

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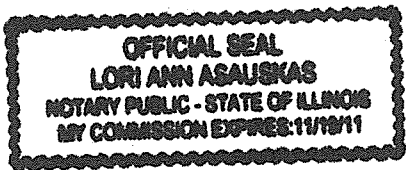
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